

DEWSBURY MILLS

A history  
of Messrs. Wormalds and Walker Ltd.,  
Blanket Manufacturers,  
of DEWSBURY

With an economic survey of the Yorkshire Woollen  
Cloth Industry in the Nineteenth Century

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A  
Thesis submitted  
for Examination for the Degree  
of Doctor of Philosophy in the  
Department of Economics and Commerce  
in the University of Leeds

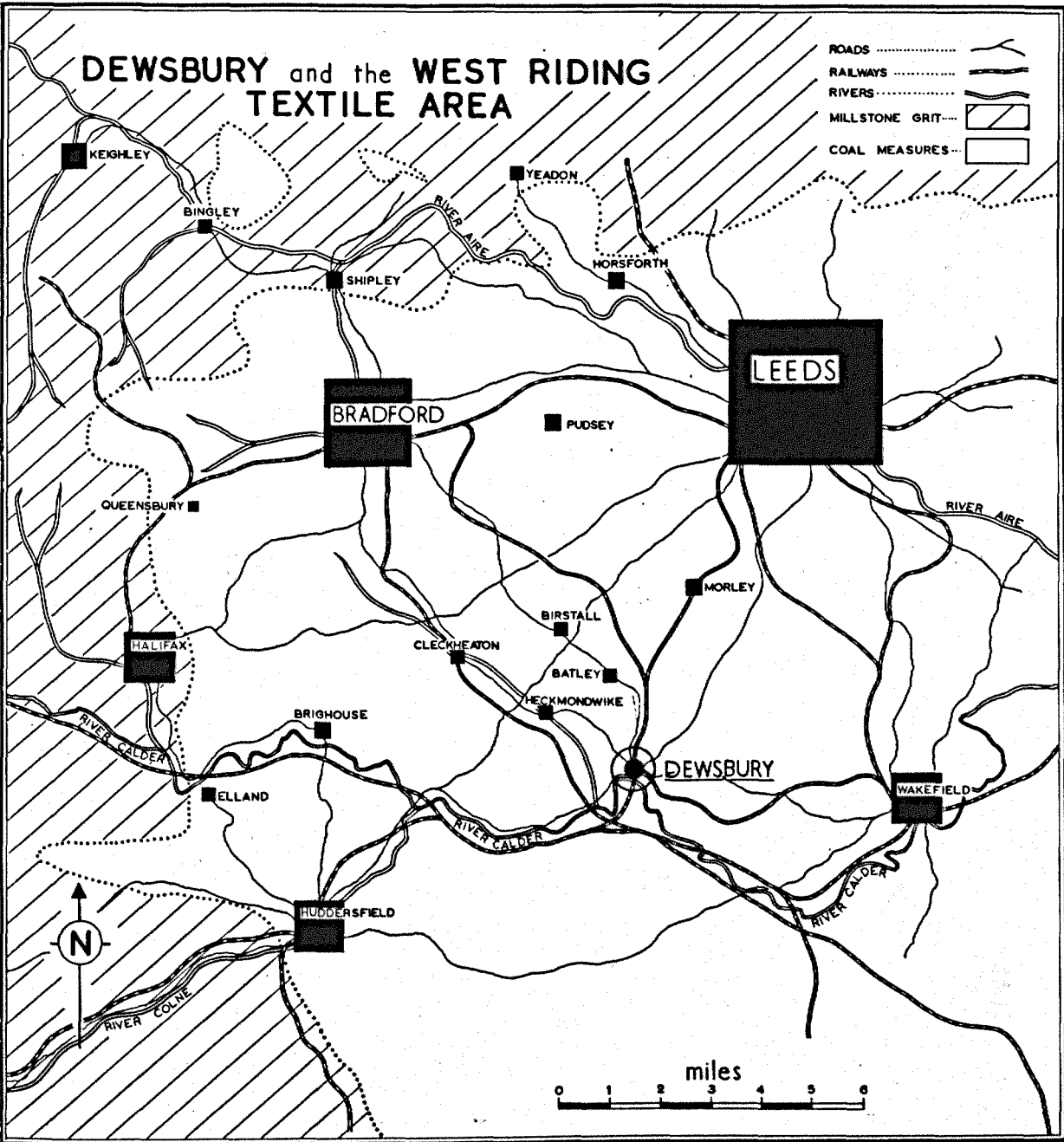
by

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1959

# DEWSBURY and the WEST RIDING TEXTILE AREA

- ROADS ..... (dotted line)
- RAILWAYS ..... (line with cross-ticks)
- RIVERS ..... (wavy line)
- MILLSTONE GRIT... (diagonal hatched box)
- COAL MEASURES... (white box)



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## PREFACE

The entrepreneurs engaged in the wool textile industry of the West Riding of Yorkshire during the nineteenth century must have written a great deal in the course of their business activities and, as the result of the generosity of Mr. W.H. Dean, it was possible in 1948 to begin a large-scale enquiry to ascertain the extent to which such written records had survived. It was found that very little of these writings remained in the archives of the older-established firms in this region. One of the very few large collections of documents which were found to be still extant was that in the possession of Messrs. Wormalds and Walker Ltd., blanket manufacturers, of Dewsbury. These documents form the basis of the present work, which is an attempt to interpret the growth and development of this particular firm in the nineteenth century in relation to the woollen branch of the West Riding textile industry of which it formed a part. At the same time, the firm's specialisation on blanket manufacture has afforded an opportunity to study in some detail the Yorkshire blanket trade, of which hitherto very little has been known, and this forms the subject matter of chapter IX. In this chapter, extensive use has been made of quotations from the firm's



correspondence in order to allow the firm's letters to tell their own story, and to impart to the reader something of the flavour of business relationships in this industry during the middle decades of the nineteenth century.

In tracing the history of this particular business, it has been necessary to show how national and international events, economic and political, impinged upon the firm's activities and upon the decisions taken by those entrepreneurs who guided the enterprise. In their turn, such decisions not only directed the firm's policy, but they had an impact upon economic activity in the West Riding generally and thus indirectly contributed to the formation of national economic 'policy' during the period. A recent writer on entrepreneurial history has pointed out that:

The entrepreneur is the economic man in his outstanding role: as guide of economic change. It is necessary but not sufficient to say that individual entrepreneurs made great contributions to the building of individual firms, and the formation of economic institutions such as stock exchanges, commodity markets and the like. All such accomplishments must be viewed as part of the larger process of building local, regional, national, and international communities. (1)

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(1) Robert K. Lamb, 'The Entrepreneur and the Community', in William Miller, Men in Business, (Harvard, 1952), p. 116.

The present study is, therefore, not only a work of reference for the firm's use, but it is also intended to be a contribution to the better understanding of the nature and operations of business enterprise in an important industry in Britain in the nineteenth century.

The writing of business history, like that of writing any other kind of history, is conditioned by its sources, and the records of Wormalds and Walker Ltd., were found to be very incomplete. <sup>(1)</sup> Outside of the period 1823-64, only fragmentary evidence regarding the firm's activities has survived, and we thus have very little information on the experiences of the enterprise during the important post-war period after 1815, and the years of the 'Great Depression', 1873-96. Within the time-scale 1823-64, however, the records are voluminous. They mainly consist of correspondence books, many of them rapidly disintegrating, containing about 175,000 hand-written tissue blotting copies of outgoing letters, not all of which are easily decipherable. The reading and transcribing of these documents was a lengthy, but necessary, primary task before the raw material for this study could be organised and satisfactorily utilised.

Some legal and financial documents and a few inventories are also available, but the books of prime entry kept by the firm and relating to sales, purchases, and wage payments, have all been destroyed. The information bearing upon labour

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(1) The records are listed in the bibliography.

supply and employer-employee relationships is almost non-existent in the firm's archives, and no attempt has been made, therefore, to discuss this aspect of the firm's affairs in any detail, nor has any comprehensive account been included here on labour supply and organisation in the industry in general. Such an account is of the first importance and is, at the present time, the subject of a major study by another scholar. (1)

In view of these limitations, it has been found appropriate to terminate this work in 1893 when the firm ceased to be a partnership and became a limited liability company. The one personality, indeed the only personality, who emerges clearly from the evidence of the correspondence books is Thomas Cook, and a brief appraisal of his functions within the firm, and within the wider community of Dewsbury and the 'heavy woollen' district of the West Riding, has been made in chapter XII.

One of the fundamental problems encountered in writing this particular business history, resulted from the absence of an adequate and systematic survey of the history of the West Riding wool textile industry in the nineteenth century. Various writers - in particular, Clapham, Heaton and Crump (2) - have worked on particular aspects or concentrated

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(1) Miss.M.J. Taylor, a Doctoral thesis in preparation at the University of Leeds.

(2) The writings of these authors on this industry are listed in the bibliography.

on specific periods of the industry's development within this stretch of time, but as Clapham observed half a century ago:

... no one has ever pieced together in a satisfactory fashion the history of the last fifty years of the woollen and worsted industries; and even for the period of the industrial revolution, there is room still for abundance of research ... (1)

The first three chapters of the present work constitute an attempt to fill this gap as far as the woollen branch of the Yorkshire industry is concerned. (2) Although these chapters are based in part on secondary authorities, nevertheless the bringing together of much scattered information into what it is hoped is a coherent account of the history of the industry, not only provides a very necessary background to which the firm's development is then related, but in itself represents an original contribution to our knowledge of the West Riding woollen industry as a whole.

Whilst the present work was in preparation, R.M. Hartwell's Doctoral thesis, 'The Yorkshire Woollen and Worsted Industries, 1800-1850', (3) was presented. Dr. Hartwell's study, however, is at once more concentrated in its time-scale and

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- (1) J.H. Clapham, 'Industrial Organisation in the Woollen and Worsted Industries of Yorkshire', Economic Journal, vol. xvi (1906), p. 522.
- (2) Dr. E.M. Sigsworth, in his Black Dyke Mills, (Liverpool, 1958), has written a history of the worsted industry of the West Riding of Yorkshire in the nineteenth century.
- (3) An unpublished D. Phil. thesis, Oxford, 1955.

wider in its treatment of the West Riding industry - embracing social as well as economic history - than that here attempted in chapter I.

In conclusion, I should like to acknowledge sincerely the valuable and encouraging assistance which I have received from a large number of people in the writing of this dissertation. In particular, it is pleasing to record my best thanks to Messrs. Wormalds and Walker Ltd., for kindly allowing their records to be placed in the Brotherton Library of the University of Leeds, and for giving me unrestricted access to their contents and absolute freedom in their interpretation; the late Mr. John Wormald, the late Mr. P.J. Walker, and the late Mr. W.H. Bower, for assistance on points of fact regarding their firm's history and for enthusiastic encouragement; the members of the present Board of Directors of the firm, and especially Mr. R. McC. Walker, for their kindly interest in my researches; Mr. J.K. Senior of Dewsbury Mills and Mr. F. Smith, the Borough Librarian of Dewsbury for their assistance; Professor A.J. Brown for first directing me to this particular field of study, and for his kindness and sympathetic interest at all times; Dr. E.M. Sigsworth for his encouragement and supervision of this thesis; and to Mrs. Mary Insull for her proficient and patient reproduction of the manuscript.

Sheffield,  
August, 1959.

FREDERICK J. GLOVER

CHAPTER 1

THE WOOLLEN CLOTH INDUSTRY OF THE  
WEST RIDING OF YORKSHIRE,  
1770-1840.

CHAPTER 1.The Woollen Cloth industry of the West Riding of  
Yorkshire, 1770-1840

From the twelfth century onward the woollen cloth industry was firmly established in the West Riding of Yorkshire, and the story of its progress down to the end of the eighteenth century has been ably told by Professor Heaton. (1) Using available contemporary evidence relating to the production of certain types of broad and narrow woollen cloths (2) for home and foreign markets, and the estimate of a parliamentary committee of 1774 in respect of the value of this production, Heaton concludes that, by the beginning of the last quarter of the eighteenth century, the West Riding industry had reached, 'a position of pre-eminence even before the great inventions came into operation'; (3) an achievement which he describes mainly to the possession of advantages over other cloth producing regions, of water power, wool supply, and of 'a population which could not produce by tillage of the bleak slopes all that was necessary for sustenance, and which, by the inherited skill of generations, was especially suited for industrial work.' (4)

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- (1) H. Heaton, The Yorkshire Woollen and Worsted Industries, (Oxford, 1920). Throughout this study the term 'industry' refers, in general, to the woollen as distinct from the worsted cloth trade of the West Riding.
- (2) The series indicating the number of pieces of broad and narrow woollen cloths milled in Yorkshire is available for the period 1726-1820 and is reproduced in J. Bischoff, A Comprehensive History of the Woollen and Worsted Manufactures, (1842), vol. II, App. iv.
- (3) Op. cit., p. 281 (4) ibid.

During the period 1770-1840, there were four major factors affecting the course of development of the Yorkshire industry which invite consideration: (i) changes in the wool supply; (ii) improvements in the technique of production; (iii) the rise of the merchant-manufacturer and his impact upon the organisation of the industry; (iv) the importance of the American market as an outlet for Yorkshire woollens and its influence upon the type of fabrics produced.

(i) CHANGES IN THE WOOL SUPPLY.

Although there are no reliable statistics to prove the point conclusively, it seems reasonable to say that the supply of English wool was growing steadily during the 1770s as a result of the increasing attention devoted to sheep breeding and flock management in Britain. <sup>(1)</sup> The importation of Continental wool and Irish wool and yarn may also have tended to increase in the mid-1770s and, after 1772, the total supply of wool available for cloth production in this country may, in some years, have been outpacing the demand, especially during the slump arising from the American war, and wool prices would then tend to be forced down. <sup>(2)</sup> Bischoff gives the following price information in

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(1) cf. G.E. Fussell and C. Goodman, 'Eighteenth Century Estimates of British Sheep and Wool Production', Agricultural History, vol. iv (1930), p. 131.

(2) See the excellent discussion of the data available on eighteenth century wool supply by Phyllis Deane, 'The Output of the British Woolen Industry in the Eighteenth Century', Journal of Economic History, vol. xvii (1957), pp. 207-23.



respect of 'English wool' during the decade; his description of the product is vague and loosely defined, but his data serve to illustrate the general trend:

(1)

<u>Price per lb.</u>	
1770	7 d.
1771	8 d.
1772	13 d.
1773	8 d.
1774	9 d.
1775	8½ d.
1776	8½ d.
1777	8 d.
1778	6½ d.
1779	6 d.

This decline in the price of wool seems to have led, in the late 'seventies, to the accumulation of stocks in the hands of the growers and, in 1780, to the beginning of a spirited campaign, led by the Lincolnshire flock-masters, for parliamentary permission to export English wool and for the

(1) Bischoff, op. cit., vol. ii, App. vi. According to Schumpeter, general prices of consumers' goods tended to fall after 1773, with some recovery in 1777, but the price of wool was probably falling steadily from 1774-79. The Schumpeter index moved as follows:-

1700-1: 100	1774-5: 113
1770-1: 107	1775-6: 114
1771-2: 117	1776-7: 108
1772-3: 119	1777-8: 117
1773-4: 116	1778-9: 111

The 'index' is an unweighted one based on 31 series, mainly food and drink. See E.B. Schumpeter, 'English prices and public finance, 1660-1832', Review of Economic Statistics, vol. xix (1938), p. 35.

(1)

curtailment of imports of yarn from Ireland. The proscription of English wool exports in order to protect English cloth manufacture was enforced under a number of statutes dating back to 1660; enforcement being subject to a considerable degree of evasion, and the 'owling' of wool abroad, especially consignments of English long-staple wool to feed the looms of the French worsted industry was a highly organised 'trade' in the eighteenth century. (2).

The manufacturers and merchants of the clothing districts, the West Riding and East Anglian spokesmen being particularly vociferous, resisted the growers' demands and there were innumerable petitions and counter-petitions presented to Parliament on this issue. This fundamental and often acrimonious 'debate' was not finally resolved until 1844 when complete free

- (1) William Hustler, woolstapler of Bradford, told a Committee of both Houses of Parliament, in 1800, that 'in 1783 and 1784 the quantity on hand of long and coarse wool was estimated as being at least three years' growth.' Quoted by Bischoff, *op. cit.*, vol. i, p.324. cf. Evidence of John Francis and William Brown in the Report from the S.C. of the House of Lords on the State of the British Wool Trade, 1828 (515)viii, pp. 97 and 262-4, for observations on the accumulation of wool stocks by growers in the late 1820s, when wool prices were depressed.
- (2) '... the French can make no good cloth of their own wool, without at least one-third of English wool mixed with it.' Chambers' Cyclopaedia, (1783), vol. iv, article on Wool. The work has no pagination.

trade in wool was established, although, as we shall note below, a substantial movement towards such a solution was achieved by the Husskison reforms in the 1820s. (1)

The wool fibre displays an extremely high degree of variation in its nature and constitution according to breed and type of sheep: and even for the same breed, changes in climate, temperature and vegetation are reflected in the kind of wool produced, the sheep being very susceptible to their environment. The pastoral conditions of the different regions of Britain suited particular types of sheep, of which there were perhaps some forty different, recognised breeds in the late eighteenth century, (2) which could be roughly classified into three broad

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(1) Following the Union with Ireland in 1800, the Irish were free to import wool from England and the English manufacturers were strongly opposed to the change on the grounds that a high percentage of such imports would be re-exported to the Continental cloth makers. For a full discussion of the 'export question' see Bischoff, op. cit., vol. 1, passim. The general demands for the free exportation of English wool has a long history and is well documented by John Smith in his Memoirs of Wool (1747).

(2) cf. R. Trow Smith, A History of British Livestock Husbandry, 1700-1900, (1959), p.122. See also pp. 121-53 of this work for a general discussion of eighteenth century sheep-breeding in Britain.

categories: Mountain and Hill sheep producing coarse quality wool; Lustre and Long Woolled sheep yielding long-staple wool; and the Short and Down breeds producing fine quality, short-staple wool. The adequacy of the total supply of wool and its diversity of quality amounted to a condition of near self-sufficiency for British cloth manufacture in the eighteenth century, but, during the later decades, as a result of the experiments in sheep-breeding initiated by Robert Bakewell and John Ellmann, and their followers, the character of English fleeces was changing  
 (1)  
 substantially.

The rising demand for mutton of an increasing population stimulated the production of larger animals bearing heavier and coarser fleeces. Bakewell's 'New Leicester' breed was the forerunner of an intensive concentration upon the improvement of the Lustre and Long Breed sheep at the expense of the rearing of the Short and Down breeds, the quality of the wool being

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(1) Some writers speak of a serious depletion in the native supply of wool in the 1790s, amounting almost to a 'wool famine' in 1794-6, due to a marked shift away from wool growing by farmers attracted into corn production. The onset of the Napoleonic Wars was the major factor in changing the expectations of agriculturalists. cf. D. Macpherson, Annals of Commerce, (1805), vol. iv, pp.526-7, and W. Cunningham, Growth of English Industry and Commerce 6th Edn., (Cambridge 1929), Pt.ii, pp.644-5.

(1)

sacrificed to the improvement of the supply of mutton. The new machinery introduced into the English cloth industry during the twenty years preceding 1800 made use of this augmented supply of the longer-fibred wools, but for the finer kinds of woollen cloth the English manufacturers had to resort to increasing imports of short-staple wool from Spain and later from Saxony.

Complaints about the deterioration in the quality of English fine wool became insistent after 1790. Henry Wansey wrote, in 1791, that 'the improved system of husbandry in England has depreciated our finer wools' <sup>(2)</sup> and this view was reiterated to a parliamentary committee in 1800 by Thomas Lumb, woolstapler of Wakefield. <sup>(3)</sup> In 1805, Luccock stated that 'the imperfection of the British fleece has of late years been very generally acknowledged and the mode of improving it most sedulously sought after.' <sup>(4)</sup> In 1828, Jowitt told the House of

- (1) The price of mutton rose steadily after 1780 and doubled during the French Wars. cf. T. Tooke, Thoughts ... on the High and Low Prices ..., (1823), App. to Pb.i, p. 13; J.E.T. Rogers, A History of Agriculture and Prices in England (Oxford, 1902), pp. 299-301.
- (2) Quoted by Bischoff, op. cit., vol. i, p.256.
- (3) *ibid.* vol. i, p. 325.
- (4) J. Luccock, The Nature and Properties of Wool, (Leeds, 1805), p. 8. Efforts to improve the quality of English fine wool were led by the Earl of Sheffield, Lord Somerville and Sir John Sinclair who experimented with the introduction of Spanish merino sheep to this country, but without marked success.

Lords Committee that the quality of South Down wool had, in his opinion, deteriorated 'from twenty to twenty-five per cent. within the last fifteen or twenty years.' In this view he was supported by Henry Hughes who said that 'the English wools have deteriorated in quality within the last twelve or fifteen years', although he exempted the Wiltshire wool from his generalisation. (1) William Nottage observed that 'there is a great deal less fine wool grown now than there was twenty years back'; James Hubbard said that 'the deterioration of (English) wool ... is certainly well founded'; Joseph Swaine held that 'British wool is not now what British wool was ... for the manufacture of cloth'; and John Varley intimated that 'in short wools, the quality is ... coarser: in long wools they have improved, that is, they give us a shorter staple ... finer in hair.' (2) The determination of the truth of this frequently repeated assertion by woolstaplers and cloth manufacturers was one of the principal terms of reference of the Committee and much contrary evidence was heard from landowners and wool growers; (3) but the fact of a steady decline in the quality of English fine wool, over time, seems to have been clearly established.

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- (1) Benjamin Gott obtained some of his wool supplies from Nottage. cf. W.B. Crump, Leeds Woollen Industry, (Leeds, 1931), p. 278.
- (2) S.C. of 1828 Report, pp. 48, 120, 132, 139, 201, 229.
- (3) Esp. by Lord Napier, Christopher Tower, Francis Hale and George Webb Hall.

### The Duties on Wool.

The manufacturers responded to the change in the character of the native wool supply, particularly after 1800, by increasing their consumption of imported wool; a development which activated their long-standing dispute with the wool growers and attracted the Government to place an import duty on such wool as a contribution to the war-time revenue. <sup>(1)</sup> This was levied at 5s. 3d. per cwt. in 1803, and there were increases in the rate in 1804-5-6-9, and in 1813, when the impost amounted to 7s. 11d. per cwt. <sup>(2)</sup> During the agricultural troubles of the immediate post-war period, the wool growers pressed for a substantial tax on wool from abroad, but the Select Committee of 1816 concluded that, in respect of English wool, 'no part of the present agricultural distress arises from the inadequacy of these prices ...' <sup>(3)</sup> But the lobbying of the growers continued

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(1) See Figure 2. (and Table 2 in this chapter).

(2) Report from the S.C. on Manufactures, Commerce and Shipping, 1833 (690) vi, p. 80.

(3) Report from the S.C. on ... the Laws relative to ... the Wool Trade ... , 1816 (272) vi. See the evidence of W. Westerman, p. 9.

to keep the manufacturers 'in a constant state of alarm and anxiety' <sup>(1)</sup> and, during the depression of 1819, they secured a large measure of protection when a tax of 6d. per lb. on foreign wool was imposed. <sup>(2)</sup> This increased the Government's revenue but added considerably to the manufacturers' costs of production. This 'impolitic tax' aggravated the depressed state of the industry in the period 1819-21 and led to the furious controversy which culminated in the legislation of 1824. In that year the tax was reduced, first to 3d., and then to a nominal 1d. per lb. <sup>(3)</sup> In the collision of opinion the manufacturers relied heavily on the free-trade argument and they were thus logically bound to admit the extension of their general principle to English wool exports, the ban on which was lifted by Parliament at the same time and an export levy, also of 1d. per lb., imposed. <sup>(4)</sup> In the following year the import duty was removed entirely from Colonial wools and in the case of foreign wools, valued below 1s. per lb., the duty was reduced from 1d. to  $\frac{1}{2}$ d. The duties on imported olive oil, rape seed, dyestuffs and woollen manufactures

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(1) Bischoff, op. cit., vol. i, p. 425.

(2) Bischoff, op. cit. pp. 450-2. The tax on Colonial wool was fixed at 1d. per lb.. See particularly Bischoff's arguments relating to the malt-wool tax 'bargain'. cf. The Penny Cyclopaedia, (1843), vol. xxvii, pp. 547-8. The manufacturers imported largely in 1818 in anticipation of the increased duty.

(3) S.C. of 1833, p. 80

(4) ibid. See also Bischoff, op. cit., vol. ii, p. 30 et seq., and W. Smart, Economic Annals of the Nineteenth Century, (1917), vol. i, pp. 744-7; vol. ii, pp. 162-3, 196-7, 204-5.



(1)  
 were also reduced. These reforms of 1824-5 mark an important change in the movement towards free-trade in Britain, but, coupled with the retention of the Corn Laws, their main effect was to stimulate the production of Continental wool and to persuade the English growers to renew their agitation for

(2)  
 protection. Their plea was considered by the Select Committee of 1828. A mass of information dealing with the usage of different types of wool and the movement of wool prices was presented by the 53 witnesses voicing the views of the four parties involved in this new demand to raise the tariff. The West Riding was well represented and it was clear that:

... the manufacturers were ... divided into the 'long wool interest' and the 'short wool interest', while the wool-growers were in some cases the 'Merino interest' and in others the 'South Down interest'.

(3)

C. Tower, a grower of Merino wool, stated that the producer 'should have a price sufficiently remunerative to enable him to carry on the produce that the country requires' and that '1s. 6d. per lb. would not be too high' for British short wool. He added that 'the duty-free system, or one nearly approaching to it, lets in quantities ... that ... drives the short wool grower out of the market.' He was supported by Charles Western

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(1) Parliamentary Papers, 1846 (109) xliv, p. 9.

(2) cf. Smart, *op. cit.*, vol. 1, p. 423 and p. 457.

(3) The Penny Cyclopaedia, (1843), vol. xxvii, p. 548.

who said that his Merino wool had fallen in price 'from 3s. a pound in the grease to 1s. 1d. a pound' during the years 1818-28, and that a 'duty of 6d. a pound must shut out a good deal of the inferior foreign wools.' When asked whether the freedom to export his fine wool did not offer him advantages he replied that 'it was our hope ... that we should have a very considerable export of yarn, on account of the superiority of spinning ... in which we so much excel, particularly in Yorkshire ... but I rather think the French have laid so heavy a duty that we are shut out there.'

(1) George Hall, with a flock of 400 of the Merino breed in Gloucester, commented bluntly, 'at the present price I have been paying for the support of my flock out of capital instead of out of fair production. Having invested a considerable sum of money in Merino sheep, I should certainly ... hope of some protection from the Legislature.'

(2)

Jowitt, the Leeds woolstapler, was very unsympathetic to the growers' point of view, asserting that, 'looking to the quality ... and comparing it with the price of almost every other commodity and raw material, I do not consider that it is much depreciated in price. I consider that Down wool, at the

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(1) The French tariff on imported wool was fixed at 30 per cent. ad valorem in May 1826. cf. S.C. of 1828, p. 87.

(2) *ibid.* pp. 69, 75-6, 111-12. Also the evidence of Henry King, William Pinkney, John Ellman, William Brown and Robert Hughes, pp. 2-3, 6, 13-14, 90-1 and p. 97.

present price, is not ...greatly depressed ... considering the deterioration ... '. By comparison the German wool commended itself to the English manufacturer not only on grounds of cheapness, he thought, but because it possessed 'a softness and a spinning quality; it will spin better than the English wool.' Henry Hughes, a Blackwell Hall factor and merchant, also held this opinion:

... before the duty was taken off Wool we used to have a certain description of cloth for livery purposes, called second cloth, made of English Wool; and within the last few years ...the quantity of foreign Wools which have been imported has been such, and of such a character, that the manufacturers of this country have appropriated that Wool more than the English Wool, because it works with less trouble; and latterly even our liveries have been made, I believe, principally of Foreign Wools ...

Comparing English with foreign wool he asserted that 'South Down ... at present is worth 10d. As to German ... imported ... of the like quality, 4d. a pound would bring them to an equality'. But he was not in favour of an increase in the import duty. He contended that a duty of 4d. per pound would raise the cost of producing English cloth by 4 per cent. and this 'would give the manufacturer on the Continent an opportunity of sending his cloth to the South American markets with an advantage over the English manufacturer, unless the ... manufacturer has a bounty equal to that to counteract it.' (1)

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(1) *ibid.*, pp. 44-7, 127-8, 132. Also the evidence of James Fison on p. 197. Nevins, a manufacturer and merchant of Leeds, had argued in 1816 that, 'if there is a check to be put to the importation of foreign wool, I look upon it that we in England would pretty nearly lose the whole of our foreign trade.' S.C. of 1816. 12.

James Hubbard, a Leeds woolstapler, said that he had handled very much reduced quantities of English wool since 1820 owing to English cloth being 'much superseded in the United States by the domestic manufacture, ... and the goods which now go are chiefly of a better quality ...'. In the home market 'cotton has had a very great influence on the lower English cloths; and I can speak from my own observation ... that the improved fabric of cottons have superseded ... the lower sorts of milled woollen cloths.' As to prices, 'I should say that we cannot have English Wools at a high price, because of the foreign competition; and without the foreign wool, we cannot export various articles in which English wool is mixed.'<sup>(1)</sup>

For the manufacturers, Gervaise Walker of Horbury near Wakefield, making cloths 'from 4s. a yard up to 10s. or 11s. in the white', said that 'the foreign wool has been more approved of, and we have been obliged to use it ... in the first place, the fashion of the day ... causes it to be more in demand; and, in the second place, there is not the felty nature in the English wool that there is in the foreign.' This use of foreign wool 'begins at 4s. a yard, and ... when we get up to 5s. or 6s. we give up using English wool altogether.' He was convinced that English wool was not now as well suited as

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(1) S.C. of 1828, pp. 202-3.

formerly to the changed processes of manufacture, 'the wool is so much tendered in the manufactory of it, that it will not mill so well as it did twenty years ago.'

John Francis of Wiltshire believed that 'all the wool of the country can be sold, if allowed to go into its legitimate channel ... the manufacture of baizes, flannels and blankets,' and he argued that the grower 'has no right to complain of the unsaleable nature of his wool, if he will not allow it to be sold at the time's price.' John Brooke, of Honley near Huddersfield, a manufacturer of 'principally broad cloths, from 7s. up to 24s. a yard' had 'ceased to manufacture English wool entirely in 1823 or 1824 ... we kept to (it), I should think, longer than any house in our neighbourhood ... but we found our neighbours sending out better cloths than we were ... not only at the same price, but a better manufactured cloth.' He was now, he said, fully converted to the use of German wool and 'if the wool we got from Sussex last year is a sample of the general growth of the kingdom ... let the duty be what it may, we must  
(1)  
have foreign wool.'

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(1) *ibid.*, pp. 256-7, 262-4, 268-9. Also the evidence of John Varley on pp. 139, 142-3 and p. 148; and Jacob Tweedale on p. 223.

A Blackwell Hall factor and a partner in a Gloucester cloth-making enterprise, William Ireland, was manufacturing broad cloths, he said, 'principally for the East India Company .. from 3s. to 5s. a yard' made from 'English wool: some from German and Spanish.' Also for the Company, using 'foreign Wool entirely' he was working to contracts for 'Spanish stripes.. a cloth made for the China trade.' He considered 'the Hereford wools ... the best in the kingdom' followed by 'the Mendip wools' and the wool from 'the horned Wilts and Dorsets'. He recollected giving 2s. 6d. per lb. for Down wools 'but that is an article we cannot get at any price now ...' <sup>(1)</sup>

Benjamin Gott, 'that competent witness', described himself before the Committee as a 'manufacturer and a merchant' acquainted with the manufacture of 'every description of cloth .. blankets, coarse cloths of English wool, middle cloths and superfine, from the lowest to the highest.' He emphasised that he produced 'entirely cloth from foreign wool in our own works' and that he purchased 'of the country manufacturers cloth and blankets made of English Wool, English Wool mixed with foreign Wool, and of foreign wool only.' He began 'exclusively to manufacture from foreign wool', he thought 'from about 1819' and he indicated that there was 'very little demand in Great Britain now for British wool in clothing; it is used for blankets,

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(1) *ibid.*, pp. 315-17.

bear skins, and things of that kind.' (1) He was exporting cloth to 'Russia, to China through American houses, and to North America, South America, and to some parts of Germany...' He had found that 'in 1817 cloth of the same quality as at present cost 18s. 6d.; it now cost 11s. 1d. (per yard) the price of the manufacture was the same then as now, except fifteen per cent. less on weavers' wages.' He thought that the English woollen cloth industry would 'always bear a comparison with foreign manufacturers' but he was alarmed at the duties levied under the American tariff legislation of 1824 which 'operate as a very great encouragement to the American manufacturer, against the manufacturer of this country.' (2)

One of Gott's major competitors, Thomas Cook, a partner in a house manufacturing blankets and low cloth' at Dewsbury, with whose activities the present study is mainly concerned, stated that they were makers of cloth 'up to 5s. a yard ... but nine-tenths of our business is the blanket business.' Previous '1817 or 1818' they had used 'low English wool' but, in respect of their foreign markets, arising from 'the inability on the part of the Americans to give so high a price as they did for our goods' they could not now 'manufacture British-grown wool at the price we sell the goods made from foreign wool.'

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- (1) A letter amongst the Gott Papers refers to the 'purchase of wool from Bremen' as early as August 1796. cf. W.B. Crump, The Leeds Woollen Industry, 1780-1820, (Leeds 1931), p. 233.
- (2) S.C. of 1828, pp. 279-80, 283, 291. cf. A.H. Cole, The American Wool Manufacture, (Harvard 1926), vol. i, p. 164 et seq.

The consumption of foreign wool by his house was 'above 900 packs last year ... the consumption of the ... Dewsbury trade, would be about ... 9,000 packs' of 'Russia wool, Low German ... and some from Turkey, Italy, Iceland and the Levant.' Cook said that he paid for the imported wool from 2 $\frac{1}{2}$ d. to 7 $\frac{3}{4}$ d. per lb. and stressed that the tax on these low foreign wools was 'already very injurious ; ... from six to twenty per cent.', a duty that 'we can very ill afford to pay.'<sup>(1)</sup> His total output was (about half for the home and about half for the foreign trade' and for the former he used mainly English wool, '... the combers broken wool, abbs and seconds, that is, the two sorts immediately above the breech in fleece wool, noyls, and broadhead, Kent, and finehead in skin wool.' He used no foreign wool in the home manufacture except 'a little, perhaps, into the warp, not into the weft ...' He complained that English coarse wool was very dirty when it reached the manufacturer and its price:

'... so high in reference to the better sorts, that we are using in some goods for home trade a description of wool which was never used before into blankets, that is, Sussex and Norfolk wool. We ... are trying whether we cannot make the better sorts of British wool answer for our trade, which, for light and very fine goods, it may. (2)

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- (1) Cook indicated that his cheapest wool came from Smyrna, but only in small quantities, 'there may be 500 bags, perhaps, in Liverpool, in a year ...' He was using Iceland wool at 9d. per lb. in 1817.
- (2) S.C. of 1828, pp. 209-10, 214-15.



John Brooke, a near neighbour of Thomas Cook's at Dewsbury, in the blanket and carpet trade, stated that he had first used 'Russia wool' in 1813 and that 'the reason why we require more of foreign wool is, because so much English wool is taken off our hands by the increase of machinery in combing; what we used to work up for blankets in the low wool we are obliged to supply by foreign wool, the machines that are now in use comb so much closer.'<sup>(1)</sup>

From this review of the evidence it would seem that the manufacturers had a powerful case against protection for the English wool producer, which they argued with skill, and determination. Following the publication of the Report and the subsequent debate, the Government decided to adhere to the decisions of 1824-5 regarding the trade in wool, and the stage was thus set for the English cloth manufacturer to meet his requirements for raw material from the best and cheapest sources that he could find. This was a necessary, if not a sufficient, condition for the rapid growth of the West Riding industry in the 1830s which attracted wool from growers in many countries.

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(1) S.C. of 1828, pp. 252-3.

### Wool prices and imports.

For the manufacturer, movements in wool prices were of crucial importance, not only in providing indications of the state of trade, but, as wool was the major constituent in his prime costs, they served to indicate the likely changes in the prices of his finished fabrics and thus, when related to the demand for cloth, of future profitability. But the available data on wool prices in the first half of the nineteenth century are limited: in their coverage; by the absence of determinate information in respect of types and qualities; and by the variability of the fibre itself. <sup>(1)</sup> This makes it difficult to discuss the 'price' of wool, in this period, unequivocally. With this caution in mind, Figure 1 and Table 1 serve to illustrate the price history of two types of English wool - Kent Long and South Down - in the half-century following 1790. In the case of South Down, from the latter year until the high point of 1809, the general trend in price is upward with peaks in 1792, 1799 and 1805, and troughs in 1794, 1800 and 1808; the rising population and the Napoleonic Wars provided the stimulus <sup>(2)</sup> for this general movement. Sharp changes in price occur

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- (1) It is this lack of consistency of the product which renders the buying of wool so much a function of personal judgement and experience. The skilled wool buyer, when inspecting wool, visualised the quality of fabric which would be produced from particular sorts, and envisaged the kind of wool used when inspecting cloth.
- (2) There was considerable speculation in wool-buying in 1792, often by persons with little knowledge of wool or the woollen manufacture. cf. Macpherson, vol. iv, pp. 526-7.

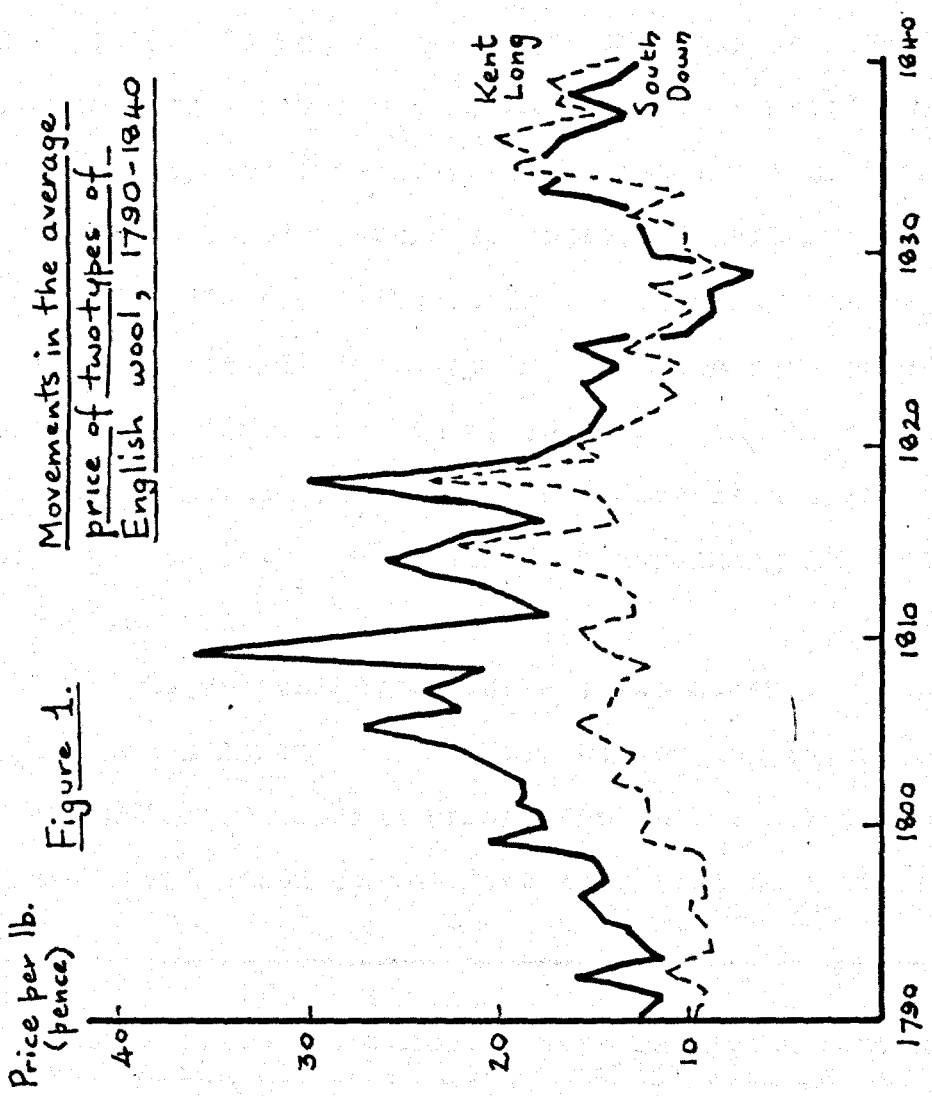
Table 1. WOOL PRICES, 1790-1840Average price in pence per lb.

	<u>South</u> <u>Down</u>	<u>Kent</u> <u>Long</u>		<u>South,</u> <u>Down</u>	<u>Kent</u> <u>Long</u>
1790	12 $\frac{1}{2}$	9 $\frac{1}{2}$	1816	18	14
1791	11 $\frac{1}{2}$	9	1817	24	15
1792	16	11 $\frac{1}{2}$	1818	30	24
1793	11 $\frac{1}{2}$	9 $\frac{1}{2}$	1819	19	15
1794	13	9	1820	17	16
1795	15	10	1821	15	13
1796	16	9 $\frac{1}{2}$	1822	15	11
1797	15	9 $\frac{1}{2}$	1823	15 $\frac{1}{2}$	12
1798	15	9 $\frac{1}{2}$	1824	14	13
1799	21	12 $\frac{1}{2}$	1825	16	16
1800	17	12 $\frac{1}{2}$	1826	10	11
1801	19	12 $\frac{1}{2}$	1827	9	10 $\frac{1}{2}$
1802	19	14	1828	9	12
1803	20	13 $\frac{1}{2}$	1829	7	9
1804	22	15	1830	12	10 $\frac{1}{2}$
1805	27	16	1831	12 $\frac{1}{2}$	10 $\frac{1}{2}$
1806	22	14 $\frac{1}{2}$	1832	13	12 $\frac{1}{2}$
1807	24	14	1833	18	10 $\frac{1}{2}$
1808	21	12 $\frac{1}{2}$	1834	16 $\frac{1}{2}$	19 $\frac{1}{2}$
1809	36	15	1835	18	18
1810	28	16	1836	17	20 $\frac{1}{2}$
1811	17	13	1837	14	15
1812	20	13 $\frac{1}{2}$	1838	17	17
1813	23	15	1839	14 $\frac{1}{2}$	17 $\frac{1}{2}$
1814	26	21	1840	13	14 $\frac{1}{2}$

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Source: Parliamentary Papers, 1828 (515) viii, p. 55.,  
1836 (465) xiii, Part II, pp. 543, 560.,  
1846 (109) xliv, p. 109.

Figure 1.  
Movements in the average price of two types of English wool, 1790-1840



Source: Parliamentary Papers, 1828 (515)  
 viii, p. 55., 1836 (465) xiii, Part II,  
 pp. 543, 560., 1846 (109) xliiv, p. 109.

during the years 1809-19 due to the speculative buying of wool in response to the dislocations of war and to tariff policies, with peaks in 1814-15 and 1818, and troughs in 1811, 1816-17 and in 1819. In the post-war period, down to 1829, the price declines except for the peak in 1825, as a result of improving domestic supplies from heavier fleeces and increasing quantities of wool from foreign sources, especially after 1824. The trend is upward again from 1829 to 1836 reflecting the rapid expansion of the wool textile industry in the 1830s and the buoyancy of foreign demand for English cloth. The fall in price after 1836 stems from the general industrial depression which continues until the mid-1840s, and also from expanding imports of  
 (1)  
 Australian wool.

The volatility of these price movements suggests that large changes in the demand for, or the supply of, wool were quickly adjusted to each other through the market mechanism, a process facilitated by the fact that wool is a storable material.

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(1) It is useful also to compare wool price movements with general price movements. There is a good correlation between the fluctuations in English wool prices and the business-cycle pattern of the British economy as a whole over this period. cf. Gayer, Rostow and Schwartz, The Growth and Fluctuation of the British Economy, 1790-1850 (Oxford, 1953), vol. 1, esp. pp. 7-10, 58-61, 110-13, 171-4, 242-4. See also the price and volume indices of net imports of raw wool calculated by A.H. Imlah and published in his article, 'The Terms of Trade of the United Kingdom, 1798-1913', Journal of Economic History, vol. x (1950), pp. 170-94.

In the short-period, say one year, the supply of wool was relatively inelastic and fluctuations in demand were the chief price-determining factors, but the presence or absence of stocks of wool in the hands of growers, staplers and manufacturers, and the expectations of buyers and sellers about the future course of prices, also exerted a not insignificant effect upon the market. <sup>(1)</sup> In the long-period, say the seventy years now under review, the supply of wool was relatively elastic and changes in supply conditions had a greater determining effect upon the trend price of the fibre. <sup>(2)</sup> High prices, therefore,

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- (1) A recent writer, discussing short-run changes in the price of wool in the period 1920-52, has put forward the hypothesis that the market price of the commodity is 'at any moment ... uniquely related to the level of stocks in existence at that moment.' To a much lesser extent, this emphasis on stocks and their impact on price formation is relevant also to the early nineteenth century situation, although, in the absence of any figures of the size of stocks of wool held in the U.K. during this period, it is not possible to do more than to stress the fact that stocks and price expectations were important subsidiary influences at work in the market in addition to the main demand-supply relationship. cf. B.P. Philpott, 'Wool Textile Activity and Wool Prices', Yorks. Bull., Vol. 5 (1953), pp. 71-2.
- (2) It is misleading to use the phrase 'the price of the fibre' owing to the great variability of wool and the many different types of quality produced, but some generality of expression must be resorted to in a brief review of wool supply and the expression is probably permissible provided the necessary qualifications regarding its use are borne in mind.

did not continue for long periods of time and can usually be explained by some special upsurge of demand or particular deficiency of supply when they do occur in particular years. (1)

This movement of prices, with some qualification, was experienced by both types of English wool with which we are here concerned, but the relationship between their respective prices was changing, over the period, as a consequence of alterations in the conditions governing their supply and demand. (2)

From 1790 until 1815 the price of South Down wool was significantly higher than that of Kent Long wool. This was mainly accounted for by the rising demand for short, fine, carding wool used by the woollen cloth industry, and the changes in English sheep-breeding which were producing heavier fleeces of coarser, longer-stapled fibre more suited to the combing process in

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- (1) As we have noted above, mutton was a joint product with wool and the supply of the latter was to some extent determined by the demand for the former.
- (2) The price curve of Kent Long wool moved horizontally rather than upward in the 1790s, reflecting the depression of the worsted relative to the woollen industry; it then followed a gentle upward path reaching crests in 1805 and 1810 and thereafter moved in sympathy with the price curve of South Down until 1820. cf. E.M. Sigsworth, Black Dyke Mills, (Liverpool, 1958), pp. 11-13.

(1)  
 worsted manufacture. Following 1815 the increased imports of foreign, short-staple wool competed with the South Down type and depressed its price, whilst the growing importance of the worsted industry stimulated the demand for Kent Long wool and raised its price above that of the South Down in 1826. From this time onward the price of the two wools ran almost parallel with a tendency for the long, combing wool to enhance its value over that of the short, fine wool; a price pattern which continued until the growing importation of Australian wools in the 1840s, and the increasing use of shorter-stapled fibres for combing purposes, subjected the native, long wool to serious competition.

Figure 2, based on the data set out in Table 2, portrays the course of British Wool imports from abroad; in total and separately in respect of the three main sources of supply - Spanish, German and Australian - for the years 1790-1840. Total imports of wool increased twenty-fold over the period, with high peaks in 1814, 1825 and 1836, and deep troughs in 1820, 1826 and 1837. Without this large and increasing intake of foreign wool the rapid expansion of the West Riding industry, particularly in the last two decades of

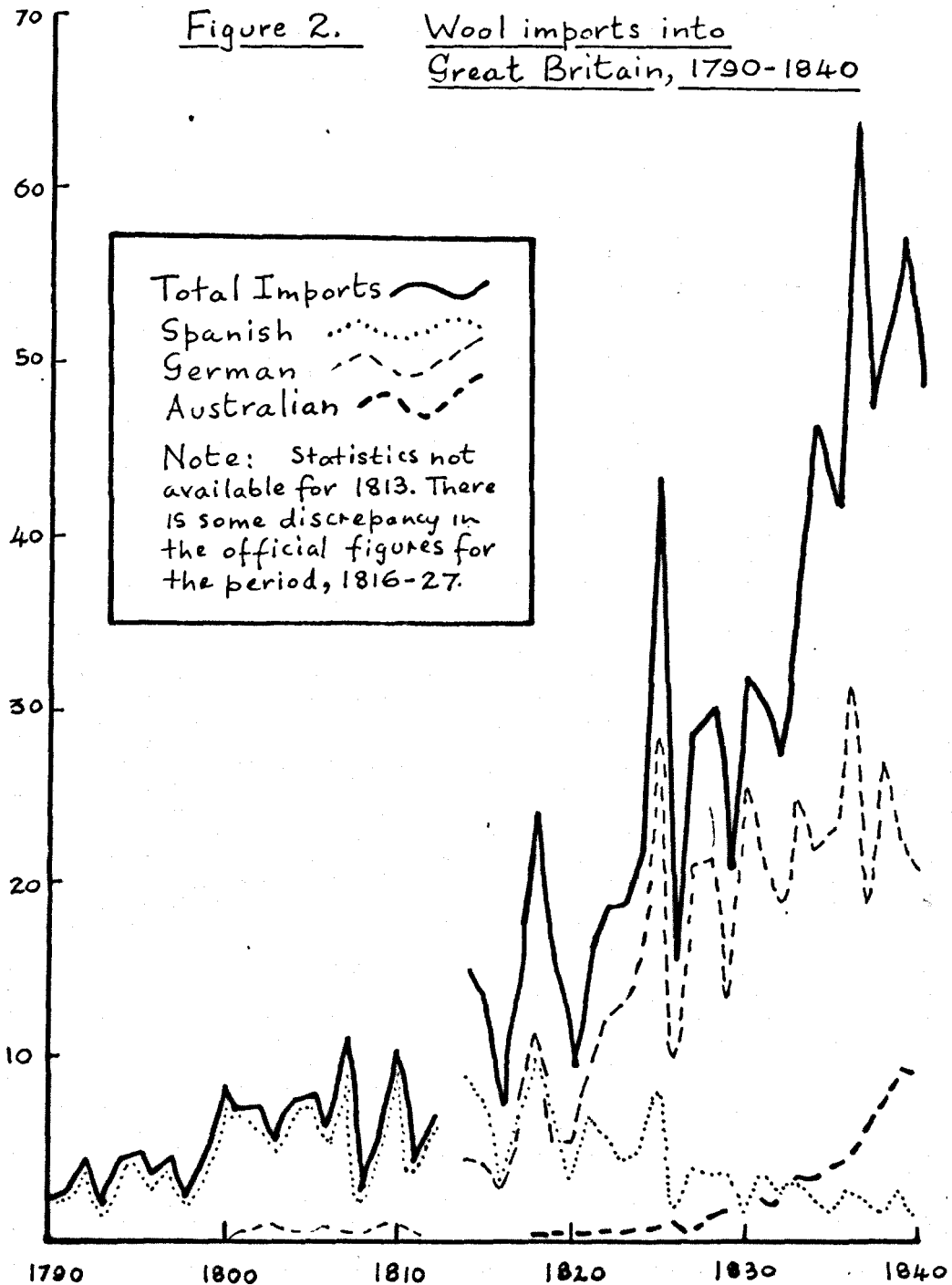
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(1) James Fison, wool dealer, told the 1828 Committee that he thought that the average weight of South Down fleeces had increased by one pound, or 40 per cent., during the preceding twenty years. S.C. of 1828, p. 193



(Millions of lbs.)

Figure 2. Wool imports into  
Great Britain, 1790-1840



Source: Parliamentary Papers, 1833 (690) vi, p. 79, 1844 (306) xlv, p. 239 et seq. Samuel Brothers, Wool and Woollen Manufactures of Great Britain, (1859), p. 141.

Table 2. WOOL IMPORTS INTO GREAT BRITAIN, 1790-1840In millions of lbs.

	From Spain	From Germany	From Australia	From Other Countries	Total Imports
1790	2.4	-	-	.1	2.5
1791	2.6	-	-	.1	2.7
1792	4.3	-	-	.2	4.5
1793	1.8	-	-	.1	1.9
1794	4.4	-	-	.1	4.5
1795	4.8	-	-	.1	4.9
1796	3.4	-	-	.1	3.5
1797	4.6	-	-	.1	4.7
1798	2.4	-	-	x	2.4
1799	4.9	.1	-	x	5.0
1800	7.8	.6	-	.2	8.6
1801	6.3	.3	-	.8	7.4
1802	6.2	.8	-	.7	7.7
1803	4.7	.5	-	.7	5.9
1804	7.3	.1	-	.5	7.9
1805	7.1	.1	-	.8	8.0
1806	5.7	.7	x	.4	6.8
1807	10.5	.3	x	.6	11.4
1808	2.0	.1	-	.2	2.3
1809	5.5	.9	-	.3	6.7
1810	9.3	.9	x	.7	10.9
1811	4.5	x	-	.2	4.7
1812	6.7	x	-	.2	6.9
1813	n.a.	n.a.	n.a.	n.a.	n.a.
1814	9.2	4.7	x	1.6	15.5
1815	8.0	4.4	.1	1.1	13.6
1816	3.5	3.2	x	.8	7.5
1817	7.0	6.6	-	.4	14.0
1818	10.2	11.9	.1	2.6	24.8
1819	7.3	5.7	.1	3.0	16.1
1820	3.6	5.6	.1	.5	9.8

Table continued overleaf

Table 2 Continued...

	From Spain	From Germany	From Australia	From Other Countries	Total Imports
1821	7.0	9.2	.2	.2	16.6
1822	6.1	12.4	.1	.4	19.0
1823	5.5	13.2	.5	.2	19.4
1824	5.5	16.0	.4	.6	22.5
1825	9.2	30.4	.3	3.9	43.8
1826	2.2	10.9	1.1	1.8	16.0
1827	4.4	22.7	.5	1.5	29.1
1828	3.8	22.0	1.6	2.8	30.2
1829	3.7	14.1	1.8	1.9	21.5
1830	1.6	26.0	2.0	2.7	32.3
1831	3.5	22.4	2.5	3.2	31.6
1832	2.6	19.8	2.4	3.3	28.1
1833	3.3	25.3	3.5	5.9	38.0.
1834	2.3	22.6	3.5	18.1	46.5
1835	1.6	23.8	4.2	12.6	42.2
1836	2.8	31.8	5.0	24.6	64.2
1837	2.2	19.7	7.0	19.5	48.4
1838	1.8	27.5	7.8	16.5	52.6
1839	2.4	23.8	10.1	21.1	57.4
1840	1.3	21.8	9.7	16.6	49.4

Notes: x Indicates an import quantity below  
50,000 lbs.

n.a. Information not recorded in the available  
official accounts.

Source: Parliamentary Papers, 1833 (690) vi,  
p. 79., 1844 (306) xlv, p. 239 et seq.  
Samuel Brothers, Wool and Woollen  
Manufactures of Great Britain, (1859) p. 141.  
There are two differing 'official'  
statements of imports for the period  
1816-1827.

this span of time, could not have taken place. This adjustment of supplies from overseas to suit the requirements of industrial growth in Yorkshire, especially the accelerated development of Australian wool-growing after 1835, was a notable economic achievement analogous to the earlier rise of American raw cotton production responding to the needs of Lancashire enterprise. <sup>(1)</sup> In 1790 it appears that about three per cent. of British wool needs was imported; this figure had risen to thirty per cent. by 1840. <sup>(2)</sup>

In 1770 Spanish wool was being imported for the fabrication of English super-fine woollen cloth and, mixed with English wool, for making fine cloth. The wools of, the Hereford, Ryeland, Shropshire and Dorset breeds were best suited for this latter purpose, closely followed by the South Down, Norfolk and Cheviot fleeces, which were well adapted to the production of medium quality cloths. Worsted fabrics

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(1) This dependence of British industrial development upon overseas primary production was also of importance in providing the primary producers with incomes, some fraction of which was expended, directly or indirectly, on purchasing British manufactures. Good prices for American cotton in Liverpool reflected themselves in the strength of demand for Yorkshire woollens in the American market. cf. A. Barnard, The Australian Wool Market, (Melbourne, 1958), p. 19-22.

(2) Based on data published in the Report of the Committee on Industry and Trade, 1928 Pt. iii, Table 5, p. 275. The calculation takes no account of stock accumulations and decumulations in the two years. There are no reliable statistics on the size of the domestic wool clip in the first half of the nineteenth century. Estimates, often contradictory, are given by various writers, Luccock, Bischoff, Youatt, cf. P.G. Craigie, 'Statistics of Agricultural Production', Journal of the Royal Statistical Society, vol. xlvi (1883), p. 29.

were made from the lustre and long wools of the Leicestershire, Lincoln, Kent, Cotswold and Romney Marsh breeds, whilst the coarse woollens were manufactures from the fleeces of the mountain and hill sheep; from wool obtained from the inferior parts of the finer quality clips; and from the noils discarded in the worsted manufacture. <sup>(1)</sup> Towards the end of the eighteenth century, small quantities of fine, merino wool from Saxony were being used by the English cloth industry, augmenting the Spanish supply. <sup>(2)</sup> It would seem that these general observations are valid also of the West Riding industry in particular, which drew upon the indigenous wools of Yorkshire and the Pennine region as well as:

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- (1) John Luccock, in 1805, classified English fleeces into three categories: those with a staple up to four inches in length were suited for woollens; those from four to eight inches were adapted to the hosiery trade; whilst those exceeding eight inches in length of fibre were applicable to the worsted manufacture. J. Luccock, The Nature and Properties of Wool, (Leeds, 1805), pp. 141-55.
- (2) In evidence in 1828, Henry Hughes stated that he thought the first imports of German wool to this country were 'in the year 1800 or 1801', but Thomas Legg's opinion was that such wool was first received in 1798. Benjamin Gott appears to have been experimenting with it as early as 1796. cf. S.C. of 1828, pp. 41 and 57; also above, p. 17 .

... all sorts of short English wool, from £6 to £35 per pack; and ... Spanish wool. The lowest priced English wool is chiefly short wool sorted from large fleeces of combing wool bought in Lincolnshire, Leicestershire, Nottinghamshire and the neighbouring counties. The finest English wool is from small fleeces in Herefordshire, Shropshire and other western counties; and also from Kent, Sussex and their neighbourhood. (1)

The forces of demand and supply affecting the woollen cloth industry were profoundly disturbed by the Napoleonic Wars. The military operations in the Spanish peninsula dislocated that country's economy and retarded the trade in Spanish fleeces. (2) This, in turn, stimulated the import of German fine wool into Britain as the hostilities continued, a development which served to break down the 'prejudice' of the British manufacturer in favour of the Spanish fibres. In addition, the war-time demands for uniform cloths and blankets placed a pressure on the available English supply of coarse wools, and foreign, low-quality wool was being

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(1) J. Aikin, A Description of the Country from thirty to forty miles round Manchester, (1795), p. 555.

(2) The stock-piling of Spanish wool in this country as a result of speculative activity at different times during the war years also interrupted the smooth flow of trade and led to the 'Spanish wool-fever' of 1807-9.

sought after by Yorkshire clothiers in the closing years of the Wars. (1) This latter trend increased markedly after 1815 with the swift growth of the coarse woollen trade in domestic and foreign markets, and imports of cheap wool were drawn from Iceland and Denmark, Italy, South America and Turkey, as well as from German and Russian sources. It was in the medium and cheaper ranges of woollen piece goods that the West Riding industry established the basis of its striking development in the 'twenties and the 'thirties, and the following tabulation of imports of inexpensive wool, for selected years, shows the rising Yorkshire demand for raw materials. (2)

Imports of Coarse Wool retained for Home  
Consumption

(Value: less than 1s. per lb.)

million lbs.

1826	3.2
1828	4.5
1830	2.0
1832	1.6
1834	11.2
1836	17.3
1838	13.5
1840	12.6

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(1) John Brooke, of Dewsbury, was using 'Russia Wool' at 9½d. per lb. in 1813. S.C. of 1828, p. 252.

(2) Accounts and Papers, 1843 (210) lii, p. 355. The table also illustrates the trade depression of the early 'thirties.

The volume of imports from Germany first exceeded that from Spanish sources in 1818; rapidly decreased between 1820 and 1824; and thereafter steadily expanded, reaching a level, in 1840, which was sixteen times greater than the total amount received, in that year, from Spain. The German wool was clean; 'it comes in washed in a superior manner',<sup>(1)</sup> said Ure in 1835. It was available in a large number of different qualities and prices; and it possessed good spinning qualities and a softness of texture well suited to the production of durable and attractive cloths.<sup>(2)</sup> Its use stimulated changes in fashion in this country in the 1820s which swung the English woollen trade away from concentration on the old-established, fine, broad-cloth production towards the manufacture of lighter-weight and fancy fabrics: a trend which was readily exploited by the

(1) Andrew Ure, The Philosophy of Manufactures, (1835), p.128.

(2) Ure divided Saxony wool into at least twenty kinds with prices ranging from 20d. to 90d. per lb. There were also more expensive and less expensive German wools standing outside Ure's classification. In the 1820s, Hirst, one of the large Leeds manufacturers, drew his chief wool supplies from Saxony 'at from 8s. to 10s. per lbs.' In the 1830s there were increasing imports of German coarse wool valued below 1s. per lb. cf. Ure, op. cit., pp. 127-8; W. Hirst, History of the Woollen Trade, (Leeds 1844), Pt.i, p. 38; Accounts and Papers, 1843 (210) lii, p. 355.



West Riding manufacturers, particularly by the Huddersfield  
 clothers. (1) These were the decisive factors in undermining  
 the use of Spanish wool in the working of English fine cloth. (2)

'The imported wools', said Ure, 'are almost entirely  
 worked on the card; the finer kinds to be manufactured into  
 cloth, the coarser into carpets.' (3) In the same year,  
 Head was able to assert that 'the Continent chiefly furnishes  
 wool for broadcloth, England that for the worsted manufacture.' (4)  
 But Ure added that, 'of late years, a wool of the merino  
 fleece has been grown to great advantage in New South Wales,  
 and imported in great quantities. It is fully equal to the  
 best Spanish merino.' (5) This development had been fore-  
 shadowed, in 1828, in the proleptic statements of Legg:

I have no doubt ... that fifteen or twenty years  
 hence it will be the case, that we shall have as  
 much wool from those Colonies as we shall want  
 in this country of the finer kind. (6)

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- (1) cf. W.B. Crump and G. Ghorbal, History of the Huddersfield Woollen Industry, (Huddersfield, 1935), pp. 120-3.
- (2) 'In 1793, a cloth of medium quality, worth ... about 13s. a yard, was made of the best English wool. In 1815, middling cloth was made of Spanish wool, and cost 16s. or 17s. a yard; while in 1832 similar cloth was made of German, and cost about 12s. a yard: but ... cloth produced in 1832 ... had a great deal better appearance ...'  
 J.R. McCulloch, A Statistical Account of the British Empire, (1837), vol. ii, p. 50.
- (3) And blankets!! Ure, op. cit., p. 131
- (4) Sir George Head, A Home Tour through the Manufacturing Districts of England, in the summer of 1835 (1836), p. 181.
- (5) Ure, *ibid.* His assessment of quantity seems exaggerated in the light of the official figures of wool imports at this time. There is a good account of the establishment of wool growing in Australia in J. Bonwick, The Romance of the Wool Trade, (1894), esp. pp. 19-86, 184-290.
- (6) S.C. of 1828, p. 40.

and Hughes

... some of those (New South Wales) wools are  
... of very beautiful quality, as good as any  
of the German wools. (1)

The Australian wools had figured in the official  
accounts of imports as early as 1806, but became significant  
only after 1830. In 1836 five million pounds of Australian  
wool was imported, and from that time onward there was an  
enlarging Yorkshire demand for the product, particularly  
from the worsted industry. (2) According to Bischoff, the:

Australian wool has a peculiar softness, with  
length of staple, which is attributed chiefly  
to the climate; it is found best adapted for  
combing purposes, in the finer branches of  
merino, shallis, and such goods, much in demand  
for ladies' wear, both at home and in foreign  
countries, having the strength and length of  
Leicester wool, with the fineness and softness  
of Spanish wool. (3)

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(1) S.C. of 1828, p. 63.

(2) 'Since then (1831) ... large quantities of colonial  
wools have been introduced into the worsted manufacture.'  
J. James, The History and Topography of Bradford,  
(1841), p. 285. cf. E.M. Sigsworth, op. cit.,  
pp. 58-62.

(3) Bischoff, op. cit., vol. i, p. 369.

By 1840 the Australian growers were providing nearly 20 per cent. of the foreign wool requirements of this country and, a few years later, Dodd summarised the supply position with his remark that:

... at present our worsted fabrics are made mostly from English wool, our finest woollens mostly from German wool, and the large bulk of our woollens mostly from Australian wool. (1)

#### Stapling and marketing.

The adequacy of the supply of raw material suited to the needs of the cloth manufacturer is not, in itself, a sufficient basis for the development of an increasing scale of manufacturing operations; there must also be an organised transport and marketing system to ensure that wool supplies, in the right amounts and of the right qualities, are provided expeditiously and cheaply. In 1770, such facilities were already well-developed in Britain and Heaton emphasises that at this time, 'wool-staplers scoured the southern counties to find supplies, and brought large quantities into

(2) Yorkshire.' These staplers played a key role in a system

(1) G. Dodd, The Textile Manufactures of Great Britain, (1844), p. 95. The cost of transporting wool from Australia was not, apparently, a very serious consideration to the English importer. Hughes insisted, in 1828, that he could bring wool, even of the coarser kind, 'from Sydney, or Hobart Town, at a less expense per pound than from Vienna or Leipsic.' S.C. of 1828, p. 41.

(2) Heaton, *op. cit.*, p. 279. He also cites the parliamentary evidence of Hustler, the Bradford wool-stapler, who said, in 1800, that he bought wool directly and indirectly in 33 counties. *ibid.*, p. 330.

of distribution which expanded, after 1815, becoming more extensive and complex in order to deal with the movement of wool from Spain, Germany, Australia and other countries to Britain. Stapling involved at least four functions: the purchase of raw wool from growers at home or overseas; the sorting and classification of the fibres according to their qualities and length of staple; the carrying of stocks over periods of time, induced by seasonal as well as cyclical fluctuations in the final demand for wool; and the extension of credit to customers. (1) There were local staplers in the agricultural areas; staplers in London and the chief ports, some of whom specialised in Spanishwools; staplers in the main manufacturing districts; and, in addition, many manufacturers who dealt direct with farmers and stapled for themselves. (2) The native wool of this country came into the hands of the staplers by different routes. The annual

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- (1) The growers also carried stocks and speculated on the future movement of wool prices. 'It has been no unusual thing to have four or five years' growth on the hands of the farmer ...' J. Bischoff in a letter to Lord Milton, 8 May, 1816; quoted in his own work, op. cit., vol. i, p. 415. The growers faced spring and autumn peak periods of demand for wool from manufacturers.
- (2) The stapler clearly occupied a strategic position in the supply-demand complex, and the possession of capital and a fair amount of expertise in handling wool were the necessary concomitants of his calling.

visit of the stapler to the larger sheep-farms at about, or a little before, shearing time, to purchase part or all of the clip, was a common practice. Where confidence ran high between farmer and stapler, contracts to purchase the total yield of the farm for a period of years were often made, though such contracts were less prevalent in time of sharply fluctuating wool prices. Many growers, however, either from choice or necessity, had recourse to the large wool markets and fairs.

Although West Riding staplers congregated in Leeds and Bradford in the eighteenth and early nineteenth centuries, the Yorkshire trade, at this time, was principally centred on Wakefield, a town deriving many advantages from its position on the River Calder and receiving large quantities of wool by means of water transport. <sup>(1)</sup> Aikin observed, in 1795, that Wakefield:

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(1) There is a good description of the range of a Wakefield wool-stapler's activity given by William Barff in evidence to the S.C. of 1816, pp. 4-5. James Riley, a London stapler, told the same Committee that inland navigation was important in the transportation of wool from London to northern England. *ibid.*, p. 6. See also below, pp. 73<sup>1</sup>-80.

... is now considered as one of the handsomest and most opulent of the clothing towns, being inhabited by several capital merchants ... . A great deal of business is done ... particularly in the sale of wool, which is sent from all parts of England to factors in this place, who dispose of it among the manufacturers in the different districts around. (1)

The main wool fairs were held at Hereford, Bristol, London, Gloucester, Colchester and Lincoln, usually during the summer and early autumn. Though they were declining in importance in the early decades of the nineteenth century, they were still significant in the system of wool distribution in 1840, due to the fact that they provided a convenient means for displaying wool, in varying quantities and qualities, for sale; attracted wool purchasers from all parts of the country; and engendered a highly competitive market structure within which intelligence about wool and wool prices could be rapidly disseminated.

Large wool fairs were held on the Continent, particularly in the German towns of Frankfurt, Leipzig, Breslau, Berlin and Hamburg, and they increasingly attracted English staplers in the 1820s. After 1824 the enlarged demand for foreign wool had a marked impact upon the character and organisation of stapling in this country: Some English staplers began to specialise in handling German wools,

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(1) Aikin, op. cit., p. 579.

bringing their shipments mainly to the ports of Hull and London; there was an influx of German factors and agents into London and the West Riding; and an intensification of competition between the houses engaged in the trade. (1)

The 1828 Report also throws some light on these changes.

Jowitt stated that he obtained his foreign wools 'in the London market, and from importers at Leeds, and consignees of German houses.' (2)

Swaine, a manufacturer and merchant, said of his foreign wool, 'we import it from the grower. We have an agent in Germany who purchases for us; we purchase much more in Leeds than we import.' (3)

Sutcliffe, a Huddersfield stapler, complained that the Germans 'purchased the wool abroad, sent it to London, and it passed through agents, which burthened it with nine or ten per cent.' (4)

Ireland, a London factor, gave it as his opinion that 'the German wool trade was ... divided ... amongst about half a dozen houses.' (5) an oligopolistic situation which probably

(1) The evidence of Ebsworth, wool-broker of London, in the 1828 Report generally supports the statements in this paragraph. S.C. of 1828, pp. 79-81.

(2) *ibid.*, p. 127.

(3) *ibid.*, p. 229.

(4) *ibid.*, p. 180. He was referring only to the London market

(5) *ibid.*, p. 319.

explains Sutcliffe's complaint.

The Report also emphasises two other developments which became important in the 1820s and 1830s. First, the presence in the trade of the wool-dealer who did not purchase, staple, or carry any stocks of wool, but sold consignments to manufacturers and others on behalf of farmers or the smaller staplers, charging a commission for his services. George Goodman, of Leeds, performed such functions, dealing 'almost entirely' in English wool.<sup>(1)</sup> Second, the growing tendency for the larger manufacturers to staple for themselves which Jowitt explained was to be expected 'in so far as there are a great many more merchant manufacturers than there used to be ...'<sup>(2)</sup>

These various manifestations of entrepreneurial activity in the distribution of wool which, in practice, were not always clearly defined, allied to the highly competitive nature of the trade, contributed substantially to improving the flow of raw materials, which underpinned the rise of the West Riding industry in the 1830s. The experience gained

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(1) Goodman said that he had been acting in this capacity since 1807. *ibid.*, p. 239. James Hubbard, also of Leeds, described himself as a wool-stapler to the 1828 Committee, but revealed that 'nine-tenths' of his business was that of selling wool on a commission basis. *ibid.*, p. 200.

