

THE STANDARD OF LIVING OF WORSTED WORKERS IN KEIGHLEY

DURING THE NINETEENTH CENTURY

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TABLE OF CONTENTS

	Page
Abstract	4
List of abbreviations	6
Introduction	7
Chapter 1 : The West Riding worsted industry, 1700-1914	28
Chapter 2 : The growth of Keighley, 1780-1914	54
Chapter 3 : Worsteds workers' wages, 1804-1915 (part one)	84
Chapter 4 : Worsteds workers' wages, 1804-1915 (part two)	119
Chapter 5 : Prices in the nineteenth century	146
Chapter 6 : Qualitative aspects of the standard of living	187
Chapter 7 : The standard of living of Keighley worsted workers (part one)	223
Chapter 8 : The standard of living of Keighley worsted workers (part two)	240
Chapter 9 : Conclusions	260
Appendix A : Worsteds workers' earnings, 1804-1915	279
Chapter A.1. : at Clough's	279
Chapter A.2. : at Marriner's	350
Chapter A.3. : at Brigg's	353
Chapter A.4. : at Bairstow's	357
Chapter A.5. : from general sources	377
Appendix B : Prices and rents	379
Appendix C : Conversion of £sd to £p	389
Bibliography	390

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ABSTRACT

The West Riding worsted industry grew rapidly from the late eighteenth century, in the wake of mechanisation in the cotton industry. Rapid urbanisation followed, with Keighley experiencing high population growth, particularly in the 1810's, the 1840's and the 1860's. The latter decade was very prosperous for the worsted industry because of the Cotton Famine. From the mid-1870's however, the industry entered a period of low profitability which hit Keighley especially badly since heavier worsteds were produced locally and after 1880 population growth decelerated.

This study examines the standard of living of Keighley worsted workers in the light of these developments following the lines set down by Ashton, Gourvish and Neale. The components of the standard of living are real income (earnings and prices) and qualitative conditions. It is imperative that earnings (preferably net) are used, not wage rates. In this study, wage books have provided data on net earnings, including unusually extensive material relating to domestic workers. Much of the data comes from one firm but this firm was not untypical of Keighley firms generally.

Paucity of data meant that local price indexes could be constructed only for the period 1845-1863, using workhouse material. However, where comparison with national indexes is possible, a marked similarity in trend can be noted. Hence one is less perturbed about using the latter for the whole period. Several local rent series provided supplementary information.

The qualitative material suggests that urban conditions deteriorated to the 1850's and then improved only slowly. It also highlights the disastrous non-economic effects of the domestic workers' redundancy; the continuing economic exploitation of children; and the change to commercial, non-traditional leisure-time activities.

Earnings had an important effect on living standards in the short term, prices and qualitative conditions in the long

term. Except for the hand workers, most workers' living standards rose through the nineteenth century, especially those of women, but probably stagnated in the early twentieth century. The most dramatic improvements came between the 1860's and the 1890's, as boom conditions increased the demand for labour and then the economic depression reduced prices.

LIST OF ABBREVIATIONS

British Medical Journal	(B.M.J.)
Economic History Review	(E.H.R.)
Economic Journal	(E.J.)
Journal of Economic History	(J.E.H.)
Journal of European Economic History	(J.E.E.H.)
Journal of the Royal Statistical Society	(J.R.S.S.)
Keighley Labour Journal	(K.L.J.)
Yorkshire Bulletin of Economic and Social Research	(Y.B.E.S.R.)
Yorkshire Factory Times	(Y.F.T.)

INTRODUCTION

One of the most interesting questions facing economic social historians concerned with British industrialisation is that of the changing standard of living. Did industrialisation herald improvement for all classes in society and if so, were these immediate or long-term benefits? The question is easier to answer for the non-working class groups in society; in general the living standards of the majority of these people improved during the nineteenth century, the period most closely associated with the spread and dominance of industrialisation in Britain. However, the majority of the population was, and is, working class and it is precisely this group whose fate, during and after the linked processes of mechanisation, industrialisation and urbanisation, is in doubt. Therefore most research has been done amongst particular groups of the working class. In general, proponents of opposing theories have seemed to agree that after the mid-nineteenth century, the standard of living of the working class improved fairly continuously, although, of course, living standards were seen to be low even at the beginning of the twentieth century (1). The main period of contention is the first half of the nineteenth century - a rather amorphous period beginning in 1780 or 1800 and ending in 1846 or 1850 depending on whose opinion is being sought. For this period there were basically two schools of thought - the 'optimists' such as Clapham and Hartwell, who argued that industrialisation did not bring a decline in working class living standards and in fact generally improved the workers' position; and the 'pessimists' who argued that industrialisation was probably detrimental, at least in the first instance, to the working class.

However, before a discussion of the merits and demerits of these various ideas, there must be some attempt to define the terms 'standard of living' and 'working class'. In the context of the nineteenth century, it is probably easier to define the 'working class' as that sector of the population which was generally involved in manual labour. There are of course, more complex definitions, especially those

involving political distinctions; but this seems closest to the Victorian idea, when employers themselves called the workers 'hands'. Such a simple definition, however, must not mask the fact that the working class was not one homogeneous unit and workers neither were regarded, nor regarded themselves, as one group. In the nineteenth century there were many different sub-groups within the working class - examples being skilled, unskilled, handcraft workers and mechanics. Perhaps it is fairer to talk of the working classes in plural, as indeed the Victorians did. This study deals almost entirely with manual labourers and covers most of the different sub-groups - from the degraded semi-skilled handicraft workers to the skilled ambitious 'labour aristocracy', whose life-style was close to that of the middle class and who often aspired, not always unsuccessfully, to join that 'higher' class.

The problem of defining 'standard of living' is more complex, as almost every aspect of life could be included in such a phrase, with an attempt being made to conduct an analysis of all the variables - economic, political, social and emotional - in the subject's life. Obviously though, this approach is too complex for most forms of analytical study since it makes comparison between individuals or groups of individuals very difficult. Therefore a simplified definition must be used.

One can describe real income as perhaps the major factor in the standard of living, for the level of real income, and the changes in it, will have a decisive influence on the level of, and changes in, the standard of living. Therefore it is very important to study the level of earnings in a group together with the level of those prices facing the group. Real income alone, however, does not convey the whole picture - in dealing with work one needs to know about hours of work, unemployment and under-employment. Domestic conditions, urban conditions, environmental factors, social mobility and relative deprivation are all amongst the other important elements. The question of subjective or objective measures of the standard of living must also be remembered - surely the

living standards both of individuals and of groups does worsen if such people believe that they have experienced a deterioration even if, objectively, conditions have not altered. It is possible to rely mainly on real income as a determinant of the standard of living then, but it must be remembered that such information only provides, as it were a skeletal picture. Other, perhaps less quantifiable data, must be included to obtain a more complete result.

There are two largely separate approaches to the study of the standard of living. These are the study of macro-economic factors and the study of micro-economic and social factors. In the first case, national data is studied and changes in the standard of living are deduced from changes in such factors as per capita G.N.P. and mortality and fertility rates. A variant of this method is to find various wage series from different regions and for different occupations and to integrate them into one 'national' wage index. However, as Prof. Ashton explains, the use of such aggregate figures generally leads to the error of regarding the working class as a "homogeneous class experiencing and participating in the process of industrialisation as a whole"(2). Given that the working class was very diversified in this period, it is surely more appropriate to construct wage and price indexes for smaller areas and smaller groups of workers, using a shorter time scale, so that the degree of homogeneity within the study might be increased. This, in fact, is what Neale, Gourvish and Barnsby amongst others, have done in their work (3). It is the intention of this study to follow a similar approach. The micro-economic and social approach would seem to produce a more accurate picture, even if the picture itself is on a smaller scale, if only because local data and statistics tend to be more accurate.

The problems of definition, methodology and approach are highly relevant when discussing the changing standard of living in the first half of the nineteenth century, as any small difference in any of these is likely to alter the results of any analysis. Often too, the political beliefs of the researcher can be linked to the results of his or

her work. Early studies of wages and prices have proved inconclusive. Bowley's study showed rising wages 1790-1810, falling wages 1810-1845 and rising wages again 1845-1860 (4). Unfortunately not too much reliance can be placed on this study as certain important groups, such as agricultural workers, were omitted entirely from the series and the series as a whole is made up of various disparate wage indexes weighted together according to the percentage of the nation's workers employed in the different sectors. Similarly, the Gayer, Rostow and Schwartz price index (5), a typical example of the genre, can be misleading. It shows a marked but fluctuating rise in prices from 1790 to 1812 and then a continuous, but again fluctuating, fall so that by 1850 prices are below the level of 1790. The main periods of falling prices in the post-war period are shown as 1812-1816, 1818-1822, 1825-1835, 1839-1843 and 1847-1850. However, this index suffers as a tool in the working class living standards debate from its exclusion of rent and its overweighting of mutton against beef and wheat against all other commodities. Another major fault from this viewpoint is the index's dependence on wholesale prices. The Rousseaux total agricultural products price index also suffers similar major disadvantages since it refers largely to the wholesale prices of a wide range of agricultural goods and is made up from an unweighted average of these prices, but by covering the period 1800-1913, it does at least relate to the whole of the nineteenth century (6). This index shows a broadly similar pattern of price movements as the Gayer, Rostow and Schwartz index. It is against such a background of seemingly massive but inconclusive data that the 'optimists' and the 'pessimists' held their debate about working class living standards in the first half of the nineteenth century.

The 'pessimists' argued their case in several ways. It can be said that even if more goods such as food and clothing are available, they were not satisfactory substitutes for the qualitative losses that industrialisation and urbanisation were thought to imply - an argument that the Hammonds were well-known for using. In the 1880's, Toynbee was arguing that " the effects of the

Industrial Revolution prove that free competition may produce wealth without producing well-being" (7). The immiseration of the working class, he thought, was not due simply to falling wages, but to the conditions of work in the factories, the rising prices (especially that of bread) and the sudden fluctuations in trade which led to "recurrent periods of bitter distress" (8).

In recent years, this argument has been furthered by E. J. Hobsbawm, who began his case by saying that there is no a priori reason why industrialisation should increase the living standards of the working class. Investment generally is financed by deferring consumption and in industrialising Britain, a greater diversion of consumption was required because of the inefficient mechanisms available for collecting and investing capital. Hobsbawm argued that there was a need to divert income from the non-investing sector of the population (the working class) into the hands of the investing sector (the middle class). This was done through a system of low wages and heavy taxation, the latter being at this time, strongly regressive. When dealing with wages however, Hobsbawm admitted that there was no satisfactory information on wages available, especially for the unskilled workers, so that all estimates in this field remained approximate. One factor that Hobsbawm believed had been grossly under-rated is that of employment. The period 1811-1842 was one of unusually high employment and abnormally severe problems of social disorder. Technological redundancy and cyclical unemployment were both wide-spread and short-time working too was very common. He calculated that in the 1840's about 10% of the population was pauperised.

Another pointer in the direction of change in the standard of living is the mortality rate, but here analysis is hampered by the absence of reliable data before 1841. The estimated mortality rate did rise in the period 1811-1841, thus tentatively indicating a fall in the standard of living; however Hobsbawm agreed that there was no drastic fall in the mortality rate until 1871, and since he believed that after the mid-1840's the standard of living

improved, he was therefore forced to conclude that it was not too important as an indicator.

Since information about wages was unreliable, Hobsbawm relied heavily on consumption data. Using London figures, which might not have been typical of the country generally, he concluded that there was no major rise in meat consumption per capita, whilst per capita consumption of milk and wheat fell until the 1850's. This deterioration in consumption was blamed on urbanisation. The fact that potato consumption per capita did increase, he believed, pointed to a deterioration in diet, as potatoes were being substituted for bread. The constant adulteration of food, Hobsbawm pointed out, was also detrimental to the standard of living. At most he believed that food consumption only increased slightly from the mid-1840's.

Hobsbawm concluded very tentatively that there was no strong support for the 'optimistic' view for the period beginning in the 1790's and ending in the 1840's and he commented that the view that there was a "positive decline in the standard of living of large classes of the population 1787-1837" was not yet untenable (9).

The 'optimists' argued that industrialisation brought indubitable benefits to the working class, although these might have only been on a small scale. Williams stated that "real private consumption per head showed little or no improvement between 1751 and 1811. By 1821 the highest eighteenth century level had been passed and thereafter there was some improvement, but there was no substantial improvement until after 1841"(10). Clapham too was rather ambivalent - although industrialisation killed some "heavy murderous jobs" it certainly created others (11). The main proponent of this argument was R. M. Hartwell. He commenced by saying that there were no marked trends in either direction in the period under discussion. He believed however, that several factors pointed to an increase in the standard of living. The average per capita income increased whilst at the same time there was no discernible trend of changing income distribution against

the working class. Hartwell used the price indexes referred to earlier to show that prices were falling in the post-war period, although he admitted that the statistics were unreliable, particularly as they referred to wholesale prices. Money wages, he believed, were constant - and he supported this claim by reference to the "vast amount of miscellaneous material" on nineteenth century wages. Where it can be shown that the standard of living failed to rise very much (i.e. before 1815) Hartwell argued that this was due to war-time influences and not to industrialisation.

As well as the increasing per capita income and the increasing per capita consumption of food and other goods, Hartwell cited several important social gains in the period which he believed would improve the standard of living in non-quantifiable terms. The government increasingly intervened to protect the working class in their jobs, especially via the Factory Acts, but it is difficult to say how effective or widespread these were, or whether they were totally beneficial in their effects. Hartwell also described the growth of Friendly Societies and the spread of literacy as improvements in the standard of living. He described the increasing economic and social independence of women and the reduction of child labour, but these were probably not marked trends in the first half of the nineteenth century. In fact, Hartwell could only state that "the employment of women and children in the industrial revolution was certainly more productive and generally more humane" than in the pre-industrial period (12). He stated that social disorder, although still very common, was changing its nature and becoming less violent, because of improvements in the standard of living. For Hartwell, the fact that there was a fall in the average contribution to the Poor Rate and an increase in the average receipt meant a better standard of living for the poor. It would seem to be indicative, however, more of falling standards, as the poor were requiring more assistance.

Hartwell's conclusion was that "as far as statistics can measure material improvement there was an improvement" and real wages increased for the majority of English workers

in the first half of the nineteenth century (13).

Recent studies have moved away from this aggregate and diffuse approach and have worked with more specific and local terms of reference. R. A. Neale, in his study of the Bath labourers, raised several important points (14). The first problem is which period to use, or more specifically, which base date to use. 1800 is the ready choice but Neale rejected it as it was not a seminal date in economic terms. Since the post-war recovery was barely sufficient to restore wages to their pre-war level, Neale used 1780 as his base date - this being before the war's disruption and in a period of stability in wage rates, earnings and prices. Neale also introduced the concept of age-cohorts which he linked to life-cycle earnings. He followed groups of workers through their life-time earnings because of the tendency of certain groups to perhaps experience a deterioration through time despite an average trend towards improvement. However, the lack of data on unemployment, age-structure and family size denied Neale the chance to discuss this approach more rigorously.

Neale used the parish records of the wage rates paid to highway labourers as the source of his wage data. There were several major difficulties though - namely the absence of data for 1809-1832 and the consequent arbitrariness of his results; the problems inherent in using wage rates rather than earnings in a period when employment and short-time working fluctuated, especially seasonally; and finally the fact that using data from just this one source, Neale believed, exaggerated the general level of earnings as, the highway labourers's wage rates were higher than normal for the area, especially in the later part of the period. His information on prices and consumption was quite limited. Three budgets were found with a similar consumption distribution, thus enabling him to construct a pattern of consumption which was heavily weighted towards food because of the low wage rates. Rent was approximated from data on rates - a not very accurate method, but one which, Neale believed, gives a reasonable indication of rent movements. The index he used gives a 78% weighting to food

(by value), a 9% weighting to fuel and one of 13% to rent. However a major flaw was the absence of data before 1812. Combined with the absence of wage rate data in the period 1809-1832, this means that all the wage rate data in the period 1780-1809 is linked to the Schumpeter-Gilboy price index which was not really highly relevant to this local study.

Neale concluded that real wages fell during the period 1790-1812, but then rose again to 1832, restoring real wages to the levels of the 1780's. As explained earlier however, the second period is not based on any continuous data. During the 1830's real wages declined, a process made worse by unemployment, although partially alleviated by a reduction in price fluctuations. The 1840's were a period of rising earnings and falling prices, so that by 1850, real wages were double those in 1801-1804 and between 50% and 60% higher than those prevalent before the Napoleonic Wars.

T. R. Gourvish's recent work had a slightly different emphasis (15). He compared Glasgow price trends with those in London, with reference to the cost of living in Glasgow in the early nineteenth century. Unlike Neale, he used 1815-1816 as a base date - arguing that this was a period with no severe annual fluctuations. Gourvish also believed that its use facilitates comparison between the war-time and post-war periods.

The information about wages was fairly sparse as Gourvish's study concentrated on the cost of living. He used the wage rates of the well-paid bricklayers and of the poorly-paid hand-loom weavers, readily admitting the problems to which this method led. As in Neale's work, the use of wage rates meant that short-run fluctuations in earnings were completely omitted and that "unemployment, short-time and family earnings are of course imponderables" (16). With the hand-loom weavers there was the additional problem of converting piece work rates into hourly-based wage rates.

The price information that Gourvish used was much more

detailed, although as it was based entirely on the surveys of James Cleland, it may therefore possibly be open to any bias he may have accidentally incorporated. Gourvish adapted Cleland's data to produce a budget for a family of four. He added an allowance for alcohol and some food, but admitted that clothing and shoes are important omissions. To be able to cover a wide range of incomes, he produced two indexes - the first including some semi-luxuries; the second being a bare subsistence diet. The first index had a 67% weighting for food, by value, including 34% for bread and cereals, plus 13% for lighting and fuel and 10% for rent. The second, subsistence diet, which he constructed to be cheap, palatable and purchasable in small quantities with credit facilities, had a 71% weighting for food, including 42% for bread and cereals, plus 13% for lighting and fuel and 12% for rent. These budgets, therefore, both gave a lower weighting for food and rent than Neale's.

Both of Gourvish's budgets moved similarly in the same time periods. Generally, there was a 30% fall in prices 1810-1831, with all major items of expenditure sharing in the price fall. As Gourvish's series only continued to 1819 and thereafter he relied on two isolated price sets in 1822 and 1831, this conclusion however is not entirely reliable. In the decade where he used a continuous price series, Gourvish found that price levels rose 1810-1813 and 1815-1817 and fell 1813-1815 and 1817-1819.

In order to compare the situation in Glasgow with that in London, Gourvish created a 'national' real wages series using the wage rate and price data discussed above, although admitting that this method excludes short-run economic fluctuations. Using both budgets, he found that London wholesale prices fluctuated more wildly than Glasgow retail prices and that the magnitude and direction of short-run fluctuations were different. In addition, in any period of falling prices, Glasgow's retail prices fell less than London's wholesale ones. Before 1815, the use of London prices would lead to an underestimate of the level of real wages in Glasgow and after 1815, an over-estimate. Therefore, over the whole period, London prices would give

a more optimistic picture of changing living standards than in fact was the case.

Gourvish concluded that similar experiences of price trends were shared by all income groups, despite their different consumption patterns. London price trends were different to those in Glasgow and always incorporated steeper falls. As a result, it would be unwise, in this case at least, to rely on London wholesale prices when working on regional real wage studies. In Glasgow itself, for the period 1810-1831, Gourvish believed that there was a very modest improvement in the living standards of the more highly paid, but little or no improvement in those of the unskilled labourers and hand-loom weavers.

On both a national and a local scale, little work has been done on the cost and provision of housing, although Rimmer's article does make some tentative conclusions on the housing situation in Leeds (17). He believed that the rapid growth of population, the increasing number of factories and the strains imposed by war all contributed to a situation whereby rents increased by one-third between the 1790's and the 1830's, without a commensurate increase in the size of houses. By 1840, he stated, the housing stock consisted of a "combination of shoddy new cottages and dilapidated old ones" (18). In the period 1801-1841, there was little change in the number of persons per occupied house in the worst ward in Leeds, whilst the next two poorest wards suffered a deterioration. If one can assume that houses did not increase in size, then overcrowding must have increased.

These studies of the standard of living in the first half of the nineteenth century can be said to lead to the following conclusions. On an aggregate national basis, there are no definite trends in this period - quantitative data may show an improvement, but this is not at all certain and qualitative data remain very difficult to analyse. Local studies show more specific results, but the narrow base of their sources can make them suspect. Neale showed a falling standard of living 1790-1812 and during

the 1830's, but a rise 1812-1832 and during the 1840's, resulting in a 50% rise between the 1780's and 1850. Gourvish showed, for the period 1810-1831, at most a modest improvement for the most fortunate, but stagnating conditions predominating for the poorer workers. Rimmer showed that in fast-growing towns, housing conditions probably deteriorated. Neale and Gourvish also raised important methodological points - the importance of the base date, the relevance of life-cycle earnings and the need to match local wages data with local prices data.