(2) *ibid.*, p. 135.



and the techniques evolved for handling German wool were later available to cope with the Australian wool imports which were becoming significant by 1840. Partly for historical reasons; partly because the Australian trade, at first, involved large risks more easily shouldered by the established stapling houses; and partly because London was a convenient port for the re-export of Colonial wools to the Continent; the metropolis established itself as the principal market for Australian wools from the outset, and regular auctions (1) of Colonial wool began in the city in 1835.

After 1840 the Australian supplies of long-staple wool assumed an essential role in the fortunes of the Yorkshire worsted industry and this not only tied the West Riding more closely to the London market, but it also strengthened Bradford's position as a stapling centre vis-avis that of Wakefield, and thereafter the latter town lost its eminent position in wool marketing. It is difficult to date exactly the beginning of this decline. James stated in 1841, that:

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(1) cf. E. Shann, An Economic History of Australia, (Cambridge, 1930), pp. 79-97; Barnard, *op. cit.*, esp. pp. 47-60.

About forty years since, Wakefield was ...  
 the principal mart for wool ... for a  
 considerable time past, Bradford has been  
 the great market ... in the north of England.

(1)

Collinson, discussing the Wakefield wool marketing  
 supremacy, noted that it had 'gradually fallen off in this  
 respect since 1825.'<sup>(2)</sup> Dodd, not a very careful writer,  
 observed in 1844 that 'Bradford has become the great wool-  
 market of England', but later in the same work he mentions  
 that 'the wool-market ... is gradually leaving Wakefield  
 for Bradford.'<sup>(3)</sup> It would seem that by the 1840s the  
 primacy of Bradford as the stapling focus of the West Riding,  
 for the woollen industry as well as for the worsted trade,  
 was a recognised feature of the region.<sup>(4)</sup>

(1) James, op. cit., p. 285.

(2) E. Collinson, History of the Worsted Industry, (Bradford,  
 1854), pp. 83-4.

(3) Dodd, op. cit., pp. 118 and 123.

(4) Woolstaplers in Bradford and Wakefield:

1822	39	51
1829	46	36
1837	84	19
1847	126	11

Information drawn from contemporary directories,  
 see bibliography.

(ii) IMPROVEMENTS IN THE TECHNIQUE OF PRODUCTION.

Many of the contemporary accounts relating to the woollen industry in the early nineteenth century follow each other in emphasising that:

From the time of Elizabeth to the middle of the last century, scarcely any alterations or improvements had taken place in the processes of manufacture, either in woollen or worsted, beyond the variation of colours or patterns, to suit the fashion of the day. (1)

But in 1793 Arthur Young on his travels 'viewed with great pleasure (in Leeds) the machines for unclotting and puffing out wool ... also for spinning and various other operations', (2) and by 1800 the use of machinery in the preparatory woollen processes was general in Yorkshire, foreshadowing the technological revolution in the industry in the nineteenth century. The discussion of technical change involves the consideration of many related factors: the incentives stimulating inventions and innovations; the private and social costs of introducing new modes of production; the time element relating experimentation with the general applicability of new machinery; and the legal and patent aspects of mechanical progress; but here we shall only be

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(1) E.g. Encyclopaedia Londinensis, (1829), vol. xxiv, p. 729.

(2) Arthur Young, Annals of Agriculture, (1796), Ch. xxvii, p. 310.

concerned with the major improvements in the fabrication of  
woollen cloth during the period. (1)

The preparation of yarn.

The main difference between woollens and worsteds was founded on the character of the yarn used. Woollen yarn was usually prepared from short-staple wool and, after being carded and spun, it derived extra strength and resilience from the entangled arrangement of the wool fibres. The woven cloth made from such yarn was subjected to the process of fulling, or felting, which further increased this entanglement of the warp and weft threads and produced a thick, strong, roughly-textured type of fabric. Worsted yarn, on the other hand, was made from long-stapled wool, combed and spun into a strong, smooth filament which, when woven into cloth, made a firm, durable, evenly-textured material which did not usually require the fulling process to impart to it any further strength. This conventional explanation is subject

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(1) Few writers before 1840 seem to have been interested in techniques when describing the manufacturing processes, although volumes iv, viii and xxxviii of Rees' Cyclopaedia (1819) contain semi-technical descriptions of machinery and useful diagrams. A comprehensive technical survey of the woollen textile industry remains one of the most important 'gaps' in nineteenth century economic history.

to some qualification. Long wool could be, and was, broken down into shorter fibres and used for woollen yarn and, particularly after 1840, short staple wool was combed and used for worsted yarn, long wool was carded for woollens, and mixture yarns of carded and combed wools and combinations of worsted warps and woollen wefts were increasingly in evidence. Further, some worsted cloths were lightly fulled to improve the finish of the fabric, whilst some woollens were left unmilled in order to expose the pattern of the weave. These qualifications apart, a definition of woollens and worsteds based on the nature of the yarn employed seems valid for 'the object of the woollen-spinner will always be to have a yarn in which the serrated surfaces of the fibres will present themselves in every direction, while the object of the worsted-spinner will be to have a smooth and level thread.'<sup>(1)</sup>

To condition the raw wool for spinning it was first passed through the processes of sorting, scouring and willeying. Farmers usually separated fleeces into bundles according to breed, but apart from the broad grouping of fleeces into long and short wool types, the diversity of

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(1) W.S.B. McLaren, Spinning Woollen and Worsted, (1884), p. 61.

sheep breeds and the different qualities of wool to be found in each separate fleece - probably a dozen clearly identifiable qualities - necessitated careful sorting to allow for the optimum use of the different varieties of

(1) fibre. The very superior foreign wools were often sorted before shipment, but sorting was usually carried out by woolstaplers and by the clothiers themselves. (2) With the growth of the factory system, manufacturers entering into wool-stapling in order to carry out their own wool-sorting and blending more efficiently. (3) Wool-sorting, like

- (1) Short-staple wool was traditionally classified into twelve qualities: Picklock, prime, choice, super, head, downrights seconds, Fine Abb, Coarse Abb, Livery, Breech wool, Listing. cf. Report from the S.C. appointed to consider the state of the Woollen Manufacture in England, 1806, p. 364.
- (2) 'The fineness of the ... fibre can only be estimated by the wool-sorter ... accustomed by long habit to discern a minute difference...' Encyclopaedia Londinensis, vol. xxiv, p. 718.
- (3) The main characteristics of wool interesting the manufacturer were fineness, length, 'feel', appearance, colour, lustre, soundness, strength, elasticity, crimp and felting properties.

wool-buying, was a highly skilled operation and it is probable that, in the West Riding, the woollen industry had not attained, by the end of the eighteenth century, the degree of craftsmanship in this matter which characterised the cloth industry of the West Country and the blanket manufacture of Witney, and that this partly explains the superiority of the products of these areas over similar fabrics produced in  
 (1)  
 Yorkshire.

Raw wool contains many impurities and these were removed by means of scouring and willeying. Much fine quality wool reached the manufacturer in a clean state, but the bulk of the English fleeces arrived 'in the grease', containing up to thirty per cent. of their weight of  
 (2)  
 impurities. Scouring cleansed the wool and rendered it more amenable to the dyeing process, but even undyed cloths were improved when made from scoured wool and this was particularly important in the blanket manufacture where a good, white colour of the finished fabric was a prime

- (1) The entry of the West Riding industry into the fine broad cloth trade stimulated a keener interest in wool sorting and the range of cloths made in Yorkshire widened, in the early nineteenth century, allowing all the different qualities of wool to be utilised.
- (2) cf. Rees' Cyclopaedia, vol. xxxviii, article on Wool. This work has no pagination.

requirement. Some cheap Yorkshire cloths were made from unscoured wool but their appearance and finish were unattractive. A heated alkaline solution was used to dissolve the grease and, as soap was expensive, stale urine (human and animal) was commonly used as a solvent. <sup>(1)</sup> The domestic clothier scoured his wool in small quantities at a time in small receptacles. In the factories metal troughs were employed and these tended to be enlarged and steam-heated after 1820. There was no rapid mechanisation of the scouring process before 1840 and the removal of burrs from wool, particularly from Colonial wool, remained a slow, tedious, manual operation. After drying, the scoured wool was weighed and blended and then willeyed to loosen it and finally remove any remaining dirt. Up to the late eighteenth century the manual use of swinging rods was the common technique, but in the early mills the 'teazer' was used, though this does not seem to have been economical of labour power. <sup>(2)</sup> Small quantities of wool were fed into a circular box where they came into contact with a revolving, toothed drum and the fibres were teased open. 'About the year 1825,

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(1) Known as 'lye' or 'ley' in the clothing villages.

(2) cf. Rees, op. cit., vol. xxxviii.



the "shake-willey"<sup>(1)</sup>, a stronger and coarser-toothed machine, was introduced.' This was a larger and much more efficient appliance, was commonly adopted in the scribbling mills, and was also known as a 'devil' or 'plucker'.<sup>(2)</sup> Oil was added during this process in order to facilitate the blending and to improve the working of the wool in the later stages of carding and spinning.<sup>(3)</sup> Wool might be passed through the willey more than once and, in general, the lower the quality of the fibre the more willeying it required and received. The willey was improved in size and efficiency in the 'twenties and 'thirties.

Scribbling, the preliminary carding process,<sup>(4)</sup> was important in determining the initial quality of the yarn and defective scribbling could not easily be remedied in the later operation of spinning. The operation, also known in

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- (1) W. Smith, The History and Antiquities of Morley, (1876), p. 221.
- (2) The 'devil' was also used for rag tearing in the shoddy trade.
- (3) Six gallons of oil to a pack of wool. Gallipoli oil for fine wools, Rape oil and fish oil for the coarser wools. Much experiment during the period with patent oils and diluted oils in order to reduce costs. cf. Rees, op.cit., vol. xxxviii.
- (4) '... a rude species of carding ...', Ure, Philosophy of Manufactures, (1835), p. 165.

Yorkshire as 'tumming', was performed manually with a pair of hand cards, or wire brushes, until in the late 'seventies the scribbling-machine was introduced into many of the existing fulling-mills of the West Riding. <sup>(1)</sup> The early machines consisted of a swift with eight to ten urchins carrying wire bristles and a doffer to remove the scribbled wool. <sup>(2)</sup> They were turned by hand, or horse power, but were readily adapted to be driven by water or steam power and by 1820 power-driven scribbling was universally adopted in the area and double scribblers, two swifts with as many as <sup>(3)</sup> seventeen smaller cylinders, were common. The wool was subjected to two or three 'scribblings' before passing in a 'light, flocculent, downy layer' to the carding engine. This closely resembled the former machine and was introduced into

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(1) The earliest reference to the scribbling machine in Yorkshire occurs in an advertisement in the Leeds Mercury, 26 January, 1779. cf. S.C. of 1806, pp. 6, 32, 34 and p. 64. The machine was based on the primary invention of Bourn, which was later developed into the roller-and-clearer carding appliance. Hand cards were still used in some rural areas, though not to any noticable extent after 1840.

(2) cf. Rees, op. cit., vol. xxxviii.

(3) *ibid.*

(1)

Yorkshire at the same time as the scribbler. It consisted of a swift with urchins and a 'fancy' to loosen the wool from the cards and allow of its removal by the doffer, the wire teeth were finer in construction and in gauge than those used on the scribbler. The continuous 'layer' from the scribbler was fed, after weighing, on to the endless apron feed of the carding-engine by the 'card filler' and it emerged in 'slivers' or 'cardings', varying in their diameter according to the type of yarn intended, but generally about thirty inches in

(2)

length. The major technical disadvantage of the machine lay in its having to be stopped at intervals to clear the wool from the cards, but improvements in the doffing mechanism were introduced in the 1830s which removed the wool in a continuous rope which could be wound on to a bobbin. A

(1) Some contemporary writers made no distinction between scribbling and carding. cf. Dodd, op.cit., pp. 98-100. The making of hand cards and cards for machinery flourished in Barnsley until the end of the eighteenth century. It was also well established in the Spenn Valley and, after 1800, it also began to concentrate in and near the towns of Bradford and Halifax. The machine production of cards later became markedly located in the neighbourhood of Brighouse, but hand card-making continued as an important activity in this period. cf. R. Jackson, The History of the Town and Township of Barnsley, (1858), p. 166; F. Peel, Spenn Valley: past and present, (Heckmondwike, 1893), pp. 344-5; E. Parsons, The Civil ... Commercial ... History of Leeds ..., vol. 1, p. 428; H. Ling Roth, Hand Card Making, (Halifax, 1912).

(2) Rees, op. cit.

parliamentary report, in 1841, speaks of 'a new carding engine, one of the greatest improvements of modern years in the manufacture of cloth and flannel.'<sup>(1)</sup>

But this innovation was introduced only slowly and the 'piecening' of the carded slivers into a continuous filament, which was then fed to the slubbing billy, remained an important function performed by children. Slubbing was a kind of coarse spinning, the fibres were drawn out from the sliver in length, reduced in diameter, given a slight twist to impart strength, and then wound on to cops.<sup>(2)</sup> This operation had formerly been done on the spinning wheel, but the invention and application of the spinning jenny precipitated the use of the billy which allowed a number of slubbings to be drawn out together.<sup>(3)</sup> The billy, like its parent the jenny, had twenty to thirty, and later sixty, spindles.<sup>(4)</sup>

(1) Report from the S.C. on the Exportation of Machinery, 1841 (400) vii, p. v.

(2) Rees, op. cit.

(3) For the origin of the billy see G.W. Daniels, The Early English Cotton Industry, (1920), p. 123.

(4) Chapman found the 60 spindle billy the common machine in use in Yorkshire in 1838. of. Hand-loom Weavers, Assistant Commissioners Reports, 1840, (43-II), xxiii, p. 527 et seq.

Although the clothiers introduced jenny spinning in their own homes, the slubbing process seems to have settled in the scribbling mills almost as soon as scribbling and carding, despite the fact that it was a completely manual operation. (1)

It may be that slubbing demanded a higher degree of skill than jenny spinning, but probably the reason why it was rapidly brought into the mills was because it was the logical completion of the preparatory processing of the wool and the cops of slubbings could be more easily handled and transported than the carded slivers. Throughout this period, slubbing remained 'the crown of the scribbling mill and slubbers a class of highly-paid craftsmen.' (2)

### Spinning.

Spinning, to produce a firm, consistent, and continuous thread, involves three distinct processes; drawing-out, twisting and winding the yarn on to a bobbin, of which the last

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- (1) Joseph Coope of Pudsey told the S.C. of 1806 that slubbing was 'beginning to be done at the mill' in 1788. p.30.
- (2) Crump and Ghorbal, op. cit., p. 70. 'The slubbers occupied a position in the woollen industry comparable with that enjoyed by the hand-combers in the worsted trade before the advent of machine combing.'

mentioned presented the most difficult technical problem. Some ingenuity was required to devise a mechanism which would impart equality of tension to the filament and regulate the speed of, the bobbin to take account of its increasing diameter and gradually varying shape as it received the yarn. The self-acting mule, patented in 1825 and 1830 by Roberts, provided the solution in the cotton industry and his principles later proved applicable to woollen spinning. (1)

The spinning jenny of Hargreaves seems to have been introduced into Yorkshire from Lancashire about 1785 and it quickly transformed the production of woollen yarn in the county, rapidly displacing the old one-thread spinning wheel. (2) The jenny was a relatively small, simply designed and hand-operated machine. Originally carrying eight spindles, it sharply increased spinning productivity, and reduced costs, and was yet highly suitable for the domestic industry. The spindleage was steadily increased to reach 60, and later 120,

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(1) cf. J. Montgomery, The Theory and Practice of Cotton Spinning, (Glasgow, 1833), pp. 190-1. See below p.

(2) cf. S.C. of 1806, pp. 30 and 73. The spinning wheel lingered on in use in rural areas until the middle of the nineteenth century. See W. Andrews, Bygone Yorkshire, (1892), pp. 218-220.

spindles to each jenny, and the setting up of jennies in the scribbling mills marks the beginning of the 'factory' development in the West Riding. <sup>(1)</sup> The jenny was constructed, like the billy, on the principle of a travelling carriage upon which was set the upright spindles, and a mechanism which allowed for the movement of the carriage and the rotation of the spindles simultaneously, thus facilitating the drawing and twisting of the yarn. A fair degree of skill was required to achieve a smooth yarn free from 'lumpiness' and a writer in 1819 emphasised that:

... some discretion is required in spinning with the jenny to draw out the carriage with a movement correspondent to the rapidity with which the spindles give the twist ... to the slubbing ... otherwise the thread will consist of hard and soft places. (2)

A technically superior form of spinning was developed in Lancashire by Paul and Arkwright based on the principle of drawing out the threads between sets of rollers travelling at different speeds. Arkwright combined this method with the

(1) Gott's introduction of three or four dozen jennies at Bean Ing in 1793 seems to have been a major innovation. cf. Crump, *op.cit.*, p. 24.

(2) Rees, *op. cit.*, vol. xxxviii. A smooth yarn was not so important for many woollen cloths as it was for worsted fabrics.

stretching process of the spinning wheel, which had been incorporated into the jenny, and Crompton further developed the machine to produce the mule-jenny, or mule. Although developed for the cotton industry, it needed little adaptation for use in the West Riding. It did not, however, sharply improve productivity above that possible with the jenny and, until the improvements of Roberts made it 'self-acting', the hand operated mule only slowly superseded the Hargreaves' innovation in Yorkshire. Its main advantage lay in the diversity of relationship which it allowed between the velocity of the rotation of the spindles and the speed of movement of the carriage, so that a greater variety of different yarns could be spun. William Hirst claimed to be the first to introduce the hand-mule into the woollen manufacture in about 1816,<sup>(1)</sup> but he does not seem to have quickly proved to his contemporaries that the new mode of spinning was markedly superior and, in 1819, 'the jenny is still thought to spin better yarn.'<sup>(2)</sup> In the 1820s the mule was slowly gaining

(1) William Hirst, op. cit., Pt.i, p. 39.

(2) Rees, *ibid.*

'The mule is not so great an innovation as the jenny, for it only enables a man to produce four or five-fold, compared with the jenny; whilst the jenny enables a man to produce at least sixty-fold, compared with the old spinning wheel.' Chapman in Hand-loom Weavers, Assistant Commissioners Reports, 1840 (43-II), xxiii, p. 586.



acceptance in the industry and in the 1830s, as the industry expanded its productive capacity to meet the increased demand for cloth, hand-mules were augmenting the existing jennies to meet the demand for yarn. <sup>(1)</sup> In 1835 Ure noted the mule and the jenny in operation, though he regarded the former as not yet properly adapted to the woollen manufacture. <sup>(2)</sup> By 1840 the mule, with a longer carriage and carrying more spindles, was being rapidly adopted and accelerating the movement of the spinning process from the cottages to the factories. Saunders reported in 1842 that 'mule spinning of woollen yarn had almost entirely superseded the cottage spindle', <sup>(3)</sup> and another writer, at about the same time, said of the jenny that 'the mule is fast superseding it.' <sup>(4)</sup>

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(1) In 1830 Benjamin Gott was employing at Bean Ing, 15 mule-spinners and 13 jenny-spinners. H. Heaton, 'Benjamin Gott and the Industrial Revolution ...', p. 56.

(2) Ure, op. cit., p. 145.

(3) Factory Inspectors' Reports, 1842 (410) xxii, p. 483.

(4) Encyclopaedia Britannica, 1842 Edn., vol. xxi, p. 932. Chapman, one of the Assistant Hand Loom Commissioners, probably wrote the article from which this quotation is taken.

## Weaving.

Weaving is effected by the loom and constitutes the art of interlacing the vertical, or warp, threads with the horizontal, or weft, threads in order to produce a fabric. It is primarily a development from the process known as 'darning'. Warp yarn was usually spun harder and with more twist than that employed for the weft, and was normally treated with size. <sup>(1)</sup> The loom has three primary motions: shedding, picking and beating. Shedding was produced by the up and down motion of the heddles <sup>(2)</sup> which parted the warp threads making an opening or 'shed' through which the weft thread was then passed; picking was the movement across the warp of the shuttle containing the weft; and beating was the pressing together of the weft threads after the shuttle was thrown so that each 'pick' became part of the fabric. The force of the batten pressure could be varied according to whether the cloth was to be loosely or firmly woven. The shedding motion was effected by movements of the heddles connected by cords to treadles operated by the feet. Before the introduction of the fly shuttle, picking was done by hand, the shuttle being thrown from side to side of the loom; and

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(1) There were various processes intervening between spinning and weaving, such as winding, warping, beaming and drawing-in, which were manual operations during this period.

(2) Heddles or healds.

beating was also a hand process, the hand-loom was thus partly a foot-power loom.

To effect power-weaving successfully, these various hand and foot movements of the weaver had to be reproduced by machinery and, in addition, other subsidiary operations performed by the weaver required mechanisation. Three major technical problems awaited solution: a self-acting stop had to be fitted to the loom to deal with weft breakages and trapped shuttles; a temple or template attachment had to be effected to keep the weaving at a uniform width; and a take-up motion was needed to wind the woven piece on to the cloth beam at a speed which would vary in accordance with the increasing diameter of the beam as it filled with cloth. The primary motions of the loom were mechanised in the eighteenth century; Kay's fly shuttle of 1733 speeded up the picking process; his son added the drop-box, which allowed for shuttle variation with three different coloured wefts, and, in 1785, Cartwright patented a power loom which combined the fly shuttle with a mechanisation of the shedding and beating movements. This loom was much improved upon by Horrocks of Stockport in 1803 and further improvements in 1805, 1813 and 1821 led to its rapid adoption in the cotton industry in the 1820s. But the technical problems presented by the subsidiary weaving operations proved more difficult to overcome and, as far as the power loom weaving of woollen cloth was concerned,

it was not until the 1840s that the stop-action, take-up motion and nipper temple mechanisms had been sufficiently developed and perfected to allow of an extensive use of the power loom.

The fly-shuttle was early adopted in Rossendale and Rochdale which were woollen rather than cotton districts, but did not make its first appearance in the West Riding until the 1760s when it was being adopted extensively for the weaving of cotton in Lancashire. (1) Although Kay's device was admirably suited to the weaving of broad cloth, in that it dispensed with the necessity for having two operatives to throw the shuttle from either side of the loom, it appears to have spread only very gradually throughout the Yorkshire industry, probably due to the fact that it was not well adapted for use with the soft, woollen yarn produced by the spinning wheel and was more suited to the jenny-spun yarn. (2)

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(1) cf. A.P. Wadsworth and J. de L. Mann, The Cotton Trade and Industrial Lancashire, 1600-1780, (1931), p. 467 et seq.; S.C. of 1806, p. 166. 'In 1763 or 1764, fly shuttles were introduced into Yorkshire.' Evidence of John Hebblethwaite. Kay tried to interest the Leeds clothiers in his device as early as 1738, but without success. cf. P. Mantoux, The Industrial Revolution in the Eighteenth Century, (1928), p. 212.

(2) The practice of weaving two at a loom - usually a man and a youth - was discontinued about 1780 in Morley. cf. W. Smith, op. cit., p. 234.

The growing use of the jenny and the quickening demand for Yorkshire cloth in the period 1783-93 probably acted as the main stimulus to the adoption of the fly-shuttle in the West Riding. Chapman said, in 1840, of the 'spring shuttle or picker' that 'it was not until the year 1800, that it was in very general use' in Yorkshire. <sup>(1)</sup> By 1819 a writer was able to report that broad cloth was now 'almost universally woven by one person only in a loom, making use of the fly shuttle.' <sup>(2)</sup>

The success of power looms in Lancashire led to their gradual adoption in the worsted industry in Yorkshire in the period 1820-40, <sup>(3)</sup> but in 1830 'their introduction into the woollen manufacture in Halifax has been so recent, that the slightest effect upon the price of weaving woollens cannot as yet ... have been felt.' <sup>(4)</sup> Benjamin Gott was employing 238 hand-loom weavers at Bean Ing in this same year, but had not yet ventured into weaving by power. <sup>(5)</sup> Chapman's view was that 'the power loom was unknown to the cloth manufacture until

(1) Hand Loom Weavers Reports, 1840 (43-II) xxiii, p. 586.

(2) Rees, op. cit., vol. xxxviii.

(3) E.M. Sigsworth, op. cit., p.10.

(4) From a 'Letter from a very Intelligent Merchant Manufacturer', quoted by Bischoff, op; cit., pp. 268-70.

(5) H. Heaton, 'Benjamin Gott and the Industrial Revolution in Yorkshire', Economic History Review, vol. iii (1931), No. 1, p. 56.

(1)  
 1832', and in 1834 William Brook said that 'there are a  
 few power looms' in Leeds, but that their use was 'experimental'.<sup>(2)</sup>  
 In 1836, however, 1,018 power looms were employed in the  
 West Riding on woollen cloth weaving, according to a report  
 by Robert Baker, 213 of these were counted in Leeds,  
 Benjamin Gott's share being 68.<sup>(3)</sup> In 1840 Chapman was able  
 to say that the power loom in the woollen cloth manufacture  
 as yet 'has made but little progress',<sup>(4)</sup> but Hickson, writing  
 at about the same time, was of the opinion that 'in a few  
 years ... a complete revolution in the trade of woollen  
 weaving may be anticipated.'<sup>(5)</sup> By 1840, it seems that the  
 technical problems of weaving woollens by power were being  
 overcome and weavers were increasingly becoming factory  
 employees, although their productivity was not quickly  
 increased and the hand-loom remained a highly competitive  
 piece of equipment until well after the middle of the  
 nineteenth century, often being found alongside power looms

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- (1) Hand-Loom Weavers Reports, (43-II) xxiii, p. 587.  
 (2) Report from the S.C. on Hand-Loom Weavers Petitions,  
 1834 (556) x, p. 31.  
 (3) Factory Inspectors Reports, 1836 (78) xlv, pp. 150-1.  
 (4) Hand-Loom Weavers Reports, 1840 (43-II) xxiii, p. 587.  
 (5) Report on the Condition of the Hand-Loom Weavers, 1840,  
 (639) xxiv, p. 21.

in the factories. It seems more than coincidental that the power loom in this industry was becoming more widespread in its use at the same time as cotton-warped fabrics were being developed by manufacturers. The experience gained in weaving mixture cloths from a relatively hard warp and a soft weft probably played some part in the later improvements in loom design which made for successful power weaving of woollen fabrics.<sup>(1)</sup>

#### Finishing processes.

Coloured woollens were produced either from dyed wool or from cloth dyed in the piece; the dyeing of wool facilitating the blending of differently tinted yarns. During this period there was little change in the range of dyes available to the dyer which were mainly vegetable and animal in origin, but as the woollen industry expanded, more care was devoted to the technique of dyeing and dyestuffs were used with more skill. In the late eighteenth and early nineteenth centuries the domestic clothier often did his own dyeing, but the results were not always satisfactory and Luccock complained of 'faint, muddy, and uncertain colours, where

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(1) The development of the power loom is also associated with the invention of a mechanism which would weave patterns. The draw-loom and later the Jacquard loom were notable inventions but their use was more confined to the worsted industry in this period.

wool is dyed, as is too much the custom in Yorkshire, without being scoured, in pans unwashed, and with materials mixed together upon a floor unswept ... (1) To obtain his coloured effects the clothier used weld, fustic, annatto, and the bark of the quercitron tree to produce yellow; nutgalls for black; walnut root and birch bark for browns; indigo, woad and logwood for blues; and kermes, archil, madder, Brazil wood and cochineal for reds. Madder and archil were used for the coarser fabrics, but fine cloths to be dyed 'a good scarlet colour' required the use of cochineal. The chief mordants or saddening agents used to 'fix' the colours (2) were various metallic oxides, alum and tan.

The rise of the merchant-manufacturer in the last decade of the nineteenth century had its impact on dyeing in the industry, specialised dye-shops developing to meet the finishing requirements of the merchants either on their own premises or in separate establishments. (3) One of Gott's innovations was the development of a modern dye-house and his example was followed by other manufacturers, particularly

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(1) Luccock, *op. cit.*, p. 172. The use of indigo for dyeing was not often attempted by the domestic clothier.

(2) cf. C. Singer and others, A History of Technology, (Oxford, 1958), vol. iv, pp. 257-67.

(3) S.C. of 1806, pp. 7-9. There were 16 dyers in Leeds in 1798 and 46 in 1830, according to contemporary directories.



(1)  
 in the 1820s. The use of steam for the heating of the dye-vats not only improved the dyeing processes, but it led to the drying of cloths by steam-heated cylinders. (2)  
 After 1820 a good deal of outdoor tentering was being replaced by the indoor tentering of cloths in steam-heated chambers. (3)  
 The demand for cotton-warped fabrics in the late 1830s raised considerable problems in the dyeing of a cloth which was a marriage of vegetable and animal fibres, but by 1840 the art of dyeing in the industry was losing its rule of thumb character and elaborate recipes and the careful use of steam heat were extending the range and consistency of the colours used in treating woollen fabrics. (4)

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(1) cf. Crump, op. cit.,

(2) Sir George Head, A Home Tour through the Manufacturing Districts of England in the summer of 1835, (1836), p. 180.

(3) Report from the S.C. on the Laws relating to the Stamping of Woollen Cloth, 1821 (437), p.31.

(4) cf. Dyeing recipes used at Bean Ing, Crump, op. cit., pp. 309-11. By contrast with wool, cotton is extremely difficult to dye, chiefly due to the absence of nitrogen in its chemical composition. In addition, the vegetable fibre is impregnated with 'naturally earthy matter which acts as a mordant' in an inconsistent fashion which produces a variegated effect after dyeing. cf. A. Clow and N.L. Clow, The Chemical Revolution, (1952), p. 205; Wadsworth and Mann, op. cit., p. 159 and p. 178.

The oil used in spinning and weaving was removed from the woven cloth by means of scouring which, in the case of coloured pieces, preceded the dyeing process. Scouring was usually done at the fulling mill, urine, fuller's earth and soap were the chief cleansing agents employed. The fulling of the cloth reduced the fabric in width and length, after which it was stretched on outdoor, later indoor, tenters. Fulling was an old-established and power-driven process which changed little during the period, though steam-driven fulling hammers were introduced and improvements in the design of water-wheels, gearing and shafting were noticeable in the 1830s. (1) Raising, shearing and pressing were the essential finishing operations following fulling and tentering. (2) In the late eighteenth century these were all handcraft activities: the raising was done by means of a hand appliance set with teazles: shearing was effected by the use of hand shears: and the cloth was then brushed and pressed to give the face a slightly lustrous appearance. (3)

William Hirst claimed to be the first to use successfully the gig mill and the shearing machine in

(1) cf. Ure, op. cit., p. 35; Encyclopaedia Britannica, (1842), vol. xxi, p. 933.

(2) Raising or 'mazing'; shearing or 'cropping'.

(3) Rees, op. cit., vol. xxxviii.

Yorkshire for the mechanical raising and shearing of cloth,<sup>(1)</sup>  
 but, as Crump has argued, there is strong evidence to suggest  
 that these mechanical appliances were being used experiment-  
 ally in the Huddersfield and Halifax districts in the early  
 1780s.<sup>(2)</sup> The improvement of the shearing frame by Harmar in  
 1787 and 1794 probably led to further attempts to extend its  
 use which explains the frequent references to the shearing  
 frame and the gig mill by witnesses from these two towns  
 before the 1806 Committee.<sup>(3)</sup> There is little evidence,  
 however, of the gig and frame being used with any regularity  
 in Leeds before Hirst led the way in 1816.<sup>(4)</sup> In the 1820s,  
 Gott applied power to the finishing operations, introducing  
 the Lewis Cross-Cut shearing machine in 1824. These  
 innovations spread steadily throughout the industry in the  
 late 'twenties and 'thirties, and the merchant-manufacturers

(1) W. Hirst, op. cit., Pt. 1, pp. 16-17.

(2) Crump, op. cit., pp. 50-1. The Luddite Riots of 1812, which were aimed against the use of gigs and frames were centred on the Huddersfield district.

(3) S.C. of 1806, esp. pp. 220-2, 234-6, 249, 258-60, 261-7, 279.

(4) The hand croppers seem to have been a powerfully organised force in Leeds in the early nineteenth century and their resistance to the use of the new machinery chiefly explains the slowness, by comparison with Huddersfield, with which mechanical dressing became established in the town. William Hirst was born in Huddersfield in 1777 and had been apprenticed as a hand cropper before obtaining employment with Benjamin Gott in Leeds in about the year 1800. After a few years with Gott he started his own cloth-dressing enterprise.

set up specialised dressing-shops where the techniques of the Huddersfield dressers and of Hirst and Gott were emulated.

Another innovation in the finishing of cloth which was introduced into Yorkshire from the West of England in 1824 was the roll-boiling process 'which produces a permanent lustre on the face of the cloth, that neither spots by rain, nor is removed by damp ... the permanent face is imparted by rolling the cloth ... round a cylinder, not very tightly, and putting it in scalding water for two or three hours, then taking it out and letting it cool: this had to be done several times during the process of dressing.'<sup>(1)</sup>

#### Types of cloth.

The improvements in the dyeing and finishing processes enabled manufacturers to extend their range of fabrics and to experiment with the production of 'fancy' cloths, in addition to varying the colour and finish of the traditional broadcloths of the trade. Broadcloths, usually sixty inches in width, were made of every quality ranging from the very cheap to the superfine made from choice German or Spanish wools. They were plain-woven, dyed in uniform colours - black and indigo were

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(1) Exhibition of the Works of Industry of All Nations, Reports by the Juries, (1852), p. 350. Similar methods of glazing the cloth seem to have been tried out in Yorkshire before the adoption of the West of England process, but 1824 seems to mark the beginning of a regular use of this kind of cloth finishing in the West Riding.

common tints - and usually given a smooth finish. The dressing of the cloth was highly important in the case of the superfines and William Hirst was producing fabrics at 20s. to 34s. per yard, and some cloth of the value of £5 per yard in the early 'twenties. (1) Leeds and the neighbouring villages, and Saddleworth were the chief broadcloth producing districts in the West Riding. Blankets and uniform cloths were also woven on broad looms and produced throughout the West Riding, but particularly in the Leeds district and in the Dewsbury-Batley-Heckmondwike area. (2) There were many qualities and varieties of blanket cloth which may be roughly grouped under four heads: blankets; 'points'; flushings; and duffles. Blankets were usually sold in pairs and were self-coloured or striped, made in various widths and weights and designated for quality as 'merino', 'super', 'fine', 'medium', 'common', 'radical' and 'low radical'. (3) Points were heavier than ordinary blankets, brightly coloured or striped in three or four colours, and also sold in pairs. (4) Flushings

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(1) William Hirst, op. cit., Pt. 1, pp. 12-17, 23-4.

(2) Flannels were also produced at Heckmondwike.

(3) In the late 'twenties the Yorkshire blanket makers began to describe some of their better quality products as 'Witneys'.

(4) See below, p. 596.

(druggets and calmuks) were heavy broadcloths of coarse quality, sold by the yard, and duffles (duffils, duffields, fearnoughts and bearskins) were thick, shaggy cloths sold by the piece and 'manufactured on the same principle as blankets, but ... milled much thicker ... and also raised to a deeper pile.'<sup>(1)</sup> In the late eighteenth century the first twilled cloth was made in the West Riding, probably at Huddersfield. This was a departure from the usual plain weave and marks the beginning of design in woollen weaving. The twill was a diagonal ribbing effect across the cloth, obtained by dividing the warp threads into pairs as the weaving proceeded. This twilled cloth was woven on the narrow loom and finished to a width of 27 inches, it was known as kerseymere or cassimere. Aikin, in his examination of the trade of Huddersfield in 1795, noted that it consisted of 'broad and narrow cloths: fancy cloths ... and kerseymeres' and that 'the qualities run from 10d. to 8s. per yard, narrows.'<sup>(2)</sup> The kerseymere was usually dyed or printed and a lighter, thinner version of this fabric, known as a pelisse cloth and used for ladies' mantles, was also developed at Huddersfield.

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(1) Rees, op. cit., vol. viii.

(2) Aikin, op. cit., p. 554.

These fancy cloths were the forerunners of other novelty cloths which became the mainstay of the Huddersfield trade after 1820, but they were also produced, to a lesser extent, in other parts of Yorkshire woollen region. (1)

Ratteens and frizes were woven on the same principle as kerseymeres, but to a thicker texture, and the nap of the cloth was then well raised and twisted into small knots. (2)

Swansdowns and tolinets were soft, thick, fancy cloths deriving their patterned characteristics from the fact that they were woven from cotton warps in combination with woollen wefts. We have already noted the dyeing problem which was presented when these two fibres were associated together in a fabric, and in producing these cloths the difficulty seems to have been partly overcome by dyeing the warp and weft yarns separately before weaving, but some 'bleeding' of the colour often occurred during the fulling process. (3)

Striped and checked swansdowns and tolinets were made in Huddersfield, and in Leeds they were made in a plain weave. (4) They were

- (1) Kerseymeres and other fancy cloths were not subjected to the provisions of the Stamping Laws and their growing production after 1820 must have tended to weaken the system of stamping. cf. S.C. of 1821, p. 131. G. Walker of Horbury told this Committee that he 'started making kerseymeres in 1819.'
- (2) This was effected by means of the 'napping engine' or the 'frizing mill'.
- (3) Rees, op. cit., vol. viii.
- (4) Crump, op. cit., p. 55. The Leeds manufacturers seem to have relied mainly on brightness of colour in competing with the Huddersfield products.

especially suited for tailoring into fancy vests, although in the 'thirties they were gradually superseded by the 'flowered waistcoatings' produced on the 'Witch' or Jacquard loom. (1)

In design generally there were few developments in the Yorkshire trade before 1840, although some of the Huddersfield manufacturers seem to have been aware of the necessity for introducing new patterns and styles of cloth in order to maintain their competitiveness with each other and with the French woollen cloth makers, whose standards of design were generally acknowledged to be in advance of the English in the first half of the nineteenth century. In the 'thirties French patterns were being procured and copied in Yorkshire (2) and, in 1835, J.C. Milner of Huddersfield, manufacturing fancy waistcoatings, said that he invented his own patterns, but also bought designs at 5s. each from travelling artists who visited his factory from time to time. (3) In the West Riding region, outside of the Huddersfield district, there seems to have been less interest in design, probably due to the concentrated efforts which were made to cheapen costs of production.

(1) Crump and Ghorbal, op. cit., p. 121.

(2) See below, p. 581.

(3) Report from the S.C. on Hand-Loom Weavers Petitions, 1835 (341) xiii, p. 126.



These various improvements in the techniques of production accelerated the migration of labour to the factories, and by the late 'twenties such movement was already well under way. Gervaise Walker of Horbury, near Wakefield, complained in 1828 that 'in our village we have between 400 or 500 houses, and there are eighty houses standing empty; the hands have removed to Leeds and Huddersfield, to the merchant manufacturers.'<sup>(1)</sup> On the other side of the coin, it was noted at the same time, that 'the increase of the manufacture is great ... there are a great many more yards of cloth made, and ... it is carried on on a much better system.'<sup>(2)</sup>

(iii) THE RISE OF THE MERCHANT MANUFACTURER.

In the eighteenth century the production of woollen, as contrasted with worsted, cloths was a very widely scattered activity and an incomplete survey, contained in a Report from a Committee of the House of Commons in 1752, listed over 40 different towns and localities in England in which the trade had taken root and where presumably the minimum necessary conditions to sustain this kind of textile

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(1) S.C. of 1828, p. 258.

(2) ibid. p. 136. This value judgement was, of course, challenged by the opponents of the factory system.

(1)  
 working existed. Before discussing, therefore, the advent of the merchant-manufacturer in the West Riding, and the changes in the organisation of the industry associated with this development, it is pertinent to discuss briefly the locational factors upon which the Yorkshire manufacture was founded. The influence of the physical setting of this area upon economic activity has been usefully discussed by W.B. Crump and G. Ghorbal:

The industrial development of the southern Pennines is the outcome of the physical conditions or environment. Climate, elevation, and configuration; soil, rocks and minerals; water supply and streams have all combined to provide a stage that has proved itself to be well adapted to the manufacture of cloth. Yet it was rather the natural disadvantages of the region, the rigorous and rainy climate, the barren shallow soil, the great moors and wastes, that first compelled a scanty population to turn to the raising of cattle and sheep and to the weaving of the home-grown wool. (2)

Although access to a supply of raw wool is obviously necessary for the establishment and maintenance of a woollen cloth manufacture, it is not in itself an essential factor

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- (1) Report from the Committee upon the Petitions relating to the false Winding of Wool and the Marking of Sheep with Pitch and Tar, 1752. cf. Bischoff, op. cit., vol. i, pp. 149-53.
- (2) W.B. Crump and G. Ghorbal, History of the Huddersfield Woollen Industry, (Huddersfield, 1935), p. 11. See esp. Ch. 11. See also W.B. Crump, 'The West Riding Wool Textile Industry in its physical setting', Journal of the Textile Institute, vol. xxvi (1935), pp. 1-20.

determining the location of the industry, wether in the vicinity of sheep-farming or near the ports of entry for foreign fibres, and the fact that wool-growing and cloth manufacture are sometimes in close proximity does not invalidate this statement. (1) The value of wool, in relation to its weight and bulk, is high, which enables it - and this applies even to the cheapest varieties - to bear the cost of transportation with little difficulty. This is also true of wool after its fabrication into cloth, and there are thus no marked source-of-raw-material or destination-of-finished-product pulls exerting themselves upon the industry. The lodgement of the industry in particular places, as is stressed above, is more directly and fundamentally influenced by the conditions necessary for success in the major processes of the manufacture; and the amount and character of the water supply and, at a later stage, the presence or absence of coal (2) are of salient importance in explaining its location in Yorkshire

(1) '... the convenient position of Witney upon the edge of the sheep-rearing Cotswold country ...' is cited by Plummer as one of the 'prime reasons' for the location of the Witney blanket manufacture. A. Plummer, The Witney Blanket Industry, (1934), p. 5.

(2) A high degree of relative humidity is also a significant requirement in textile production, but satisfactory conditions are found in many parts of Britain and, for wool cloth making, it is not a strategic locational consideration. It was stated in evidence to the Committee on Industry and Trade, by the witnesses from Yorkshire, that 'the West Riding possesses, in the humidity of its atmosphere, a natural advantage, especially for the spinning of crossbred yarns.' Survey of Textile Industries, 1928 (Cmd. 3282) vii, p. 164.

The high moorlands and dissected vales of much of the West Riding area are founded, geologically, on Millstone Grit strata in the north and west meeting lower elevations and slopes of the Coal Measures to the south and east. The Grit country attracts an abundant rainfall which, owing to the relatively low porosity and composition of the rock formation, provides a good surface supply of water, spread over the hillsides as well as in the valleys, of a pronounced softness of character which, in its gentle treatment of the wool fibre, makes it peculiarly suitable for the woollen textile processes of scouring, fulling and dyeing. The absence of lime also partly explains the agricultural deficiencies of the soil and the development of a 'farmer-weaver economy' in this region and, with the associated reason of separation from the coal-fields, explains why, although some domestic spinning of yarn was established in the limestone dales to the north of the Aire, <sup>(1)</sup> these valleys were never developed as important manufacturing areas. These physical factors stimulated the establishment of three types of population distribution in the West Riding: the upland settlements where spinning and weaving were carried on in alliance with agriculture; the lowland hamlets clustered around the corn and fulling mills occupying

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(1) Particularly worsted yarn. cf. E.M. Sigsworth, Black Dyke Mills, p. 13.

riverine sites in the valleys where the swift flow of the stream could be dammed to drive water wheels; <sup>(1)</sup> and the market towns where the finishing trades, together with merchanting, were mainly established. Two eighteenth century maps of Yorkshire - Jefferys' in 1771 and Tuke's in 1782 - amply confirm this picture of scattered valley habitations, and of 'an industrial population settled upon the land, much thicker than any agricultural population and yet not congregated in towns, nor largely in villages, but dispersed on the hills.' <sup>(2)</sup>

The Coal Measures not only provided the mineral wealth of coal and ironstone, but offered also a better agricultural habitat than that of the Grit country and more congenial sites for settlement. <sup>(3)</sup> The contiguity of the millstone and the coal proved a highly favourable territory for the establishment of market towns. A glance at the map reveals the towns of Leeds, Huddersfield, Halifax and Bradford occupying such advantageous positions, from which they extended their spheres of influence along the valleys up into the Grit region, drawing to themselves the trade and commerce of the villages and smaller

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(1) Dewsbury Mills, situated on the Calder, is an excellent example of this kind of hamlet. See Chapter 4 below.

(2) Crump and Ghorbal, op. cit., p. 15.

(3) cf. K.G.T. Clark, 'Geographical Background', in J.H. Richardson, Industrial Employment and Unemployment in West Yorkshire, (1936), esp. p. 27.

(1)  
 townships. Cloth halls where the domestic clothiers could regularly offer their cloths for sale, at weekly or bi-weekly intervals, were established in these towns in the eighteenth century, notably at Leeds, and thereafter the growth of external economies, such as dyeing and finishing services, wool-stapling, home and foreign merchanting, and banking, confirmed their supremacy and placed them in a position to attract further capital and enterprise when the quickening of the growth of the industry began after 1780. (2) Although woollens were made in Halifax and Bradford, a number of contemporary writers noted the influential position attained by Leeds and Huddersfield before the transformation of the West Riding woollen manufacture from a cottage-based to a factory-organised industry. Aikin observed in 1795 that 'though the woollen trade in Yorkshire has properly no one common centre, yet the town of Leeds has latterly been always reckoned, in opulence and population, the principal place of the West Riding; and

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(1) See map as frontispiece above. The ecclesiastical influence of the church at the centre of a parish extending over a wide, surrounding area, must not be overlooked as a factor channeling the manufactures of the southern Pennine region towards these escarpment towns.

(2) Cloth halls were established in Leeds in 1711 and in 1756 for white cloths and coloured cloths respectively. The white cloth hall was enlarged in 1755 and in 1775. A cloth hall was established at Huddersfield in 1766 and enlarged in 1780. See Heaton, op. cit., Ch. xi. Huddersfield did not, before the middle of the nineteenth century, develop merchanting or wool-stapling very substantially, relying on Leeds and Bradford for these functions. There were only 4 cloth merchants in Huddersfield according to the local directory for 1830.

bears a high rank among our manufacturing towns.'<sup>(1)</sup>

Huddersfield 'is peculiarly the creation of the woollen manufacture, whereby it has been raised from an inconsiderable place to a great degree of prosperity ...'<sup>(2)</sup> A writer in 1806 proudly proclaimed that 'Leeds ... has become in a manner the emporium of the Woollen Manufacture of the County.'<sup>(3)</sup>

Bigland, in 1812, stated that 'the woollen cloths are for the most part vended at Leeds and Huddersfield markets.'<sup>(4)</sup> and a writer in 1819 was impressed with 'Huddersfield ... a large improving place' and noted of Leeds that 'the trade in woollen cloth ... is carried on here to an extent unequalled in any place in the kingdom.'<sup>(5)</sup> The two towns stimulated, and were stimulated by, the rapid industrial growth which came after 1820 and the new woollen fabrics which made their appearance after this date originated in these centres.

The economic progress of the West Riding 'woollen' towns in the first four decades of the nineteenth century is

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(1) Aikin, op. cit., p. 570.

(2) *ibid.* p. 552.

(3) The Leeds Guide, (Leeds, 1806), p. 97.

(4) J. Bigland, The Beauties of England and Wales, (1812), p. 805.

(5) Rees' Cyclopaedia, (1819), vol. xxxix, article on Yorkshire. This work has no pagination.

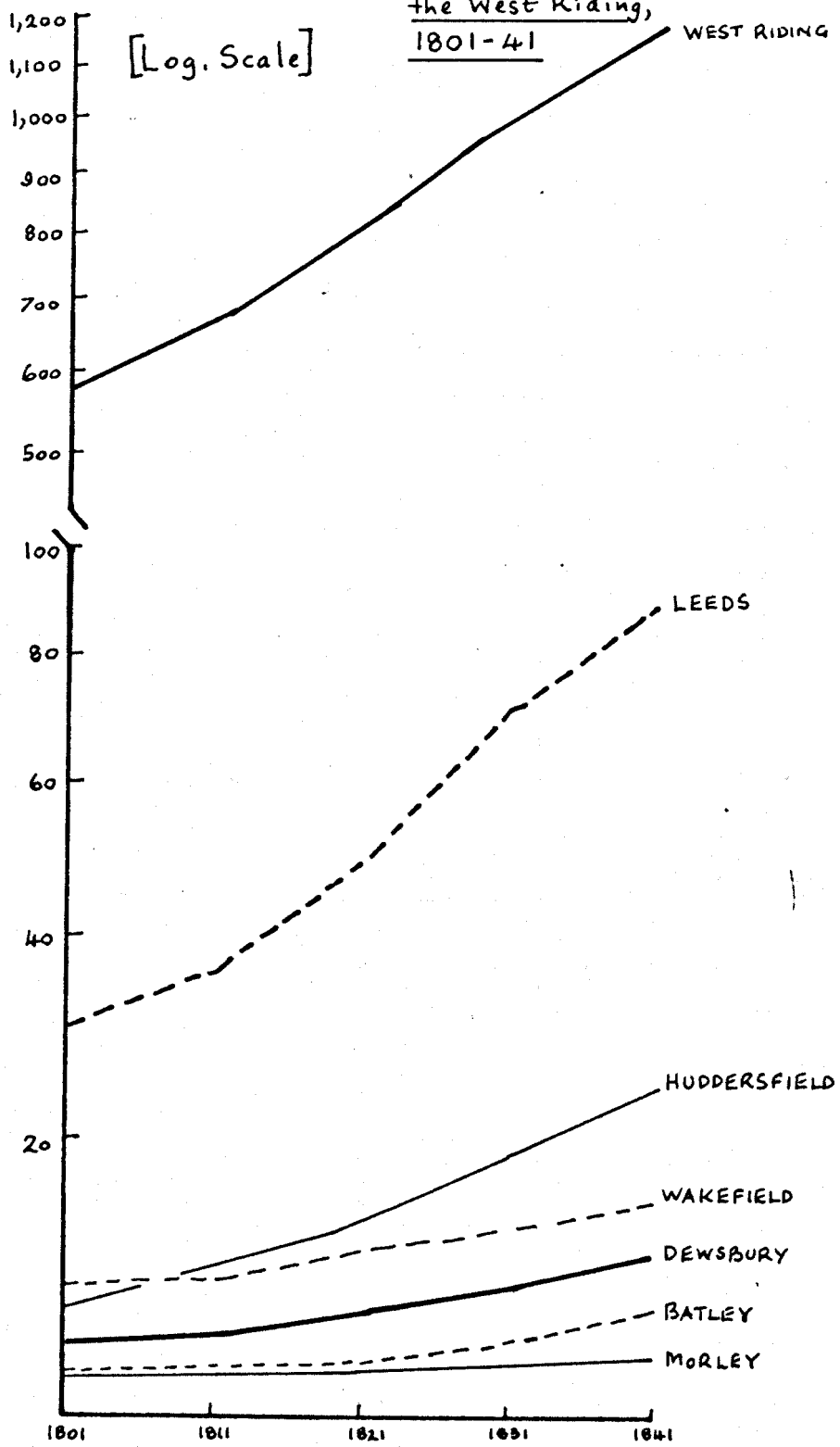
reflected in their increasing size of population and Figure 3 and Table 3 show, particularly after 1821, the rapid growth of Leeds; the lesser, but yet very significant growth of Huddersfield; and the steadier development of Dewsbury, Batley and Morley, though the latter named place was described by Parsons in 1834 as 'a mere village'.<sup>(1)</sup> By contrast, Wakefield, which had occupied a major position in the industry during the eighteenth century, grew much less rapidly than Leeds or Huddersfield for reasons which are only partially locational in character.

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(1) There was much road building in Yorkshire between 1820 and 1840 which improved communications in the area. A new Leeds-Dewsbury road was opened in 1819, see below, p. . The railway line from Manchester to Leeds was begun during the 'railway mania' of 1836 and 53 miles of line were constructed from Manchester to Normanton at a cost of £3.4 mms. cf. G.R. Porter, The Progress of the Nation, (1847), p. 331.



(Thousands) Figure 3. Population growth in  
the West Riding,  
1801-41



Source: Parliamentary Papers, 1851  
(1399) xlii, pp. 4-18.

Table 3. Population Growth in the West Riding of Yorkshire, 1801-41.

	1801	1811	1821	1831	1841
West Riding	576,336	667,518	816,144	993,869	1,176,514
Leeds	30,669	35,951	48,603	71,602	88,741
Huddersfield	7,268	9,671	13,284	19,035	25,068
Wakefield	8,131	8,593	10,764	12,232	14,754
Dewsbury	4,566	5,059	6,380	8,272	10,600
Batley	2,574	2,975	3,717	4,841	7,076
Morley	2,108	2,457	3,031	3,819	4,087

Source: Parliamentary Papers, 1851, (1399), xlii, pp. 4-18.

Note: The figures refer to townships.

Although situated on the Coal Measures, Wakefield lies a considerable distance away from the Millstone Grit escarpment, but it has a strategic position on the Calder which was further improved by the construction of the Aire and Calder and the Calder-Hebble canals which placed the town in direct water communication with Lancashire, much of the West Riding area, and with the ports of Liverpool, Goole and Hull.

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- (1) By 1800 there was canal or river navigation connecting the main towns of the West Riding with each other and with Goole and Hull. The Aire from Leeds and the Calder from Wakefield to their confluence, and the combined river from there to the tideway, were made navigable under an Act of 1699. The Calder-Hebble canal was constructed under the authority of legislation in 1758, 1769 and 1825. 'A considerable portion of this navigation occupies the original course of the river ... and the remainder consists of cuts and the avoidance of meanders and mill weirs ... It was first projected with the sole object of giving greater facilities to the populous manufacturing district situated westward of the town of Wakefield.' J. Priestley, Historical Account of the Navigable Rivers, Canals and Railways of Great Britain, (1831), p. 123. Wakefield capital played an important part in the financing of the canal construction and the initiative to secure the necessary legislation stemmed largely from that town in the middle of the eighteenth century. cf. S.H. Waters, Wakefield in the Seventeenth Century, (Wakefield, 1933), p. 86. Also Smeaton's Plan reproduced in chap. IV below.
- (2) cf. Head, *op. cit.*, p. 222 for a lively description of Goole in the early nineteenth century. W.G. East, 'The Port of Kingston-on-Hull during the Industrial Revolution', Economica, vol. xi (1931), pp. 190-212. S.C. of 1828, p. 345.

## The Domestic System

Despite the spectacular growth of the factory and the decline of Cloth Hall business in the 'twenties and the 'thirties, the domestic clothier remained an important producer in 1840. (1) John Brooke, in 1833, thought that 'the extent of the domestic manufacture in Yorkshire' had 'rather increased', (2) and the number of hand-loom in use in the region indicates the vitality of the older system. W. Stokes said, in 1833, that there were 12,000 weavers of cassinets, woollens and fancy goods in the Huddersfield district, which included the Saddleworth producers, (3) and Chapman spent two months in 1838 carefully enumerating the hand looms in use in the Leeds and Bradford areas. He registered 10,029 for the Leeds clothing district, of which 4,238 were in the town and borough of Leeds. (4) Many contemporary accounts support this picture of the tenacity of the hand weaver clinging to his craft whilst the other associated processes were succumbing to

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- (1) 'The number of small manufacturers, and the quantity of cloth produced by them, have both increased since 1806.' Penny Cyclopaedia, p. 556.
- (2) S.C. of 1833, p. 118.
- (3) ibid. p. 646.
- (4) Hand-Loom Weavers' Asst. Commissioners' Reports, 1840 (43-II) xxiii, p. 527 et seq. The whole of Chapman's report, pp. 527-63, constitutes a detailed and lively account of the West Riding industry.

(1)  
the power and organisation of the factory.

The building of new mills and the enlargement of existing ones in the 1830s seems to have been financed largely from profits derived from within the industry, though the prevailing low rate of interest gave an added stimulus. (2)

There is little evidence that the country banks or the London banks provided any finance for fixed capital investment, though circulating capital was sometimes obtained in this way. (3) The domestic clothiers and the small masters took advantage of the prevailing system of buying raw materials on credit and of obtaining quick advances on their sales of finished goods, and some of them acquired control over substantial resources, and informal Private loans negotiated between friends and relatives were not uncommon, see below, p. 385., but entry into serious factory production required the sinking of relatively large amounts of liquid funds in

- (1) See particularly the account of the Leeds Coloured Cloth Hall in Head, op. cit., pp. 173-5.
- (2) See ev. of S. Gurney, S.C. of 1833, (690) vi, p. 3, emphasising that capital was abundant and the rate of interest low during the period. The cost of building and machinery was falling in the period 1825-33, *ibid.* p. 117.
- (3) cf. L.S. Pressnell, Country Banking in the Industrial Revolution, (Oxford, 1956), esp. Ch. 10. See also, pp. 385-6 below. The finance of the West Riding textile industry in the nineteenth century deserves extended treatment.

(1)  
land, buildings and machinery. The West Riding does not seem to have attracted capital from other parts of the country, except insofar as the funds employed by the merchants of Liverpool, Manchester and London under-pinned much of the foreign trade in Yorkshire cloth.  
(2)

The availability of water power in the West Riding dispersed the factories in the rural areas, whilst the steam engine concentrated them in the towns and larger villages. Of the 130 mill proprietors who made returns to the Factories Inquiry Commission in 1834, 72 of them reported that they were using steam engines, 35 were using water wheels, and 23 were using both steam and water.  
(3) The incomplete returns of 1839 carried the information that the power supplies of the 606 woollen mills drew their power from 377 steam engines and 243 water wheels.  
(4) Over 70 per cent. of the engines

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- (1) Benjamin Gott and his partners spent something more than £12,000 on establishing Bean Ing, apart from the cost of the land. Crump, op. cit., p. 257. See below, p. for the initial capital outlay of John Hague on Dewsbury Mills. William Hirst obtained £10,000 on a bank advance for running expenses in 1813, but he seems to have invested some of this in fixed capital. In 1816 he had £21,000 invested in 'buildings and machinery'. cf. Hirst, op. cit., Pt. 1, pp. 16-18. See also, W. Hodgson, Textile Manufactures and other industries in Keighley, (Keighley, 1879), passim.
- (2) See below, p. 139 .
- (3) Factories Inquiry Commission, Supp. 11, Section C.1. passim.
- (4) Factory Inspectors' Reports, 1839 (42) xlii, p. 272, et seq.

were developing less than thirty, whilst a dozen were producing more than fifty, horse power; and 80 per cent. of the wheels were below 20 horse power in energy-output, although one wheel in Dewsbury parish was of 35 horse power, and in Saddleworth parish there was an 80 horse power wheel. (1)

Although it was true that 'coal abounds throughout the area' and that the steam engine rendered the factory owner independent of the weather and the seasons, yet, in this period, the steam engine was not rapidly ousting the water wheel, for its greater efficiency was still not clearly established. Up to about 1830 'it may be said that the standard prime mover for the larger mills and factories was the Watt jet-condensing beam-engine, using steam at little more than atmospheric pressure,' (2) In the early nineteenth century there had been some marked improvements in the efficiency of water wheels, especially the change from under-shot to over-shot and, later, to breast wheels, (3) and this, combined with cheapness of operation, accounted for their provision of nearly 25 per cent.

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(1) Factory Inspectors' Reports, 1839 (42) xlii, p. 272 et seq.

(2) R.J. Forbes, 'Power to 1850', p. 197 in C. Singer and others, A History of Technology, (Oxford, 1958), vol. iv.

(3) The use of metal in the construction, ventilated buckets, and improved gearing were also evident. cf. Rees' Cyclopaedia, vol. xxxviii, article on Water.

of the power generated in West Riding woollen factories in  
 (1)  
 1838.

During the eighteenth century the merchants of Wakefield, exploiting their advantages of a well-established chartered market and a nodal situation in Yorkshire communications, built up a major position in the marketing of corn and the stapling of wool, as we have noted above, (2) and in the dyeing, dressing and marketing of cloth, especially the thin, glazed, worsted 'tammy' cloth, known also as 'wildbores'. The Tammy Hall, where these worsted pieces were traded, was erected in 1766. (3) Aikin regarded Wakefield 'as one of the handsomest and most opulent of the clothing towns, being inhabited by several capital merchants, who have costly and elegant houses. It is large and populous, and possesses a considerable share of business.' (4) The town certainly suffered a decline in its economic activity following the severe contraction of the Continental markets for Yorkshire worsteds as a result of the

(1) Factory Inspectors' Reports, 1845 (639) xxv, p. 483.

(2) See above, p. 82 .

(3) A woollen cloth hall, one of the earliest in the north, was built at Wakefield in 1710. cf. Heaton, op. cit., p. 382. The Tammy Hall was deserted by 1830. *ibid.* p. 365.

(4) Aikin, op. cit., p. 579.



Napoleonic Wars, but after 1815 it was as advantageously placed as the other Yorkshire woollen towns to participate in the rapid expansion of the industry. Local historians seem to be agreed that such an expansion was not recorded in the case of Wakefield because of the very prosperity of a former period, which might have been expected to form the basis of further economic progress:

... the aristocracy of Wakefield who had already made their fortunes (by commerce in the eighteenth century) refused to permit mills or factories to be established there: they were well content ... to attend the markets in other towns, but they would not have manufactures brought to Wakefield. Indeed they went so far as to have it inserted in their indentures of apprenticeship that those bound should not exercise their trade within ... ten miles of Wakefield. This sent the manufactures to Leeds and Bradford. It was however but a short sighted policy ... (2)

This exclusiveness of the Wakefield community was also based in part on an older historical tradition stemming from the gild and corporate functions exercised in the town during an earlier era, and it has a bearing upon another aspect of

- (1) The relative prosperity which led to the downfall of Wakefield in relation to Leeds, Huddersfield and Bradford, finds a parallel on a larger scale in the West Country cloth region's decline in relation to the West Riding in the nineteenth century where a similar situation seems to have been one of the important retarding factors.
- (2) Rev. C. Camidge, A History of Wakefield, (1866), p. 8; also J.W. Walker, Wakefield: its history and its people, (1939), vol. ii, p.398; and E. Charlesworth, 'A Local Example of the Factors influencing Industrial Location' Geographical Journal, vol. xci (1938), pp. 340-51.

the diversification of woollen cloth manufacture in the West  
 Riding. (1) By contrast with Wakefield the smaller settlements  
 of the Calder Valley were relatively late in acquiring regular  
 markets and developing commercial facilities. Dewsbury, for  
 example, had no market charter before 1740. The white cloths  
 (undyed and unfinished) produced by the rural weavers of the  
 valley were subjected to tolls, as late as 1700, if they were  
 exposed for sale in Wakefield market, the natural outlet for  
 the manufactures of the area. To escape these impositions  
 the country clothiers sought alternative markets; some cloths,  
 especially blanket cloths, were disposed of to country hawkers;  
 some were sold at the free fair at Ardsley (which appears to  
 have flourished as a cloth market up to the middle of the  
 seventeenth century); (2) but increasingly in the seventeenth  
 century the cloths of the Calder valley were vended to

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(1) A notable victim of the Wakefield attitude was Titus Salt  
 who learned the wool-stapling business in the town and  
 attempted to set up manufacturing there in the early  
 'twenties. He reacted to the opposition which he  
 encountered by siting his manufactory in the Aire valley  
 in the vicinity of Bradford and this became the nucleus  
 of the new town of Saltaire. See Walker, op. cit.,  
 pp. 402-3, and Fortunes Made in Business, (1884), vol. 1,  
 pp. 294-5.

(2) Traditionally known as Lee Gap Fair.

(1)  
 merchants in Leeds. Communications with that town, from the Calder townships and villages by road, were reasonably well-developed by this time and the flow of white cloths from the Calder vale to Leeds broadened and accelerated throughout the eighteenth century. That this cross-valley route to Leeds was not as naturally convenient as the down-valley route to Wakefield is borne out by the number of attempts which were made to develop alternative cloth markets in the Calder region. An abortive experiment was made to erect a cloth hall at Hightown, four miles north-west of Dewsbury, in 1709 and later in the century, when the white cloth hall at Leeds was proving inadequate to cope with the volume of business, the blanket-makers of the Spen valley took the initiative in building a cloth hall at Gomersal, two miles north of Heckmondwike, in 1774. The Leeds merchants effectively met this challenge by

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- (1) It seems likely that the failure of Wakefield to exploit its natural advantages to dominate the Calder valley industries offers a clue to the origin of the differentiation in cloth production which was developing towards the end of the eighteenth century in the West Riding, coloured cloths being produced mainly in the Aire valley, stimulated by the Leeds dressing and finishing trade, whilst the Calder clothiers clung to their traditional white cloth manufacture. There are certainly no physical or technical reasons to explain the development and a commercial explanation of the matter is probably near the truth.

building a larger hall for white cloths in the town in the  
 following year. <sup>(1)</sup> But during the Napoleonic Wars, when the  
 demand for blankets and uniform cloths was high, the Spen  
 valley clothiers effectively established a blanket market at  
 the George and Dragon Inn, in the market place at Heckmondwike  
 and its successors led to the erection of a separate Blanket  
 Hall, behind the inn, in 1811. This attracted the Leeds  
 merchants and became the blanket market for the West Riding.  
 It survived a challenge from Dewsbury in 1837 and a new and  
 larger hall was completed in 1840. <sup>(2)</sup>

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- (1) The Cloth Hall at Gomersal seems to have survived for  
 some years, but it never effectively established itself  
 in the face of the competition from Leeds. From 1793 to  
 1807 it was used as a button mill and after the latter  
 date it was taken over and used as a woollen cloth mill  
 by Joseph and Edward Swaine.
- (2) See T.W. Thompson, The Spen Valley, (Heckmondwike, 1925),  
 pp. 232-6; F. Peel, *op. cit.*, pp. 333-5. A large cloth  
 hall was built at Dewsbury in 1837 but it never  
 succeeded in attracting the Leeds merchants and it  
 ceased to function within a few years. Thomas Cook  
 of Dewsbury Mills was active in initiating the Dewsbury  
 venture. See below, p. .

The concentration of blanket-making in the middle Calder valley and in the lower valley of the Spen, a northern tributary of the Calder, <sup>(1)</sup> is also probably explained, in part, by the early economic dominance and later exclusiveness of Wakefield. Blankets are basically white, broad cloths, although coloured, decorated and patterned blankets were also produced, increasingly so in the nineteenth century. Before 1790 the making of these fabrics, often from indigenous and very coarse wools, was a widely dispersed activity in Yorkshire. After this time the manufacture of blankets gradually became localised in the region whose boundaries have been traced above as a residual effect of the Yorkshire clothiers, especially those of Leeds and Huddersfield, pushing their way first into the fine, broad cloth trade, which had formerly been largely the speciality of the West of England producers, and later initiating the 'fancy' cloth trade. <sup>(2)</sup> The Calder blanket makers were generally men of small capital resources; they had little access to outside capital in their commercially under-developed region; they derived no economic

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(1) The area now known as the 'heavy woollen district', roughly triangular in shape with points at Ossett, Morley and Mirfield, and containing Dewsbury, Batley and Heckmondwike.

(2) See evidence of Benjamin Gott in S.C. of 1828, p. 285, for the origin of the fine cloth trade in Yorkshire.

leadership from their natural mercantile centre, Wakefield; they were thus not in a position to emulate with any marked degree of success the innovations of their Leeds and Huddersfield neighbours. They concentrated, therefore, on a branch of the trade with which they were long familiar and which was being abandoned elsewhere in the area in favour of finer quality cloth making. The French wars gave a large impetus to the trade and enabled the Calder clothiers to institute their own blanket market at Heckmondwike which, as we have noted, attracted the Leeds merchants. Benjamin Gott was a regular attender at this market, buying blankets which had been made for chance sale and also giving out orders, and although his own large blanket manufactory at Leeds established in the early 1800s was a formidable competitor with the Calder trade, yet Gott's success in securing government contracts and other large orders from the Hudson's Bay and East India Companies in the face of the old-established interests of Witney brought advantages to the Calder trade as well as to Leeds. (1) Once the trade had become localised the process of concentration was accelerated by the improving market facilities which were developed and then by the exploitation of the increasing flow of noils from the growing worsted industry and the

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(1) cf. H. Heaton, 'Benjamin Gott and the Industrial Revolution in Yorkshire', Economic History Review, vol. iii (1931), No. 1, pp. 45-66; A. Plummer, *op. cit.*, esp. pp. 77-8, 93, 102, 232-40.

waste products from the fine woollen cloth manufacture. The expertise gained in the utilisation of waste fibres, coupled with the demand for very cheap cloths, led to the later development in this district of the shoddy trade, centring mainly on Dewsbury, Batley and Morley. <sup>(1)</sup> Within the district, Dewsbury grew to prominence, effectively challenging Gott's supremacy in the American market for blankets in the early 1830s. <sup>(2)</sup> The neglect by Wakefield of its economic opportunities thus indirectly stimulated the Calder clothiers to concentrate furiously on their staple trade at a time when the rest of the Yorkshire industry was turning to new fabrics and new markets and, as a result, blanket-making in Yorkshire ceased to be a pervasive and commonplace manufacture and became, in the early nineteenth century, a highly specialised and localised industry.

The human factor of enterprise (or lack of enterprise, as we have noted in the case of Wakefield) has thus been of strong importance in explaining the marked concentration and diversification of the woollen cloth industry in the West Riding, and the insistence by Crump and Ghorbal on the influence of the physical factors is an important, but not a sufficient, explanation. One of the decisive factors in

(1) See below, p. 218.

(2) See below, pp. 588-9.

the growth of the industry in this area in the early decades of the nineteenth century was the 'export consciousness' of the Yorkshire manufacturer; his concentration on the production of cloths to meet an increasing foreign and home demand; and his apparent zest for the competitive process. Sheppard said, in 1828, 'the Yorkshire gentlemen have so much ingenuity that they have brushed us West countrymen sadly; they are stepping in upon us with great strides.'<sup>(1)</sup> John Brooke of Huddersfield emphasised, in 1833, that the Yorkshire trade was extremely keen, '... profits are at present smaller than what I have known them to be, which I entirely attribute to competition, and to no other cause.'<sup>(2)</sup> John Early, a Witney blanket manufacturer, wrote to his brother from London in 1814 with reference to a government contract for blankets:

It is the General Opinion that these Yorkshire Blades will do us and something must be attempted to prevent the same if possible ... (3)

In sum, the physical setting, the historical tradition, and the fluidity of economic and social conditions in this region,

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(1) S.C. of 1828, p. 299.

(2) S.C. of 1833, p. 152.

(3) Letter quoted by Plummer, op. cit., p. 237. On the same page there is the reference to 'This Lion Gotts is here and is determined to have this contract.'



during the period here under review, provided entrepreneurial ability with an environment within which it could operate with a high degree of success. (1) The opportunities thus presented were readily exploited by the merchant-manufacturers whose economic leadership was emulated, often successfully, by men with lesser native ability and smaller capital resource

- (1) It is pertinent to consider the reasons why the West Riding, at this time, found itself so well endowed with entrepreneurial capacity. The strength of religious nonconformity and its traditional link with thrift and capital accumulation has much to do with the answer, and the Yorkshire characteristics of 'perseverance, industry and skill' emphasised by Parsons in 1834, History of Leeds etc., vol. ii, p. 208, must not be overlooked. But the whole question is part of a complex, national phenomenon deserving of an extended analysis.

The later chapters of the present work thrown some light upon the behaviour and motivation of one nineteenth century Yorkshire entrepreneur, but for general discussion of some of the considerations involved in the analysis of the entrepreneurial function, see the following:

A.H. Cole, 'An Approach to the Study of Entrepreneurship', Journal of Economic History, (1946), vol. vi, Supp. pp. 1-15. idem. 'A New Set of Stages', Explorations in Entrepreneurial History, (1955), pp. 99-107;  
 W.A. Lewis, The Theory of Economic Growth, (1955), passim;  
 C.P. Kindleberger, Economic Development, (New York, 1958), pp. 85-8; J.A. Schumpeter, History of Economic Analysis, (New York, 1954), Part iv, Ch. v, passim.  
 C. Wilson, 'The Entrepreneur in the Industrial Revolution in Britain', Explorations ..., vol. vii (1955), pp. 129-145.