The changes in the standard of living in the first half of the nineteenth century, are, as has been seen in the previous section, very much under debate. For the period 1850-1914 however, economic and social historians generally seem to be more in agreement - it is seen as a period of rising real wages, especially for those in employment, with the exception, perhaps, of a few years after 1900. There are no studies comparable to Neale's or Gourvish's for this period and therefore one has to rely on the national aggregative work done by Wood, Hobsbawm et al, on specific social studies done at the time - those by Booth and Rowntree being particularly noteworthy; or on the reminiscent data provided by an author such as Roberts (19).

Bowley compiled a cautious summary of the work done on wage levels by 1936, but Wood provided the original and most widely used data for this period, although his series ends in the early 1900's (20). His material on wages showed a rise in money wages from 1850 to the mid-1870's, a period of falling money wages from the mid-1870's to the mid-1880's and then another period of rising money wages, at a similar rate of increase to the first period, until the series ended in 1906. When the series was weighted to include estimates of unemployment, it generally showed either a steeper rise than the unweighted series or a less steep fall. This led to the conclusion that rates of unemployment were falling in the long run, with the effect of increasing money earnings and enhancing real wages. The main difficulties with Wood's work are the dependence on wage rates rather than earnings and the problems associated

with constructing one series out of various unrelated separate series. Wood's use of the employment estimates is meant to circumvent the first difficulty, but the compilation of this series remains somewhat unreliable.

Wood also produced a price index, based on goods consumed by the working class and with the useful asset of being based on retail prices (21). As the following table shows, this indicated rising but fluctuating prices in the period 1850-1873, with an exceptionally high short-run peak centred around 1855-1856. From 1873 there was a sharp fall in prices until 1896 when prices began to rise again. They maintained their upward trend until the series ended in 1902.

Table I.1. : Wood's estimates of retail prices, 1850-1902

<u>Date</u>	<u>Price Level</u>	<u>% Change From Previous Date</u>
1850	100	-
1873	122	+ 22%
1896	83	- 32%
1902	91	+ 10%

The two major indexes of wholesale prices for the period are the Sauerbeck-Statist index and the Rousseaux index (22). Both suffer from being constructed from wholesale prices and contain no data on rent or clothing, but as indicators of changing food prices they are adequate and show a movement in price levels very similar to that described by Wood. Both indexes do at least continue to the end of the period relevant to this study, unlike Wood's (23). As the following table indicates, the Sauerbeck-Statist index shows a depression in price levels in the early 1850's followed by a period of higher but fluctuating prices terminating again in 1873. Prices then fell fairly steeply until the mid-1890's, interrupted only by a small rise in the late 1880's. Again from 1896 prices rose steadily until this series ends in 1914.

Table I.2. :

The Sauerbeck-Statist index of wholesale prices, 1850-1913

<u>Date</u>	<u>Price Level</u>	<u>% Change From Previous Date</u>
1850	75	-
1873	107	+ 43%
1896	62	- 42%
1902	67	+ 8%
1914	81	+ 31% (1896-1914)

The Rousseaux index also describes similar trends as the following table indicates. Between 1851 and 1874 price levels rose, with a short-run peak in the mid-1850's. From 1874 to 1896 they fell, with a slight recovery in the early 1890's. From 1896 until the end of the series in 1913, price levels again rose.

Table I.3. :

The Rousseaux index of wholesale prices, 1851-1913

<u>Date</u>	<u>Price Level</u>	<u>% Change From Previous Date</u>
1851	94	-
1874	127	+ 35%
1896	72	- 43%
1902	87	+ 21%
1913	99	+ 38% (1896-1913)

From these figures it can be seen that the three indexes describe the same price trends, although at first, the Rousseaux index lags behind the other two. In general, however, the two wholesale indexes show a larger rise in levels, 1850/51 to 1873/74, than the retail index (43% and 35% compared with 22%) and conversely, a greater fall in levels, 1873/74 to 1896, (43% and 42% compared with 32%). This may be due in part to significant changes in component prices in the indexes, but one can argue that it is indicative of a change in the wholesale price margin in times of pressure on prices. Thus when wholesale prices are falling, the margin increases and retail prices fail to fall so fast; when wholesale prices rise however, retail prices again fail to rise as fast. Hence wholesale prices are

more volatile than retail prices, a conclusion borne out by Gourvish's study in the earlier period. The estimates of price changes after 1896 are, however, too contradictory to allow such an argument to be followed.

Confirmation of the trends shown in these indexes, unfortunately for the last part of the period only, comes from the Ministry of Labour's indexes of retail prices, which start in 1892 (24). The relevant indexes are concerned with food, coal and clothing. As the following table indicates, the food index shows the same broad trends as the three aggregate indexes, perhaps indicating the predominance of food in these indexes, although again the Rousseaux price index shows a greater variation in the magnitude, if not the direction, of price movements.

Table I.4. :

Comparison of the Ministry of Labour food retail price index with other indexes

<u>Index</u>	<u>% change</u> <u>1892-1913</u>	<u>% change</u> <u>1896-1913</u>	<u>% change</u> <u>1896-1902</u>
Ministry of Labour food	+ 10.5%	+ 25.2%	+ 10.3%
Sauerbeck-Statist	+ 5.5%	+ 24.2%	+ 8.1%
Rousseaux	+ 13.8%	+ 38.0%	+ 21.0%
Wood	-	-	+ 9.6%

As table I.5. shows, the Ministry of Labour's index of clothing prices fluctuates less than that for food, falling slightly 1892-1899 but then rising with increasing steepness until 1913. The coal price index fluctuates far more than the other two, partly because of the coal miners' ability to disrupt supply. Thus there were sharp short-run peaks in 1893, 1900 (the maximum of the series) and 1907. The general price trend was upwards through the period, as the table below shows:

Table I.5. :

The Ministry of Labour clothing and coal retail price indexes

<u>Index</u>	<u>% change</u> <u>1892-1913</u>	<u>% change</u> <u>1896-1913</u>	<u>% change</u> <u>1896-1902</u>
Clothing	+ 14.8%	+ 17.5%	+ 1.3%
Coal	+ 21.9%	+ 33.0%	+ 24.0%

Although the information on prices seems satisfactory in these indexes, especially in the later part of the period, it must be remembered that they are all both national and aggregative and not necessarily linked to working class consumption. Therefore in any study of working class living standards for this period, particularly a regional or local one, it would be more useful to construct a specific price index.

Hobsbawm, in his study of living standards after 1850, commented that the information he used, being general and aggregative, is not necessarily reliable, but as nothing else was available he continued to use it (25). He believed that real wages were unchanged from 1850 to the early 1860's but then rose by 40% in the period 1862-1875. They stagnated in the late 1870's but had regained their previous level by the 1880's. This increase in real wages continued so that by 1900 they were 33% above the 1875 level and 84% above that in 1850. However, the Edwardian Age saw a pause in the improvement of living standards and by 1914 there had been a perceptible decline - a fact which, Hobsbawm argued, was a major cause of the working class social discontent in this period.

During the inflationary periods of the 1860's and the 1900's those who could increase their money wages faster than prices experienced rising real incomes. Hobsbawm argued that the group which managed to do this was usually the skilled workers and thus the gap in real income between the skilled and the unskilled widened. The lower-paid workers' position improved only as unemployment declined. Using Wood's data, Hobsbawm argued that this happened during and after the 1840's. The most rapid improvement in general

conditions, he believed, occurred during the deflationary period 1880-1895, despite the effects of higher unemployment especially amongst the lower-paid. Falling food prices in this period, as always, benefited the poor disproportionately, as they spent a higher percentage of their income on food - but of course this could only be claimed as a benefit if the poor remained in employment.

To support his information about real income, Hobsbawm used data on consumption and mortality rates. In the period 1870-1896 meat consumption per capita increased by one-third and the proportion of imported (and generally cheaper) meat eaten trebled. Hobsbawm believed that this represents a marked rise in the standard of living. However, not only are his per capita consumption figures based on (perhaps untypical) London data but, as Roberts revealed, the increased consumption of frozen meat does not necessarily represent an increase in living standards, as frozen meat (like potatoes earlier) was, for a long time, regarded as low-status food by the working class (26). As discussed in the earlier section on living standards before 1850, mortality rates began to fall after 1870 - but the link between this and changes in the standard of living was neither direct nor automatic.

Hobsbawm gave many details of changing social conditions which could be said to improve living standards, but none of these were totally beneficial. Conditions in towns and cities improved from the 1840's and 1850's, especially in the fields of sanitation and investment in social overhead capital - one of the major factors towards improvement being the threat presented to the middle class by cholera and other urban epidemics. However, the spread of the railway network was extremely damaging to inner urban districts creating, as it did, extensive working class ghettos. By the early 1870's, the trade unions had been officially accepted and recognised, and in their insurance capacity offered unionists another form of security outside the Poor Law, but vast sections of the working class remained unorganised. The late nineteenth and early twentieth centuries also increased political pressure

against the trade unions, which was however, eventually resolved in their favour. At the same time, the working class increased its formal political power with the formation of the I.L.P. and the election of working class M.P.'s and partly as a result of this, social reforms such as the schemes for state pensions and state insurance were introduced in the early 1900's. The provision of amenities and recreations in working class areas, too, became increasingly common - partly because of the increased political power of the working class; partly because of philanthropy; and partly because of the increased profitability of such action, given increased working class real incomes. Thus the period 1870-1900 saw a changing pattern of life, especially for the well-paid workers. Symptomatic of this was the increased sale of consumer durables; the growth of the music halls as an entertainment industry; and the increasing consumption of such semi-luxuries as jam and tinned foods.

Clapham too asserted that by the late nineteenth century working class living standards had risen appreciably. He stated that by 1897

"the people had votes; they cheered the Queen and the majority of them voted Conservative. It is not surprising. The mills of God, with a little supervision from man, had ground out, if not all that vision seers had hoped, still some very sound nourishing stuff worth conserving." (27)

Despite this story of nearly continuous improvements in the standard of living, the situation remained desperate for a large part of the working class at least until 1914. The pre-war position in Salford, a typical urban slum, is described well, if emotively, by Roberts (28). As late as 1917, the poor physical condition of the working class was indicated by the following information about the predominantly working class war-time conscripts. 10% of these were totally unfit for service; 41.5% had marked disabilities; 22% had partial disabilities - leaving only 26.5% to be classed as fit (29). These figures apply to men aged between 18 and 45, and most of whom would be better fed than average (being males) and many of whom had been brought up in periods of improving living standards.

The two major social surveys carried out at the end of the nineteenth century - Booth's in London and Rowntree's in York - both suggested that about 40% of the working class were living in poverty at this time - a poverty that was very basically defined. Rowntree's budget, for example, contained no butcher's meat and no semi-luxuries such as alcohol. The amount of goods to be consumed was deliberately set below the workhouses diets for able-bodied paupers and it was thus indeed a minimal budget, designed only for survival. The cost of Rowntree's budget for two adults and three children was £1.08. Of this 59% was spent on food, 18% on rent, 10% on clothing and 8% on fuel (30). This can be compared with Neale's budget where 78% was spent on food and Gourvish's budgets where the proportions were 71% and 67%. The similar figures for rent are 13%, 12% and 10%, whilst 9% of Neale's budget was spent on fuel. There was then a reduction, in relative terms, in the amount spent on food. In Rowntree's budget, food plus rent and fuel accounted for 86% of total expenditure; in Neale's budget these components totaled 100%; in Gourvish's expenditure on food plus rent, fuel and lighting accounted for 90% or 96% of the total. Of course there are difficulties of comparison, especially as Neale's and Gourvish's consumption patterns were calculated by the authors, whereas Rowntree's were based on information about actual expenditure. There are also problems in comparing Bath labourers and Glasgow skilled and unskilled workers in the early part of the century with York workers in 1899; but, in a very approximate way, the preceding data would seem to demonstrate that living standards were rising, if only because of the increased expenditure on 'non-essential' items.

The information, therefore, on changes in the working class standard of living in the second half of the nineteenth century is fairly unanimous in its conclusions, which appear to show that real wages tended to rise during the period, although there were setbacks in the late 1870's and in the 1900's. The major overall cause was falling prices, especially after the mid-1870's, but rising money wages were important for the skilled worker and declining

unemployment for the unskilled. Combined with this rise in real wages were improvements in social, urban and working conditions: the improvements in towns, the spread of social amenities, the growth of trade unionism and the increased political power of the working class. However, the fact remains that even by the end of the period, living standards for a large sub-group within the working class were still very poor when measured even by the standards of mere health and efficiency. The question now remains to what extent Keighley and its textile industry fitted into this general picture.

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- (3) G. J. Barnsby, 'The standard of living in the Black Country during the nineteenth century', E.H.R., Second Series, XXIV, 2, 1977, pp. 220-239.
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- (5) B. R. Mitchell & P. Deane, Abstract of British historical statistics, (1962), p. 470.
- (6) ibid., pp. 471-473
- (7) A. Toynbee, Toynbee's Industrial Revolution, (David & Charles, New Edition, 1969), p. 93.
- (8) ibid.
- (9) E. J. Hobsbawm, 'The British standard of living 1790-1850', E.H.R., Second Series, X, 1, 1957, p. 61.
- (10) J. E. Williams, 'The British standard of living', E.H.R., Second Series, XIX, 3, 1966, p. 586.
- (11) J. H. Clapham, An economic history of modern Britain, Volume X Two, (1932), pp. 446-447.
- (12) R. M. Hartwell, 'The rising standard of living in England 1800-1850', E.H.R., Second Series XIII, 3, 1961, pp. 397-416.
- (13) ibid., p. 403.
- (14) R. S. Neale, loc. cit., passim.
- (15) T. R. Gourvish, loc. cit., passim.
- (16) ibid., p. 67.
- (17) W. G. Rimmer, 'Working men's cottages in Leeds 1770-1840', The Thoresby Miscellany, XIII, 1963, pp.
- (18) ibid., p. 167

- (19) R. Roberts, The classic slum, (1972)
- (20) A. L. Bowley, Wages and income since 1860, (1937)
G. H. Wood, 'Real wages and the standard of comfort since 1850', J.R.S.S., LXXII, 1, 1909, pp.91-103.
- (21) G. H. Wood, loc. cit., pp. 102-103.
- (22) B. R. Mitchell & P. Deane, op. cit., pp.471-475.
- (23) This factor is important, given the long time-span of income data used in this study.
- (24) B. R. Mitchell & P. Deane, op.cit., p.478.
- (25) E. J. Hobsbawm, Industry and Empire, (Pelecan, 1969), pp. 128-143.
- (26) R. Roberts, op. cit., pp. 89-90.
- (27) J. H. Clapham, op. cit., p. 461
- (28) R. Roberts, op. cit., passim.
- (29) E. J. Hobsbawm, Industry and Empire, p. 137.
- (30) B. S. Rowntree, Poverty - a study of town life, (1908).

As the title implies, this chapter, and indeed the thesis in general, is concerned with a section of the wool textile industry selected by product and by geographical area; that is with the production of worsted in the West Riding of Yorkshire (or West Yorkshire as the area is now officially titled). The extent and development of the industry in this area will be described, taking 1700 as the starting point. This date has been chosen rather than 1800 or even 1804, when the wages series in fact commenced, for two reasons. Firstly, as will be seen, there was very little worsted production in the West Riding before 1700 and therefore this date marks the beginning of the most important period of production; secondly there were many changes in the period 1700-1800 - particularly in spinning in the later part of the century - which had important effects in the nineteenth century. The chapter will be organised into two main sections. The first deals with the chronological growth of the industry and the changes occurring in its methods of production and organisation; the second with the effects of these changes on the labour force. It is necessary first, however, to define both the product and the geographical area being studied.

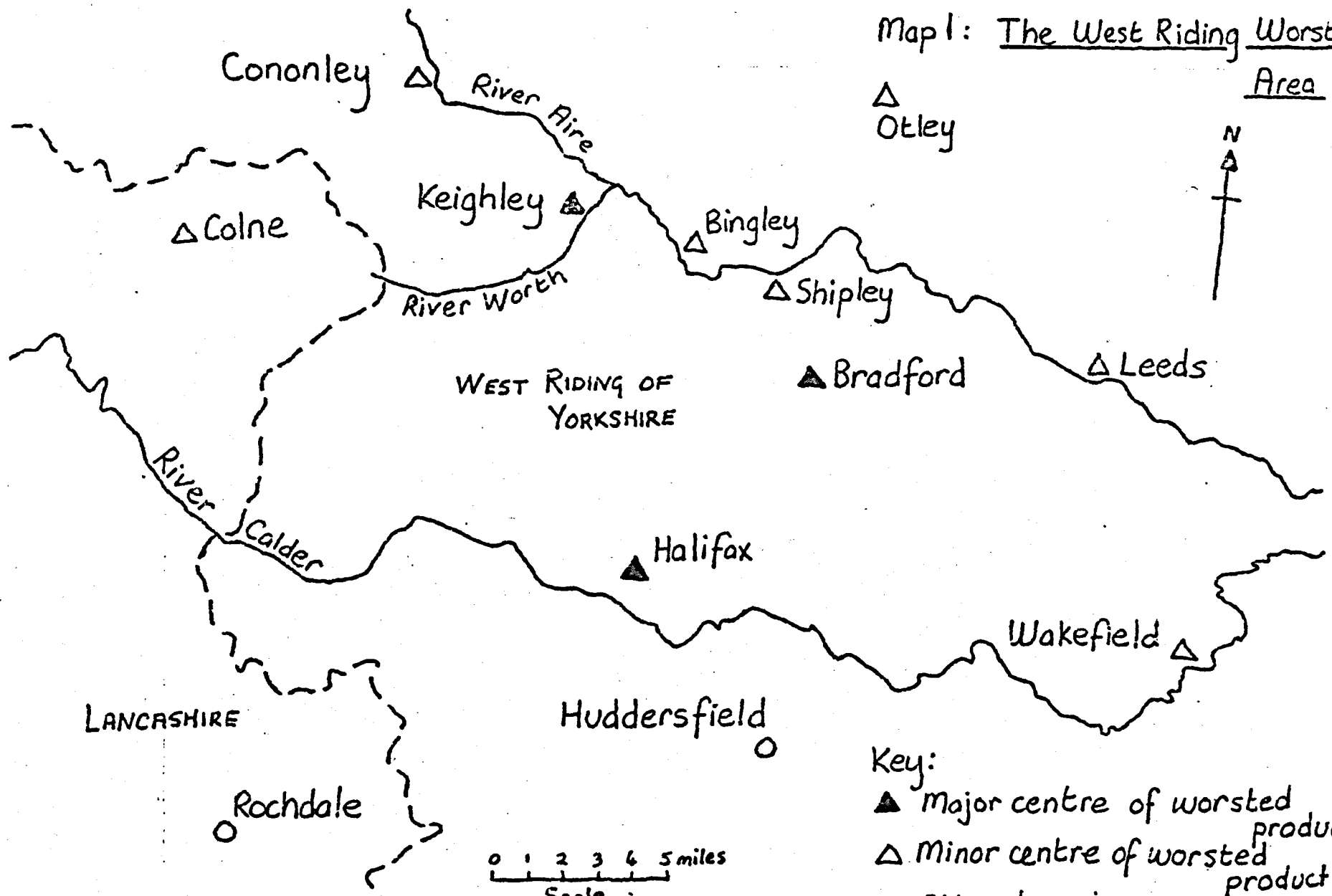
Following Ponting, one can distinguish four ways in which, historically, worsted cloth differs from woollen cloth, within the wool textile industry (1). Worsted yarn is made from longer fibres than those used to make woollen yarn and these longer fibres are combed before being spun, not carded as in the woollen industry. The essential difference between these two processes is that combing is designed to separate the long and short fibres, whilst carding is designed to mix the long and short fibres, so that both may be used. The third difference in the two production processes is that worsted yarn is simply drafted (or drawn out) after spinning, whilst woollen yarn has a twist inserted. Finally, unlike woollen cloth, worsted is not fulled. Thus the differences between the two types of cloth are caused by a difference in the raw material used; differences in the processes ancillary to spinning; and a

difference in the spinning process. Two of these (the absence of twisting and fulling) are simply the omission of parts of the woollen-cloth-making process in the production of worsted cloth.

The crucial difference is, of course, the use of longer fibres. Not only must combing be carried out to eliminate the shorter fibres, but the greater strength imparted by the longer fibres means that additional twisting and fulling (processes which both increase the final strength of the material) are not necessary. Therefore, historically one could define worsted as material made from long wool fibres. However whilst this definition remains correct, changes in the nineteenth century have led to a more general usage of the term worsted. In this period not only were increasingly shorter fibres used (partly as a result of the innovation of combing machines), but non-woollen fibres were also introduced. Thus worsted cloth could contain cotton, silk, mohair, alpaca and china-grass, to name but a few of the potential alternatives to wool, with cotton being the most popular. This change, in particular, led to the definition of worsted in effect being transformed, so that the common definition by the mid-nineteenth century, and the one still prevalent today, was that worsted is material produced from combed fibres. This, of course, would include the materials originally defined as worsted. The combing process then was not only unique to the worsted industry, but essential to it.

The area that can be described as the West Riding worsted area is notable for its change in size through time. The location of the West Riding and the towns within it is shown in the accompanying map. One must note that at no time did the West Riding worsted area cover the whole of the West Riding; nor, conversely, was it ever entirely within the West Riding. In general, the worsted area covered the central and west parts of the West Riding, but extended into Lancashire, particularly around Colne. There are three reasons generally given for the predominance of the worsted industry in this area - with its simple processes, worsted production in the early period was easily combined with hill farming; in the middle period, the nearness to the

Map 1: The West Riding Worsted Area



Key:
▲ Major centre of worsted production
△ Minor centre of worsted production
○ Other town

30

0 1 2 3 4 5 miles
Scale

Lancashire cotton industry facilitated the growth of the industry; and in a negative sense, the absence of any iron-ore deposits in the coalfield around Bradford precluded the development of metallurgical industries similar to those found further south around Sheffield.

In the early eighteenth century, the undisputed centre of the worsted industry was Halifax and the worsted area was confined to Airedale and Calderdale, plus a little of Lancashire (2). By the end of the century the area had expanded to take in Leeds and Wakefield to the east and Otley to the north, whilst still including Halifax and Keighley (3). The early nineteenth century, however, saw a change in the leadership of the region, if not in the region itself, as Bradford took over from Halifax and gained the title 'worstedopolis' in the process. Various reasons are given for the decline of Halifax - the Napoleonic Wars were said to have had a weakening effect; Halifax is said to have concentrated on marketing worsted and to have ignored the new factory system; to have divided its attention between cotton and wool; and Bradford itself, it is said, profited by its early shortage of water power and resultant slowness to mechanise, by the speed at which it was able to utilise steam power (4). Its local coal deposits too would have enhanced its ability to do this. Halifax did retain an importance for some time as a centre on innovations however - in 1813-1814, plainback and wildbore worsted cloths were introduced here and in 1827, the Jacquard loom (5). Huddersfield, meanwhile, maintained its position as a centre for the production of all-wool worsteds.

The first half of the nineteenth century saw a spectacular acceleration in Bradford's growth, as all the available statistics demonstrate. The township, borough and parish of Bradford all increased their populations substantially between 1811 and 1851, particularly the township, which in fact increased seven-fold in size in this period, whilst Halifax less than half as quickly (6). The amount of soap drawback (a measure of the size of the worsted output) claimed for the Bradford area also increased from 25% of the Yorkshire total to 33% for the same period,

whilst that of Halifax increased only from 26% to 27% (7). By 1850, Bradford borough had 37% of the spindles, 42% of the power-looms and 37% of the workers in the total Yorkshire worsted industry (8). The great growth in Bradford's population was, of course, sustained by immigration and by 1854, less than half of the inhabitants of Bradford borough had been born there (9).

This process can be summarised by reference to the number of worsted merchants' offices in various West Riding towns - although marketing importance does not, of course, necessarily imply production importance. The following table is taken from Sigsworth (10):

Table 1.1. :

Worsted merchants' offices in the West Riding, 1822-1861

<u>Date</u>	<u>Number of offices</u>			
	<u>Leeds</u>	<u>Halifax</u>	<u>Bradford</u>	<u>Wakefield</u>
1822	24	6	5	2
1837	52	na	na	0
1842	51	21	52	0
1853	na	14	na	0
1861	17	na	157	0

By the 1850's in fact, Wakefield had forsaken worsted production for the manufacture of hosiery yarn. If it is accepted that the early position in Leeds was distorted by that town's dual economy of worsted and woollen manufacture, then it can be seen that Bradford and Halifax were of about equal importance at the beginning of the nineteenth century. By the 1840's however, Bradford played host to as many worsted merchants as Leeds and to more than double the number in Halifax. By 1861, Bradford's position was unequalled.

By the last quarter of the nineteenth century, the West Riding worsted area could be said to include Leeds, Bradford, Halifax, the Calder valley, Colne in Lancashire, Shipley, Bingley, Keighley and as far up the Aire valley as Cononley. Of these, Halifax, Bradford and Keighley were the major

centres (11). Worsted production was not the only large industry in this area however, nor the sole textile industry - Keighley for instance, had a large engineering sector founded in the late eighteenth century, and cotton production, in the period before the 1860's, spread down the Aire valley as far as Keighley and indeed had been important as far downstream as Leeds in the early 1800's. There was some local specialisation within the worsted industry although this was not as pronounced as in the woollen industry. Thus there was a north/south division between female dress goods (Keighley, Bradford) and male suitings (Halifax), and also a west/east division between heavy coarse fabrics (Keighley, Halifax) and light, fine fabrics (Bradford) (12).

The worsted industry was only firmly established in the West Riding at the end of the seventeenth century - Sigsworth states that it reappeared in Yorkshire in the period 1660-1699 and Ponting that it began about 1700 (13). At this time production consisted mainly of the simpler fabrics - kerseys, camlets and shalloons - for several reasons. It was easier to combine the production of these materials with farming; the traditional worsted areas were concentrating on more expensive materials; and there was a growing demand for the cheaper fabrics (14). The first known reference to the Keighley worsted industry relate to this period, for a shalloon maker was buried in the town in 1724 and a wool-comb maker in 1725 (15).

Thus by the mid-eighteenth century, the West Riding had a large trade in plain worsted. This did not directly harm other regional centres of production because of the growth of the domestic market and the export of some output. However, although the simpler fabrics remained the mainstay of the West Riding worsted industry in the eighteenth century, a highly successful attempt was made from the second quarter of the century onwards to produce material of a higher quality. As a result of this attempt, the output of both the West of England and the East Anglian worsted industries was surpassed, before mechanisation and before the application of inanimate power, and without any notable

modification of the traditional domestic outworking system. This growth was signified by the opening of worsted marketing centres in the late 1760's and 1770's - Wakefield Tammy Hall in 1766; Bradford Piece Hall in 1773; Halifax Piece Hall in 1774; and Colne Piece Hall in 1775 (16). By 1770, the worsted production of the West Riding was equal in quantity, if not quality, to that of the East Anglia area centred on Norwich.

Why was the East Anglia worsted industry, in particular, surpassed in this manner? The analysis can be carried out in two parts - before and during mechanisation. It is clear that the West Riding had already overtaken East Anglia prior to mechanisation, for the latter simply prevented East Anglia from again taking the lead and only ultimately, in fact, dealt it a death blow (17). Despite its longer history of worsted manufacture, East Anglia's only advantages before mechanisation, were in finishing and marketing and the finishing process, in the worsted industry, was always fairly unimportant. Hand-combing was a mobile and well-unionised occupation which was geographically mobile and spinning and weaving too were not restricted in location. East Anglia did suffer several positive disadvantages. Businessmen persisted (either from habit or because of a lack of capacity) in producing the traditional expensive worsted which had a ready, but stable, market when the expanding sector consisted of the cheaper fabrics. In addition their raw material costs may have been higher since the long-haired sheep was found predominantly in the North of England. Ponting alleged that the industry's leaders had become 'gentlemen' with no close links with their firms - more interested in status than high profit levels (18). Cumulatively, all these effects were sufficient to prevent East Anglia's growth matching that of the West Riding. As Clapham wrote: "it is the ordinary case of a pushing, hardworking locality with certain slight advantages, attacking the lower grades of an expanding industry."

During the process of mechanisation, East Anglia's decline was confirmed - as Clapham continued: "When other

forces lent their aid ... the result was the complete eclipse of East Anglia as a worsted producing area." The "other forces" primarily consisted of the lack of inanimate power sources, for East Anglia had little water power and no coal and hence fuel costs were high (20). The lack of iron was probably not so important at this stage, but another disadvantage was the distance of East Anglia from the Lancashire cotton area, the source of most of the relevant mechanical innovations. Thus East Anglia, in the long run, found it impossible to compete with the West Riding.

In the later part of the eighteenth century, the West Riding worsted industry experienced the beginnings of mechanisation, particularly in spinning, together with the application of water power. These innovations, as discussed earlier, confirmed the area's position as the premier worsted producer. The inventions themselves were generally made for use in the cotton industry and then adapted, first for the stronger worsted yarns and later for the woollen fibres. This movement of technical knowledge eastwards from Lancashire is sometimes given as a reason for the success of the worsted industry in the western-most area of the West Riding, nearest to the Lancashire cotton towns, and would have been important in a town such as Keighley, where both cotton and worsted were produced in the same period. The pace of innovation, however, did vary between the different sectors of the worsted industry.

The two major innovations in the worsted industry, in this period, were the flying shuttle and the spinning frame. The flying shuttle was a device used in weaving to send the yarn across the loom on a spring-loaded shuttle, the result being that the material could be woven to greater widths and at a greater speed. The flying shuttle was invented in 1733, but its use in the worsted industry was retarded by the fact that its action was too abrupt for all but the strongest threads. Hence, even in the worsted industry, it could not really be used until mechanised spinning had been introduced, the latter producing stronger yarn. Also there was little advantage to be gained from using it for the narrow-width worsted cloths. It did have the advantage,

however, of being usable in the domestic system, without any changes in organisation. But its innovation proceeded only slowly - it was not used in Bradford until the end of the century and Baines stated that the hand shuttle was used on 19-inch wide calimancoes until 1801 in the Clayton area (21)

Innovation in the spinning sector occurred more rapidly in this period. The Saxony hand-wheel, developed in the seventeenth century, enabled the spinner to produce yarn continuously and was in widespread use throughout the eighteenth century. Although this hand-wheel was ideal for worsted production, full advantage could not be taken of it, as hand-combing did not produce a continuous length of fibre ready for spinning. The mechanisation of worsted spinning was at first carried out within the domestic system, but later led to the growth of the factory system. The incentive to mechanise came from the growing demand for worsted cloth and the need to produce a stronger yarn. To meet the increased demand, the flying shuttle could be used to increase weaving productivity, but, as has been shown, hand-spun yarn was not strong enough to use with the flying shuttle and this therefore led to a desire to mechanise spinning. The three inventions that were used were the spinning jenny, the water frame and the mule, invented in 1767, 1769 and 1779 respectively. The jenny was hand operated and could be incorporated in the domestic system, but it did have limitations in the strength of the yarn produced. The water frame and the mule were both capable of producing thread of sufficient strength to be used with the flying shuttle, but they were water-powered and hence necessitated the development of the factory system. In the period of changeover between the two methods of organisation the jenny was frequently used to produce the weft yarn and the water frame and mule to produce the warp yarn (22).

Mechanised spinning was first carried out in the West Riding at Addingham in Wharfedale in 1787, and in the Keighley area at Leeming, near Haworth, in 1792 (23). However, it was not until the first decade of the nineteenth century that mechanised spinning began to supersede hand spinning, and the complete changeover did not

come until the early 1820's.

The result, then, was continued growth in the West Riding worsted industry and a trend towards factory organisation, using at first water power and then steam. The cessation of the American War in 1783 led to a boom in trade and during the 1780's growth accelerated. However, the 1790's were a difficult period for the industry and in some areas cotton replaced worsted as the premier textile product. Sigsworth noted that the contraction in the 1790's probably nullified the earlier boom in the 1780's (24). The net expansion of mill capacity in this period was great however and even if its original purpose was the production of cotton goods, much of this new capacity was later converted to uses in the worsted industry. The most striking development of water-powered spinning in these two decades was in the Worth valley upstream of Keighley and from this time, Keighley maintained an important role in the spinning sector of the worsted industry (25). Despite the growth of, and changes within, the industry in the late eighteenth century, it was still dominated by the smaller manufacturing concerns (26).

The next period to be considered is 1800-1860. It was in this period that major changes in the worsted industry occurred, both in the raw materials used and the processes involved. It was, moreover, a period of expansion, although not of such boom conditions as were experienced in the 1860's, during and immediately after the American Civil War.

The incidence of the Napoleonic Wars hampered the growth of the West Riding worsted industry, particularly because of the effect on investment, but given favourable demand conditions, the early nineteenth century was a period of great potential expansion in both spinning and weaving. Spinning itself was confirmed as a factory occupation in the first few years of this period and the underwent gradual improvements as productivity per worker rose and the size of spinning plant increased. Thus both the total number of spindles in the West Riding and the number of spindles per firm rose 1830-1860; and the introduction of the cap frame

(which meant that one person was able to operate two frames) led to an increase in the productivity in the order of 25%-30% without any parallel increase in labour costs (27). However, the two sectors of the industry which experienced radical change in this period were weaving and combing, and these will now be discussed.

Power-loom weaving was first developed for the cotton industry. Therefore, like mechanised spinning, it came to the worsted industry before the woollen, because stronger thread was used in the former. The first worsted power-loom was set up in Shipley in 1822, only to be smashed by angry workers, as was that installed at Horsfall's near Bradford in 1826. However, the opposition to the power-loom ultimately failed and gradually, from the early 1830's, they were introduced into the industry, utilising both water and steam power. Power-loom weaving was carried out in a factory environment and hence caused the decisive break-up of the domestic out-working system. The introduction of power-loom was rather slow in the early 1830's, but by 1836 there were 2,768 being used in the West Riding worsted industry and by 1838, almost half of the worsted looms in Britain were operated by steam or water power (28). In the 1840's, replacement of hand-loom by power-loom continued more rapidly, with the power-loom spreading out from Bradford, which, despite its relative distance from the centres of the Lancashire cotton industry, was the centre of power-loom innovation in the worsted industry. By the late 1850's hand-loom weaving, as an occupation, was virtually extinct, particularly in the Bradford parish. As will be shown later, this process of technological redundancy, whilst advantageous for the industry as a whole, caused severe difficulties for at least the male displaced hand-loom weavers.

A similar process of mechanisation and incorporation within the factory system occurred, at a slightly later date, in the combing sector. The first combing machines were designed in the 1790's, but no effective machine was built until the 1840's. Hence, unlike the developments in spinning and weaving, there was no "intermediate semi"

mechanical contrivance" used between the two methods of production, hand and power (29). The pressure to mechanise combing was very great for several reasons. Mechanised spinning was at its most efficient only when combing too was mechanised. The combers were a powerful group within the industry and when their livelihood was not threatened by mechanisation, they were able to hold long strikes. These strikes, even if not always successful, disrupted production and caused the employers great monetary loss. A good example is the combers' and weavers' strike of 1825 which lasted 22 weeks. But most importantly, the combing machines were more efficient and more profitable. Not only were they able to use wools previously classed as almost valueless, but they could 'work up' shorter wools than the hand-comber could deal with. Thus the machines could produce 8.5 to 10.0 pounds (weight) of combed wool from 16.0 pounds of raw wool, whereas the hand-comber could only manage 7.0 to 8.0 pounds. In one day, moreover, the combing machine could comb 250.0 pounds of wool, an amount which would take the hand-comber ten days (30). Therefore the displacement of the hand-combers took place very rapidly. The machines were largely introduced from 1845 onwards and by 1860 hand-combers were virtually extinct as an industrial class. Unemployment was severe as 20,000 men were thrown out of work and only half, at most, found jobs as machine combers. The check to Bradford's population growth that occurred in the 1850's was largely caused by this substitution of capital for labour.

The third major change that occurred in the worsted industry in this period was the introduction of worsted cloth made partly with non-wool fibres. Cotton was the first and premier fibre to be used in this way but later alpaca, mohair and silk, in particular, became important. Baines stated that cotton was widely introduced around 1834 with the intention of producing a lighter and cheaper material and with the result of extending and varying the worsted industry's production in "a startling manner". (31). By 1837 James reported that cotton warps were widely used, especially around Bradford whilst Sigsworth calculated that after 1838, cotton-based mixed worsteds probably became the

staple of the West Riding worsted industry (32).

Unfortunately, contemporary statistics can not be used to verify this opinion because of their imprecise delineation between worsted and woollen cloths. The statement below, made in 1856, also accurately reflected the position 20 years earlier, and remained valid until the 1860's (33).

"...the Board of Trade has appeared almost impenetrable to the idea of there being any distinction between woollen and worsted fabrics".

The changes generated by the introduction of non-wool fibres were enormous. Worsted was cheapened by the inclusion of cotton yarn, since the latter was cheaper than worsted yarn per unit length. Hence worsted was able to become both a substitute for, and a competitor with, cotton itself, particularly in dress goods. The lower prices enabled the worsted manufacturers to reach a larger market and hence they began to operate a low profit margins system combined with large-scale production. The use of non-wool materials in itself allowed the industry to expand output, since this would have been retarded without these new raw materials by the relatively inelastic supply of wool.

Once introduced, the mixed fabrics rapidly came to dominate the worsted industry. By 1858 it was estimated that they comprised 95% of the total West Riding production and that cotton yarn itself accounted for one-third of the total weight (34). All-wool worsted was still being made in this period, but the amount was so small in relative terms, that when they became popular again around 1870, they were referred to as 'new worsteds'. Even Lancashire turned to the production of mixed worsteds in times of hardship in the cotton industry, such as the calico depression of the 1850's and in the cotton famine caused by the American Civil War. In the West Riding then, from the 1830's, mixed worsted production grew rapidly, whilst from the 1840's onwards the all-wool worsted production remained steady or possibly expanded slightly.

An interesting aspect of the West Riding worsted industry at this time is the changeover from water power to

steam power. This occurred both on a larger scale, and at a faster rate, than in the local woollen industry. To some extent, the main period of transfer to steam power occurred before the innovation of power-looms. However, as will be demonstrated later, the speed of changeover varied greatly from town to town. The following table is adapted from Jenkins (35).

Table 1.2. :

Sources of power in the West Riding worsted and woollen industries, 1836-1850

<u>Date</u>		<u>Worsted industry</u>			<u>Woollen industry</u>		
		<u>Total</u>	<u>Water</u>	<u>Steam</u>	<u>Total</u>	<u>Water</u>	<u>Steam</u>
		<u>HP</u>	<u>HP</u>	<u>HP</u>	<u>HP</u>	<u>HP</u>	<u>HP</u>
1836	Amount	4,059	873	3,186	8,890	2,685	6,205
	%	100%	22%	78%	100%	30%	70%
1839	Amount	6,571	1,045	5,526	9,862	2,488	7,194
	%	100%	16%	84%	100%	26%	74%
1845	Amount	8,258	1,049	7,209	10,390	2,307	8,083
	%	100%	13%	87%	100%	22%	78%
1850	Amount	9,389	986	8,403	11,753	2,689	9,064
	%	100%	11%	89%	100%	23%	77%

Thus whilst the worsted industry had a smaller amount of total water and steam horse-power throughout the period, the proportion of steam power used within it was always greater than that in the woollen industry. In fact, in 1836 the worsted steam power total amounted to about half that of the woollen industry, whereas by 1850, the two were nearly equal. It is interesting to note that there was no great absolute fall in the use of water power. Indeed, in the worsted industry, the use of water power increased absolutely between 1839 and 1845, and fell only slightly between 1845 and 1850. The relative decline in the use of water power was, of course, much greater. In similar manner, the use of water power in the woollen industry declined both absolutely and relatively between 1836 and 1845, but had regained its original absolute level by 1850. There are, however, wide local variations hidden by these aggregate figures. In 1839, the West Riding worsted

industry used 6,571 horse-power, of which water only accounted for 1,045 H.P. (16%). In Keighley at this time, however, water power accounted for about 50% of the total power used in the local worsted industry and Keighley was a large town in terms of worsted production, using a total of nearly 1,000 H.P. Only Otley (a small centre of worsted manufacture) and Penistone and Mirfield (both very small centres) used larger proportions of water power. Thus the Keighley worsted industry, whilst using about 14% of the total horse-power used in the West Riding worsted industry, accounted for almost half of the total water power but only 8% of the total steam power. The predominant reasons for this were the availability of the River Worth and its tributaries as ready and reliable sources of water power, and the early specialisation in mechanised spinning in the valley. Ancillary processes, particularly dyeing and design, remained a problem in the worsted industry. The lack of a competent dyeing technology had delayed the use of cotton-based mixed worsteds because of the problem of finding a dye which would react evenly and equally on both vegetable and animal fibres. Also the art of design was at first neglected as the West Riding worsted manufacturers concentrated on rapidly extending the production of cheaper worsted, but the nature of this defect was realised and by the 1850's, schools of art and design were being established in the West Riding. Given the adjustment to recent innovations then, it could be said that by the 1850's, the West Riding worsted industry was enjoying a period of successful expansion and was reaping the rewards of important economies of production.