## The merchant-manufacturer

If the twenty years before 1790 saw important changes in the technical equipment of the West Riding woollen industry the half century which followed was characterised by the growth of a new unit of enterprise - the factory - which had much to do with the acceleration of the industry's development in this period. This innovation in economic organisation was largely the result of the decisions of merchants who turned to manufacturing in response to the growing demands of the market, following the example of entrepreneurs in the neighbouring Lancashire cotton trade. (1) Representatives of the two other important figures in the industry - the fulling-miller and the clothier - also expanded their functions. The fulling-miller, already controlling the only power-driven process in the industry, was in a key position to instal the new scribbling and carding mechanisms and to introduce slubbing at the mill, thus adding further commission services to his traditional staple finishing business. (2)

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- (1) Benjamin Gott, that 'intelligent capitalist', was, of course, the outstanding pioneer in merchant-manufacturing in the West Riding. For the 'Gott story' see W.B.Crump, op. cit., Chs. i, iii and iv; and H. Heaton, 'Benjamin Gott and the Industrial Revolution in Yorkshire', Economic History Review, vol. iii (1931), pp. 45-66.
- (2) Joseph Rogerson was such a typical fulling-miller, see Crump, op. cit., Ch. ii; John Greenwood of Dewsbury Mills also developed his activities along the same lines, see below, Ch. 4. Aikin, in 1795, saw 'on the river Aire ... numerous mills ... for fulling cloth, and turning machinery to spin and card wool.' Aikin, op. cit., p.577.

Similarly, some of the larger and more successful clothiers sought a stream site for the erection of a small mill where they could bring a number of processes under one roof, sometimes also adding jennies and hand-looms, so that they exercised supervision over the hand crafts as well as over the power-driven operations. <sup>(1)</sup> Yet another development of the 'factory' type which spread rapidly throughout the West Riding, was that of 'joint-stock' or 'company mills' owned by groups of small clothiers who subscribed the necessary capital in shares, at first very informally, but later on a regular partnership basis. <sup>(2)</sup> The capital was

(1) cf. Heaton, op. cit., pp. 295-6; Crump and Ghorbal, op. cit., p. 90; S.C. of 1806, esp. pp. 160, 174-183. Some clothiers also expanded their activities into merchanting, see evidence of Cookson in Report from the S.C. appointed to consider the state of the Woollen Manufacture in England, 1806 (268) iii, p. 17.

(2) The first 'company' mill near Leeds, steam driven, was erected at Stanningley in 1794. cf. Crump, op. cit., p. 73. A good account of these mills is given in the First Report of the S.C. on Joint Stock Companies, 1844 (119) vii, App. v, p. 348 et seq. The flourishing condition of these mills noted in this report throws light on the vitality of the domestic system at this time. This form of capital raising and economic organisation played an important part in the industry in the first half of the nineteenth century and the lack of a clear and comprehensive account of its development is a notable deficiency in our historical knowledge.

used to buy or lease a site and to erect a scribbling mill in which their wool was prepared for spinning and their cloth was fulled, though the latter function was sometimes performed elsewhere. Stream sites were popular, but such mills utilising steam power were also instituted in the towns. (1) Although many of the small clothiers set up carding machines and billys in their own cottages, the developments here outlined combined to draw the preparatory processes in the woollen cloth manufacture away from the upland villages into the valleys, initiating a movement which gathered momentum as the period progressed and was later to extend to weaving. But despite this variety of mill growth, it remains true that the merchant-manufacturer was the prime mover in the amalgamation of the different branches of the industry into the one organisation which earned the name of 'factory' and aroused the hostility of the small clothiers and particularly of the croppers who resented the application of power to their

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(1) There were 170 scribbling machines at work in the district 'extending about seventeen miles south-west of Leeds', in 1786. See Crump, op. cit., p. 11 and p. 315.

(1)  
 skilled hand craft of cloth dressing. This hostility led to the beginning of a parliamentary enquiry in 1803 and the subsequent Report of 1806 throws much light on the state of the industry in the early stages of industrialisation and on the activity of the merchants.

(2)  
 The Committee examined 70 Acts of Parliament which were still extant relating to the woollen manufacture, classified under the heads of laws relating to the conduct of masters and workmen; laws for the prevention of exportation of certain materials and implements; laws controlling manufacturers in the making and selling of cloth - including the Weavers' Act (3) which limited, in certain instances, the number

- (1) Their complaints formed the substance of a petition to the House of Commons in 1794. A writer in the Leeds Guide 1806, p. 101, refers to the clothiers as 'generally men of small capitals' who 'often annex a small farm to their other business', and he continues, 'we regret to say that this state of the manufacture is likely to be impaired by the increasing habit of merchants concentrating in themselves the whole process of a manufactory ...' The scribbling mills were regarded as part of the domestic system and they did not arouse the same hostility from the clothiers as the factories of the merchants. cf. Ev. of Law Atkinson of Huddersfield, merchant-manufacturer, who said that he employed his spare power on commission for the domestic clothiers. S.C. of 1806, p. 220.
- (2) Report from the Select Committee appointed to consider the state of the woollen manufacture in England, 1806 (268) iii.
- (3) 'An Act touching Weavers', 2 and 3 Philip and Mary, c. xi., 1555.

of looms housed in one building. (1) The Committee stated that 'there are three different modes of carrying on the Woollen Manufacture; that of the Master Clothier of the West of England, the Factory, and the Domestic System.' (2) The strength and vitality of the latter system was noted and its virtues praised, but the Committee, voicing a nineteenth rather than an eighteenth century philosophy, did not recommend the enforcement of old statutes or the enactment of new ones, although the retention of the Stamping Laws in Yorkshire and of some regulations dealing with the malefactions (3) of workmen were advised. The relaxation, in the late 1790s, of the apprenticeship requirements laid upon clothiers exposing cloths for sale in the Cloth Halls was noted by the Committee and, to legalise the status quo,

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(1) S.C. of 1806, p. 4. The number and scope of these long-standing legal regulations forms the basis of the traditional view that the woollen as contrasted with the cotton industry was not in the same free and flexible position to take advantage of new inventions and techniques in this period.

(2) *ibid.* p. 8.

(3) The old statutes were repealed in 1809.

(1)  
 repeal of the Act of 5th Elizabeth was recommended.

The Committee noted that 'several thousands of ... small Master Manufacturers attend the Market of Leeds, where there are three Halls ... for the sale of their Cloths.'<sup>(2)</sup> That the merchants had for some time sought to influence directly the production of cloths is clear from the Committee's observation that 'a practice has also obtained of late years, of Merchants giving out samples to some Manufacturer whom they approve, which goods are brought to the Merchant directly, without ever coming into the Halls.'<sup>(3)</sup> In discussing the factory system the Committee emphasised that:

(1) *ibid.* p. 13.

(2) Aikin, *op. cit.*, p. 574, gives a good description of the Yorkshire clothier in 1795. James Ellis stated that there were 3,500 in the Leeds neighbourhood and of these, 1800-1900 were using the Coloured Cloth Hall. S.C. of 1806, pp. 8-9. cf. The Leeds Guide, p. 57, which speaks of '1300 Master white cloth manufacturers.'

(3) S.C. of 1806, p. 9. The Committee's generalisation appears to be based mainly on the evidence of John Hebblethwaite, merchant, who stated that the practice went on to 'a very great extent', p. 159.

The Owner of a Factory ... being commonly possessed of a large capital ... may make experiments, hazard speculation, invent shorter or better modes of performing old processes, may introduce new articles and improve and perfect old ones, thus giving a range to his taste and fancy, and thereby alone enabling our Manufacturers to stand the competition with their commercial rivals in other Countries. Meanwhile, many of these new fabrics and inventions, when their success is once established, become general among the whole body of Manufacturers. (1)

The conclusion was then drawn that 'the two systems (factory and domestic), instead of rivalling, are mutual aids to each other; each supplying the other's defects, and promoting the other's prosperity.' (2) The following data of cloth production in the West Riding, based on the returns made under the Stamping Acts, were examined:

	<u>Broad pieces</u>	<u>Narrow pieces</u>
1792	190,332	150,666
1805	300,237	165,847

and it was further estimated that the total quantity of cloth manufactured in the factories, and included in the above figures for 1805, did not 'exceed 8,000 pieces' of broad cloth. (3) The Committee therefore stressed that

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(1) *ibid.* p. 12.

(2) *ibid.* p. 13. The extreme *laissez-faire* view which runs through the whole of the Report reflects the spirit of the times and the composition of the Committee.

(3) *ibid.* p. 11. About  $2\frac{1}{2}\%$  of total broad cloth production.



domestic cloth production, during these thirteen years, had increased absolutely and relatively by comparison with factory production. <sup>(1)</sup> The Committee also summarised the evidence it had heard on the progress of the factory system in the statement that 'several Factories ... had long been established near Halifax and Huddersfield, but the principal progress of the Factory system ... is stated to have been, within about the last fourteen years, in the town and neighbourhood of Leeds.' <sup>(2)</sup>

#### Factory growth

The early woollen 'factories', as we have noted, were scribbling mills owned by the one master manufacturer or jointly by the smaller clothiers on a joint-stock basis. Gradually the processes of spinning and weaving were concentrated in the factories, although before 1840 in this branch of the Yorkshire textile industry there was little spinning by power and hardly any use of the power loom, and

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(1) *ibid.*

(2) The increasing relative production of broad cloth reflects the growing success of the fine quality cloth trade and the use of the fly-shuttle. Robert Cookson, clothier of Holbeck, told the Committee that the first factory was established in Leeds in 1789, but he proffered no evidence on the exact operations carried on there. *ibid.* p. 76. Bean Ing was instituted by Benjamin Gott and his associates in 1792.

the early integrated establishment consisted of power-driven  
and manual operations brought together in one place. (1)

In the 1830s the building of woollen mills in the West  
Riding was 'immense, enough to astonish anybody,' (2) and  
from 1833 to 1838 their total number increased from an  
estimated 129 to a reported 606. (3) These statistics must

- (1) The more rapid development of the factory system and the earlier introduction of power-driven spinning and weaving in the Yorkshire worsted trade, and the horizontal structure of that trade, compared with the woollen branch of the Yorkshire industry, seems to have been due to technical and commercial factors. cf. J.H. Clapham, 'Industrial Organisation in the Woollen and Worsted Industries of Yorkshire', Economic Journal, vol. xvi (1906), esp. pp. 515-17; E.M. Sigsworth, op. cit., pp. 11-17.
- (2) S.C. of 1833, ev. of Hughes, Q. 1104. He also added that 'in the town of Huddersfield there are more new mills building than in any other part of Yorkshire.' Q. 1289. 'There was some improvement in mill design and construction in this period, especially after 1827, with a greater use of iron instead of wood as a building material and the introduction of the 'saw tooth' roof construction which admitted more light to the premises. The growth of fire insurance seems to have been exerting some effect upon the design and lay-out of mills in the 'thirties. cf. Sir William Fairbairn, Treatise on Mills and Millwork, (1878), pp. 394-6; J.M. Richards, The Functional Tradition in Early Industrial Building, (1958), pp. 75-7.
- (3) Of the 129 woollen factories in 1833 only 12 were used for weaving as well as the scribbling, spinning and finishing processes. 11 of them were used only for the finishing of cloth, and 36 of them were unclassified. In 92 of these factories the total employment was stated as 9,659 persons. Over half of these establishments had an average employment of between 30 and 70, whilst the largest firm employed 687 people. See Report from the Factories Inquiry Commission, 1834 (167) xx, Supp. ii, pp. 793-1080; also H.D. Fong, Triumph of the Factory System in England, (Tientsin, 1930), for summaries of early estimates of factory growth with the calculation of various statistical averages of numbers employed

be accepted with caution, they are almost certainly incomplete, do not distinguish between the large town factories and the smaller rural mills, nor do they throw much light on the number of enterprises engaged in factory production, for often two or more 'firms' shared the same premises, a development encouraged by the growing practice of mill proprietors of leasing 'room and power' to the smaller clothiers.

(1)

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- (1) The 'room and power' arrangement was prevalent in the Calder valley, as was the 'company' mill, particularly in the Morley area, see Smith, op. cit., p. 215. '... about Huddersfield there are some mills that have 10 or 12 occupancies ...' First Report from the S.C. on the Act for the regulation of Mills and Factories, 1840 (203) x, Q. 2911.

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footnote 3 from p. 107 ... continued

per factory. It must be remembered that the manufacturers were, by the middle 'thirties, also directly employing many of the former independent clothiers as out-door workers on piece rates and they sometimes owned the looms and equipment used by these employees. See Oastler's ev. to the S.C. on Hand-Loom Weavers' Petitions, 1834 (556) x, p. 279.

The 1838 figure of 606 woollen mills is reported by Saunders and Horner in a return for the year ending June 1838, Factory Inspectors' Reports, 1839 (42) xlii, p. 272 et seq. Of this total there were 106 in Leeds, 100 in Huddersfield, 24 in Dewsbury, 21 in Batley and 63 in the Saddleworth area. The total employment was 27,548 persons (slightly more than the total employed in the worsted trade in Yorkshire), and approximate average of 45 persons per factory. Employment in the Dewsbury area was reported as 1,179.

The incentives operating to attract merchants into manufacturing, in the 1790s and early 1800s, were those of cost reduction and quality control. These in turn were derived from the main objective of the Yorkshire industry, at this time, which was to thrust its way into the fine quality, broad cloth trade. The gathering together of all, or nearly all, of the processes in one place allowed the use of the improved machinery, effected a saving of time, and kept the materials and the operations of the trade under close supervision. The increasing use of the more expensive Spanish wool in the West Riding and the risk of its embezzlement by workmen was frequently stated to justify the beginnings of factory organisation. <sup>(1)</sup> Similarly, the argument that merchant-manufacturers could produce more cheaply than the domestic clothier was used to defend the new form of industrial organisation. <sup>(2)</sup> Contemporary writers seized on both these points, particularly the latter, when discussing the new innovations. Aikin thought it 'evident that merchants concentrating in themselves the whole process

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(1) See ev. of Law Atkinson, *ibid.* p. 220. Embezzlement was a major problem in the worsted trade, see Heaton, *op. cit.*, pp. 418 et seq..

(2) See ev. of James Ellis, *ibid.* p. 30. Ellis thought that 5 per cent. was the measure of the merchant-manufacturers' saving in costs.

of a manufactory, from the raw wool to the finished piece, have an advantage over those who permit the article to pass through a variety of hands, each of which takes a profit.'<sup>(1)</sup>

His reasoning was followed by a writer in 1819, 'large captialists ... performing all the processes with their own machinery ... were enabled to work cheaper and undersell

the smaller makers.'<sup>(2)</sup> Although this may well have been true in times of prosperity it does not seem to have held valid in depressions when the manufacturers were working

<sup>(3)</sup>  
below capacity.

The Stamping Laws which had been left on the statute book, as far as Yorkshire was concerned, by the Committee of 1806, were further examined in 1821. The Committee, at this time, recommended their repeal, having been persuaded that the laws were no longer necessary to preserve either standards of measurement or quality of cloth and that, as it

(1) Aikin, op. cit., p. 565.

(2) Rees' Cyclopaedia, vol. xxxviii.

(3) The continued vitality of the domestic system would appear to support this view. See evidence of Hebblethwaite, S.C. of 1806, p. 156; also see Ch. 5 below, esp. pp. 404-5.

was apparently the case that merchants had ceased to rely solely on the searcher's seal as their sole criterion of the size and condition of the fabric, the system of seaching should be declared obsolete. (1) The Report of the Committee throws further light on the rise of the merchant-manufacturer and of the progress of the industry since 1806. (2) John Waterhouse, merchant-manufacturer of Halifax, summarised his opinions (after a number of related questions had been addressed to him) in the statement that:

For the last thirty years the merchant manufacturers have been upon the increase; they have almost all been established (the large concerns I mean) within the last thirty years. (3)

The evidence taken by this Committee in 1821 revealed a number of interesting trends in the production and marketing of woollen cloth in the preceding fifteen years.

- (1) The merchants obtained a concession of one yard in every twenty yards in length of cloth as an indemnity against over-stretching on the tenters. This custom had grown up irrespective of the existence of the Stamping Laws which were originally designed to avoid the necessity for this kind of arrangement. See Aikin, op. cit., p. 565.
- (2) Report from the S.C. on the Laws relating to the Stamping of Woollen Cloth, 1821 (437) vi.
- (3) *ibid.* p. 9.

During the period the quantity of cloth produced had tended to increase, though the amount sold in the Cloth Halls had decreased owing to an increasing use of direct orders given to clothiers by the merchants and the increasing number of merchants turning to manufacturing themselves. <sup>(1)</sup> The clothiers who gave evidence varied considerably in their own scale of operations, the range extending from ten to a hundred pieces per week. <sup>(2)</sup> Some of the smaller of these clothiers also engaged in merchanting their own cloths and many of the merchant-manufacturers were, it seems, like Benjamin Gott, highly dependent upon supplies of cloth from the domestic makers to supplement their own factory production. <sup>(3)</sup> One witness, Jeremiah Naylor, merchant, who had given evidence in 1806 was at pains to stress that 'the manner of carrying on my business is completely changed from

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(1) S.C. of 1821, esp. the evidence of Rawson, Shann, Varley and Wrigley. cf. E. Baines, History, Directory and Gazetteer of the County of York, (Leeds, 1822), vol. i, p. 20, '... the factory system having so far prevailed over the domestic system as to reduce the number of that valuable class of men, the clothiers, attending the Leeds market, from upwards of three thousand to about one half that number.' Benjamin Gilpin estimated that 'about one fifth of the whole number of cloths' manufactured in the Leeds district now came to the halls for sale, p. 47.

(2) S.C. of 1821, esp. pp. 51-2, 57-8, 71-2, 74-5.

(3) ibid. pp. 30-1, 46, 49, 51.

what it was.'<sup>(1)</sup> The factory system was clearly beginning to accelerate in the 1820s.

(iv) THE IMPORTANCE OF THE AMERICAN MARKET

(2)

The growth of markets, and especially overseas markets, was as much a feature of the industrial revolution as the advance of technology and the development of factory organisation; and the agents and merchants, straddling the critical juncture of supply and demand, accepting risks, and ordering the flow of foreign trade, were often no less innovators than the entrepreneurs engaged in enlarging the scale, and improving the processes, of production. Woollen manufactures of all kinds formed the largest single category of British exports in the eighteenth century and although, during this period, they yielded pride of place to cotton fabrics,<sup>(3)</sup> they still constituted twenty-two per cent. of total British exports (in real value terms) in 1815, declining relatively thereafter to form thirteen per cent. of the total in 1845.<sup>(4)</sup> With respect to the destination of

(1) *ibid.* p. 62, also Waterhouse on p. 8.

(2) See Appendix to this chapter for a brief discussion of the home market for woollens in this period.

(3) The generalisation does not apply to the United States market in particular, where woollen textile exports retained their supremacy.

(4) Gayer, Rostow and Schwartz, *op. cit.*, p. 745. cf. Imlah, *op. cit.*, p. 184.



such exports, Bischoff lists over twenty different countries and areas as being important in the 1790s. (1) The United States of America was the primary market and:

During the decade that lay between the end of the American Revolution and Britain's entry into the European conflict the broad channel of Anglo-American trade became clearly and deeply marked. (2)

If Bischoff's estimates are to be accepted, the American market absorbed some thirty to forty per cent. of the total of British woollen exports (by value) during the decade of the 'nineties (when the total value ranged from £3.8 million to £6.8 million); a proportionate share which continued to hover around the lower of these limits during the first half of the nineteenth century. (3) The East Indies, Italy, Spain, Portugal, Holland, the West Indies, Germany, Africa, Belgium and Russia were the other important trading regions and although the direction of trade did not

(1) Bischoff, op. cit., vol. 1, p. 328.

(2) H. Heaton, 'The American Trade', in C.N. Parkinson, (Ed.) The Trade Winds, (1948), p. 194. This article usefully reviews the course of British trade in woollens with the United States during the Napoleonic Wars.

(3) Bischoff, op. cit., vol. 1, p. 328. The proportion rose to 40 per cent. again in the 'boom' year of 1836.

change substantially during the fifty years to 1840. India, China and British North America became relatively more important markets for woollens than the Continental countries after 1820, though they displayed to some degree the fluctuating character which was a pronounced feature of the American market. (1) New outlets were developed in the South American States in the 'twenties consequent upon the strong flow of British capital in that direction; (2) but the United States retained its position as Britain's 'best single external market ... for ... cloths of all descriptions, from the extra-superfines to the cheapest shoddy.' (3) The

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- (1) British woollen and worsted yarn exports, chiefly the latter, became important after 1830 and Germany and the Netherlands were the major markets. By 1842 Germany was taking over  $3\frac{1}{4}$  million lbs. weight of such products and Holland nearly  $1\frac{1}{2}$  million lbs.; Parliamentary Papers, 1844 (306) xlv, p. 7.
- (2) Parliamentary Papers, 1843 (210) lii, p. 349. The value of exports to South America was approximately £200,000 in 1820; this figure had trebled by 1842. Note the assessment of L.H. Jenks, The Migration of British Capital to 1875, (1927), esp. Ch. ii.
- (3) H. Heaton, 'Yorkshire Cloth Traders in the United States, 1770-1840', in Thoresby Society Miscellany, vol. xxxvii, Pt. III, 1941, pp. 226-7. The article is invaluable for the discussion of the American trade in the last three decades of the eighteenth century and for the part played by Yorkshire agents and merchants in the 'trade drive' after 1820.

official exports' statistics, are more detailed after 1815, (1) showing declared values as well as official values and Figure 4 and Tables 4 and 5 illustrate the fluctuations in the declared value of woollen exports and the changes in the physical volume of selected types of woollens sent abroad in the quarter-century, 1815-40. It will be noted that the changes in volume are much more pronounced than the modulations in value; especially so in the categories of woollen cloths and blankets, dramatically so in the case of stuffs, which were chiefly worsted pieces. This was a reflection of a number of economic forces at work during the period: the fall in the general price level; (2) the increasing success of the woollen industry in reducing

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(1) The official values were based on the average prices prevailing in 1694 for all goods entering into England's overseas trade, but see discussion in W. Schlote, British Overseas Trade from 1700 to the 1930s, English translation, (Oxford, 1952), pp. 16-18; and G.N. Clark, Guide to English Commercial Statistics, 1696-1782, (1938). A comparison of official and declared values, after 1815, throws some light on the changing prices of woollen manufactures.

(2) 'The course of prices was not ... downward continuously, or at a constant rate. There was a period of rapid decline, beginning in the latter years of war and extending into the 'twenties: a slower trend decline in the 'thirties ...' W.W. Rostow, British Economy of the Nineteenth Century, (Oxford, 1948), pp. 17-18.

(1)

manufacturing costs per unit of output; the pricing policies pursued, particularly by West Riding manufacturers, who employed '... every artifice ... to produce articles of seducing cheapness for the export trade' after 1820. (2)

(1) The average prices of woollen cloths entering into export trade appear to have been falling continuously during the period 1818-32. William Irving, Inspector General of Imports and Exports, told the S.C. of 1828 that 'the prices, generally, of goods (exported) have fallen very considerably'. p. 117.

(2) V.S. Clark, History of Manufactures in the United States, (New York, 1929), vol. i, p. 361; cf. Jenks, op. cit., p. 25. The momentum of the 'export drive' probably persisted until the early 1860s and its success seem to have been based largely on the following factors:

- (a) Well developed credit and payment facilities - but see the later discussion of the present chapter.
- (b) Strong Yorkshire representation in the United States markets. cf. Heaton's article, 'Yorkshire Cloth Traders ...', passim.
- (c) Diligent attention to the requirements of the customer.
- (d) An acute sensitivity to the market tactics of competitors and especially to the economic rivalry of the French.
- (e) 'The great abundance of capital, and the consequent low general rate of profit ... gave a strong impulse to manufacturing for export.', Thos. Hopkins, Great Britain for the last Forty Years, (1834), pp. 232-3.
- (f) Very keen price quotations.

On this latter point there is some evidence to suggest that West Riding manufacturers, in order to secure a footing in new markets, pushed their goods at prices which often barely covered their prime costs, particularly in the early post-war period. The allegation of 'dumping' was often made against British manufacturers in the United States, chiefly by spokesmen agitating for higher tariffs, but the trade was so loosely organised and so highly competitive that it is extremely doubtful whether the charge of organised dumping could be proved. See A.H. Cole, op. cit., vol. i, pp. 140, 146, 156, 159. It was certainly true that the Yorkshire producers were content to operate on small profit margins in order to extend their trade and that this proved advantageous

footnote continued on p.118.

and especially the impact of the falling prices of wool,  
 both domestic and foreign, during the 'twenties. (1)

Figure 4 also depicts the changing composition of the trade in woollen goods to the American market. There was a steady decline in the export of the old-established,

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(1) Cf. Imlah, op. cit., pp. 183-90, and Schlote, op. cit., pp. 43-7, for evidence regarding the operation of the 'principle' in the 'heavy woollen' district in the 'thirties. In sum, the period 1820-60 was one in which the terms of trade were moving adversely against this country.

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 Footnote 2 from p. 117 ... continued.

in their competition with other well-established cloth producing regions in this country, and with the French. Henry Forbes summarised the Yorkshire attitude in his statement, 'rather produce a large quantity at a small profit than a small quantity at a higher percentage.' H. Forbes, Lectures on the Results of the Great Exhibition of 1851, (1853), 2nd Series, no. xxi, p. 325. Sigsworth refers to this statement as 'the Bradford principle', but it may have been a typical West Riding, rather than a specifically Bradford or worsted industry, response to the market challenge after 1820. E.M. Sigsworth, 'The West Riding Wool Textile Industry and the Great Exhibition', Yorks. Bull., (1952), vol. iv, no. i, p. 27. See also below, pp.

plain-woven napped coatings, after 1817, which was more than compensated for by the swift growth of demand for the light, fancy and patterned worsted stuffs, (and the related woollen pelisse cloths and shawls) stemming from the influence of changes in fashion. <sup>(1)</sup> The fashion element also strongly affected the design and quality of kerseymere cloths or cassimeres, and the demand for these fabrics remained buoyant until the later 'twenties when it slumped to a figure of approximately 30,000 pieces per year and remained at or near this total for the rest of the period. Despite 'peaks' in the years 1818 and 1822-3, the export of flannels was reducing throughout the period, consequent upon the growing domestic manufacture in the United States of this easily fabricated and simply finished type of cloth.

The experience of woollen cloths, of the very finest and the very cheapest, and of blankets, was in marked contrast with that of the coatings, kerseymeres and flannels: there was an upward trend in American orders from 1820 until the peak was reached in 1836. Sheppard said, in 1828, that he sent large quantities of superfine cloths to the United States and that:

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(1) The decline was general in all markets.

Table 4. EXPORTS OF SELECTED WOOLLEN MANUFACTURES,  
1815-40.

Year	Woollen Cloths	Stuffs	Napped Coatings, Duffels	Kersey-meres	Flannels	Blankets
	(thousands of pieces)				(thousands of yards)	
1815	638	593	89	93	7,056	3,397
1816	467	586	90	91	3,592	1,934
1817	478	683	93	83	2,814	2,306
1818	447	938	79	104	4,622	2,707
1819	340	718	60	72	3,623	1,778
1820	288	829	60	79	2,567	1,288
1821	375	1,021	70	91	3,505	1,424
1822	420	1,078	68	96	4,502	1,926
1823	356	1,150	54	94	4,310	2,129
1824	407	1,242	52	108	3,105	1,988
1825	385	1,139	45	126	2,955	2,163
1826	328	1,125	42	86	2,420	1,082
1827	371	1,259	52	122	2,518	1,899
1828	335	1,311	41	85	2,540	2,098
1829	363	1,308	16	33	1,573	1,840
1830	388	1,253	22	35	1,613	2,176
1831	436	1,487	14	30	1,573	2,546
1832	397	1,801	23	41	2,305	1,682
1833	597	1,691	20	32	2,055	3,128
1834	521	1,299	23	24	1,821	2,538
1835	620	1,673	20	29	2,068	3,122
1836	721	1,406	23	30	2,190	4,334
1837	388	1,042	24	23	1,685	2,432
1838	588	1,359	27	36	1,780	2,559
1839	393	1,656	25	33	1,727	3,149
1840	216	1,719	16	27	1,613	2,163

Source: Parliamentary Papers, 1821 (621) xvii,  
p. 229; 1833 (526) xxxiii, p. 625;  
1843 (210) lii, p. 552.

Table 5. DECLARED VALUE OF EXPORTS OF WOOLLEN  
MANUFACTURES, 1815-40 (1)

(in millions of £s)

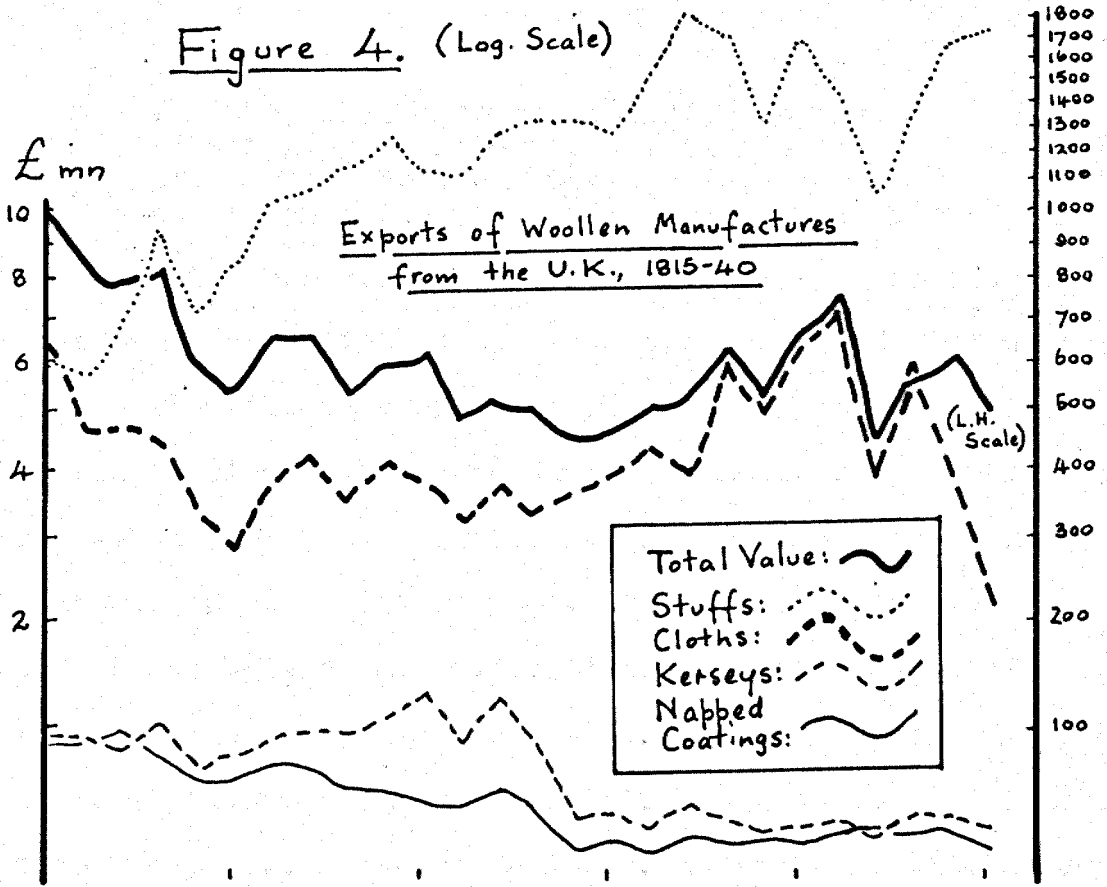
1815	10.0
1816	8.3
1817	7.9
1818	8.1
1819	6.0
1820	5.6
1821	6.5
1822	6.5
1823	5.6
1824	6.0
1825	6.2
1826	5.0
1827	5.3
1828	5.1
1829	4.6
1830	4.7
1831	5.2
1832	5.2
1833	6.3
1834	5.7
1835	6.8
1836	7.6
1837	4.7
1838	5.8
1839	6.3
1840	5.3

(1) Total exports from the U.K. includes worsteds as well as woollens, but excludes woollen and worsted yarns.

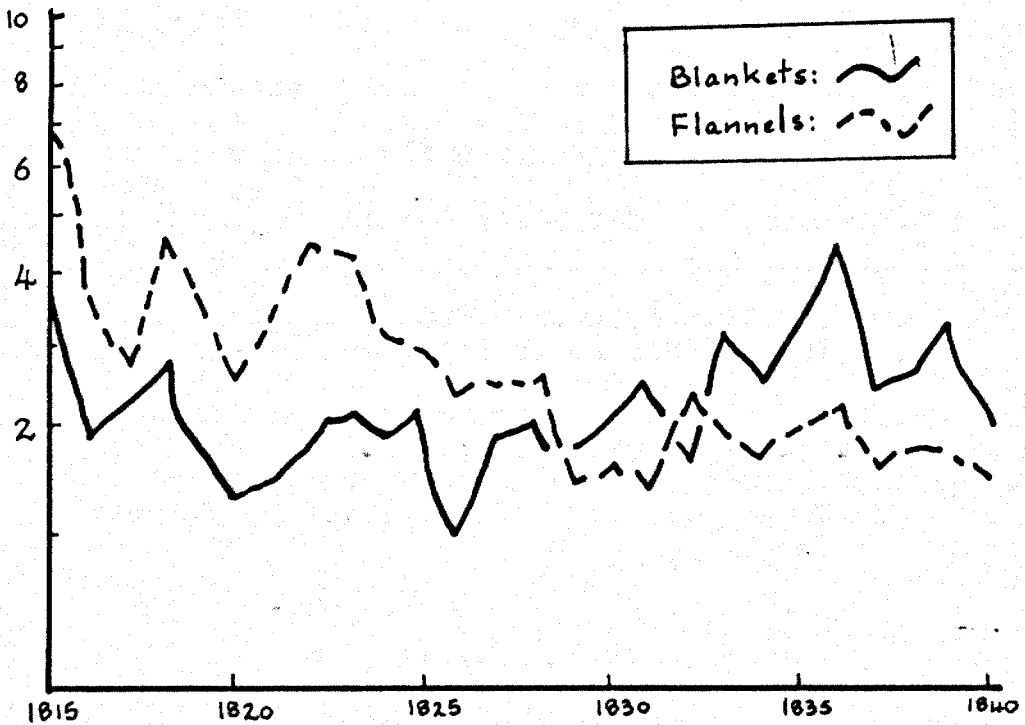
Source: Parliamentary Papers, 1821 (621) xvii,  
p. 229; 1846 (109) xlv, p. 9.



Figure 4. (Log. Scale)



(Millions of yards.)



Source: Parliamentary Papers, 1821 (621) xvii, p.229; 1833 (526) xxxiii, p.625; 1843 (210) lii, p.552; 1846 (109) xlii, p.9.

... they will have great difficulty in interfering with any of our cloths that are worth more than 10s. a yard; I do not think they can manufacture them. (1)

This observation must have been very near the truth, insofar as superfine cloth production required a very high degree of skill in every process of manufacture from the initial wool blending down to the delicate and tasteful operations of dyeing, finishing and dressing, it is unlikely that the American industry had attained such levels of efficiency before the middle of the nineteenth century. (2)

In respect of the very cheap woollen textiles, for which there was a high demand, especially in the southern states where they were sometimes referred to as 'slave cloths'; although these could be, and were, manufactured successfully in the United States, the ingenuity of design and colour employed by West Riding makers and the prejudice which existed amongst American consumers in favour of 'foreign' importations, sustained the export of such goods from this

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- (1) S.C. of 1828, p. 295. He also said, of the Americans, that they were 'bungling manufacturers', *ibid.* p. 254.
- (2) By that time, the changes in fashion were rapidly shifting American demand away from superfine broad-cloth towards the consumption of home-produced fancy cassimeres. See A.H. Cole, *op. cit.*, vol. 1, pp. 300-309.

(1)  
country at a high level. The growing volume of shipments of English blankets to the United States, after 1820, seems, at first sight, difficult to explain. Blankets are relatively unsophisticated in their design, manufacture, and finish and almost any quality of wool can be utilised in their production, yet Thomas Cook could say, in 1828:

Blankets are an article they (the Americans) have not got on so fast in the manufacture of; they have not increased the manufacture of them so much as that of cloth. (2)

Further, the fashion influence is slight and the success of the American manufacturers in flannel production suggests that there were few technical difficulties retarding the development of the domestic blanket trade, other than that of weaving on broader looms. (3) The points made above in respect of the cheap cloth trade, 'ingenuity' and 'prejudice', were also operative here, but two other factors: wool supply and tariffs, were important in explaining the

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(1) There was also the growing production in the West Riding of 'shoddy' cloth for this market. See below, pp.

(2) S.C. of 1828, p. 214.

(3) Flannels were seldom woven more than 30 inches in width.

'success story' of the English blanket trade in this market. The supply of low quality, native wools in the United States, in the first half of the nineteenth century, seems to have been diverted to the production of medium-priced cloths rather than blankets which, for general market purposes, were customarily made from very coarse wools. There were also deficiencies in the foreign supplies of suitable blanket-wool which were available to the American manufacturers for, although such staples could be, and were, imported against relatively low tariff duties, before 1828, the organisation of the trade in imported wool, in America, had not reached a high level of efficiency before 1850, <sup>(1)</sup> and some of the cheap wool which was introduced from abroad contained burrs and other impurities which were difficult and expensive to eliminate in the course of manufacture in the state of technique which then prevailed. By contrast, the British blanket makers profited from a good domestic provision of coarse wool augmented by large quantities of cheap fibres from the Continent and elsewhere, much of which was received in a clean condition. Added to this, the West Riding

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(1) Cf. A.H. Cole, *op. cit.*, vol. 1, pp. 202-4. There was no really substantial import of foreign wool into the United States until the later 'twenties.

producers were served, in this period, with a substantial flow of noils as a by-product of the combing process in the worsted industry, an advantage which was denied to the American manufacturers. (1)

### Tariffs

In facing foreign competition the American woollen cloth producers, particularly those engaged in blanket making, derived some, but not a large, degree of protection from the tariff arrangements operative in the United States during the years here under review. (2) The first Tariff Act of 1789 was designed primarily for revenue and the rates levied were generally low; the duty on imported woollen goods being fixed at 5 per cent. ad valorem. By 1800 that rate had risen to  $12\frac{1}{2}$  per cent. and by 1804 to 15 per cent.. (3) In 1812 the rate was sharply increased to 25 per cent. as a special fiscal measure, and a strong movement for protection developed following the war of that year and its after-effects. In 1816 the tariff legislation was generally overhauled and the

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- (1) The production of worsted cloths in the United States was only slightly developed before 1850, chiefly due to the slowness of introduction of improved methods of combing.
- (2) This brief discussion of tariffs and tariff policy follows, in general, Taussig and Wright. F.W. Taussig, The Tariff History of the United States, (New York, 1888), C.W. Wright, Wool-growing and the Tariff, (Harvard, 1910).
- (3) The rates moved as follows: 1792 -  $7\frac{1}{2}$  per cent.; 1794 - 10 per cent.; 1800 -  $12\frac{1}{2}$  per cent..

25 per cent. ad valorem duty on woollen fabrics retained, but blankets and worsteds were given a separate classification (1) which attracted duty at a lower rate of 15 per cent..

At the same time, imports of raw wool were included in the tariff schedules, the initial ad valorem impost amounting to 15 per cent.; insofar as this tended to raise the price of his raw material it neutralised considerably the degree of protection which the domestic blanket manufacturer might have expected to receive from the duty imposed on imports of finished goods.

The tariff of 1816, although not high enough to afford much protection against British exports (especially the large consignments of the immediate post-war period, sold at sacrifice prices), seems to have sharpened the appetites of American manufacturers for higher duties, and a further revision of the schedules took place in 1824. The general rate of duty on woollens was raised to 30 per cent., and after the middle of 1825, to  $33\frac{1}{2}$  per cent.; the rate on blankets and worsteds was increased to 25 per cent.. But

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(1) This special treatment suggests that official policy was not designed to exclude the importation of foreign blankets which constituted an important item in the consumption expenditure of the lower income groups.

the schedules were now complicated by the proviso that goods, except flannels, of a value less than  $33\frac{1}{3}$  cents per square yard should attract the special rate of 25 per cent.. On raw wool imports (excepting those costing ten or less cents a pound) the duty was pushed up to 20 per cent. immediately, and to 30 per cent. in the middle of 1826. Very cheap wool was to be allowed in at only 15 per cent. duty, but this seems to have been beneficial only to the domestic carpet manufacture. If these rates on finished fabrics and on the raw material are considered together and account is taken of the drastic lowering of the wool duties in Britain in this same year, under the Huskisson reform, it is doubtful whether there was any net increase of protection for the home manufacturers. It is impossible to judge the issue from an inspection of the course of American imports owing to the impact of the boom of 1825, the panic which followed in 1826, and the accelerated imports of 1827 in anticipation of increases in the tariff rates, which were again adjusted in 1828 under the so-called 'tariff of abominations'. This was 'a politician's tariff concerned with the manufacture of a President', but it instituted for the first time a strong protection for the domestic manufacturer. (1)

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(1) The tariff legislation of the period reflected the course of a complex 'debate' between the 'protectionist' North and the 'free-trade' South and the rival interests of the wool growers and the manufacturers.

On all kinds of imported wool a duty of 4 cents per pound plus an ad valorem levy of 40 per cent., raised later to 50 per cent., was imposed. This was a sharp and annoying set-back to the manufacturing interest. For the highest grade of woollen cloth the ad valorem duty was fixed at 50 per cent. but for most woollens the levy was 45 per cent.. Blankets, worsteds and cheap cloth, valued at not more than 50 cents a square yard, carried duty of  $33\frac{1}{3}$  per cent.. But a major innovation in this legislation was the introduction of the principle of the 'minimum valuation'. This categorised fabrics, per square yard, into ranges of value: from 50 cents to 100 cents; 101 cents to 250 cents.; <sup>251</sup> 215 to 400 cents; and over 400 cents; and the duty was levied always on the highest value within each range so that, for example, a cloth valued at 51 cents was taxed, in money terms, exactly the same as cloth valued at 100 cents. (1) It was not surprising that there now followed an episode, lasting for four years, which Heaton has analysed acutely and in some detail, (2) of skilful and often near deceitful trading practices such as

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(1) The major kind of cloth export from the West Riding was in the price range of 5s. to 7s. per yard, 54-60 inches in width, and there was a considerable expenditure of ingenuity and energy to force cloths into the American market below the 1 dollar valuation.

(2) H. Heaton, 'Yorkshire Cloth Traders ...', esp. pp. 275-9.



invoice manipulation and ambiguous description of cloth, by which means the West Riding manufacturers managed to pour into the American market a flow of products upon which the assessable duty was as low, or nearly as low, as was possibly compatible with the tariff regulations. <sup>(1)</sup> Obviously, the sale of certain kinds of cloth must have been discouraged completely under this system, whilst the marketing of other kinds of cloth received a forceful stimulus, but an adequate treatment of this theme would carry us too far afield. Perhaps the most significant effect of the legislation upon the West Riding makers was the one which was the most unintended by the framers of the 1828 schedules; the Yorkshiremen were forced to be acutely price conscious, to examine their costs of production with minute care, and to experiment with different qualities of material, weaves and finishes, in order to 'beat the tariff'; in sum, it sharply increased their competitiveness.

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(1) Special legislation was introduced in 1830 to enforce a more stringent assessment of the duties.

The tariff changes of 1832-42 are briefly told. In 1832-3 new legislation removed many of the 'abominations', including the 'minimum valuation' system and cheap wool - costing less than eight cents per pound - was to be admitted free of duty. In addition, all duties exceeding 20 per cent. were to be gradually reduced over a period of ten years until a uniform level of 20 per cent. on all articles was achieved by 1842. This period, then, was one of only moderate protection and British manufacturers were more concerned with the changes in demand stemming from the convulsion of the trade cycle than with the activities of the customs officers, although this did not diminish their interest in cost-reducing processes and cheaper fabrics, which found expression in the increasing use of shoddy and the cotton warp by West Riding producers in the 'thirties.

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(1) See below, p. 201 .

The organisation of the trade.

Professor Ashton has well summarised the nature and condition of the organisation of British overseas trade and shipping in the eighteenth century, stressing, as the century progressed, the gradual disappearance of many of the older forms of syndicate trading and the rise of firms and agencies in the carrying and mercantile trades who often specialised their activities in the trade of a particular area: the Continent, the Baltic, India, or the United States. <sup>(1)</sup> This was more true of the merchant houses than of the larger merchant-manufacturers who were usually willing to export to any foreign market where they saw reasonable prospects of sale, at least until after the 'panic' of 1825. In many of the market abroad there were no regular or well-established importing merchants and foreign banking systems were often rudimentary. This accelerated the growth of strong exporting houses in London and the chief ports of this country; stimulated the development of ancillary functions such as marine-underwriting and insurance-broking; and led to the

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(1) T.S. Ashton, The 18th Century, (1955), esp. Ch. v. The East India Company and the Hudson's Bay Company were notable exceptions to this generalisation.

expansion of bill-broking, and to the emergence of specialised 'acceptance' houses. The evolution of these facilities, coupled with improvements in mercantile engineering and navigation, (1) reduced the risks of overseas trade but did not remove its speculative characteristics and the fluctuations in demand were often magnified in the process of transmission from their source to the British manufacturers by the actions of these very necessary trading agencies. Throughout the eighteenth century much of Britain's overseas trade had been 'venturesome' in character, cargoes being consigned to possible, but not always assured, markets. This sometimes resulted in the hawking of shipments from one port to another and the 'auction' system (2) for the rapid disposal of goods developed in some countries, particularly in the United States. This unsatisfactory and speculative form of trading was changed slowly but certainly after 1825

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- (1) On the improvements in shipping facilities, and especially the growth of packet shipping services, see R.G. Albion, The Rise of New York Port, 1815-60, (New York, 1939). American interests had a stronger hold in the carrying trade than in merchanting in the first half of the 19th century.
- (2) For the development of the 'auction' system in the United States, see A.H. Cole, op. cit., vol. i, pp. 156-160. It was very long-lived and was not unimportant as late as the 1860s.

as manufacturers began to export increasingly in response to definite orders from abroad for goods at specified prices and qualities.

The changes which were taking place in the organisation of British export trade in the first half of the nineteenth century are well illustrated by the experience of the Anglo-American trade and N.S. Buck has highlighted the main features of this trade in British manufactures, dividing the period into three distinct parts: 1800-15; 1815-30; 1830-50. <sup>(1)</sup>

In the first period we find the British merchant the outstanding figure; he received orders from America for goods, and he himself also assumed the risks of commerce by sending out goods on consignment to his agents and correspondents in America. In the second period ... the British manufacturer attracts our attention, for he seems to have been forced into marketing his own goods because of the inability or the unwillingness of the merchant to purchase his entire output. And in the third period the American merchant became a much more important factor in the foreign commerce than he had been previously. <sup>(2)</sup>

Although some of the trade was in the hands of American importers who visited this country and placed orders, in the years 1800 to 1815 the bulk of British exports to the United States, and particularly of woollen textiles, were sent there on British credit account. This generalisation

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(1) N.S. Buck, The Development of the Organisation of Anglo-American Trade, 1800-1850, (Yale U. Press, 1925).

(2) *ibid.* p. 99.

is strongly supported by the large volume of evidence presented, in respect of the Orders in Council, to the House of Commons in 1808. Many merchants, as Buck has emphasised, acted on intelligence received from American correspondents and agents in sending goods to this market. (1) John Oxley, cloth and blanket merchant, stated that he did two-thirds of his business in the American trade and that he dealt with houses in London, Liverpool and Glasgow. He believed that these houses acted on orders received from America. (2) But Thomas Martin, a Liverpool merchant, describing the American trade, in 1808, said that goods were 'principally shipped by merchants in this country to America ... It is on their own account they are guided by the prospects of different circumstances, which induce them to ship or not to ship; ... the quantity of goods exported for orders is small in proportion to those shipped by the British merchant on his own account.' (3) 'The main consign-

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(1) Some of the larger merchanting houses had established branches or agencies in the United States.

(2) Parliamentary Papers, 1808 (119) x, p. 85. His view is supported by the evidence of William Bell, op. cit., p. 121.

(3) Op. cit., pp. 49-50. The whole of Martin's evidence is illuminating on the American trade in this period.

ments to America took place at two different times of the year the spring shipments went mainly in the months of February and March and the autumn shipments in the months of July and August. (1) The manufacturers made goods in anticipation of demand at these times - the two months preceeding the onset of the shipping periods being the peak production months - and, in addition, some merchants placed definite orders for goods with the makers. (2) But many merchants seem to have been able to meet most, if not all, of their requirements by dealing with the agents of the manufacturers in the main commercial towns or by judicious purchasing in the Cloth Halls of the West Riding:

... there are many merchants, of very large capitals and of the highest credit, who for several generations have gone on purchasing in the Halls, and some of this very description ... state to Your Committee that they ... had no thoughts of setting up Factories for themselves ... (3)

Some merchants mixed their business, shipping partly on their own account and partly in response to firm American

- (1) Op. cit., p. 80 et seq. This pattern of shipments prevailed throughout the whole period here under review.
- (2) At the close of the autumn shipping period the manufacturers were usually busy until the end of November working for the home trade, but the two months of December and January were times of very small demand. See below, p. .
- (3) S.C. of 1806, p. 11.

orders upon which they earned a commission, (1) whilst there were also houses which operated entirely on a commission basis on behalf of the manufacturers. Martin seems, for example, to have been largely engaged in this kind of activity describing himself as '... a commission merchant, executing insurance by the orders of those for whom I act as a commission merchant, whether in America or in this country ... My principal business is that of exporting to America and receiving from America.' (2) He added, 'We frequently export goods and to a large amount solely as shippers, for which we receive a shipping commission; that is much more the course of our business than any other in the export of goods, and those goods belong to different merchants in Manchester, Birmingham, and different parts of the interior of the country.' (3) The testimony of Martin and other merchants at this time indicates that the commission merchants were important figures in the trade and that they tended to conduct their business operations in both the export and the import markets. Buck takes the view that they were probably

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(1) Parliamentary Papers, 1808 (119) x, pp. 6 and 60, Evidence of A. Mann and G. Wood.

(2) *Op. cit.*, p. 47.

(3) *ibid.*



(1)  
the most important men engaged in the trade. A. Glennie,  
of the firm of Mackenzie, Glennie and Company, of Liverpool,  
said that his business included that of 'receiving remitt-  
ances for American cargoes consigned to different ports upon  
the Continent ... making charters for American ships  
consigned to me ... as the agent of my American correspondent' (2)  
and A. Mann was of the opinion that 'there are very few  
operations out of America to any part of the world, which  
are not in some way or another connected with this country.' (3)

The evidence of G. Wood in describing the trading  
operations with America indicated the method of payment.  
'Orders are transmitted from the merchants in America to  
the Exporters in this country, which they execute ... In  
return for these shipments, ... Bills of Exchange, payable  
sixty days after sight, are generally received.' (4) These  
bills were usually drawn upon mercantile houses in this  
country, or on the Continent, to which shipments of produce  
had been made from the United States. British merchants

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(1) Buck, op. cit., p. 16.

(2) Op. cit., pp. 23 and 33. The commission charges seem  
to have ranged from 2 to 5 per cent..

(3) Op. cit., pp. 102-3.

(4) Op. cit., pp. 2 and 6. For a technical description of the  
'mechanism' by which bills of exchange were used to  
finance the international transfer of resources, see  
Gillett Brothers, The Bill on London, (1952).

and manufacturers occasionally received specie in payment for goods sent out and they were often willing to accept produce, such as tobacco, timber and cotton in preference to other forms of payment, especially when exchange rates were moving adversely or their confidence in paper was low. The bill of exchange was, however, the commonest means of payment and Glennie said, in 1808, that 'the principal part of the money we receive on American account is drawn by bills payable to manufacturers in Yorkshire, and the exporters of manufactured goods in London.'<sup>(1)</sup> Some of this money was received in payment for American goods consigned to the Continent and Glennie indicated that over £ $\frac{1}{2}$  million was received by his firm in 1807 from this source and used<sup>(2)</sup> in payments to British manufacturers.

This method of financing the American trade conferred a special importance upon Liverpool which received the proceeds of American cotton and other produce and this was then available for disbursement to British merchants and manufacturers. The Liverpool merchants thus attracted to themselves the major share of American business in textiles, woollen as well as cotton, and their affairs were closely

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(1) Op. cit., p. 23.

(2) *ibid.*

interwoven with the business of the London houses who were connected to the trade largely in a banking and credit capacity. But despite the strategic function performed by the bill of exchange in the trading relations of the two countries, it remained true, as Buck concludes:

... that in the final analysis all, or the major portion, of the exports from Great Britain must have been paid for by the shipment of produce from the United States; either to Great Britain or to countries with which both Great Britain and the United States had dealings. (1)

The facility with which bills of exchange could be drawn and extinguished in this country gave the British merchanting houses an important hold on the American trade during the early nineteenth century, and the provision of long credits was also a major factor in the commercial

(2) relationship. The merchants extended credit to American agents and importers for periods of up to twelve months and sometimes longer, charging interest on the principal when the credit time was exceeded. (3) They also extended

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(1) Buck, op. cit., p. 117. cf. W.B. Smith and A.H. Cole, Fluctuations in American Business, 1790-1860, (Harvard, 1935), pp. 6-7.

(2) See ev. of Jeremiah Naylor, woollen merchant of Wakefield, in Account of Merchants in Wool and Woollen Trade of Great Britain, (1800), pp. 135-6.

(3) Similar facilities were extended to American exporters of produce, funds being made available before the produce was marketed, often as soon as the bill of lading was received in this country.

credit to the manufacturers, of from three to nine months by allowing the consignors of goods to draw bills of exchange upon them as soon as the goods were shipped. (1) These bills, often drawn for amounts of 60 to 75 per cent. of the invoice value of the cargo, could then be placed with an 'acceptance' house and liquid funds made available for investment in further production. In extending these credit facilities the merchants drew substantial support from the London bankers and brokers and in the 1830s Timothy Wiggin observed that 'London credit is employed to a very large extent; London credits are now used to a much greater extent in carrying on ... commercial transactions than at any former period.' (2) At the same time, Kirkman Finlay stated that the manufacturer made 'large consignments of his productions to foreign countries ... receiving bills in advance, and discounting those bills with monied persons in London and other parts of the Country, which has led to a greater extension of trade than otherwise would have taken place.' (3)

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(1) The manufacturers ostensibly extended credit to those merchants who gave definite orders for goods and shipped at their own risk, but they often drew bills on the merchant upon delivery and placed themselves in funds immediately. The credit function was thus shifted on to the discount houses.

(2) S.C. of 1833, p. 123.

(3) *ibid.* pp. 35-6.

This last observation was undoubtedly true and in so far as the credit system was underpinned by the London discount houses, and ultimately the Bank of England, it had a secure base, but bills of exchange were sometimes too readily drawn upon shipments of goods for highly speculative markets and the crises of 1837 and 1846-7 were largely the result of abuses of this kind.

Despite the strong hold which this credit provision gave to the British merchanting houses in the trade, after 1812, <sup>(1)</sup> and markedly so after 1815, British manufacturers found the system too restricting in the face of their enlarging volume of production and their desire to expand peace-time markets quickly as the demands of war subsided. A new phase was established after Waterloo. The manufacturer, as Buck asserts, 'could no longer rely on the British merchant to purchase his entire output. It was therefore necessary for him to become an active merchandising agent. On the other hand, the merchant did not feel it profitable for him to purchase goods in Great Britain to sell in a foreign market when he might have to face the competition

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(1) There was a large stockpiling of woollen fabrics in this country during the War of 1812.

of the manufacturer himself, disposing of his surplus  
 (1)  
 stocks.' William Hague, merchant of Manchester, testified  
 in 1833, on the practice of manufacturers making consignments:

... they are driven to make shipments; formerly  
 manufacturers would never ship if they could sell  
 their goods at a profit; but when a stagnation  
 takes place ... they then prefer to try the  
 market themselves, and to take both the profit  
 of the merchant and of the manufacturer. (2)

John Ashworth, woollen manufacturer, complained that  
 in the changed situation it was difficult for him to maintain  
 his former relationship with the merchants, 'when the market  
 is full of goods, we have to seek the merchant; I had rather  
 (3)  
 the merchant would come ... to me.'

The developing interest of manufacturers in the  
 speculative consignment of goods to foreign markets was  
 accompanied, in this period, by four important developments:  
 a shortening of the credit period, a strengthening of the  
 position of the commission merchant in the trade; a migration  
 of British agents and factors to the United States, and a  
 rapid growth of the 'auction' system of sale in that country.

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(1) Buck, op. cit., p. 121.

(2) cf. S.C. of 1833, esp. Q. 4957.

(3) *ibid.* Q. 7805.

Long periods of credit, which were prevalent in the trade before 1815, added to the cost of goods to the final consumer and in the more competitive business conditions in the 'twenties the incentive to minimise costs was strong and this was reflected in a reduction in the term of credit. Jowitt, in 1828, said of the cloth trade that, 'credit is curtailing, and it is becoming more a business for money ... a great deal of the cloth from Leeds and Huddersfield was sold at six and eight months credit, which is now sold for money, or at a month or two.' (1) He added that the trade was 'in a sounder state, but the profits are very low.' (2)

There was also a corresponding movement in the credit terms applicable to the sale of raw materials, four to six months seems to have been the typical arrangement in the sale of raw wool in the late 'twenties and early 'thirties. (3)

The commission merchant, as we have seen, was generally willing to allow the manufacturers to draw bills upon him as soon as goods were consigned and advantage was readily taken of this facility by many manufacturers seeking

(1) S.C. of 1828, pp. 135-6. Cf. John Brooke's ev. to S.C. of 1833, p. 118.

(2) *ibid.*

(3) S.C. of 1833, p. 91.

a quick return of capital. Consignments to commission merchants thus offered what seemed, at first sight, to be a superior method of marketing than consigning direct to an agent in America, but some of the commission houses resorted to the practice of selling goods at sacrifice prices in order to meet the bills already drawn upon them by the consignors and they quickly earned for themselves the description of 'slaughter houses'. Nevertheless, the commission merchants grew in importance in the trade relatively to the conventional merchant who exported on own account, and particularly in relation to the West Riding merchants who bought 'in the balk' in the Cloth Halls and, after having their pieces dressed and finished, exported direct or through the larger export houses of Liverpool and Manchester, and Lord Liverpool is stated to have estimated that, in the 1830s, two-thirds of the entire trade of Great Britain was carried on by the commission merchants. (1)

They also derived much profit from acting on behalf of American importers, especially towards the end of the 'twenties, taking a  $2\frac{1}{2}$  per cent. commission for their trouble (2)

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(1) Cf. J.R. McCulloch, Dictionary of Commerce, (1835), vol. i, p. 571.

(2) S. C. of 1833, p. 253.



A stronger control over the export trade was also obtained by the emigration of partners or relatives of manufacturers and merchants to foreign countries, particularly to the United States. The 1790s constituted one such period of emigration and the 1820s another, and Heaton has given a detailed illustration of how a 'strong Yorkshire mercantile colony in American seaports' was established, notably in New York, in the half century preceding 1840. <sup>(1)</sup> Edwin Firth, a leading blanket manufacturer and merchant of the Spen Valley, cultivated the American trade and 'sent out his younger brother, Thomas, to New York, where he established himself as a merchant and met with great success for a time.' <sup>(2)</sup> Firms which had the support of partners and relations abroad gained a more reliable source of market intelligence and a firmer control over their payments and remittances, and their competitors, when denied these close family trading connections, usually sought the services of a regular agent in <sup>(3)</sup> dealing with their overseas customers.

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- (1) Heaton, 'Yorkshire Cloth Traders ...', Some 90 Yorkshire agents and merchants, of whom some record still survives, are listed by Heaton as being active in American ports during the period.
- (2) F. Peel, op. cit., p. 341.
- (3) There was also some movement of foreign agents into London and the main British ports.

The 'auction' system of disposing of goods in the American seaports, which was not unknown before 1812, was strongly stimulated by the increased consignment of manufactures which came with the re-opening of trade channels after the war. It offered cheap and speedy means of transferring goods into the hands of the American agencies concerned in distribution for the internal trade and, as the auctioneers were quick to settle their accounts, an efficient method of obtaining payments for the consignors. But it was highly speculative, if cargoes of very similar products arrived simultaneously this was often reflected in the auction in extremely low prices and manufacturers received their remittances with much disappointment. The system was attacked in the United States by the domestic woollen manufacturers on the grounds that it encouraged the dumping of British goods in the American market. (1) The American importers argued, not without sound cause, that the system hampered the development of 'fair and orderly' trade, and their position of relative weakness in the organisation of the trade as a whole was not unconnected with the persistence and popularity of the regular public auction. Although it was indispensable to British manufacturers forcing their way

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(1) A.H. Cole, op. cit., vol. i, pp. 156-8.

into the American market, this method of marketing was not liked by those producers wishing to form stable trading connections and it carried with it immense risks in times of over-trading. The 'panic' of 1825 effectively put an end to wholesale consignments for many West Riding entrepreneurs who thereafter endeavoured to base their trade on firm orders relegating consignment business to a marginal activity. (1)

From his study of the American evidence Cole reaches the conclusion that the auction system 'reached its zenith in the years around 1830, at least in so far as textiles are concerned.' (2)

Although detailed evidence is sparse, it appears that, in the late 'twenties, many Yorkshire woollen makers were endeavouring to emulate Benjamin Gott who said, in 1828, that he manufactured 'according to order, nearly entirely', receiving such orders 'by letters from foreign correspondents, or by the application of the parties personally at Leeds' and that such applications specified 'the price and quality ...

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(1) Buck dates the change from about 1830, but Jenks insists on 1825 as the critical year in the relative decline of the consignment and auction system. See Jenks, op. cit., footnote 11 to Ch. iii.

(2) Cole, op. cit., vol. i, p. 286.

according to patterns sent over to me ...' <sup>(1)</sup> John Brooke, the Dewsbury blanket-manufacturer, also said, at this time, 'if I receive an order from abroad, I send them (blankets) at such a price as is given me.' <sup>(2)</sup> This statement is supported by the frequent references to orders and patterns which occur in the correspondence of Hagues and Cook of Dewsbury, relating mainly, but not entirely, to the American <sup>(3)</sup> trade.

After 1830 there was a noticeable increase in the activities of American importers who visited this country and placed definite orders with British merchants and manufacturers <sup>(4)</sup> Their operations were much assisted by the extension of Anglo-American banking and credit facilities which, by this time, were largely in the hands of a group of about eight <sup>(5)</sup> houses in London and Liverpool. At the same time, the

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(1) S.C. of 1828, p. 280.

(2) *ibid.* p. 255.

(3) See below, pp. 581 *et seq.*

(4) S.C. of 1833, esp. p. 61. Also p. 229 of the article referred to in footnote 5 below.

(5) McCulloch's article in the Edinburgh Review, (July, 1837) vol. lxvii, p. 231. This concentration was dangerous in time of speculation. Three of these houses stopped payment in 1837.

manufacturers' role as a merchant sharply declined and the traditional marketing methods which had prevailed in the early years of the nineteenth century strongly reasserted themselves. As a result, the organisation of the trade presented a complex picture which is well portrayed in a letter published in the Liverpool Mercury in March 1832 and quoted by Buck.

(1)

The persons engaged in obtaining and vending the manufactures of this country are very various - commission merchants, who reside in manufacturing towns, and receive orders to purchase on foreign account, being furnished with letters of credit on mercantile houses in this country, or with bills of exchange; partners of houses abroad who purchase and sell on their own account; persons provided with funds to advance on consignments - manufacturers who consign their goods for sale on commission or thru agents sent out; the manufacturers who send out goods to persons abroad dividing profit and loss; - merchants who purchase and consign for sale on commission.

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(1) Buck, op. cit., p. 151.

### Fluctuations in demand

The vicissitudes of the trade in woollens to the United States during the period 1815-40, for which official statistics are available, are illustrated by Figure 5 and Table 6, which show the British export of blankets and blanketing to that market. It will be noted that the path traced by exports to America follows closely the total export curve, although there are noticeable deviations in the 1820s when new export markets were being actively sought, particularly in South America. Hostilities between England and America, beginning in June 1812, lasted until the spring of 1815 and dislocated trade between the two countries. (1) Thereafter there was a large shipment of goods from the over-stocked warehouses of Liverpool, Manchester and London to meet the pent-up demand which is reflected in the relatively high point from which the curve of American exports takes its departure in 1815. The following year saw a slightly less active demand (2) which

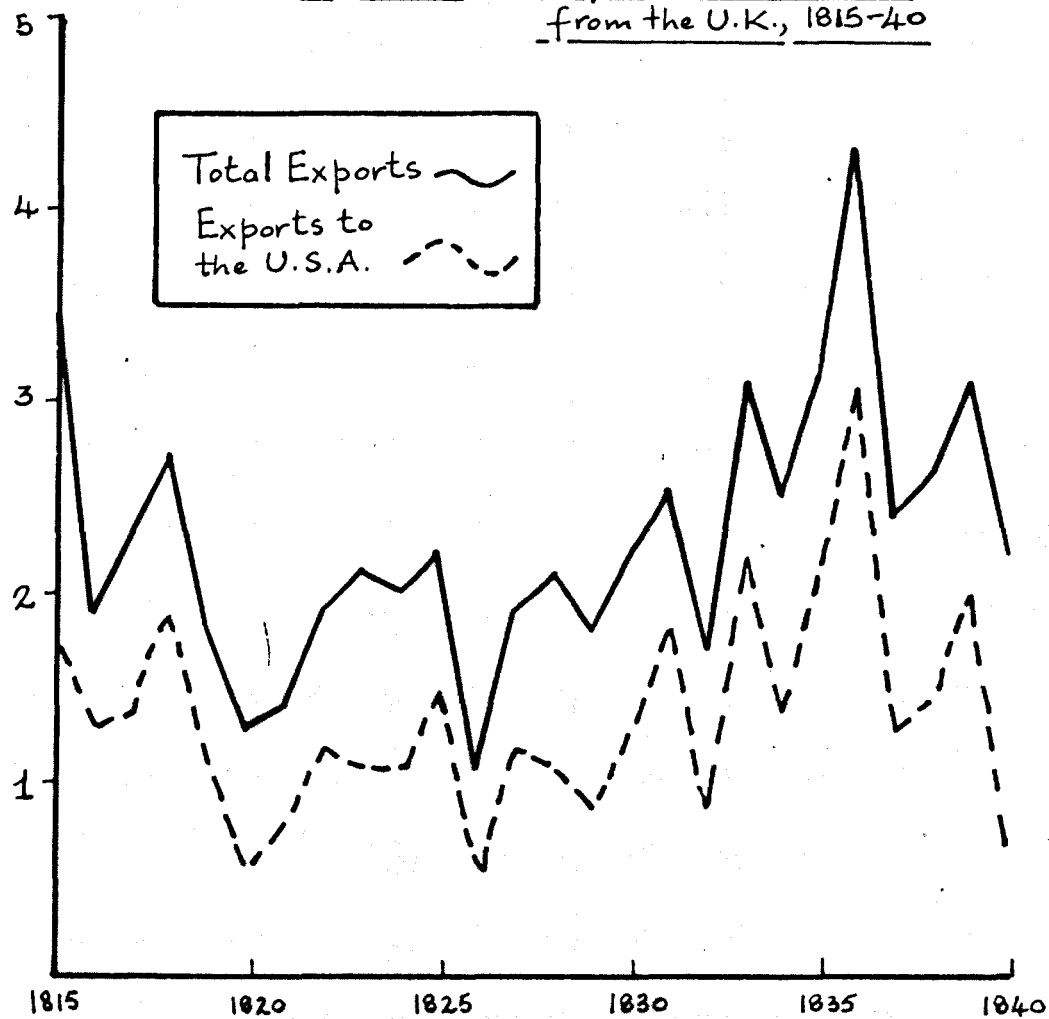
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(1) Illuminating observations on the condition of the West Riding woollen trade in the closing years of the Wars are provided in the Diary of Joseph Rogerson, published in W.B. Crump, op. cit., pp. 77-166. Also, see below, p. 370.

(2) The blanket trade in 1816 does not seem to have been as seriously affected as other branches of the woollen industry in the general economic depression of that year.

(Millions of yards)

Figure 5.

Exports of Blankets  
from the U.K., 1815-40

Source: Parliamentary Papers, 1821(621) xviii, p.229;  
1833(526) xxxiii, p.625; 1843(210) lii, p.349.

Table 6. EXPORTS OF BLANKETS AND BLANKETING  
FROM THE U.K., 1815-40.

(in millions of yards)

Year	To all markets	To the U.S.A.
1815	3.4	2.7
1816	1.9	1.3
1817	2.3	1.4
1818	2.7	1.9
1819	1.8	1.1
1820	1.3	.6
1821	1.4	.8
1822	1.9	1.2
1823	2.1	1.1
1824	2.0	1.1
1825	2.2	1.5
1826	1.1	.6
1827	1.9	1.2
1828	2.1	1.1
1829	1.8	.9
1830	2.2	1.3
1831	2.5	1.8
1832	1.7	.9
1833	3.1	2.2
1834	2.5	1.4
1835	3.1	2.1
1836	4.3	3.1
1837	2.4	1.3
1838	2.6	1.5
1839	3.1	2.0
1840	2.2	.7

Source: Parliamentary Papers, 1821 (621) xviii,  
p. 229; 1833 (526) xxxiii, p. 625;  
1843 (210) lii, p. 349.



was followed by two years of improving trade before the onset of the 'crisis that overtook American business at the close of 1818 ... largely due to a shift in the world's demand for American staples ...' <sup>(1)</sup> The two years 1819 and 1820 were years of serious depression and the recovery which commenced in 1821 lost its momentum in 1823-4 before rising to a sharp peak in 1825 which was somewhat lower than the previous high point of demand in 1818. The 'universal depression' of 1826 reduced the trade to a level corresponding with its previous 'trough' of 1819. There was a good recovery in 1827, falling away in the two succeeding years, <sup>(2)</sup> and the upward tendency was again resumed in 1830 and the early part of 1831, again without quite reaching the level of 1818, which was eventually surpassed, after a marked decline in 1831-2, in the peak

(1) Smith and Cole, op. cit., p. 20.

(2) The American tariff legislation of 1828 exerted a strong effect on the trade of these years, stimulating British exportations in 1827 and depressing them in 1828-9. Benjamin Gott described the trade in 1828 as being 'not a brisk state.', S.C. of 1828, p. 287.

year of 1833. <sup>(1)</sup> In that year, too, the price of woollen textiles seems to have started moving upward, bringing to an end the declining price trend which seems to have set in after 1818. <sup>(2)</sup> There was probably some over-stocking in 1833 <sup>(3)</sup> which led to the decline in trade registered in 1834 and there seems to have been some dislocation in the organisation of commerce, according to Oastler, who said in that year, 'I consider that the trade is so cut up, that the exporters are cutting one another's throats ...' <sup>(4)</sup> The steep rise in the years 1835-6 carried the level of exports to its highest peak in the 'thirties, a point not attained again until the late 'forties. The boom was accompanied by much speculative activity and laxity in the extension of credit on the part of the merchants and banking houses and

- (1) The evidence of Henry Hughes to the S.C. of 1833 is a useful commentary on these years: '... the manufacturers are certainly in as healthy a condition, and more so than they have been for many years past; there is less distress among the master manufacturers. The factories being well employed, and their cloths sold almost as soon as they are brought to market.' This healthy state he ascribed to 'the extent of the business and the ready demand for goods.' p. 82.
- (2) *ibid.* Hughes stated that the price of woollen cloth had decreased 'till recently, when it is on the increase again' cf. evidence of Joshua Bates, p. 48-9; and John Brookes, p. 152.
- (3) cf. Report of the S.C. on Hand-Loom Weavers' Petitions, 1834 (556) x, p. 283.
- (4) cf. Tooke, *op. cit.*, vol. ii, p. 251.

this led to the sharp and severe recession of 1837 which drew the admonition from J.R. McCulloch that:

The overtrading we have witnessed could not have taken place to anything like the same extent, had the houses here, which gave the credits, abided by the original practice of always getting the invoices and bills of lading as a collateral security. (1)

There was a gradual recovery in 1838-9, but 1840 saw the trade carried to almost its lowest level since 1815 and, accompanied by sagging prices and a depressed home market, it ushered in the hungry 'forties.

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(1) Edinburgh Review, vol. xlv (1837), p. 238. The whole article (pp. 221-38) is an authoritative enquiry into the 'crisis' of 1837. It seems to have been a crisis of finance confined to the American trade and it coincided in England with the 'railway mania'. cf. R.C.O. Matthews, A Study in Trade-Cycle History, (Cambridge, 1954), esp. pp. 152-155; and Jenks, op. cit., pp. 85-8.

(2) For an account of periodical surveys of the state of the woollen trade which appeared during the years 1835-44 in the Leeds Mercury, see H. Heaton, 'An Early Victorian Business Forecaster in the Woollen Industry', Economic History, vol. ii (1933), pp. 553-74. For commentary on unemployment in the woollen textile manufacturing areas in 1840, see Report from the S.C. on Import Duties, 1840 (601) v, pp. 160 et seq., and 247 et seq.

### Summary

This chapter has been concerned with reviewing the wool supply of the Yorkshire industry; with changes in the technique of production; with changes in economic organisation; and with changes in markets and in the demand for the products of the industry in the period 1770-1840. This has necessitated the discussion of other related themes in order to clarify the main story and to facilitate the development of the outline history of the industry in Chapters 2 and 3.

APPENDIX TO CHAPTER 1

The Home Market

It is not possible to assess quantitatively the extent of the domestic market for woollen cloths and blankets during the nineteenth century owing to the absence of reliable data. Certainly there was a large increase of population during the period 1770-1840, but this does not carry us very far in estimating whether there was an increasing demand for clothing in Britain. (1) Miss Gilboy has made the point that 'an increase in population cannot by itself increase demand except in the case of a people with a standard of living so firmly entrenched that any lowering of the standard is implacably resisted.' (2) Even if we suppose that this latter condition was fulfilled in early nineteenth century Britain, the demand for clothing could be, and probably was, largely met by an increase in

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- (1) Henry Hughes told the S.C. of 1833, that '... there is of course an increased demand for clothing in consequence of increased population.' p. 118.
- (2) E.W. Gilboy, 'Demand as a Factor in the Industrial Revolution', in Students of E.F. Gay, Facts and Factors in Economic History, (1932), p. 622.

the supply of cheaper, non-woollen fabrics such as cotton  
 (1)  
 or fustian goods. William Ireland observed in 1828 that:

It will appear that nine-tenths of the peasantry of this country are clothed in cotton, whereas they used to be clothed in woollen; they always wear them as working dresses; and on Sunday they are wearing a superfine cloth coat, and that is made of foreign wool. (2)

A confusing picture is drawn from other evidence given to the Select Committee of 1828. Jacob Tweedale said that the woollens sold for home consumption were greater in  
 (3)  
 1828 than in 1820; Bischoff thought that the homemarket

- (1) Fustian was manufactured from a linen warp and a cotton weft.
- (2) S.C. of 1828, p. 326. Engels followed this view, later in the nineteenth century, when he wrote:  
 ... the whole clothing of the working-class, even assuming it to be in good condition, is little adapted to the climate. The working-class ... is scarcely ever in a position to use a thread of woollen clothing; and the heavy cotton goods afford much less protection ... and have nothing of the compact density of fulled woollen cloths.  
F. Engels, The Condition of the Working Class in England in 1844, Eng. trans. (1892), pp. 66-7.
- (3) S.C. of 1828, p. 264.

was the best for woollen manufactures 'in point of extent' (1)  
 John Nussey understood that 'about one third, or more than  
 one third, of the low woollens made in this country were  
 exported, (2) whilst John Brooke considered the foreign market  
 'the most extensive' (3) Thomas Cook of Dewsbury explained  
 that he manufactured blankets 'about half for the home and  
 about half for the foreign trade', (4) and he was supported  
 in this contention by another Dewsbury blanket manufacturer (5)

At about this time a local historian was writing that:

... the quantity of cloth exported is very small,  
 compared to what is consumed at home, or among  
 British subjects. Perhaps not more than one-tenth  
 of our manufactures are really purchased by  
 foreigners. (6)

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(1) *ibid.* p. 308.

(2) *ibid.* p. 247.

(3) *ibid.* p. 256. Brooke was mainly interested in the  
 fine cloth trade.

(4) *ibid.* p. 214.

(5) *ibid.* p. 233.

(6) N. Scatcherd, The History of Morley, (Leeds, 1830),  
 p. 88.

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In 1834, Oastler was protesting that 'if wages were higher, the labourer would be enabled to clothe himself ... these labourers are the persons who are after all the great consumers of agricultural and manufacturing produce ...' (1)

Chapman made a similar observation in his report on the condition of the hand-loom weavers in the West Riding in 1840. (2) For the same year it was 'estimated' by Spackman that the home consumption of woollens was of the value of £14 million, a figure which was two and a half times larger than the total value of British exports of woollen manufactures in the same period. (3)

These varied and conflicting statements offer little help in measuring the importance of the home market during the period, and although they probably indicate that the internal trade was significant for the woollen cloth manufacturer, they do not allow us to conclude anything material about the growth or decline of the market. (4) The

- (1) Report of the S.C. on Hand-Loom Weavers' Petitions, 1834 (556) x, p. 283.
- (2) Assistant Commissioners' Reports to the S.C. on Hand-Loom Weavers, 1840 (43-II) xxiii, p. 577.
- (3) W.F. Spackman, Statistical Tables ... of the United Kingdom, (1842) , p. 45. The writer has nothing to say about the basis of his estimate.
- (4) cf. Gayer, Rostow and Schwartz, op. cit., vol. ii, pp. 701-3.

argument therefore returns to Miss Gilboy's point regarding the standard of living during these years and two well known indicás of real wages, for the period 1770-1840, are reproduced below:

Index of Real Wages in Lancashire

1700 = 100

1770	169	1778	163	1786	174
1771	136	1779	171	1787	162
1772	147	1780	160	1788	180
1773	153	1781	160	1789	170
1774	155	1782	147	1790	175
1775	156	1783	144	1791	170
1776	167	1784	146	1792	143
1777	153	1785	155	1793	180

E.W. Gilboy, 'The Cost of Living and Real Wages in 18th Century England', Review of Economic Statistics, vol. xviii (1936), pp. 134-43.

Index of Real Wages of London Artisans

1913 = 100

1793	46.0	1809	36.9	1825	48.8
1794	46.1	1810	38.2	1826	50.2
1795	41.4	1811	40.2	1827	51.2
1796	42.3	1812	37.6	1828	52.6
1797	44.2	1813	36.0	1829	52.4
1798	43.9	1814	40.2	1830	56.2
1799	40.9	1815	44.5	1831	51.5
1800	33.0	1816	43.6	1832	52.2
1801	33.0	1817	41.9	1833	55.0
1802	39.2	1818	41.5	1834	57.3
1803	38.1	1819	41.4	1835	57.2
1804	38.0	1820	43.7	1836	53.5
1805	35.2	1821	48.7	1837	50.4
1806	36.2	1822	53.5	1838	50.3
1807	40.3	1823	52.7	1839	46.7
1808	39.6	1824	52.4	1840	49.2

R.S. Tucker, 'Real Wages of Artisans in London, 1729-1935', Journal of the American Statistical Association, vol. xxxi (1936), pp. 78-9.

On this evidence the trend of real income seems to have been upward between 1770 and 1790; then there was a substantial fall in the early years of the Napoleonic Wars which was not quite regained by 1815; a sharp rise up to 1822, and thereafter the secular drift would seem to be tending slightly upward. As real income increased it is likely that the home demand for woollen cloth would rise, and if the evidence of the indices can be accepted we can form some general assessment of changes in the domestic demand for woollen products. But these indices, valuable though they are for some purposes, have been subjected to considerable criticism on the grounds that they are based on data which is too specific or too restricted to allow of any general conclusions to be drawn from them for the community as a whole. <sup>(1)</sup> There is also

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(1) cf. G.D.H. Cole and R. Postgate, The Common People, (1946), passim; G.D.H. Cole, Short History of the British Working Class Movement, (1948), pp. 127-9; W. Rostow, op.cit., pp. 19-24; T.S. Ashton, 'The Standard of Life of the Workers in England, 1790-1850', Journal of Economic History, Supp. ix (1949), pp. 19-38; Gayer, Rostow and Schwartz, op. cit., pp. 949-57; R.C.O. Matthews, op. cit., pp. 220-1; Phyllis Deane, 'The Industrial Revolution and Economic Growth: The Evidence of Early British National Income Estimates', Economic Development and Cultural Change, vol. v, 1957, pp. 164-170; Colin Clark, Conditions of Economic Progress, 3rd Edn. (1957), pp. 208-18; E.J. Hobsbawm, 'The British Standard of Living, 1790-1850', Economic History Review, vol. x (1957), pp. 46-68.

technical problem associated with 'weighting' these indices appropriately and of changing the 'weights' in accordance with changes in the spending behaviour of the community over long periods of time. (1)

In the absence of any better data on the standard of living during the period it would seem that we can choose to accept the 'optimistic' view that:

... the number of those who were able to share in the benefits of economic progress was larger than the number of those who were shut out from these benefits and that it was steadily growing. (2)

Or we can take the 'pessimistic' view that:

The eighteenth century ... appears to have been a period of economic decline for the mass of the English people; and the first half of the nineteenth century, with all the tremendous changes brought about, only just succeeded in maintaining real income per head constant. (3)

(1) cf. R.G.D. Allen, 'The Economic Theory of Index Numbers', Economica, vol. xvi (1949), pp. 197-203; J.A. Schumpeter, History of Economic Analysis, (New York, 1954), esp. pp. 1091-5.

(2) Ashton, op. cit., p. 38.

(3) Colin Clark, op. cit., pp. 217-18.

or:

It is altogether likely that living-standards improved much over the eighteenth century. It is not improbable that, sometime soon after the onset of the Industrial Revolution - which is perhaps better placed in the 1780s than in the 1760s - they ceased to improve and declined. (1)

Clearly, for our purposes of measuring the size of the domestic market for woollen goods, the evidence here reviewed is of little practical assistance and we must conclude that we are here confronted by one of the largest of the nineteenth century's 'empty, economic boxes'.

### Distribution

The distribution of woollen textiles in the home market was largely in the hands of home trade merchants and wholesalers in the large towns, a situation which was strengthened by the improvement in transport facilities and in credit and commercial practice in the first half of the nineteenth century. James told the Select Committee on Manufactures, in 1833, that 'the business of a wholesale dealer is to purchase from the manufacturers, to hold stocks, and to supply country dealers and the shopkeepers in town with those goods.'<sup>(2)</sup> Some of the wholesalers sought supplies

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(1) Hobsbawm, op. cit., pp. 60-1.

(2) S.C. of 1833, p. 84.

from manufacturers, on behalf of retailers, working on a commission basis, whilst the larger retailers in the towns were, from the 'thirties onwards, developing direct links with manufacturers and the latter were beginning to employ regular commercial travellers. In the retailing trade, as Clapham has stressed, 'everywhere, down to the smallest country towns and some of the villages, the shop - special-ised or general - was supplanting the pedlar ...' (1) In the distribution of blankets, for example, a substantial amount of business was transacted, at the retailing level, by the blanket-higglers, in the north of England, who peddled their goods from door to door, but this form of disposal of goods to final consumers seems to have declined rapidly in the 1830s. (2)

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(1) J.H. Clapham, An Economic History of Modern Britain, (Cambridge, 1930), vol. i, p. 225. The whole system of wholesale and retail distribution in Britain in the early nineteenth century is a curiously neglected area in British Economic history.

(2) cf. S. Jubb, History of the Shoddy Trade, (Batley, 1860), pp. 16-17.

CHAPTER II

INDUSTRIAL CHANGE 1840-70



CHAPTER IIINDUSTRIAL CHANGE, 1840-70.

'... those tall and even graceful chimnies  
which now appear on every hand ...' (1)

In responding to market demand, in the thirty years after 1840, the growth of woollen cloth production in the West Riding was associated with, and to some extent the result of, changes in the productive equipment and organisation of the industry, and in the type of fabrics produced. The efficiency of yarn preparation was notably improved by the introduction of the 'condenser' which eliminated the piecing and slubbing operations, and the successful adaptation of the power loom to the weaving of woollens, and especially broad-woollens, finally confirmed the supremacy of the factory system over the domestic industry and led to the gradual, though not complete, displacement of the hand loom weavers from the trade. This development had its counterpart in the commercial structure of the industry in the declining significance of the local merchants and the cloth halls. The raw material supply was reinforced by increasing imports of wool from Australia and of rag-wool

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(1) Jubb, op. cit., p. 6.

from the Continent, and upon this basis, together with the steadily enlarging use of cotton warps, the range of fabrics produced, in design, quality and finish, was considerably extended. The growth of the 'shoddy' manufacture, at this period, stimulated the industrial and commercial development of the 'heavy woollen' district and induced its growing independence and importance in relation to Leeds and Huddersfield, the older centres of the trade.

#### (1) TECHNOLOGICAL DEVELOPMENT

The processes of manufacture were improved by a number of innovations introduced into the industry during this period. Wool scouring and drying machines, and the use of chemical solvents rather than urine, were gradually being introduced in the 'forties,<sup>(1)</sup> although these did not approach in efficiency the wool cleaning machines which were developed later on the basis of Petrie's (1859) and Melen's (1863) patents. A satisfactory 'burring' machine for the removal of burrs from the raw wool without damaging the fibre was

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(1) Jubb, op. cit., refers to the wool scouring machine being introduced in Batley about 1843; Smith, op; cit., p. 218, mentions a 'patent wool-scouring machine' first introduced at Morley 'in 1853.' The chemical solvents used - chiefly soda ash and ammonia - were more weakening to the strength and colour of the cloth than the old fashioned solvent.

making its way into the industry in the 'sixties.<sup>(1)</sup> The oiling of the wool, during the yarn preparation processes, was performed more evenly and economically by means of George Leach's mechanical spray, but although the worsted industry readily adopted this device after 1850, the oil can was only slowly ousted from the woollen manufacture. Larger and more efficient willeys and bigger scribblers were coming into use in the 'fifties and, in 1853, the latter were 'generally composed of two very large swifts and about twenty-two cylinders.'<sup>(2)</sup> By 1860, the 'carders ... now in use are of larger dimensions than formerly, and present a greater area of working power: the cards are better adapted to their purpose, and the art of using them more perfectly understood...<sup>(3)</sup> the 48 inch carder equipped with either the Apperley or Blamire automatic 'feed' was being generally used at this time. The card 'clothing' of these machines was increasingly 'machine-set' during the period under review and by 1870 hand card-making had become extinct and the card-making industry had localised itself particularly in the district

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(1) Later in the nineteenth century the 'burring rollers' were directly attached to the carding engine. cf. J.H. Clapham, The Woollen and Worsted Industries, (1907), p. 33.

(2) G. Ibberson, The Woollen Manufacturer's and Overlooker's Guide, (London, 1853), p.11. cf. McLaren, op. cit., p. 81, for a description of the willey in the 'seventies.

(3) Jubb, op. cit., p. 61.

(1)  
 around Brighthouse. The 'Slasher sizer' and the mechanical size-mixer were speeding up the sizing of warps in the late 'fifties, although cotton warps were rarely sized before being woven with a woollen weft, and some use was being made of a warping machine to accelerate the warp setting operation. In the finishing processes, the rotary milling machine was superseding the old fulling stocks, after the middle of the century, for it 'is more convenient than the stocks, does the work in a shorter time, and requires less soap.'<sup>(2)</sup>

By the early 'forties the steam-heated room for cloth drying was almost a universal feature of the woollen factory in Yorkshire, and the bleaching of cloth, especially blanket cloth where 'whiteness' was an important selling feature, was becoming more extensive.<sup>(3)</sup> At this time also 'the hand shears are now but little used' and the 'spiral cutter' or perpetual shearing machine was fast becoming the standard equipment in use for cloth dressing.<sup>(4)</sup> The hydraulic press was also, after 1850, part of the standard equipment in cloth finishing.<sup>(5)</sup> By the late 'forties, cloth raising on the gig

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(1) Ling-Roth, op. cit., pp. 9-10.

(2) Smith, op. cit., p. 239.

(3) Dodd, op. cit., p. 104.

(4) *ibid.* p. 105.

(5) Jubb, op. cit., p. 77.

had completely displaced the 'dubbing, nellying and cross-raising' by hand and much experimentation with various kinds of wire bristles was being undertaken without, apparently, successfully challenging the superior resiliency of the teazle for raising purposes. <sup>(1)</sup> All these appliances improved the productive performance of the industry, but the most important innovations were those which directly affected yarn-making and weaving: the condenser, the mule, and the power-loom.

#### The Condenser and the Mule

In the 1840s the mule was rapidly displacing the jenny in the spinning 'departments' of West Riding woollen mills, but Jubb has noted that, although the mule had been introduced into the 'heavy woollen' region as early as 1830, <sup>(2)</sup> the jenny was still being used 'in some neighbouring clothing districts, and it is a question whether the villages which cluster near Leeds are yet fully supplied with this useful substitute (the mule)' in 1860. <sup>(3)</sup> He expressed some surprise at the length of time which had elapsed from the

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(1) The teazles were mainly grown in Somerset and marketed in Leeds.

(2) Jubb, op. cit., p. 65.

(3) *ibid.* p. 67.

first use of the mule in cotton spinning to its general application in Yorkshire, 'considering the eligibility of the machine for advantageous use in the woollen manufacture', but he volunteered no explanation of this 'strange' and 'most unaccountable' fact, describing the slowness in adopting the mule as 'simply a mistake'.<sup>(1)</sup> It seems near the truth to say that, although the hand-mule had some productive advantage over the jenny in terms of quantity produced per operative per unit of time, the quality of the yarn produced by the mule was less satisfactory than that made on the jenny and, until the efficiency of the mule was improved in this respect, the manufacturers did not readily undertake the costs of conversion from the jenny to the newer machine, though they probably invested in mules when expanding or replacing capacity. One explanation of the slowness in introducing the mule to the 'heavy woollen' district is to be found in the fact that the spinning of yarn was carried on mainly in company mills in this part of the West Riding and the shareholders of these mills, being generally men of 'small capitals' would be reluctant to incur the expense of changing over to mules unless they could see very marked cost reducing advantages in doing so. We have it on the authority of

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(1) *ibid.* p. 68. The 'spinning jack', an early type of mule worked by water power, was in use in the American industry before 1820. Cole, *op. cit.*, vol. 1, pp. 113-115.

Chapman that 'the mule is not so great an innovation ... for it only enables a man to produce four or five-fold, compared with the jenny ...' <sup>(1)</sup> This increase in productivity resulting from the use of the mule, when translated into terms of decreased cost per pound of yarn spun, was apparently not so marked as to persuade the smaller clothiers quickly to seek to emulate the larger manufacturer by converting to <sup>(2)</sup> mules.

We have already noted the introduction of power spinning in Leeds in the late 'twenties and in the Huddersfield area in the 'thirties and, once the initial technical difficulties had been overcome, the power-mule in the larger factories steadily established its superiority over the jenny in these two districts. The introduction of the self-acting mule is more difficult to trace. Cole and Crump both seem to identify the introduction of power

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(1) Hand-Loom Weavers, Assistant Commissioners' Reports, 1840 (43-II) xxiii, p. 586.

(2) The use of the mule seems to have reduced the cost of making a 'piece of superfine broadcloth' in the late 'twenties by about 5 to 6 per cent.. It would probably have been a larger percentage reduction in the case of low quality fabrics. *ibid.* p. 439 et seq.

spinning as being synonymous with the arrival of the 'self actor' in the woollen industry, <sup>(1)</sup> but the crucial invention in adapting the self acting mechanism to woollen spinning was the radial arm of Richard Roberts, patented in 1832, and Clapham has stressed that 'like so many new machines, the self-actor was for a long time too rough for the finest work - it did not wind the yarn well on the bobbin, for one thing - and too dear for the smaller spinners.' <sup>(2)</sup> The self-acting mule was probably in use in the West Riding woollen industry in the late 'thirties, but its employment seems to have been very experimental down to 1850. In 1858, Baines, in his description of the woollen processes then carried on by 'Benjamin Gott and Sons' in their factory in Leeds, referred to 'spinning on the mule, which contains from 300 to 1,000 spindles per pair', but he makes no mention <sup>(3)</sup> of the driving of the mules. Jubb, in 1860, is more descriptive:

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(1) A.H. Cole, op. cit., vol. i, p. 359; Crump and Ghorbal, op. cit., p. 82 and p. 118. cf. A.L. Bowley, Journal of the Royal Statistical Society, vol. lxx (1902), p.120.

(2) J.H. Clapham, An Economic History of Modern Britain, (1932), vol. ii, p. 30. cf. J. de L. Mann in Singer and others, A History of Technology, (Oxford, 1958), vol. iv, p. 299. Miss Mann states that 'the self-actor was not used until well after 1850'; it is doubtful whether one can be as definite as this.

(3) Edward Baines in a paper read to the British Association in 1858 and reprinted in T. Baines, Yorkshire, Past and Present, (1870), vol. ii, p. 632.



A pair of mules is generally worked by one man, assisted by two or three boys ... Mules vary in the number of spindles from three or four to five or six hundred per pair, their size between these extremes, being determined, mostly, by the dimensions of the rooms to receive them; it will be understood that mules are propelled by mechanical power, and the principal use of the lads .. is to piece the broken threads which occur in the process of spinning. (1)

In 1870, Baines in his 'supplementary account of the woollen trade' covering the twelve years following 1858, is able to say that 'self-acting mules have become common; and as existing mules require replacing, self-acting mules will soon become universal.' (2)

The slow conquest of the spinning process by the mule - spread over the half century 1820-70 - is probably explained, therefore, partly by the slowness with which the machine was improved and adapted to the production of woollen yarn, partly by the traditional conservatism of the industry, and partly by the prevalence of the small clothier in the trade who possessed neither the capital nor the inclination

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(1) Jubb, op. cit., p. 66. The boys were known as 'piecers' as distinct from the children who assisted the slubbers who were described as 'pieceners'.

(2) Baines, op. cit., p. 665.

(1)

to revolutionise his spinning methods.

The widespread introduction of power spinning on the mule led to the supersession of the slubbing process on the hand-worked billy with its attendant pieceners. Some improvement had been registered in the period 1830-60 in the slubbing process by the enlargement of the sixty-spindle billy into the hundred-spindle 'tommy' and the further development of the tommy into the 'horse', 'a modern machine of the same class (as the tommy), has variously from one hundred to one hundred and fifty spindles, and in some cases upwards.'<sup>(2)</sup>

This was accompanied by the adoption of various types of piecening machines designed to minimise the employment of children in the factories and to obtain a more orderly flow of production in this stage of yarn-making. The introduction of these machines was a response to the provisions of the Factory Act of 1833 which prohibited the employment in textile factories of children below the age of nine years, and limited hours of work to nine per day for children between the ages of nine and thirteen years. In order to keep the slubbers provided with juvenile labour a

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(1) The hand-mule survived in the industry until the twentieth century.

(2) Jubb, op. cit., p. 64.

relay system was introduced which was compatible with the Act, but it does not seem to have been entirely satisfactory as a means of organising the slubbing process. <sup>(1)</sup> Between 1840 and 1850 this machine underwent a number of improvements and, by the latter year, in some of the larger establishments 'Oldfield's rather noisy, but quite clever "piecening maching" <sup>(2)</sup> ... did away with hand rubbing.' But this machine was not generally introduced and, in the early 'fifties, the need for a regular supply of strong, compact 'slubbings' or 'rovings' to feed the mules turned the attention of manufacturers to the use of the 'condenser'.

The ring doffer condenser was perfected by J. Goulding of Massachusetts as early as 1826. A number of American inventors had introduced condensing devices before this date and Cole stresses that Goulding ' may not have been an originating mind, but he had the power to grasp the details and to combine them into a practicable mechanism that went

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- (1) '... to do away with pieceners, they have contrived a machine for joining the ends.' First Report from the S.C. on Mills and Factories, 1840 (203) x, p. 95.
- (2) Theodore Cooke Taylor, One Hundred Years, (Leeds, 1946), p. 10. Mr. Taylor quotes from the records of a woollen mill at Batley of which he was the senior partner for over half a century.

beyond the conception of his predecessors or collaborators.<sup>(1)</sup>  
 Goulding's condenser or 'American card' was an auxiliary machine which could be attached to the carder itself and by its means 'the sheet of wool on the last carding cylinder might be seized upon by ... strips of wire on the doffing cylinders and separated into two sets of narrow bands. These numerous bands were then drawn through revolving tubes, which gave them a certain roundness (and condensed them), and wound upon spools the width of the carding engine. These spools, in turn, could be taken to and mounted at the back of the spinning machines, where the roving or ... roping ... could be directly converted into yarn.'<sup>(2)</sup> The machine was further improved when the revolving tubes were replaced by rubber covered rollers,<sup>(3)</sup> and the efficiency of the innovation was such that the American woollen industry had 'probably adopted Goulding's invention by the middle of the 'thirties.'<sup>(4)</sup>

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(1) Cole, op. cit., vol. i, p. 102.

(2) *ibid.* p. 103.

(3) In the 1870s the rubber covered rollers were being superseded by broad leather belts moving in a rotary and lateral fashion.

(4) *ibid.* p. 107. The use of spinning jacks in the United States seems to have produced this result.

Although a patent was granted in this country, in 1834, in respect of a device which was probably similar to the 'American card',<sup>(1)</sup> there are no references to 'condensing' by English writers dealing with the woollen industry until the early 1850s.<sup>(2)</sup> Dodd, in 1844, explains very fully the slubbing and piecing processes, but he has nothing to say on condensing and even the piecing machine seems to have fallen outside his field of vision.<sup>(3)</sup> Ibberson, in 1853, maintained that 'the present defective system of piecing the roll-cardings is destined to improvement' and he was of the opinion that 'if the condenser be only properly managed, it will eradicate a great many defects which are incident to hand-billy piecing.'<sup>(4)</sup> This suggests that, at that time, the new method was being used only tentatively in the industry. At the 1851 Exhibition it was noted by the Jury in Class VI that:

(1) A. Ure, Philosophy of Manufactures, (1835), p. 181.

(2) The process was, apparently, making some headway in Galashiels and Hawick in the 1840s. cf. J.H. Clapham, An Economic History of Modern Britain, vol. ii, p. 13.

(3) Dodd, op. cit., pp. 100-1.

(4) Ibberson, op. cit., p. 13.

Mr. Mason exhibits, in the short-wool department (or clothing branch), two carding-machines and a mule. These deserve especial notice, as being on the plan now adopted very generally on the Continent, and universally in the United States, by which endless slubbings are formed directly from the card. The old-billy machine, and the operations connected with it, are thus dispensed with, and the yarn produced is more level. (1)

In 1854 a writer proffered the view that 'the operation of slubbing has been lately superseded in many mills by a machine called the Condenser',<sup>(2)</sup> but it is notable that, in his review of woollen processes in 1858, Baines regards 'slubbing, at a frame called the billey' as the normal operation preceding 'spinning on the mule', though he added that also 'by a new machine, called the Condenser, attached to the carding machine, the wool is brought off in a continuous sliver, wound on cylinders ...'<sup>(3)</sup> It is likely that the early condensers used in this country were first applied in the manufacture of coarse yarns for blankets and

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(1) Exhibition of the Works of Industry of all Nations, 1851, Reports by the Juries, (1852), p. 196.

(2) C. Tomlinson, Cyclopaedia of Useful Arts, (1854), vol. ii, p. 1035.

(3) Baines, op. cit., p. 632.

low woollens and that as the initial mechanical problems were overcome they were then brought into use for the better quality yarns. (1) It was reported of the French woollen

textile industry, in 1855, that 'the condenser has been long in use for the manufacture of some classes of goods and is now being employed for the spinning of yarn for woollen

cloth.' (2) If this hypothesis is correct it would be expected that the condenser would be readily taken up by manufacturers in the 'heavy woollen' district of Yorkshire. (3)

It was in use in Batley in 1853, and probably in use in Morley in 1856, (4) but Jubb, writing specifically about the shoddy trade, stated in 1860 that:

Condensers have not been much applied to the trade, and indeed, it may be assumed, that they are not well adapted to any but long wools. (5)

(1) See below, p.395 .

(2) Factory Inspectors' Reports, 1856 (2031) xviii, p. 64. Cole quotes this statement in considering the initial beginnings of condensing in the American industry. Cole, op. cit., vol. i, p. 107.

(3) T.C. Taylor, op. cit., p. 10. 'Cotterell's condenser ...'

(4) Smith, op. cit., p. 224.

(5) Jubb, op. cit., p. 62.

It is unlikely that the early condensers would be readily applicable to the processing of shoddy wool which was extremely short in the staple, but Jubb's pessimism regarding the appliance proved to be unfounded and it spread rapidly in the late 'sixties in the shoddy district as well as in the West Riding generally. In 1870, Baines was able to say that, since 1857, 'the old billey ... is done away with, and the thread comes in one continuous piece from the carder to the other machines ...' <sup>(1)</sup> The Factory Inspectors counted 1,080 condensers at work in Yorkshire in 1867 and <sup>(2)</sup> 4,269 in 1874.

The Inspectors reported the spindles in use in Yorkshire woollen factories, at various dates during the period 1850-74, as follows: <sup>(3)</sup>

Year	Spinning spindles	Doubling spindles	Billy Spindles	Total
1849	925,449	n.a.	n.a.	925,449
1861	1,296,190	n.a.	n.a.	1,296,190
1867	1,395,962	96,812	113,864	1,606,638
1874	1,911,661	71,583	48,020	1,991,264

(1) Baines, op. cit., p. 665.

(2) Returns of the Number of Factories ... in the U.K., 1867-8 (453) lxi, pp. 816-17; 1875 (393) lxxi, pp. 63-4, 69. The number of condensers was not returned after 1874.

(3) Parliamentary Papers, 1850 (745) xlii, p. 458; 1862 (23) lv, pp. 632-3; 1867-8 (453) lxi, pp. 816-17; 1875 (393) lxxi, pp. 63-4, 69.



Only the very broadest conclusions may be drawn from this table. It takes no account of the spinning which still lingered on, throughout the period, in the homes of the clothiers and, especially in the first two years quoted above, the figures are a seriously incomplete assessment of the spindle capacity and there is no differentiation between the three types of spindles. The 1867 and 1874 figures, unlike the earlier statistics, take account of the shoddy factories. It will be noted that the proportion of billy spindles in relation to total spindles was already very small in 1867 - a little over 7 per cent. - and by 1874 this proportion had declined to slightly more than 2 per cent.. The total number of spindles more than doubled in the quarter century reviewed in the table, the 'sixties being years of marked expansion in this respect, and Yorkshire's share of the total number of spindles employed in woollen manufacture in Great Britain had reached 60.2 per cent. in 1874. The shares of other regions were: Scotland - 16.9, Lancashire - 12.3, West of England - 4.5, rest of England - 5.0, and Wales

(1)  
1.1. Bearing in mind the deficiencies of the statistics,

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(1) Parliamentary Papers, 1875 (393) lxxi, pp. 63-9. The calculation excludes doubling spindles. This degree of concentration of woollen spinning in Yorkshire was not exceeded during the rest of the nineteenth century. Gloucestershire is included in the 'rest of England'.

the fact that they tell us nothing about spindle speeds and that they hide the changes from jennies to mules, and the introduction of the self-actor, it seems reasonable to conclude that the efficiency of spinning was improving during the period 1840-70, although what this meant in terms of costs per pound of yarn produced it is not possible to say. This improvement necessitated substantial capital investment, not only in the new equipment, but also in buildings, for the mule was, as Jubb emphasised, a space-consuming appliance. (1)

The development further increased the difficulties of the small clothier in his efforts to retain a foothold in the trade.

### The Power Loom

Whilst the mule and the condenser were transforming the organisation of spinning in the mills of the West Riding, the power loom was steadily encroaching on the hand-loom in the weaving of woollen cloth. We have noted above that the innovations of the early 'forties made power weaving a

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(1) See above, p. 174. cf. the general discussion of mill building development in the West Riding in R.H.J. Rhodes, 'Factory Location and Layout in the Wool Textile Industry', Yorks. Bull., vol. 6 (1954), pp. 179-96.

(1)  
practical possibility in the industry, but the steam loom:

'... was an innovation of an exceedingly slow growth, and it is questionable whether, taking all things into consideration, it had any advantage over the hand loom during the first twenty years of its progress. (2)

Baines, in 1858, still found the 'feebleness of the yarn' and the 'great width of the web, which in broad cloth, before it is milled, is nine feet' important obstacles to progress in power-loom weaving, and he found that whereas, in the worsted manufacture, 'the shuttle flies at the rate of 160 picks per minute ... the power-loom in weaving broad cloth only makes 40 to 48 picks per minute - that is, just the same as the hand-loom.' (3) Nevertheless, at this time, there were 952 power looms in use in the town of Leeds (4) alone and 2,344 power looms in the 'Leeds clothing district' which 'comprehends something more than one half of the whole woollen manufacture of Yorkshire.' (5) Two

(1) See above, p. 63 .

(2) A. Barlow, The History and Progress of Weaving by hand and by power, (1878), pp. 242-3.

(3) Baines, op. cit., p. 631.

(4) P.L. Simmonds, in revised edition of Ure, Philosophy of Manufactures, (1861), p. 707.

(5) Baines, op. cit., p. 655.

years later, Jubb was writing of the shoddy trade that:

... within the last ten or a dozen years, hundreds upon hundreds of power looms have been set to work in the township of Batley, and this is but a specimen of the shoddy district; they are chiefly attended by upgrown females. (1)

The progress of the power loom in Yorkshire in the 'sixties and early 'seventies can be roughly traced from the information provided by the Factory Inspectors: (2)

Year	Number of Power Looms	Number of power loom weavers
1849	3,849	n.a.
1861	11,405	10,439
1867	20,713	17,563
1874	30,917	25,733

The total numbers of power looms in use in factories increased over the period by 800 per cent; this degree of precision must be qualified by the fact that the Factory Returns cannot

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(1) Jubb, op. cit., p. 69.

(2) Parliamentary Papers, 1850 (745) xlii, p. 458; 1862 (23) lv, pp. 632-3; 1867-8 (453) lxix, pp. 816-17; 1875 (393) lxxi, pp. 63-4, 69. The statistics for 1867 and 1874 include shoddy factories.

(1)

be accepted as absolutely reliable in this period.

Nevertheless, it seems true to say that there was a substantial increase in weaving capacity installed in Yorkshire factories after 1850. The returns offer no information in respect of the number of hand-loom which were operated in the weaving departments of West Riding mills during this period. The hand-loom were overwhelmingly predominant in the industry in 1849 and even by 1874 they probably still retained a significant position in the weaving capacity of some firms. The practice of one weaver 'minding' more than one power loom seems to have been well established in some districts of the West Riding in 1874, but not in the Huddersfield district. (2)

In this year 54 per cent. of the total number of power looms in use in the woollen manufacture of Great Britain was concentrated in Yorkshire, the percentage shares for the rest of the country being: Scotland - 20.7,

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(1) cf. E.M. Sigsworth, Black Dyke Mills, p. 78, for a discussion of the reliability of the Returns dealing with the worsted industry.

(2) See below, p. 326.

Lancashire - 15.9, West of England - 4.6, rest of England -  
 (1)  
 3.8, and Wales - 1.0

An important factor in accelerating the adoption of the power loom in the West Riding in the 'sixties was the trend in fashion, coupled with the impulse towards cheapening costs of production in order to capture larger markets, both at home and abroad, which precipitated the use of the cotton warp. Although the woollen weft with which it was combined still presented difficulties in power loom operation, the strength, hardness and consistency of the cotton warp stood up to the harsh treatment of power weaving much more successfully than the woollen warp did and Jubb has well expressed the relationship between the new fabrics and the use of the new mode of weaving:

Cotton warps and power looms have gone hand in hand; the use of both has been simultaneously developed, which is accounted for by the fact that they are well adapted to each other. (2)

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(1) Parliamentary Papers, 1875 (393) lxxi, pp. 63-9. The degree of concentration in Yorkshire increased slowly throughout the rest of the nineteenth century and reached 61 per cent. by 1904. According to Plummer, the power loom was introduced into the Witney blanket manufacture 'not earlier than 1860, and that hand-loom and power-loom existed side by side for many years.' Plummer, op. cit., p. 109.

(2) Jubb, op. cit., p. 57.

Manufacturers, impressed by the efficiency of the power loom in weaving 'union' cloths, were encouraged to extend its use to all-woollen webs and the increasing demand for power looms probably led to some adaptations and adjustments by loom manufacturers, in the light of operating experience in the mills, which improved the mechanism and increased the 'picking' speed. Baines observed, in 1870, that 'there is nothing really new in looms, but they are constantly being made better, and to go faster.'<sup>(1)</sup>

The same writer seems to have been too definite in his opinion that 'the hand-loom has long been giving way to the power-loom, and the process is now well nigh complete.'<sup>(2)</sup> He may have had good grounds for believing this to be true of the town of Leeds, at this time, but in the villages near Leeds, and in the Huddersfield district, the hand-loom weavers remained important in the trade in the 'seventies and 'eighties. Clapham found, from personal investigation, that 'about Calverley and Farsley, a strong body of hand loom weavers worked right through the 'seventies'<sup>(3)</sup> and,

(1) Baines, op. cit., p. 666.

(2) Baines, op. cit., p. 665.

(3) Clapham, An Economic History of Modern Britain, vol. ii, p. 83. cf. S. Rayner, The History and Antiquities of Pudsey, (1887), p. 232.

in 1866, the hand weavers of Huddersfield and its district were working about 20 to 25 per cent. of the looms in the trade. (1) In 1886 they were still controlling some 8 per cent. of the total loom strength in the region. (2) In the 'heavy woollen' district they did not finally disappear from the trade until about 1883, (3) and for the West Riding as a whole, the 'hand-loom woollen weavers, working at home, formed ... a very tiny class, in the Yorkshire census of 1901.' (4)

Despite the tenacity with which the hand loom weavers clung to their craft, in certain districts and in particular kinds of weaving, by 1870 power weaving was predominant in Yorkshire and, in association with the mule and the condenser, was effectively completing the mechanised factory organisation of the industry begun by the merchant-manufacturers and the

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- (1) J.H. Clapham, 'The Decline of the Handloom in England and Germany', Bradford Textile Journal, (1905), p. 45.
- (2) *ibid.*
- (3) A.L. Bowley, 'Statistics of Wages in the U.K. during the last 100 years', Part IX, Journal of the Royal Statistical Society, vol. lxx (1902), p. 123. The Wensleydale Mill at Batley was a company mill still in operation in 1880, the Kilpin Hill blanket makers of the Spen Valley had their yarn spun at this mill. cf. J. Willans, Batley, Past and Present, (Batley 1880), p. 13.
- (4) J.H. Clapham, The Woollen and Worsted Industries, p. 128. Hand loom weaving persisted in Saddleworth until 1905. cf. Crump and Ghorbal, *op. cit.*, p. 87.



fulling-millers some ninety years earlier. These innovations which were introduced in the period now under review were partly induced by changes in the woven fabric stemming from changes in fashion, but mainly stimulated by the search for cheaper and more efficient methods of production in response to an increasingly competitive environment and, in the 'sixties, important changes in foreign tariffs. (1) The industry was by no means as completely mechanised, in its various branches, as its worsted neighbour centred on Bradford, and much obsolete machinery was at work, at this time, in the numerous company mills which still existed to serve the needs of the small clothiers, but the pattern of economic organisation in the manufacture was well outlined and clearly defined before the onset of the 'troubles' which characterise the last three decades of the nineteenth century.

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(1) See below, p. 251 .

(ii) FACTORY DEVELOPMENT

(1)

The progress of the factory system in the woollen industry, according to a writer in 1861, was assisted by 'the adoption of improved boilers and engines, of better gearing, and the substitution of sperm and other fine oils for Gallipoli in lubricating the engines', and he added that this 'enabled the same amount of nominal power actually to turn one-third more spindles and at a greater velocity.'

(2)

This generalisation is supported by the information contained in the Factory Inspectors' Reports. It was reported in 1857 that the average number of spindles worked per one horse power in the worsted industry increased from 86 to 102 during the period 1850 to 1856 and that in woollen factories 'the proportions were nearly the same'.

(3) The same report speaks of 'the adaptation of power to machinery heretofore moved by hand' as being 'almost of daily occurrence', and

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- (1) The designation 'factory' was clearly defined, for the first time, in the Workshops Regulation Act of 1867. Works in which mechanical power was used were defined as 'factories', distinguishing them from all others which were described as 'workshops'. cf. T.K. Djang, Factory Inspection in Great Britain, (1942), p. 40.
- (2) P.L. Simmonds in revised edition of Ure, Philosophy of Manufactures, (1861), p. 705.
- (3) Factory Inspectors' Reports, 1857 (2153).iii, p. 575

'although there has been no mechanical invention of recent years which has created so great a revulsion in the mode of manufacture ... as the spinning jenny ... yet the minor improvements ... having for their object the economy of power ... are constant, and though sometimes of no great moment, have somewhat important results.'<sup>(1)</sup> That the steam engine had become almost the general source of power provision in the Yorkshire industry, by the early 'sixties, as is illustrated by the table below which indicates that between 1845 and 1861, there was only a slight increase in the use of water power, although the total power used more than doubled, and the proportion of total power provided by water wheels fell from 22 per cent. to a little over 12 per cent..

Horse-power employed in the woollen factories  
in Yorkshire, 1845 and 1861 (2)

<u>Year</u>	<u>Steam</u> (1)	<u>Water</u> (2)	<u>Total</u> (3)	<u>(2) as a percentage of (3)</u>
1845	8,080	2,310	10,390	22.0
1861	19,634	2,816	22,450	12.5

(1) *ibid.* p. 573

(2) Factory Inspectors' Reports, 1845 (639) xxv, p. 483; Returns of the Number of Factories ... in the U.K., 1862 (23) lv, p. 633.

The displacement of the water wheel as a prime mover was accelerated, after 1840, by the introduction of high pressure steam engines of a higher driving efficiency than the old atmospheric-pressure type of appliance and by the conversion of older engines to a high pressure action. The 1857 report noted the use, in the industry, of the 'modern steam engine of 100 horse power'<sup>(1)</sup>, and although this was by no means the common feature of mills at that time, the superior efficiency of steam engines, in the 'fifties and 'sixties, especially those of 30 horse power or more, seems to have become clearly established in the industry. In 1866 it is being emphasised that 'a person who uses steam can have a mill where he likes, in the best situation.'<sup>(2)</sup> The latter part of this statement suggests that the riverine sites of many of the scribbling mills which had developed into factories were not now considered to be 'in the best situation', from the point of view of labour supply, railway transport, or nearness to markets and finishing centres, and

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(1) Factory Inspectors' Reports, 1857, p. 572.

(2) Report of the Commission appointed to inquire into the best means of preventing the pollution of Rivers, 1867 (3850-50-I) xxxiii, Q. 3377.

that the advantages of water power were being outweighed by these factors in the assessment of the best location of the enterprise. It was stressed by another manufacturer in 1866 that:

Steam power is permanent and may be relied upon; water power is intermittent, and never can be relied upon if such manual labour is wanted. Water power is of very little value except as an auxiliary in operations where great labour is required. (1)

The cost of coal had to be taken into consideration in assessing the relative merits of the case and where a mill was located near 'a continuous flow of water', not too seriously disturbed by floods or the dislocations of heavy river traffic, 'water power is much more economical.' (2)

But it seems near the truth to say that, during the expansion of the industry, in these years, the river was a weakening locational influence in the West Riding and two important centres of the low woollen and shoddy trade - Morley and (3) Batley - grew up almost entirely on the basis of steam power.

(1) *ibid.* Ev. of E. Eastwood, manufacturer of Huddersfield, Q. 3388.

(2) *ibid.* Ev. of J. Brigg, manufacturer. Q. 14051.

(3) The Calder, however, attracted some new mills during the period 1850-70, particularly in the Ravensthorpe area and to the west of Dewsbury, the river retaining its importance for scouring and dyeing purposes. See ev. of John Wormald in Report of the Commission ... to inquire into the pollution of Rivers, 1867 (3850-51-I) xxxiii, Q. 3154-7.

The number of persons employed in woollen factories in Yorkshire increased from a total of 27,019 in 1843 to 76,836 in 1874, almost a trebling of the factory labour force in thirty years.

(1)

Table 7. Employment in Woollen Factories in Yorkshire.

Year	No. of Factories	Persons Employed	Average No. per factory
1843	628	27,019	44.6
1845	655	30,377	46.3
1849	880	40,611	46.1
1856	806	42,982	53.2
1861	924	44,287	47.9
1867	899	62,264	69.2
1874	998	76,836	77.9

The 1840s and the 1860s were the two decades of rapid growth in the size of the factory labour force. There was a marked penetration of Irish labour into the industry in the 'forties and Alexander Redgrave reported in 1854 that:

The employment of Irish labour in Yorkshire, to the present extent, is comparatively of recent occurrence, and has increased greatly within the last ten years. (2)

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(1) This table is based on Factory Inspectors' Reports and Returns detailed in the bibliography. The statistics are not completely reliable but general judgements may be made on their foundation. The figures for 1867 and 1874 include 'shoddy' factories.

(2) Factory Inspectors' Reports, 1854-5 (1881) xv, p. 342.

He added that the 'number of natives of Ireland resident in the West Riding of Yorkshire were 15,177 in 1841 and 36,307 in 1851.'<sup>(1)</sup> There was an incursion of these Irish immigrants into all the West Riding textile towns and notably into Bradford and Leeds.<sup>(2)</sup> In the 'sixties the factories were drawing heavily upon female labour as a complement to the power loom 'invasion' of the industry.

	<u>Males</u>	<u>Females</u>	<u>Total</u>
1845	19,938	10,439	30,377
1861	25,498	18,789	44,287
1874	40,402	36,434	76,836

Smith was complaining, in 1876, that 'so great is the demand for power-loom weavers, (in Morley) that it is all but impossible to secure a supply of domestic servants.'<sup>(3)</sup>

The average number of persons employed in the factories remained less than fifty until the 'sixties, apart from the 'eruption' in the trend in 1856.<sup>(4)</sup> This may be explained

(1) *ibid.*

(2) In the 'heavy woollen' district the Irish concentrated particularly in the Daw Green area of Dewsbury. Jubb, *op. cit.*, p. 93 notes the arrival of 'a considerable number of Irish people' in Batley in 1832.

(3) Smith, *op. cit.*, p. 235. cf. Jubb, *op. cit.*, p. 70. 'Men and boys are only in very small degree employed in power weaving, and it seems strange that men should not have engaged in this occupation in greater number. ... There has evidently been a disinclination on the part of the hand loom weavers to take to the power loom,

Footnote (3) continued on p. 197

Footnote (4) on p. 197

Footnote (3) from p. 196 ... continued

and the fact that they have not been under the necessity to do so, goes to prove that as a body they have still found employment in their own vocation, or have turned to other labour in preference to power loom weaving ... the wages paid to hand loom weavers are good, and substantially the same as before the use of such a large number of power looms; indeed their wages were never higher than at present. This state of things is explicable on the ground that the trade now requires a vast deal more labour in the shape of weaving than it did a few years ago, partly in consequence of the extension of the business, and partly on account of the altered character of the manufacture. What with the extensive fabrication of goods with cotton warps, which require more weaving by about fifty per cent. than woollen warps, and the manufacture of double cloths and fancy styles, ... weaving, in the aggregate, is required on a greatly extended scale; indeed it would seem that if the power loom had not been introduced, there could not have been anything like the development of business which has taken place.'

Footnote (4) from p. 196

- (4) In 1856 the average number of persons employed in West Riding worsted factories was 177.



partly by the relative depression of the industry in the period 1854-6 carrying away some of the smaller manufacturers, but a more satisfactory explanation is probably to be found in the unsatisfactory nature of the factory information published in respect of 1856. <sup>(1)</sup> The fall in the number of factories reported in 1867 may also be ascribed to a weakness of the statistics, although the changes in the American tariff regulations of 1861 probably did have the effect of reducing the number of woollen factories in the early 'sixties. By 1874 the average number of persons employed per factory had still not doubled, compared with 1843, and contrasted with the growth of spindles and looms during the same period, the evidence suggests a more productive use of manpower and a fall in labour costs per unit of output.

Baines was at pains to stress, in 1856, that 'only about half of those in the woollen trade (in Yorkshire) are in factories' <sup>(2)</sup> and his view is supported by contrasting the 40,611 persons employed in West Riding factories in 1850

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(1) Baines was very critical of the 1856 Factory Return, 'all the elements are uncertain and defective'.  
Baines, op. cit., p. 646.

(2) Baines, op. cit., p. 635.

with the 81,128 persons engaged in 'woollen cloth manufacture' recorded in the census of 1851 for roughly the same territory. (1) For the whole of Great Britain the census of that year enumerated a total of 137,814 persons following occupations directly concerned with the woollen industry and, on an employment basis, the West Riding share of this particular activity was 58 per cent.. (2) This was a much smaller degree of concentration than that enjoyed by the worsted industry in Yorkshire at this time, (3) and it increased (4) only slowly throughout the rest of the century.

The introduction of the power loom exerted a pressure on manufacturers fully to integrate their productive activities and the table below illustrates the growth in the number of spinning and weaving establishments in the West Riding during the quarter-century following 1850.

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- (1) Census of 1851, Ages and Occupations, 1852-3 lxxxviii, Pt. 1, p. xcv; Pt. 2, pp. 686-9.
- (2) Clapham appears to be in error when he states that 'only 56,000 were in the West Riding' engaged in the woollen manufacture in 1851. Clapham, An Economic History of Modern Britain, vol. ii, p. 27.
- (3) cf. Sigsworth, Black Dyke Mills, p. 62.
- (4) It reached its height, at 67 per cent. of the total, in 1921.

(1)

Table 8. Types of Woollen Factory in Yorkshire

Type of Factory	1849	1861	1867	1874
Spinning	532	422	263	199
Spinning and weaving	180	275	382	567
Weaving	9	28	35	35
Unenumerated	159	199	138	197
TOTAL	880	924	818	936

The 'spinning only' establishment was declining steadily throughout the period, but particularly after 1861, and by 1874 the 199 factories so designated were mainly company mills working for the small clothiers. (2) There was little increase in the 'weaving only' type mill after 1861 and the 'unenumerated' figures relate chiefly to finishing and dressing establishments. The 'spinning and weaving' mill becomes the dominant type of productive unit between 1867 and 1874. This is in marked

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(1) For sources see footnote (1) on p. 195 above.

(2) Jubb, op. cit., p. 15, noted the decline of the company mills in the 'heavy woollen' district as early as 1860: 'Manufacturers now, who do not possess all the premises and appliances requisite for the prosecution of the trade, are deemed to occupy only a secondary position ... combination has served its purpose, but is now little required.'

contrast with the situation in the worsted industry where the horizontal structure of the trade and the relatively large, specialised mill were well established at this time. The reasons for the different economic structure of the two branches of the woollen textile industry in the West Riding have been well discussed by Clapham, and there seems reason to believe that he was very near the truth in asserting that the technical differences between woollens and worsteds, the differences in the machinery devised to produce the two types of product, and the changes in fashion, have been the major influences in forcing the economic organisation of the two 'sectors' along different paths. (1)

#### (iii) TYPE OF FABRICS PRODUCED

##### The Cotton Warp

The cotton warp was introduced into the Yorkshire worsted manufacture in 1837 and thereafter became an important feature of worsted cloths. Its use in combination with a woollen weft had been developed by the woollen industry in

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(1) J.H. Clapham, 'Industrial Organisation in the Woollen and Worsted Industries of Yorkshire', Economic Journal, vol. xvi (1906), pp. 515-22. For a fuller discussion of the structure of the worsted industry see Sigsworth, Black Dyke Mills, pp. 118-24. cf. L.D.H. Weld, 'Specialisation in the Woollen and Worsted Industry', Quarterly Journal of Economics, vol. xxvii (1912), pp. 67-94.

the early nineteenth century as was noted above in the discussion of the weaving of swansdowns and tollinets. <sup>(1)</sup>

The major difficulty retarding the development of cotton warped fabrics was, of course, the dyeing problem. The cloth, when woven, consisted of a mixture of vegetable and animal fibres which responded differently to the application of colour. By the late 'thirties, however, the techniques, if not the materials, of dyeing had been much improved and although the problem was not completely resolved until the development of aniline dyes later in the nineteenth century, the dyeing of mixed fabrics seems to have been more successfully accomplished by the use of two main operations.

Firstly, the cotton warps were generally treated with an acid fluid - <sup>(2)</sup> usually a weak preparation of oil of vitriol - in order to render the strands uniformly susceptible to the pigments to be applied and, secondly, the practice of double-dyeing or 'cross-dyeing' was developed as a supplement to the first operation. This latter process followed the weaving of dyed cotton warp with an undyed

(1) See above, p. 73 .

(2) Jubb, op. cit., p. 83, noted that 'oil of vitriol' was one of 'the wares principally consumed' in the dyeing of cloths in the 'shoddy' district.

woollen weft, the woven fabric being then piece-dyed in a dye solution which allied itself to the woollen fibres without adhering to the cotton. (1) This method, although suited to the production of checkered effects, did not always produce a uniformly coloured cloth, but an approach to regularity of colour was possible for the skilled dyer, and some pleasing results were obtained by its use. This kind of dyeing was generally beyond the skill and resources of the small manufacturer and as the production of cotton-warped goods grew more important in the total output of the industry, specialist dyeing in the West Riding was stimulated. (2) It was reported, in 1845, for example that:

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(1) cf. A.H. Cole, op. cit., vol. ii, p. 296;  
J.H. Clapham, The Woollen and Worsted Industries,  
p. 57.

(2) Separate statistics on the output or trade in cotton-warped woollen goods are not available for the nineteenth century.

The small manufacturers now generally employ the public dye-house on the score of economy, for the purpose of dyeing for them ... (1)

The Morley clothiers who were producers of broadcloths of wide-ranging quality, seem to have been very much alive to the manufacturing possibilities of the cotton warp, and the 'union cloth' manufacture started in the town in 1838. (2) Thereafter the trade developed gradually until about the middle of the century. There were six mills in the town in 1851 and fourteen in 1860. (3) After fifteen years of rapid expansion the trade was supporting, in 1876, twenty-seven mills, containing 68,000 spindles and 2,000 power looms.

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(1) Accounts and Papers, 1845 (289) xiii, p. 7. In the same year it was reported that in Leeds '... a great number of dye-houses ... are erected on the margin of Addle Beck ...' James Smith's 'Report on the Condition of the Town of Leeds', in Second Report of the Commissioners for Inquiry into the State of Large Towns and Populous Districts, 1845 (610) xviii, Pt. II, App. p. 313. Robert Baker reported in 1858 that there were 32 firms engaged in dyeing in Leeds, employing 1668 persons, and that in this branch of the industry in the town 'great improvements have followed rapidly upon each other'. R. Baker, 'On the Industrial and Sanitary Economy of the Borough of Leeds in 1858', Journal of the Royal Statistical Society, vol. xxi (1858), p. 437-8.

(2) Smith, op. cit., p. 213.

(3) Smith, op. cit., p. 215.

The largest of these mills - Gillroyd Mill - was equipped with 9,000 spindles and 290 looms. <sup>(1)</sup> Smith, in his discussion of the Morley industry, explained that dyeing was 'not carried on' in the town in the early 1870s, though it had formerly been performed 'in several places in Morley ... for many years'. <sup>(2)</sup> Jubb, a more percipient writer, informs us that 'the finishing or dressing of nearly the whole (of the Morley cloth output) takes place at Leeds, where the bulk of the goods is sold ...'. <sup>(3)</sup> It seems near the truth to say that the development of union cloth making encouraged the sending of cloths in the 'balk' state out of the town to the specialist dyers in Leeds. <sup>(4)</sup>

The cotton warp proved suitable for combination with woollen wefts of every quality and particularly adaptable for use with wefts made from 'shoddy' wool. As a result, cotton-warped goods were produced throughout the woollen cloth area of the West Riding, though particularly in the 'heavy woollen' district, and a large assortment of cloths,

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(1) Smith, op. cit., p. 215.

(2) *ibid.* p. 244. On this point, and for other general observations on the Morley manufacture at this time, see E.M. Sigsworth, 'The History of the Local Trade at Morley', Journal of the Textile Institute, vol. 40 (1949), pp. 958-69.

(3) Jubb, op. cit., p. 127.

(4) Smith observed that 'blue and black' were the principal colours used in dyeing union cloths and indigo blue dyeing was always a specialised form of tinting in the woollen industry.



varying in weight, weave, colouring and finish were made on the cotton-wool basis.

Morley specialised in union cloths of a 'fine make' and worked for the home as well as for the foreign markets. For the home trade, plain cloths, usually dyed black or blue, were produced for mantling or dress purposes; Deerskins, with a twilled weave, were suited for general clothing use; Satarras, were light-weight, ribbed cloths, usually closely cropped to show the ribbing clearly, and used for coatings; Tweeds were thin cloths, very lightly finished and then waterproofed, adapted to the making of ladies' overalls, and for 'trowsering'.<sup>(1)</sup> The main fabrics developed for the export trade were chiefly of the heavy coating type, such as Beavers, a very hard, compact cloth with a slight finish; Meltons, medium-weight cloths which were only slightly cropped and pressed after the fulling process; and double-faced cloths, usually called Reversibles, which were in the heavier ranges of the product and often went by the name of 'Moscows' or 'Presidents'. In the case of union cloths made from cotton warps and 'shoddy' wefts, the combination was used to provide cheaper imitations of all the products listed

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(1) But see further discussion of 'tweeds' below, p. 311 .

here, but the typical mixture cloth was the Cheviot, a soft, neat cloth woven in a plaid, down, or diagonal striped pattern, well fullered, and either roughly or closely finished. The Cheviot 'furnishes materials for cheap, useful, and elegant clothing; and it is usual for gentlemen to wear the entire (1) suit composed of it.' Pilots were heavy overcoatings made with a twill weave and raised with a thick nap on the face. They were normally dyed an indigo-blue and used for seamen's coats and uniforms, but brown, black and green dyed pilots were also manufactured. They found a market at home and abroad and figured substantially in Admiralty contracts for cloth.

Baines noted in 1858 that the use of cotton warps as a method of cheapening cloth had been 'extensively introduced in the woollen manufacture, though by no means to the same extent, or with the same success as in the worsted ...' (2)

By 1870 he is able to say that 'the plain cloth trade now forms a much less important proportion of the trade than was the case fifteen years ago, and fancy goods are coming more and more into use. The use of cotton warp has greatly extended, especially for mantles.' (3)

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(1) Jubb, op. cit., p. 54.

(2) Baines, op. cit., p. 658.

(3) *ibid.* p. 666.

The development of union cloths certainly assisted the production of fancy weaves and patterns which were fashionable during this period, but the main stimulus to the use of cotton in the woollen cloth industry was provided by 'the rage for cheapness on the part of the public ...' <sup>(1)</sup> Baines emphasised that 'cotton warps cause the prices for really handsome goods to be surprisingly low, and has thus brought their use within the means of the poorest.' <sup>(2)</sup> This meant that the woollen industry was now able to cater for a demand which was formerly concentrated in markets for cotton, linen and fustian fabrics. One Dewsbury manufacturer, in the 1840s, found that the use of cotton warps reduced the cost of his cloth production by 6-8 per cent.. <sup>(3)</sup>

(1) Jubb, op. cit., p. 3. Another development which occurred in response to the demand for cheap woollen cloth was the process of directly felting wool into a fabric without any recourse to spinning and weaving. The wool was subjected to heavy pressure in a warm, moist liquid and afterwards fullled. Some varieties of carpets, horse-cloths, and table covers were successfully produced in this way. William Hirst, the Leeds manufacturer, took out a patent for the process in 1840. cf. Hirst, op. cit. Pt. ii, p. 33. Felting cloth was developed also in the Batley district. cf. Willans, Batley, Past and Present, p. 14.

(2) Baines, op. cit., pp. 666-7.

(3) See below, p. .

A glance at Table 9 indicates that, apart from the period of the 'cotton famine' in the early 1860s, precipitated by the American Civil War, the price of cotton was considerably lower than the price of a typical Australian clothing wool used in the West Riding industry. The relative 'cheapness' of cotton was particularly noticeable in the 'forties' and the 'fifties' and the incentive to use it in co-operation with wool in order to reduce costs of production must, therefore, have been very strong. From the late 'forties' to the late 'fifties' the trend of wool prices was upward and the use of cotton to counteract the pressure on prime costs was a logical response on the part of Yorkshire manufacturers; in addition, there were the attractions of cotton from the point of view of cloth design and of the use of the power loom. The use of cotton in producing mixed cloths seems to have been complementary to, rather than competitive with, the use of wool, and the cheapening of the product and the extension of the market which was achieved by this innovation stimulated the demand for both fibres in the woollen cloth industry. This development is illustrated in Figure 6 and Table 10, based on Imlah's calculations of price and volume indices of British net imports of raw wool and cotton for use in the period 1840-70.

Table 9. Annual average prices of two fibres imported into the U.S. (1840-70)

<u>Year</u>	<u>Australian medium quality merino wool</u> ( <u>d.</u> per pound)	<u>American upland cotton</u>	<u>Year</u>	<u>Australian medium quality merino wool</u> ( <u>d.</u> per pound)	<u>American upland cotton</u>
1840	21	6	1855	19 $\frac{1}{2}$	5 $\frac{3}{4}$
1841	19	6 $\frac{1}{4}$	1856	23	6
1842	18	5 $\frac{3}{8}$	1857	23	7 $\frac{1}{4}$
1843	17	4 $\frac{5}{8}$	1858	22 $\frac{1}{2}$	6 $\frac{1}{4}$
1844	19	4 $\frac{7}{8}$	1859	23 $\frac{1}{2}$	6 $\frac{1}{4}$
1845	21	4 $\frac{5}{8}$	1860	24 $\frac{1}{8}$	6 $\frac{1}{4}$
1846	20	4 $\frac{7}{8}$	1861	22 $\frac{1}{8}$	8 $\frac{9}{16}$
1847	16	6 $\frac{3}{8}$	1862	22	17 $\frac{1}{4}$
1848	13	4 $\frac{1}{4}$	1863	21 $\frac{7}{8}$	23 $\frac{1}{4}$
1849	14	5 $\frac{1}{8}$	1864	23 $\frac{1}{4}$	27 $\frac{1}{2}$
1850	17	7 $\frac{1}{4}$	1865	22 $\frac{5}{8}$	19
1851	17	5 $\frac{3}{4}$	1866	23 $\frac{5}{8}$	15 $\frac{1}{2}$
1852	19 $\frac{1}{2}$	5 $\frac{3}{8}$	1867	21 $\frac{1}{2}$	10 $\frac{7}{8}$
1853	20	5 $\frac{5}{8}$	1868	20	10 $\frac{1}{2}$
1854	18	5 $\frac{3}{8}$	1869	17	12 $\frac{1}{8}$
			1870	17	9

Footnotes to Table 9 on page 210.

Source: Parliamentary Papers, 1846 (109) xliv, p. 9;  
Journal of the Royal Statistical Society,  
vol. xxvi (1861), p. 491; vol. xxxiii (1868),  
pp. 520-1; A. Sauerbeck, The Production and  
Consumption of Wool, (1878), p. 15.

Note: The price series for wool is subject to the qualification that 'scoured' was replacing 'greasy' wool in the importations as the period progressed.

Table 10. Indices of British Net Imports of Raw Wool and Cotton

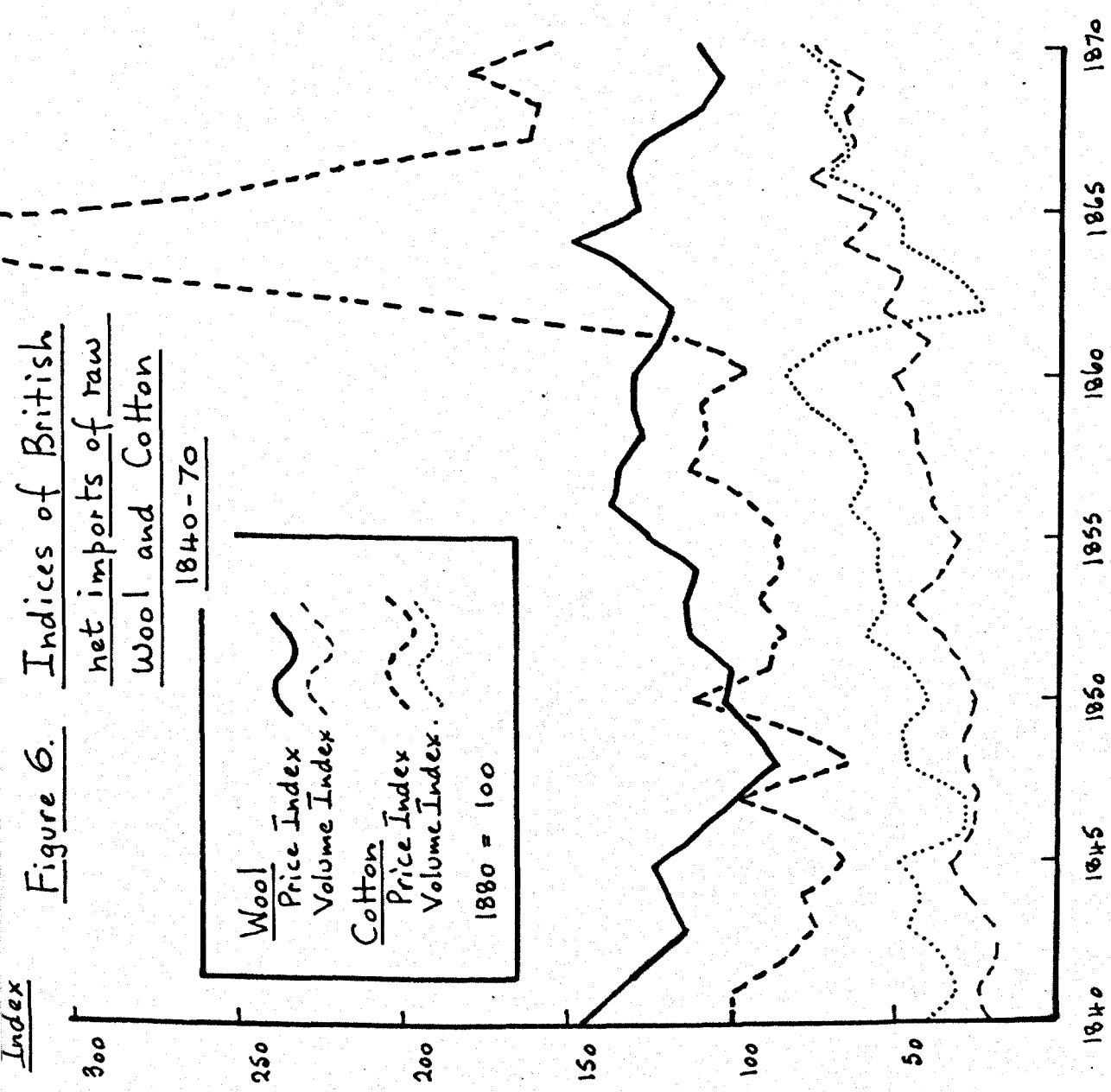
(1880 = 100)

Year	W O O L		C O T T O N	
	Price Index	Volume Index	Price Index	Volume Index
1840	145	21	100	40
1841	135	24	99	32
1842	125	19	83	35
1843	113	20	74	46
1844	118	28	78	43
1845	123	33	66	49
1846	110	27	77	29
1847	98	25	96	29
1848	86	28	65	46
1849	92	28	81	48
1850	101	26	111	41
1851	100	30	87	47
1852	113	36	84	59
1853	114	47	92	54
1854	111	36	85	56
1855	125	31	87	56
1856	136	39	95	64
1857	134	41	113	60
1858	127	44	107	64
1859	129	46	109	76
1860	129	51	96	83
1861	122	41	114	71
1862	118	54	218	24
1863	130	49	523	32
1864	148	66	340	48
1865	128	57	263	50
1866	130	76	219	70
1867	126	63	161	65
1868	108	65	159	72
1869	103	62	179	68
1870	110	75	155	78

Source: A.H. Imlah, 'The Terms of Trade of the United Kingdom, 1798-1913', Journal of Economic History, vol. x (1950), pp. 187-8.

Note: The indices are based on American and East Indian cotton and Australian, German and Spanish wool and are 'weighted' to take account of the changing proportions which these different fibres constituted of total imports into the U.K. over the period.

Figure 6. Indices of British net imports of raw Wool and Cotton 1840-70



Source: A.H. Imlah, Journal of Economic History, vol. x (1950), pp. 167-8



By 1870, despite this continuing vitality of the Leeds cloth halls which was mainly an expression of the lingering survival of the domestic clothier in the villages of Calverley, Farsley and Pudsey, the trend in factory development and commercial organisation was clearly defined and irreversible; and the economic leadership of the West Riding wool textile industry, which had moved away from Leeds in the case of worsteds in the 'twenties and the 'thirties, became firmly based, in the 'eighties as far as woollens were concerned, in Huddersfield and Dewsbury-Batley.

These towns were becoming particularly conscious of their economic strength and importance in the 'sixties. Dewsbury obtained a charter of borough incorporation in 1862 and Batley followed suit in 1868. Huddersfield also received municipal borough status in this latter year. <sup>(1)</sup> Chambers of Commerce were established at Batley in 1856 and at Dewsbury in 1861, Huddersfield having created such an institution in

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(1) Morley established a Chamber of Commerce in 1869, but did not receive its charter of incorporation until 1885. Huddersfield, for its population size, was rather late in achieving municipal status. This seems to have been due to the long continued dominance of the Ramsden family in controlling the affairs of the town. cf. J.F. Williams, 'Paternalism in Local Government in the Nineteenth Century', Public Administration, vol. xxxiii (1955), p. 442.

(1)  
1853. The population growth of these towns, based on the success of the fancy trade and the shoddy manufacture, was rapid in the two decades after 1851, especially in the case of Batley, as shown in the table below:

	<u>1851</u>	<u>1861</u>	<u>1871</u> (2)
Huddersfield borough:	56,964	64,346	74,308
Dewsbury township:	14,049	18,148	24,764
Batley township:	9,308	14,173	20,871

The volume of imports of cotton and of wool into this country was rising from the late 'forties to the late 'fifties, and in the case of cotton there was some speculative stock-piling of the fibre by English buyers in 1859 and 1860 before the onset of the Civil War in 1861 dislocated supplies. (3)

(1) The establishment of the Chamber of Commerce at Huddersfield grew out of the meetings of manufacturers called for the purpose of planning the trade's exhibits at the Great Exhibition of 1851.

(2) Census Reports, see bibliography.

(3) T. Ellison, The Cotton Trade of Great Britain, (1886), p. 91; Journal of the Royal Statistical Society, vol. xxxiv (1869), p. 429 et seq.