Finally in this section, mention must be made of the growing amount of government regulation in the worsted industry, particularly by the Factory Acts. These applied to most of the textile industry and represented one of the most widespread and early acts of government intervention on behalf of the workers. The earliest act, that of 1802, attempted to protect the health and morals of pauper apprentices in the cotton and woollen mill by limiting their hours of work, making school attendance compulsory and improving their living conditions (36). It was, however,

largely ineffective because of the poor system of inspection, and soon became irrelevant as the importance of the pauper apprentice as a part of the labour force declined. Increasingly the need was to protect children who worked as 'free labourers'. Further acts did follow, those of 1819 and 1831 applying to cotton mills only, that of 1825 applying to textiles in general, and these again tried to limit hours of work for the younger workers, but again were largely ineffective because of poor supervision.

The 1833 Factory Act was, however, more effective in that it had a better administrative structure. It prohibited the employment of children under the age of 9 in the worsted industry and permitted children between the ages of 9 and 13 only to work 9 hours a day and 48 hours per week. Those between the ages of 13 and 18 were permitted only to work 12 hours a day or 69 hours per week. Finally, all those under the age of 18 were forbidden to do night-work, only being allowed to work between 5.30a.m. and 8.30p.m. In addition, all children under the age of 13 were required to attend school for two hours on each working day in the week. Further acts followed which slowly amended the 1833 act. Thus in 1844, the 12 hour maximum day was extended to women, and the half-time system for children enacted, but the minimum age at which children could be employed was reduced to eight. In 1847 the Ten Hours Act was passed, but the mills could operate longer working days by using the shift system. Thus the length of the adult male's working day could still far exceed ten hours. In two acts in 1850 and 1853 the normal working day was gradually standardised to 6a.m. to 6p.m. or 7a.m. to 7p.m. for all workers. Thus by the end of this period hours were regulated for all workers, with those under 13 only being allowed to work three full days or six half-days per week and being required to attend school at least 12 hours per week.

The beginning of the period 1860-1910 is remarkable, of course, for the boom in worsted production which occurred during, and after, the American Civil War and the associated cotton famine. Although the cotton famine raised the price

of cotton and hence that of mixed worsted, the wool content of the latter now served to lower their cost, and mixed worsted became cheaper than the cotton goods with which they competed. Thus there was an unprecedented expansion in the West Riding worsted industry in the early and mid-1860's, and at a period such as late 1862, all worsted cloths were in demand regardless of their fashion appeal (37). Wool prices rose in sympathy with the cotton prices, reaching their peak in 1864, but this did little to stem the demand for mixed worsted. Most of the substitution naturally occurred amongst the heavier cotton goods, the production of finer cottons being less affected. When the cotton famine ended, worsted retained most of the market it had gained from cotton, except in those areas where cotton notably functioned better. The boom continued with the result that by the end of the 1860's, a labour shortage had developed in and around Bradford, despite the increase in numbers employed in the worsted industry and the increasing population of Bradford. The most permanent effect of the American Civil War was, however, on exports. These fell slightly, only partly as a result of changing fashions. The USA had been one of the most important overseas markets of the worsted industry but it was lost, both during the war and afterwards, when the infant American industry was protected by tariffs. The European markets, however, to some extent compensated for this loss, as sales there increased absolutely as well as relatively.

The period from the end of the American Civil War to the mid-1870's marked the boom period in the West Riding worsted industry, although it was one characterised by change, particularly from mixed worsted production back to all-wool worsteds. This transition resulted partly from the earlier high cost of cotton, but also from a change in fashion. Earlier the cheaper cotton-based mixed worsted dress materials had been fashionably worn over a crinoline frame, but the change to the use of a bustle demanded the wearing of much softer fabrics. Silk was the ideal material, but merinos and all-wool worsteds were the "cheapest material that can be worn by a woman who must dress well" (38). The material used for men's clothing

changed too, with broadloom coatings, together with worsted flannels, being introduced in the early 1870's. The worsted frock-coat took over from the broadcloth coat in the 1860's partly as a result of fashion's demands, but also because being a lighter material it was subject to a smaller American tariff (which was levied by weight, not value).

As well as changes in the type of material produced, changes in the machinery used were occurring in this period. In the years 1862-1867, the number of power-looms per worker rose whilst the number of spindles per workers fell, as spinning techniques changed (39). The Keighley dobby loom, introduced in the late 1860's, made further productivity gains possible, since it worked at a higher speed than previously normal, but without snapping threads or causing distortion of the woven pattern. In all, it was possible for Baines to write in 1870 that "Yorkshire stands first in the production of fabrics intended for the middle or poorer ranks" (40). However, this period was exceptional and its profits abnormal, as events in the next two decades were to show.

In 1874, the great boom slackened off and, until the 1890's, the West Riding worsted industry was caught in the 'Great Depression'. However, this depression was relative rather than absolute. Exports, it is true were hard hit - the French worsted industry was competing successfully with the West Riding both at home and abroad, mainly as a result of the former industry's use of superior spinning and dyeing techniques and its greater success in fabric design. Also the American tariffs, being measured by weight, hurt the cheaper and heavier sector of the West Riding worsted industry. Despite the low profit levels however, the volume of trade in the domestic market continued to expand. There was a steady increase in the number of spindles during this period and the number of power-looms only declined after 1885. The number of workers in the industry did decline in the late 1870's, but the 1874 total was reached and passed in 1885 and expansion then continued (41). The opinion amongst those involved, that the industry was depressed, was largely held because, for the first time, there had been a long and

steady decline in prices, as opposed to the more usual short-run fluctuations. Of course, the main difficulty was that comparison was being made between the relatively poor economic conditions 1874-1896 and the boom period of the late 1860's and early 1870's. By the early twentieth century, the industry had reached an expansionary phase again, with the prime legacy of the 'Great Depression' being a relative increase in the industry's production of yarn, for both the worsted and the hosiery trades, at the expense of piece goods. Thus the importance of the weaving sector within the industry was diminished.

This trend is reflected in the increasing specialisation of worsted firms in this period and the consequent decline in the importance of the combined spinning and weaving mill. The reasons for this were several. Amongst others, it was argued that there were greater economies of scale to be reaped from specialisation; that higher profits obtainable in the industry's spinning sector encouraged specialisation; that changing fashions led to a reluctance on the part of the entrepreneur to link too rigidly the spinning and weaving processes; and that in a period of deflation, it was thought advisable to minimise the period between the purchase of raw materials and the sale of the finished article. Thus whilst the older mills continued in their original functions, new companies set up specialised mills and in particular spinning mills. Hence, a decline in the relative importance of the combined spinning and weaving mill can be seen, particularly in spinning. The following table gives details of the change (42):

Table 1.3. :

The proportion of spinning and weaving done in combined mills in the West Riding worsted industry, 1851-1904

<u>Date</u>	<u>Spinning</u>	<u>Weaving</u>	<u>Date</u>	<u>Spinning</u>	<u>Weaving</u>
1851	51.7%	60.4%	1878	46.0%	48.2%
1856	51.6%	65.8%	1885	42.6%	48.4%
1861	50.9%	59.5%	1890	39.8%	43.1%
1867	44.3%	63.3%	1904	32.4%	41.4%
1874	49.3%	50.3%			

Taking spinning first, at the beginning of the period the proportion of total yarn spun in the combined mills was about half and this changed little until the onset of the 'Great Depression', with the exception of the short-term decline in the boom years of the mid-1860's. From the mid-1870's however, the importance of the combined mill in the spinning sector declined steadily, so that by 1904, less than one-third of all spinning was carried out in combined mills. The transition in weaving was, however, rather different, not least because the changes in importance of the combined mill were more erratic. The importance of this type of mill to the weaving sector was at its highest in the mid-1850's, when they accounted for two-thirds of the cloth output. This proportion gradually declined, but with a recovery in the mid-1860's, with the most rapid fall being in the late 1860's and early 1870's. By 1904, just over two-fifths of the weaving output was produced in combined mills - a proportion not achieved in spinning since the early 1880's. Throughout the period, a substantially smaller proportion of the spinning was carried out in combined mills than the weaving.

This pattern is evident in Keighley itself, as the following table shows, although the figures are less reliable as they refer to the number of mills and not output (43). The directories also cannot be depended on to give totally accurate and up-to-date data. Here again can be seen the falling importance of the combined mill in worsted spinning and a similar, though less marked, phenomenon in worsted weaving. The figures also seem to indicate, in conjunction with table 1.3., that it was the smaller firms that continued to carry out both spinning and weaving, whilst the larger firms became specialised.

Table 1.4. :

The proportion of spinning and weaving mills in Keighley of the combined type, 1847-1884

<u>Date</u>	<u>Spinning</u>	<u>Weaving</u>
1847	75%	78%
1853	74%	82%
1861	69%	82%
1884	39%	65%

Finally it is necessary to discuss how the changes in the worsted industry described above affected the labour force, both in the West Riding in general and in Keighley in particular. In the eighteenth century, labour was generally scarce and hence children were widely employed. On occasion, pauper children were brought in from other areas to work as apprentices in the mills. In Keighley, the scarcity of proficient child labour in the late eighteenth century had meant that children were sent to Derbyshire to be trained and then returned to Keighley to work. The cost of this labour shortage encouraged the innovation of power machines; firstly, as has been seen, in spinning and then in weaving. Thus by the early 1800's, many women and children were working in the mechanised spinning and ancillary occupations whilst the men continued in the specialist unmechanised occupations such as wool sorting and hand-combing. A mixed group - about two-thirds male - was employed in hand-loom weaving. Whilst the mechanisation of spinning had reduced the immediate shortage of labour, the growth of the worsted industry meant that there was still a steady demand for labour. However, by the 1820's, the evidence seems to suggest that the hand-loom weavers and the hand-combers at least, were beginning to suffer a loss in that bargaining power which stemmed from a relative scarcity of labour, for it was in this period that they began to lose strikes which had been intended to preserve wage rates (44). This may reflect the threat of impending mechanisation for in the 1830's and 1840's, as has been shown, hand-loom weaving was displaced by power-loom weaving. Most of the female hand-loom weavers, in Keighley at least, found work in the worsted mills as power-loom weavers. James, it can be noted, praised the conditions under which the power-loom weavers worked - it "ranks amongst the very best paid, the pleasantest, and the most health (occupations) pursued by females" (45). The men were less fortunate in this respect and many turned to hand-combing or tailoring to be able to continue working at home. Others moved to different occupations outside the worsted industry. This movement of hand-loom weavers into hand-combing in turn affected the position of the hand-combers, who were unable to restrict entry into their occupation nor consequently the supply of

their skilled labour.

Of course, one of the major signs of the growth within the West Riding worsted industry and its continuing demand for labour, was the expansion of Bradford in the first half of the nineteenth century. Much of the population growth came from immigration - from other areas within England and, especially in the 1840's, from Ireland. Other worsted towns too had their share of immigrant-led population growth, including Keighley, but not on such a spectacular scale. However, the redundancies amongst the hand-combers in the 1850's caused a deceleration in even Bradford's population growth. The power and status of the hand-combers had always been enhanced by the fact that they were both unique and necessary to the worsted industry. However, cotton was not combed and thus its increasing use after the mid-1830's diminished the hand-combers' importance whilst the increasing threat of mechanisation diminished their independence. Within the parish of Bradford, 20,000 male hand-combers were made redundant in the 1850's and only half, it is estimated, found work as machine-combers. Of course, there was no other domestic textile occupation remaining for them to turn to and few were available within the mills. As will be shown in chapter six, many hand-combers were forced to take low-status jobs in other industries, although some did become self-employed. Many must have emigrated to other areas, if not to other countries.

Some of the available wage books show the geographical distribution of employment amongst the domestic workers in the first half of the nineteenth century. This indicates that domestic workers lived closer to the urban centres and mill complexes through time, probably as a result of the opportunities there for women workers. When a trade such as hand-loom weaving was facing extinction, obviously women within the trade were more likely to move quickly into alternatives such as power-loom weaving. In general though, the more distant employees dropped out first, perhaps because falling earnings made the longer journeys they undertook less worthwhile. However, when there was an opportunity, the more distant hand-loom weavers became

hand-combers, whilst those living nearer the urban centre tended to go into non-domestic occupations.

In the 1860's, there is evidence of a renewed labour shortage during the boom conditions of the cotton famine. Child labour in particular was scarce and, according to Greeves, the shortage was exacerbated by "the willingness of parents to dispense with their children's earnings and send them to school" (46). There was some compensatory movement of labour from the depressed Lancashire cotton industry into the West Riding and particularly, if perhaps temporarily, into towns near the Lancashire border like Keighley. Whilst this was not insignificant in its effect, it was not as large as contemporaries sometimes alleged. The less profitable period of the 1870's and 1880's, combined with increasing labour productivity, soon however reduced the unsatisfied demand for labour.

By the beginning of the twentieth century, it is evident that there was a strong sexual differentiation between occupations, particularly in the jobs done by adults. Whilst children of either sex did most of the smaller ancillary jobs, the women were by this time primarily involved in machine minding - spinning, drawing and weaving - whilst the men were involved in supervision and the skilled and less-mechanised jobs - for example mechanic, wool sorter or warp-dresser. Very few women were overlookers, even within the predominantly female departments. This differentiation has generally remained intact to the present day.

The effects of changes in the worsted industry on the standard of living of worsted workers in Keighley can be summarised as follows. Despite being overtaken (in terms of the number of males employed) by the engineering sector at the end of the nineteenth century, the industry still remained the prime employer in the town in 1914. The mechanisation of the industry in the early part of the century encouraged rapid urban growth which had a deleterious effect on living standards, not least on housing conditions, as Rimmer has shown. Also the demand

for labour encouraged immigration which, as chapter two shows, had an important effect within the town.

Although Keighley was a major centre of the worsted industry, it was never in the forefront of innovation and therefore it is probable that changes, when they eventually came, were more rapidly achieved than in the 'pioneering' towns, where innovations would have gone through a longer period of testing. However, disruption continued through all the first half of the nineteenth century as one sector after another was mechanised. In the later period, the 1870's and 1880's, Keighley's worsted industry was hard hit by both the changing fashions in dress fabrics and the American tariffs, because of its specialisation in heavier dress materials. In addition, one might expect a decline in weavers' wages in the last quarter of the century as the importance of weaving within the industry diminished.

The other area of general importance to the standard of living is the growth of Keighley itself and this is discussed in the following chapter.

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- (6) Date Population of Township
 Bradford Halifax
- | | | |
|------|-------------|-------------|
| 1811 | 7767 (100) | 9151 (100) |
| 1831 | 23223 (299) | 15382 (168) |
| 1851 | 55293 (712) | 25180 (275) |
- Source : Censuses
- (7) Date Percentage of the total in each area
 Bradford Halifax
- | | | |
|------|-----|-----|
| 1810 | 25% | 26% |
| 1830 | 34% | 21% |
| 1850 | 33% | 27% |
- Source : J. James, op. cit., p. 389.
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CHAPTER 2 : THE GROWTH OF KEIGHLEY, 1780-1914.

This chapter deals with the growth of Keighley and its industries in the period from the onset of industrialisation in the town to the First World War. It is divided into two sections - one dealing with the growth of the town itself and the other with the growth of its industries, in particular the worsted industry. Of course, the two sections are not entirely independent of each other, as the rate of growth of the town was closely interlinked with that of its industries. The author is indebted to Ian Dewhirst's study of Keighley (1) for much of the information given about the town's development.

As the table below shows (2), Keighley's population grew ten-fold between 1780 and 1911. However, this expansion was not entirely due to 'natural increase' for, as will be seen later, immigration had an important influence on Keighley's demography and towards the end of the period, boundary changes in the town caused 'artificial' changes in the population size.

Table 2.1. :

Keighley's population, 1780-1911

<u>Date</u>	<u>Population</u>	<u>Date</u>	<u>Population</u>
1780	4,100 (estimate)	1861	21,589
1801	5,745	1871	28,059
1811	6,864	1881	33,540
1821	9,223	1891	36,176
1831	11,176	1901	41,564
1841	13,378	1911	43,490
1851	18,258		

The speed at which the town grew can be seen from the time intervals between each doubling of the town's population. Thus from 1780, the population doubled in about 35 years, up to the mid-1810's; it then doubled again in about 30 years up to the mid-1840's; finally it doubled again in 35 years by 1881, thus showing an eight-fold increase in 100 years. Whilst this pattern of growth is not

as rapid as other West Riding towns (in chapter one, it was shown that Bradford's population increased seven-fold in forty years), it does indicate a steady and powerful increase. This can be analysed further by calculating the proportional decadal increase in population as has been done in the table below (3).

This table shows that Keighley's population growth can be divided into two main periods, with the first interrupted by three peak decades of growth. Between 1780 and 1881, decadal growth was in the range 18%-21%, with the exceptions of 1811-1821 (34%), 1841-1851 (36%) and 1861-1871 (30%). After 1881, population growth was much slower, generally below 10% per decade, the period 1891-1901 being distorted by boundary changes of 1895.

Table 2.2. :

The proportional decadal increase in Keighley's population, 1780-1911

<u>Date</u>	<u>% growth per decade</u>	<u>Date</u>	<u>% growth per decade</u>
1780-1801	18%	1851-1861	18%
1801-1811	19%	1861-1871	30%
1811-1821	34%	1871-1881	20%
1821-1831	21%	1881-1891	8%
1831-1841	20%	1891-1901	15%
1841-1851	36%	1901-1911	5%

There are, of course, difficulties with this analysis particularly because of the artificial periods imposed by the use of census data, but even so, the pattern of growth seems quite definite. The high rate of growth in the period 1811-1821 seems to have been caused by 'natural increase' or by purely local migration, prompted perhaps by industrial growth and the consequent demand for female labour in the town; that of 1841-1851, was largely caused by Irish immigration into the town as a result of the potato famine; whereas that of 1861-1871 was probably influenced by the boom conditions in the worsted industry during the American Civil War, and the consequent cotton famine, which caused some migration of labour from Lancashire to the West Riding

and hence into Keighley.

Keighley is situated in the western part of the West Riding, at the edge of the Pennine moorlands (4). It has grown up on the banks of the River Worth, at the point where the North Beck joins this river, this point being about a mile above the Worth's confluence with the Aire. This was important for its early development as a centre of water-powered textile manufacture. Keighley's geographical position, close to the Lancashire border and the most important cotton towns, influenced both the type of industry present in the town and the immigration influxes into the town. Keighley was very near to the natural trans-Pennine routeway of Airedale, and the Worth Valley itself was often used as a route between Airedale and Calderdale.

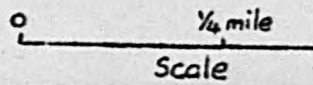
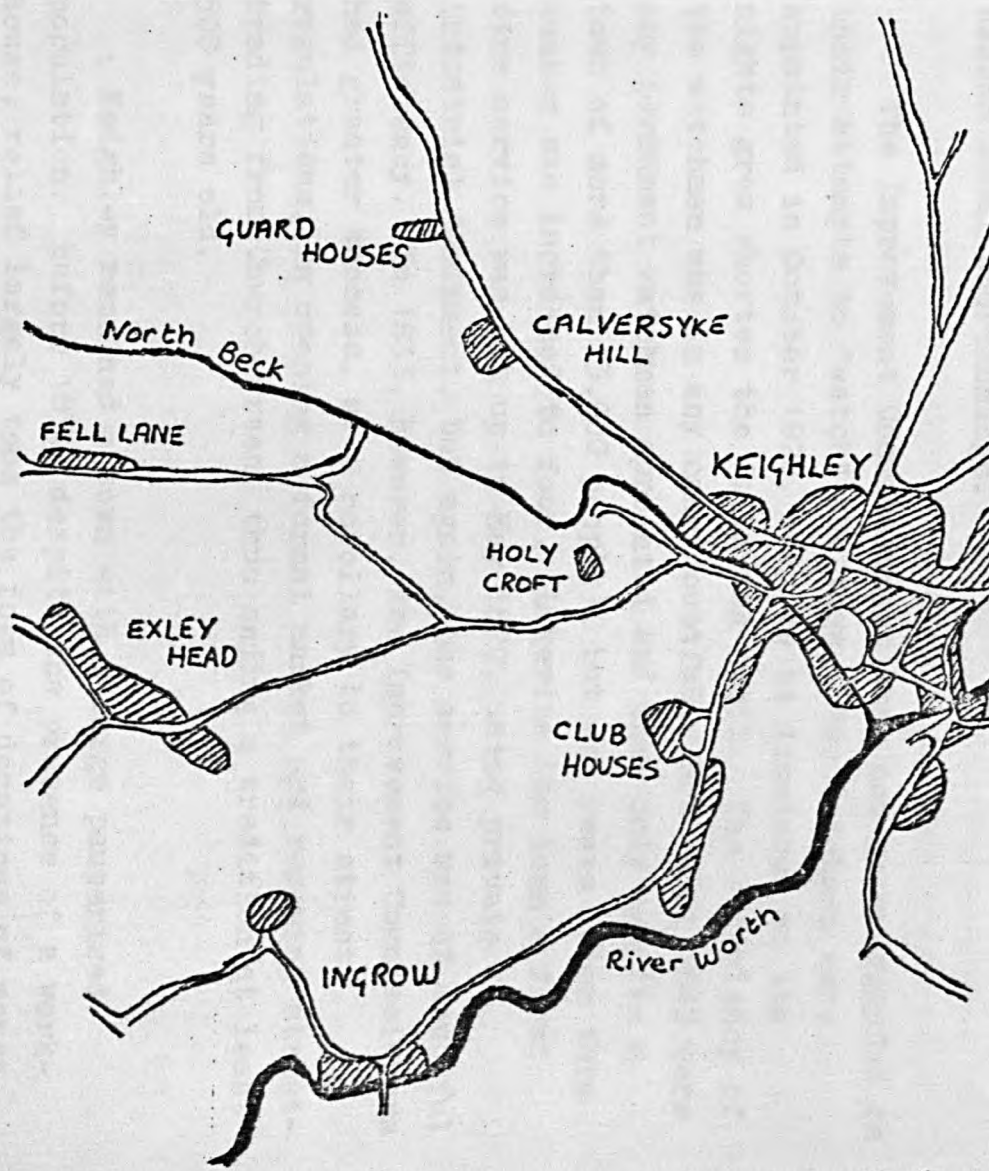
The industrial era began for Keighley in 1780, when the first water-powered cotton mill commenced production in the town. The 1780's and 1790's saw growth occurring in Keighley based on water-powered cotton spinning and industrial expansion took place on a spectacular scale. This created transport problems in the area, as the roads were inadequate for the increased traffic and the other major communications alternative - the Leeds and Liverpool canal in Airedale - was over a mile from Keighley town centre and, in any case, was as yet incomplete. In 1819, some of "the principal gentlemen, tradesmen, manufacturers, and inhabitants" of Keighley agreed on a plan for a branch canal into the centre of the town, to carry the 400 loads of coal per day and the 20 tons of manufactured goods per week that, it was estimated, were being conveyed by road. This idea, however, never came to fruition, perhaps because the estimated cost was over £30,000 (5).