The increase in volume of imports was accompanied by rising prices for both fibres, although the movements in cotton prices were more volatile than those registered for wool. The impact of the Civil War is dramatically illustrated in Figure 6. by the curve depicting cotton price changes, and to a lesser extent by the curve showing volume of cotton imports. The effect of the check on the growth of the cotton industry upon the woollen industry is reflected in the upward movements in volume and price in respect of raw wool. After 1866 the price of wool declined sharply and by 1870 it had fallen to its lowest price for twenty years. This was mainly due to the growth of the wool supply, particularly in the 'sixties, both at home and overseas. It has been estimated that the domestic wool clip of the United Kingdom increased from 125 to 160 million lbs. over the period 1840-70, <sup>(1)</sup> and in 1868 'there were more sheep in Britain ... than in any earlier, or later, year.' <sup>(2)</sup> The Australian sheep population increased from 23.8 to 43.7 millions in the period 1860-74 and, <sup>(3)</sup> as the

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(1) Committee on Industry and Trade, Survey of Industries, (1928), Pt. iii, p. 275.

(2) Clapham, Economic History of Modern Britain, vol. ii, p. 223.

(3) A. Barnard, *op. cit.*, p. 217.

Table below shows, by 1870, Australasia had become the supplier of two-thirds of the total British imports of raw wool.

Table 11. Imports of Raw Wool into the U.K., 1840-70. (1)  
(millions of lbs.)

Year	Australasian	German	Spanish	S.African	Other	Total
1840	9.7	21.8	1.2	.7	16.0	49.4
1850	39.0	9.1	.4	5.7	20.1	74.3
1860	59.1	9.9	1.0	16.5	61.8	148.3
1870	175.0	4.2	-	32.7	51.3	263.2

Another contributory factor, which probably moderated the rise in the price of wool in the 'fifties and early 'sixties, and accentuated its fall after 1866, was the growing use of 'shoddy' wool in cloth fabrication in the West Riding. This trade had grown up rather furtively in the quarter-century preceding 1850 and in the twenty years which followed it had expanded rapidly. In 1867 the Factory Inspectors, reluctantly it seems, enumerated the 'shoddy' factories for the first

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(1) Journal of the Royal Statistical Society, vol. xxxv (1870), p. 502. The principal supplying country included in the 'Other' category was South America which provided 12.6 of the 51.3 million lbs. recorded in 1870.

time in their returns. The trade could no longer be neglected as a productive element in West Riding textile activity.

### The 'shoddy' trade

Tradition has it that the grinding of textile rags in order to produce a filament suitable for spinning into yarn was first introduced into Batley by a Mr. Benjamin Law in

(1) 1813. The claim has not gone unchallenged, however, and similar machines, it is suggested, were in use in Dewsbury, Brighouse and London at, or a little before, this time.

Jubb, the historian of shoddy, conjectures plausibly that the rag-grinding machine, later known as the 'devil', (3) was a modification of the machine used for grinding linen and cotton rags for paper making, which had been introduced into the English paper trade from the Continent about 1770. (4) The

- (1) Jubb, op. cit., p. 17; S.C. of 1828, p. 248. Clapham has stated that the innovation co-incides with the 'peak price year of the century' for wool, Economic History of Modern Britain, vol. ii, p. 38; but annual average wool prices were higher in 1814, 1815, 1818 and 1819. cf. Bischoff, op. cit., vol. ii, Table vi; Gayer, Rostow and Schwartz, op. cit., vol. i, pp. 126 and 155.
- (2) Jubb, op. cit., pp. 17-18; Sigsworth 'History of the Local Trade at Morley', p. 962.
- (3) Jubb, op; cit., p. 19; S.C. of 1828, p. 141.
- (4) Clapham, Economic History of Modern Britain, vol. ii, p.38, suggests that a machine used in the silk industry as early as 1801 may have been the forerunner of Law's innovation.

'wool' produced by the rag-grinder could be used in association with virgin wool for yarn-making in the same way as noils, the waste from the worsted combing process; fud, the refuse from the scribbling engines; nippings, from mule spinning; and flocks, from the finishing operations on fine woollen cloths. All these were utilised in the production of cheaper woollen fabrics. (1)

By 1828 the demand for woollen rags for use in the shoddy trade had grown to such proportions that Continental rags were being imported into the Dewsbury-Batley area. (2)

The witnesses before the Lords' Committee of that year were cautious and tentative in answering questions about the use of shoddy wool in the West Riding cloth manufacture. One manufacturer admitted its use but was quick to add that he blended the adulterant with new wool in order to produce cheap, soft, moderately strong 'duffils' and blankets 'for the lower order of people who cannot get better goods.' (3)

The nature of the processing of the rags with its smell and

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(1) The use of various kinds of wool wastes in the Yorkshire cloth industry has a long history. cf. Heaton, Yorkshire Woollen and Worsted Industries, p. 131.

(2) Thomas Cook told the 1828 Committee that 'one seventh or eighth of the rags have been imported.'

(3) S.C. of 1828, p. 54.

'devil's dust'; the possibilities of fraud and deception by using a larger proportion of shoddy in relation to pure wool than that admitted to the customer; <sup>(1)</sup> and the natural prejudice against wearing clothes made from torn-up rags, in whole or in part, explains the unpopularity with the public which the trade acquired early in its career and which it then <sup>(2)</sup> found so difficult to overcome.

Used skilfully, however, shoddy wool was a valuable raw material for the woollen manufacturer and as well as lowering costs, the finish of fabrics could often be enhanced by a proper blending of old and new wool. The early production of shoddy was derived mainly from soft rags such as blankets, flannels and hosiery, but in 1834 the 'devil' was adapted to the tearing-up of harder fabrics, such as felted woollens and worsteds, and a new product, 'mungo', was made <sup>(3)</sup> available to the spinners. In the making of mungo the

- (1) There was always the temptation to adulterate the wool used in making cloth for government contracts and the inspectors employed by the buying departments of the War Office and the Admiralty seem to have been particularly observant in examining Yorkshire cloth. See below, p.
- (2) cf. Sir George Head, A Home Tour ..., (1836), p. 144. See also an undated article reproduced in H. Mayhew, London Labour and the London Poor, (1867 Edn.), vol. ii, pp. 34-6.
- (3) Jubb, op. cit., p. 24. The present writer eschews the repetition of the traditional explanation of the origin of the term 'mungo'.

'devil' was equipped with blades instead of teeth, but it was not entirely a satisfactory machine for the purpose and, as many worsted rags contained an admixture of cotton warp, there was the problem developing in the 1840s of separating out the vegetable fibre from that of the wool in order to produce a reasonably clean mungo for spinning purposes. These difficulties were overcome by two innovations introduced to the trade in the 1850s.

In 1850 the Garnet machine, a type of woollen carding appliance with strong, rigid teeth, was brought into use as a subsidiary to the 'devil' and it was found highly successful in the reclamation of the fine, hard yarns incorporated in worsted cloths. A few years later the carbonisation process was perfected and this made possible the removal of the cotton fibres from rags by means of acid, a much speedier and cheaper method than the laborious manual operation which had been employed hitherto. The 'extract' wool which was obtained by this process, although undamaged by the acid as far as its spinning qualities were concerned, suffered a deterioration in its felting powers and it therefore had to be used with caution if the completed fabric required a good deal of fulling in the finishing stage. A further improvement in the production of shoddy cloths in the 'fifties resulted from the application of 'burl dyeing', 'whereby the cotton threads, and foreign substances ... are dyed, and by this



(1)  
means the piece is neater and more handsome.'

The location of the shoddy trade in the 'heavy woollen' district of the West Riding is readily explained by the fact that the manufacturers of this region had already developed an interest in the utilisation of various types of wool wastes and the production of cheaper cloths, by the early nineteenth century, and it only needed the twin-stimulus of high wool prices and strong demand for blankets and cloth to precipitate the development of rag-grinding. Once founded, however, the trade exerted its influence throughout the Yorkshire woollen cloth area and specialist rag-grinders established themselves (2) to provide manufacturers with supplies of shoddy and mungo. They, in their turn, were provided with their raw materials by specialist rag-sorters who sorted and prepared rags for the trade and for those cloth manufacturers who preferred to grind their own. By the 1850s, shoddy and mungo was 'insinuating itself into the very seats of the fine cloth manufacture' (3) as well as providing a staple material for the

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(1) *ibid.* p. 75.

(2) From about 1830 onwards.

(3) *ibid.* p. 30.

Dewsbury-Batley-Morley trade, and at the 1851 Exhibition, two prize medals were awarded to Huddersfield cloth manufacturers for 'ingenuity in the application of new materials.'<sup>(1)</sup>

The early application of shoddy was in the fabrication of plain and striped blankets, known as 'maccaronies', and in making a heavy type of coating material called 'shags'. By 1860, Jubb was able to list twenty-three different types of cloth incorporating shoddy and mungo.<sup>(2)</sup> Many of these cloths were cheaper imitations of the better fabrics made in Huddersfield, Leeds and Morley, but there were also uniform and convict cloths, coloured blankets and 'witneys', velvets, strouds, 'made chiefly for the Government and the Hudson's Bay Company'; druggets, a coarse cloth mainly used for protecting carpets, sometimes made with a cotton warp; and pilot cloths which were the main staple of the trade. By this time the business of rag-grinding was so well developed that it had itself begun to produce a sizeable waste product which was being utilised. The shoddy dust thrown out by the rag machines and impregnated with oil was found useful as a fertiliser, and, sorted carefully into different colours, it

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(1) Reports of the Juries, (1852), pp. 352-3. There were twelve rag-grinding firms in Leeds in 1858. cf. Robert Baker, op. cit., p. 436.

(2) Jubb, op. cit., p. 30.

also found an application in the making of flock wallpapers.

In 1848 the Leeds and Manchester railway was extended to serve Huddersfield, Batley and Dewsbury and this very much facilitated the transport of rags to the shoddy district. By 1850 'shoddy sales by public auction' had become a feature of the trade and these sales were 'held from the first at Dewsbury and Batley Railway Stations, chiefly at the latter, until recently, and they are now conducted at Dewsbury, on the premises of the respective auctioneers ...' <sup>(1)</sup> At this time, 1860, Jubb was also able to say that:

The quantity (of rags) falling under the hammer weekly, may be fairly estimated at 60,000 or 70,000 lbs., comprising a range of all qualities and colours, varying in price from under one penny to upwards of one shilling per pound. (2)

In the 'sixties the import of woollen rags from the Continent grew rapidly, partly in response to the demand for wool products arising from the 'cotton famine', as noted in Table 12 below.

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(1) *ibid.* p. 34.

(2) *ibid.*

Table 12. Imports of Woollen Rags into the U.K., 1860-70 <sup>(1)</sup>

<u>Year</u>	<u>Tons</u>
1860	5,934
1861	10,563
1862	13,109
1863	15,417
1864	15,642
1865	14,585
1866	15,797
1867	14,542
1868	15,922
1869	16,699
1870	17,210

The business of rag-grinding was introduced into Germany 'soon after its initiation in this country' and with the growth of British imports of rags from the Continent, in the 1840s, the German states imposed export duties on rags in order to deter their shipment to this country. In response to this imposition a number of enterprising Dewsbury and Batley rag-grinders located manufactories in Germany, particularly in Berlin, where behind the tariff wall they converted German rags into shoddy and mungo which they then exported to Yorkshire in that form. By 1860, Jubb confidently referred to these factories as 'successful undertakings'. <sup>(2)</sup> There was also a reverse movement of Continental rag dealers and

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(1) Statistical Abstracts for the U.K., 1870 (C.145) lxxviii, p. 30-1; 1885 (C.4463) lxxxii, p. 48.

(2) Jubb, op. cit., p. 24.

agents who established themselves, after 1850, mainly in the Dewsbury district for the purpose of facilitating Yorkshire imports of rags from their parent firms in the homeland.

Willans, himself an agent for a Hambrug rag firm, noted in 1880 that:

The demand for (rags) ... in this district has induced many dealers from Germany and other places on the Continent to come over here to dispose of their goods, and numbers have eventually settled here, and the ... foreign rag trades are nearly all carried on by Germans and Frenchmen; so that Dewsbury is almost like a second Bradford or a German colony, and we seem to get on well together. (1)

In 1858 there were 5,408 persons engaged in the making of shoddy and mungo at Batley, employed in 35 mills worked by steam engines of an average horse-power of 30-35, driving 35,000 mule spindles and 500 looms. In addition there were 1,260 hand loom weavers in the trade. (2) There were seventeen such mills at Dewsbury and rag-grinding was also a well developed activity at Morley, Ossett, and Mirfield.

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(1) James Willans, Recollections of Dewsbury, (Batley, 1881), p. 31. The writer lists ten foreign agencies established in Dewsbury for the purpose of dealing in 'hair, chalk wool and rags.'

(2) Jubb, op. cit., p. 87. Baines, op. cit., p. 658, estimated that the output of the Batley shoddy manufacture was 12 million lbs. of rag-wool in 1858 and that the output of the whole of the Yorkshire shoddy manufacture was 'three times this quantity.'

Ossett was chiefly a mungo producing township and, at Mirfield, the introduction of the shoddy trade had 'paled the lustre ... of the fine cloth' production which had formerly been characteristic of this old clothing village. (1)

From the Factory Reports we have a more comprehensive picture of the shoddy manufacture in the late 'sixties and the early 'seventies.

(2)

Shoddy Manufacture in Yorkshire

<u>Year</u>	<u>No. of Factories</u>	<u>Spindles</u>	<u>Looms</u>	<u>Condensers</u>	<u>Employment</u>
1867	81	53,271	685	30	2,662
1874	62	25,595	233	53	1,482

The evidence of these Reports suggests, at first sight, that a sharp contraction in the shoddy industry took place between 1867 and 1874, and there probably was some decline in the productive capacity of the trade as a result of the failure of a number of the smaller firms in 1873. This year was described as 'a most disastrous one' by a writer in the Morley Observer and the following year was

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(1) Jubb, op. cit., p. 121.

(2) Factory Returns, 1867-8 (453) lxiv, p. 817; 1875 (393) lxxi, pp. 63-4, 69.

also regarded as 'most unprofitable'.<sup>(1)</sup> But a more likely explanation of the apparent diminution in the size of the industry is to be found in the formulation of the statistics themselves.<sup>(2)</sup> The Inspectors do not make it clear, in their count of shoddy factories, whether they are referring to establishments wholly devoted to shoddy production or whether they include all factories in which 'some' shoddy manufacture was carried on. It may well be that a stricter definition was employed in 1874 and that some of the shoddy factories of 1867 found their way into the classification of woollen factories at the later date. It is not possible to prove this point conclusively owing to the inadequacy of the published figures for 1867, but in 1874 only eight of the sixty-two establishments were engaged in spinning and weaving, the bulk of the factories being preparatory or preparatory and spinning concerns. It seems, therefore, that some mills which were integrated firms manufacturing traditional woollens and shoddy products, whilst they may have been included in

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(1) Morley Observer, 2 Jan. 1875, quoted by Sigsworth in 'The History of the Local Trade at Morley', p. 965.

(2) The Factory Inspectors were handicapped by the absence of statutory powers to enforce compulsory returns from employers. The textile statistics for this period are described as only 'tolerably reliable' in the Report of the Departmental Committee on Factory Statistics, 1895 (C.7608) xix, p. 14.

the 1867 returns, few, if any, of them found their way into the enumeration of 1874. Taking the 1874 statistics as the more reliable data, the shoddy trade, on an employment basis, represented not quite two per cent. of the West Riding woollen industry in that year; a figure which considerably underestimates the influence and importance of the manufacture of 'renaissance' wool.

### Fancy Cloths

The fancy cloth trade was flourishing in Huddersfield and the Colne Valley throughout the period here under review and 'trowserings' and waistcoatings were major products. In weaving these fancy fabrics the 'witch', dobbie and Jacquard looms were employed and for waistcoatings a variety of designs and colours were introduced by ingenious manufacturers, particularly in the 'fifties. A local dye-stuffs industry was developing in the 'sixties, founded on the experiments (1) of two local dyers, Thomas Holliday and Daniel Dawson. The introduction of the cotton warp and the rise of the shoddy manufacture provided the Huddersfield trade with new raw materials from which further variations in fancy cloths could be devised. The fashionable appeal of these textiles

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(1) Crump and Ghorbal, op. cit., p. 115. The writers claim that these two dyers discovered 'mauve' as a coal tar derivative before Perkins.



registered strongly in the home market and men's coatings and ladies' mantles, after the middle of the century, became fancy cloth specialities at the expense of the quality broadcloth made in Saddleworth, the Leeds district and in the West of England. Baines recorded this trend, in 1870:

The plain cloth trade now forms a much less important proportion of the trade than was the case fifteen years ago... in fancy woollens there has been very great improvement... numerous descriptions of pile have been made, and many kinds of furs are imitated in wool with wonderful success. (1)

In the 1860s the fine broadcloth trade of Leeds was under considerable pressure, not only from the 'fancies' which were now held in such esteem by the consumer, but also from the shoddy cloths which were being utilised in Leeds by the young ready-made clothing industry. The sewing-machine, substantially in the form in which it was adopted in Leeds, was patented in 1846 and ten years later John Barran 'opened a small factory in Alfred Street for the manufacture of wholesale clothing... this was the first wholesale clothing workshop in Leeds.' (2) There were fifteen such firms by 1871. (3) This new Leeds industry stimulated an increasing demand for cheap clothing made from mixture cloths and the

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(1) Baines, op. cit., p. 666.

(2) Joan Thomas, A History of the Leeds Clothing Industry, Yorks. Bull., Occasional Paper No. 1 (1955), p. 6 and p. 9.

(3) *ibid.* p. 13.

wholesale and retail drapers began to carry stocks of made-up garments in place of their former cloth stocks. This change reacted severely upon the old-established trade of firms like Benjamin Gott and Sons, and in the event many of them proved unable to adjust themselves to the changing economic situation. (1) The Gotts wrote to their traveller, George Mills, in 1863 calling his attention to the state of his 'journey returns' and enquiring as to the 'cause of such diminished trade' and his suggested 'means to improve.' (2) In his reply he emphasised that:

... the great bulk of sales now are made up of goods at 2s. 6d. per yard, whereas in times gone by more valuable goods were sold. Again, some four or five years since nearly every country buyer held a stock of Mantle Cloths and made up for himself, now they buy from London the garment ... (3)

#### (iv) COMMERCIAL ORGANISATION

The economic forces which were undermining the broad-cloth manufacture in the Leeds district in the 'sixties were also loosening the commercial ties between Leeds and the rest

(1) Benjamin died in 1840 and his sons do not seem to have displayed his business skill.

(2) Letter dated 21 March 1863 in the Gott Papers.

(3) *ibid.*

of the West Riding woollen region. The growth of the factory system; the coming of the railway to Huddersfield, Dewsbury and Batley; and the localisation of the shoddy trade in the latter two towns, all combined to forge new commercial relationships in the marketing of cloth and to weaken the economic function of the Leeds merchants. After 1850, the Huddersfield trade threw up its own merchants who were in close touch with the 'fancy' manufacture and were able to speak with an authority on Colne Valley products which the Leeds merchants, whose direct links were with the broadcloths and blankets made near their homes, could not command. (1) Furthermore, at about this time the larger manufacturers were beginning to deal direct with merchants in London, Liverpool and Manchester, (2) instead of using the services of Yorkshire merchants, and the use of commercial travellers to solicit orders from wholesalers and large retailers was establishing itself in the 'forties. Improvements in transport

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(1) The Huddersfield merchants developed a special interest in the American trade and cloths made in other parts of the country were sent to Huddersfield for consignment to the United States. See below, p. 306.

(2) '... the bulk of shoddy cloths for the home market ... now ... is sent direct from the factory to the London, Manchester, Liverpool and other houses.' Jubb, op. cit., p. 59.

certainly aided these developments and the establishment of the rag sales at the Dewsbury railway station in the 'fifties was instrumental in forcing the development of a mercantile colony in that town to serve the commercial needs of the 'heavy woollen' district; a function which had hitherto been performed mainly in Leeds. In 1842 there were three merchants in Dewsbury, and by 1870, there were fourteen, dealing in wool and rags, as well as in finished goods. (1)

The strength of local merchanting in the West Riding, however, was bound up with the fortunes of the small clothiers and whilst ever the small man had a place in the trade, the cloth hall and the merchant were bound to be part of the commercial structure. The factory growth of the 'sixties considerably weakened this traditional organisation. The

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(1) Information from contemporary Directories, see bibliography. During this period there was also an improvement in the technique of dyeing in the 'heavy woollen' district and Robert Ellis told the Commissioners considering the pollution of rivers in 1867 that:

'... we can dye the finest colours in the world from our town's water.'

Third Report of the Commission appointed to inquire into ... the pollution of Rivers, 1867 (C.3850-501) vol. xxxiii, Q. 2733.

cloth hall at Huddersfield was enlarged in 1864 at a cost of 'nearly £1,300', but the trade was changing rapidly and 'soon after 1870 it was nearly empty.'<sup>(1)</sup> Similarly, the blanket hall at Heckmondwike, which had been erected in 1840 and had then for many years attracted 'the manufacturers of the town and neighbourhood'.<sup>(2)</sup> ceased to be important in the 'sixties 'as the little makers one after another disappeared from the scene ...'<sup>(3)</sup> In 1866 the building was sold and later converted into shops. The cloth hall at Leeds, however, enjoyed a longer life. In 1868 it was considered necessary to build a new White Cloth Hall to replace the old hall which was obstructing the railway development into the city.<sup>(4)</sup> As late as 1871, an observer could write of the Coloured Cloth Hall:

... an immense amount of business is done when trade is in a normal and healthy state, although the number of buyers may often be insignificantly small compared with that of the sellers. (5)

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- (1) Crump and Ghorbal, op.cit., pp. 105-6.  
 (2) F. Peel, op. cit., p. 334  
 (3) *ibid.*  
 (4) H. Heaton, Yorkshire Woollen and Worsted Industries, p.390. The new building cost £20,000, but was never fully utilised and the market lapsed in the 1880s.  
 (5) Black's Picturesque Guide to Yorkshire, (Edinburgh, 1871), p. 237. The Coloured Cloth Hall was sold to the Leeds Corporation in 1889. Heaton, op. cit., p. 391. There were 800 clothiers still attending the Leeds Halls in 1879, J. Dodgson, An Historical and Descriptive Guide to the Borough of Leeds, (1879), p. 40.

(v) THE EXPORT TRADE

The course of British overseas trade in woollen textiles is indicated generally, for the period 1851-70, in Table 13

(1) below. It is not possible to indicate the magnitude of the foreign vend for British woollens in relation to the home trade. Baines was complaining in 1858 that:

(1) There was a major change in the official classification and nomenclature of British exports in 1853 and the form of publication of the statistics then adopted remained unchanged for fifty years. The information published during this period does not permit an accurate assessment to be made of the trade in woollens as distinct from worsteds. The two types of fabric are counted together in the value and in the volume tables, and in the case of blankets these cannot be dissociated from flannels and baizes.

This difficulty provoked comment from the trade as soon as the new classification was introduced, but without any change resulting in the accounting system. The following is an extract from a typical letter of complaint:

'Sir,

Nov. 1853.

I wish to call the attention of your readers to the great inconvenience and mystification daily resulting from there being no distinction made in our Board of Trade Returns ... between purely worsted and woollen fabrics, either of imports or exports. These are two entirely distinct manufactures ...'

The Woollen, Worsted and Cotton Journal, vol. i (1854), p. 86.

Perhaps the best estimate of the trend in woollen exports over the half century may be derived from an examination of the export figures of woollen and worsted cloths and coatings, and of flannels, blankets, baizes, etc., which seem to have been the predominant 'woollen' categories. These are reproduced in Table 13. The figures are expressed in linear yards and 1851 is chosen as the beginning year of the table because of the non-comparability of the statistics in these categories for earlier years when the cloths and coatings were expressed in 'pieces'. The use of the linear yardage measure introduces difficulties stemming from changes in the widths of cloth exported, but lack of information prevents any meaningful calculation of the magnitude of this particular statistical hazard during the period.

We know the amount of manufactured goods exported, but we have no guide to the amount consumed by our own large and flourishing population in these islands. (1)

He refrains from commenting on the difficulty in 1870 and Smith, in 1876, confines himself to the generality of 'a large home consumption.' (2) Hoffman has suggested a method by which the home consumption of woollen and worsted fabrics may be assessed for the nineteenth century, but his calculations are subject to a number of qualifications. (3)

(1) Baines, op. cit., p. 642.

(2) Smith, op. cit., p. 214. Mulhall publishes estimates, but offers no supporting information, of the home consumption of woollen goods in the U.K., which maybe expressed as follows:

Average annual consumption of total home production.

1841-50	-	72 per cent.
1851-60	-	67 per cent.
1861-70	-	59 per cent.

Woollen goods here includes worsteds.

M.G. Mulhall, The Dictionary of Statistics, (1899), p. 601.

(3) See appendix to this chapter.

Table 13. Exports of selected types of Woollen Fabrics  
from the U.K., 1851-70.

(in millions of yards)

Year	Woollen & Worsted Cloths, Coatings, etc.. Mixed and Unmixed.	Flannels, Blankets Blanketing and Baizes
1851	25.0	
1852	26.4	
1853	27.1	
1854	30.5	12.8
1855	21.9	7.7
1856	27.3	11.6
1857	30.0	13.0
1858	23.8	10.5
1859	24.1	14.5
1860	24.0	12.6
1861	24.4	13.4
1862	35.0	17.9
1863	27.8	17.3
1864	29.6	18.1
1865	25.6	14.8
1866	32.5	14.5
1867	31.2	11.1
1868	24.6	12.8
1869	28.2	14.9
1870	32.4	14.9

Source: Statistical Abstract for the U.K.,  
1865 (C.3513) vol. xii, p. 54.  
1870 (C.145) vol. xvii, pp. 66-7.  
1885 (C.4463) vol. xxxii, pp. 76-7.



The American market for British woollens continued to be of major importance throughout this period, <sup>(1)</sup> and Table 14 and Figure 6A indicate the course of trade in blankets to that market for the period 1840-1870.

Table 14. Exports of Blankets from the U.K. <sup>(2)</sup>  
(in millions of yards)

<u>Year</u>	<u>To all Countries</u>	<u>To the U.S.A.</u>	<u>Year</u>	<u>To all Countries</u>	<u>To the U.S.A.</u>
1840	2.1	.7	1856	7.2	4.6
1841	2.1	.9	1857	8.1	5.4
1842	1.4	.5	1858	5.8	3.6
1843	1.7	.9	1859	9.5	6.4
1844	3.3	2.3	1860	8.6	5.8
1845	2.4	1.2	1861	8.8	5.2
1846	2.2	1.0	1862	n.a.	n.a.
1847	n.a.	n.a.	1863	8.7	2.6
1848	4.1	3.1	1864	7.9	2.8
1849	5.7	4.1	1865	6.7	2.8
1850	6.4	4.6	1866	5.9	1.0
1851	5.7	3.9	1867	3.5	.1
1852	9.8	6.7	1868	4.7	.05
1853	9.8	6.6	1869	6.3	.09
1854	9.4	6.6	1870	6.8	.07
1855	5.0	2.9			

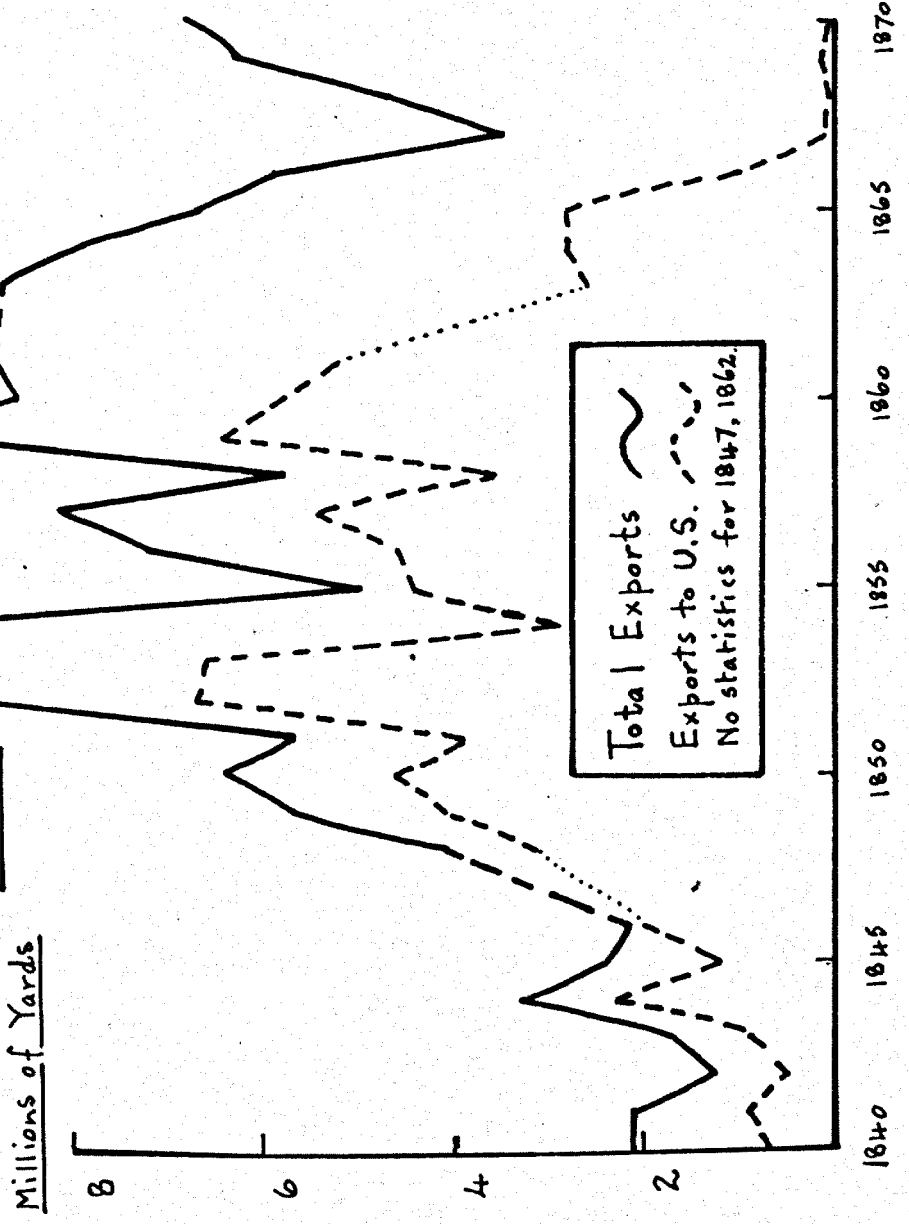
The year 1842 seems to have been one of severe depression for the blanket manufacturers and for the West Riding woollen trade as a whole and activity in the industry appears to have fallen to the lowest level recorded in the thirty years now being considered. <sup>(3)</sup> The following year

(1) See below, p. 251 .

(2) Parliamentary Papers and Trade and Navigation Accounts. The records for 1847 were destroyed, the information for 1862 is only available in 'pieces'.

(3) cf. Heaton, 'An Early Victorian Business Forecaster ...' For the economy in general, 1842 was 'the hungriest of the "hungry forties" ...' cf. R.C.O. Matthews, op. cit., p. 2.

Figure 6A.  
Exports of Blankets  
from the U.K.  
1840-70



Total Exports ~  
Exports to U.S. - - -  
No statistics for 1847, 1862.

Source: Parliamentary Papers and Trade and Navigation Accounts

was one of recovery and 1844 and 1845 were fairly prosperous, particularly the former year, by comparison with the early years of the decade. This improvement in trade was based on the success of cotton-warped goods in the American market and, (1) down to 1847, the falling average price of fabrics. A relapse in trade in 1846 gave way to a further recovery in 1847 which was cut short by the crisis of that year and was followed in 1848 by a moderate decline in the demand for blankets and low woollens, but a severe decline in the demand for the better quality cloths produced at Leeds and Huddersfield. The two succeeding years, however, were more encouraging for manufacturers and the 'fifties opened with improving business and rising average prices for manufacturers.

The commercial crisis of 1847 had a more profound effect upon cotton prices and the cotton industry than it had on wool prices and the woollen industry, (2) although it seems

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(1) This downward trend of prices inhibited the holding of stocks of goods in the trade and induced a caution amongst the merchants which probably also contributed to the 'gloomy anticipations of many' West Riding manufacturers in the mid-1840s. See the correspondence of Thos. Cook, below, pp. 630-4.

(2) See above, Table 10. Of the 460 'failures' recorded in 1847-8 by Evans, only one - a Huddersfield merchant - seems to have had a direct Yorkshire connection. cf. D.M. Evans, The Commercial Crisis, 1847-8, (1848), pp. lxix-lxxx

to have contributed to the business pessimism which was prevalent in the West Riding in the late 'forties. Particular districts were affected differently. The Morley trade suffered heavily and Smith writes of a 'paralysis of business' and describes the condition of the labour force as 'most painful ...' (1) Jubb, on the other hand, though he observed that 'from 1840 to 1843, the state of trade was extremely disheartening, not only as regards shoddy, but the woollen manufacture generally,' had nothing to say of 1847, probably because the blanket and shoddy trade did not face the same market contraction as the fine and medium quality cloth makers did. (2)

The after-effects of the crisis were still lingering upon the industry in 1851 when the Great Exhibition 'of the works of industry of all nations' was held. A contemporary writer reporting on the Exhibition asserted confidently that 'much attention has, of late, been devoted to perfecting the woollen manufacture in all its branches' and, after carefully stressing the 'competitive times' through which the industry was passing he viewed with pride the 'immense portion of ...

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(1) Smith, op. cit., p. 214.

(2) Jubb, op. cit., p. 106. See below, p. .

fancy trouserings' made at Huddersfield 'principally for home consumption' and the wide range of cloth exhibits from the Leeds district, whose merchants and manufacturers 'supply, very extensively, the home, foreign, and colonial markets; and adapt the fabrics manufactured to the peculiar taste of each.' (1) These 'competitive times' had profoundly influenced the outlook and business confidence of the West Riding manufacturers, particularly the Leeds and Huddersfield cloth makers who complained of French, Belgian and Prussian competition in the American market, and there was some lively public discussion of the causes of the decline in demand for Yorkshire cloth. (2)

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(1) Reports of the Juries, (1852), p. 351.

(2) Particularly in the columns of the Leeds Mercury in 1850. cf. E.M. Sigsworth, 'The West Riding Wool Textile Industry and the Great Exhibition', Yorks. Bull., vol. 4 (1952), pp. 21-30. Some indication of the growth of this foreign competition in the American market may be obtained from the following table which was originally published in the New York Herald Tribune in 1853.

Imports of Woollen Cloths and  
Cassimeres into the United States  
(in millions of yards)

<u>Year</u>	<u>German</u>	<u>Belgian</u>	<u>French</u>	<u>English</u>	<u>Total</u>
1840	.01	.14	.18	4.6	4.93
1841	.01	.20	.29	3.5	4.00
1842	-	.06	.09	1.2	1.35
1843	.04	.36	.59	3.8	4.79
1844	.06	.27	1.20	3.8	5.33
1845	.19	.29	1.30	2.3	4.08
1846	.27	.33	1.70	2.2	4.50
1847	.72	.33	2.50	1.8	5.30

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Source: The Woollen, Worsted and Cotton Journal,  
vol. 1, (1854), p. 131.

It seems to have been agreed that the continental fabrics derived their chief appeal in foreign markets from their more attractive finish by comparison with the English cloths. (1) It was further reported that 'the continental methods of producing a permanent face are totally different, much shorter in their processes than ours, and performed at a much cheaper rate.' (2) These methods mainly relied on the use of steam and high pressure by contrast with the English practice of 'roll-boiling'. (3) The Leeds finishing houses also experimented with the continental steaming process, but found the results unsatisfactory in respect of cloths made for the home market. It tended to produce a hardness of texture of, and permanent crease marks in, the pieces, but these defects proved less objectionable to foreign customers and consequently the steaming process was to some extent 'adopted to meet the competition abroad.' (4)

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(1) cf. E.M. Sigsworth, 'The West Riding Wool Textile Industry ...', p. 25.

(2) Reports of the Juries, (1852), p. 351.

(3) See above, p. 70 .

(4) Reports of the Juries, (1852), p. 351.

Although it did not figure in the reasoning of those Yorkshiremen who debated the causes of the trade depression of the 'forties, it may be that the excessive concentration on cheapness in the 'twenties and the 'thirties had led to some sacrifice of quality which was, by this time, producing a certain degree of 'sales resistance' to West Riding fabrics. The Great Exhibition therefore afforded an opportunity of reasserting standards of taste and manufacture which the Yorkshire trade seems to have grasped firmly in 1851. <sup>(1)</sup>

The 'fifties were steadily prosperous and marked the beginning of what proved to be, for the woollen trade as well as for the economy as a whole, 'the great mid-Victorian boom' which continued until the 'crisis of 1873'. <sup>(2)</sup> The Crimean War stimulated a short-lived rush of orders for blanket cloths and uniform fabrics in 1854, well portrayed in Table 13, followed by a 'post-war depression' in 1855; and the 'panic' of 1857 enlarged the export trade of that year and depressed it in 1858. This particular economic disturbance was noted

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(1) Twenty-six of the seventy-five prize medals awarded for woollen cloths came to the West Riding. In the blanket section, ten prize medals were awarded - three of these came to Yorkshire and two went to Witney. Reports of the Juries, (1852), pp. 352-3.

(2) W.W. Rostow, British Economy of the Nineteenth Century, (Oxford, 1948), p. 20.

by Baines as the result of 'great over-trading',<sup>(1)</sup> and the chief failures of business houses during this period seems to have stemmed 'from trading on fictitious credit, then largely prevalent.'<sup>(2)</sup>

The immediate cause of the crisis was a series of events in the United States, but the commercial relationships between London and New York were so strongly developed at this time that the financial strain was quickly transmitted to London where it resulted in the raising of the Bank of England's discount rate to 10 per cent., thus affecting generally the domestic economy and, with the failure of a number of London houses, reacting upon Scandinavian and Continental trade adversely, further accentuating the decline in business confidence.<sup>(3)</sup> The Woollen industry was depressed by the decline in home demand associated with the drastic credit contraction, and particularly retarded by the difficulty

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(1) Baines, op. cit., p. 645.

(2) L. Levi, History of British Commerce, (1880 Edn.), p. 400.

(3) The traditionally accepted 'cause' of the crisis was the failure of the Ohio Life Insurance and Trust Company in August 1857 and the subsequent 'rapid and merciless contraction' of the credit supply by the American banks. See D.M. Evens, History of the Commercial Crisis of 1857-8, (1859), p. 34 et seq.



of obtaining payment for goods despatched abroad, and by the repudiation of debts. On the whole, however, the West Riding woollen manufacturers seem to have been less seriously affected by the economic misfortunes of this particular year than their neighbours in the worsted trade. The Bradford manufacture was an established factory industry by this time and, in its maturity, it emerged from the crisis with a contracted productive capacity which Sigsworth has noted (1) from an inspection of the relevant Factory Returns. The woollen industry, however, was in the process of becoming a factory-organised activity when these economic agitations occurred and the momentum of its expansion, although it may have been temporarily arrested, seems to have been resumed by 1859. Jubb has summarised the experiences of the shoddy trade in this year and his analysis might well be applied to the West Riding woollen industry in general:

The mercantile and manufacturing classes had serious difficulties to contend with (in 1857); but in the main they outrode the storm exceedingly well; previous years of prosperity having put them in a position to withstand an adverse shock. The panic was severe. The mills in this locality did not work on the average half time, probably, and yet the produce was largely carried to stock. (2)

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(1) Sigsworth, Black Dyke Mills, pp. 67-8.

(2) Jubb, *op. cit.*, p. 113.

The produce 'carried to stock' was no doubt slowly liquidated in the years 1859-60. In 1861 an important change in the American tariff regulations reacted very unfavourably upon the Yorkshire industry, but it is impossible to trace the effect clearly during the succeeding years of the 'sixties owing to a number of other complicating factors. The first of these was the 'cotton famine'. The American Civil War, 1861-5, dislocated the production of, and trade in, cotton and British imports of the fibre were 'reduced by more than half', this severely curtailed the production of cotton piece goods in Lancashire and the home and foreign demand for clothing created an inflated market situation for the Yorkshire textile industry, which is illustrated in Table 13. (1) Watts estimated the total gain to the Yorkshire industry, in these years, as approximating to £17 million. (2) The high price of cotton increased the costs of producing woollens incorporating a cotton warp, but the relatively small proportion of total costs represented by cotton and the fact that there was

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- (1) From 1861 to 1864 the Hoffman output index of woollen and worsted cloth production shows a rise of nearly ten points, and U.K. exports of woollen and worsted cloths, in value terms, rose by 67 per cent. over the same period.
- (2) cf. J. Watts, Facts of the Cotton Famine, (1866), p. 393 et seq. See also W.O. Henderson, The Lancashire Cotton Famine, 1861-5, (Manchester, 1934), esp. pp. 9-10. A. Redford, Manchester Merchants and Foreign Trade, (Manchester, 1956), vol. ii, pp. 12-19.

no dramatic rise in the price of wool, or in labour costs, during the 'famine' enabled the Yorkshire manufacturers to take full advantage of the enlarged market opportunities. (1)

A second factor impinging upon the condition of the West Riding industry in the 'sixties was the improvement in cloth exports to the Continent following upon the conclusion of the Cobden Treaty in 1860, and the increasing flow of trade across the Channel enabled the woollen manufacturers to emerge from the boom of the early 'sixties without the serious business reaction which might otherwise have been expected. (2)

A third element, the boom preceding the domestic crisis of 1866, seems to have resuscitated the industry following the depression engendered by the 'return to normalcy' of the cotton industry after 1865. But perhaps the most profound effect of the 'company floatation' mania of 1866 was upon the structure and organisation of the West Riding woollen industry in so far as the response of many Yorkshire manufacturers to the events of this year was to postpone the forming of limited liability companies for perhaps two decades. Many partnerships which might have been beneficially transformed and reorganised in the early 'seventies by means of joint-stock formations seem to have postponed this necessary development until the 'nineties

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(1) cf. Baines, op. cit., p. 665.

(2) See below, p. .

The 'sixties ended, despite the harshness of the American tariff of 1867, on a strong note with rising output, falling wool prices, and growing exports. This healthy state of business was carried over into the early 'seventies, some stimulus being derived en route from the onset of the Franco-Prussian War in 1870. By 1873, however, the picture had changed considerably, for reasons which may be more conveniently discussed in Chapter III.

#### Tariffs.

Despite the repeal of the Corn Lawx in 1846 and the reciprocity which might have been expected to flow from this British acceptance of free trade, the German market for woollen cloths remained stagnant until the 'sixties, although there was an active market in that country for British worsteds. The Zollverein had no outright prohibitions on imports, as was the case in France, but from 1835 onward her tariff rates showed a tendency to rise and as they were usually fixed imposts rather than ad valorem duties the real burden of these taxes increased pari passu with the cheapening of British textile products. It was also true that a fundamental obstacle to tariff changes between 1834 and 1867 was the fact that unanimity was required for all decisions reached by the Zollverein general conference. Reforms could

(1)

be achieved only slowly and by hard bargaining. In France the door was shut tightly against English woollens and the signing of the Cobden Treaty in January, 1860 represented a major step forward in opening up part of the Continent which hitherto had remained outside the view of Yorkshire woollen manufacturers. The Treaty was notable for containing provisions for 'most favoured nation' treatment and France abandoned prohibition of imports and agreed to limit her general level of tariffs to 30 per cent. ad valorem. Britain conceded reductions in, and reorganisation of, the wine and spirit duties and removed the export tax on coal. (2) The immediate result of the Anglo-French agreement was a marked increase in British exports to France and, between 1860 and 1863, the value of manufactures sent to France from this country very nearly doubled, from £4.7 million to £9.2 million. (3) The Yorkshire woollen industry shared in this increase and also benefitted from the longer-term effect of the Treaty which precipitated a wave of treaty-making in Europe based on lower

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(1) W.O. Henderson, Britain and Industrial Europe, 1750-1870, (Liverpool, 1954), p. 177.

(2) These changes necessitated important Budget decisions for Britain which were resolved in 1861.

(3) See generally A.L. Dunham, The Anglo French Treaty of Commerce of 1860, (Ann Arbor, 1930), chap. xi.

tariffs and 'most favoured nation' concessions. Britain concluded eight major agreements of this type in the 'sixties, notably with Turkey in 1861, Italy in 1863, and with the Zollverein in 1865. (1) This loosening of trade with the Continent stimulated the West Riding woollen manufacture and provided a base of prosperity upon which the transition to a factory-organised industry was accelerated in the decade (2) after 1860.

In the United States the Walker Tariff Act of 1846, coinciding with the repeal of the Corn Laws in this country, ushered in a period of easier trade with that country which lasted for fifteen years. Yorkshire woollen exports, particularly blankets, were strongly encouraged by the new tariff which was not only lower, on the average, but simpler to understand and to calculate. Several schedules were established by the act and, in general, wool and woollen manufactures were classified under Schedule C which provided for a 30 per cent. duty ad valorem. This proved to be only a

(1) L. Levi, op. cit., pp. 566-7.

(2) The blanket and shoddy trade with France and Germany was considerably expanded between 1860 and 1879 and in the 'seventies, 'quite half the cheap woollen trade was done' with these two countries. See below, p. 288.

moderate degree of protection for the American manufacturers and the West Riding makers of cloths in the cheaper and the more expensive ranges found no difficulty in maintaining their competitiveness. Cole estimates, on a yardage basis, that there was a threefold increase in the British export of blankets to the United States between 1846 and 1860. <sup>(1)</sup> In 1857 the tariff schedules were reviewed and the duty imposed under schedule C was lowered to 24 per cent.. <sup>(2)</sup> This further encouraged the shipment of woollens to the American market, but the onset of the Civil War in 1861 swept away this era of freer trade and, in that year, the Morrill Act, although it was passed 'before a shot was fired' logically initiated a period of war finance which increased the tariff rates and changed their form.

The 24 per cent. ad valorem tax on woollens was replaced in the Morrill legislation by a tariff of 12 cents per lb. plus 25 per cent. of the total value of the fabric, by 1864 this rate had risen to 24 cents per lb. plus 40 per cent., by 1865 it had reached 50 cents per lb. plus 30 per cent., and in 1867 the ad valorem element was raised to

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(1) Cole, op. cit., vol. i, p. 346.

(2) Taussig, op. cit., p. 157.

(1)  
35 per cent. These new rates represented a very high degree of protection against Yorkshire woollens and their impact upon West Riding exports was extremely adverse. Their full effect was not registered until 1863, but by 1867, as may be seen in Table 14 and Figure 6A, the American demand for Yorkshire blankets was reduced to microscopic proportions by comparison with the trade in that direction in the 1850s. From this time onward, the American market remained only of marginal significance to the Yorkshire blanket producers.

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(1) *ibid.* p. 262.



APPENDIX TO CHAPTER II

The Hoffman indices of British woollen production

W.G. Hoffman has constructed an index of British woollen and worsted cloth production for the period 1739-1935, and an index of British woollen and worsted yarn production for the period 1780-1935. (1) In calculating the yarn index he has relied upon estimates of the home clip of wool which are in turn based upon estimates of the numbers of sheep in Great Britain published by various writers at different times during the period 1780-1865. After 1865 the index is based upon the annual estimates of wool consumption in this country published by the Board of Trade. Adjustments have been made to the figures to take account of net imports of wool throughout the period, but no account has been taken of the use of shoddy wool in the industry before 1865. The unsatisfactory nature of the estimates of British sheep and wool production before 1865 is well known and some 'smoothing' of the raw statistics were probably necessary before the index could be formulated. (2)

(1) W.G. Hoffman, British Industry, 1700-1950, Engl. trans., (Oxford, 1955), pp. 257-62; Table 54, Parts A and B.

(2) For a discussion of the reliability of the early estimates see Phyllis Deane, 'The Output of the British Woollen Industry in the Eighteenth Century', Journal of Economic History, vol. xvii (1957), pp. 207-23.

In making the cloth index, Hoffman has accepted the figures of broad and narrow woollen cloths milled in the West Riding in the years 1739-1820 as being fairly accurate 'substitute representative figures for the entire British production of woollen cloth' during this period. (1) After 1820 the index has been based upon the principle that the output of woollen cloth is directly related to the consumption of woollen yarn, and the gross output of yarn has been estimated as outlined in the previous paragraph with adjustments made for imports and exports. The conversion of wool into yarn and then into cloth involves a loss of weight in processing and Hoffman has applied a standard deduction of thirty per cent. to take account of this. (2) The production by the woollen industry of mixed fabrics containing cotton complicates the forming of a satisfactory index on the basis adopted by Hoffman, but he argues in defence of his method of construction that 'the proportion of mixed stuffs in

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(1) Hoffman, op. cit., p. 260.

(2) The loss of weight in processing varies considerably with different types of wool and in the preparatory operations for making different types of yarn, and there is the further consideration that wool from abroad was imported in a greasy or scoured condition, increasingly in the latter form after the middle of the nineteenth century. For these reasons, any kind of standard deduction cannot be more than a brave guess.

relation to the total output of the woollen industry was so small as not to impair the validity of the output of woollen cloth from the point of view of establishing the general trend of production.'<sup>(1)</sup>

Using the data upon which Hoffman has based his two indices it is theoretically possible, as the writer suggests, to calculate a gross output for the industry and then by making adjustments for net imports and net exports of cloth a residual series may be obtained which might be regarded as the 'actual home consumption' of woollens during the period. But in view of the imperfections of the basic data upon which the Hoffman calculations are erected and the further fact that it is not possible to disentangle woollens from worsteds in the available statistics, such a calculation has been discarded as unhelpful for the purposes of our particular study. Nevertheless, the Hoffman indices are useful in indicating 'the general trend of production' and they are reproduced below, for the period 1840-1900, in Table 15.

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(1) *ibid.* p. 262. It is not possible to prove the point statistically but cotton-warped goods seem to have been an important element in West Riding woollen production in the period 1840-70.

Table 15. Hoffman's indices of output of woollen and worsted yarn and woollen and worsted cloth in Britain, 1840-1900

(1913 = 100)

Year	Yarn Index	Cloth Index	Year	Yarn Index	Cloth Index
1840	24.9	25.8	1870	50.8	47.9
1841	25.9	26.6	1871	55.4	51.8
1842	24.3	24.7	1872	55.0	52.2
1843	25.2	25.3	1873	59.5	58.0
1844	28.2	28.2	1874	60.0	58.5
1845	29.9	29.9	1875	58.4	57.2
1846	28.3	28.4	1876	60.9	60.2
1847	27.7	27.4	1877	62.0	62.1.
1848	28.6	28.7	1878	59.0	57.9
1849	28.6	28.0	1879	55.1	53.2
1850	28.2	27.1	1880	65.3	65.8
1851	29.8	28.6	1881	56.4	55.2
1852	31.7	30.8	1882	62.0	61.1
1853	35.7	35.2	1883	59.3	58.3
1854	32.0	30.8	1884	63.0	60.9
1855	30.4	28.0	1885	59.7	56.9
1856	33.5	29.8	1886	64.7	62.6
1857	34.1	31.0	1887	61.4	59.6
1858	35.3	32.4	1888	66.1	64.1
1859	36.0	33.7	1889	70.0	68.2
1860	38.2	35.2	1890	67.3	65.4
1861	34.5	31.0	1891	77.0	75.4
1862	39.1	35.5	1892	68.9	66.5
1863	38.2	34.5	1893	74.1	70.7
1864	43.9	40.7	1894	64.7	60.5
1865	41.5	38.2	1895	78.3	73.8
1866	47.0	45.2	1896	79.3	74.7
1867	46.1	42.1	1897	73.4	69.0
1868	49.0	44.6	1898	82.5	78.5
1869	47.4	44.0	1899	75.4	70.4
			1900	74.0	70.2

Source: W.G. Hoffman, British Industry, 1700-1950, Eng.trans. (Oxford 1955), Table 54, Part B.

CHAPTER III

INDUSTRIAL MATURITY, 1870-1900

### CHAPTER III

#### Industrial Maturity, 1870-1900

It was noted in chapter II that the 1860s marked an important decade of growth in the development and technical progress of the West Riding woollen industry, and that the movement of the industry towards maturity of organisation received a powerful stimulus from the boom conditions engendered by the cotton famine in the early 'sixties. Towards the end of this decade the full impact of the Morrill Tariff of 1861 was registered, and the firms engaged in this industry had little time in which to develop and strengthen their hold on alternative markets (to replace those which they had formerly enjoyed in the United States), before the onset of the 'Great Depression' in the early 'seventies. Although the tariff and trading difficulties of the last quarter of the nineteenth century had a depressing effect upon the profit-earning capacity of the industry, the weakening markets encountered by Yorkshire woollen cloth producer in the 'seventies and the 'eighties stimulated competition and placed a premium upon efficiency. This tended to assist the final conversion of the industry from a domestic activity to the status of a factory-organised trade and to complete, before the turn of the century, an industrial transformation which had taken much longer than the complementary development in the Yorkshire worsted industry.

The beginnings of 'depression'

The general level of prices was falling in the United Kingdom during the period 1873 to 1896 and 'these twenty-three years of falling prices, which have come to be known, somewhat misleadingly, as "the Great Depression"<sup>(1)</sup> occupy a somewhat enigmatic position in nineteenth century economic history. With reference to these years, Mr. H.L. Beales has asked the question whether it is 'reasonable to describe them as "the great depression"?' and he concludes that the period was one of 'progress in circumstances of great difficulty', and that 'in no final sense ... was the period one of retrogression.'<sup>(2)</sup>

W.W. Rostow, in considering the appropriateness of 'the unhappy phrase' to describe 1873 to 1896, finds that in relation to the years which preceded and followed the period it was possible to see 'considerable relative progress peacefully achieved.'<sup>(3)</sup>

In the light of these statements it is pertinent to enquire whether the Yorkshire woollen industry passed through a 'Great Depression' during the twenty-three years and, if so, what was its cause and character, and what were its immediate and its more permanent effects?

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(1) W.H.B. Court, A Concise Economic History of Britain (Cambridge, 1954), p. 195.

(2) H.L. Beales, 'The "Great Depression" in Industry and Trade', Economic History Review, vol. v (1934), pp. 65-75.

(3) W.W. Rostow, op. cit., p. 59 and p. 92.

In the annual Commercial History and Review of 1873 published in The Economist, it was reported of the Yorkshire woollen industry that:

The review ... must be a very unsatisfactory one, whether as affecting the interests of manufacturers or merchants. The high prices of labour and of all kinds of material, combined with disturbing influences in certain quarters abroad, and the disinclination under the circumstances, to operate except for absolute necessities, have had the effect during almost the whole year of restricting operations to immediate needs. (1)

In the following year's Review of the 'heavy woollen' trade:

We now have to state that, with the exception of one or two departments, the demand for goods has been comparatively small and that though stocks may be less than they were last Christmas, they are still more than sufficiently large with many firms. The shipping trade has been very unsatisfactory ...

The home trade has been almost an average, but business was hindered very much by lots of goods intended for the Continent being thrown on the market by small and needy firms to raise money at prices that allowed no margin for profit. (2)

These two reports, with their emphasis upon 'disturbing influence ... abroad', declining profits, and the disinclination to hold stocks of goods, not only announce the onset of the 'depression', but sound a note which is repeated throughout the period whenever West Riding woollen manufacturers are asked to describe the state of trade.

(1) The Economist, 14 March 1874.

(2) The Economist, 13 March 1875. No further help is given by the writer in defining the phrase 'almost an average'.



In general, the prices of wool and of manufactured woollens fell steadily throughout the period, and comparing the five years 1875-9 with the years 1895-9, the annual average export of plain, all-wool broadcloths fell from 9.8 million pieces in the former period to 9.3 million pieces. For the same periods of time, the value of the annual average export of blankets fell from £651,312 to £423,481, a decline of 35 per cent. which may be compared with a decline of 40 per cent. in the annual average wholesale price level during the same stretch of time. (1) This information indicates a stagnant, rather than a seriously declining market situation for the industry and if a compensating increase of demand in the home market had accompanied this gradual decline, the businessmen in this industry would have had little real cause for complaint. Owing to the absence of data it is not possible to measure the relative size of the home trade compared with the foreign vend in this period, nor is it possible to ascertain the degree to which woollen manufacturers were able to enlarge their domestic sales when their foreign markets ceased to grow. It was noted in the Report of The Tariff Commission that:

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(1) Export data from the Trade and Navigation Accounts, see bibliography. These general export figures hide the decline in particular markets which is explored later in this chapter. Price information from W.T. Layton and G. Crowther, An Introduction to the Study of Prices, (1935), p. 81 and Chart I.

In the trade in heavy woollens, there has been a general change from export to home trade.

The profits of the home trade have diminished by increased competition ... and by foreign importations. The home trade, therefore, has tended to become more insecure during recent years. (1)

The general impression gained from a study of this Report is that manufacturers were able to make some diversion of production to the homemarket, but not on a scale which was sufficient to allow the full utilisation of capacity, hence the insistent grumbles regarding low profitability and the declining rate of return on capital. (2) In so far as manufacturers found that they had to give up the production of old-established lines made for a foreign market and turn to the provision of new fabrics for the domestic market, this would also, at least in the short-run, reduce the firm's efficiency which would be reflected in costs and profits.

Although the year 1896 traditionally marks the end of the 'Great Depression', the woollen trade in Yorkshire continued to experience the troubles which had become familiar in

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(1) Report of The Tariff Commission, (1905), vol. ii, pars. 1448, 1449. The report and evidence of witnesses in this unofficial enquiry published by P.S. King and Son, London, relates to the period 1875-1903.

(2) See Figure 9 below for a graphic illustration of this.

the preceding twenty years. In 1897, 'there has been nothing but dullness' in the blanket trade, the year 'closing with absolutely bad trade.'<sup>(1)</sup> In the following year:

The year has been anything but a favourable one for the manufacturers of Dewsbury, Batley, and the neighbourhood, especially for those who have devoted themselves ... to the production of heavy woollen cloths, for such fabrics have been in small demand either for the home or foreign markets. (2)

In 1899, the 'year cannot be said to have proved satisfactory ... although in the latter half, mills have been run full time',<sup>(3)</sup> but in the next year there was a much brighter tone in the report, 'trade was fairly good, though somewhat irregular.'<sup>(4)</sup> In the 'heavy woollen' district, this recovery of demand was accounted for by the:

... vast output from the looms and dye-houses of Khaki cloth for the troops in South Africa. (5)

These complaints of 'dull', 'bad', 'unfavourable' and 'unsatisfactory' trade, the stagnation of overseas markets, and the competitiveness in and 'insecurity' of the home trade,

(1) The Economist, 19 February 1898.

(2) The Economist, 18 February 1899.

(3) The Economist, 17 February 1900.

(4) The Economist, 16 February 1901.

(5) *ibid.*

may be related to the evidence of the Factory Returns for the industry which are reproduced below in Table 16. There was a marked decline in the installed spindleage in the early 'eighties and again in the 'nineties, and the same trend is observable, though to a lesser degree, in the case of power loom capacity. Only a slight fall in total employment was recorded between 1878 and 1884, and the absence of data on employment in the 1903 return prevents any assessment of the labour situation in the industry in the 'nineties. These statistics generally support the contention that the momentum of growth in this industry generated in the 1860s was continued throughout the 1870s, despite the 'depression', and that this growth was only slightly arrested in the early 1880s, but was terminated in the 1890s and some shrinkage of the total size of the industry then took place. The 'depression' of the 'nineties was thus more drastic in its impact upon the woollen industry than the earlier weakening of markets registered in the 'seventies and 'eighties. In interpreting the factory statistics, it must be noted that the decline in the total number of spindles and looms in place in the industry between 1889 and 1903 cannot be taken as an unqualified measure of reduction in productive capacity, owing to the improvement in spindle and picking speeds which was a technological development of the period. There were fewer machines in use, but they were more productive. However, the sharpness of the fall

Table 16. West Riding Woollen Industry,  
Factory Statistics.

Year	No. of Spinning Spindles	No. of Doubling Spindles	No. of Power Looms	Total No. Employed
1849	925,449	-	3,849	40,611
1856	992,897	-	6,275	42,982
1861	1,296,190	-	11,405	44,287
1867	1,395,962	96,812	20,713	62,234
1874	1,911,661	71,583	30,917	76,836
1878	1,993,701	193,290	36,721	83,883
1884	1,758,205	111,626	36,396	83,611
1889	1,815,755	178,851	37,626	89,971
1903	1,530,889	117,450	31,429	-

Source: Factory Inspectors' Returns, in Parliamentary Papers, 1850 (10) vol. xlii; 1857 (7) vol. xiv; 1862 (23) vol. lv; 1867-8 (453) vol. lxiv; 1875 (393) vol. lxxi; 1878-9 (406) vol. lxv; 1884-5 (340) vol. lxxi; 1890 (328) vol. lxvii; 1904 (293) vol. lxxxvii.

Note:

There are no returns of Doubling Spindles before 1867 and the return for 1903 contains no information on employment. The statistics in this table include the figures relating to Shoddy Factories from 1867 onward.

Some domestic production of woollen goods in the West Riding continued throughout the whole of the period covered by the table, but by the late 1880s it was becoming insignificant in relation to factory production.

in numbers of spindles and looms after 1889, suggests that, despite this technological consideration, the productive capacity of the industry was probably reduced.

Unfortunately, it is not possible to check this conclusion by examining the total input and output of materials for the industry over this relevant period. The size of the home demand for woollen goods is not known, and, before 1890, the export figures for woollen cloths are not differentiated from worsteds. In the 'nineties, the export of woollen tissues was as follows:

(1)

Exports from the U.K. of Woollen Piece Goods,  
in millions of yards

1890	56.4
1891	55.8
1892	51.8
1893	46.5
1894	40.9
1895	57.6
1896	60.2
1897	52.1
1898	46.2
1899	48.9

This table reveals marked fluctuations in demand, but indicates no marked declining trend, if anything, it illustrates a slight upward tendency after 1894. The export figures for blankets are available in a standard form after 1882 and they are reproduced below:

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(1) Trade and Navigation Accounts, see bibliography.

(1)

Export from the U.K. of Blankets  
in millions of pairs

1882	1.3
1883	1.1
1884	1.1
1885	1.2
1886	1.3
1887	1.5
1888	1.4
1889	1.5
1890	1.5
1891	1.3
1892	1.2
1893	1.2
1894	1.0
1895	1.2
1896	1.5
1897	.9
1898	.9
1899	.8

This table exhibits a slight depression in the early 'eighties, but a very marked decline in the late 'nineties. This cannot, by itself, be taken as evidence of a reduction in productive capacity in the 'heavy woollen' district, but coupled with the evidence of the Factory Returns it offers some further support to the contention, and underlines the claim of decreasing profitability in the industry during these years.

Mark Oldroyd, who represented the 'heavy woollen' area before the Royal Commission appointed to inquire into the Depression of Trade and Industry, was asked whether he thought the industries of his district were 'expanding in a fair ratio

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(1) *ibid.*

with the general expansion of the world', and he replied:

... about 1876 ... we just began to feel a sort of arrestment of our increase ... from 1876 to 1885 I do not think there has been an increase. It is very difficult to estimate. (1)

A Bradford export merchant, giving evidence to the Tariff Commission in 1904, took a more definite view about the progress of Oldroyd's district:

Very little money has been invested lately in the wool and woollen industry, and no new mill has been built to my knowledge for the last thirty years. I lived in Dewsbury from 1862 to 1866, and there are less mills going there today than there were then. (2)

In evidence to the same Commission a Huddersfield merchant said:

The normal trade of Huddersfield is, I consider, really declining. Fifteen years ago, all the operatives were employed. The town has decreased in population, property has decreased in value to a shocking extent, and there seems no inclination to build new mills. The normal increase in trade ought to cover all improvements in machinery, and provide work for a large number of operatives. But a trade that has been standing still for 15 years is in a bad way. Improvements in machinery, are not sufficient to account for the operatives not increasing. (3)

- (1) Royal Commission appointed to inquire into the Depression of Trade and Industry, 1886 (C. 4797), 3rd Report, xxiii, Q. 14200, 14202-3.
- (2) Mr. B. Nathan in Report of The Tariff Commission, par. 1716 His views were supported by the evidence of Newsome and West of Dewsbury, in par. 2051.
- (3) ibid. Ev. of J.C. Broadbent, par. 1791. There was an inter-censal decrease of population in Huddersfield of .4 per cent. between 1891 and 1901.



His comments clearly suggest that there had been both technological improvement in the equipment of the woollen industry in this district coupled with a decline in productive capacity in the period 1889-1904. His view received some dramatic support from a Leeds merchant and manufacturer at the same time:

Mills that have cost £30,000 and £40,000 are being hawked about in Leeds now at 4s. in the £. Within twenty miles of Leeds, I should think you could buy a dozen of them if you wanted ... (1)

These highly coloured opinions must be discounted to some extent, but their general support for the proposition that the productive capacity of the woollen industry was declining in the 'nineties, must not be overlooked.

Little help may be derived on this question of the capacity of the industry from looking at the input of raw material during the 'Great Depression'. The available data on raw wool consumption in the United Kingdom, although separated into statistics of home grown and imported fibres and also taking account of exports and re-exports, do not indicate the proportions of the total consumed by the woollen and worsted industries separately. The amount of raw wool retained for use in these two industries shows a large increase

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(1) *ibid.* Ev. of Martin Albrecht, par. 1663.

in total over the period and also a steady increase in the quantity consumed per head of population. Only in the period 1880-4, was there any marked retardation in the annual rate of consumption.

(1)

Consumption of Raw Wool in the U.K.  
1875-99  
(in millions of lbs.)

Year	Average annual total retained	Quantity retained per head of population
1875-9	354	10.5 lbs.
1880-4	356	10.1 lbs.
1885-9	416	11.4 lbs.
1890-4	475	12.4 lbs.
1895-9	523	13.1 lbs.

The absorption of wool in this quantity over this period does not fit well with the businessman's picture of an industry in decline, and it adds to the puzzle of what was really happening to the industry after 1873. It seems clear that the manufacturers and merchants were encountering unusual and, for some of them, quite unfamiliar, difficulties, and that they resented meeting these difficulties in a period of falling prices, especially as so many of them had enjoyed much prosperity in the 'sixties and early 'seventies. Oldroyd

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(1) Estimates of Helmut, Schwartz and Company, reproduced in Report of The Tariff Commission, Table 3, par. 1512.

before the Royal Commission on Depression stated that:

... from 1865 to 1869 ... there was a very considerable development of our trade ... there is no doubt that the profits of the period were substantially good.

Then we come to the period from 1870 to 1874 ... during which, I should say, ... that the volume of the business of our district was very much increased, and ... very largely inflated. (1)

He was then asked to define what he meant by 'inflated' and his reply stressed that:

... there was a large increase of the plant and machinery which was applied to the purposes of the trade, and there was a very general and excessive resort to overtime ... of course, we attribute a great part of the development to the destructive forces abroad in the time of the Franco-German war. (2)

... from 1865 to 1869 ... profits were very good, perhaps a little more than what might be called normal profits. In the period from 1870 to 1874 the profits were inordinately large. (3)

Oldroyd was supported in his statements by the written evidence to the Royal Commission from the Batley, Dewsbury and Leeds Chambers of Commerce. The former Chamber reported that:

(1) Royal Commission of 1886, (C. 4797), 3rd Report, xxiii, Q. 14105.

(2) *ibid.* Q. 14106.

(3) *ibid.* Q. 14107.

The depression began in 1874, and has been continuous, never having recovered from the inflation that prevailed during the years 1871, 1872 and 1873, and it is at its lowest point at present. (1)

The Dewsbury Chamber stated that:

It is very difficult to fix a normal level. We may, however, state that from 1870-1875 the trade here was above the normal level, whilst from 1879 to the present time it has been below it. (2)

The Leeds Chamber, which represented a wide variety of industries other than the woollen cloth manufacture, was 'unable to define any normal level' of trade, but added:

... all the trades of this district may fairly be described as depressed at the present time, as regards profits.

Profits have steadily been declining for the last 10 years, and it is by no means certain that the lowest point has been reached. In many trades the sum of profits has been to some extent kept up by the increased volume of trade. (3)

This emphasis upon the unprofitability of the woollen manufacture recurs repeatedly in the newspaper accounts of the trade during this period. As early as 1869, the Dewsbury and Batley manufacturers were complaining that although:

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(1) Royal Commission of 1886, (C. 4621), 1st Report, xxi, pp. 73-5.

(2) *ibid.* p. 79.

(3) *ibid.* p. 91.

On the whole business is in a healthy condition ... prices are not sufficiently remunerative. (1)

In 1874, 'prices ... allowed no margin for profit', (2) in 1877, 'the year has been a disastrous one ... prices have been anything but remunerative.' (3) In the following year, 'of profitable business ... there has not been much done', (4) and in 1880, the operations of some firms, 'though apparently extensive, have yielded very little profit.' (5) In 1881:

There has been more done in the mills and warehouses, of that there can be no question; but profits are small, very small, when there is taken into account the capital employed, the hands for whom work is found, and the exertions made to secure adequate remuneration. (6)

This theme continued throughout the early 'eighties and:

The record of the woollen trade of 1885 must be largely one of disappointments, for when the year began there were hopeful anticipations of an early revival of business which, day after day, and week after week, failed to be realised; and while 1884 was a year of difficult business and very small

- (1) The Economist, 12 March 1870.
- (2) The Economist, 13 March 1875.
- (3) The Economist, 9 March 1878.
- (4) The Economist, 13 March 1880.
- (5) The Economist, 12 March 1881.
- (6) The Economist, 18 March 1882.

margins, the past year has seen the difficulties increase and the margins diminish, so that now profit is a thing of the past, and in many concerns the balance is reported on the wrong side... (1)

The immediate causes of these discontents were found to be in the 'disturbing influences in certain quarters abroad' which produced an intensification of competition in the domestic market and reacted harshly on business confidence and expectations. Of the Huddersfield trade in 1891, it was said that:

Manufacturers are more than ever making to order and not to stock, but there has been a very undesirable tendency to run one another out of the market by accepting poor prices, which have indeed kept very low. (2)

The sustained persistence of these lamentations regarding the declining rate of profit must be regarded as prima facie evidence of a 'depression', but we must remember Thomas Cook's warning that:

Newspaper accounts of the trade are not to be depended on ... (3)

And it is significant that when Oldroyd was pressed hard in the questioning before the Royal Commission that he conceded the point that:

(1) The Economist, 20 February 1886.

(2) The Economist, 20 February 1892.

(3) Thomas Cook of Dewsbury Mills in a letter to John Dobson of London, 13 Jan. 1848.

... on the whole, the depression has affected us perhaps less than it has affected the country generally. (1)

It is possible, then, to find some support for the proposition that the woollen manufacturers at this time were suffering from a 'depression' of business confidence rather than a 'depression' of actual output and sales, but this leads to the consideration of the question why this depression of spirits and general outlook was prevalent. A declining share of the national income attributed to profits during periods of falling prices was a normal feature of the cyclical movement of the British economy during the nineteenth century, and this was thus no new experience for the majority of manufacturers, but during these years it was associated with a strong and rising foreign competition.

The causes of the 'depression'.

In the Questionnaire drafted by the Royal Commission enquiring into the Depression and submitted to individuals and organisations, question 10 was concerned with:

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(1) Royal Commission of 1886, (C.4797), 3rd Report, xxiii, Q. 14191.

... any special circumstances affecting your district to which the existing conditions of trade and industry there can be attributed? (1)

The answer from the Leeds Chamber of Commerce to this question was simply 'No', but the Batley Chamber stressed:

... the high tariffs imposed in Germany, Austria, United States and other countries, notably in Canada and some other of our own colonies. And a very considerable change in the class of goods manufactured has aggravated the evils resulting therefrom. (2)

The Dewsbury Chamber made three points:

1. Depreciation in value of raw materials.
2. Hostile tariffs.
3. Change of fashion. (3)

These three 'causes' were the subject of voluminous discussion and illustration in the wealth of evidence submitted to the Tariff Commission.

#### Raw material

The difficulties caused by falling prices for raw wool, which were emphasised by the Dewsbury Chamber of Commerce, were mainly those resulting from the fact that investment in relatively large stocks of wool became increasingly expensive as the market lowered, but not to invest in stocks added to

(1) Royal Commission of 1886, (C. 4621), 1st Report, xxi, p. 75.

(2) *ibid.* p. 91.

(3) *ibid.* p. 79.



the difficulties of obtaining the right kind of fibres quickly in response to sudden or unexpected orders for manufactures. But a falling market for raw wool had a two-edged effect upon the manufacturer and a Huddersfield spokesman put forward another point of view:

As to profits, a manufacturer usually does well on a decrease in the price of raw material, because the class of trade is a season's trade, and he is expected to a great extent to keep the same price through the season, and he can often maintain his price on a fall of material, but cannot increase his price on an advance. (1)

Table 17 and Figure 7 indicate the annual average price movement of a typical, merino clothing wool used in the Yorkshire industry. The price fall was steady and continuous after 1872 and there was no marked upward trend until 1899, but the decline was arrested in 1895. The data used here related to a specific kind of Australian wool and it is dangerous to generalise about the fibre, in view of the large number of different types and qualities applicable to different purposes, but English wools and other kinds of imported wool seem to have shared in the general depression of prices. (2)

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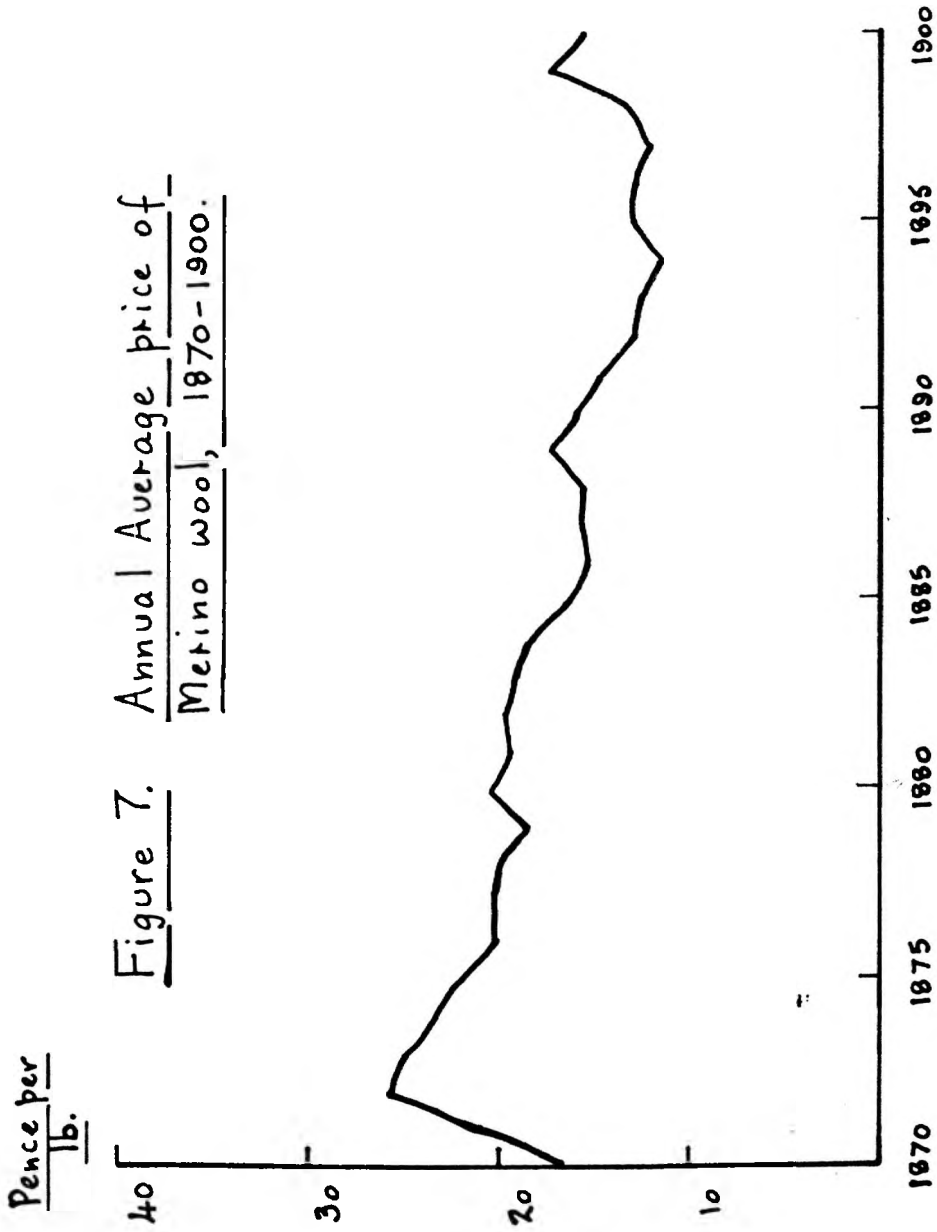
(1) Report of The Tariff Commission, par. 1773.

(2) cf. Barnard, *op. cit.*, esp. chap. 8.

Table 17. Annual average price of a  
typical clothing wool  
1870-1900

<u>Year</u>	<u>Pence per pound</u>
1870	17
1871	21 $\frac{1}{4}$
1872	25 $\frac{3}{4}$
1873	25
1874	23 $\frac{1}{2}$
1875	22
1876	20 $\frac{1}{4}$
1877	20 $\frac{1}{4}$
1878	20
1879	18 $\frac{3}{4}$
1880	21 $\frac{1}{2}$
1881	19 $\frac{1}{2}$
1882	19 $\frac{3}{4}$
1883	19
1884	18 $\frac{1}{4}$
1885	16 $\frac{1}{2}$
1886	15 $\frac{3}{4}$
1887	15 $\frac{3}{4}$
1888	15 $\frac{3}{4}$
1889	17 $\frac{1}{4}$
1890	16
1891	14 $\frac{3}{4}$
1892	13
1893	12 $\frac{3}{4}$
1894	11 $\frac{3}{4}$
1895	13
1896	13
1897	12 $\frac{1}{4}$
1898	13 $\frac{1}{4}$
1899	17 $\frac{3}{4}$
1900	15 $\frac{3}{4}$

Source: A. Sauerbeck, The Production and Consumption of Wool, (1878), p. 15; F. Hooper, Statistics relating to the City of Bradford and the Woollen and Worsted Trades of the U.K., (Bradford, 1899), p. 28; R.J. Thompson, 'Wool Prices in Great Britain, 1883-1901', Journal of the Royal Statistical Society, vol. lxx (1902), p. 508. The wool referred to is Victorian average merino fleece, clean.



Source: Saverbecks, Hooper and Thompson,  
see Table 17.

We have already noted the rising total of wool supplies which was available in this period for the woollen and worsted industries of the United Kingdom, and therefore mainly for the West Riding of Yorkshire, but it is notable that imported wools sharply increased their relative share of the total supply available in this country at the expense of the domestic clip, especially in the 'eighties. The concentration in Australia and Argentina on the rearing and management of cross-bred sheep, which were productive not only of mitton, but also of long-staple wool suited to the manufacture of worsteds, and the introduction of the refrigerator-ship in the 1880s mainly accounted for this development. At the same time, British farmers and landowners reduced the size of their flocks in response to unremunerative prices of the period. The quantitative information in support of these general statements is summarised in the tables below:

(1)

Quantities of Raw Wool of all kinds and Shoddy Wool retained for use in the U.K. 1875-99  
(annual average in millions of lbs.)

Period	Imported Wools	Home Grown Wools	Shoddy and Mungo	Total
1875-9	209	145	104	458
1880-4	235	119	123	477
1885-9	301	113	101	515
1890-4	343	130	118	591
1895-9	405	115	132	652

(1) Table based on statistics compiled by the Bradford Chamber of Commerce and published in the Report of The Tariff Commission, par. 1514.

The principal suppliers of the imported wool into the United Kingdom were Australia, Argentina, and South Africa during these thirty years:

(1)

Imports of Raw Wool into the U.K.  
1870-1900  
(in millions of lbs.)

Year	Australasia	South America	South Africa	Germany	Other	Total
1870	175.0	12.6	32.7	4.2	38.7	263.2
1880	300.6	10.2	51.3	7.1	94.3	463.5
1890	418.7	11.1	87.2	6.7	109.3	633.0
1900	386.3	35.5	32.2	5.0	99.9	558.9

This table not only illustrates the major position held by the Australasian wool producers in the British market, but it also emphasises the continuing attraction which the British wool textile industry exerted on the surplus wool supplies of a large number of producing countries, the size of the 'Other' category of wool imports being a significant constituent of the total.

The development of the frozen meat trade in the 'eighties gave a stimulus to the fellmongering trade, and sheepskins and skin wools became an important category in the wool exports of Australia and South America. Clapham estimated

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(1) Statistical Abstracts of the U.K., see bibliography.

that about 8 per cent. of the Australasian wool sold in London in 1905 was of this kind. (1) This type of wool found its main use in the lower quality fabrics, and particularly when the fibres had been treated with lime or some other chemical to facilitate their detachment from the skin. (2) But skin wools of good quality, when carefully removed, also found a use in the better grades of manufacture and could often be blended with other wools for producing superior cloths. (3)

The production of shoddy wool in the Dewsbury-Batley area added some 20 per cent. to the total available wool supply in the U.K. over these years. There are signs of 'depression' in this industry in the late 'eighties when the production of such wool declined in total and relatively to the total supply. There was a recovery of the industry's position in the 'nineties, particularly in the years 1895-6. We noted in chapter II that this particular raw material was

(1) Clapham, The Woollen and Worsted Industries, p. 115.

(2) It was known as 'slipe' wool. The lime often damaged the fibre, rendering it difficult to work and troublesome to dye or scour.

(3) According to evidence given to the Tariff Commission, the French fellmongers 'have paid much attention to the getting up of their wool of late years' and their skill rendered much Australian and South American skin wool suitable for high grade fabrics. Report of The Tariff Commission, par. 1317.

made from rags collected in this country and also from imported rags. Large quantities of such rags were being received in the 'shoddy' district after 1870. In this trade, the chief exporting countries were Germany, Belgium and France, in that order of importance, but imports were forthcoming from all parts of the world in the 1880s. Holland, Norway and Turkey became important suppliers after 1881, and towards the end of that decade Australia and Japan became more involved in this trade. The total imports of rags during the thirty years are shown in the table below.

In respect of either quantity or quality, the woollen manufacturers of the West Riding could have had few major complaints regarding their raw material supply during the last three decades of the nineteenth century. They may have experienced some difficulties arising from the persistent fall in the price of the fibre down to 1895, but these can hardly have amounted to really serious troubles. The size and nature of the wool supply was a reflection rather than a determinant of the 'depression' in this period.

Imports of Woollen Rags into the U.K.  
1870-1900

<u>Year</u>	<u>Tons</u>
1870	17,210
1871	24,210
1872	29,302
1873	24,827
1874	25,581
1875	25,415
1876	28,847
1877	33,408
1878	32,376
1879	33,309
1880	41,266
1881	35,265
1882	37,511
1883	35,767
1884	31,022
1885	32,642
1886	30,526
1887	31,670
1888	31,643
1889	31,335
1890	34,659
1891	37,037
1892	25,232
1893	32,986
1894	31,117
1895	37,616
1896	36,687
1897	33,258
1898	30,152
1899	32,390
1900	30,695

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Source: Trade and Navigation Accounts, see bibliography.



## Woolstapling

The declining price of wool had an important effect upon the organisation of the domestic wool supply. Manufacturers were loath to accumulate stocks of material which were likely to depreciate in value if kept for any length of time. The woolstaplers who normally bought wool from farmers, held stocks, and granted long credit to manufacturers, now found their usual mode of business a very riskful one. The response of many woolstaplers to this situation was, apparently, to leave the trade, and one of them reported to the Tariff

### Commission that:

The wool stapling trade in the country is fast dying out. Fleeces, instead of being collected of the farmer by the stapler, as formerly, are sent to the different auctions in the counties, where the manufacturers attend and purchase such as suit their particular trade, and they have broken accordingly. (1)

Other staplers endeavoured to strengthen their position in the trade by providing scoured wool for manufacturers and some of them resorted to the Belgian method of scouring in order to produce an attractive article:

A number of English wool staplers send their wool to Verviers to be scoured. They have a more scientific method of treating their wool

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(1) Report of the Tariff Commission, ev. of Robert Elling, Warminster, par. 1887.

than we have in the scouring operation; they can get up a poorer class of wool in better fashion than we can in Yorkshire. (1)

These developments in stapling and scouring were more applicable to the Yorkshire worsted trade than to the woollen branch of the West Riding textile industry. Another organisational development associated with changes in price, quality and quantity of wool in this period was the growing tendency for Australasian wool to be marketed in Australia rather than in London. Improvements in transport and communications and the increasing Continental consumption of colonial wool contributed to this change, and although London remained the major marketing centre until after the end of the century, the shift of the market organisation back towards the point of supply was noticeable after 1875. (2)

### Hostile Tariffs

When Mark Oldroyd was asked by the Chairman of the Royal Commission on Depression to 'give us instances of those hostile tariffs', he remarked that 'our first great blow was the American duty which has proved absolutely prohibitive.' (3)

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- (1) *ibid.* ev. of A.H. Hutton, woolstapler and merchant, Leeds and Bradford, par. 1577.
- (2) Barnard, *op. cit.*, esp. chap. 7.
- (3) Royal Commission of 1886, Q. 14113 and Q. 14118.

He was referring here to the Morrill Tariff of 1861 and it would have been of interest to have had his views on the effect of this tariff, and its subsequent amendments in the 1860s, at some length. The Chairman, however, curtailed Oldroyd's discussion of this particular 'hostility' on the grounds that its impact fell outside the period of 'depression' but not before Oldroyd had made the important point that specific duties were much more prejudicial to the exports from his district than were ad valorem tariffs:

With us ... the question of specific and ad valorem duties is a question of great importance.

The specific duties hit us more than they hit any other section of the woollen industry, because we produce a greater weight for the same money than any other class of woollen manufacturers. (1)

This view was reiterated by a number of witnesses to the Tariff Commission:

Great changes for the worse arose in our Continental trade when specific duties took the place of ad valorem duties. This refers principally to our trade with France, Germany and Austria. At the time ad valorem duties were in force an immense trade was done in low goods from this district from Leeds and Batley; 10 to 20 per cent. did not add much to the cost, whereas at present specific duties add 35, 40, 50 per cent. and even more to the cost. Our trade in low goods, particularly in plain goods, has almost been killed ... (2)

(1) *ibid.* Q. 14114.

(2) Report of The Tariff Commission, par. 1500.

Although the Morrill Tariff had made a feature of specific as well as ad valorem duties, the major move towards the former type of imposition was made by France in 1878. Some six years earlier, France had repudiated the Cobden Treaty and then signed a new convention with Britain. In 1878, the ad valorem system was abandoned by France and, in changing her tariff rates over to specific duties, the levy on woollen goods was raised. (1) In addition, a weight qualification was introduced which tended to complicate the understanding and assessment of the tariff in the West Riding. On woollen goods of average quality, the specific levy in France in 1878 was approximately 5 per cent. of their value, this was raised to nearly 10 per cent. in 1882, and to approximately 12 per cent. by the Meline Tariff of 1892. The large increase in the duty in 1882 caused a temporary spurt in exports from the West Riding to France before the convention agreement with Britain expired:

... manufacturers were in the possession of orders which kept them pretty busy for a short time, and at good prices. The cause of this was a sudden demand for heavy woollens for shipment to France, the treaty being about to expire, and faint hopes existing of any amelioration of the tariff. (2)

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(1) cf. Percy Ashley, Modern Tariff History, (1904), esp. chap. iv.

(2) The Economist, 24 February 1883.

In 1879, the Zollverein followed the example of France and introduced specific duties at the same time as the rates were generally increased. For medium quality woollens, the German tariffs were roughly equivalent to the French tariffs which were operative during the period. For low quality woollens, the Zollverein tariffs were specific levies before 1879, but Oldroyd pointed out to the Royal Commission that the rates were advanced after 1879 from £1.10s.6d. per cwt. to £3.8s.7d. per cwt., and this latter duty he found 'absolutely prohibitive.'<sup>(1)</sup> In the 'nineties the Austrian tariff rates were about as severe as the German and French, the Italian and Belgian were equivalent to 15 per cent. of the value of medium quality cloths, whilst the Spanish duties were 'about 40 per cent.'<sup>(2)</sup> on the cost price of goods. Russia also operated specific tariffs at a high level, 'the duty comes to about 2s. a yard of 16 oz. The tariffs allow only fine goods to come in.'<sup>(3)</sup>

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(1) Royal Commission of 1886, 3rd Report, Q. 14120. It was reported to The Tariff Commission that many firms in the 'heavy woollen' district 'got their death-blow from the German tariff of 1879.' cf. Report, par. 1513.

(2) Report of The Tariff Commission, par. 1804.

(3) ibid. par. 1501.

In 1879 the Canadian tariff was imposed on all classes of woollens at an approximate specific rate of 30 per cent. of their value. This raised the Canadian tariff, which was formerly a very small revenue duty, to a level approaching the protectiveness of the Morrill Tariff in the United States. There were small duties levied also, at this time, in Australia and South Africa. The imposition of these tariffs was concentrated in the period 1879-82 and the suddenness of their introduction as well as their provisions helps to explain the marked change in the business atmosphere which prevailed in the early 'eighties.

In the United States there was no further modification of the Morrill legislation until 1883, in that year the ad valorem duty on cloths was raised to 40 per. cent. This was further raised to 50 per cent. in the McKinley Tariff of 1891, although the 40 per cent. duty remained for blankets and low woollens. (1) This enhancement of the American tariff was a severe blow to the West Riding. This Tariff became the subject of political controversy within the United States and the election of a Democratic President - Cleveland - in 1892 led to an anti-protectionist reaction against the McKinley duties.

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(1) F.W. Taussig, The Tariff History of the United States,  
(New York, 1914), see pp. 256-72.

The Wilson Tariff came into force in 1894:

... the elaborate duties on woollen manufactures were swept away and replaced by the simple arrangement of ad valorem duties of 50 per cent. on the best goods, 40 per cent. on dress materials, and 25 per cent. on blankets and flannels. (1)

This was a welcome relief to the West Riding, the McKinley Tariff having added on an average 101 per cent. to the cost price of goods. (2) The Report of The Tariff Commission teems with complaints against the prohibitive character of the McKinley Act and there are over a hundred separate references to the impact of the United States' tariff policy of the 'nineties upon the Yorkshire trade.

The introduction of the more favourable Wilson Tariff brought the burden of duty down to an average of a little over 50 per cent. on the bulk of woollen exports to America and this was not regarded as a crushing burden. One Huddersfield manufacturer was of the opinion, in 1904, that:

If the American tariff were ... 50 per cent.,  
I think we could still sell many goods. (3)

(1) Ashley, op. cit., pp. 241-2. The compensatory duties which had accompanied the ad valorem charges in all the tariff regulations after 1861 were now discarded.

(2) Report of The Tariff Commission, par. 1502.

(3) *ibid.* par. 1424.

The Dingley Tariff Act was enacted in the summer of 1897 and constituted a reversion to the high protection of the McKinley Law. Its impact on the West Riding was drastic and immediate:

The blanket trade (in 1897) has experienced secular fluctuations ... starting well in the new year, business kept up till the American revised tariff shut out imports, and as to the remainder of the year ... there has been nothing but dullness, closing with absolutely bad trade. (1)

In this Act:

... the old principle of a combination of specific compensating duties and ad valorem protective duties was again applied, with its great administrative complications and difficulties. (2)

On woollen manufacturers generally the ad valorem rate was increased to 55 per cent. and this, accompanied by the compensating duties levied on a weight basis - varying from 1s.4½d. to 1s.10d. per lb. - effectively raised the height of the tariff to 109 per cent. 'on the cost price' of the West Riding manufactures. (3) A Royal Commission on Depression, sitting in the late 1890s, would have experienced no difficulty in recognising the 'hostile tariffs' of the period.

(1) The Economist, 19 February 1898.

(2) Ashley, op. cit., p. 247.

(3) Report of The Tariff Commission, par. 1502. The ad valorem duties were increased to 40 per cent. on Blankets, but this trade had been destroyed effectively by the Morrill legislation of 1861.



Changes of fashion

Oldroyd told the Royal Commission that:

... during the period from 1880 to 1885 there has also been a distinct change in fashion, which I think has seriously affected us.

When we were developing the art of producing these cheap goods we had a long series of years when simple plain goods, which were readily made without much technical difficulty, were in large demand; and now, just at the point when we were losing those markets ... which in a large measure constituted the outlet for our goods, there came ... a demand for a greater variety of design and a greater variety of fabric ... which called for a larger amount of technical knowledge and care amongst both employers and employed. (1)

He was making these points in support of his claim that the change of fashion was one of the causes of the 'depression', but it seems more correct to regard the change as a result of the marketing difficulties which he had outlined earlier in his evidence. This aspect of the 'depression' is therefore best considered in relation to the changes in home and foreign markets which were the result of the tariff impositions already described.

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(1) Royal Commission of 1886, 3rd Report, Q. 14126 and Q. 14128.

THE IMPACT OF FOREIGN TARIFFS ON THE INDUSTRY.

The Export Trade

The total export of Blankets from the U.K., during the period, is shown in Table 18, in value terms, and depicted graphically in Figure 8. <sup>(1)</sup> Comparing 1870 with 1900, the total export declined by more than a half in value, whilst the wholesale price level fell by only 28 per cent.. Within the period, the years 1874-5 were years of high demand and the years 1876, 1879-81, 1883-8, 1892-5 and 1897-1900 were periods of 'depression'. The last two years of the thirty years here reviewed were severely depressed and, in general, the 'nineties appear to have been a most difficult decade for the manufacturers in the 'heavy woollen' district. The decline in productive capacity in this period, which is indicated for the woollen industry of the West Riding in Table 16, would seem to have been partly the result of the impact of contracting foreign markets upon this particular branch of the woollen manufacture. Blanket exports to the United States, as we have noted, were reduced to negligible quantities in the late 'sixties, and the McKinley and Dingley Tariffs do not explain the worsening of foreign trade for the Dewsbury-Batley makers in the last

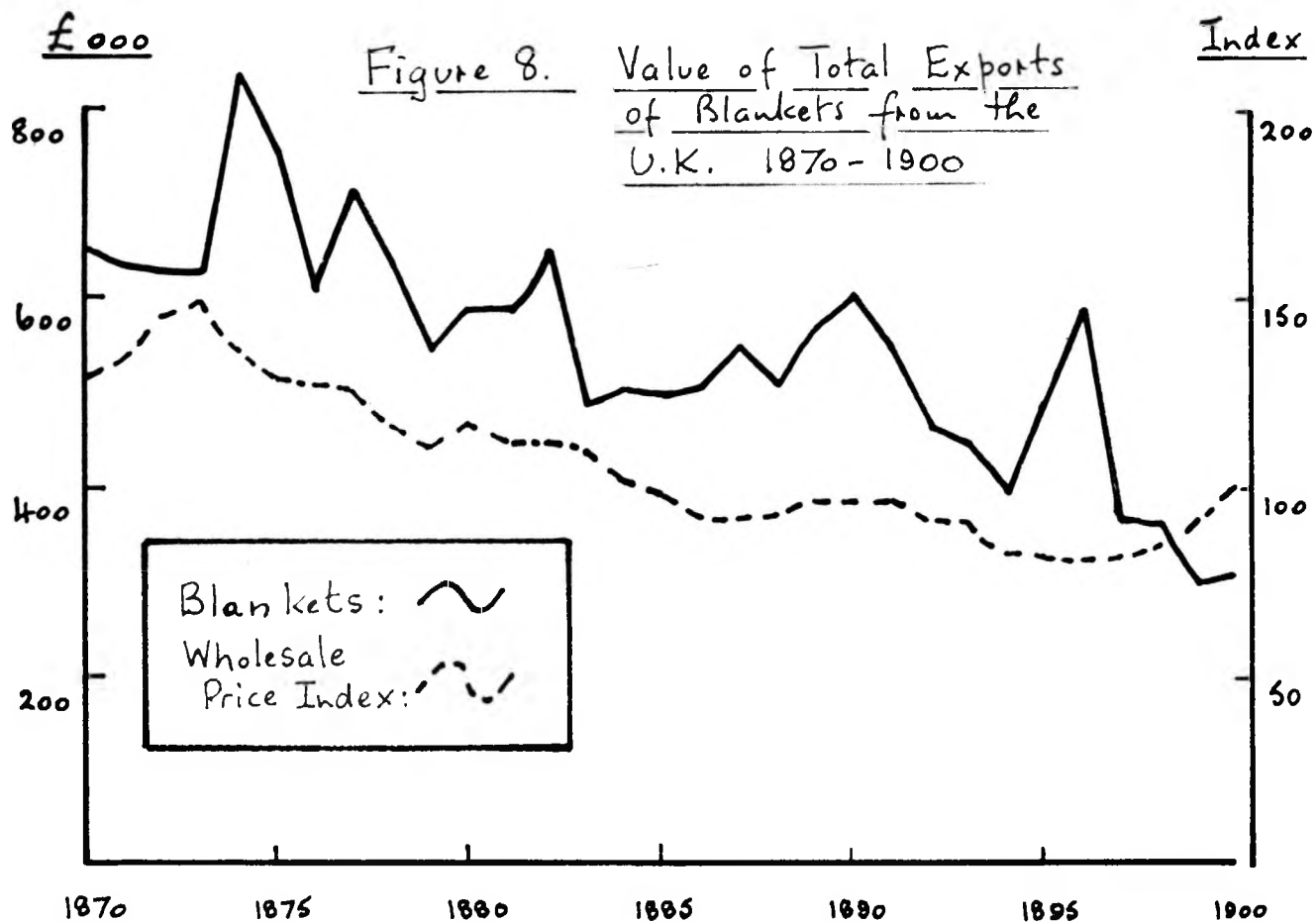
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(1) Changes in the official definition of blanket exports from 'yards' to 'pairs' in 1882, prevent any satisfactory assessment of the changes in the volume of exports over this period.

Table 18. Total Exports of Blankets from  
the U.K., by Value, 1870-1900

<u>Year</u>	<u>Exports of Blankets</u> <u>£</u>	<u>Wholesale Price Index</u> <u>1900 = 100</u>
1870	645,040	128
1871	634,757	133
1872	628,802	145
1873	629,677	148
1874	838,674	136
1875	758,500	128
1876	606,499	127
1877	709,985	125
1878	637,399	116
1879	544,177	110
1880	586,580	117
1881	582,213	113
1882	645,634	112
1883	488,589	109
1884	501,521	101
1885	498,823	96
1886	503,404	92
1887	546,265	91
1888	506,251	93
1889	571,864	96
1890	601,728	96
1891	549,563	96
1892	462,828	91
1893	451,887	91
1894	396,880	84
1895	494,265	83
1896	588,177	81
1897	368,409	83
1898	364,137	85
1899	302,420	91
1900	309,940	100

Source: Trade and Navigation Accounts, see bibliography.  
Layton and Crowther, op. cit., Table II and  
Chart 1.



Source: Trade and Navigation Accounts; Layton and Crowther, An Introduction to the Study of Prices, Chart 1.

decade of the nineteenth century. An amalgam of influences was at work, and it is necessary to examine the direction of exports to ascertain the causes of decline.

Direction of exports

The three principal importers of Blankets from the U.K. for each of the years within this period are shown in Table 19 below.

(1)

Table 19. Principal Importers of Blankets  
from the U.K., 1870-1900

<u>1870</u>	<u>Value</u> £
Australia:	124,370
France:	115,981
British North America:	50,082
 <u>1871</u>	
Germany:	144,080
France:	115,823
Australia:	107,253
 <u>1872</u>	
Australia:	130,704
British North America:	94,391
South Africa:	60,871
 <u>1873</u>	
Australia:	189,981
South Africa:	128,847
British North America:	73,164

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(1) Trade and Navigation Accounts, see bibliography.

	<u>Value</u> £
<u>1874</u>	
Australia:	242,057
South Africa:	100,529
British North America:	93,922

<u>1875</u>	
Australia:	222,336
Brazil:	147,829
South Africa:	74,185

<u>1876</u>	
Australia:	171,005
Brazil:	114,988
South Africa:	67,492

<u>1877</u>	
Australia:	156,889
Brazil:	142,416
Japan:	88,691

<u>1878</u>	
Australia:	171,875
Brazil:	115,438
Peru:	56,934

<u>1879</u>	
Australia:	162,900
Brazil:	111,810
South Africa:	81,162

<u>1880</u>	
Australia:	186,028
South Africa:	92,835
Brazil:	61,474

<u>1881</u>	
Australasia:	164,153
South Africa:	72,900
Brazil:	51,182

	<u>Value</u> £
<u>1882</u>	
Australasia:	236,373
South Africa:	138,549
British North America:	53,504
<u>1883</u>	
Australasia:	189,416
Japan:	55,396
South Africa:	50,903
<u>1884</u>	
Australasia:	169,880
Japan:	55,645
South Africa:	43,745
<u>1885</u>	
Australasia:	176,731
South Africa:	49,797
Japan:	46,774
<u>1886</u>	
Australasia:	171,183
Japan:	78,344
South Africa:	37,619
<u>1887</u>	
Australasia:	120,102
Japan:	117,803
South Africa:	52,008
<u>1888</u>	
Australasia:	148,930
South Africa:	72,695
Japan:	67,741
<u>1889</u>	
Australasia:	200,257
Japan:	110,698
South Africa:	77,064

	<u>Value</u> £
<u>1890</u>	
Australasia:	177,977
South Africa:	115,263
Japan:	95,800
<u>1891</u>	
Australasia:	196,467
South Africa:	81,192
Japan:	44,692
<u>1892</u>	
Australasia:	139,792
Japan:	81,034
South Africa:	70,807
<u>1893</u>	
Japan:	106,258
Australasia:	96,655
South Africa:	67,109
<u>1894</u>	
Australasia:	105,280
Japan:	88,509
South Africa:	67,175
<u>1895</u>	
Japan:	133,390
Australasia:	117,724
South Africa:	61,752
<u>1896</u>	
Japan:	180,475
Australasia:	144,312
South Africa:	72,939
<u>1897</u>	
Australasia:	136,003
Japan:	60,374
South Africa:	53,009



	<u>Value</u> £
<u>1898</u>	
Australasia:	112,957
South Africa:	62,871
Japan:	46,057
<u>1899</u>	
Australasia:	106,798
South Africa:	35,599
Japan:	20,519
<u>1900</u>	
Australasia:	106,956
South Africa:	60,956
Japan:	29,431

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It is evident from this table that the West Riding blanket manufacturers compensated themselves for the loss of their traditional market in the United States in the early 'seventies, by developing the Australian, South African and Canadian markets. The South American market was also cultivated, and Brazil, Peru, and to a lesser extent Argentina and Uruguay, became important consumers of Yorkshire blankets and heavy woollens. The Canadian market was also important in the 'seventies, but the decline of that market following the tariff of 1879 was a rapid one. The following figures illustrate this particularly:

(1)

Exports of Blankets, by Value, to  
British North America

	£
1878	51,959
1879	16,660
1882	53,504
1883	25,996
1890	13,119
1892	12,512

The Australian market was established as the principal outlet for British blankets by the beginning of the period and, apart from three years in the 'nineties, retained its position for the thirty years. The peak export to this country came in the years 1874-5, 1882 and 1889 when the value of goods exported passed the £200,000 mark. In 1881 the Board of Trade included exports to New Zealand with those for Australia and the nomenclature of such exports was changed to Australasia. (2)

France was also a large importer of British blankets in the early 'seventies, but the trade was killed by the specific duties levied in 1878, and by the middle of the 'eighties exports of blankets to that country were so small that no separate enumeration of them was published in the

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(1) Trade and Navigation Accounts.

(2) British exporters faced a 6 per cent. duty in the Australian and a 22½ per cent. duty in the New Zealand market.

Trade and Navigation Accounts. Germany was never an important consumer of heavy woollens from Yorkshire and the striking total of exports recorded for that market in 1871 stems from the abnormal demands generated by the Franco-Prussian War. South Africa and Japan were rising markets in the early 'eighties, and together with the Australasian market they constituted the principal outlets for Yorkshire blanket goods in the 'nineties. Japan was a highly volatile market and, after reaching its peak in 1896 (when a little over 31 per cent of the total export was sent to that country), the trade with this country contracted drastically, the Japanese having learnt how to manufacture such fabrics for themselves and introduced a protective duty to assist them in so doing. Exports to China were never very large, but the consignments to Hong Kong were more substantial and, in 1887, sales to that market reached a total of £49,627. The severe decline in blanket exports at the end of the period was mainly due to the rapid falling away of Japanese demand; the dislocation of the South African market during the Boer War; <sup>(1)</sup> and the

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(1) During the Boer War the West Riding blanket manufacturers received large orders in the form of government contracts which are not reflected in the export statistics. It was reported in 1900 that:

'... the Government placed heavy contracts for sovereign-greys, browns, and whites, particularly the former ...'

The Economist, 16 February 1901.

failure of the Australasian market to recover the strength of demand which it displayed at the beginning of the 'nineties. (1)

### Dyeing and finishing

For the South American, South African, Asiatic and New Zealand markets, the demand was for brightly coloured blankets and the production of these fabrics increased the demand for dyeing and finishing services throughout the heavy woollen industry. (2) Many of the larger firms met this challenge by expanding their own dyeing facilities, but the smaller firms were bound to be dependent upon the commission services provided for them by the specialist dyeing and dressing establishments, and these expanded in size and number, particularly in the 'eighties. In the early 'seventies, when the demand for blankets abroad was buoyant there were reports of:

... a determination on the part of the manufacturers ... to bring down the prices charged for dyeing to what they deem ... more reasonable rates. (3)

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- (1) There was a dangerous kind of dependence on the Australian market, in so far as the Australian capacity to purchase Yorkshire goods was largely conditioned by the sales of raw wool and these were influenced by the level of activity prevailing in the European wool textile industries. With some kind of a time-lag, then, the level of demand in this market for heavy woollens reflected the state of the Yorkshire industry in general.
- (2) The Australian demand was mainly for 'white, domestic blankets'.
- (3) The Economist, 15 March 1873. The tendency for dyers to sustain high prices for their services by means of tacit agreements seems to have been prevalent during the period.

In the period preceding the onset of the 'hostile tariffs', some stimulus was given to the improvement of dyeing and finishing processes, and the increasing competitiveness led some of the larger firms to concentrate their attentions on enhancing the appearance of their productions. For example:

Patent News: John Walker and Thomas Green Beaumont of Dewsbury Mills, Dewsbury, patent for improvements in raising gigs for raising blankets, rugs, flannels and other woven fabrics. (1)

Although progress in the dyeing and finishing of fabrics was made in the West Riding in the 'seventies and 'eighties, particularly in the Huddersfield district where the concentration on fancy cloths necessitated a skilful use of colour and finish, Oldroyd, with reference to his district, conceded to the Royal Commission on Depression, that in comparing Yorkshire dyeing with French and German work:

I must admit that we are behind in our accumulated experience, because attention has been directed to these questions for so short a period in this country. (2)

#### Exports of other woollen cloths

A major change in the Board of Trade's enumeration in 1890 allowed for the disentanglement of woollen as distinct

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(1) Dewsbury Reporter, 11 July 1885.

(2) Royal Commission of 1886, 3rd Report, Q. 14182.

from worsted cloths, and the export of woollen cloths by volume and value for the period 1890-1900 is shown in the table below:

(1)

Exports from the U.K. of woollen  
piece goods, 1890-1900

<u>Year</u>	<u>Millions of</u> <u>yards</u>	<u>Value</u> <u>£mn.</u>
1890	56.4	6.02
1891	55.8	6.04
1892	51.1	7.73
1893	46.5	5.20
1894	40.9	4.57
1895	57.6	6.19
1896	60.2	6.30
1897	52.1	5.38
1898	46.2	4.88
1899	48.9	5.27
1900	50.4	5.91

This table illustrates unambiguously the experience of the Yorkshire industry in the period dominated by the McKinley, Wilson and Dingley Tariffs. (2) Some figures relating to the annual exports of woollen goods from the Consular District of Huddersfield to the United States are also available:

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(1) Trade and Navigation Accounts.

(2) McKinley Tariff - 6 Oct. 1890 to 1 Jan. 1895.  
Wilson Tariff - 1 Jan. 1895 to 24 July 1897.  
Dingley Tariff - 24 July 1897.

<u>Period</u>	<u>Thousands of £s</u>	(1)
1885-9	201	
1890-4	97	
1895-9	150	
1900-4	77	

They tell the same story as the data derived from the Trade and Navigation Accounts for the woollen manufacture as a whole. It was pointed out by the Huddersfield witnesses to The Tariff Commission that the figures in the table above cannot be accepted as a quantitative guide to the size of the Huddersfield export to the United States owing to the fact that:

The woollen goods exported to America from Huddersfield are chiefly Scotch and West of England goods sent there for packing, and though they rank in the Consular returns as Huddersfield exports, they are not goods manufactured in Huddersfield. (2)

The types of woollen cloth exported were affected differently by changes in market demand during the decade, the sales of narrow cloths shrinking throughout the period:

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(1) Report of The Tariff Commission, par. 1540.

(2) *ibid.* Ev. of J.H. Kaye, Huddersfield, par. 1745. All the Huddersfield witnesses laboured this point to the Commission.

(1)

Exports of Broad and Narrow Woollen Piece Goods  
From the U.K., 1890-1900

(in millions of yards)

<u>Year</u>	<u>Broad</u>	<u>Narrow</u>	<u>Total</u>
1890	39.30	17.17	56.47
1891	40.48	15.40	55.88
1892	39.42	11.76	51.18
1893	36.74	9.87	45.61
1894	33.09	7.82	40.91
1895	48.45	9.20	57.65
1896	49.43	10.74	60.17
1897	42.21	9.90	52.11
1898	36.70	9.59	46.29
1899	39.63	9.30	48.93
1900	42.16	8.33	50.49

This decline in the overseas trade in narrow cloths was particularly felt in the Huddersfield district and it not only stimulated the manufacturers of that region to convert some of their production to worsted fabrics, but also led to the replacement of narrow looms by broader machines.

Importations

The available information bearing upon the importation of woollen manufactures into this country during the period is very sparse. Volume figures are not available before 1882; woollen are not differentiated from worsteds; and there is no official record of specific types of fabrics imported.

(1) Trade and Navigation Accounts.



The table below indicates the total imports of woollen manufactures into the U.K., by value:  
(1)

<u>Year</u>	<u>£ mn.</u>
1871	4.6
1873	3.8
1875	4.2
1877	5.2
1879	5.6
1881	5.8
1883	6.2
1885	7.2
1887	7.6
1889	9.6
1891	9.5
1893	10.1
1895	10.9
1897	9.9
1899	8.8

The data in this table support the general complaints which were made throughout the period on the theme of increasing Continental competition in the home market. France was the chief exporter of cloths to this country and Holland became an important supplier of fabrics in the 'eighties. Imports from Germany were more significant after 1894 and there were loud protests made to The Tariff Commission on the subject of the 'dumping' of German mantle cloths in the London market. (2) Such imports do not seem to have been very large, however, and

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(1) Trade and Navigation Accounts. These figures include 'Cloths' and 'Stuffs' and 'Unenumerated', but exclude 'all Other Kinds'.

(2) Report of The Tariff Commission, esp. the ev. of Albrecht, par., 1665.

the objections voiced in 1904 were more indicative of the sensitivity of Yorkshire manufacturers to the tightness of the market rather than to the size of the German penetration. The blanket trade was complaining at the same time of blanket imports into this country, mainly from Italy - cheap, (1) travelling rugs - and Germany, and also from Australia.

### The Home Market

The Batley Chamber of Commerce reported to the Royal Commission on Depression that:

... the foreign markets take three fifths and the home market two fifths of the production of manufactured goods. (2)

From Dewsbury the reply was that:

About one third of (heavy woollen cloths and blankets) are manufactured for the home trade and the remaining two thirds for the foreign trade. (3)

No attempt was made, either by the Royal Commission or the unofficial Tariff Commission, to make a careful assessment of the relative size of the home market compared with the overseas trade, but it seems to have represented one-third to a half of the total market facing the industry.

(1) *ibid.* par. 1366.

(2) Royal Commission of 1886, First Report, p. 73.

(3) *ibid.* p. 79.

The general impression gleaned from the observations made by witnesses before The Tariff Commission, is that the home market was tending to enlarge during the period. Three main influences were at work. The rising real wages of these years stimulated the secular demand for clothing; the increased competitiveness in the market engendered a concentration of energy on methods of persuading the consumer to acquire new fabrics; and, as one Halifax manufacturer pointed out:

During the '90s, there was probably an increase of the home trade requirements. I attribute this to the excessive borrowings of the municipalities. (1)

Oldroyd was reluctant to agree that rising real wages were tending to increase the size of the home market, although he conceded that 'from the point of view of the cheapness of the necessaries of life'<sup>(2)</sup> such a development would seem likely.

There are many references in the Report of The Tariff Commission to the activities of manufacturers, especially the Huddersfield makers, in developing new fashions in cloths and novelty fabrics which were produced for 'the season' in order to titillate the consumer's fancy. One of the by-products of this concentration on fashion goods was that there was a

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(1) Ev. of Howard Clay of Halifax to The Tariff Commission, par. 1706.

(2) The Royal Commission of 1886, Third Report, Q. 14224.

reluctance to make for stock or to carry stocks of goods, and business became more 'retail in its character', it was 'less speculative and more cautiously conducted.' (1) It seems unlikely that this concentration on the consumer did not lead to an enhancement of trade.

### New fabrics

It was noted of the Dewsbury-Batley area in 1901 that:

The manufacture of heavy cloths, such as pilots and beavers, which gives this area the name of the heavy woollen district, has long ago ceased to be anything like a leading industry, and in its place fabrics are produced like those of Huddersfield and, to a lesser extent, the South of Scotland, where tweeds form the staple. (2)

The Huddersfield and Colne Valley manufacturers began to develop their tweed manufacture in the late 'seventies. Drawing upon their accumulated experience in the fancy cloth manufacture, they imparted to the basic Scottish

(1) *ibid.* W. 14162 and Q. 14160.

(2) The Economist, 16 February 1901. Batley had acquired a high reputation in the late 'seventies for certain kinds of pilots, beavers and coatings, especially the firm of Stubley and Company. cf. Willans, Batley, Past and Present, p. 15.

(1)  
fabric a wide variety of novelty colourings, designs and finishes and by the end of the nineteenth century:

A tweed is now being used for an overcoating, for a suit, for a pair of trousers, for a lady's costume, for ladies' mantles and for caps. You hardly see a man in worsted ... everybody you see is in a tweed ... (2)

We have noted in chapter II the propensity of the shoddy trade to imitate and produce cheaper versions of cloths made in other parts of the West Riding, and this tendency was accentuated by the trading conditions which existed after 1878. But the imitations had to be renewed each time the basic tweed fashion was changed and, as the Huddersfield makers were constantly introducing new designs in order to keep the home

(1) Scottish tweeds, or 'tweels' as they were first named, were made in various parts of Scotland, but chiefly in the Border towns of Galashiels, Selkirk, Peebles and Innerleithen. In the eighteenth century, the Border products were mainly coarse kersey cloths, usually undyed, but in the 1820s dyed and check patterned fabrics were developed. In the late 1840s, Colonial merino wools were introduced into the manufacture and light-weight tweeds were then made in addition to the heavier fabrics. In 1860s, new check patterns were featured by the Scottish producers and during the following twenty years these patterns became the basis of colourful and attractively designed cloths which became fashionable and popular with the consumer. The fashion stimulated by the tweed makers became irresistible for the Huddersfield fancy cloth manufacturers and Yorkshire 'tweeds' were developed in response to consumer demand. cf. Jean S. Pattison, 'The Tweed Section of the Scottish Woollen Industry', in H.A. Silverman, Studies in Industrial Organisation, (1946), esp. pp. 111-14.

(2) Report of The Tariff Commission, par. 1669.

market active for their products, the Dewsbury-Batley makers were kept on their toes. Oldroyd had this in mind when he said that:

... business is now more difficult to do and to manage on account of the changes in fashion ... we have to make a quicker response in the matter of taste and demand for style ... (1)

The old staple pilots and beavers, like the high quality broadcloth of the Leeds industry, were no longer demanded, except in the government trade and the heavy woollen makers had to adapt themselves to a 'lighter woollen' trade and watch the market from day to day, or at any rate from season to season.

The Huddersfield manufacturers also invaded the worsted industry in their endeavours to compensate for the loss of the export trade in narrow woollen cloths. This development was first noted about 1875 (2) and the fine worsted trade was gradually built up so that it was an alternative to the woollen manufacture of the first importance in the 'eighties:

Some years ago Huddersfield might safely have laid claim to rank, next to Leeds, as the principal seat in Yorkshire for the manufacture of fine broad cloths, whilst for doeskins it undoubtedly took the lead. But comparatively little of these kinds of cloth are now produced or required, worsted cloths having very largely

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(1) Royal Commission of 1886, 3rd Report, Q. 14158.

(2) cf. Crump and Ghorbal, op. cit., p. 124. John Brooke and Company seem to have been the pioneers.

taken their place ... Serges both fine and coarse, form a considerable part of the productions of the district, as well as cotton spinning, ... shawl manufactures, tweeds, and other fancy trouserings in great variety. (1)

Some slight experiment with worsted manufacture also occurred in the 'heavy woollen' district. Imitation sealskins which made use of worsted yarn, although not the finest mohair which was used in the production of the genuine seal-skin fabric, were being made in the 'seventies, and in 1879 it was observed that:

Of profitable business (in the Dewsbury district) there has not been much done, except by makers of specialities such as certain new styles of 'seals', the manufacture of which in the Dewsbury district has attained great perfection. (2)

Lustre cloths, of a cheaper quality than that produced by the Bradford trade, were also produced in quantity in this region. These were made with a cotton warp and their successful production required careful attention to dyeing and finish. The manufacture of these new fabrics involved the trade in much experimentation and adaptation of machinery and

- (1) C.P. Hobkirk and F. Curzon, Huddersfield: a short description of the Town, (Huddersfield, 1883), p. 6. The worsted manufacture was almost wholly centred in Huddersfield itself, whilst the Colne Valley trade was largely based on the production of fancy tweeds from wool-dyed yarn.
- (2) The Economist, 13 March 1880. cf. Willans, Recollections of Dewsbury, pp. 27-30.

processes, apart from the investment in new equipment, and it is not surprising that there were repeated assertions, at this time, of the need for improvement in technical education. (1)

(2)  
Changes in the structure of the industry

The growth of the factory-organised woollen cloth industry in the West Riding in the early 'seventies was rapid. The Factory Returns indicate, between 1867 and 1874, an increase of slightly more than ten per cent. in the number of factories, accompanied by an increase of 22 per cent. in the size of the factory labour force. There was a very pronounced increase in the number of 'Spinning and Weaving' establishments during the period, and a corresponding decline in the number of 'Spinning only' factories. The number of 'Weaving only' factories remained the same at 35. The total number of spinning spindles in use in these factories increased by 37 per cent., whilst the number of power looms was enlarged by nearly 50 per cent.. There was a decline in the number of Shoddy factories from 81 to 62 between the two dates, but shoddy manufacture was also undertaken by firms engaged in the conventional woollen cloth trade and these figures cannot be

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(1) Oldroyd made such a plea to the Royal Commission of 1886, 3rd Report, Q. 14176.

(2) It must be remembered that the domestic production of woollen cloth in the West Riding was a significant, but rapidly declining, sector of the industry in the period 1870-1900. See above, p. 214 .



accepted as evidence of a decline in shoddy production. Between 1874 and 1878, when the industry was experiencing market difficulties accompanying the onset of a falling general price level, there was a slight fall in the total number of factories, but the number of spindles in use increased by nearly 5 per cent; the number of power looms by 19 per cent; and the factory labour force by nearly 9 per cent. The dominance of the 'Spinning and Weaving' type of factory within the industry was further asserted during these four years.

In the period 1878 to 1884, although the number of factories increased from 943 to 1,008, there was a fall of 12 per cent. in the total number of spindles employed; this was accompanied by a slight fall in the total number of power looms and of persons employed in the factory industry. The increase in the number of factories during these years is to be explained by the growth in the number of 'Unenumerated' establishments, from 139 to 244, and reflects the enlargement of dyeing and dressing facilities in the industry which was taking place in this period. There was a significant increase in the size of the average establishment engaged in shoddy manufacture between these two dates, and a noticeable trend

towards the integration of spinning and weaving by shoddy manufacturers. In 1878, women employees, for the first time in the factory industry, constituted a larger proportion of the total labour force than the men, and this disposition was maintained in 1884.

<u>Year</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
1874	40,402	36,434	76,836
1878	40,677	43,206	83,883
1884	41,276	42,335	83,611

Between these two dates, the 'Spinning only' mills were sharply contracted in total, from 160 to 112, and the trading difficulties of the early 'eighties adversely affected these specialised enterprises. Some of them were converted into spinning and weaving firms; a few of them were terminated completely; whilst the rest continued in their specialist function, or added dyeing and dressing operations to their yarn production; in which case they were classified as 'Unenumerated' in the Factory Returns.

Between 1884 and 1889, there was a slight increase in the total number of spindles and looms in use in the industry, and the factory labour force increased by 11 per cent.. The number of factories fell from 1,008 to 945, the change mainly occurring in the 'Spinning and Weaving' mills. In view of the increase in machinery and in the labour employed, it is evident that there was some enlargement of the average size

of the fully integrated mill during these years. Comparing the returns for 1889 and 1903, it is clear that the West Riding woollen industry reached its maturity as a factory-organised trade some time in the early 'nineties. Between these two dates, the number of factories fell from 945 to 725, whilst the number of spindles in use decreased by 15 per cent., and the number of power looms diminished by 16 per cent.. The 'Spinning and Weaving' establishment remained the typical producing unit in the industry and there was a further enhancement in the average size of factory during these years. At the same time, there was a marked reduction in the number of 'Unenumerated' mills, partly due to a more accurate definition of the factories in the return, but mainly the result of the absorption of dyeing and dressing establishments into full integrated mills. Success for the woollen cloth manufacturer was very much a function of the careful selection, sorting and blending of wool, and the skilful use of yarns in the weaving of different types of fabric. This was particularly true in times of market stringency, and the dominance of the fully integrated woollen mill in the West Riding was asserted in the 'seventies and maintained in the 'eighties and 'nineties. At the same time there was the development of the specialist dyeing and finishing concerns to meet the particular demands of manufacturers which were not always conveniently or economically organised

within the integrated mill.

The 'Great Depression' thus influenced the structure of the Yorkshire woollen industry in the short-run and over the long period. The marketing difficulties encountered by West Riding manufacturers, particularly in the 'eighties and in the 'nineties, strengthened the fully integrated mill as the form of enterprise best suited to the conditions of the trade. Furthermore, the competitiveness of the period, and the greater emphasis upon fashion and novelty in cloth production stimulated the development of specialist dyeing and dressing firms working on commission to the trade. These two forms of productive organisation continued to be the typical 'trees of the forest', to use Marshall's phrase, in this industry after the end of the nineteenth century.

The Structure of the Yorkshire Woollen Industry.

Type of Factory 1	No. of Factories 2	% of Total 3	Spinning Spindles 4	% of Total 5	Power Looms 6	% of Total 7	Persons Employed 8	% of Total 9
<u>1849</u>								
Spinning	532	51.3	629,838	60.7	-	-	20,153	49.6
Weaving	9	10.3	-	-	245	6.4	333	.9
Spinning and Weaving	180	20.4	295,611	39.3	3,604	93.6	14,002	34.5
Unenumerated	159	18.0	-	-	-	-	6,123	15.0
Total	880		925,449		3,849		40,611	
<u>1856</u>								
Spinning	482	59.8	590,046	59.4	-	-	16,829	39.1
Weaving	8	1.0	-	-	185	3.0	318	.9
Spinning and Weaving	165	20.4	402,851	40.6	6,090	97.0	18,766	43.6
Unenumerated	151	18.8	-	-	-	-	7,069	16.4
Total	806		992,897		6,275		42,982	
<u>1861</u>								
Spinning	422	45.6	633,933	49.0	-	-	13,471	30.4
Weaving	28	3.1	-	-	682	5.9	1,079	2.5
Spinning and Weaving	275	29.7	662,257	51.0	10,723	94.1	27,946	63.1
Unenumerated	75	8.1	-	-	-	-	1,791	4.0
Finishing and Dressing	124	13.5	-	-	-	-	(	(
Total	924		1,296,190		11,405		44,287	

1	2	3	4	5	6	7	8	9
<u>1867</u>								
Spinning	263	29.3	588,671	42.0	-	-	11,371	18.2
Weaving	35	4.0	-	-	1,947	9.4	2,018	3.2
Spinning and Weaving	382	42.5	754,019	54.0	18,081	87.3	40,217	64.6
Unenumerated	123	13.6	53,271	4.0	685	3.3	4,421	7.1
Finishing and Dressing	96	10.6	-	-	-	-	4,237	6.9
Total	899		1,395,961		20,713		62,264	
<u>1874</u>								
Spinning	199	20.0	428,169	22.4	-	-	7,207	9.3
Weaving	35	3.3	-	-	1,291	4.2	1,367	1.7
Spinning and Weaving	567	56.8	1,483,492	77.6	29,626	95.8	60,656	79.1
Unenumerated	197	19.9	-	-	-	-	7,606	9.9
Total	998		1,911,661		30,917		76,836	
<u>1878</u>								
Spinning	160	17.0	359,004	18.0	-	-	7,383	8.8
Weaving	56	6.0	-	-	2,125	5.8	3,020	4.2
Spinning and Weaving	588	62.3	1,634,697	82.0	34,596	94.2	67,920	80.9
Unenumerated	139	14.7	-	-	-	-	5,560	6.1
Total	943		1,993,701		36,721		83,883	
<u>1884</u>								
Spinning	112	11.0	256,413	14.6	-	-	4,865	5.8
Weaving	58	5.9	-	-	2,147	5.9	2,920	3.6
Spinning and Weaving	594	58.9	1,501,792	85.4	34,249	94.1	66,022	78.9
Unenumerated	244	24.2	-	-	-	-	9,804	11.7
Total	1,008		1,758,205		36,396		83,611	

1	2	3	4	5	6	7	8	9
<u>1889</u>								
Spinning	111	11.7	257,768	14.2	-	-	8,977	9.6
Weaving	55	6.0	-	-	2,172	5.7	3,134	3.5
Spinning and Weaving	547	57.8	1,557,987	85.8	35,454	94.3	71,183	76.5
Unenumerated	232	24.5	-	-	-	-	9,677	10.4
Total	945		1,815,755		37,626		92,971	
<u>1903</u>								
Spinning	94	12.9	241,181	15.7	-	-		
Weaving	77	10.7	-	-	2,410	7.7		
Spinning and Weaving	398	54.9	1,215,890	78.9	27,587	87.8		
Unenumerated	156	21.5	73,818	5.4	1,432	4.5		
Total	725		1,530,889		31,429			

Source: Returns of the Number of Factories ... in the U.K., 1850 (10) xlii; 1857 (7) xiv; 1862 (23) lv; 1867-8 (453) lxiv; 1875 (393) lxxi; 1878-9 (406) lxxv; 1884-5 (340) lxxi; 1890 (328) lxxvii; 1904 (293) lxxxvii.

- Notes:
- (1) Shoddy Factories are included from 1867 onward, they are classified as Unenumerated in 1867 and in 1903.
  - (2) Finishing and Dressing Factories are only shown separately for 1861 and 1867.
  - (3) There are no statistics of persons employed in the industry in the Returns for 1903.
  - (4) The table does not include any figures relating to the persons and equipment employed in the industry outside of the factory system. The domestic producers were dwindling in importance in the 1880s and were negligible, but not completely extinct, by 1903.

### Changes in productive equipment

In the 'seventies and 'eighties the improvement of the technical equipment of the West Riding woollen industry was a feature of the industry's development. It was noted in 1877 that:

For many years past, immense efforts have been made to bring the machinery used in the manufacture of wool to all possible perfection, and in this respect England and Belgium have been pre-eminent and in these countries large machines are now turned out with a nicety and precision scarcely surpassed by the watchmaker. (1)

The same writer also noted that:

... mules with two hundred spindles are common, the work of one of these machines equals that of two thousand hand-spinners. (2)

The self-acting mule was now generally in use and during the period it was improving in efficiency, and spindle speeds were accelerated. Improvements in carding machinery were also forthcoming. It was stated in 1890 that there were two systems of carding in operation in the industry:

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(1) Prof. Archer, "Wool and its applications", in G.P. Bevan, British Manufacturing Industries, (1877), p. 39.

(2) *ibid.* p. 40.



In the one most generally adopted in the woollen textile centres of Great Britain a complete set of carding machines consists of scribbler (containing breast cylinder and two swifts), intermediate (containing two swifts), and carder (containing two swifts and condenser). The intermediate is not always employed. In the second system, which is almost universally adopted in America, and in recent years used to a limited extent by English manufacturers, there is the same set of three machines ... but in this case each engine has only one swift or large cylinder ... and hence does not occupy so much floor space as the former set.

It may be said of the two-swifted system that it is applicable to all classes of materials, both for fine and coarse work, whereas the one-cylinder principle has, thus far, in this country, been mainly confined to wools intended for medium and fine counts of yarn. (1)

The need to economise on floor space was partly the result of difficulties encountered by many manufacturers in mill buildings which were difficult to adapt to house enlargements of capacity, and partly due to the tendency to increase the width of carding machines during these years. It was observed in 1928 that:

There were probably 25 per cent. more threads on the ... carding machine of 1918 than there were on the ... carding machines of 1870. (2)

Some of this progress in the efficiency of the carding engine was recorded during the period here reviewed.

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(1) R. Beaumont, Woollen and Worsted Cloth Manufacture, (1890), p. 53.

(2) Report of the Committee on Industry and Trade, 1928 (C. 3282) vii, Survey of Textile Industries, Pt. III, p. 274.

## Weaving

A major contribution to the power weaving 'revolution' in the West Riding came from the United States in the form of the Knowles loom, which was patented in that country in 1863. This loom was designed as a direct response to the major difficulty of applying power weaving to the woollen yarn and its success in relieving the strain on what is one of the weakest of all textile yarns quickly confirmed its superiority over the older 'Crompton type' looms. The Crompton loom was based upon the 'closed shed' principle which necessitated the raising of all the warp threads, and their subsequent depression, with each 'pick' of the shuttle. The 'shed' was then closed again before the cycle of operations was repeated. This method placed a great strain on the warp strands, was prodigal of power, and retarded the speed of the 'picking' motion. Knowles perfected his 'open shed' loom in order to reduce these disadvantages and, combining the new 'shedding' motion with an improved drop box innovation which he had earlier introduced, in 1857, he succeeded in producing an ingenious and efficient loom especially adapted to the woollen manufacture. In the 'open shed' system the raising

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(1) cf. Cole, op. cit., vol. i, p. 364. The drop box mechanism consisted of several shuttle boxes placed at one or both ends of the loom which were mechanically moved as required to enable different coloured wefts to be introduced into the weaving of the fabric.

and depressing of the warp threads was minimised and the 'picking' movement accelerated. In terms of speed of weaving, therefore, the new loom was without question a superior instrument to the hand loom.

The Knowles loom was patented in this country by Messrs. Hutchinson and Hollingworth of Dobcross, near Oldham in Lancashire, and their 'positive open shed dobbie' or Dobcross loom, was introduced to the woollen industry of the West Riding in the early 'seventies.<sup>(1)</sup> The firm of Hattersley and Company of Keighley had patented an improved loom for use in the woollen industry - the Keighley Dobbie loom - in 1867, but this was now superseded by the Dobcross loom and Hattersley introduced a new loom, the 'Hattersley positive dobbie', in 1876:

Messrs. Hattersley have made their dobbie positive ... by using over and under connections essentially similar to those of the Knowles dobbie. (2)

In the 'eighties and the 'nineties, these two types of loom - the Dobcross and the Hattersley positive dobbie - were extensively introduced into the West Riding industry, and improvements<sup>(3)</sup> in 'picking' speed and quality of weaving were notable. In

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(1) cf. W. Wilkinson, 'Power Loom Development', Supp. to Journal of the Textile Institute, (1927), pp. 122-48.

(2) T.W. Fox, The Mechanism of Weaving, (1894), p. 129.

(3) There was a major strike of weavers at Huddersfield in 1883 over the question of one or two looms per weaver. As a result, much of the Huddersfield worsted manufacture was lost permanently to Bradford.

1890:

... there are looms of every description - quick and slow running, heavy and light in build, varying in speed from 54 to 300 picks per minute. The most improved loom for weaving fancy woollen and worsted cloths of a medium thickness, although the shuttle travels for every pick about 90 inches, runs at the rate, on an average, of 84 to 90 shoots per minute. (1)

The Committee on Industry and Trade, in 1928, commenting on the changes in equipment in the woollen industry in the late nineteenth century, stressed that:

... since 1878 ... the great reduction has been in the narrow looms, particularly those which before and up to 1904 were devoted to the production of dress goods ... in 1878 a loom running at the rate of 50 picks per minute was the standard type, the 100-pick loom is now the characteristic loom of the Yorkshire tweed trade. (2)

In 1904, the total number of looms in use in the woollen industry of this country was 104,514 and the width of these looms was as follows:

Mainly over 60 inches reed space:	72,215
Forty to sixty inches reed space:	22,843
Up to forty inches reed space:	<u>9,456</u>
	104,514 (3)

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(1) R. Beaumont, op. cit., p. 201.

(2) Survey of Textile Industries, Pt. III, p. 167.

(3) *ibid.* p. 274. In 1894, Northrop in the United States, developed a new loom equipped with an automatic 'cop changer' and this mechanism was being introduced into the British industry in the early 1900s. cf. Fox, op. cit., p. 520.

The decline in the use of narrow looms was a direct response to the contraction of markets resulting from the 'hostile tariffs', whilst the introduction of broader, open-shed, faster-running looms was stimulated by the competitiveness of the period and the consequent efforts made to decrease manufacturing costs. A Trowbridge woollen manufacturer told The Tariff Commission that he had benefitted by using 'the Knowles loom' and:

The reason that some of the mills have been closed in our district has been, to a certain extent, that they have not been up-to-date. They have not gone in for these fast looms, or any other improvements in machinery ... (1)

The 'Great Depression' clearly had a most beneficial effect upon the technical efficiency of the woollen industry, and the evidence reviewed here adds strength to the contention that the decline in the number of spindles and looms in use in the West Riding woollen industry, between 1889 and 1904, cannot be taken as a clear indication of a reduction in the productive capacity of the industry.

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(1) Report of The Tariff Commission, ev. of James Mackay, Trowbridge, par. 1813.

'Measures to improve the existing condition of trade'

The Royal Commission on Depression was concerned to discover from manufacturers the kinds of remedies, if any, which might be found to relieve the troubles - mainly low profits and market tightness - of which industrialists were so vociferously complaining. The Batley Chamber of Commerce held to the opinion that the existing condition of trade might be improved by the:

Opening of new markets for manufacturers, commercial treaties with other nations, and cultivation of friendly relations and negotiations of commercial treaties for the development of trade with foreign nations, and especially with our own colonies. (1)

This general and unsophisticated 'remedy' was also supported by the statement that there should be:

Further restrictions upon the drink traffic and reform of the land laws similar to the measures passed for Ireland. (2)

This latter remark suggests that the Chamber held to the view that there was some maldistribution of consumers' expenditure which lay at the root of their difficulties. (3) The Dewsbury

(1) Royal Commission of 1886, 1st Report, p. 75.

(2) *ibid.*

(3) It also reflected the influence of the Temperance Movement which was growing during the period.

Chamber of Commerce reiterated the pious hopes of taking 'steps to re-open the foreign markets ... and to create new markets wherever possible, and also to cultivate closer commercial relations with our colonies.' (1)

The Leeds Chamber was much more pessimistic in its reply and it was:

Not able to suggest any measure, either by legislation or otherwise, which would conduce to the improvement of trade. (2)

The Chamber believed that the British Government consuls and commercial officers abroad were not sufficiently versed in trading and technical knowledge, and that consequently their skill in 'commercial negotiations' was impaired contrasted with the ability displayed by their foreign rivals.

Finally, the Leeds Chamber made the point that:

It also considers that the promotion and encouragement of technical schools would tend to the prosperity of this country. (3)

It is very striking that, in response to all the dislocations and economic hazards of which businessmen were grumbling during this period, there were so few constructive

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(1) *ibid.* p. 79.

(2) *ibid.* p. 91.

(3) *ibid.*

and carefully reasoned statements placed before the Royal Commission. Most of the 'analyses' made and put forward by industrialists in this and other industries stressed the three points already made above: the revival of foreign markets; the establishment of closed trading links with 'our own colonies'; and the furtherance of technical education. (1)

The first two of these points also found expression in the Imperialism of the period, and in the activities of the Fair Trade League. (2) Both of these were to influence British trading policy and tariff legislation, but the time was not yet. The Canadian tariff regulations, however, were amended in 1901 to permit a 33 per cent. preference to the British exporters of woollens and, at about the same time, a 2½ per cent. preference was granted by the South African authorities. Many of the manufacturers giving evidence to The Tariff Commission spoke encouragingly of the benefits derived from the Canadian concession, and argued that in

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- (1) The Royal Commission on Depression investigated the trading relations with 'British Possessions' and found that exports to those areas had remained a remarkably constant proportion of total British exports during the period 1854-84.
- (2) The Fair Trade League was founded during the years 1879-81. cf. T.H. Farrer, Free Trade versus Fair Trade, (1886), 3rd Edition.



'fairness' we should use moderate tariffs as a means of retaliation against the foreigner in order to force a return to free trade. In the Final Report of the Royal Commission on Depression it was stated, however, that it might not prove possible to 'alter the protectionist policy of other nations', and the Minority Report presented the definitive version of the proposals of the Fair Trade League as a 10-15 per cent. tariff on all foreign manufactures and certain kinds of foodstuffs, with a freedom from such impositions extended to the Colonies. (1)

The plea for improve technical education, although it became more vocal during the 'Great Depression', has a longer history. A writer in the Leeds Mercury in 1851 had asked the question:

Why may we not have professorships of manufacture as well as of many other things ... (2)

Another writer in 1855 held the view that:

There can be no longer any doubt that on many points our manufacturers require the stimulus of competition ... what we seem most especially to require is an increase in the intelligence of the multitude ... the slightest portion of economical knowledge must long ago have convinced

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(1) Royal Commission of 1886, Final Report, (C.4893) xxiii, pp. lxxv et seq.

(2) 'S.J.' in the Leeds Mercury, 18 October 1851.

every inquirer that intelligence and skill, informing industry, are the means of creating wealth. (1)

The years of better trade in the later 'fifties and in the 'sixties seem to have dulled this demand, but the onset of the slack trade in the 'seventies revived it, and it then became part of the standard 'solution' proposed by many businessmen as the answer to, their difficulties. Even if this demand had been immediately accepted and implemented in the form of a vigorous national education policy, it could only have had a very gradual and long-run effect upon the trading performance of the average enterprise.

But not all entrepreneurs placed their faith in education. One Yorkshire manufacturer told The Tariff Commission that:

There are some people in Yorkshire who are very fond of telling us that what we want is superior technical education, and the production of better fabrics, who are themselves notorious for turning out the very lowest class of stuff you can possibly produce. (2)

And yet another witness bluntly said:

All this talk about technical education is downright nonsense in the face of prohibitive tariffs. (3)

(1) The Economist, 18 December 1855.

(2) Report of The Tariff Commission, par. 1619.

(3) *ibid.* par. 2155.

There was great force in this latter point of view, but the demand for more education and research into improving techniques had its practical effects. One of these was the provision of £10,000 in 1874 by the Clothworkers' Company 'for the provision of a building to house a Department of Textile Industries' in Leeds. <sup>(1)</sup> This Department was to play a large part in the diffusion of new skills and processes throughout the West Riding woollen industry in a later period of the industry's development.

Another response to the tariff problem made by some manufacturers was the movement of capital and knowledge, and to a limited extent skilled labour, behind the tariff walls of various countries. The Tariff Commission received reports of such movements, by Yorkshire entrepreneurs, to France, Germany, Russia and the United States. <sup>(2)</sup>

### Conclusion

The experience of the West Riding woollen industry during the 'Great Depression' conforms substantially with the experience of the British economy in general, as indicated in the writings of Clapham, Beales and Rostow. Falling prices,

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(1) T. Girtin, The Golden Ram: A narrative history of the Clothworkers' Company, (1958), pp. 236-7.

(2) Report of The Tariff Commission, passim

decreasing rate of profitability on invested capital, enlargement of capacity and improvements in the quality of productive equipment, intensification of competition and diversion of output from foreign to home markets were all fully evident during the period. The completion of the transition from a domestic to a factory-organised industry was accelerated by the impact of falling profits and increased competitiveness, and the fully integrated woollen mill was confirmed in its status as the most efficient form of productive unit in the industry. These two developments would certainly have occurred irrespective of the influence of slack trade, but the 'Great Depression' probably sharpened the movement. In view of the long continued dominance of Yorkshire woollens in overseas markets, it was almost inevitable that foreign manufacturers would eventually succeed in persuading their respective governments to resort to tariffs, and increased foreign competition cannot have been entirely unexpected in Yorkshire once the general level of world prices of commodities began to fall in the early 'seventies. The impact of tariffs, however, had an unanticipated effect upon the 'heavy woollen' manufacturers of the West Riding, in so far as the use of the fiscal device of specific duties by foreign governments had a particularly

penalising effect upon the cheap products of the Dewsbury-Batley district. We have noted that manufacturers responded to this imposition by moving into lighter fabric and, to some extent, better quality production, and the 'Great Depression' thus jolted some West Riding manufacturers out of that excessive concentration on cheapness of product - a principle upon which much of the industry's past success had been erected, but which was to prove no longer to be a complete or adequate guide to profitable action.

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In the first three chapters of this study, we have examined the development of the woollen cloth industry of the West Riding of Yorkshire during the period 1780-1900. In the following nine chapters, the activities of a 'representative firm' within that industry are described and analysed. It will be noted that the changing fortunes of this enterprise over the period, influenced as well as reflected the general experience of the industry, and that although the firm's mode of operations conformed substantially to the general pattern it was also untypical in some respects, particularly in the field of finance.

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CHAPTER IV

DEWSBURY MILLS.