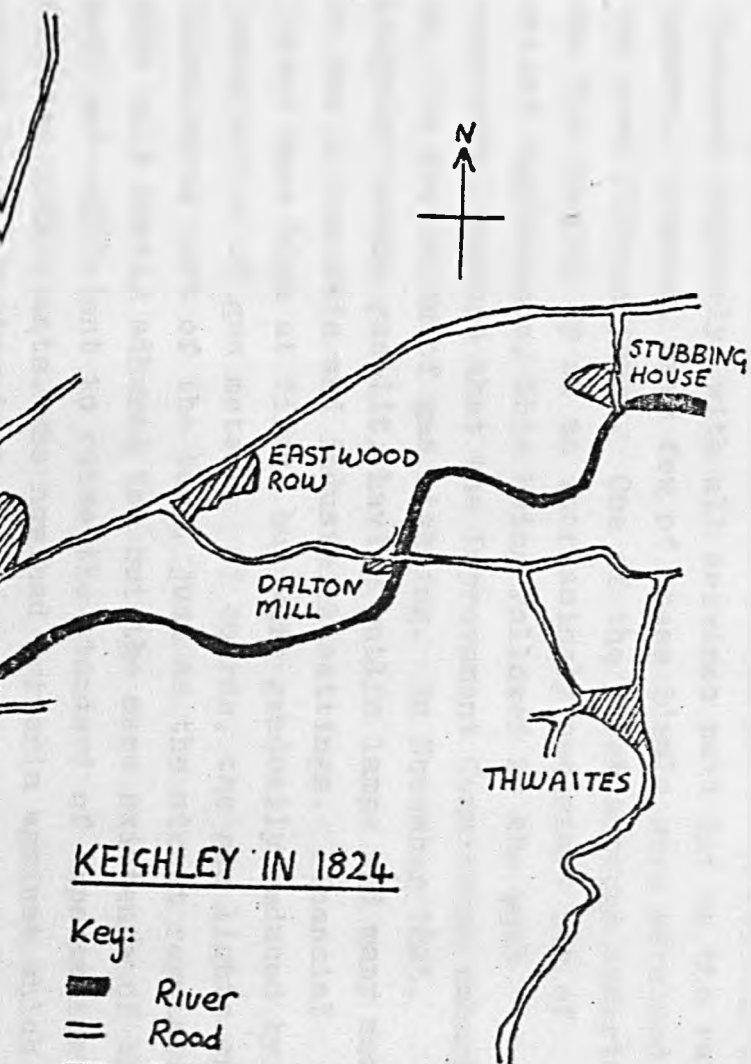
By the 1810's (the first period of abnormally high population growth), Keighley had begun to acquire the apparatus and status of a sizeable town. It was still, however, quite small, with districts such as Clubhouses and Guardhouses separated from the urban centre, and places such as Fell Lane, Exley Head, Thwaites and Utley as yet still isolated hamlets, not at all integrated with Keighley. This

pattern of growth can be seen in this map overleaf, which was drawn originally in 1824 on the occasion of the formation of the Keighley Improvement Commission. There were at this time distinct signs of growth, not least in the proliferation on nonconformist sects - Quakers, Independants, Swedenborgians, Baptists and Methodist New Connection. In 1816, the expansion of the town was confirmed by the formation of the Company of Proprietors of Keighley Waterworks by a number of local residents. This took over the inadequate water supply provided by the Select Vestry, composed of two wells and one spring outside the town, and obtained an Act of Parliament for "better supplying with water the inhabitants of the town of Keighley" (6). To a large extent the company was successful in its aims, until at least mid-century. By about 1840, most of Keighley's houses were within reach of a standpipe. However, the water supply was notably erratic, particularly in the summer. Another indication of Keighley's growing wealth and status was the formation of the Keighley and Bingley Savings Bank in 1819. This bank only opened for two hours each week but by 1826, was carrying a balance of £3,500, that is an average of about £0.35 per inhabitant (7). By 1836, the balance had risen to £20,664, or £30 per depositor and approximately £1.70 per inhabitant (8). Just over 5% of the town's population therefore held a deposit.

The administrative powers of the church in Keighley were further eroded in 1824 when the Keighley Improvement Commission was formed. The Churchwardens had proved themselves incapable of organising the affairs of the growing town as they had the rural parish, with a consequent general inadequacy of amenities in the town. The Improvement Commission was charged with "paving, lighting, cleansing, watching, regulating and otherwise improving the Town of Keighley" (9). - a set of tasks it performed with varying efficiency. Its early attempts were perhaps aided by the relatively moderate growth in population between 1821 and 1841.

The area in which the Improvement Commissioners' operated was deemed to be a circle of one mile radius, an





KEIGHLEY IN 1824

Key:

-  River
-  Road
-  Built-up area

$\frac{1}{2}$ mile

area which was later to be the basis of the Keighley Town Borough. It was envisaged that this area should consist of drained, paved and lit streets, to be patrolled at night and cleansed regularly, with all services paid for by the rate-payers. However, very few of these ideals were attained in the next fifteen years. One of the first actions undertaken was the drawing up of an increasingly necessary set of street regulations, this being followed by the most successful venture that the Improvement Commission embarked on, the provision of gas lighting. In November 1825, Keighley became gas-lit, having public lamps and many more in use in domestic and industrial settings. Financial losses were high at first, but were gradually reduced by the installation of gas meters. Of course, the gas lights only illuminated part of the town, just as the street regulations were only partly adhered to; but the mere existence of them both was sufficient to raise the standard of expectation of Keighley inhabitants, who now had criteria against which to assess local shortcomings.

The Improvement Commissioners were not so successful in their attempts to "watch" the town. Two watchmen were appointed in October 1828, only to be dismissed as the nights grew shorter the following April. The efficiency of the watchmen was in any case doubtful. Not until 1842 were any permanent watchmen appointed and then only two (in a town of more than 13,000 people), but six years later this number was increased to four. Likewise the town's first fire service was set up in May 1829, using private industrial equipment, but again, the service was of doubtful efficiency. In 1833, however, the Improvement Commissioners had greater success, as a corollary to their street regulations, in opening a formal market and removing street-trading from Church Green, thus ending a tradition at least 500 years old.

Keighley remained a town with a large pauperised population. Before 1834, despite the presence of a work-house, relief largely took the form of donations of money and goods intended to help the poor remain in their own homes. The Poor Law Amendment Act of 1834, which aimed to

change this system, was bitterly opposed in Keighley, as in many other northern towns. As late as 1837, there were public debates in Keighley to consider an attempt to procure the suspension of the Poor Law Amendment Act locally. When a Commissioner did arrive to implement the Act, he was subjected to violence from an angry crowd.

In Keighley, the 1840's were marked by a period of unrest and by a great influx of immigrants, particularly from Ireland. The unrest showed itself particularly in strikes and the establishment of revitalised trade unions. In 1842, for instance, the Calversyke Hill Mill records show three and a half days work lost during August, because of rioting (10). The amount of Irish immigration into the town can be deduced from the Censuses. Generally, it seems, the Irish travelled from Lancashire via Keighley to Bradford and Leeds and for many, although perhaps not the majority, their stay in Keighley was only temporary. Whilst in Keighley, the Irish, a pauperised and dispossessed people, moved into the very streets that were already overcrowded and fast deteriorating into slums. Thus they exacerbated the problems already present in the poorest parts of the town.

The Censuses show that there were two waves of Irish immigration into the urban area, in the 1840's and in the 1860's, whilst in the 1850's there was a net outflow. The second wave of immigration, however, was characterised by Irish who had already been living for some time in England, usually in Lancashire. This information is shown in the following table (11) :

Table 2.3.: Keighley's Irish population, 1841-1871

Date	1841	1851	1861	1871
Total Keighley population	13,378	18,258	21,859	28,059
Irish-born population	159	896	673	1,152
English-born children living with Irish parents	55	196	251	569
Total Irish population	214	1,072	924	1,721
% of Keighley population	2%	6%	4%	6%
Irish				
% of Irish population	26%	16%	27%	33%
English-born				

The Irish population in Keighley in 1841 was only about 2% of the total and within the Irish group, about one-quarter were children born in England but living with their Irish-born parents. By 1851 however, there had been a massive influx of Irish into the town, with the number of Irish-born increasing almost six-fold and the number of English-born dependants more than trebling, despite the statistical loss of those English-born children who had left their parental home. Thus the size of the Irish group increased five-fold and, given the increase in the non-Irish population of the town in this period, the proportion taken by the Irish group of the total rose from 2% to 6%. That this was due mainly to new immigrants coming directly from Ireland can be shown by the relative fall in the number of English-born children within the group, to about one-sixth of the total. The 1850's saw a reduction in the number of Irish in Keighley, particularly in the Irish-born people, the number of English-born dependents living with their Irish-born parents actually increasing in this decade. Naturally, one would expect single people and new immigrants to be more mobile. As a result, the size of the Irish-born sector fell by about one-quarter, whilst that of the English-born dependent sector rose by one-half, so that the Irish group as a whole comprised only 4% of the total population by 1861. It is interesting to note that by 1861, the English-born dependents accounted for just over one-quarter of the whole group - a proportion similar to that in 1841 - thus indicating a fairly settled Irish population, with relatively fewer new immigrants coming directly from Ireland. By 1871 however, the situation had changed again. There was another large influx of Irish and their dependents; virtually doubling the number of Irish-born and more than doubling the number of English-born dependents; and thus increasing the share of the Irish population within the town to 6% of the total again. This influx of Irish came mainly from other areas in England (probably largely from Lancashire where the cotton famine had been in progress) since by 1871, the English-born children living with their Irish-born parents formed one-third of the whole group.

It is interesting to compare the amount and type of

immigration into Keighley with that into other West Riding towns, especially Bradford and Leeds. According to Richardson, the major centres of Irish settlement in the West Riding in 1851 were Bradford, Leeds, Hunslet, Sheffield, Halifax, York, Huddersfield, Dewsbury, Wakefield and Keighley, with Bradford parish taking 26% of the total and Keighley parish, 3% (12). In Bradford borough there was a gradual decline in the importance of the Irish-born population - in 1851, it accounted for 9% of the total; in 1861, 6%; in 1871, 6% again; and by 1901, less than 2% (13). In Keighley, the proportions for 1851, 1861 and 1871 were 5%, 3%, and 4%, showing that the Bradford Irish-born community was both absolutely and relatively larger. The Leeds study does calculate the number of non-Irish dependents, although using a slightly wider definition than that used for Keighley (14). In Leeds township the total Irish community constituted 6% of the population in 1841; 10% in 1851; and 12% in 1861 - a much larger proportion than in Keighley, although the relative increase was not as great in the 1840's when the Keighley Irish population increased five-fold whilst that of Leeds only doubled. One reason why Leeds had a larger Irish community was that the Irish had been settled there for a longer time. This is borne out by the fact that 25% of the Irish community consisted of non-Irish dependents in 1851, 39% in 1861. Finally the Leeds and Bradford data confirm the lowering of standards caused by the Irish, particularly the new immigrants. Thus in Leeds, whilst the average number of people per house was 4.8 in 1851 and 4.7 in 1861, it was 6.4 and 5.3 respectively per Irish house (15). Similarly in Bradford in 1851 the average number of people per house was 5.5, but 8.0 per Irish house (16).

The 1840's then, saw a large expansion of Keighley's population but little expansion in the town's services, which became increasingly overloaded - medically, environmentally and educationally. Thus whilst the number of surgeons, doctors, chemists and druggists continued to rise in this period (from seven in 1822, to nine in 1837 and eleven in 1847), the population per 'medical practitioner' also rose continuously, being 1,340 in 1822, 1,410 in 1837 and 1,470 in 1847 (17). However, there were one or two

beneficial developments in this decade. The Mechanics' Institute continued to expand and by 1848 had attained a membership of 400. It also held classes for males in the "three R's, grammar and drawing" (38 attending) and for females in "the three R's and plain sewing" (118, nearly all power-loom weavers, attending) (18). Others too were interested in 'mutual improvement' for weekly classes to this end were started at the Baptist Chapel in 1844 (19). By this time, there were also 48 acres of allotments in Keighley tended by 252 people of whom 195 were connected with the factories and the mills - overlookers being particularly keen gardeners apparently (20). On a different front, the railway had finally reached Keighley from Leeds and Bradford in 1847 and by 1849, links had been established with the Lancashire railways at Colne. With the implementation of fast travel to Lancashire and the rest of Yorkshire, Keighley was thus more firmly integrated into the regional economic and social system.

By the 1850's however, Keighley had reached the nadir of its fortunes. The population growth meant that sewerage, drainage, sanitation and water supply had all become overloaded and unsatisfactory. Keighley was a "brutalised community" (21). Poverty and squalor were prevalent, not only in the urban centre, but in the outlying villages and hamlets. In 1850, Haworth was noted as having 69 toilets amongst a population of 2,500, plus "a most crying want of water" (22). In 1854, William Ranger found a similar situation in Keighley. Even those responsible for the water supply estimated that they only supplied 74% of the town's population with water in 1853 and then for only eight or ten hours daily in winter and as little as two or four hours daily in summer. That the early 1850's were a particularly unhealthy time to be living in Keighley can be shown by the crude mortality rates reproduced in the table overleaf (24). This also shows that in general, with the exception of the anomalous year of 1849, crude mortality rates in Keighley were higher than the national average.

Table 2.4. :

Crude mortality rates in Keighley and England, 1801-1853Deaths per 100 population

<u>Date</u>	<u>Keighley</u>	<u>England and Wales</u>
1801	25.0	na
1811	20.4	na
1821	18.5	na
1831	20.0	na
1841	25.0	21.6
1849	19.6	25.1
1850	20.0	20.8
1851	27.8	22.0
1852	24.4	22.4
1853	26.3	22.9

William Ranger produced his report in response to demands for the replacement of the Improvement Commission with a Local Board of Health (25). He certainly ascertained that conditions were very bad in Keighley. Ranger described very fully the poor condition of the housing in the town, being especially concerned with the sanitation arrangements. Thus (26) :

"Privy accomodation is defective in numerous cases and in some few cases for want of room to erect privies, the space on the ground floor is set apart for the purpose, the floor immediately over being occupied as sitting, living and sleeping room, the occupants being continually exposed to the foul air arising from the pit immediately under the floor of their own room and by the side of the stairs leading thereto."

He reported that 30 houses were without toilets of any kind; 29 houses shared one toilet; 36 shared three; and another 90 shared only six. In a classic understatement, he pointed out that "generally the number of privies is deficient". Whilst cellar dwellings were not a great nuisance, Ranger counting only 47 in a population of over 18,000, he complained of the considerable number of back-to-back houses without through ventilation. There were many courts too in Keighley at this time, and these were frequently in a poor condition. Most originally had been partially or fully paved, but "from the dilapidated state of the pavement and the want of proper drains, the surface is damp with pools of foul and offensive liquid matter." "At present, there is no

control over these places", complained Ranger ominously, "nor provision for assisting owners in placing this portion of their property in a condition consistent with a due regard for the health of their tenants."

Within the central part of the town, the area known as Brickhouses (where more than two-thirds of the families had members working in the worsted industry) was described in the following way (28) : "two dilapidated privies. Ashpit likewise disgusting also privy to Weatherhead's property. Yard wherein large quantities of rubbish, open drains, filthy choked drains and cellar used as cottage where two beds are in a dark room. Premises disgraceful to the town." Townfield Gate, likewise the home of three families working in the worsted industry but not especially noted as being a slum area, was described similarly ; "choked drain, foul and offensive privy, ash place and privy foul, offensive and open drain, wall for ash place too low" (29).

Conditions on the outskirts of Keighley were no better. Thus Hill Top, where members of both families worked in the worsted industry, could be described as "one of the filthiest places in the parish - yard back and front has the most filthy open drains, sump holes, privy pits, ash places and pig-cotes. Manure laid about in a most disgraceful state" (30). Fell Lane, inhabited almost entirely by families connected with the worsted industry, was no better: "Filthy open drains from top to bottom, open ashpit and liquid manure from midden running in yard. Foul and offensive privy pit, sump hole and ash pit open to view, pig's manure and garbage, most filthy. Very full ash place low wall, ashes thrown and all kinds of filth" (31).

Ranger also catalogued the effect of the influx of Irish into Keighley in the 1840's, although the flow had been stemmed somewhat by 1853. As in Leeds and Bradford, Irish overcrowding was rife and Ranger described the strain on housing facilities in the main areas of Irish settlement, such as Clubhouses. Medical facilities too were overburdened by the Irish. Ranger found that "Typhus fever and epidemic and diarrhoea, true to their predilection,

constantly follow in the wake of squalid poverty and starvation" and were therefore prevalent amongst the Irish (32). In the first three months of 1847, there had been 62 cases of typhus in the town, half of which occurred amongst the small, but destitute, Irish population. Moreover, the number of medical paupers in Keighley more than doubled in this year, from 400 in 1846, to 1,047 in 1847, dropping only to 695 in 1848. The local surgeon gave as the reason the second year of the Irish potato famine (33).

In the five years ending in 1853, the five major causes of death were consumption (accounting for 17% of all deaths); convulsions (11%); old age (6%); teething (4%); and weakness from birth (4%) (34). However, in particular years, other illnesses became major factors. Thus in 1850, dropsy was the third major killer (accounting for 6% of all deaths that year); in 1851, measles was the second most deadly illness (9%); in 1852, smallpox the third (7%) (35). Within the five year period, 47% of all deaths occurred to children under the age of five and another 4% to children between the ages of five and fifteen (36).

The mortality rates within a radius of one mile from the centre of Keighley are analysed by division into 21 separate districts. This makes it possible to ascertain if there was any difference in mortality rates between different parts of the town. The result is not clearcut, but it does seem that district six (Holycroft, Damside south, Peel Place, Prospect Place and west of South Street) had the worst health record, particularly in the early 1850's, whilst that of district nine (Burlington Street, Baptist Square, north of Pinfold and south of Turkey Street) was bad. There was no one area with an outstandingly good health record, but those of district eight (north of Leeds and part of Turkey Streets, south of Blind Lane and west of Upper Green), district fourteen (west of Wellington Street, Sun Street, Greenwoods Place and Brewery houses) and district seventeen (Albion, Malvern and Providence Places, Victoria Terrace, Thwaites and Screw Mill) were better than average (37).

Ranger's report showed that whilst the provision of gas lighting was commendable and the nightwatching satisfactory, the Improvement Commission was obviously failing, by this time, to fulfill its functions satisfactorily in a number of sectors, particularly street paving, "nuisances", drainage, sanitation and sewage disposal. As a result, the Local Board of Health was set up in 1855, made up mainly of smaller tradesmen with "clear heads, large hearts, and clean hands" unlike the early Improvement Commissioners, who had been mostly manufacturers (38). This new system was to hold sway until 1882, although in the 1850's and 1860's little constructive work was done, beyond continuing gas production and producing a new set of bye-laws reflecting new standards of expectations, as the Board was content to let its powers remain largely theoretical.

The town's shortcomings at this time were perhaps no worse than the average small industrial town of this period. Keighley was special however, in that its geographical location did attract a steady stream of migrants, especially in the 1840's and 1860's. There was a constant stream of emigration from Keighley, especially of skilled workers going to America and the colonies, but the emigrants' places were soon taken by new immigrants. A report of 1866 was only partly exaggerating when it claimed that Keighley attracted, or at least had deposited on it : "the scum of the great stream of migration between Carlisle, the North, Liverpool, Ireland and America, Manchester and the upper parts of Lancashire in one direction; and Bradford, Leeds Wakefield, the great manufacturing towns of the West Riding and all the Midlands on the other" (39).

By the mid-1860's, the boom in population meant that the improved water supply of the 1820's and 1830's was no longer sufficient. In 1867, it was calculated that rubbish accumulated over 35 years in the River Worth and North Beck had raised their beds by four or five feet, resulting in the stopping of mill wheels, the blocking of drains and the flooding of cellars (40). Therefore, in the same year, the Local Board of Health bought out the Company of Proprietors of Keighley Waterworks and began to operate the

water supply system itself. However little was done at first, and the deficiencies of the system were shown up the following year, when drought caused the piped water supply to fail and Brunswick Street was without water for 13 weeks. The local attitude was "they must let us have water and they must let us have it soon" (41). As a result, the Local Board of Health began the construction of reservoirs in the moorland above Keighley that were to secure its water supply for generations. The reservoir scheme, begun in 1870 and completed in 1878, was made up of the Ponden, Watersheddles and Blackhill reservoirs, having a total capacity of 4×10^8 gallons.

Despite these efforts however, the general health of those living in Keighley remained poor. In 1882, an article in the British Medical Journal deplored the "extremely high rate of infant mortality in Keighley Urban District" (42). In 1881, the crude mortality rate had been 24/1000; of which 43.5% was accounted for by children under the age of five and 23.8% by children under the age of one. This was only a small reduction from the 47% quoted 30 years earlier by Ranger. The article compared the infant mortality rates in Keighley (169/1000 in 1880 and 183/1000 in 1881) with that in England as a whole in 1881 (135/1000 - this was however abnormally low). The only recommendations that were made to reduce the infant mortality rate were, however, the setting up of day nurseries, as yet there were none in Keighley, and the preparation of visits, lectures and tracts.

Between 1889 and 1914, a continuous record of birth and death rates in Keighley is available (43). At the beginning of this period, diseases of the respiratory organs, diseases of the heart and consumption were the three major killers, causing respectively 29%, 9% and 7% of all deaths in 1889 and 31%, 8% and 11% of the deaths in 1891. It will be seen that consumption, as a cause of death, appears to have declined in importance since the 1850's. One can argue that mortality rates fell, particularly for infectious diseases, because of improved diet, improved (though not yet everywhere satisfactory) sanitation and better preventative facilities.

Table 2.5. :

Crude mortality rates in Keighley and other areas, 1889-1914Crude mortality rate per 1000

<u>Date</u>	<u>Keighley</u>	<u>England</u>	<u>Small towns</u>	<u>Date</u>	<u>Keighley</u>	<u>England</u>	<u>Small towns</u>
1889	20.2	17.9	na	1902	15.6	16.3	15.3
1890	na	19.2	na	1903	15.3	15.4	14.6
1891	20.9	20.2	na	1904	17.7	16.2	15.6
1892	18.0	19.0	na	1905	14.5	15.2	14.4
1893	19.2	19.2	na	1906	14.9	15.4	14.4
1894	18.0	16.6	na	1907	13.8	15.0	14.5
1895	18.4	18.7	na	1908	14.6	14.7	14.0
1896	17.7	17.1	na	1909	13.5	14.5	13.9
1897	17.0	17.4	17.2	1910	13.7	13.4	12.4
1898	18.4	17.6	na	1911	15.2	14.6	13.8
1899	19.3	18.3	na	1912	13.9	13.3	12.4
1900	21.0	18.3	na	1913	14.6	13.7	12.8
1901	16.9	16.9	17.1	1914	14.4	na	na

As the table above shows, the mortality rate in Keighley fell almost continuously through the period from a level of 20.2/1000 in 1889, and 20.9 in 1891, to 14.4/1000 in 1914, although it had fallen as low as 13.5 in 1909. A short-run peak occurred in the period 1898-1900 and others in 1904 and 1911. However, at the same time, the mortality rate was not only higher in almost all years than the average English mortality rate (the exceptions being 1901-1903 and 1905-1909), but when figures were calculated, it was in all but four years higher than the average rate for small towns, within which group Keighley was included.

As the table overleaf shows, the birth rate too was falling almost continuously in the period 1889-1914, being 30.1/1000 in the first year and 19.7/1000 in the last. However the decline was more erratic than that in the mortality rate, there being short-run peaks in 1896-1898 and 1911-1912. Again the birth rate was generally below the average English birth rate and between 1901 and 1914 it was, in all but one year below the rate for small towns. This may be a reflection of the employment of married women in the textile industry, although the proportion so employed in Keighley was not high compared with other West Riding textile towns.

Table 2.6. :

Crude birth rates in Keighley and other areas, 1889-1914Crude birth rate per 1000

<u>Date</u>	<u>Keighley</u>	<u>England</u>	<u>Small towns</u>	<u>Date</u>	<u>Keighley</u>	<u>England</u>	<u>Small towns</u>
1889	30.1	30.5	na	1902	26.5	28.6	27.3
1890	na	30.1	na	1903	23.7	28.4	27.4
1891	31.3	31.4	na	1904	23.3	27.9	27.5
1892	28.4	29.2	na	1905	23.4	27.2	26.9
1893	28.7	30.8	na	1906	21.1	27.0	26.5
1894	26.3	29.6	na	1907	21.9	26.3	25.7
1895	27.0	31.1	na	1908	20.6	26.5	26.0
1896	28.4	28.6	na	1909	20.6	25.6	24.8
1897	29.0	29.7	na	1910	18.8	24.8	23.7
1898	29.8	29.4	na	1911	20.6	24.4	23.4
1899	27.5	29.3	na	1912	20.8	23.8	23.8
1900	25.5	28.9	na	1913	19.0	23.9	23.9
1901	26.6	28.5	29.9	1914	19.7	23.8	na

The local I.L.P. Journal (44) frequently referred to the disparity of mortality rates within the town and to the need to reduce disease by improving insanitary conditions. Thus (6/5/1899), they showed that whilst the infant mortality rate in Keighley was 171/1000, it was only 113/1000 in the prosperous North West ward but 206/1000 in the working class South West ward. The situation then had not changed since Ranger's report in the 1850's, for the worst district then, district six, was also in the south west part of Keighley. Likewise, in 1900, the infant mortality rate for Keighley was 170/1000 - in the North West ward it was 75/1000 but in the working class Central ward it was 333/1000 (21/4/1900). The I.L.P. believed that the continued prevalence of typhoid in Keighley in the late 1890's was "strong evidence of the insanitary conditions which require attending to" (6/5/1899). Evidence was produced to show that the drains were defective in a large proportion of the houses where typhoid was found and similarly where scarlet fever and diphtheria were present, but it is likely that the drains were defective in a large proportion of all Keighley houses.

The Journal also gave instances of the health problems created by bad sanitation, bad housing and pollution. In early 1899, 18 houses were compulsorily closed in Westgate

as unfit for human habitation, being damp and dilapidated, without proper drainage, water supply or toilets (6/5/1899). Likewise all the houses in King Street, Duncan Street and Nelson Street were described as being "in a bad way" for several years, especially as regarding toilets and ash places. However, later that year, it was noted that work was being done to equip places (8/7/1899). In the next month, complaints were raised about the pollution caused by water-gas and tallow factories in and around Keighley (23/9/1899). Even in April 1900, the Journal reported that there were still 4,000 excreta tubs in Keighley needing conversion to water closets (21/4/1900). In 1906 (17/3/1906) there was a report that 103 cellar dwellings remained in Keighley, although this number was being gradually reduced. This total was more than double that of 1853, but the rise in number was consistent with the increase in Keighley's population in the intervening fifty years. Finally, the 1911 Census gives some information about the degree of overcrowding as measured by the percentage of the total population in private families who lived in tenements at a density of more than two persons per room. As the following table shows, whilst Keighley Municipal Borough was far more overcrowded than Keighley Rural District or indeed other local Urban Districts, it was no worse than other major West Riding urban areas.

Table 2.7. : Overcrowding in the West Riding in 1901

<u>Area</u>	<u>% of the population in private families living in tenements at a density greater than two per room.</u>
Keighley M.B.	9.0%
Keighley R.D.	5.1%
Haworth U.D.	6.0%
Silsden U.D.	6.5%
Bradford C.B.	9.3%
Leeds C.B.	11.0%
Halifax C.B.	12.0%

After the 1850's, the provision of civic amenities began to improve in Keighley, although as Dewhirst stated (45) :

"clearly some of Keighley's steps up the ladder of

civic progress were proving slow and painful
(because) those traditional Yorkshire
qualities of hard headedness and sturdy
individualism could accentuate a stubbornness
rooted in ignorance, an exaggerated concern for
the purse strings, a natural antipathy to change"

By 1870 however, a new Mechanics' Institute had been built and had become the centre of a great number of social and cultural events. Keighley Cottage Hospital, the town's first, was opened in 1876 and the first theatre in 1880. The main event of the 1870's was, however, the dispute over schooling.

The provision of schooling in Keighley had been poor for most of the nineteenth century. There was a dichotomy between the education provided by the grammar school and that provided by the denominational schools. The Schools Inquiry Commission of 1865 (46) shows an interesting situation developing, since it seems that the grammar school was attempting to compete with the denominational schools by lowering its standards. Originally the grammar school taught English, Latin and Greek, as well as arithmetic, reading, writing, but by 1865, none of the 42 boys in the school was learning Greek or could read Latin. In the early 1860's, the headmaster had tried to make the school markedly different from the denominational schools and had introduced a quarterly fee of £0.5250 as a supplement to the original endowments. This provoked a violent reaction from the parents, who accused the master of "seeking to attract gentlemen's sons" and of keeping out the poorer children. A compromise was then agreed on whereby Latin and Greek teaching was to be free (thus following the terms of the original endowment), but fees were to be charged for education in other subjects. The result was that the general organisation of, and teaching in, the school resembled that of the poorer denominational schools and the pupils too were mainly of the same class of children. To the Commission then, it seemed as if there had been a steady deterioration in the type of child attending the grammar school "Wooden clogs had come in and trencher caps had gone out." The teaching of French and of drawing was given up, no Greek was taught and very little Latin. However, the

attempt to popularise the grammar school seems to have failed. The education offered was not "adapted for the middle classes" and hence was not valued by them, middle class children being sent to private schools. On the other hand, there was little success in attracting working class pupils - parents were accused of being unco-operative, as their children were irregular in attendance and were often the subject of "early and capricious removals from school".

The report concluded by conceding that the National and Wesleyan schools had particular advantages for the working class child, in the form of pupil teachers, regular organisation and inspection, with which the grammar school could not hope to compete. However, the Oakworth Wesleyan School log-book for the same period (47) does not paint an entirely optimistic picture. Many of the pupils were half-timers (working half the day in the worsted mills) and thus were usually late, if they had worked in the morning and frequently dirty. If the mill stopped work then the children were absent from school and some too were absent during haytime. As one master stated, "the more I become acquainted with the children in this locality the more I notice and exterior roughness about them". Similarly there were complaints about the "great amount of slovenliness" in the district and "the great looseness in the exercise of parental authority". Some recognised however that the routine the half-timers lived by was arduous and tiring. Thus in May 1867, one finds the report that "I gave the children a little extra play today as the weather was so beautiful and most of the children are confined to the factory half the day".

With the Forster Act of 1870, Keighley was enabled to set up Board Schools, but the townspeople were reluctant to implement the Act, despite the paucity of schools in the area. However, in 1875, they were finally forced to set up a local School Board and within four years, six Board Schools had been opened, at Eastwood, Oakworth, Utley, Oldfield, Holycroft and Worth Village. At this time however (1875), only 3,749 of Keighley's 4,826 school-age children were receiving an education and of these, 2,144 (about 57%) were

half-timers (48). Thus only 33% of Keighley's school-age children received a full-time education and 22% received no education at all.

By 1881, the built-up area that comprised Keighley had spread outwards and the original town, the area allocated to the Improvement Commission, was now a conglomeration of buildings with spurs of housing connecting it to the previously detached 'suburbs' of Ingrow, Fell Lane, Guard House and Worth Village. In 1882, with minimum dispute, Keighley was incorporated as a town borough, with its boundaries still very nearly the circle of one mile radius which had been drawn up for the Improvement Commission in 1824. In 1895 however, the borough was further extended to include Ingrow, Hainworth, Exley Head and Utley, thus causing the artificial peak in population growth in this decade. Through the 1880's and 1890's, Keighley acquired more and more of the substance and status of a prosperous town, despite the deceleration of its population growth. In 1885, Keighley became the centre of a Parliamentary district with its own M.P., usually a Liberal. Throughout this period, the "narrow hotch-potch town" took on a "more spacious air" as local worthies donated land for parks, museums were founded and Andrew Carnegie donated the money to build a Public Library. In 1884, electric lighting was first used in Keighley, in a corn mill, but the increasing public demand for this new source of power was not satisfied until 1901 when the Municipal Electricity Works were established.

By 1914, then, Keighley was a middle sized town, well-provided for with civic amenities by the standards of the time and relatively prosperous compared with the 1850's and earlier. Its working class population was vociferous and quite powerful. Keighley even warranted a complimentary report to the Board of Trade: "In spite of the prevalence of smoke, the place presents a remarkably clean and agreeable appearance owing to the almost universal use as building material of a light grey sandstone obtained from the quarries in the neighbourhood." (49) But how had industry developed in the smoky town during the nineteenth century?

It must be remembered that Keighley's growth was originally founded on cotton. On June 30th, 1780, water-powered spinning began at the new Low Mill. This was the first mill in Yorkshire of its kind and its child labourers had to be sent to Arkwright's mill in Cromford, Derbyshire, to learn their jobs (50). There was a most striking growth in water-powered mills in the Worth Valley area during the 1780's and 1790's. Dewhirst recorded that of the 21 mills around Keighley, 18 were water-powered and three powered by a form of steam engine (51). The earliest use of the steam engine was in fact, to pump water up from below a water wheel, that is, as a supplement to water-power. Worsted was being made in Keighley at this time, but it was still largely a domestic industry, with the combed tops being sent to Lancashire and the North Riding to be hand-spun and then returned to Keighley to be hand-woven. As has been indicated in chapter one, mechanised worsted spinning began in the Keighley area in the early 1790's and by about 1810, was beginning to supersede hand-spinning, although the complete changeover to mechanised spinning did not come for perhaps fifteen years. Marriner's, it is known, did not install spinning frames until 1818 (52). At this time Hodgson recorded that the trade of Keighley included cotton spinning, manufacturing cotton pieces and manufacturing worsted pieces such as callimancoes, shalloons and drawboys (53). As will be seen however, just as many mills were converted from cotton to worsted use, as were built specifically for worsted production.

In a very confused form, Hodgson provided some data on the number of mills in Keighley up to 1870, their occupants and their uses. From this, one is able to discover the approximate age and original use of each mill, the number of mills that were converted to worsted production from other uses and the dates of certain innovations. The following table shows the original use of all the mills that Hodgson mentioned, at the date at which they were built or first referred to. From this, it can be seen that almost half the mills built in the whole period were originally cotton mills and that about two-thirds of all mills were built in the period 1790-1819. Most of the cotton mills were built

in the late eighteenth century and none at all after 1819. Conversely no worsted mills were built before 1800 and three-quarters of all mills originally built for worsted production were built in the period 1800-1839. The temporal distribution of mills originally used for spinning by commission is less marked, but none were built before 1800 or between 1830 and 1859. This distribution leads one to expect a correlation between the date at which a mill was built and the original use to which it was put. This is confirmed by the chi-squared test which showed that there was less than a 1% likelihood of the relationship occurring by chance (54).

Table 2.8. :

The original use of Keighley mills, 1780-1869

<u>Date</u>	<u>Cotton</u>	<u>Worsted</u>	<u>Spinning by</u>	<u>Commission</u>	<u>Total</u>
1780-1789	5	0	0		5
1790-1799	15	0	0		15
1800-1809	4	5	1		10
1810-1819	1	4	3		8
1820-1829	0	1	1		2
1830-1839	0	5	0		5
1840-1849	0	1	0		1
1850-1859	0	2	0		2
1860-1869	0	1	2		3
Total	25	19	7		51

One can also use Hodgson's data to calculate the number of worsted mills that were originally built as such, and the number that were converted from cotton or spinning by commission mills. Of course, some mills experienced more than one conversion, but in these cases, the first conversion to worsted production only is taken into account. This information is given in the table overleaf.

This table shows that the bulk of the worsted mills, either new or 'second-hand', came into use in the period 1800-1839, with a slight recession in the 1820's. Equal numbers of worsted mills were either new or converted from cotton production, whilst very few (7%) were converted from spinning by commission mills. However, the total number of spinning by commission mills built in the entire period was only seven and, of these, three were converted to worsted

Table 2.9. :

The origins of worsted mills in Keighley, 1800-1869

<u>Date</u>	<u>Built as</u> <u>worsted mill</u>	<u>Converted from</u> <u>cotton</u>	<u>Converted from</u> <u>spinning by</u> <u>commission</u>	<u>Total</u>
1800-1809	5	4	0	9
1810-1819	4	6	1	11
1820-1829	1	4	0	5
1830-1839	5	2	2	9
1840-1849	1	3	0	4
1850-1859	2	0	0	2
1860-1869	1	0	0	1
Total	19	19	3	41

production. Of the much larger number of purpose-built cotton mills, 25, nearly 80% were converted at some stage to worsted. As stated earlier, most of the purpose-built worsted mills were erected in the periods 1800-1819 and 1830-1839, but some were built in each decade of the period. Most of the cotton mills, on the other hand, were converted in the period 1800-1829, during and immediately after the first boom in worsted mill building. None were converted after 1849. One would expect this kind of pattern however, as no new cotton mills were built after 1819. The timing of conversions from spinning by commission mills shows no clear pattern, although none occurred after 1839. It was hoped to show some relationship between the type of worsted mill and the date at which it came into use for worsted production, but the χ^2 test demonstrated that there was a greater than 20% probability of any relationship occurring randomly (55).

By the 1820's worsted spinning was well established in Keighley as a factory industry, whilst weaving and combing continued in the domestic setting. There was no change in this pattern in the 1820's, but the importance of the industry as a whole was changing. By 1822, directories seemed to show that worsted had overtaken cotton as the dominant textile in Keighley, there being 44 worsted manufacturers and only four cotton spinners, but machine-making for the textile industry was beginning to establish itself as an important local industry (56). In 1825, the

worsted industry was rocked by the bitter hand-combers' and weavers' strike which originated in Bradford, but which resulted in strikes and hostility in Keighley. This was overshadowed however, the following year, by a national 'disaster', supposedly caused by over-speculation, rising domestic prices and booming imports. Many of the smaller local banks which had recently proliferated were forced to halt payment and consequently many firms were bankrupted. In Keighley much hardship was caused, both to employers and employees, by this, the 'Butterfield Panic'.

By the late 1830's, the local dominance of worsted over cotton had been confirmed, there being 60 worsted manufacturers in Keighley in 1837, but only five cotton producers (57). It was at this time that power-looms were introduced in Keighley and worsted weaving was set on the path to becoming a factory industry. Hodgson gave the earliest date of their introduction, somewhat tentatively, as 1833 (at North Beck, Prospect and Dubb Mills) and 1834 (at Low, Brow End, Ingrow, Fleece and South Street Mills). By the end of 1838, power-looms had been installed in fifteen local mills, although the first purpose-built weaving sheds were not erected until 1842, again at the pioneering North Beck Mill. However, this rapid growth in the use of inanimate power did not signify a rapid growth in the use of steam power, as in 1839 the Keighley worsted industry depended on one of the largest proportions of water power in the West Riding, as shown in chapter one. This situation must have been the result of the abundant water supply in, and around, Keighley and the large amount of investment locally in water-powered mills in the late eighteenth century.

The Census enumerator's returns of 1851 confirm the dominant position of the worsted industry in Keighley in the mid-nineteenth century, as the following table shows. Two-thirds of the total workforce in the urban area worked in the woollen and worsted sector (this census classification can be taken as referring solely to worsted, in the case of Keighley). Just over half of the male workers and four-fifths of the females worked in the industry, implying an even balance of the sexes therein. Textile machine-making

and engineering, as can be seen, was still only of minor importance, even amongst the males. Virtually no women worked in this sector, a situation that was to continue throughout the period of this study.