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The firm of Wormalds and Walker, Ltd., blanket manufacturers, of Dewsbury Mills, has developed mainly on a site which has had a long association with the woollen industry of the Calder valley. It is necessary, in discussing its foundation and establishment, to consider briefly the early history of Dewsbury and the beginning of cloth-fulling activities in this region. (1)

The land of Dewsbury itself was only a small part of the large parish of Dewsbury created in Saxon times, (2) but early in the twelfth century this large parish was divided into four smaller but distinct parishes, each of which was provided with a rectory manor to ensure the upkeep of the church and the maintenance of the rector. Dewsbury township developed from such a rectory manor

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- (1) Dewsbury has never attracted more than a cursory interest from historians and of the small number of written accounts which have been published the chief sources are J.B. Greenwood's The Early Ecclesiastical History of Dewsbury, a collection of lectures published in 1859; and S.J. Chadwick's Dewsbury Parish Church and its Endowments, a printed lecture which appeared in 1866.
- (2) The movement of itinerant preachers within this large parish had an important influence upon the development of early tracks and highways in the Calder valley. cf. W.B. Crump, Huddersfield Highways down the Ages, (Huddersfield, 1949), esp. pp. 23-6.



and the little which is known of the history of Dewsbury from the twelfth to the eighteenth centuries is derived mainly from the manorial account rolls which have survived and from maps of the district. (1)

In 1348 there is an account of '10s. received from the farm of one fulling mill there let to farm by the year, and of £4 received from the farm of one water mill let to farm in this year'. (2) The water mill was probably the corn mill, later called the town mill, the lord thus making his levy on the grinding of com in the manor in the form of a fixed rent. The reference to the fulling mill indicates the presence of cloth-making in the area and suggests that the fulling of cloths was carried out on a site separate from that occupied by the corn mill. This fulling mill may have been situated on the Calder very near to Thornhill Lees, some 1½ miles south of the manor house, but there is insufficient evidence to prove the point. (3)

(1) cf. T. Taylor, The History of Wakefield, (Wakefield, 1886), for a general discussion bearing on rectory manors and their organisation.

(2) Dewsbury Rectory Manor, account rolls, 1348. These documents are now in the possession of Messrs. Thomas Chadwick and Sons, Ltd., Eastfield Mills, Dewsbury. I should like to acknowledge the kind assistance of Mr. Thomas Chadwick in allowing me to examine these papers. The manorial documents for the period 1603-1870 seem to have disappeared.

(3) Heaton, op. cit., p. 6, notes the existence of a fulling mill at Dewsbury in the late 13th century but offers no information regarding its location. cf. E.M. Carus-Wilson, 'An Industrial Revolution of the Thirteenth Century', Economic History Review, vol. xi (1941), pp. 39-60 for a discussion of the development of early fulling mills.

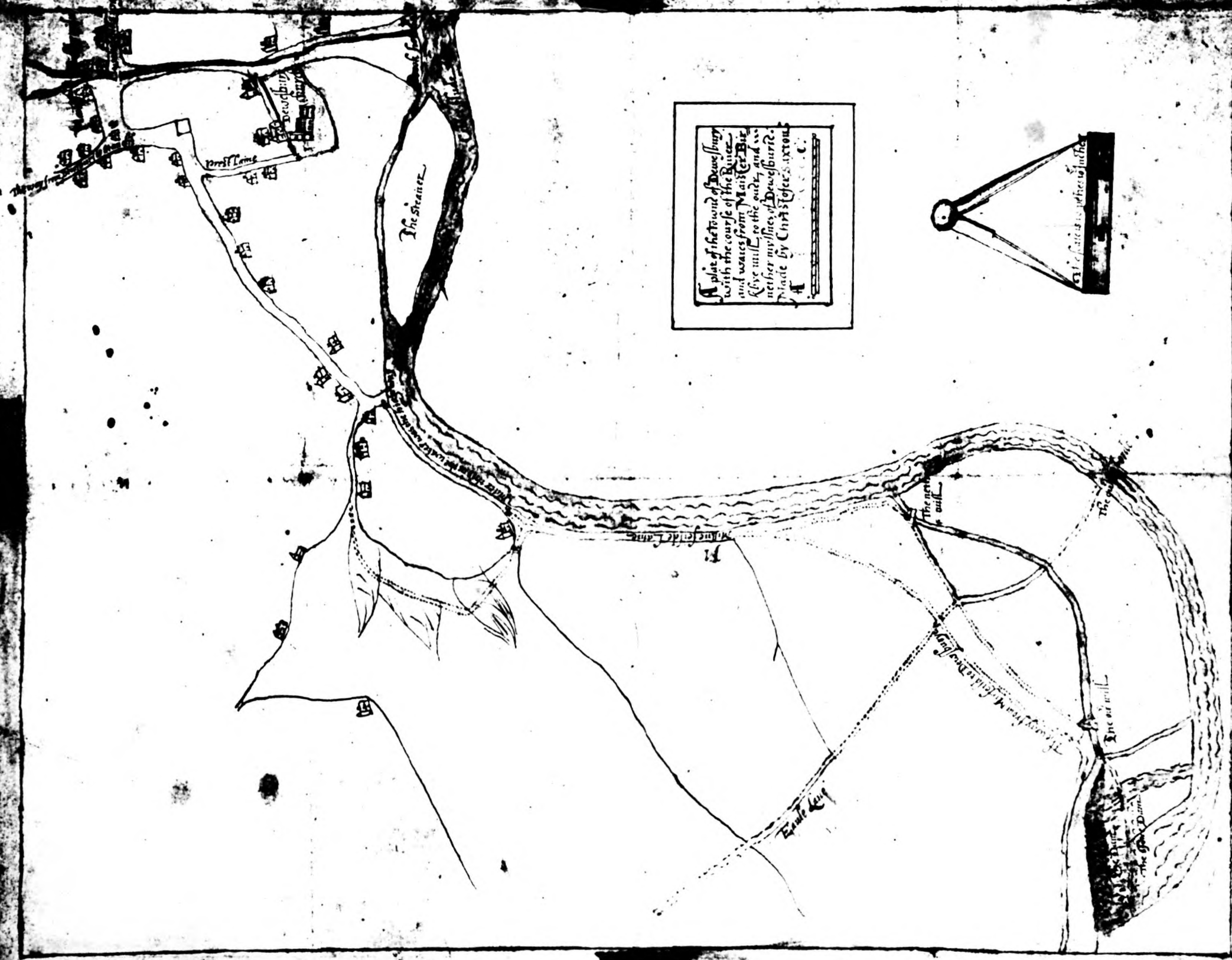
### The occupiers of Dewsbury Mills

The earliest known map of Dewsbury is 'A plan of the towne of Dewesbury with the course of the River and Waies from Maister Birkbye mill, to the over and nether myllnes of Dewes-  
burie, made by Christofer Saxton, A.D. 1600'.<sup>(1)</sup> This map shows the church, a small number of scattered habitations, and three mills. 'Maister Birkbye's mill', situated a little to the north of the church, was most probably the lord's corn mill farmed out to Birkbye at the time when Saxton made his survey. The 'over and nether myllnes' in the loop of the Calder, together with a mill dam lying to the south of the town, are not further described by Saxton. But a later map,<sup>(2)</sup> dated 1634, reveals a picture of a water wheel with fulling hammers, in the same position on the Calder as the 'over myllne' of 1600. This fulling mill, as we have already noted, may have been in existence on this site in the fourteenth century or earlier. With a ford giving access across the river it became a nucleus of a cluster of habitations which later formed the hamlet of Dewsbury Mills just inside the

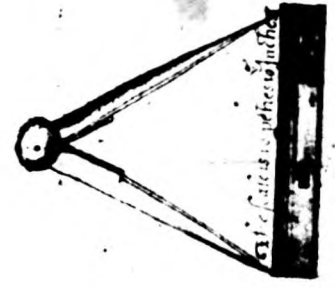
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(1) This original Saxton map was in the collection of Sir Thomas Phillips and was bought by the Dewsbury Corporation in 1899.

(2) This map is in the possession of the Savile Estate Office.



A plan of the town of Dewsbury  
with the course of the River  
and waies from Maister  
Knye mill to the end, and  
neighbouring of Dewsbury.  
Made by Christs Scholes. 1600.



southern boundary of the rectory manor of Dewsbury.

Although the beginnings of cloth-fulling at Dewsbury Mills cannot be dated with certainty, the reasons for the location of a fulling mill here are obvious. The Millstone Grit drainage surfaces of the Calder valley provide, as we have already noticed, a type of water well suited to the task of scouring and milling the coarse woollens which were the products of the rural clothiers of the region. <sup>(1)</sup> Furthermore, the Calder is swift-flowing in this section of its course and easily dammed to drive a wheel and fulling stocks. Once established, there would seem to be sound reasons why a fulling mill should continue to flourish in the neighbourhood of Thornhill. It served the interests of the local clothiers working up cloths, either for their own consumption or for sale at the local markets of Ardsley and Wakefield. But until about the middle of the eighteenth century there is little documentary proof of the continuing existence of a fulling mill in this locality.

In 1706 there were forty copyhold tenants paying a sum of £3.7s.7d. in respect of manorial rectory fees in the parish of Dewsbury. Amongst these tenants were 'the occupiers of Dewsbury Mills.'<sup>(2)</sup> Furthermore, Thomas Cook, who was one

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(1) See above, p. .

(2) S.J. Chadwick, Dewsbury Parish Church ..., p. 16.

of the partners in the firm of Hagues and Cook which established itself as a blanket-making enterprise at Dewsbury Mills in 1811, stated in a reply to a question addressed to him by the Central Board of Commissioners concerned in the Factory Inquiry of 1834:

Some part of the mills, those for fulling cloth, was erected many centuries ago; those parts of the works in which children are employed were, some of them, erected about forty years ago, but a good deal within the last twenty years. (1)

Cook, whose evidence here was probably based upon an oral tradition, suggests that the fulling of cloth at Dewsbury Mills had continued without a break since its early appearance noted in the records reviewed above. The memorial records, to which Cook and his contemporaries probably had access, had they survived, would possibly have thrown some light upon the changing tenancy of the Dewsbury fulling mill, but the only evidence available, that of maps and legal documents, affords only the slenderest information of this kind.

(2)  
The surviving legal papers relating to the tenure

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(1) Factories Inquiry Commission, 1834 (167) xx, Supp. Report, Pt. ii, Section C.1, Q.3.

(2) Legal Documents in the possession of Wormalds and Walker, Ltd., Dewsbury Mills.

of land in the vicinity of Dewsbury Mills are fragmentary, but they provide glimpses of land ownership at different points in time. The earliest information is contained in the last will and testament of Thomas Webster of Dewsbury, described as a 'yeoman'. The document is dated 28 August 1657 and by its authority Thomas Webster bequeaths 'to my sonne Thomas and to his heirs ... the close called Upper Mill Shutt and close called Great Miln Field .... and all those two closes of land the one called Raisgill lying within the township of Dewesburie adjoining to the Upper Mill and the other close called the Low Close adjoining to the River ... and I give and bequeath to my sonne John Webster ... one close called Lambs Croft and two Pigholles lying between the two mills above the towne of Dewesburie'.

(1)  
 An indenture dated 11 April 1758<sup>(2)</sup> contains the information that John Greenwood,<sup>(3)</sup> yeoman, is a tenant of part of the land and property of the deceased Thomas Webster. In a deed of enfranchisement of 21 April, 1764<sup>(4)</sup> John Greenwood

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(1) Legal documents, parcel No. 11.

(2) Legal documents, parcel No. 14.

(3) The name Greenwood is a common one in the Dewsbury area, it is found frequently in the account rolls and in the Dewsbury Parish Register.

(4) Legal documents, parcel No. 12.

is described as a copyhold tenant of the lord of the rectory manor of Dewsbury - William Westbrook Richardson. It is stated that the lord is desirous of enfranchising all his copyholders who desire to obtain the fee simple of their holdings. It then outlines the terms upon which this shall be done and grants the freehold of his land to John Greenwood for a single payment of £88.10s.0d.

Greenwood's holdings are described as 'one undivided moiety of three closes of copyhold ground called Racegills and some selions of copyhold land with their appurtenances ... containing about twelve acres ... and the said John Greenwood is also seized of a copyhold messuage or tenement one croft or orchard and gardens with their appurtenances ...' Similar deeds of enfranchisement relating to land in this area were made between the lord of the manor and Thomas Wightman of Leeds, gentleman, and the Mayor and Commonalty of York. These deeds reserved a small yearly rent to be paid to the lord. In the case of Greenwood, this was fixed at 2s.3d.

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- (1) 'Racegills' appear as 'rassgills' in the account rolls, the name probably designates land adjoining the mills race.
- (2) 'Selions' were strips of land, subdivisions of a common field of uncertain area, probably less than one acre in extent.

By 1764 a number of freeholders thus owned land within the loop of the River Calder south of Dewsbury and although the documents remain silent on the ownership of the fulling mill, a number of late eighteenth century maps reveal information bearing on this point.

(1)

John Smeaton's plan of the River Calder, made as the result of a survey taken in 1757 in connection with the proposed Calder-Hebble Canal, shows the hamlet with its two mills, together with a ferry allowing transport over the Calder between Dewsbury Mills and Thornhill. The lands contiguous to the river in this area are stated to be in the ownership of 'Sir George Savile, Mrs. Thornhill, Mr. Ward and various', and the two mills are owned by Mr. Greenwood. The mills' house is clearly shown on the plan lying roughly midway between the two mills. A half-mile to the north-west of Dewsbury Mills a large estate and residence is shown and named 'Crows Mount'.

(2)

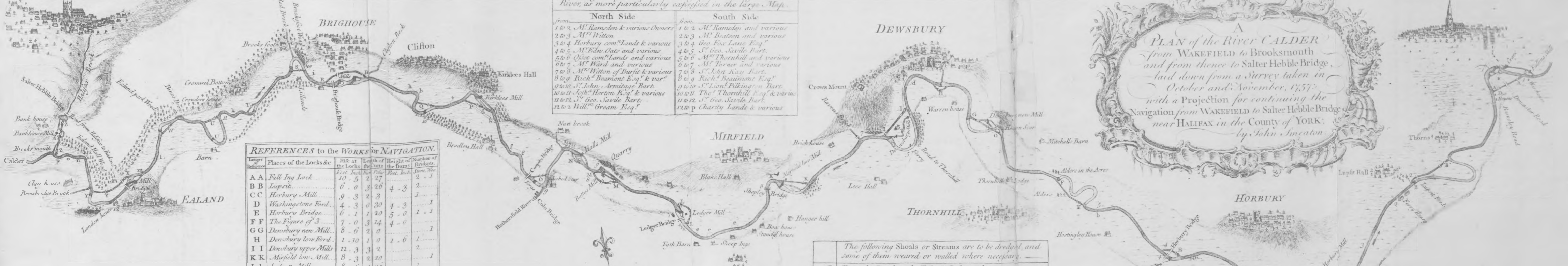
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(1) A Plan of the River Calder from Wakefield to Brooksmouth ... to Salter Hebble Bridge, laid down from a survey taken in October and November, 1757 ... by John Smeaton

The Calder-Hebble Canal, authorised in 1758, linked Dewsbury and Wakefield and, after 1774, with Huddersfield, following the construction of the Huddersfield Broad Canal which joined the Calder-Hebble Navigation at Cooper Bridge.

(2) See below, p. 364.





*A List of the principal Owners of Lands contiguous to the River, as more particularly expressed in the large Map.*

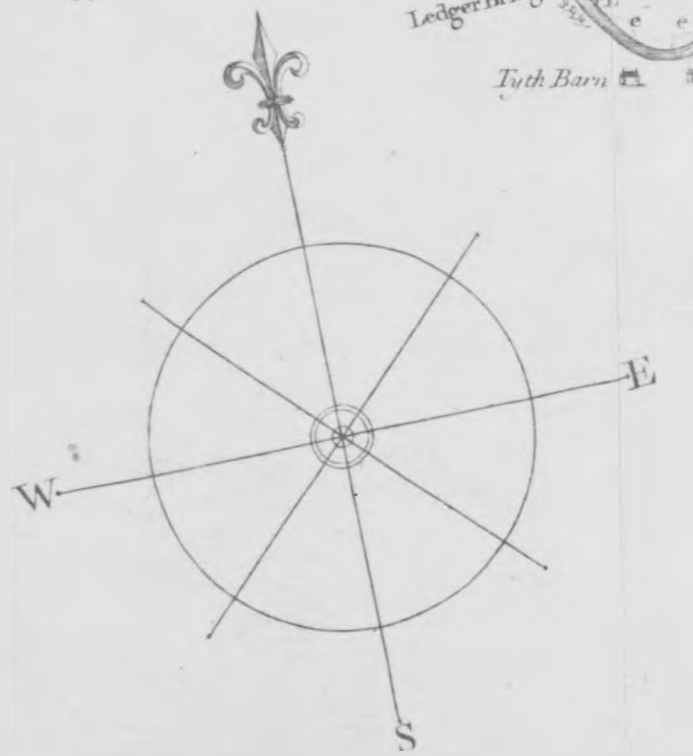
from	North Side	from	South Side
1 to 2	M <sup>r</sup> Ramsden & various Owners	1 to 2	M <sup>r</sup> Ramsden and various
2 to 3	M <sup>r</sup> Wilton	2 to 3	M <sup>r</sup> Beaton and various
3 to 4	Horbury com <sup>o</sup> Lands & various	3 to 4	Geo. Fox Lane Esq <sup>r</sup>
4 to 5	M <sup>r</sup> Edw. Oats and various	4 to 5	S <sup>r</sup> Geo. Savile Bart.
5 to 6	Ofset com <sup>o</sup> Lands and various	5 to 6	M <sup>r</sup> Thornhill and various
6 to 7	M <sup>r</sup> Ward and various	6 to 7	M <sup>r</sup> Turner and various
7 to 8	M <sup>r</sup> Wilton of Burfit & various	7 to 8	S <sup>r</sup> John Kay Bart.
8 to 9	Rich <sup>d</sup> Beaumont Esq <sup>r</sup> & var <sup>s</sup>	8 to 9	Rich <sup>d</sup> Beaumont Esq <sup>r</sup>
9 to 10	S <sup>r</sup> John Armitage Bart.	9 to 10	S <sup>r</sup> Lion <sup>l</sup> Pilkington Bart.
10 to 11	Jos <sup>h</sup> Horton Esq <sup>r</sup> & various	10 to 11	The <sup>s</sup> Thornhill Esq <sup>r</sup> & vari <sup>s</sup>
11 to 12	S <sup>r</sup> Geo. Savile Bart.	11 to 12	S <sup>r</sup> Geo. Savile Bart.
12 to 13	Will <sup>m</sup> Cream Esq <sup>r</sup>	12 to 13	Charity Lands & various

**REFERENCES to the WORKS for NAVIGATION.**

Letters of Reference	Places of the Locks &c	Dist <sup>s</sup> at the Locks	Length of the Cuts	Height of the Dams	Number of Bridges
		Feet. Inch.	Fur. Poles.	Feet. Inch.	Stone. Woo.
AA	Fall Ing Lock	10 - 5	2 - 27		2 - 1
BB	Lupton	0 - 0	3 - 20	4 - 3	2 - 1
CC	Horbury Mill	9 - 3	2 - 3		1 - 1
D	Washingstone Ford	4 - 3	0 - 30	4 - 3	1 - 1
E	Horbury Bridge	6 - 1	1 - 20	5 - 0	1 - 1
FF	The Figure of 3	7 - 0	3 - 14	4 - 0	1 - 1
GG	Densbury new Mill	8 - 0	2 - 0		1 - 1
H	Densbury low Ford	1 - 10	1 - 0	1 - 0	1 - 1
II	Densbury upper Mills	12 - 3	3 - 2		2 - 1
KK	Mirfield low Mill	8 - 3	2 - 20		1 - 1
LL	Ledger Mill	8 - 6	1 - 20		1 - 1
MM	Battys Mill	3 - 9	1 - 24		1 - 1
N	Halls Mill	5 - 0	1 - 10		1 - 1
O	Coopers Bridge	0 - 3	1 - 0	6 - 0	1 - 1
P	Kirklees Mill	7 - 0	1 - 32		1 - 1
Q	Anchor Pit	4 - 8	1 - 17	3 - 0	1 - 1
RR	Brighouse	10 - 8	3 - 14		1 - 1
S	Lillands	5 - 0	0 - 37	4 - 0	1 - 1
T	Tughole	6 - 0	1 - 8	5 - 0	1 - 1
UU	Cool	3 - 10	1 - 14	2 - 6	1 - 1
W	Ealand park Nook	6 - 0	1 - 23	4 - 2	1 - 1
XY	Ealand	6 - 0	3 - 0		1 - 1
YY	Long Lee	6 - 6	1 - 0	0 - 6	1 - 1
ZZZ	3 Brook Locks	24 - 0	2 - 30	and a Reservoir	1 - 1
N <sup>o</sup> 26	from Wakefield to Salter Hebble Bridge	178 - 0	5 - 23		12 - 12

*A List of Owners of Mills within the intended Navigation.*

Wakefield and Horbury Mills	S <sup>r</sup> Lion <sup>l</sup> Pilkington Bart.
Densbury new Mill	M <sup>r</sup> Banks
Densbury Mills	M <sup>r</sup> Greenwood
Mirfield low Mill	M <sup>r</sup> Wilton of Burfit
Ledger and Battys Mills	S <sup>r</sup> John Kay Bart.
Halls Mill	M <sup>r</sup> Darby
Kirklees and Brighouse low Mills	S <sup>r</sup> John Armitage Bart.
Brighouse upper Mills	Thomas Thornhill Esq <sup>r</sup>
Ealand Mills	S <sup>r</sup> Geo. Savile Bart.
Bankhouse Mill upon the Brook	A Charity

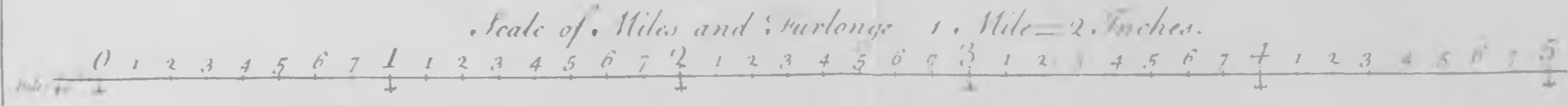


*The following Shoals or Streams are to be dredged, and some of them weared or walled where necessary.*

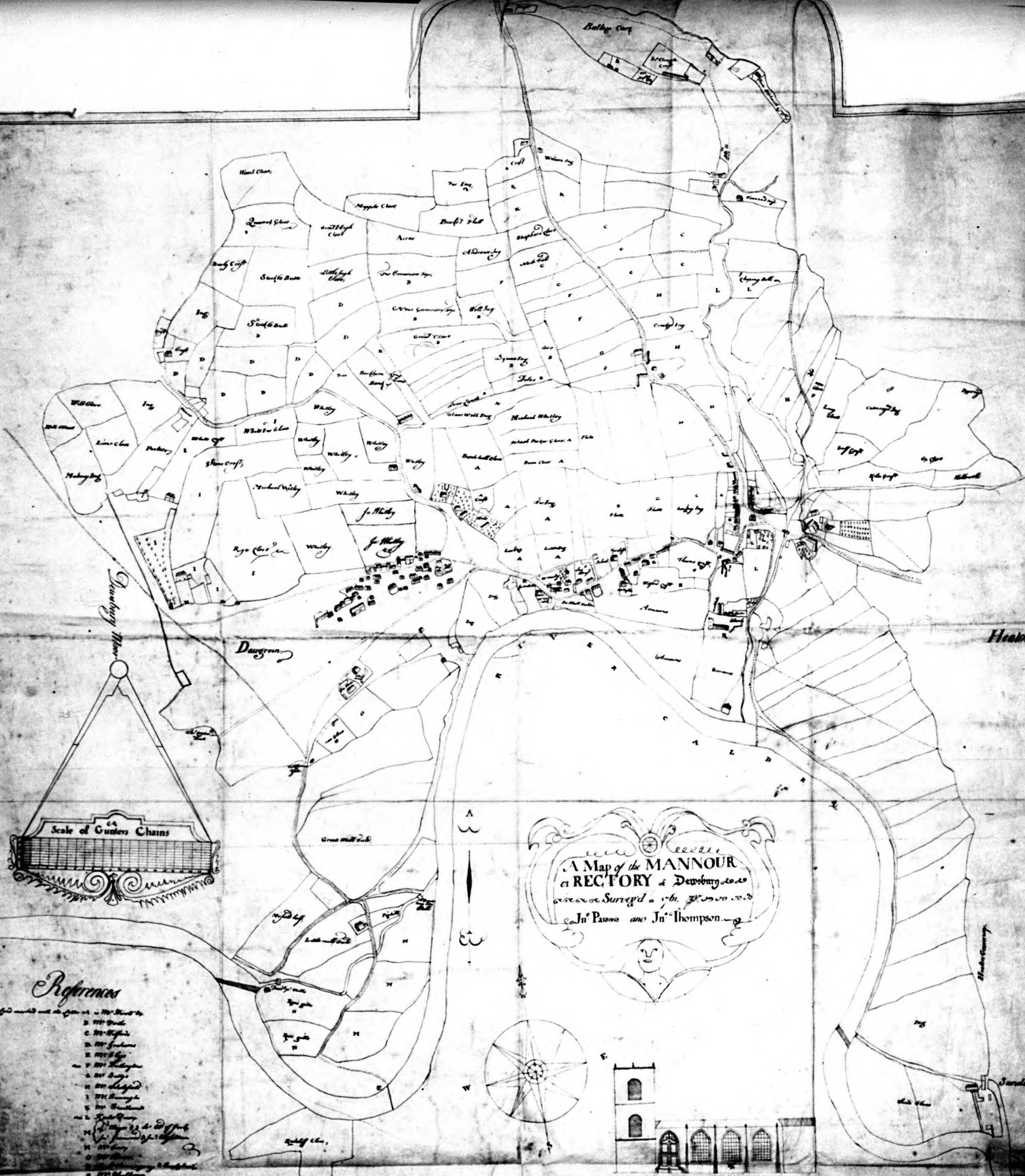
a C	From the Brook to the Tail of Horbury Cut.
b F	A Stream below the Figure of 3 Lock Cut.
c	A Stream below Densbury new Mill.
d	Water-gate Stream.
eee	3 covered Shoals between Mirfield low Mill and Ledger Mill.
ff	Long Royd Stream.
gg	From below the Island to the Tail of Kirklees Cut.
+	A covered Shoal in Kirklees mill Dam.
hh	Willow and Lee Streams.
i	A covered Shoal between Brighouse and Brookfoot Wood.
k	Cromwell bottom Streams.
l	Upper part of Long Stream.
m X	From the Tail of Ealand-mill Croit to the Tail of the Mill.
n o p	Pishill lower Stream, Midstream, and Upper Stream.

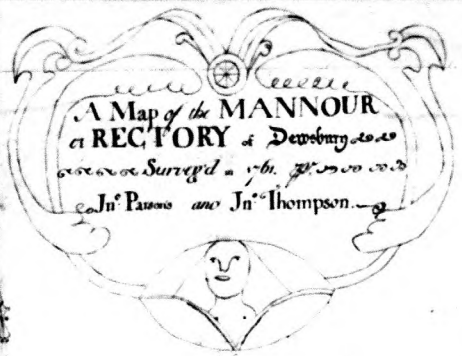
*N.B. If the Cuts CC and P are carried according to the Dotted Lines a C and P g, the dredging of the Shoals a C and gg will be avoided.*

**A**  
**PLAN of the River CALDER**  
*from WAKEFIELD to Brooksmouth*  
*and from thence to Salter Hebble Bridge,*  
*laid down from a Survey taken in*  
*October and November, 1757.*  
*with a Projection for continuing the*  
*Navigation from WAKEFIELD to Salter Hebble Bridge*  
*near HALIFAX in the County of YORK;*  
*by John Smeaton.*



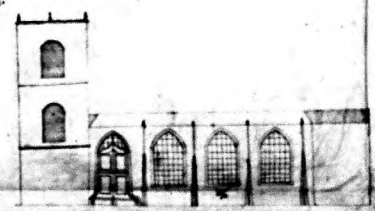
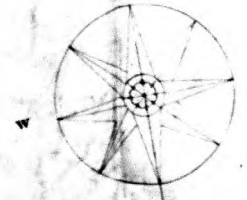





  
 A Map of the MANOUR  
 of RECTORY of Dewsbury  
 as Surveyed in the Year 1790  
 by J<sup>n</sup> Parsons and J<sup>n</sup> Thompson.



- References**
- A. 1790
  - B. 1790
  - C. 1790
  - D. 1790
  - E. 1790
  - F. 1790
  - G. 1790
  - H. 1790
  - I. 1790
  - J. 1790
  - K. 1790
  - L. 1790
  - M. 1790
  - N. 1790
  - O. 1790
  - P. 1790
  - Q. 1790
  - R. 1790
  - S. 1790
  - T. 1790
  - U. 1790
  - V. 1790
  - W. 1790
  - X. 1790
  - Y. 1790
  - Z. 1790



Heaton

Sandy Hill

Smeaton's proposal to improve the navigation between Raven's Brook and Dewsbury took the form of a cutting, three furlongs in length, which had the effect of 'straightening out' the loop of the Calder for transport purposes.

'A Map of the Mannour or Rectory of Dewsbury'<sup>(1)</sup>, surveyed in 1761 by John Parsons and John Thompson' is interesting for its information on land-holding in the manor. In ~~some~~ cases the names of tenants are given, but there is no indication of the total number of tenants, nor is there any record of the free-holding and copy-holding tenancies. The map can be supported to some extent, however, by other contemporary information. Chadwick, using 'the old map of the manor', which was probably this map of 1761, estimates that the extent of the rectory manor was about two-thirds of that comprised by the township of Dewsbury.<sup>(2)</sup> He also reports that in the year 1761, there were 76 cottage tenants paying rent to the lord, 'varying from 1s. to £1.1s. per annum'.<sup>(3)</sup>

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(1) A number of copies of this map are in existence, but the original coloured drawing from which they were made, by Henry Dearden in 1907, seems to have been lost.

(2) S.J. Chadwick, op. cit., p. 13.

(3) S.J. Chadwick, op. cit., p. 16. This information appears to be the result of a search at the West Riding Registry of Deeds, Wakefield.

Greenwood cites from the evidence of a legal brief presented at York assizes on 6 March 1762, 'as to the ... Rectory Manor of Dewsbury ... its extent is very small, and has only belonging to it ... about 11 freehold tenants, and 46 copyhold tenants, and some cottagers or owners of cottages built upon the waste'<sup>(1)</sup>.

Dewsbury had a three-field system of crop rotation and a substantial amount of enclosure seems to have taken place by 1760, particularly in the North Field and the Mill Field;<sup>(2)</sup> it is less evident in the case of the East Field. Scattered strips of land, however, break up the pattern of enclosure in all parts of the manor and these seem to have been consolidated and enclosed in the years following 1760. The second half of the eighteenth century was a period of extensive enclosures. Mr. William Westbrook Richardson and his son William, successive lords of the manor during the period 1767-90, engaged in some 53 dealings in property with their tenants by way of sale, enfranchisement and lease.<sup>(3)</sup>

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(1) J.B. Greenwood, op. cit., p. 117.

(2) See map of 1766 following p. 350 .

(3) With some omissions, J.B. Greenwood (op. cit., pp. 116-21) traces the Lordship of the Rectory Manor of Dewsbury for the period 1606-1847.

In May 1790, the Moot Hall, the town mill and some manorial land were conveyed to Abraham Hemingway of Dewsbury, corn miller. Part of Hemingway's land was later used as the site for the Dewsbury Blanket Hall.

Mr. Richard Milnes, lord of the manor in the period 1792-9, also received about £1,200 from the sale of tithes and enfranchisements, whilst the Carrs, who succeeded the Milnes, received about £5,000 from further sales.<sup>(1)</sup> There seems to have been an ample provision for common land or waste within the manor, mainly in the region of Dewsbury Moor and Daw Green in the west, Batley Carr in the north, but there were some other small areas of waste in various parts of the township. These common lands were enclosed under powers obtained by the Dewsbury Enclosure Act of 1803.<sup>(2)</sup>

In 1761, within the loop of the Calder, three large fields extending southwards from Dewsbury Low Mill are shown on the map. These are in the possession of the 'Lord Mayor and three senior Aldermen of York, John Greenwood and John Wightman.' Two pieces of land adjoining Dewsbury Upper Mill are named 'rais gills' and are in the possession of a Mr. Town. A small strip of land marked 'pighill' in the survey, and

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(1) cf. S.J. Chadwick, op. cit., p. 16.

(2) See below, p. 352 .

upon which is built the mills' house, seems to have been one of the 'two Pigholles' mentioned earlier in the will of Thomas Webster. The 'rais gills' owned by Mr. Town appear to be the 'copyhold ground called Racegills' which, in 1764, as noted above, were described in the deed of enfranchisement as being part of the holdings of John Greenwood. The close 'called Great Miln Field' bequeathed by Thomas Webster to his son is also shown in the survey but the owner is not specified. (1)

The map of Parsons and Thompson reveals a pattern of footpaths and tracks giving access to Dewsbury Mills from the north, south and east. A crossing of the loop of the Calder is also marked, but there is no clear sign of a bridge having yet replaced the ford and ferry shown on earlier maps. The surveyors of this manorial map of 1761 were obviously more concerned with an accurate demarcation of land tenures than with other features of the landscape. The growth of communications in the area is illustrated by a later map with a probable date of 1766. This map was originally undated, but Chadwick, without disclosing his reasons for so doing, has assigned to it the date of c. 1766. (2)

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(1) In the early nineteenth century this was known as 'Chaster's Field'. It was bought by Hagues and Cook for tenting purposes. See below, p. .

(2) S.J. Chadwick published a copy of this map to illustrate his article 'The Dewsbury Moot Hall', Yorks. Archaeological Journal, vol. xxi (1911), and stated that in 1911 the original was in the possession of Marriott Son and Shaw, surveyors of Dewsbury, but it appears to have been destroyed since that time.

Roads are traced on this map from Halifax, Birstall and Heckmondwike to Dewsbury and also a turnpike road from Wakefield. A 'new road from Ealand', made in 1759, is shown cutting across the south-east corner of Dewsbury Moor, taking a straight route to Dewsbury and replacing the old road which followed a wandering course round the Mill Field. John Smeaton's proposed cutting of 1757, in the vicinity of Dewsbury Mills, is now clearly marked 'Canal'.

The three-field system of the rectory manor is emphasised here due to additional information engraved on the original map, by Chadwick, though the three fields are not clearly demarcated and the area known as 'Crackenedge' is only roughly indicated. <sup>(1)</sup> By comparison with earlier maps, this map of 1766 is notable for the increased number of habitations which are shown, particularly in the locality of Daw Green. <sup>(2)</sup> Daw Green was mainly an expanse of common land or waste and these newer habitations were probably cottages rather than the houses of free tenants or copyholders. The growth of these cottages points to an increasing population in the

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(1) Chadwick added these titles on the basis of information drawn from his examination of the manor court rolls.

(2) A part of the district of Daw Green was in the hands of a John Dawson in the late seventeenth century and was then known as Dawson's Green. Daw Green or Dawgreen are obviously contractions of Dawson's Green.

township and, together with improving communications, suggests greater economic activity.

The map also sets out in some detail the 'Crow's Mount' estate with its large residence and outbuildings, lying immediately to the west of Daw Green, but offers no help in identifying the then occupier. The two mills in the loop of the Calder are located and described as 'Dewsbury Upper Fulling Mills and Wood Mill' and 'Dewsbury Lower Fulling Mill and Corn Mills'. Both mills are now, apparently, used for cloth-fulling as well as for other purposes.

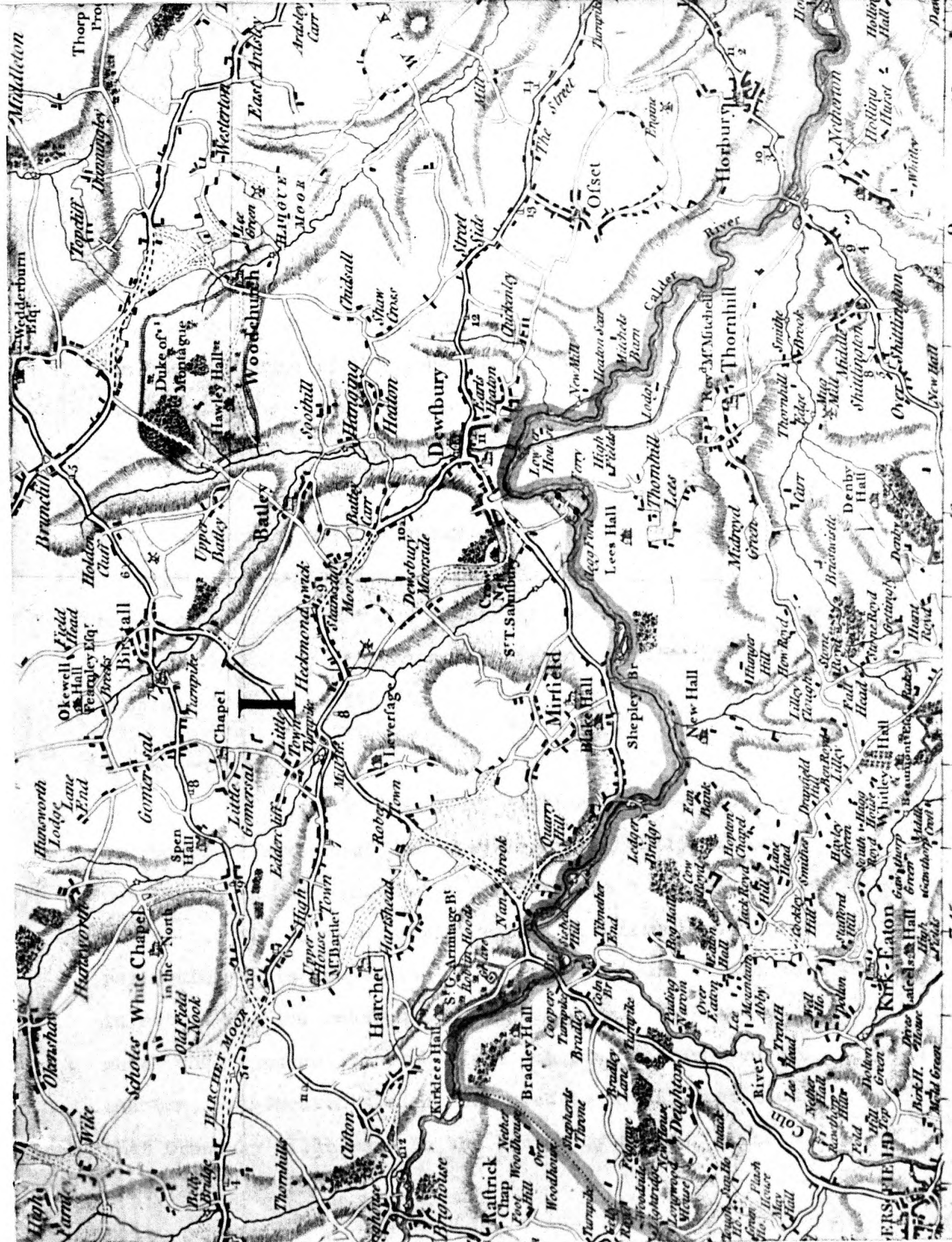
Jeffereys surveyed the Dewsbury area in 1771, in preparing his map of Yorkshire, and his cartography <sup>(1)</sup> adds little to our knowledge of the township established from earlier maps. He is, however, more specific on two points. The ford over the Calder, which gave access to 'Thornhill Lees from Dewsbury Mills, is now shown as 'Clegg Ford', and the 'Crow Mount' estate is named 'Crow Nest' and is indicated <sup>(2)</sup> to be in the possession of Sir T. Saintsbury.

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(1) T. Jefferys, Survey of the County of York, (1767-80), Plate 12.

(2) Some time between this date and the end of the eighteenth century the Crow Nest estate came into the hands of a Thomas Hague of Stanley Hall near Wakefield.





By the end of the eighteenth century a large part of the rectory manor had been enclosed by private agreement between the lord and his tenants, the enclosure was practically complete by the time that Mr. Jeremiah Marriott became the lord in 1847. In 1803 the Dewsbury Enclosure Act provided for the enclosure of 298 acres of common lands in the township of Dewsbury, which included the rectory manor lying within the manor of Wakefield.

Thus, it is not until the early nineteenth century that the rectory manor finally ceases to influence the pattern of economic organisation in the area, and it becomes more meaningful to regard the township of Dewsbury as the economic unit; though the rectory manor is losing ground, in this respect, from about 1750.

### Greenwood's Mills

In tracing the ownership of the fulling mills at Dewsbury, we have seen that they were originally in the possession of the lord of the manor and were usually rented out to the miller at a yearly rent. At a later date the lord relinquished his possession of the mills to one of his tenants in return for the receipt of a capital sum. The date at which this transaction took place and the sum involved are unknown, but Smeaton's Plan, referred to above, specified that Dewsbury Mills were in the occupancy of Mr. Greenwood.

It would seem that sometime before 1757 the fulling mill or mills and the outbuildings, including the mills' house, had been acquired by the Greenwoods, of Healds Hall, Dewsbury Moor, 'and were ... called Greenwood's Mills, where blanket makers for a considerable distance round used to send their goods to mill and scour'.<sup>(1)</sup> There is no indication that this was a 'company mill' of the type established in the late eighteenth and early nineteenth centuries, in the West Riding.<sup>(2)</sup> It seems to have been the sole property of the Greenwoods, or rather of John Greenwood, probably purchased by means of capital accumulated from the working of the land, and to have occupied an important position in the clothing trade of the district:

Greenwood's Mill was situated in a lovely spot, surrounded by fine meadows and scenery; and near to the mill ran the river, which furnished a stream by which the ponderous water wheel was turned. The clothier was glad rather than otherwise, to make the journey to this spot; it was a kind of relief to the monotony of home - a change of scenery, and made him intimate with a number of boon companions; for he had to stay sometimes two or three days until his turn came, and he could carry the cloth back in a milled state. <sup>(3)</sup>

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(1) Willans, op. cit., p. 19.

(2) See above, p. 100 .

(3) W. Smith, op. cit., pp. 237-8.

John Greenwood became a freehold tenant of part of the land in the neighbourhood of the mills in 1764 and, during the following twenty years, he seems to have extended his freeholdings in the district and to have secured possession of the major portion of the land lying between the two mills within the loop of the Calder. It is not unlikely that this development was facilitated by the profits derived from his fulling enterprise during a period of general expansion in the cloth production of the West Riding.<sup>(1)</sup> This process of extension of land-ownership and general consolidation of his position as a fulling mill-owner seems to have occupied Greenwood until about the early 1780s.

It has been stressed above that in the last two decades of the eighteenth century, under the stimulus of the inventions for carding and spinning cotton in Lancashire, the fulling mills of the West Riding expanded into scribbling mills where raw wool was prepared for the process of spinning.<sup>(2)</sup> John Greenwood developed Dewsbury Mills along these lines by introducing scribbling engines driven by the water power which worked his fulling stocks. The technique

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(1) See above, p. 20 .

(2) See above, p. 51 .

of card-making, both for wool and cotton, was already well-developed in the Barnsley area, in Brighouse in the Calder valley and also in the Spen valley, and Greenwood would experience little difficulty in obtaining the new equipment.

The new processes, together with the buildings to house them, necessitated substantial capital expenditure. This new investment, like the earlier investment in land, appears to have been the result of 'ploughing back' some of the gains from the fulling activity. These developments did not at first increase Greenwood's demand for labour very substantially, according to a witness before the Royal Commission of 1833:

How many people worked in that mill?

When I worked, there was not one-sixth of us wrought at that time of day, because the spinning concerns had not come into work then.

There were only six people at work at that time?

Yes.

Did you do nothing but scribble and card in that mill?

Nothing else for a number of years; I cannot say how many. (1)

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(1) First Report from the Royal Commission on the Employment of Children in Factories, 1833 (450) vol. xx, Q.2853, 2855.

In the late 1780s the process of slubbing was added to the scribbling and carding operations. <sup>(1)</sup> The slubbing billy was worked by hand and the available water power of the fulling mill does not explain its introduction into Greenwood's mill.

The introduction of slubbing increased Greenwood's demand for labour, both in terms of numbers engaged and in hours of work. Children were employed as pieceners to feed the carding machines. A witness before the 1833 Royal Commission, who had been employed as a piecener in Greenwood's mill, offers some support to the above statement in the following evidence:

Had you ever any over-work in that mill?

No, I do not know that I ever had: there was not what I term slavery; nothing to be called uncommon or severe work, as there was when the (slubbing) billies came into the place; it was then when all the slavery began. (2)

Greenwood's tentative beginnings in the scribbling mill in all likelihood followed the pattern of his fulling activity, inasmuch as he worked for the trade, like many other mill-owners, on customers' wool or cloth, taking a commission

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(1) See above, p. 55 .

(2) *ibid.* Q. 2856.

(1)  
for his trouble. The later addition of slubbing, however, would have afforded Greenwood the opportunity to work up his own wool, as well as customers' wool, into a form which could be sold to clothiers bringing cloth to be fulled, and such a development would have brought him close to the function of a 'manufacturer'. Whether Greenwood did expand along these lines is not known, but there is some further evidence which suggests that prima facie he might be regarded as a 'manufacturer' in the 1790s.

Ingham's Pit had been sunk into the Middle Coal Measures which outcropped to the south of Thornhill, in 1720,<sup>(2)</sup> and thereafter a local supply of coal of good quality was made available for manufacturing purposes. Though its use for power seems to have been deferred, at Dewsbury Mills, until 1858,<sup>(3)</sup> access to this coal stimulated Greenwood, in the 1790s, to undertake dyeing at Dewsbury Mills at about the same time as he was expanding his other activities. To the dyeing he also added the shearing of cloth and thus established

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(1) See above, p. 99 .

(2) cf. B.H. Nuttall, A History of Thornhill, (Thornhill, 1945).

(3) See below, p.459 .

a group of finishing processes at the service of the rural cloth producers.

The mills now housed the main preparatory processes as well as the chief finishing operations and the demands of the enterprise upon the available water power had been enlarged. In this matter Greenwood began to experience difficulties occasioned by the activities of the Calder and Hebble Navigation Company in his locality, and his response to the action of the Company led him into a law-suit which was heard at York Assizes in August, 1791. The dispute was referred to the award and determination of Thomas Rawson who seems to have encountered obstacles to the speedy settlement of the affair, for his award was not published until June, 1796.

The evidence presented on behalf of John Greenwood at the Assizes in 1791, <sup>(1)</sup> together with William Fairbank's map of the area which accompanied Thomas Rawson's award in 1796, offers some support to the statement that Greenwood was expanding his activities and that he had become a

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(1) The firm of Thomas Cook, Son and Wormald had a legal dispute with the Aire and Calder Navigation Company and other defendants in 1875. In their Bill of Complaint of that year the evidence of 1791, here referred to, was incorporated, but the original statement of John Greenwood has not survived.





'manufacturer' as well as a commission worker for the local clothiers:

Shortly before the year 1791 the company of proprietors, in order to raise the level of the water in and thereby deepen both the navigable part of the River Calder between Brookhole Weir and a lock called Watergate Lock marked 'G' in the said plan, and also that part of the canal between Brookhole Weir and Longley Lock, shewn in the plan, so that they might more easily pass vessels through the said canal, raised the height of the said Brookhole Weir and erected a super dam thereon.

The effect of heightening the said Brookhole Weir was, to retard the flow of water of the said River Calder ... and to dam up the water and pen it back on the mill tail and wheels ... at the works called in the said plan the 'new mill' ... and to be in backwater in time of floods or extra quantity of water in the said river and thereby deprive the said mills of a considerable portion of their water power.

In the year 1791 John Greenwood was the owner and occupier of the said Dewsbury Mills and, finding that by reason of the erection of the said Brookhole Weir and the said super dam the water was penned back upon the wheels of the said mills, and they were then and were more liable to be in backwater, and that he was thereby hindered from carrying on his business of a 'woollen manufacturer', the said John Greenwood proceeded to remove the said Brookhole Weir and super dam and thereupon the company of proprietors brought an action for trespass against the said John Greenwood.

(1)

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(1) From Cook, Son and Wormald's Bill of Complaint, 1875.

This description of Greenwood as a 'woollen manufacturer' supports the hypothesis already put forward regarding his position in the industry. But the designation used by the lawyer in drawing up the Bill of Complaint in 1875 may not have been based upon an accurate knowledge of Greenwood's exact functions in 1791, and it therefore cannot be accepted as a conclusive statement.

A road on William Fairbank's map bisects the land between the two old fulling mills and connects Daw Green with Thornhill Lees. There are bridges crossing the canal and the Calder. The 'new mill' appears on the map, sited a little to the south of the 'Lower Old Mill' and provided with water by means of a new mill-race leading from the Calder at a point close to 'J. Greenwood's Dam'. The super dam at Brookhole Weir and the locks, Watergate and Longley, which are mentioned in the Bill of Complaint, are all situated to the east of Dewsbury Mills and, with the river flowing eastwards, their operation would be bound, in time of high water, to hamper the water-wheels worked by Greenwood. This led Rawson, in his award of 1796, to seek a compromise by permitting the Calder and Hebble Navigation Company to use their locks, dams and floodgates in order to facilitate navigation, 'but not so

as to detriment the passage of water down to the mills and  
works of the said Defendant.'<sup>(1)</sup>

The erection of the new mill prior to 1791 is an important indication of the growth of the Greenwood concern and it proved to be the nucleus around which the nineteenth century expansion of Dewsbury Mills took place. But it does not, in itself, allow us to determine with certainty whether Greenwood was by this time anything more than a provider of services, on a commission basis, to meet a local demand.

Thomas Rawson's adjudication conferred further benefits upon Greenwood in the following declaration:

I do award that the said Defendant and his heirs and assigns shall at all times hereafter have full power to ... take water ... whenever necessary for the use of the new mills intended shortly to be built by the said Defendant. (2)

This hints at a further extension of Greenwood's undertakings, either projected in response to increasing demands for his commission services or, assuming that he was a manufacturer, perhaps an attempt to emulate the example of the Leeds merchant-manufacturer, Benjamin Gott, in establishing a fully equipped manufactory for the production of cloth.<sup>(3)</sup>

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(1) Bill of Complaint, 1875.

(2) *ibid.*

(3) See above, p. 99 .

The War with France, from 1793 onwards, exerted a powerful influence upon the woollen cloth industry of the West Riding and John Greenwood would have been aware of the profitable possibilities of cloth manufacture at this time. As he already controlled the yarn producing and finishing processes, it only needed the addition of weaving to complete the chain of integration. Weaving was a hand-loom task and there were, as yet, no advantages derived from water power to induce mill weaving, but it was clearly more convenient and time-saving, as we have noted in the case of slubbing, and therefore cost-reducing to bring weaving into the mill. But to have integrated all the processes would have markedly lengthened the waiting period, from the buying of raw wool (itself a riskful affair) to the marketing of finished or semi-finished cloth, and would therefore have entailed a substantial capital outlay and an increased risk, although it would probably have enlarged Greenwood's profits.

This discussion of Greenwood's exact functions and future intentions, in the absence of further evidence, cannot be more than speculative. John Greenwood died in 1796, leaving his mill property to his relatives, chiefly his son John. For the ensuing fifteen years the records of the Greenwoods are sparse and uninformative regarding the fortunes of the enterprise.

CHAPTER V

HAGUES AND COCKE, 1811-31

CHAPTER VHAGUES AND COOK, 1811-31: THE FIRST TWENTY YEARS  
OF A PARTNERSHIP

Within a few years of his father's death, John Greenwood Junior seems to have found himself in business difficulties at Dewsbury Mills and the enterprise was terminated. The available 'room and power' was then leased to a number of tenants who carried on separate functions on the premises, including cloth-fulling, corn grinding, dye-woods preparation, woollen yarn processing, brewing, and cotton-spinning, in which Greenwood Junior appears to have invested some of his capital during his brief career as an entrepreneur. (1) It was this change in the fortunes of the Greenwoods which enabled John Hague, in 1809, to obtain the use of a building at Dewsbury Mills, which he used as a warehouse to store the cloth and blankets which he purchased locally and later shipped to Dublin.

John Hague was the senior partner in the firm of Hague, Beaumont and Cook, merchants and woollen factors,

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(1) During the period, 1793-1815 there was much oscillation between woollen and cotton spinning in West Riding mills. cf. J. Hodgson, Textile Manufacture's and other Industries in Keighley, (Keighley, 1879), passim.

trading at 51, Fishamble Street, Dublin. (1) He had family as well as business connections with the West Riding and, in 1802, he inherited from his father, 'Crow Nest', a country residence with 70 acres of land situated one mile due west of the town of Dewsbury. (2) At this time the movement of merchant into manufacturing in the West Riding was quickening and, from this vantage point in the Calder valley, John Hague was able to observe the industrial development and explore the manufacturing possibilities of the district. (3) Given that he had decided to engage in the production of blankets, it is likely that he carefully examined the factors relevant to the siting of an enterprise in the Spen valley; where, by the end of the eighteenth century, a small community of clothiers specialising in blanket-making had become concentrated, and where an informal bi-weekly blanket market had been established at Heckmondwike. (4) It seems, however, that Hague conceived of

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(1) cf. The Gentleman's and Citizen's Almanack, (Dublin, 1795), p. 53; Pigot and Co's, City of Dublin and Hibernian Provincial Directory, (Dublin, 1824), p. 94. The firm was engaged in the importation of English blankets and cloth and the exportation of Irish wool and yarn.

(2) John Hague was the son of Thomas Hague of Stanley Hall, near Wakefield. He married May Wormald, daughter of Thomas Wormald of Gomersal.

(3) See above, pp. 75-113.

(4) cf. F. Peel, *op. cit.*, pp. 333-4.



manufacturing on a large scale from the outset and this, requiring substantial supplies of water and water-power, probably tilted his preference towards a site on the Calder and away from any alternative location on its smaller tributary. <sup>(1)</sup>

In 1811 John Hague secured a lease on the whole of the premises at Dewsbury Mills, and at the end of the same year he purchased outright the land, buildings, machinery and some stocks of wool and yarn, for the sum of £33,750. <sup>(2)</sup>

The purchase consisted of:

... five mills ... with goits, dams, forebays, wheelraces and appurtenances ... commonly named the Upper Mills and Lower Mills ... used for the grinding of com and grain, the chipping and grinding of wood ... and the other three for the fulling of cloth and scribbling, carding, slubbing, and spinning of wool. <sup>(3)</sup>

There was also a dwelling house - the Mills House - formerly occupied by the Greenwoods, a malt kiln, a separate

(1) The fact that water-power remained important at Dewsbury Mills throughout the whole of the nineteenth century strengthens this view that water-power was an important locating influence in Hague's initial search for a suitable manufacturing site. It may be, however, that the situation of 'Crow Nest' had some bearing upon his final decision.

(2) Hagues and Cook, Private Ledger, f. 373.

(3) Hagues and Cook, Legal Document, 25 Dec. 1811.

building used for the spinning of cotton, and 'a house containing a Gig Mill for the cropping of cloth.'<sup>(1)</sup> The land of the estate, at the time of purchase, was mainly used for farming purposes and partly used for tentering the fulled cloths. Coincident with this purchase by John Hague a new partnership - Hagues and Cook - was formed. It consisted of John Hague and his son, John Hague Junior, and his nephew, Thomas Cook.<sup>(2)</sup> In his capacity as proprietor, John Hague leased the premises on a 'room and power' basis to himself and his new partners. The financial capital of the partnership seems to have been initially some £15,000, subscribed in the proportions: John Hague - £10,000, his son - £2,000, Thomas Cook - £3,000.<sup>(3)</sup> It is clear that John Hague, who

- (1) Hagues and Cook, Legal Document, 29 Feb. 1812. Greenwood seems to have been amongst the earliest users of the gig mill in this district and the machine seems to have escaped destruction by the Luddites in the early months of 1812. cf. J.L. and B. Hammond, The Skilled Labourer, 1760-1832, (1919), esp. chap. xi; D.F.E. Sykes, The History of Huddersfield and its vicinity, (Huddersfield, 1898), esp. chap. xiii.
- (2) Thomas Cook was born in 1787, his father, John Cook, being a partner in the firm of Hague, Beaumont and Cook in Dublin.
- (3) See Balance Sheet, 1812, in the appendix to this chapter.

was something of a 'merchant prince', dominated the new enterprise in a financial sense, and assumed substantial risk, but the active entrepreneurial functions seem to have been mainly discharged by Thomas Cook who embarked on this new career in his 25th year, and remained the driving force of the partnership for half a century. (1) Hague seems to have absorbed himself mainly in the financial affairs of the partnership and particularly in the detailed transactions of the country bank which was established at Dewsbury Mills as one of the partnership's inceptive activities. This specialisation of function became even more marked in 1824 when the bank was removed from the mills to premises in the market place at Dewsbury.

## I

In the period 1811-31 the chief problems confronting Cook and his partners were those which any entrepreneur has to face, in some degree, particularly in the formative years of a new business venture. They had to secure adequate

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(1) It may be the accident of survival which confirms this impression, but the major part of the firm's correspondence in the period 1823-61 strongly reflects Cook's direction and control. After 1861 the correspondence is more formalised and, for the economic historian, less informative.

financial resources to establish an efficient organisation; acquire sufficient supplies of raw materials of the right qualities; obtain control over a labour force and the necessary technical equipment; and develop markets for their products. Having formed such a productive combination of factors they then had to adapt it, in scope and structure, to meet the demands of a changing economic environment. The firm's financial records, although incomplete, together with some observations in Thomas Cook's diary, and the evidence of the correspondence books, throw some light on the decisions taken to solve these problems in the early years. Table 20 consolidates twelve profit and loss accounts for the period 1811-22 although, in practice, the partners did not separate out their numerous functions for detailed accounting purposes. (1) Table 21 constitutes an analysis of fourteen balance sheets for the period 1812-31. (2)

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(1) The profit and loss accounts shown in Table 20 are clearly deficient for certain years and only the broadest conclusions may be drawn from them. For a discussion of the problems involved in the interpretation of nineteenth century textile accounting in the West Riding see E.M. Sigsworth, Black Dyke Mills, p. 138 and passim; K.V. Pankhurst, 'Investment in the West Riding Wool Textile Industry in the Nineteenth Century', Yorks. Bull., vol.vii, 1955, pp. 93-116.

(2) The balance sheets are reproduced in the appendix to this chapter. The profits and losses shown in the profit and loss accounts for the year 1812, 1816, 1818, 1819 and 1822 are at variance with the figures given in the balance sheets for the same years. The non-survival of the primary books of account prevent any satisfactory reconciliation of these discrepancies.

The partnership maintained the commission-earning activities of yarn preparation of wool and cotton, cloth fulling and corn grinding, which had been carried on by the previous tenants, as well as the farming interest. To this they added the country banking practice and cloth and blanket merchanting, which involved the partners in enlarging their drying and storage facilities at the mills. (1) In 1812-13, new buildings were erected at a cost of £10,000 and a further £4,000 spent on 'machinery, fixtures and equipment.' (2)

The buildings consisted of a wool warehouse, cloth warehouse and a drying house with stoves. A large field was also

- (1) In 1813 the partners signed an agreement with the London banking house of Smith, Payne and Smith, which provided for a surety of £15,000 to be extended to Hagues and Cook to underwrite their country banking business. Any money made available by Smith, Payne and Smith under this agreement was to be repaid at 5 per cent. interest, per annum, and in consideration of the surety the London banking house was given a mortgage on the whole of the premises at Dewsbury Mills. This mortgage was not finally redeemed until 1843. The Dublin partnership of Hague, Beaumont and Cook had had an association with Smith's since 1780. cf. The general discussion of Smith, Payne and Smith's lending policy in the early nineteenth century in J.A.S.L. Leighton-Boyce, Smiths the Bankers, (1958), Pts. i-ii, passim; also Pressnell, op. cit., esp. chaps. 4-8.
- (2) Hagues and Cook, Balance Sheets, 1812. £6,000 of this new investment was financed by means of a loan from the executors of the estate of Thomas Hague, father of John Hague.

Table 20. Hagues and Cook - Profit and Loss, 1811-22.  
(figures to nearest £)

Year	1	2	3	4	5	6	7	8	9	10	11	12	Total
1811	- 250	+ 253	+ 26	+ 51	+ 502	101	+ 59	+ 61	- 120	+257			+ 940
1812	+ 582	+ 270	+ 57	+ 40	+ 620	107	+ 79	+ 49	- 91	+ 96		+ 250	+ 2059
1813	+ 956	+ 668	+216	+114	+1275	173	+ 69	+154	- 173	-457		- 152	+ 2843
1814	+1749	+ 518	+ 26	- 19	+ 74	105	- 27	+ 37	- 498	-274		+ 694	+ 2385
1815	-2528	- 101	-105	- 93	- 106	- 12	+131		- 179	-104	+ 445	+ 532	- 2120
1816	-2509	+ 53	+ 22	+ 15	+ 271	- 30	- 1	- 27	- 196	-196	+ 638	+ 88	- 1872
1817	+ 92	+ 50	+ 6	+ 1	+ 383	- 11	+ 29	+ 29		+ 14	+ 1402	+ 122	+ 2117
1818	+1086		+ 15	- 32	+ 181	- 91	+ 71	- 7	- 135	+ 1	+ 3123	+ 773	+ 4985
1819	-1457	- 92	+ 50	- 39	- 106	- 31	- 85	+ 11	- 274	- 19		+ 978	- 1064
1820	+ 114	- 36			- 82						+ 1433	+ 630	+ 2059
1821	+ 372				+ 313	+156		+ 43	- 199		+ 2876	+ 684	+ 4245
1822	- 348	- 318	+133	+ 49	+ 312	+ 53	+168	+129			+ 1844	+ 516	+ 2538
	-2141	+1265	+446	+ 87	+3637	+520	+493	+ 479	-1865	-682	+11761	+5115	+ 19115

See key and notes to this table on the following page.

Notes and key to Table 20 on previous page.

Profits note of losses over the period: £19,115 (1)

Key:

1. Cloth and blanket account.
2. Cotton spinning account.
3. Fulling account No. 1.
4. Fulling account No. 2.
5. Scribbling account.
6. Carding account.
7. Slubbing account.
8. Spinning account.
9. Farm account.
10. Corn grinding account.
11. Manufacturing account.
12. Bank Account.

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(1) The total takes no account of depreciation provision.

included in the purchase - Chaster's field - and this increased the tentering area available at the mills. The bulk of the £4,000 was probably spent on the equipping of the new drying house, where the scoured wool and cloths were dried, and upon the provision of steam heating for the mill premises generally; the remainder being used for the enlargement of spinning capacity. Two years later the partners began manufacturing for themselves and reduced the scope of their commission services. The mill-spun yarn produced by the mill spinners, working on time rates of wages, was now put out to local weavers to be woven into cloth, for which they were paid by the piece, which was returned to the mills for the fulling and finishing processes, including dyeing where necessary, and finally merchanted.

The risk element in the varied activities covered by the accounts in Table 20 seems to have been well spread. Despite some losses on particular accounts and in particular years, the enterprise not only survived the trading difficulties of the years following Waterloo, but emerged in 1822 with a total profit (net of losses) of £19,115, earned in the twelve previous years. This represents an average yearly profit of approximately £1,600 earned on the partners' capital which from its initial £15,000 grew to nearly £39,000



in 1819, and stood at approximately £28,000 in 1822; a rate of return varying between 5 and 10 per cent., which was not unsatisfactory taking account of the economic climate of the period. (1) Of the total profits earned in these years, 61 per cent. was contributed by the manufacturing account, the banking account provided 26 per cent., and the remaining 13 per cent. was earned on the other ten accounts; 1818 and 1821 were the two most prosperous years.

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(1) It is difficult to trace satisfactorily the changes which occurred in the partners' capital account during the period 1811-22. John Hague Junior died in 1815 and his capital was withdrawn. He was replaced, later in the same year, by two new partners: John Hague Junior and Edward Hague, sons of Thomas Hague, the brother of John Hague the proprietor of Dewsbury Mills and the senior partner in the enterprise. The new John Hague Junior seems to have subscribed an initial £8,000 in capital, whilst his younger brother, Edward, contributed £5,000.

Partners' withdrawals are also elusive in the surviving accounts. John Hague senior seems to have withdrawn very little in the first seven or eight years, whilst his nephews also seem to have been very prudent in their drawings. Thomas Cook, however, does not seem to have had the personal resources commanded by the Hagues and he was not able to 'plough back' profits or even retain his initial investment in the early years of the partnership.

Thos. Cook, invested capital:	1811	£3,000
	1819	£ 268
	1824	£4,234

Source: Hagues and Cook, Private Ledger.

Table 21. Analysis of Hagues and Cook, Balance Sheets, 1812-31.

	1811	1812	1816	1818	1819	1822	1823	1824	1825	1826	1827	1828	1829	1830	1831
Partners' Capital	15,000	15,083	31,718	33,421	38,855	27,991	25,524	28,943	35,886	42,157	42,781	39,325	39,460	33,734	40,871
Profit and Loss Account		3,250	-2,089	4,958	-1,301	2,723	4,990	6,436	3,867	3,353	4,394		1,219	7,019	4,247
Loan Acc:		6,000													
Reserve Acc.:		500													
<hr/>															
<b>ASSETS</b>															
Fixed (Expenditure during year)		14,021			555	4,094	4,238	3,809	188		1,834	2,899			
<b>CURRENT</b>															
Cloth Stock			7,834	7,768	7,054	2,490	1,487	1,386	563	356	339	2,716	1,493	732	1,329
Cotton "			1,114	1,075	1,102										
Robt. Nicholson's Stock											3,248	2,698	2,734	4,464	4,537
Wool Stock	9,482	2,435	7,456	989											
Wool and Yarn Stock						13,919	10,140	13,979	13,654	11,731	11,550	9,079	6,945	10,613	12,506
Manufacturing "											3,301	3,728	2,176	2,425	2,997
Wash			20	30	16										
Farm Stock			798	848	765	832									
Millwright's Account				334	214			38				168			
Wood and Iron "			698												
Partners' Current Account	2,134			121											
Press, Papers, Plates			510												
<b>DEBTORS</b>															
Machinery			7,668			8,041			8,028						
Cloth			17,289	18,702	20,707	20,597	16,981	23,011	21,006	10,901	13,369	13,715	15,098	14,396	15,839
Mill	29,208	5,941	3,573	4,270	2,141	1,634	1,483	1,172	648	770	606	2,243	1,372	664	
General					690	3,142	4,694	1,007	8,132	4,268	4,640	7,311	3,660	3,662	
Bank			11,549	24,167	21,294	21,071	26,647	34,640	5,321	13,059	9,358	3,330	5,649		
Cash		143	7,446	6,858	9,999	11,940	18,331	22,586	127	1,755	1,411	328	1,938	480	612
Stamps			426	271	308	447	549	548	53	49	36	18	26		
<b>LIABILITIES</b>															
Creditors (Clothiers)			6,288	2,116	2,051	2,065	1,213	1,835	303	154	251	144	342	275	25
" (Wool, Dyeing)	14,173	1,135	2,443	1,303	34,723	1,741	2,499	9,969	1,420	2,941	3,448	1,283			204
Notes	9,649	12,596	15,959	12,865	18,699	22,404	26,508								
Bank Ledger					29,975		48,675								
Smith, Payne and Smith	1,372	13,736	27,059	28,223	5,833		35								
Bad Debts					69	56			623	498	196			366	468
Rent	2,210														
Excise	520														
Expenses															
Milnes.							33	102							
Tootal and Co.:	2,231		Sykes and Co:	257											
<b>CURRENT ASSETS</b>															
minus CURRENT LIABILITIES.	10,813	29,476	38,379	37,756	26,620	30,515	31,570	12,200	45,510	41,341	36,427	40,679	40,752	45,117	

There were some substantial deficits on the cloth and blanket account in the years 1815, 1816 and 1819, and a small deficit in 1822. Apart from the farm and corn grinding accounts, this was the only account to sustain a net loss for the period as a whole. As will be seen from Table 21, the stocks of cloth and blankets bought from the local clothiers and held in the warehouses of Dewsbury Mills were of a much higher value in the early post-war years than they were in the 'twenties, when the partners were firmly engaged in manufacturing for themselves and were endeavouring to build up an order trade for their products, and when their merchanting of country-made cloths was a declining feature of their activities. <sup>(1)</sup> The loss recorded in 1815 was probably due to the cancellation of war contracts, whilst the losses in 1816 and 1819 resulted from the depressed state of trade, the former year proving more unprofitable than the latter. In 1819 Thomas Cook wrote:

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(1) On the other hand, stocks of wool and yarn increased relatively to those of finished goods as the partners developed their manufacturing operations.

In Dewsbury from last October the poor have been less than half employed up to March, after which time four-fifths of the population of the labouring class were out of employment, or employed by the Parish on the Town's road, or on the Dewsbury and Leeds Road, which is at this time making. (1)

The loss on the cloth and blanket account in 1822 is more difficult to explain, particularly as the year was generally a profitable one on the other accounts and Cook was able to write:

The business of last year was very large in nearly all descriptions of manufactured goods until about the middle of November, when the blanket trade slackened very materially. (2)

It may be true to say that the minus figure of £348 for this account, in this year, resulted from bad debts and the liquidation of old stocks of goods at prices below their book value.

The farming account consistently records losses throughout the period and reflects the disastrous harvest

(1) Thomas Cook, Diary, 15 May 1819. Thomas Cook was one of the Commissioners for the Leeds-Dewsbury Road which was opened later in the same year and provided a good, direct route between the two towns. See A Map of near 10 miles round Leeds, published by Edwd. Baines, Leeds, 1817.

(2) *ibid.* 1 Jan. 1823.

**A MAP**  
of near 10 Miles  
around  
**LEEDS**



**EXPLANATIONS**

- Market Towns as OTLEY
- Towns as Birstal
- Villages, Hamlets & Hamlets
- Manor Lands
- Other Lands
- Rivers & Moors

Scale of Miles

experiences of these years. In addition, it seems to have been the practice of Thomas Cook and his partners to divert their labour force to agricultural activities at times when the woollen trade was slack, rather than add to the general unemployment, and this would tend to raise farming costs. (1)

The farm account was thus partially burdened with the costs of maintaining an efficient labour force for manufacturing purposes, but this does not seem to have been a very significant charge upon the enterprise during these years. (2) The one loss recorded upon the bank account, in 1813, was probably agricultural in its origins. (3)

In 1819 the corn mill was leased, 'with a few trifling buildings and a field' to a William Fearnley at a yearly rent of £255 (the partners also providing power), and the corn grinding account was closed. The size of the rental suggests that corn grinding was a not insignificant activity at the mills, but its incompatibility with the woollen manufacturing processes probably persuaded the partners to remove it from

(1) 'Business shockingly bad - men working in the Mill Fields'. Thomas Cook, Diary, 13 Mar. 1820.

(2) The number of persons employed at Dewsbury Mills at this time is not known.

(3) cf. Pressnell, *op. cit.*, pp. 468-70.

their immediate control. At this time the partners seem to have been actively reviewing their functions at Dewsbury Mills with the object of stimulating efficiency. Fulling, weaving and cotton-spinning were all brought under consideration. In the case of fulling, Cook noted that 'the best plan would be to let the Fulling Mills to the millers, for mill accounts are last and worst paid.'<sup>(1)</sup> Table 21 reveals that there was a marked lessening in the amount of milling debts outstanding at the end of the year in the 'twenties, compared with the years up to 1819, and Cook's suggested change was not introduced.<sup>(2)</sup> In 1820<sup>it</sup> was decided:

... to begin a building for a weaving shop, as we judge it will be better and more independent of the workmen to have the weaving done here. It will also save the carrying out of the yarn and ensure the safety of property which is supposed to be a good deal purloined by sending it out to work. (3)

Cook does not seem to have been too certain about the alleged embezzlement of yarn by the out-weavers, but he was

(1) Thos. Cook, Diary, 8 July 1819.

(2) The entry by the partners into manufacturing probably reduced the fulling facilities available for hire by the domestic clothiers and this would have its effect on the size of outstanding milling debts, particularly after 1820.

(3) Thos. Cook, Diary, 25 Mar. 1820.



clearly convinced of the benefits to be derived from 'a building to put looms in, in order that we may be able to have our work done under our eyes.'<sup>(1)</sup>

Thomas Cook was probably persuaded of the advantages of bringing weaving, and therefore more of his labour force, into the Mills by his experiences during the depressed year of 1819. In the summer of that year he recorded in his diary:

This day the weavers and spinners of Dewsbury gave notice to their employers that they should not continue to work at the wages paid to them for some years back, in consequence of their insufficiency to support themselves and their families. The prices demanded for weaving is an advance of upwards of 50 per cent. Spinning ... a large advance, but not so great as that for weaving. There is no doubt of the wages of the working class in the Township being too low, and inadequate to the moderate support of a family - whether the wages demanded be not too high is a question of consideration. (2)

A few days later he records the general tenor of discussions on this question with other manufacturers, notably with Mr. Halliley of the Dewsbury firm of Halliley, Sons & Brooke:<sup>(3)</sup>

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(1) *ibid.* 27 Mar. 1820.

(2) *ibid.* 30 June 1819.

(3) In a letter from Jonathan Hopkinson to Viscount Sidmouth, sent from Dewsbury on 28 February 1820, there is the mention of 'two very respectable houses engaged in the manufacturing of blankets and other coarse woollen goods, viz. Messrs. Hagues and Cook and Messrs. Halliley Sons and Brooke, all the other persons following those branches of trade possess only small capitals ...'. Quoted in A. Aspinall, The Early English Trade Unions, (1949), p.344.



At Wakefield this day had a conversation with Mr. Halliley Senior, Mr. Todd and Mr. Brook relative to the advance of wages demanded by the workpeople, when the former declared that he would not advance them 6d. unless it should become general, that is general through the whole kingdom in the trade. I told them my opinion was against an advance to the extent demanded by the men, but I thought an advance was necessary and that it would have a tendency to put an end to the demoralising system which sent the poor to the Parish for money to make their wages up to a sum adequate to a bare subsistence. (1)

Cook's ventilation of the matter with Halliley and his associates led, a few days later, to 'a meeting of Mill owners to fix a price for spinning under the advanced wages', and a little later in the year he is able to report that:

The country demand for blankets has increased considerably of last four weeks, many additional hands have been set to work, and as all are receiving the advanced price for their labour, the condition of a great many will be greatly ameliorated. (3)

Early in 1820 the 'larger manufacturers' were apparently reconsidering the wage adjustments which they had agreed upon some months earlier:

The men who have turned out for additional wages, or rather who oppose any reduction of the extravagant wages that have been given to them the last six months, still appear determined to hold fast

(1) Thos. Cook, Diary, 2 July 1819.

(2) *ibid.* 12 July 1819.

(3) *ibid.* 8 Sept. 1819.

to their demands, and they are supported in it by many of the lesser manufacturers whose interest is evidently best consulted by such support to the men employed by the larger manufacturers: inasmuch as the high wages demanded by the workmen, if complied with, would be a kind of bounty in the goods of the small manufacturers, who will be satisfied to sell their wares at a much less rate than manufacturers can do who pay wages for work done. (1)

These entries in Cook's diary reveal, to some extent, the force of his desire to become 'more independent of the workmen', but no information survives to indicate the size of the new weaving department established at Dewsbury Mills in 1820, or of the number of looms which it contained. It is unlikely that the mere act of establishing hand-loom weaving in the mill premises would, in itself, reduce the demands of the weavers for what they considered to be 'fair' rates of return for their labour, but in so far as a group of them were now congregated in one place, it would ease Cook's task of negotiation on this delicate matter of remuneration. The early factory masters were disciplinarians as well as entrepreneurs and Thomas Cook probably believed that 'weaving at home', by increasing the opportunities for face to face contact, would help to improve industrial relations and

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(1) *ibid.* 14 Feb. 1820.

(1)  
introduce orderliness into the productive process.

Although the cotton spinning account contains a deficit item for 1822, no stock of cotton is recorded for that year and it is likely that the item represents the winding-up of an activity which was relinquished in 1821. In the spring of that year, Cook found 'business very flat, scarcely any orders', and he was 'spinning yarn to lay by'.<sup>(2)</sup> But soon after this he was writing:

Much more business in the country ... at our Mill we begin at half-past five o'clock and continue until half-past eight at night. (3)

Later in the year, the demand for cloth and blankets had developed to the extent that it was placing a strain on the spinning capacity of the firm and Cook observes that:

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(1) Cook was dealing at this time with the activities of 'the Institution' which receives frequent mention in the Report from the S.C. of 1806, but he does not seem to have been moved to record any strong views about it in his diary. The General Union of Woollen Spinners and Weavers was formed at Dewsbury in 1822. cf. G.D.H. Cole, Attempts at General Union, (1951), pp. 48-9. The partners continued to employ out-weavers in addition to their mill-weavers.

(2) Thos. Cook, Diary, 10 Mar. 1821.

(3) *ibid.* 24 May 1821.

... having disposed of most of our cotton machinery we are about to add to the quantity of our woollen (equipment) which will enable us to work at home all the wool necessary for our manufacture. The last eight months we have spun a considerable quantity of yarn at other mills, (1)

The rationalising decisions by the partners which began in 1819 culminated in 1824 with the movement of the banking practice away from the mills and the renting out of the farm to a tenant on a 'stock and lease' basis. Having disposed of cotton spinning and introduced weaving at the mills, Thomas Cook now controlled all the processes from the preparation of the raw wool to the finishing of the woven fabrics. Apart from cloth fulling, the commission services seem to have been discontinued in 1824, including the highly profitable scribbling account which, after manufacturing and banking, had been the mainstay of the partners' affairs during the period from 1811 to 1822. This rationalisation of production was accompanied by further substantial investment in fixed assets in the early 'twenties. Some £12,000 was spent in providing a Gas House to supply gas for lighting the works, (2) and in building the new weaving shop, and in the erection of:

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(1) *ibid.* 1 Jan. 1822.

(2) The partners were ahead of many of their competitors in the Dewsbury district in their early use of gas and in the early 1830s they had 700 lights in use on the premises.

... a new wool warehouse and dryhouse, the former is very much demanded by our business and the old dryhouse is on a scale much too limited for our present business. (1)

Before commencing the building of the new dryhouse the partners took the opportunity of reviewing the latest developments in design and construction of such buildings in Leeds:

At Leeds with Edward Hague to look at Dryhouses having an intention to alter ours - saw those of Mr. Hargreaves and Mr. Hirst's - Mr. Hargreaves is heated by iron flues - fires at each end passing the smoke over another in the middle by which the smoke is consumed - price of flues £190. (2)

and:

At Leeds market and to look at several Dryhouses - met Mr. B. Hartley who went with me to Mr. Thomas Becket's and to Mr. Brown's - both of them heated by flues standing upon the middle of the low floors - tilters on each side of the flues - Becket's three stories high - Brown's two - complaint made of their not heating so even in the middle as at the ends - these Dryhouses have both wood flooring. (3)

Thomas Cook seems to have incorporated many of the ideas seen at Leeds into the new dryhouses at Dewsbury Mills, although he rejected the use of timber in favour of an 'iron floor'. (4)

(1) Hagues and Cook, Balance Sheets, 1819, 1822-4; Thos. Cook, Diary, 8 May 1822.

(2) *ibid.* 5 Feb. 1822.

(3) *ibid.* 2 July 1822.

(4) *ibid.* 10 Oct. 1822. See also pp. 67-8 above for discussion of developments in drying house design in the West Riding.

To meet this new expenditure on fixed investment the partners sought a loan from the Wormald family of Gomersal, who had large interests in the house of Child and Company, bankers of London. (1) John Wormald obliged with an advance of £20,000 which he later decided to turn into a direct investment in the enterprise, and the partnership now became Hagues, Cook and Wormald in 1824. In 1829, John Wormald's younger brother, Percival, also joined the partnership and invested £6,000 in the firm, whilst John Wormald reduced his investment from £20,000 to £10,000. (2) The introduction of the Wormald family into the partnership, at Dewsbury Mills and the enlargement and re-organisation of productive capacity are thus linked together in the early 1820s. The advent of the Wormalds also strengthened the financial knowledge and acumen available to the partners in the prosecution of their country banking practice and, in 1824, employees of the bank also began to attend at Bradford and Wakefield, on market days, to transact banking business.

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- (1) The Wormalds had no family relationship with the Wormalds of the partnership of Wormald, Fountaine and Gott of Leeds.
- (2) John Wormald's interest was confined to a financial share in the undertaking and he withdrew his share of the profits yearly, whilst Percival actively engaged himself in the daily round of the business.

It is impossible to disentangle the banking accounts from the rest of the partners' affairs in the period before 1824 and, after that date the records of banking transactions were kept separately, but they have not survived. A few salient features may be gleaned from Tables 20 and 21. A net profit of £5,115 was earned on this account in the period 1811-22, with only one loss recorded in the year 1813; the most profitable year, surprisingly, was 1819 the year of general depression, and even in 1816 a small surplus of £88 was earned. The banking engagements seem to have been conducted with great prudence, largely due to the personal exertions of John Hague Senior. It seems to have been a comparatively small bank, its notes in circulation rising from a total of £9,649 at the end of 1812 to £18,699 at the end of 1822. (1) In the former year the notes in circulation were disposed as follows:

Hagues and Cook, Bank Notes in circulation

31st December, 1812

	£	
Guinea Notes	3,150	
Pound Notes without letters	1,000	
Pound Notes with letter 'A'	1,000	
£5 optional notes	1,000	
Pound notes with letter 'B'	1,000	
Pound notes with letter 'C'	999	
Pound notes without letter, 1001-1500	500	
£5 Notes not payable in London	1,000	
	9,649	(2)

- (1) Hagues and Cook, Balance Sheets, 1812-22. cf. Pressnell, op. cit., esp. chap. 6. In 1816, £510 was spent on 'Press papers and plates' for the printing of bank notes.
- (2) Hagues and Cook, Balances and Private Ledger, 1811-24.

The loans of the Bank amounted to £11,549 at the close of 1816, it was more than double that figure in 1818 and in 1822 it stood at £21,071 at the end of the year. It rose to £34,640 in 1824, but it is notable that in the crisis year of 1825 the partners managed to limit their outstanding bank loans to the extremely cautious total of £5,321. The bank advances made in the later 'twenties did not reach one-third of the 'peak' lending of 1824. The partners seem to have made a limited use of the facilities for 'overdraft' placed at their disposal by Smith, Payne and Smith. At the end of 1812 the amount outstanding to the London bankers was £1,372, it was £5,833 in 1823, but in 1824 had subsided to the insignificant figure of £35. It would have been interesting to know the extent of the partners' reliance on their London bankers in 1825, and particularly to have traced the relationship quantitatively over a longer period of time,



(1)

but the necessary evidence has not survived.

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- (1) John Hague Senior and his brother Thomas were also partners in the North Riding Bank established at Malton about 1816, the other partners being a Mr. Arthur Strickland, a Mr. Allen and a Mr. John Barnby. They had an arrangement to draw upon the London house of Barclay and Company. In 1823 they opened a branch bank at Pickering. This bank appears to have had a considerable note issue and seems to have transacted a sizeable amount of business in this predominantly agricultural area; it failed, however, in the crisis of 1825.

'We regret to announce that the respectable Banking Establishment of Messrs. Hagues, Strickland and Allen, of Malton, have been compelled to, suspend their payments. In a notice issued by them and circulated yesterday ... they state that they have been compelled to take this step "owing to the long continued and encreasing pressure upon their establishment, and the utter impossibility of getting in their resources, in consequence of the present stagnation in the trade and commerce of the country." Messrs. Hagues and Company, however, assure the public that on an inspection of the situation of their affairs "there will be found more than sufficient to pay every demand in full ..." When Messrs. Hague and Company state to the public, that, about five years ago, they were defrauded and robbed by their late partner, John Barnby, and his accomplices, to the amount of sixty thousand pounds and upwards - that notwithstanding, Messrs. Hague and Company have maintained their credit and characters unimpeached ever since, though they had to contend with numerous prejudices arising out of the misconduct of that partner - and, further, that they had within the last two months, amidst the difficulties and troubles of the country, paid near to one hundred and twenty thousand pounds in discharge of their engagements, Messrs. Hague and Company, feel assured that the public will sympathise with them in the present situation, and allow them time for the settlement of their affairs under the direction of proper persons to be appointed for that purpose."

Footnote 1 continued on following page.

Footnote (1) from previous page ... continued.

'We understand, the amount of their notes (Hagues, Strickland and Allen) in circulation, is now little more than 24 or £25,000, that the total amount of claims upon the house do not exceed £90,000, and that the effects to meet that sum, amount to somewhere about £111,000, exclusive of the private estate of each partner. The firm is rapidly winding up its concerns, and the partners confidently hope, to pay off one third of their obligations within three months and the remainder within a very short period.'

An extract from the York Courant, February, 1825, quoted by N. Phillips, A History of Banks, Bankers and Banking in Northumberland, Durham and North Yorkshire, (1894), pp. 279-80.

The Hagues received assistance from the Wormald family and also from Smith, Payne and Smith and Barclay and Company. Thomas Cook noted in the correspondence book:

'If Mr. Hague can get out with the loss of two-thirds of his property it will be a good ending ... . Mr. Hague's stoppage has brought us considerable pressure but we are, we see, clearly masters of our engagements.'

Thos. Cook to Dixon and Company, New York,  
28 Feb. 1826.

A further innovation in 1819 was the acquisition of a cloth and blanket warehouse in Coleman Street, London, <sup>(1)</sup> and the appointment of an agent, Robert Nicholson, to deal with orders from the London wholesale houses and merchants, and to hold stocks of goods; to act for the partners in transactions with government purchasing departments; and to keep them supplied with intelligence about wool supplies available in the city. <sup>(2)</sup> In return for these services he was paid one per cent. commission on the value of sales which he handled or initiated. At the end of 1823 he was carrying a stock of blankets and cloth in Coleman Street to the value of £2,138 and throughout the 1820s his stock of textiles fluctuated in value, on the basis of end-year figures, between £2,000 and £3,000. After 1825 he seems to have been earning an annual <sup>(3)</sup> commission from the partners of approximately £400.

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- (1) The location of this London warehouse was well chosen, Coleman Street becoming, later in the nineteenth century, the main London wool-marketing centre. Thos. Cook, Diary, 20 May 1819.
- (2) The partners commenced direct tendering, through Nicholson instead of through factors or wholesale merchants, for government contracts early in 1821.
- (3) Nicholson's rate of commission stood unchanged until 1836 when it was raised to  $1\frac{3}{4}$  per cent.. The partners, from the beginning of their association, allowed him to use their London premises for other agency activities to supplement his income.

## II

A number of other items appearing in the analysis of balance sheets in Table 21 are deserving of comment. On the assets side of the accounts the value of wool stocks fluctuates violently in the years 1816-19, rising from £2,435 in the former year to £7,456 in 1818 and subsiding to a mere £989 in 1819. The amount of capital invested in raw wool was obviously a function of the general economic situation in these years and also of the expectations of the partners, chiefly Thomas Cook, regarding the movements in the price of wool. (1) After 1819 the value of the wool stock held at each year ending is not shown separately from the value of yarn and goods in process of manufacture and it is impossible, therefore, to trace the influences which were mainly determining the size of the wool stock held. (2) From 1822 to 1831 the value of wool, yarn and goods in process fluctuated within the range £9,000 to £15,000. The value of the farm stock increased from £798 in 1816 to £832 in 1822 and thereafter it remained at that figure in the accounts until 1828 when it

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(1) Thomas Cook's skill as a wool-buyer was probably the most important single reason for his entrepreneurial success.

(2) There are some scattered references in Thos. Cook's Diary and in the firm's correspondence books which suggest that wool was sometimes bought for speculative purposes. See below, pp. 773 *et seq.*

ceased to be incorporated in the partners' general accounts. In 1825 there was a capital expenditure of £188 on improvements to farm buildings.

Between 1812 and 1822 the partners appear to have dismantled and disposed of a large quantity of machinery, including the cotton spinning equipment, which had been acquired in the original purchase of the property by John Hague Senior in 1811. The total value of this machinery was £8,041 and this item was not finally cleared until 1825. In that year this sum was received from the purchasers of the machinery and, apparently, paid over to Hague's private account, it does not seem to have been left to swell the partners' capital employed in the house. The amounts outstanding at each year end in respect of cloth and blankets purchased from the partners are extremely large, fluctuating between £13,000 and £23,000, except for the crisis year of 1825 when the partners managed to reduce their outstanding debt on this account to just below £11,000. The size of these outstanding debts suggests that the partners generally followed the prevailing commercial practice of the time in allowing three months' credit to purchasers and that, unlike many of the small manufacturers, they did not have to resort to the practice of obtaining quick advances on the accepted

bills of their customers. <sup>(1)</sup> The general debts outstanding grew, after 1822, ranging between £3,000 and £8,000 in the period up to 1831. <sup>(2)</sup> It is difficult to comprehend exactly what was included in this category of monies owing to the partners, but it probably included some fairly large items of cash advanced to out-weavers and other employees in respect of work in progress, and also debts incurred by smaller manufacturers who bought wool from the partners. <sup>(3)</sup> The amount of cash in hand, between 1816 and 1824, never fell below £6,000 and was as high as £22,000 in the latter year, but this included money held in respect of the banking as well as the manufacturing operations and, after 1824, the cash resources at the Mills were relatively small, the major cash reserves being held on current account at the Bank.

(1) See above, pp. 140-1.

(2) The partners do not seem to have had any major setbacks as a result of bad debts, in the twenty years, 1811-31, these amounted to less than £3,000.

(3) 'The fact is that my father was a small manufacturer ... and he got into debt with Mr. Cook for a wool bill, and as he had no other means of paying him, he came and agreed with my father, that my brother and I should go to work at his mill until the debt was paid; so that the whole of the time that we wrought at the mill we had no wages.'

1st Report from Royal Commission on Employment of Children in Factories, 1833 (450) xx, Q. 2639.

There is little specific information in the firm's early financial accounts and other surviving papers relating to the type and quality of the machinery employed at Dewsbury Mills during the first twenty years of the partnership's operations. Presumably carding engines, slubbing-billys, spinning jennies, and hand looms equipped with the fly-shuttle were in use and were of the kind generally found in the West Riding industry at this time, and we have already noted the existence of a ~~gill~~ mill on the premises in 1812. Whether the partners were using mechanical shearers or still relying on hand cropping during this period it is not possible to say. In one respect, however, the partners were, in the early 'thirties, probably ahead of many of their competitors in attempting to mechanise the piecening process. In answer to a further question from the Factory Inquiry Commissioners respecting the employment of children under twelve years of age, Cook stated that:

A little reduction (in the labour of children) has taken place with us, from using a new machine of questionable utility, by which a few more hands are saved. But there are machines at work in the United States which no doubt will be ultimately adopted here, and by which one stout child will do the work of four, as the same work is prepared here. We have seen a similar machine at work in England, and have no doubt of its being adopted, in time, in England. (1)

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(1) Factories Inquiry Commission, 1834 (167) xx, Supp. Report, Pt. II, Section C.1, pp. 20-1.

This answer suggests that the partners were experimenting with what was probably an inferior copy of John Goulding's condensing device for 'drawing wool from the carding machine in a continuous strand' and that they were anxious to dispense with the slubbing process as soon as this (1) was feasible and practicable.

On the side of liabilities it is notable that the amounts owing by the partners to the domestic clothiers, in respect of cloth and blankets bought from them, are large in 1812 and 1816, but that these debts stand at a much lower level once the partners begin manufacturing for themselves and particularly after 1824 when weaving becomes an internal operation at Dewsbury Mills. These obligations are insignificant from 1825 onwards, being as low as £25 in 1831. The amounts owing for wool purchased, and for dyeing done on behalf of the partners by specialists in Leeds, fluctuate between £1,000 and £3,000 over the period, except for the curious intrusions in the years 1822 and 1825. In the former year the amount owing on this account reached more than £34,000, probably resulting from large purchases of wool in December of that year. Cook notes in his diary:

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(1) See above, pp. 180-1.



... I think as wool is so very cheap there must be a demand for goods in our line to America, and as they are finding their way to the East and to South America we may reasonably hope for a fair demand again in the spring. (1)

In 1825 the amount outstanding here was very nearly £10,000 and it is difficult to explain why it should have been so large in relation to the other years in the 'twenties, though we may guess that, in a year of crisis, the partners were probably delaying their payments and proceeding cautiously in liquidating their liabilities. One other item which invites comment is the solitary reference to rent in 1812 and the stipulated amount of £2,210 which appears as one of the partners' liabilities. No other supporting evidence survives to throw further light on the rental agreement which existed at this time between John Hague Senior and the partners, and the fact that this figure does not occur again in the balance sheets for the rest of the period is probably simply explained by the payments of rent being made before the end of December each year, its 'outstandingness' in 1812 being purely fortuitious. Taking into consideration the £33,750 which Hague expended on acquiring the Dewsbury Mills estate, the rental figure of £2,210 represents a return of

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(1) Thos. Cook, Diary, 1 Jan. 1823. Some of this wool was probably resold in 1823 and 1824 when the demand for woollens was improving.

about 6 per cent., per annum, on his capital outlay which was probably a reasonable arrangement financially for both himself and for his tenants. As Hague was both the landlord and a tenant, one must presume that he maximised his satisfactions in both these capacities.

On the capital account the only entry which occurs after 1824 is in relation to a new iron water wheel which was installed in the latter part of 1827 and in early 1828. (1) Apart from the wheel itself, a new wheel house was erected and some improvements effected in the course of the mill-race. The total cost of this work and the equipment was £2,899. The decision to instal a new water wheel must have been prompted by the desire to improve the efficiency of the power supply at the mills at a time when the increased manufacturing activity was stressing the existing generating equipment. It is significant that the partners did not choose, at this time, to introduce a steam engine or engines in order to augment their power resources, the net attractions of relying solely on water power apparently outweighing the capital and running costs involved in employing steam engines, despite the fact that steam was already being generated at the mills

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(1) The wheel was supplied by Fairbairn and Lilley of Manchester.

in order to heat the premises. In 1831, Thomas Cook was asked by the Factory Inquiry Commission:

Describe the power employed (at Dewsbury Mills), whether steam or water, or both; and if the latter, whether regular or irregular, and what are the degrees of irregularity and the extent of the power? (1)

His answer:

Entirely water-power; stream powerful. The whole power, in times of a full, and not too much water, one hundred and sixty to two hundred horses power may be used; but the works are subject to stoppages by flood-waters to the extent of from fifteen to twenty days a year, in that part in which children are employed; and in dry seasons a tithe of time will be lost by deficiency of speed, occasioned by want of water. At the fulling and dyeing-wood mills one-sixth of the year is lost by flood and want of water. (2)

An undated entry in Thomas Cook's diary also shows that the partners had made very careful calculations of the effect of canal traffic on the water level at Dewsbury Mills and that such disturbances would not unduly hamper 'our new

(1) Factories Inquiry Commission, 1834 (167) xix, Pt.i., Q. 4.

(2) *ibid.* xx, Pt. ii, Section C.1, p. 20.

wheel' which 'consumes 60 cubic feet per second.'<sup>(1)</sup>

### III

The strength of the merchant-manufacturer was to be found as much in his knowledge of markets and the consumer as in his command over capital resources, and Thomas Cook<sup>(2)</sup> was typical of many of his contemporaries in this respect. He was in regular contact with the wholesale merchants who, strategically located between the manufacturers and the retailers, held a dominating position in the home trade for woollen fabrics.<sup>(3)</sup> As well as maintaining a correspondence with the wholesalers, Cook, like other merchant-manufacturers, undertook regular journeys to the large towns in search of orders, usually in the spring and autumn of the year.<sup>(4)</sup>

- (1) Thos. Cook, Diary, undated. Cook notes that 'sixty vessels pass on the Canal daily, consequently it will lower the dam seven and three-elevenths inches to pass these vessels.' He added that it required 'about 100 vessels to lower Dewsbury Mills Dam one foot, assuming no water to come into it', and this appears to have been regarded as the critical level as far as the driving of the new wheel was concerned.
- (2) Cook was modest about his merchanting ability: '... multitudes in this kingdom can beat me in making a sale of blankets, but I am vain enough ... to believe that no one knows how to make them better than I do.' Thos. Cook, letter to Frank Wormald, 12 Oct. 1830.
- (3) See above, pp. ?
- (4) E.g. The 'northern' and 'southern' journeys of Benjamin Gott. cf. Heaton, 'Benjamin Gott ...' Economic History Review, (1931)

In 1819 he is travelling to 'Manchester and Liverpool ...  
 without doing much business'<sup>(1)</sup> and calling 'on several agents  
 with Mr. Nicholson ... in London.'<sup>(2)</sup> Later in the same year  
 he notes that, 'the country demand for blankets has increased  
 considerably ... many additional hands have been set to work.'<sup>(3)</sup>  
 In the following year he is again at Liverpool to 'take a few  
 small orders for goods and a large one to amount of about  
 £3,000 - a very good thing for our workpeople and also for  
 ourselves in case no casualty fall out as to payment.'<sup>(4)</sup>  
 He also records the receipt, from Manchester, of 'an order ...  
 for 1,500 blankets from Maitland and Company, this with two  
 or three other small orders will keep our men moderately  
 employed for two months to come.'<sup>(5)</sup> In the summer of the  
 same year he finds 'Messrs. Halliley's house and ours very  
 well employed, but generally the smaller manufacturers are  
 not, there is on the whole however much more doing'<sup>(6)</sup> and he

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(1) Thos. Cook, Diary, 16 May 1819.

(2) *ibid.* 20 May 1819.

(3) *ibid.* 8 Sept. 1819.

(4) *ibid.* 5-6 April 1820.

(5) *ibid.* 8 May 1820.

(6) *ibid.* 24 June 1820.

is able to speak of '900 pairs of blankets which we made in  
 one week.'<sup>(1)</sup> Early in 1821 he is again in London to take  
 'an order ... for 1600 blankets, all sorts of colours, for  
 the house of Richards, Mackintosh and Company'<sup>(2)</sup> but, a little  
 later, he observes that 'Edward Hagues has been at Bristol  
 the last fortnight and found business very bad.'<sup>(3)</sup> But  
 later in the year he reports that 'all hands are very fully  
 employed and the manufacturers as busy as they can wish',<sup>(4)</sup>  
 in fact, upon receipt of 'an order for 850 pairs of blankets  
 to be delivered in Liverpool on the 8 of October I went round  
 among the local manufacturers to attempt to buy them but  
 could not.'<sup>(5)</sup> He also complains of the 'great difficulty in  
 getting any wool wrought at any Mills in this neighbourhood.'<sup>(6)</sup>

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(1) *ibid.* 15 July 1820.

(2) *ibid.* 11 Feb. 1821.

(3) *ibid.* 30 April 1821.

(4) *ibid.* 26 Sept. 1821.

(5) *ibid.* 29 Sept. 1821.

(6) *ibid.* 19 Sept. 1821.

In the spring of 1822 Thomas Cook's journeys were not very productive of business and he:

... delivered in tender this day to supply the Government with 10,000 blankets - my price 21 $\frac{1}{2}$ d. per lb., will take wool equal to Kent Head and Fine Ab. Messrs. Early and Company got the contract as they did yesterday for 5,000 blankets. As we are not very busy at present we thought that a job of this sort would have come well in. (1)

But in the early summer of this same year he was 'sending away a great many goods and all the district uncommonly well employed.' (2) In the autumn the picture had changed again and he writes of being 'very slack of work, the Mill standing several days together, only one order in the Blanket Book.' (3) In 1823 he was more fortunate with his government contracting, obtaining an order for 28,000 double and 4,000 single blankets. The partners anxiously sought such orders during the winter months to keep their men and machinery employed, the usual manufacturing period arising from their normal trade being March to November. (4) They

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- (1) Thos. Cook, Diary, 4 April 1822. The firm of Early and Company is still in existence and records of this firm form the basis of Plummer's The Witney Blanket Industry.
- (2) Thos. Cook, Diary, 20 June 1822.
- (3) *ibid.* 18 Nov. 1822. The 'blanket book' alas, has not survived.
- (4) Nussey stated to the Factories Inquiry Commissioners that, 'The blanket trade is usually dull from before Christmas to May ... generally not more than four or five days (work) per week; from May to November it is usually brisk, and for one or two months in the year overtime is frequently required ...' Factories Inquiry Commission Supp. Report, Section C.1., p. 157.

operated a sub-contracting arrangement with their near competitors, the Hallileys, the contract being shared if either firm obtained a government order after tendering. (1)

In the autumn of 1823, Cook wrote a Liverpool merchanting house:

We shall be glad to have your order for any goods of our manufacture which consists of Blankets of all sorts, also Flushings. We begin in the last article as low as 1s.7d. per yard ... we mean in all common colours, as Olive, Brown and Logwood Blues, Drabs being usually made of better wool cannot be afforded so low, and we should require 2d. to 4d. a yard more in that colour for the lowest article; than for the colours named, the articles to be equal in substance. In Blankets, Points and London Duffils the price will depend on the weight required, as we send 3 points on all rates, from 4ls . to 110s. the price of 10 pairs of blankets - the same applies to every other kind of points. London Duffils are black and red striped and in pieces of eight pairs. Rose blankets if required, you must say whether a low, middling or good article be ~~the~~ best suited to your sale. (2)

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- (1) 'We shall have the last of our Navy blankets dry tomorrow if the day be fine ... fifty-two bales of yours and ours went last week ... I think that, on this score, I have left your partners little to complain of.' Thos. Cook to Mr. Halliley, 13 Sept. 1830. There is also some scattered evidence in the early correspondence which suggests that the partners co-operated with the Hallileys in wool-buying in the late 'twenties.
- (2) Hagues and Cook to Currel and Brown, Liverpool, 15 Oct. 1823. Flushings were coarse, thick woollen fabrics, points were usually larger and heavier than ordinary blankets, brightly coloured, and with short stripes 4-5 inches in length inserted in the edge of the fabric running across the warp near the corner of the piece. Rose blankets were decorated with small, embroidered floral patterns worked by hand.



Cook's scale of operations and his direct access to the wholesalers gave him decided advantages over the smaller manufacturers of the district who normally sold their goods to merchants in Leeds, and to a lesser extent, in Huddersfield. 'Our establishment is ... on a large scale which can get up orders sooner than most houses'<sup>(1)</sup> wrote Cook in 1823, but at times of slackening demand he found the small makers highly competitive. 'Stephenson of Chickingley is making striped pieces ... at 18s.2d. per pair - a price lower than that at which I can make them for by a full 1d. per lb.'<sup>(2)</sup> And again, 'bought a few blankets this day from Oddy - considering the excellent quality and weight at the money I cannot equal the goods',<sup>(3)</sup> and '... took in some blankets bought of Walker of Dewsbury Moor - goods lower than can be made by those who have wages to pay, the domestic manufacturer is not getting the full price for his labour.'<sup>(4)</sup> The overhead costs of the small clothiers were negligible in relation to their variable costs and they were thus in a stronger competitive

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(1) Hagues and Cook to J. Stanley, Manchester, 14 Oct. 1823.

(2) Thos. Cook, Diary, 23 Mar. 1821.

(3) *ibid.* 28 April 1821.

(4) *ibid.* 5 June 1821.

position vis-a-vis Cook and other large manufacturers in times of depression. This position would be further strengthened if, as Cook states, the small clothier was prepared to suffer a reduction in his remuneration in order to effect a sale. The partners' labour costs were exercising Thomas Cook's mind a good deal in this period and he reflects:

... we have got in this neighbourhood into a complaisant a state with our workpeople that I suspect that we shall alternatively be driven to erect power looms to weave the goods. This is done to a great extent in the cotton trade and those goods woven by power have a decided preference in the market over such as are woven by hand, there cannot be a doubt that such would be the case in our trade if once adopted. (1)

By 1824 the volume of orders reaching Dewsbury Mills was such that a full-time 'clerk' was taken on to help with the firm's routine correspondence and Thomas Cook discontinued his hitherto regular order-seeking journeys, although he still travelled in search of wool supplies and was always ready to solicit orders for blankets if the opportunity arose. The partners now commenced the practice of sending out to their customers printed lists indicating the prices, weights, and qualities of their range of manufactures. (2)

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(1) *ibid.* 1 May 1822.

(2) The Leeds merchants handled the major share of the products of the Dewsbury-Batley-Heckmondwike trade and Cook endeavoured to keep his prices at, or below, what the Leeds people paid to the local clothiers for finished goods, quality for quality.

In June 1824, sixty-nine of these lists were despatched to customers in the large towns of England, Scotland and Ireland; the firm had few correspondents in Wales. <sup>(1)</sup> The large wholesalers were offered  $7\frac{1}{2}$  per cent. discount on the list prices, the smaller wholesalers were given 5 per cent., but these discounts were not extended to retailers ordering direct from the firm or to those wholesalers who only ordered sporadically. This discount policy was aimed at discouraging retailers from ordering goods owing to their tendency to demand long credits which Cook and his partners disliked.

Large supplies of wool, mainly English and Irish of low quality, were bought by Cook on the basis of personal judgement, supplemented after 1818 by increasing consignments from Russia and the Continent imported through agents in Hull, Liverpool and London. <sup>(2)</sup> Normally, Cook liked to handle the wool before deciding on purchase, but he bought a good deal from staplers on the basis of samples and the corres-

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(1) There was a thriving indigenous blanket and flannel manufacture in Wales at this time.

(2) Cook apparently experimented in the years 1815-18 with the direct importation of foreign wool, but found this unsatisfactory.

pondence books contain many references to disputes arising from the firm's receipt of bulk deliveries which, in the partners' opinion, failed to reach the quality of the sample. (1) In reply to staplers offering wool for sale, Cook repeatedly stressed that 'the wool should be of a good, white colour for blanket goods, and free from burrs.' (2) In Ireland the partners had their regular agent who bought wool on their behalf and despatched it to them via Liverpool. (3) In England, Cook bought wool in the local markets:

... at Leeds today bought a waggon load of wool from Hubbard. (4)

and:

... at Wakefield market today bought 68 packs of Broadhead at £8.10s. per pack - 4 months bill, also 12 packs of middling Broadhead at £8.5s. (5)

keeping the movement of wool prices under constant review, for wool costs were a major constituent in total costs and he

(1) E.g. 'We hope that the wool you have sent will be of the character of the sample - your wool is commonly full of sand which is a great take off its value.' Hagues and Cook to J.N. Tanner and Son, Plymouth, 5 May 1824.

(2) *ibid.*

(3) A Mr. Harrison of the house of Hogue, Beaumont and Deane of Dublin, in the 1820s.

(4) Thos. Cook, Diary, 27 Sept. 1819.

(5) *ibid.* 11 Jan. 1822.

regarded trends in wool prices as important indicators of trading prospects. (1) He paid regular visits to London in the winter months, when wool prices were usually seasonally low, in order to build up his wool stocks to meet the manufacturing demands of the spring and summer, though the extent of his buying depended upon his appraisal of the likely movement of wool prices three to six months ahead:

... in London ... bought several lots of wool, about £1,570 worth at 3 months interest for cash. (2)

#### IV

Thomas Cook, like his contemporaries, was a very export-conscious merchant-manufacturer and a discussion of the experience of the partners in exporting to the United States will serve to illustrate the problems encountered by the partnership in their first twenty years of overseas trading. Various merchanting methods were being used, in the 'twenties, by the partners to dispose of their goods abroad:

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(1) Cook told the S.C. of 1828 that wool constituted 54 per cent. of the value of his finished goods.

(2) Thos. Cook, Diary, 11 Feb. 1821. The evidence of the correspondence books suggests that his travels to London were arduous and uncomfortable experiences.

manufacturing goods to specific orders submitted by foreign agents and merchants; <sup>(1)</sup> supplying English merchants who were themselves either working to orders or exporting at their own risk; and consigning goods as trial adventures to promising <sup>(2)</sup> but uncertain markets.

It seems likely that the partners gained a foothold in the American market by means of a judicious use of consignments but as the fate of many consignments of goods was to be 'auctioned', often at considerable loss, they were anxious to secure the services of a reliable foreign representative who could provide them with firm and regular orders for goods and, as long as speculative cargoes were necessary, to handle their affairs profitably. In 1821 Cook states that he has written to

Thomas Dixon and Company of New York offering ... a commission to do our business there and to guarantee the debts. <sup>(3)</sup>

In the following July, 'T. Dixon of New York called at <sup>(4)</sup> Dewsbury Mills' and the agency arrangements between the

(1) 'Mr. Dunn and Mr. Jones from Philadelphia gave us an order this day for £1,300 value in Blankets - they spent the evening with us ...' Thos. Cook, Diary, 23 Aug. 1821.

(2) 'Packed a small adventure in dyed blankets and cloth for the East Indies.' *ibid.* 12 May 1821.

(3) Thos. Cook, Diary, 3 Dec. 1821. The first reference to American orders in the firm's records occurs in August, 1819, but consignments were probably sent to the States as early as 1816. For the 'auction' system see above, pp. 146-7. Thomas Dixon was probably a member of the Dixon family which emigrated from the West Riding in 1815. cf. Heaton, 'Yorkshire Cloth Traders ...', p. 268.

(4) Thos. Cook, Diary, 27 July 1822.

parties were satisfactorily settled. From then until the late 1830s, Dixon managed their affairs in the American market, supplying them with intelligence, orders and remittances in respect of shipments of goods. At the outset it seems to have been agreed that the partners should leave up to £5,000 worth of stock in Dixon's hands in New York, and that he would remit the sales proceeds home in the form of bills of exchange or in produce, according to his judgement of likely movements in the exchange rate. In March 1823, Cook wrote:

... we have sent to you orders to invest all our money in Cotton. We like quick returns, but not ~~to pay~~ too high for them. We have no objection to employing a certain capital in this New York trade and, as you make us returns, shipping again to the same amount, in goods assorted as you may point out to us. (1)

In the same letter Cook reminds Dixon that 'profit is the end of business' (2) and, later in the year, he is writing, 'we see it is necessary to keep to a low article if any profit is to be made; and next year unless you direct us to the contrary, we shall send the goods of a low, or light make.' (3)

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(1) Hagues and Cook to T. Dixon, New York, 23 March 1823.

(2) The unequivocal statement of Cook's business motives occurs repeatedly throughout the correspondence and portrays Cook as almost a textbook entrepreneur. '... it is the function of the entrepreneur to anticipate the earning of profits and to plan the operations of the firm so as to make possible the earning of profits.' B.S.Keirstead, An Essay in the Theory of Profits and Income Distribution, (Oxford, 1953), p. 16.

(3) Hagues and Cook to Dixon, 4 Nov. 1823.

This demand for cheap, low quality blanket goods proved to be the basis of the substantial American trade which Cook and his partners built up after 1824. As Dixon introduced American importing houses to the firm and they were proved reliable in payments, separate ordering arrangements were developed with them and any houses ordering goods from the partners without an introduction from Dixon were asked to provide the name of a guarantor in England. (1)

Dixon's cotton purchases seem to have been reasonably successful during the period 1823-4, but in May 1825, Cook advised Dixon that 'money cannot be safe to come home in cotton' (2) and he stressed the necessity of remitting by means of good bills drawn on London or Liverpool houses. Cook was also concerned at the length of time which elapsed between shipments and the receipt of remittances in this trade and Dixon was informed that:

It will be necessary that you remit to us in the course of the summer, as the large consignments you have recommended us to make, and the whole of which are cash out of pocket from the day of buying the wool joined to what money you hold of ours will

(1) 'It is not our practice to send any goods to America which are not guaranteed to us to be paid when due by some English house.' Hagues and Cook to Colbourn and Holbrook, Charlestown, 31 Mar. 1823.

(2) Hagues and Cook to Dixon, 11 May 1825.



together make an amount larger than we care for or than will be convenient perhaps to have lying over with you till the spring. (1)

By these measures, Cook endeavoured to minimise the risks and enlarge the profitability of the American market in the 1820s. His success in achieving these aims is roughly indicated by the profits of the partnership, and it is clear from the firm's correspondence that the fluctuations in profits during the 'twenties were largely produced by the vicissitudes of the American trade. The buoyancy of the trade in 1824, the crisis of 1825, and the depression of the later 'twenties which was followed by the recovery of the early 'thirties can be traced in the firm's profit and loss accounts and also in the correspondence books. (2) In 1825 Cook is comparing the fortunes of the partners in the American trade with the experiences of their neighbours, the Hallileys, and writing to Dixon:

You say that you have sold the point goods at a 65 advance - we have seen Halliley and Company and they name to us that they have a lot sold by their agent at 80 per cent. advance, and we remark that theirs are invoiced precisely at our price by the lb. Their agent tells them that the Exchange is about 5, indeed as you quote it, and that he shall discount the sales and send their

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(1) Hagues, Cook and Wormald to Dixon, 22 Mar. 1825.

(2) See Table 21.

money home. We trust that you will have done this for us before this letter arrives, for you will, in our opinion, have a turn in the Exchange. (1)

In the same letter, Cook adds, 'we are satisfied with your sales, being so much better than we had before, but at the same time get the top of the market when you can.' (2) In August of the same year Cook is predicting that 'destruction will overtake many houses who thought themselves enriched beyond any chance of reaction, by the vast profits of the spring trade ... Crowthers, Clough and Co., and others, the precursors of many more, have stopped, and by this you will have sickening letters to and from America.' (3) In September the partners are writing to a Mr. Milne of High Crompton:

We suppose we shall have in New York a large sum of money, we wrote to Dixon and Company desiring them to remit to us when the exchange was down at four to five per cent., but as they have not done so, we expect the rate of exchange will be so much altered that our funds will be found in their hands when you arrive in America. We have told Dixon that to avoid any collision of opinion, we leave it entirely to you whether or no any cotton be purchased. (4)

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(1) Hagues, Cook and Wormald to Dixon, 26 July 1825.

(2) *ibid.*

(3) Hagues, Cook and Wormald to Dixon, 13 Aug. 1825.

(4) Hagues, Cook and Wormald to J. Milne, 20 Sept. 1825.

In October the partners are again writing to Milne, in Savannah, to inform him that 'Dixon and Co. have remitted to us £2,500 ... consequently our funds in their hands will not in all probability now exceed the sum of £6,000. We think it probable that the panic in America will be such, joined to the diminished ability of the exporters to ship cotton, that we may fairly anticipate a better exchange for that article than we should have in receiving the money in bills.' (1) Milne seems to have acted with some prudence, in association with Dixon, for Cook is able to say, a little later, that 'considering the great extent of our mercantile affairs we are apparently very fortunate not having - Hibberson excepted - a penny of loss.' (2)

Early in 1826, however, Cook is writing much more dramatically to Dixon:

Send us home what money you have of ours ... you will have heard ... of the state we are in, in England, it beggars description ... everything not highly taxed is falling rapidly in price ... one hundred country banks stopped last month ... the ruin is checked, but there is underwork going on of a more hurtful character to individuals and bank establishments than the panic and alarm amongst the note holders. (3)

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- (1) Hagues, Cook and Wormald to Milne, 13 Oct. 1825.
- (2) Hagues, Cook and Wormald to Brown and Co., Liverpool, 12 Dec. 1825. The only bad debts recorded in the accounts for this year amount to £623.
- (3) Hagues, Cook and Wormald to Dixon, 20 Jan. 1826.

and:

Mr. Milne has sent to us some cotton - it will be a great loss. (1)

In the spring of this year the partners are seeking to strengthen their trading connection with the Henrys of Manchester:

Try us fairly this year with your orders, and if we do not give satisfaction we will never ask another order of you. We can and will use you so as no house can do better, and we say, so well. "or rubbish, like the sales alluded to in our last letter, we will charge you from 15 $\frac{1}{2}$ d. to 16d. per lb., but for a penny per lb. more ... we will send to you an article worth to the eye double the money. (2)

At the same time they are handling their American trade with caution, 'We do not think it will be safe to send you this year so many goods as we did last, you must, we think, participate in the great money distress there is here.' (3)

There is little in the correspondence book for 1827 to throw light on the trading activities, but in the spring of 1828 the partners are still dealing cautiously with American houses. 'Consignment business is one we have set ourselves against at all times ... the view we have taken of such

(1) *ibid.*

(2) Hagues, Cook and Wormald to Alexander Henry, Manchester, 29 Feb. 1826. For the story of 'the Henrys' in the American trade see Fortunes made in Business, (1887), vol. iii, p. 201 et seq.

(3) Hagues, Cook and Wormald to Dixon, 5 July 1826.

business is that it has the effect of working our machinery  
 at times when we might otherwise be standing.' (1) In this  
 year the American tariff rates were drastically revised (2) and  
 the partners informed one of their large customers in  
 Philadelphia, 'the passing of the American Tariff will help the  
 goods in your hands, but we shall not add to the quantity you  
 have until we have your instructions to do so ... It does not  
 appear to us that there will be any diminished demand for  
 blankets from you until you can manufacture more for your-  
 selves.' (3) To another house the partners reported that:

... our wool market has, after receipt of your  
 American Tariff being passed, become much deprec-  
 iated. We are, however, gradually recovering  
 from the panic. (4)

The recovery, however, was extremely gradual and the  
 following year Nicholson was told:

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- (1) Hagues, Cook and Wormald to J. Oakfield, Philadelphia,  
 18 Mar. 1828.
- (2) See above, pp. 127-9.
- (3) Hagues, Cook and Wormald to J. Oakford, 24 June 1828.
- (4) Hagues, Cook and Wormald to C.H. Russell, New York,  
 16 Aug. 1828. Russell's house became the largest single  
 customer of the partners in the American trade in the  
 early 1830s.

The goods trade is so bad that we must let wool alone except at very low rates ... be very careful what you do - the times are pregnant with risk, Trade is reduced to an exchange of goods ... a bad debt of £100 would absorb the profits of a month's labour with wool bought at the very lowest quotation. (1)

To Dixon the partners were stressing that they had 'things in a bad way in England, many failures have taken place among the woollen people in London and there are complaints from all quarters of business being done for nothing ... things have got forced down below anything we expected two years ago.' (2) Towards the end of the year the opinion was much more cheerful, 'things are looking better ... and we trust that the depression is at the bottom.' (3) Early in 1830 they thought that 'goods are on the turn again ... we have acted on it by purchasing a heavy stock of wool - and we feel tolerably sanguine ... that wool bought, as ours is, will prove better than keeping the money by us.' (4) The profit of £7,019 recorded by the partners for 1830 suggests that their expectations of the improvement of trade in that year were not disappointed.

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- (1) Hagues, Cook and Wormald to Nicholson, 16 April 1829.  
 (2) Hagues, Cook and Wormald to Dixon, 16 Sept. 1829.  
 (3) Hagues, Cook and Wormald to J. Oakford, 5 Dec. 1829.  
 (4) Hagues, Cook and Wormald to Kernochan, Parish and Co., 8 March 1830.

It seems true to say that the firm survived the hazards of trading to the United States in these years by consistently down-grading quality and reducing the price of their goods for export. This was achieved by the use of large quantities of cheap, foreign wool, <sup>(1)</sup> and by resorting to cheap dyeing processes. In Cook's opinion, the inferior dyeing completely spoiled the look of the fabrics:

... the veriest rubbish latterly we are told has done the best. Indeed goods have been and are made now hateful to look at by those who recollect what formerly went to America. <sup>(2)</sup>

and again:

You distinctly order them all coarse quality ... our object has been to bring them to you as low as we possibly could in price. <sup>(3)</sup>

The firm also enjoyed some success in obtaining government contracts, 'trade has been deplorably bad here ... but our people have been well off, we having been for nearly six months employed on a government contract'; <sup>(4)</sup> in supplying 'scarlet Mackinaw blankets for the Indians to the Hudson's Bay Company'; <sup>(5)</sup> and in taking orders for 'goods of the blanket

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(1) See above, pp. 33-4.

(2) Hagues, Cook and Wormald to J.C. Jones, Philadelphia, 21 July 1825.

(3) Hagues, Cook and Wormald to R. Camochoen, Charlestown, 19 Feb. 1829.

(4) Hagues, Cook and Wormald to S.T. Jones, Manchester, 8 May 1826.

(5) Hagues, Cook and Wormald to A. & S. Henry, Manchester, 24 Jan. 1826. The profitable connection with the footnote 5 continued overleaf.

sort for the North American Indians .. from the Government  
 and private merchants a great many every year.'<sup>(1)</sup> In con-  
 tending with the American tariff of 1824 the partners followed  
 the practice of many of their competitors in 'adjusting'  
 their invoices to minimise the tariff charges, 'we are  
 invoicing the goods at cash cost ... it is useless putting a  
 duty on profit load.'<sup>(2)</sup> But probably the major change of  
 attitude towards their overseast rading in the period now  
 under review came in 1830 when Cook and his partners  
 drastically altered their pricing policy. They revised  
 downward their ideas of a 'normal profit' and began to follow  
 vigorously the principle of 'low profits and quick returns'  
 as a means of maximising total profits. It seems unlikely  
 that, in the highly competitive trade in which they were  
 engaged, the partners would be able to make this change  
 without being followed by their competitors and it may be

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(1) Hagues, Cook and Wormald to W. & G. Maxwell, Liverpool,  
 24 Jan. 1826.

(2) Hagues, Cook and Wormald to Dixon, 18 May 1830.

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 Footnote (5) from previous page ... continued

Hudson's Bay Company seems to have been severed in the  
 early 1830s, but it was re-established in 1845 and has  
 continued ever since.



that the change was introduced at Dewsbury Mills in response to earlier and similar action on the part of their Yorkshire rivals. (1) This change of market strategy appears to have paid dividends in 1830, but more particularly in the mid-1830s when the firm's gross profits were more than twice as high as the best figures recorded in the 1820s.

The partners took advantage of the improvement in 1830 in their American trade to reduce the speculative consignment of goods which had tended to grow during the depression of the late 'twenties, and Dixon was told that:

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(1) '... what was our trade until 1830, when we resorted to low profits - worth nothing!' Hagues, Cook and Wormald to Nicholson, 4 Feb. 1839. A margin of  $2\frac{1}{2}$  per cent. added to total costs per unit of output seems to have been considered adequate by the partners after they had revised their price lists. John Brooke told the S.C. of 1833 that 'profits are at present smaller than what I have known them to be, which I entirely attribute to competition ...', Q. 2317, and Henry Hughes was asked the question 'Do you consider that the rate of profit which the woollen manufacturer is now getting, is a remmerating profit?'. He replied, 'It is smaller than it ever has been before, but they consider the quantity makes up for the low rate of profit.' Q. 1096.

See also, p. 117. above.

Order business although leaving only a small profit, is better than the continuance of shipping goods, which the last two years has been hateful and never profitable. (1)

The firm also took the opportunity to define clearly the methods of payment which would in future be insisted upon:

We shall be glad to have your authority to draw on you for the Goods at 3 months for the two invoices gone, and the same date for those to follow shortly - this payment will suit us as well as Cash - equally so - as your Acceptance will lie with our Bankers in London for us to draw smaller bills against. (2)

The partners, in 1831, after twenty years in business at Dewsbury Mills had survived a number of trading and banking disasters which had impinged seriously on the American trade and they seem to have emerged strongly from the ordeal. The capital invested by the partners in the enterprise in 1831 was very nearly treble the original figure of £15,000 in 1811; the productive capacity had been enlarged and rationalised during the period; strong business connection had been forged with the merchants in the main exporting centres, and the activities of Nicholson in London and Dixon in New York

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(1) Hagues, Cook and Wormald to Dixon, 1 June, 1830.

(2) Hagues, Cook and Wormald to Maury, Latham and Company, 7 May 1831.

provided the partners with ready contacts and intelligence in these two main centres. In addition, Thomas Cook had developed strong links with the wholesalers operating in the domestic trade for blankets and he had acquired reliable sources of wool supply and good relationships with the smaller blanket manufacturers of the Dewsbury-Heckmondwike district. At the beginning of the 1830s, then, the partners were in a healthy condition, from the point of view of business organisation, to consolidate and improve their position in the trade which they had founded in two decades. In 1831 Cook was able to say that 'the wool will go into American blankets - for which we hold large orders - this trade increases on us yearly.'

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(1) Hagues, Cook and Wormald to E. Chadwick, Rochdale, 24 Feb. 1831.

APPENDIX TO CHAPTER V

Hagues and Cook, Balance Sheets, 1812-31

BALANCE SHEET - 1812.

<u>PARTNERS' CAPITAL ACCOUNT (£)</u>		<u>FIXED ASSETS (£)</u>	
John Hague:	10,211. 6. 11.	(Expenditure during year)	
John Hague		Buildings at cost	10,036. 16. 6.
Junior	1,976. 14. 0.	Machinery at cost	3,373. 17. 6.
Thos. Cook	<u>2,895. 0. 0.</u>	Fixtures and equip-	
	15,083. 0. 11.	ment at cost:	<u>610. 10. 1.</u>
Profit and Loss			14,021. 4. 1.
Account:	<u>3,250. 15. 0.</u>		
	18,333. 15. 11.		
Reserve Account		<u>Current Assets</u>	
- stock:	500, 0. 0.	Stock:	9,482. 11. 0.
Loan Account		Debtors:	29,208. 5. 2.
- executors	<u>6,000. 0. 0.</u>	Cash:	<u>143. 2. 2.</u>
Capital in the			38,833. 18. 4.
House	24,833. 15. 11.		
		<u>Partners' Current Account</u>	
<u>Current Liabilities</u>		T. Cook:	1,250. 9. 10.
Creditors:	14,172. 19. 9.	John Hague	
Notes:	9,649. 0. 0.	Junior	<u>883. 13. 6.</u>
Smith, Payne			2,134. 3. 4.
& Smith:	1,372. 4. 10.		
Milnes & Co.:	1,762. 5. 9.		
Tootal & Co.:	468. 18. 9.		
Expenses			
Account:	2,730. 0. 0.		
Rent:	2,210		
Excise:	<u>520</u>		
	2,730		
	<hr/>		<hr/>
	30,155. 9. 1.		54,989. 5. 9.
	<hr/>		<hr/>
	54,989. 5. 9.	Current Assets net of Current	
	<hr/>	Liabilities: <u>10,813</u>	

BALANCE SHEET - 1816

<u>PARTNERS' CAPITAL ACCOUNT</u> (£)	<u>FIXED ASSETS</u> (£)
John Hague: 18,391. 5. 4.	(Expenditure during year)
John Hague Junior: 7,027.14. 0.	
Edward Hague: 4,685.18. 2.	
Thos. Cook 1,612.19. 6.	
<u>31,717.17. 0.</u>	
Profit and Loss Account: -2,240. 8.10.	
29,477. 8. 2.	<u>Current Assets</u>
	<u>Stock:</u>
	Cloth: 7,834.11. 3.
	Cotton: 1,114.11. 5.
	Wool: 2,434.18. 6.
	Wash: 20. 0. 0.
	<u>11,404. 1. 2.</u>
	Farm Stock: 798. 0. 0.
<u>Current Liabilities</u>	Wood and Iron Account: 698. 8. 1.
Creditors: 6,287.17. 4.	<u>Debtors:</u>
Notes: 12,596. 1. 0.	Machinery 7,668. 8. 8.
Bank Ledger: 13,736. 4.10.	Cloth: 17,239. 7.11.
Woolstaplers' Debts: 1,134.18. 5.	Mill: 5,941. 6. 9.
<u>33,745. 1. 7.</u>	Bank: 11,549.11. 2.
	<u>42,448.14. 6.</u>
	Cash: 7,446.10. 5.
	Stamps: 425.15. 7.
	Press, papers and plates - for Bank? 510.10. 0.
<u>63,221. 9. 9.</u>	<u>63,221. 9. 9.</u>
Current Assets net of Current Liabilities: <u>29,476</u>	

BALANCE SHEET - 1818PARTNERS' CAPITAL ACCOUNT (\$)

John Hague: 19,750.13. 5.  
 John Hague  
 Junior: 8,191.16.11.  
 Edward Hague: 5,478. 8.11.  
 Thos. Cook  
33,420.19. 3.

## Profit and Loss

Account: 4,958. 6. 0.

## Capital in the

House: 38,379. 5. 3.

Current Liabilities

Creditors: 2,116. 7. 8.  
 (Clothiers)  
 Notes: 15,958.18. 0.  
 Bank Ledger: 27,059. 9. 5.  
 Woolstaplers'  
 Debts, Dyers  
 etc. ? 2,443. 5. 4.  
 Sykes & Co.: 257. 3. 0.  
47,835. 3. 5.

86,214. 8. 8.

FIXED ASSETS (\$)

(Expenditure during year)

Current AssetsStock

Cloth: 7,768. 8. 7.  
 Cotton: 1,074.19. 4.  
 Manufacturing  
 Stock: 7,341.16. 7.  
 Wool: 7,456. 1. 6.  
 Wash: 30. 0. 0.

23,671. 6. 0.

Farm Stock: 847.16. 6.  
 Millwright's Account: 334. 1. 5.

Debtors:

Machinery: 7,668. 8. 8.  
 Cloth: 18,702. 4. 2.  
 Mill: 3,572.18.10.  
 Bank: 24,167.10. 9.

54,111. 2. 5.

Cash: 6,857.14. 1.  
 Stamps: 270.18. 6.

Partners' Current Account

Thos. Cook: 121.9.9.

121. 9. 9.

86,214. 8. 8.

Current Assets net of Current Liabilities: 38,379

BALANCE SHEET - 1819PARTNERS' CAPITAL ACCOUNT (£)

John Hague: 22,866. 6. 4.  
 John Hague  
   Junior       8,663.14. 1.  
 Edwd. Hague: 7,057. 6. 8.  
 Thos. Cook:    267.16. 4.  
                   38,855. 3. 5.

Hauxwell's

Account:       202. 0. 3.  
                   39,057. 3. 8.

Profit and Loss

Account:      -1,301. 5. 4.

Capital in the

House:        37,755.18. 4.

Current Liabilities

Creditors:      2,051 . 7. 6.

(Clothiers)

Notes:         12,865.11. 0.

Bank Ledger: 28,223.18. 2.

Woolstaplers'

Debts:         1,503. 7. 0.

44,444. 3. 8.

82,200. 2. 0.

FIXED ASSETS (£)

(Expenditure during year)

New Gas House:       555. 5. 10.

Current AssetsStock:

Cloth:         7,054.10. 0.

Cotton:        1,102. 3.11.

Manufacturing

Stock:       7,127. 6. 0.

Wool:          989. 6. 6.

Wash:          16. 0. 0.

16,289. 6. 5.

Farm Stock:        765. 7. 0.

Millwright's Account 214. 6.11.

Debtors

Machinery: 17,668. 8. 8.

Cloth         20,707. 2. 2.

Mill:          4,269.17. 0.

53,939. 0.11.

Cash:            9,998.19. 5.

Stamps:          308. 5. 6.

82,200. 2. 0.

Current Assets net of Current Liabilities 37,756



BALANCE SHEET - 1822

<u>PARTNERS' CAPITAL ACCOUNT (£)</u>		<u>FIXED ASSETS (£)</u>	
Partners' Capital			
	27,991. 6. 9.	(Expenditure during year)	
Profit and Loss			
Account:	2,723. 5. 3.	New Erections:	4,094. 5. 5.
	<u>30,714.12. 0.</u>		
<u>Current Liabilities</u>		<u>Current Assets</u>	
Creditors:	2,065.12. 0.	Stock	
(Clothiers)		Cloth:	2,489.13. 1.
Creditors:	34,723. 9. 4.	Man'f'g:	<u>13,918.13. 1.</u>
(Other)			
Notes:	<u>18,699. 4. 0.</u>		16,408. 6. 2.
	55,488. 5. 4.	Farm Stock:	832. 0. 0.
		Debtors	
Bad debts:	69. 2. 6.	Machinery	8,041.11. 8.
		Cloth:	20,597. 8.11.
		Mill:	2,141. 2. 2.
		General:	699. 3. 0.
		Bank:	<u>21,071. 2. 1.</u>
			52,550. 7.10.
		Cash:	11,940. 0. 2.
		Stamps:	447.10. 3.
	<u>86,272. 9.10.</u>		<u>86,272. 9.10.</u>
Current Assets net of Current Liabilities: <u>26,620.16. 7.</u>			

BALANCE SHEET - 1823

<u>PARTNERS' CAPITAL ACCOUNT (£)</u>		<u>FIXED ASSETS</u>	(£)
Partners'			
Capital:	25,523.13.11.	(Expenditure during year)	
Profit and Loss		New Erections:	4,238. 8. 1.
Account:	4,990. 9. 5.		
	<u>30,514. 8. 4.</u>		
<u>Current Liabilities</u>		<u>Current Assets</u>	
Creditors: (Clothiers)	1,213. 7. 1.	<u>Stock</u>	
Creditors: (Other)	1,741. 7. 5.	Cloth:	1,486.12.11.
Notes:	22,403.13. 0.	Manfg.:	<u>10,140. 7. 8.</u>
Bank Ledger:	29,974.14. 7.		11,627. 0. 7.
Smith, Payne & Smith	<u>5,832.17. 0.</u>	Farm Stock:	832. 0. 0.
	61,165.19. 1.	Millwright's a/c	-
Bad Debts:	56. 7. 1.	<u>Debtors</u>	
Expenses:	33. 3. 0.	Machinery:	8,027.11. 8.
		Cloth:	16,981. 6. 8.
Cash in reduction of Building account:	238. 8. 1.	Mill:	1,633.18. 5.
		General:	3,141.13. 4.
		Bank:	<u>26,646.13.10.</u>
			56,431. 3.11.
		Cash:	18,330.12. 4.
		Stamps:	549. 0. 8.
	<u>92,008. 5. 7.</u>		<u>92,008. 5. 7.</u>
Current Assets net of Current Liabilities:		<u>30,515</u>	

BALANCE SHEET - 1824PARTNERS' CAPITAL ACCOUNT (£)

Partners'  
 Capital: 28,943. 2. 6.  
 Profit and Loss  
 Account: 6,436. 9. 6.  
 35,379.12. 0.

FIXED ASSETS (£)

(Expenditure during year)  
 New Erections: 3,809. 9. 9.

Current Liabilities

Creditors: 1,835. 3. 8.  
 (Clothiers)  
 Creditors: 2,499. 4. 2.  
 (Other)  
 Notes: 26,508. 8. 0.  
 Bank Ledger: 48,675. 2. 9.  
 Smith, Payne  
 & Smith: 34.17. 6.  
 79,552.16. 1.

Bad Debts: -

Expenses: 102. 2. 0.

Current Assets

Stock  
 Cloth: 1,385.15. 1.  
 Mfg.: 13,979. 7.11.  
 15,365. 3. 0.  
 Farm Stock: 832. 0. 0.  
 Millwright's Account: 37.11. 7.

Debtors

Machinery 8,027.11. 8.  
 Cloth: 23,010.14. 6.  
 Mill: 1,483. 0.11.  
 General: 4,693.17. 5.  
 Bank: 34,640.10. 3.

41,855.14. 9.

Cash: 22,586. 9. 2.

Stamps: 548. 1.10.

115,034.10. 1.

115,034.10. 1.

Current Assets net of Current Liabilities: 31,570

BALANCE SHEET - 1825PARTNERS' CAPITAL ACCOUNT (£)FIXED ASSETS (£)

Partners'			
Capital:	35,886.	2.	7.
Profit and Loss			(Expenditure during year)
Account:	<u>3,866.</u>	<u>13.</u>	<u>8.</u>
	39,752.	16.	3.

New Farm Buildings: 188. 5. 1.

Current LiabilitiesCurrent Assets

Creditors:	303.	5.	0.
(Clothiers)			
Creditors:	9,969.	8.	6.
(Other)			
Notes:	-		
Bank Ledger:	-		
Smith, Payne			
& Smith:	-		
Mill:	<u>1,304.</u>	<u>17.</u>	<u>3.</u>
	11,577.	10.	9.

<u>Stock</u>			
Cloth:	563.	2.	6.
Mfg.:	<u>13,653.</u>	<u>19.</u>	<u>5.</u>
	14,217.	1.	11.
Farm Stock:	832.	0.	0.
Millwright's Account:	-		

Bad debts: 622.18. 0.

Debtors

Machinery	8,027.	11.	8.
Cloth:	21,006.	9.	6.
Mill:	1,171.	14.	10.
General:	1,007.	3.	9.
Bank Deps.	<u>5,321.</u>	<u>11.</u>	<u>1.</u>

36,534.10.10.

Cash:	127.	11.	2.
Stamps:	53.	16.	0.

51,953. 5. 0.

51,953. 5. 0.

Current Assets net of Current Liabilities: 39,564

BALANCE SHEET - 1826PARTNERS' CAPITAL ACCOUNT (£)FIXED ASSETS (2)

Partners' Capital:	42,157. 3. 7.	(Expenditure during year)
Profit and Loss Account:	<u>3,352.11. 2.</u>	
	45,509.14. 9.	

Current LiabilitiesCurrent Assets

Creditors: (Clothiers)	154. 7.10.
Creditors: (Other)	1,419.18. 7.
Mill:	<u>58.17. 6.</u>
	1,633. 3.11.

<u>Stock</u>	
Cloth:	356. 8. 9.
Mfg.:	<u>11,730.15.10.</u>
	12,087. 4. 7.

Bad Debts: 498. 1. 8.

Farm Stock: 832. 0. 0.  
Millwrights' A/c: -Debtors

<u>Farm Buildings:</u>	188. 5. 1.
Machinery:	-
Cloth:	10,900.14.11.
Mill:	648. 6. 9.
General:	8,131.12. 2.
Bank Deps	<u>13,059. 3. 0.</u>

32,739.16.10.

Cash: 1,754.13.10.  
Stamps: 49. 0. 0.

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47,641. 0. 4.

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47,641. 0. 4.Current Assets net of Current Liabilities: 45,509

BALANCE SHEET - 1827

<u>PARTNERS' CAPITAL ACCOUNT (£)</u>		<u>FIXED ASSETS (£)</u>	
Partners' capital:	42,781. 3. 5.	(Expenditure during year)	
Profit and Loss Account:	<u>4,394. 3. 0.</u>	Water Wheel:	1,834. 4. 0.
	47,175. 6. 5.		
<u>Current Liabilities</u>		<u>Current Assets</u>	
Creditors: (Clothiers)	250.13. 8.	<u>Stock</u>	
Creditors: (Other)	2,941. 4. 5.	Cloth:	338.14. 8.
Mill:	<u>41.11. 7.</u>	Mfg:	3,301. 3.11.
	3,233. 9. 8.	Wool:	11,550. 0. 8.
		✓ R.N.	<u>3,248. 8. 7.</u>
Bad Debts:	196. 1.11.		18,438. 7.10.
		Farm Stock:	832. 0. 0.
		<u>Debtors</u>	
		Machinery:	-
		Cloth:	13,368.16. 9.
		Mill:	770. 2. 8.
		Bank:	9,357.19. 1.
		General:	4,268. 6. 8.
		Farm Bdgs:	<u>188. 5. 1.</u>
			27,953.10. 3.
		Cash:	1,410.15.11.
		Stamps:	36. 0. 0.
	<u>50,604.18. 0.</u>		<u>50,604.18. 0.</u>
Current Assets net of Current Liabilities:	<u>45,341</u>		

✓ R.N. Robert Nicholson, the  
London agent of the partners.

BALANCE SHEET - 1828

<u>PARTNERS' CAPITAL ACCOUNT (£)</u>	<u>FIXED ASSETS (£)</u>
Partners'	
Capital: 39,325. 9. 9.	(Expenditure during year)
Profit and Loss	Water Wheel: 2,898.18. 0.
Account: 1,841.11.10.	

(left towards water wheel)

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 39,325. 9. 9.
Current Liabilities

Creditors: 145.16. 6.	
(Clothiers)	
Creditors: 3,447.12. 5.	
(Other)	
	<hr/>
5,433. 0. 9.	

Current AssetsStock

Cloth: 2,716. 1.10.	
Mfg: 3,728. 8.10.	
Wool & Yarn 9,078.18.5.	
R.N. 2,698. 6. 2.	
	<hr/>
	18,221.15. 3.

Farm Stock: 832. 0. 0.	
Millwrights A/c: 168. 0. 5.	

Debtors

Machinery: -	
Cloth: 13,715. 5. 8.	
Mill: 606. 3. 7.	
Bank: 3,330.14.11.	
General: 4,640. 9. 1.	
	<hr/>
	22,292.13. 3.

Cash: 327.12. 7.	
Stamps: 17.11. 0.	
	<hr/>
	44,758.10. 6.

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 44,758.10. 6.

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 44,758.10. 6.
Current Assets net of Current Liabilities: 36,426

BALANCE SHEET - 1829PARTNERS' CAPITAL ACCOUNT (£)

Partners'

Capital: 39,460. 7.10. (Expenditure during year)

Profit and Loss

Account: 1,218.12.11.

40,679. 0. 9.

FIXED ASSETS (£)Current Liabilities

Creditors: 342. 9. 0.

(Clothiers)

Creditors: 1,283. 5.11.

(Other)

Mill: 3,307.14.10.

4,933. 9. 9.

Current AssetsStock

Cloth: 1,493. 9. 9.

Mfg: 2,175.15. 5.

Wool/Yarn: 6,945.10. 4.

R.N. 2,734. 1. 1.

13,348.16. 7.

Debtors

Cloth: 15,097.12. 2.

General: 7,311. 0.11.

Mill: 2,242.11. 0.

Bank; 5,648.16.11.

30,300. 1. 0.

Cash: 1,937.12.11.

Stamps: 26. 0. 0.

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45, 612.10. 6.

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45,612.10. 6.Current Assets net of Current Liabilities: 40,679



BALANCE SHEET - 1830PARTNERS' CAPITAL ACCOUNT (£)                      FIXED ASSETS (£)

Partners'  
 Capital:            33,733.14. 4. (Expenditure during year)

Profit and Loss  
 Account:            7,018.14. 2.

40,752. 8. 6.

Current Liabilities

Creditors: 274.15. 2.  
 (clothiers)

274.15. 2.

Bad Debts:            366.12. 5.

Current Assets

Stock  
 Cloth:                731.16. 3.  
 Mfg:                  2,424.17. 1.  
 Wool/Yarn 10,613. 9.10.  
 R.N.                  4,464. 2. 3.

18,234. 5. 5.

Debtors

Cloth:                14,396. 7. 2.  
 Mill:                  1,372. 0. 0.  
 General:            3,660.13. 4.  
 Bank:                 -

19,429. 0. 6.

Cash:                 480.10. 2.  
 Stamps:               -  
 Buildings  
 Unredeemed:  
                           3,250. 0. 0.

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41,393.16. 1.

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41,393.16. 1.

Current Assets net of Current  
 Liabilities:            40,752

BALANCE SHEET - 1831

<u>PARTNERS' CAPITAL ACCOUNT (£)</u>		<u>FIXED ASSETS (£)</u>	
<u>Partners'</u>			
Capital:	40,870.17. 5.	(Expenditure during year)	
Profit and Loss			
Account:	<u>4,246.13. 2.</u>		
	45,117.10. 7.		
<u>Current Liabilities</u>		<u>Current Assets</u>	
Creditors:	25. 3. 4.	<u>Stock</u>	
(Clothiers)		Cloth:	1,329. 6. 5.
Creditors:	203.14. 4.	Mfg:	2,996.16.10.
(Other)		Wool:	6,341.15. 6.
Water wheel		Yarn:	6,163.16. 5.
Account:	<u>145. 4. 0.</u>	R.N.	<u>&amp;4,537. 0. 3.</u>
	374. 1. 8.		21,368.15. 5.
Bad Debts:	468. 5. 7.	<u>Debtors</u>	
		Cloth:	15,838.11. 4.
		Mill:	663.14. 4.
		General:	3,662. 3.11.
		Bank:	-
		Interest on	
		bad debts:	<u>122.17. 9.</u>
			20,287. 7. 4.
		Buildings:	3,691.19. 4.
		Cash:	611.15. 9.
	<hr/>		<hr/>
	45,959.17.10.		45,959.17.10.
Current Assets net of Current			
Liabilities:	<u>45,117</u>		