Table 2.10. :

Classification of Keighley occupations in 1851

<u>Occupation</u>	<u>Male</u>		<u>Female</u>		<u>Total</u>	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
Wool and worsted	3,435	53.5%	3,420	81.2%	6,855	64.4%
Textile machine-making and engineering	569	8.9%	5	0.1%	574	5.4%
Domestic indoor services	18	0.3%	182	4.3%	200	1.9%
Total	6,426	100%	4,212	100%	10,638	100%

The next major upheaval, and the last in the period, was the mechanisation of combing in the 1850's. Combing machines were first introduced in Keighley at Grove and Calversyke Hill Mills in 1853 and West Greengate Mill in 1854. From the Clough records, it is known that machine combing was introduced at Grove Mill in 1853, but used extensively only from late 1854 (58). By 1860, the last remaining vestiges of hand-combing at Grove Mill had been swept away - a fairly rapid transition. The mechanisation of combing reduced the male labour force required by the industry, since the combing machines were more productive. Thus the total labour force was reduced and industry's dependence on female labour increased. The displaced male hand-combers provided a potentially cheap source of surplus labour and thus it is not surprising to find that by the 1860's, other, more male-dominated, industries were becoming increasingly important in Keighley. Whilst cotton had finally been vanquished (although it had reappeared in the form of cotton-based mixed worsted production), and worsted spinning and manufacturing was still regarded as Keighley's staple industry, the numbers employed in iron foundries and machine-making factories were increasing rapidly. By the 1880's, the engineering trades dominated male employment in

the town and by 1914, it was a strike of 1000 engineering workers which brought the town to a halt, unlike the 1820's and 1840's when the worsted workers (and the worsted hand-combers in particular) had been in a similarly commanding position. One is not able to use any of the late nineteenth century census reports to outline this phenomenon, as Keighley was first recorded separately in the county summaries only in 1891, but the borough extension of 1895, taking in such places as Ingrow and Exley Head, makes even the use of this information misleading. However, the 1901 Census, from which the table below has been compiled, does confirm the change discussed above.

Table 2.11. :

Classification of major Keighley occupations, 1901 (59)

<u>Occupations</u>	<u>Male</u>		<u>Female</u>		<u>Total</u>	
	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>	<u>No.</u>	<u>%</u>
Wool and worsted	2,236	16.2%	4,828	65.3%	7,064	33.3%
Textile machine-making and engineering	4,270	30.9%	n.a.		n.a.	
Domestic indoor servants	n.a.		674	9.1%	n.a.	
Building	1,476	10.7%	n.a.		n.a.	
Total	13,834	100%	7,397	100%	21,231	100%

As can be seen, the largest single group of men (almost double the number in textiles) worked in the engineering and machine-making sector, whilst the majority of women worked in textiles (the next largest group, domestic indoor servants being one-seventh in size). The number of women working in the woollen and worsted industry was more than double the number of men. The worsted industry, then, still employed one-third of the total workforce in 1901, and two-thirds of the female workers. The 1911 Census, which gives rather more details of the Keighley workforce, indicates how the sexual balance in the workforce had changed since 1851. Thus by 1911, 64.3% of the total workforce was male, compared with 60.4% in 1851. But although relatively more men were now working, they formed only 33.0% of the worsted industry's workforce in 1911, compared with 50.1% in 1851, whilst their

proportion of the textile machine-making and engineering sector was virtually unchanged at 99.5% compared with the earlier 99.1%. In general then, it seems that male employment had diversified to a greater extent in this period than that of females.

Despite the dominance of the engineering trades over male occupations, the worsted industry was relatively as important, in terms of employment, in Keighley as in other textile towns at this time. Thus the Census shows that only 31.9% of Bradford's total workforce was employed in the woollen and worsted industry in 1901, the figure for Halifax being even less. The proportion of all married or widowed women in Keighley who worked was, however, quite low at 13.1%, compared with 18.1% in Bradford and 12.4% in Halifax. In contrast, the proportion of children aged ten or over but less than fourteen who were at work was higher than average for the West Riding in 1901 - 36.0% of the boys and 33.6% of the girls. This is a clear indication of the importance of juvenile labour to the worsted industry.

Thus, the Keighley worsted industry started the period as the inferior of the local cotton industry, then it expanded and swallowed up its predecessor, holding sway as the premier Keighley industry for perhaps fifty years. By the late nineteenth century, however, it shared this position (particularly in terms of male full-time employment) with the local engineering industry.

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- (5) I. Dewhirst, op. cit., p. 14.
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(29) ibid., p. 56.
(30) ibid., p. 59.
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(39) ibid., p. 55.
(40) ibid., p. 64.
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- (51) ibid., p. 11.
- (52) G. Ingle, op. cit., p. 46.
- (53) J. Hodgson, Textile manufactures and other industries in Keighley, (1879), p. 19.
- (54) The chi-squared test shows, to different levels of significance, whether data might have occurred randomly by comparing the observed values of a variable with the expected values. In this case, there is a less than 1% possibility of the data being caused by random changes since $\chi_2 = 44.51$ and $\chi_{2.01} = 34,805$ and the former is hence greater than the latter.
- (55) $\chi_2 = 13.41$, $\chi_{20.20} = 15.812$.
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- (59) In the first two columns, "n.a." indicates that the number was too small to be listed separately in the returns. It has, therefore, been possible to calculate the total workforce in only one occupation. All the major occupations have been listed however.

CHAPTER 3 : WORSTED WORKERS' WAGES, 1804-1915 (PART ONE).

The two major variables in real income and hence standard of living are wages and prices. The following two chapters will be concerned with wages. The first deals with some general questions, together with an analysis of the earnings of the workers in the domestic system, plus their replacements, the power-loom weavers and the machine combers. The second chapter analysis the earnings of all other workers.

Most of the studies carried out to date on wages have produced indexes based on wage rate data averaged yearly. This is particularly true of the studies done by nineteenth century investigators. Even Bowley, whilst using 'average wages', shows changes in these on a yearly basis, whilst Neale uses wage rates supplemented by two examples of money earnings. He bases his index on weekly rates and earnings but produces an index expressed in yearly terms.

There are several difficulties involved with these two methods of study. The problems associated with the use of wage rates are well known. Wage rates, of course, do have some correlation with money earnings, but in the short run, the relationship is unstable, in regard to both hourly wage rates and piece work rates. The incidence of unemployment and short-time working, on one hand, and overtime on the other, must mean that wage rates are not an effective determinant of earnings. Gross earnings themselves, however, are not always indicative of net money earnings or 'take home pay' because of the incidence of deductions - fines, insurance or the purchase of equipment - and even occasionally the incidence of bonuses for extra and abnormal work done, or perhaps to celebrate events of local or national importance. In this study, it has been possible to deal almost entirely with net money earnings, although there have been occasional difficulties with the need to differentiate between deductions and truck sales. In the early period, in particular, it is often difficult to tell whether material taken home by an employee was purchased by him, or her, as a normal customer, forced upon him or her

in a cash crisis as payment of wages in kind, or whether its value was deducted as a fine because of damage done by the employee to the cloth. In the long run, however, this problem is of minor importance. In order to clarify these definitional problems, the term 'wages' is used in its generic sense; the term 'wage rates' is used to denote the hourly-based or piece rates which form the basis for the calculation of the worker's wages; and the term 'earnings' (unless specifically described differently) is used to denote net earnings or 'take home pay'.

When a wages index is produced on a yearly basis, it may disguise important seasonal variations, or large economic fluctuations within any year. Thus, ideally, a shorter temporal base is required. In the material consulted in this study, wages were paid either irregularly in the case of the domestic workers, or fortnightly and weekly, in the case of the mill-based employees. The temporal base unit that seemed most satisfactory then was the month and thus wages have been calculated on a monthly basis. This meant that, in the case of the weekly-paid employees, some months included five pay-days and were therefore relevant to five weeks, whilst, in the case of the fortnightly-paid employees some months included three pay-days and were therefore relevant to six weeks. These abnormal months' earnings were deflated by one-fifth and one-third respectively to facilitate comparison and prevent any purely statistical peaks emerging in the series. As a result, the year is seen to consist of twelve four-week long months, corresponding to the calendar months. All earnings in the wage series of mill-based employees are treated in this way. However, this was impossible in the case of the domestic workers who, with the exception of the Brigg hand-combers, were paid irregularly and therefore their wage series remain much more irregular. In addition to the monthly series, yearly series have been constructed, but these are intended to be only a supplementary tool of analysis. The yearly series generally are slightly higher than the adapted monthly series, as they are not an average of the latter, but an average of the true monthly earnings. Again, this practice facilitates comparison between the domestic

workers and the mill-based employees.

A final problem of a general nature centres around the valuation of the employee's time by the employer and the employee. In this study, an increase in earnings has been taken as showing (prices being constant) an increase in real income and hence standard of living. However, if this increase is obtained by increasing the number of hours worked, then the worker is trading an increase in money for a decrease in leisure hours. The crucial question is : can one assume that the valuation placed on the employee's time by the employer by means of the rates of pay for overtime is equivalent to the valuation placed on it by the employee, who may feel that his or her living standards are being reduced by overtime working? This is particularly important in the nineteenth century when overtime was less likely to be voluntary. However, it is a problem that can only be acknowledged rather than solved, because of the lack of suitable data.

The information on earnings came from several local firms, in addition to some information on wage rates for the 1830's (from the Poor Law Commissioners) and the 1870's (from the Factory and Workshop Returns) (1). The general use of the Factory and Workshop Returns was avoided, as the information contained therein was of a static nature and, unlike the company records, could not be used to construct a continuous series of the earnings of known individuals. The local firms which were used were Robert Clough's, Marriner's, Brigg's and Bairstow's, with most of the material coming from the first named. The firm of R. & J. Clough was founded at Grove Mill, Ingrow, in 1822, having been based previously in Sutton in Craven. Both spinning and weaving were carried out, with plainback and wildbore worsteds being the main product. In 1826, the brothers split their partnership, John moving back to Sutton in Craven, whilst Robert continued alone at Grove Mill. The firm gradually expanded until it employed about one thousand workers at its peak, predominantly in weaving and combing. Both the firm and its early nineteenth century buildings still survive, with a member of the Clough family still in management, but

the company has now been amalgamated with other firms to form Bradford Mohair Spinners.

There are 323 items in the Clough collection at Leeds University and of these 82 are wage books, covering the period 1815-1912. The wage books overlap only slightly, covering hand-loom weavers 1815-1833, power-loom weavers 1839-1883, hand-combers 1842-1860, mill hands 1824-1872 and a variety of skilled mill workers 1876-1912. Not only is the amount of information abnormally large and widely spread across many occupations, but it is unusual in including extensive data on domestic workers' earnings. The various problems faced when using this material, and the assumptions made, will be discussed later when dealing with the occupations singly. However, one general and one particular point can be made now. Clough's recorded much of the information on earnings, both chronologically and by employee. In cases where a choice was possible, the material arranged by employee was used. The particular point deals with the changover in terminology in the mid-1870's from the description 'mill hand', as in the Mill Hands' wage books, to the specialised descriptions given in the Weavers', Old Mill, Alexandra, New Mill, Genappers' and Midland and Becks wage books. Whilst this changeover is contemporary with the increased importance of the skilled occupations and may have been influenced by this increase, it does also mislead one into expecting such an expansion.

Two final points can be made. The information in the New Mill wage books was not used since it covered the same period and a similar range of occupations as the Old Mill wage books, but in a more elaborate manner. Similarly, the information from the Midland and Becks wage books was not used as the time-span of this series was so short.

Information from two other Keighley firms was used in this study - from Marriner's and from Brigg's. Neither firm has left very extensive wage books, but what is available is useful in complementing the Clough data.

The firm of R. V. Marriner was established in Keighley

in 1784, originally as cotton spinners. Gradually, worsted was produced by this firm, mechanised worsted spinning being introduced in 1818. From the 1820's onwards the firm concentrated solely on worsted. The wages material that is available is very sporadic series on hand-loom weavers' earnings between 1804 and 1830, a series useful despite its gaps because of its early date. Between 1804 and 1814, the series relates to a group of weavers living around Gargrave (about ten miles up the Aire Valley from Keighley). From 1814 to 1830, it relates to weavers living almost entirely within the Keighley urban area. A more detailed discussion of the problems associated with the analysis of this series will follow in the section dealing with hand-loom weavers' earnings.

Brigg's, like Clough's, was founded in the 1820's and produced tammies, dobbies and plainbacks. At first, they employed hand-combers and weavers in the domestic setting, but introduced power-looms in January 1837 and combing machines in the mid-1850's. The wage books that survive relate to hand-loom weavers' earnings and output 1836-1846 and hand-combers' earnings 1837-1841. Both have been used, the weavers' wage book being particularly important as it gives both hand-loom and power-loom weavers' output and, therefore, one can determine the changes in hand-loom weavers' income and output in the period of transition.

Finally, use has been made of the records of T. & M. Bairstow Ltd., worsted spinners and manufacturers of Sutton in Craven, a large village about four miles north-west of Keighley. Much of the wage material that survives gives no indication of occupation and is therefore useless for this study. However, it has proved possible to use information from the periods 1890-1892 and 1912-1913 as a cross-check. In addition, a weavers' wage series has survived for the period 1912-1915. Departmental totals too were collected - three or four in the 1860's and 1870's, dealing mainly with spinning, plus a long series for power-loom weavers 1865-1910. A much earlier series relates to hand-combers in the period 1834-1840. Finally, much information has survived about the contracts given to the more skilled workers from

the 1860's onwards and this sheds some light on the life-cycle earnings of these workers.

A general problem with comparison between firms is the lack of information on the ages of employees. Since increasing age can have a positive or negative effect on wages in different occupations, a difference in age structure may account for the employees of one firm being paid more than those of another firm. Within Keighley, one can perhaps assume that the age structure of different firms were similar, so that the Clough, Brigg and later Marriner data will correspond to each other. However, Bairstow's in Sutton in Craven may have encountered a different age structure amongst their village labour force. Unfortunately this problem can only be acknowledged and not solved.

Another general problem which applies to all four firms, but particularly to Clough's and Bairstow's, is that of survival. Any firm which leaves virtually complete archives is untypical of industry in general and it may be, therefore, that such a firm is untypical of its contemporaries, in its size, organisation or product range. This would mean then, possibly, that both its wage level and wage trend were also untypical. This is particularly true for Bairstow's, a large firm which must have dominated Sutton in Craven. There is some evidence, however, that Clough's at least, was not a firm untypical of Keighley. Ingle stated that five firms (including Marriner's and Clough's) all shared both a long history and a similar middle position as regards size (2). Hodgson indicated that of the seventeen firms he mentioned producing worsted in Keighley around 1870, 10 had been present in the 1820's including Clough's, Marriner's and Brigg's. The information he gave, as set out in the table overleaf, shows that there was a fairly high turnover of firms in the first half of the century, but this was not so great after the 1850's. This reflects the high number of small hand-loom weaving concerns which went out of business in the 1830's and 1840's. Additionally, since output was increasing 1820-1870, the size of the average firm must have increased quite markedly by 1870.

Table 3.1. :

The number of firms in the Keighley worsted industry
(from Hodgson)

<u>Date first recorded</u>	<u>Number of firms operating</u>		
	<u>In the 1820's</u>	<u>In the 1850's</u>	<u>In 1870</u>
1820's	37	15	10
1850's	--	9	5
1870	--	--	2
Total	37	24	17

Another source, the local directories, seems to confirm this picture of persistence amongst firms, whilst also highlighting the rapid fall in the number of weaving firms in the 1830's and 1840's. As the following table shows, from the 1840's onwards, perhaps one-third of the firms in any decade were newly formed and a similar proportion were at least twenty years old (3). Thus persistent firms remained important, although in the minority. Even in 1884, one-fifth of all worsted firms had been founded in or before 1847, and one-tenth had been founded as early as 1822 (4).

Table 3.2. :

The number of firms in Keighley, 1822-1884

<u>Date first recorded</u>	<u>Number of firms operating in</u>					
	<u>1822</u>	<u>1837</u>	<u>1847</u>	<u>1853</u>	<u>1861</u>	<u>1884</u>
1822	44	15	10	8	7	4
1837	--	45	14	12	8	2
1847	--	--	10	6	3	2
1853	--	--	--	10	5	3
1861	--	--	--	--	10	3
1884	--	--	--	--	--	26
Total	44	60	34	36	33	40

The final source is the census enumerator's returns of 1851, which provide a cross-check of the numbers of manufacturers living in the Keighley area and the size of their firms. The Census recorded 29 worsted employers with details of their workforce. Of these, the majority, 18, employed between 100 and 999 workers and the mean size of all firms was 370 workers. Only 3.5% of the workers worked

for the eight smallest firms, which each employed less than 100 workers, whilst 38.2% of the workers were employed by the three largest firms, each employing more than 1,300. Clough's, Marriner's and Briggs', the three Keighley firms used in this study, each employed between 300 and 500 workers and were therefore very typical of the area at this time.

One can say, then, that it seems likely that the firms used in this study were typical of the area in size and to a certain extent, in persistence. There may be an overemphasis on the larger firm during the hand-working period, and on the older firm in the last quarter of the nineteenth century, but not to such an extent as to deny the validity of the results of this study.

There now follows a section dealing with the way in which the wage material was processed, prior to the longer section showing the results obtained for the different occupations.

The first task was to divide the material into separate occupations, an easy task in most cases where individual occupations had been allocated separate wage books, but more tedious where they had not. Having done this, there was a need to select a number of workers whose earning could be recorded. Since the records of different firms present different problems, it would perhaps be advisable to detail the methodology used for each firm separately.

With the Clough records, there were two contrary problems in the selection of workers. In some occupations, particularly the more highly skilled, there were often less than five workers in employment at any one time. Therefore selection was neither necessary nor desirable, but the statistical validity of some of the subsequent series must be in doubt. On the other hand, in some occupations, there were fifty or more workers employed, at the same time, and here it was necessary to find some method of selection. Ideally, of course, any selection should have been made on a random basis, but there were several factors that

prevented this. Therefore, the method used was to select all workers who were in employment at Clough's for several years (it is important to note that 'employment' in this context could cover periods of temporary unemployment). Obviously, this procedure does introduce some bias, as it leads to the selection of the steadier worker and therefore perhaps reduces the apparent effect of fluctuating employment levels. Also, it tends to lead to a smaller and more rigorous selection of female employees because of their tendency to drop out of employment during and after pregnancy. Associated with this, is the difficulty in tracing female employees whose surnames change on marriage. Likewise, the temporarily employed child worker is unlikely to be represented in these series, unless he, or she, continues to work at Clough's for some years as a young adult.

Next, decadal earnings series were calculated using (within the limits of the original selection) a different group of workers each decade, that is using those workers who were employed throughout the decade. The time-span of one decade was chosen not only to facilitate comparison between different occupations, but also because the need to accommodate the changes in personnel employed conflicted with the amount of time available to the researcher. The first factor would have led to looking at the earnings of all workers every month; the second to constructing a series from a very select group of workers over 20 years or more. The main source of bias from the use of decadal series is the ageing of the group within each time period. The economic effects of this are not certain, however, as ageing in different parts of the life-cycle, and in different occupations, can reduce or increase earnings, but it does emphasise the importance of the age structure within a firm. It has proved possible to use census enumerators' returns to deal with this problem, but only on an individual basis.

A variation in this method of selection was used in the case of the hand-combers. Although the decadal series method was used, for the final decade, the 1850's, all

hand-combers in the wage book were used, not just those who were employed in the final year of hand-combing operations. It was argued that there were few enough for all to be considered and that hand-combers were not being made temporarily unemployed, but were suffering their final dismissal through technological redundancy.

For all workers the earnings material was treated in the following way. Within each decade, the total net earnings of the workers selected was calculated and an average taken - firstly as total net earnings divided by the number in work (giving average earnings per employed worker); secondly, as total net earnings divided by the total number of workers in the decade (giving average earnings per worker). Thus variations in the economic effect of unemployment could be noted, as well as variations in the level of earnings. Where one employee's name represented the earnings of more than one worker, as happened frequently in the hand-loom weavers' and mill hands' wage books, the total number of workers was calculated using the higher number. Finally, as described above, the series were standardised into four-week months.

In general, a similar methodology was used for the other three firms, but with a few exceptions which will now be explained.

The Marriner material is very erratic. It covers hand-loom weavers during the periods March 1804 to March 1806; December 1811 to April 1814; May 1814 to February 1817; and May 1818 to January 1830. The number of employees within these periods fluctuates greatly. Therefore to facilitate comparison and to produce series based on a reasonable number of workers, a number of twelve-month earnings series were produced for October to September 1804/1805, 1812/1813, 1814/1815, 1815/1816, 1820/1821, 1823/1824, 1825/1826 and 1818/1829. All workers who were employed in each twelve-month period are included.

Likewise, it proved impossible to produce decadal series from the Brigg material. The hand-loom weavers'

material did cover the period April 1836 to October 1846, but the Clough decadal series start (for example) in January 1840. Therefore, the Brigg information was split into two parts - April 1836 to December 1839 and January 1840 to October 1846. The fourteen hand-loom weavers out of the original 96 who were still employed in December 1839 were used for the first part; likewise of the 43 hand-loom weavers employed in January 1840 only nine were still in employment in October 1846 and these nine were used for the second part. The hand-combers' material covers an even shorter period, December 1837 to July 1841, in which a total of 69 hand-combers was employed. Of these workers, 25 survived the whole period in employment, and of these, 13 were used, being chosen alternately and therefore, as far as possible, without bias. In addition, the information of the aggregate output and average wages of the hand-loom weavers during the transition to power-loom, compared with the output of the power-loom weavers, covers the period April 1836 to October 1846. This was treated as one temporal unit with figures being taken quarterly, in January, April, July and October.

Finally, the Bairstow data must be considered. This can be divided into three sections, each treated rather differently. The first section deals with the quotation of average wages found within the Bairstow material from time to time. One, for November 1863, gives average weekly wage rates for various occupations. Like the Poor Law material of 1836/1837, this is of strictly limited use in a study that aims to use net earnings. Also, however, there is information on the wages bill and earnings per head for spinners, drawers and overlookers in May 1863, September 1864 November 1873 (this also includes machine combers) and March 1875. These figures also differentiate between full-time and half-time workers. They do have a limited use as indicators of the level of earnings (but in this case, probably gross earnings) in these periods, but they can add little to knowledge of the movement of earnings.

The second section consists mainly of the information relating to a variety of occupations in the periods 1890-

1892 and 1912-1913, and to power-loom weaving 1912-1915. The information in the first two periods was categorised into different occupations and then all workers were selected who had been employed throughout each short period. In certain occupations, the resultant number of workers was reduced by selecting only alternate employees in 1890-1892, but alternate, one in three, or even one in four workers in 1912-1913, to reduce the sample number to a reasonable size. For the 1912-1915 weavers' series, a sample of alternate workers who were employed throughout the period was taken. In the short series on hand-combers from 1834 to 1840, there were nineteen workers in all, of whom twelve worked for three or more years. These twelve were used in the subsequent analysis. The series on out-weavers for the period 1845-1849 was not used, ultimately, because of its short duration and because of an uncertainty as to whether it related to individuals or to firms.

The final section of the Bairstow material relates to power-loom weavers in the periods 1865-1871 and 1879-1910. The information is only given in aggregate terms, that is the number of weavers in the department and the total weekly earnings. Prior to 1886, no attempt was made to calculate the number of weavers actually working, as opposed to the total on the list of employment but perhaps temporarily unemployed. This leads to several complicating factors. Before 1886, average earnings per capita can be calculated, but this must include unemployed workers and probably includes some who have permanently left Bairstow's employ. Therefore, one would expect average earnings to be lower than, for instance, the comparable Clough earnings. After 1886, the series includes earnings per employed worker, similarly to Clough, but the unemployment index continues to be rather low. It must be borne in mind that, since there is no selection of workers however, the bias inherent in the selection of Clough's employees will not be apparent, nor is the Bairstow series divided into decades. An additional minor problem is that there is no indication whether the aggregate wage bill consists of gross or net earnings and therefore whether or not there is another discrepancy there.

Three final points must be covered before going on to look at the trend in earnings in each particular occupation. Firstly, it would be interesting to look at the economic effect of changes in product. Weavers, in particular, frequently changed the type of cloth they produced and such changes were generally recorded in the Clough wage books. Different materials not only had different piece rate values, but may have had different total economic effects on the workers' earnings. This would relate to the question of whether the employer's valuation of the difficulty of producing a certain type of material (i.e. the piece rate) was, in fact, valid for most workers. Certainly workers had definite preferences for certain types of work, as the following note indicates (5) :

"...Bairstow sir I think I cannot manage these
saxtonise that you sent me for ive never been
used to worstit sir I will thank you to let me
go on at old sort Sir I will Thank you to send me
warp ant piece wefts Arther Bradley Thornton"

The second point concerns family earnings. Not only did the hand-loom weavers and mill hands tend to be employed in family units, but, in general most members of most families were employed and families would have pooled a large part of their incomes. Thus it is important to remember that, whilst the earnings of an individual type of occupation might have fallen rapidly, the individual worker might have been shielded from absolute destitution by the continuing incomes of his, or her, family. To take a hypothetical example, a male hand-loom weaver would have suffered a severe drop in earnings in the 1830's and 1840's. If, however, he was married and his wife and two elder daughters were able to enter power-loom weaving from hand-loom weaving or spinning, then the family income probably stayed constant. This aspect has been gone into more fully in chapter six.

Finally, the terminology regarding employment and unemployment used in these chapters must be explained. If the worker's name remains in the wage book for the whole decade, then he, or she, is taken to be 'in employment' for that period. The worker is said to be 'unemployed' in those periods in the decade when he, or she, does not work, that is during periods of temporary unemployment of one month or

more. The worker is 'employed', therefore, only at those times when he or she experiences full employment, or when the short-time working occurs for less than one month. Given the way that most decadal series have been constructed, one does not find examples of workers permanently leaving a firm. The main exception to this is the Clough hand-combers' series and there the final dismissal is referred to as 'technological redundancy'.

There are some occupations for which wage information is either totally missing or very sporadic and in most cases these occupations have not been considered. Often these jobs are of minor importance numerically in the worsted industry, although not necessarily of minor industrial importance. Sizers and engine tenters can be included in this group. More frequently, they are the province of the young worker (eg. doffer, reeler, warper and winder). Although, as the data in chapter two shows, the young workers were numerous, their earnings would be difficult to analyse in this study because of the absence of data on ages; the increments given with increasing age. and the short length of tenure in many of these jobs. The occupations that have been studied, then, fall into the following categories. Two domestic out-working occupations have been included - hand-loom weaving and hand-combing. Within the factory system, their mechanised counterparts - power-loom weaving and machine combing - have been studied, as well as (in the early period) the category of workers known as mill hands. Another major occupation included is machine spinning and less important ones include genapping, twisting and drawing and also mending and burling. Some of the more highly-paid occupations are also studied, in particular carters, warp-dressers, wool sorters, finishers, mechanics and joiners, piece room workers and overlookers. However, as will be seen later, the information available for some of these groups is less than satisfactory.

The first occupation to be considered is hand-loom weaving. Weavers worked at home, often in family units, with the adults weaving and the children doing ancillary tasks. About two-thirds of the hand-loom weavers were male and one-

third female. In 1823 when, for the first time, the Clough wage books record the types of cloth being produced, three were mentioned, in various densities. There were wildbores of 38, 40, 42 and 44 sett; plainbacks of 44 and 46 sett; and dobys of 38, 42 and 44 sett (6). Wildbores was a local name for a stout and closely woven, unglazed material made from a worsted weft and cotton warp (7); plainbacks, as the name implies, were a plain worsted; whilst dobys, or dobbies, were the worsted made on the doobby loom, which in complexity lay part way between the older and simpler broadcloth loom and the later and more complex draw-and Jacquard looms (8). By 1833 however, dobys were no longer being made and the Clough hand-loom weavers were producing wildbores of 34, 38, 40, 42, 44, 46 and 48 sett, plainbacks of 46 and 50 sett and three-quarter plainbacks of 34, 38, 40 and 44 sett. The description 'three-quarter' implies that the material was only half the normal width, since cloth was usually woven to six-quarter size, or 1.5 yards in width. Therefore, within the period 1823-1833, there was not only a movement away from the production of dobys and towards an increasing number and widths of wildbores and plainbacks, but wildbores became both more and less closely woven, whilst full-size plainbacks became only more closely woven. As has been seen, hand-loom weaving began to be supplanted in the mid-1830's, in Keighley, and by the 1850's nearly all the hand-loom weavers had ceased work. However, a few hand-loom weavers continued to practise their trade throughout the nineteenth century, particularly in the more isolated areas in the locality, the last practising hand-loom weaver dying only in 1910.

All the relevant information on earnings is given in Appendix A. However, to aid the reader, summary tables, on an annual basis, are incorporated in the text, but these are intended only as a guide and not as a source of data. The convention followed in this thesis is that earnings are taken to the nearest £0.0001 in the tables and the appendix but to the nearest £0.05 in the text.

The information on hand-loom weavers' earnings comes from three firms and one survey. It is encouraging that where series belonging to the different firms overlap, they

always move in the same direction as one another and usually at approximately the same level. This is to be expected, since firms in the same locality are likely to draw on the same pool of out-working labour. Marriner's are the only firm that give the addresses of their employees in the wage books however. Prior to 1814, their labour force was based in the villages around Gargrave, but from 1814, it came mainly from the Worth Valley and particularly Keighley.

As the table overleaf shows, the level of hand-loom weavers' earnings changed drastically in both the long run and the short run. In the year 1804/1805, monthly earnings varied between £2.50 and £1.50 for those in employment and between £2.30 and £1.30 for the average weaver. By 1812/1813 however, these levels had fallen to £1.60 - £0.80 for both the employed and average weaver, with a short-run peak in April 1813. Earnings continued to fall, one assumes, for by October 1814, they were at their minimum for the entire series - £0.55 for those in employment and £0.25 for the average worker. (It must be borne in mind that these figures represent monthly earnings.) Not only had there been a fall in earnings in the order of 75% for the employed weaver since 1804/1805, but unemployment had risen from 7% to 57% of the workforce. Thus the average weaver was in employment less than half the time. However, earnings then began to rise erratically, reaching a peak in January and February of 1816 when, for those in employment, they reached £1.70. Owing to a fall in unemployment, the earnings of the average worker at this time were £1.25. Again though, earnings fell rapidly thereafter through the spring and summer of 1816, until they were only slightly above the minimum levels of 1814. This erratic movement in earnings can be summarised approximately in the annual average monthly earnings which fell from 1804/1805 to 1814/1815, but by 1815/1816 had recovered to the level recorded in 1812/1813.

In 1816, the Clough earnings material begins to be of some use. It is, however, notable for its extreme fluctuations of level - a result of the concentration of the early part of the series on just a few families, together

Table 3.3. :

Annual monthly averages of hand-loom weavers' earnings,
1804-1846

<u>Date</u>	<u>Earnings of</u> <u>employed weavers</u>	<u>Earnings of</u> <u>average weaver</u>	<u>Source</u>
1804/1805	£1.9267	£1.8329	Marriner
1812/1813	£1.1481	£1.0849	Marriner
1814/1815	£0.9139	£0.6028	Marriner
1815/1816	£1.1459	£1.0466	Marriner
1820/1821	£3.0784	£2.9193	Marriner
1823/1824	£3.3149	£3.3149	Marriner
1825/1826	£2.1841	£2.1018	Marriner
1828/1829	£1.7784	£1.6327	Marriner
1817	£2.1446	£2.0185	Clough
1818	£2.8347	£2.8347	Clough
1819	£2.3942	£2.3942	Clough
1820	£2.4294	£2.4294	Clough
1821	£3.5583	£3.5583	Clough
1822	£3.5987	£3.5987	Clough
1823	£2.1240	£2.1238	Clough
1824	£1.9504	£1.9321	Clough
1825	£1.8894	£1.8437	Clough
1826	£1.2204	£1.0883	Clough
1827	£1.5282	£1.5282	Clough
1828	£1.6456	£1.6290	Clough
1829	£1.4839	£1.4795	Clough
1830	£1.8227	£1.6261	Clough
1831	£1.7115	£1.6730	Clough
1832	£1.5606	£1.5075	Clough
1833(11mth)	£1.5831	£1.5520	Clough
1836	£2.40, £2.00, £1.80, £1.60		Poor Law
1837	£2.00, £1.70, £1.60, £1.20		wage rates
1836(9mth)	£1.7399	£1.7060	Brigg
1837	£1.3321	£1.2345	Brigg
1838	£0.8914	£0.8165	Brigg
1839	£0.8314	£0.7617	Brigg
1840	£1.0980	£0.9995	Brigg
1841	£1.1924	£1.1167	Brigg
1842	£1.0476	£0.9180	Brigg
1843	£1.0398	£0.8965	Brigg
1844	£1.0372	£0.8965	Brigg
1845	£1.0376	£0.8879	Brigg
1846(10mth)	£1.0063	£0.8440	Brigg

with the early Clough practice of letting earnings accumulate and then paying them to the workers perhaps only every three months. Therefore, more use has been made, in this case, of the annual average monthly earnings, although the monthly data will be considered first. Most of the monthly figures

for the period January 1817 to September 1817 lie between £2.10 and £1.20; then for the period October 1817 to April 1819, between £3.60 and £2.10. Between May 1819 and October 1820, the range of earnings levels again falls to between £2.60 and £1.50, but increases to between £4.40 and £3.00 in the period November 1820 to December 1822. There is then a marked fall in the Clough earning levels. The Marriner levels of 1820/1821 largely correspond to those of Clough, but in 1823/1824, they are higher than Clough, at between £4.55 and £2.55, because of this abrupt fall. It will be noted that after the Napoleonic Wars, and until the introduction of the power-loom, there was very little unemployment amongst the hand-loom weavers.

Between January 1823 and January 1826, there was a slow decline in earnings from around £2.25 to around £1.60 (for those in employment). This was followed by an abrupt decline to a minimum position, second only to that of October 1814, so that in May 1826, the average Clough hand-loom weaver was earning only £0.45 and those in employment, £0.70. Then earnings began to rise again to £1.55 by January 1827 (with no unemployment) and this level was more or less maintained until 1833. Thus from January 1827 to March 1829, the range of earnings was £1.95 to £1.30, then it fell slightly to £1.65 to £1.25, from April 1829 to April 1830, rising again to £2.05 to £1.25, from May 1830 to May 1832. Another fall was registered between June 1832 and March 1833, when the range of earnings was £1.70 to £1.30, but this was counteracted in the last eight months of the series to November 1833, when the earnings range was £1.90 to £1.35. Again, the Marriner records largely agree with those of Clough. In the period 1825/1826, a steep fall is recorded from the peak in October 1825 of £3.50 to the minimum of £1.25 in August 1826 - a similar trend to Clough's but at a slightly higher level. In the twelve months 1828/1829, the level of Marriner earnings is almost identical to that of Clough.

Before the advent of the power-loom then one can discern the following trends. Earnings fluctuated during the Napoleonic Wars but were apparently at their lowest in

late 1814, when unemployment too was at its highest. Earnings then rose in the post-war period, and unemployment was reduced to a negligible level. The highest level of earnings was attained in the early 1820's, but a drastic fall then took place to a trough in 1826. There are two reasons for this fall. The first is the contemporary labour troubles with a hand-combers' strike spreading out from Bradford and, as will be shown in chapter six, increasing attempts at unionisation amongst the hand-combers and hand-loom weavers in Keighley; secondly, the trade depression which led to a national 'panic' in the autumn of 1826 (the locally named 'Butterfield Panic'). After 1826, earnings again rose but only slowly. This movement is reflected in the annual average monthly earnings of Clough employees, shown in table 3.3. This summary must be used with caution however, for it uses the arbitrary base of January to December, which will not always correspond to the base period of fluctuations in earnings. However, it does show a rise in monthly earnings from 1817 to 1821/1822, followed by a severe fall to 1826. Earnings then rose to a short-run peak in 1831, checked only in 1829, but fell slightly afterwards. What is very noticeable is that earnings after 1826 were at a much lower level than those prior to 1826 - the highest annual average in the period 1827-1833 (£1.70 in 1831) was not as great as the lowest annual average in the period 1817-1825 (£1.85 in 1825). Thus, whilst the average monthly earnings for the early period, 1817-1825, was £2.50, that for the later period, 1827-1833, was £1.60, a reduction in the order of 36%. The later earnings level is also about 20% below the Marriner figure for 1804/1805, £1.95.

The earnings data on the hand-loom weavers, during the period of transition to mechanised weaving and the onset of their technological redundancy, come from the Brigg records and the Poor Law Commissioners, as table 3.3. shows. The latter show that wage rates for hand-loom weavers in Keighley were £2.40, £2.00, £1.80 and £1.60 in October 1836, depending on the type of cloth woven. One year later, for the same types of cloth, the rates were £2.00, £1.70, £1.60 and £1.20, each group having experienced a decline in wage rates. The Brigg material is more useful however as it not

only covers a longer period (1836-1846) and gives net earnings, but it compares the output of hand-loom weavers with that of power-loom weavers within the same firm.

Throughout the period, unemployment levels were fluctuating but fairly low. From July 1836 to October 1837, there was a steady fall in earnings, from £2.50 to £1.00 for those in employment and £0.80 for the average weaver, but then there is evidence of a slow rise so that earnings were around £1.25 to £0.80 by the first quarter of 1840. Earnings then remained almost entirely in this range until 1846, when the Brigg hand-loom weavers were made redundant in the autumn, during the depression caused by industrial unrest.

The Brigg material on total earnings and output of hand-loom weavers, compared with total output of power-loom weavers, can be the subject of some very interesting analysis. As table 3.4. shows, the number of pieces woven on power-looms rose from zero to more than 1,900 per month in the ten-year period, whilst the number of pieces woven on hand-looms fell rapidly from about 870 in April 1836 to 130 in July 1839. The total then rose to 400 by April 1845, but afterwards, declined again slowly. If it is assumed that the power-loom and hand-loom pieces were the same size and stayed the same size, then the proportion of total output, by volume, produced on hand-looms fell rapidly from 100% in April 1836 to 13% by July 1839, but thereafter reached a maximum of 20%.

Meanwhile the earnings per piece received by the hand-loom weavers actually rose slightly during 1836, but then fell until November 1837, afterwards stagnating at about £0.15, compared with a peak value of £0.24 in October 1836, but rising slightly in 1845/1846. The fall in the period 1836/1837 is corroborated by the fall in the piece rates recorded by the Poor Law Commissioners. In general however, one cannot attach too much significance to these movements, as they may have been caused by changes in the type of cloth woven on the hand-looms, rather than changes in the value attached to one type of cloth. Hence lower wages per piece does not necessarily imply lower earnings per weaver. One

Table 3.4. : Hand-loom and power-loom outputs, 1836-1846

Date	Number of pieces			% of total By HLW	Total HLW wages	HLW wages per piece
	By HLW	By PLW	Total			
Apr.1836	867	0	867	100%	£171.79	£0.198
Jul.1836	923	0	923	100%	£214.69	£0.233
Oct.1836	617	0	617	100%	£147.87	£0.240
Jan.1837	572	13	585	98%	£126.25	£0.220
Apr.1837	578	239	817	71%	£112.62	£0.195
Jul.1837	832	234	1,066	78%	£129.71	£0.156
Oct.1837	441	290	731	60%	£62.40	£0.142
Jan.1838	551	397	948	58%	£83.33	£0.151
Apr.1838	519	427	946	55%	£80.76	£0.156
Jul.1838	403	552	955	42%	£65.05	£0.161
Oct.1838	268	727	995	27%	£38.08	£0.142
Jan.1839	151	658	809	19%	£24.02	£0.159
Apr.1839	137	851	988	14%	£21.73	£0.159
Jul.1839	131	891	1,022	13%	£21.67	£0.165
Oct.1839	140	944	1,084	13%	£24.67	£0.176
Jan.1840	117	771	888	13%	£18.02	£0.146
Apr.1840	176	843	1,019	17%	£26.65	£0.151
Jul.1840	262	933	1,195	22%	£38.08	£0.145
Oct.1840	281	1,020	1,301	22%	£39.60	£0.141
Jan.1841	285	1,049	1,334	21%	£40.41	£0.142
Apr.1841	211	764	975	22%	£31.18	£0.148
Jul.1841	326	1,142	1,468	22%	£47.65	£0.146
Oct.1841	253	1,135	1,388	18%	£39.73	£0.157
Jan.1842	186	929	1,115	17%	£27.37	£0.147
Apr.1842	198	963	1,161	17%	£30.00	£0.152
Jul.1842	224	1,400	1,624	14%	£30.51	£0.136
Oct.1842	252	1,415	1,667	15%	£35.49	£0.141
Jan.1843	197	1,135	1,332	15%	£28.46	£0.145
Apr.1843	236	1,026	1,262	19%	£29.34	£0.124
Jul.1843	303	1,472	1,775	17%	£42.35	£0.140
Oct.1843	227	1,256	1,483	15%	£33.36	£0.147
Jan.1844	397	1,268	1,665	24%	£56.11	£0.141
Apr.1844	316	1,313	1,629	19%	£52.63	£0.167
Jul.1844	343	1,344	1,687	20%	£54.79	£0.160
Oct.1844	319	1,487	1,806	18%	£49.47	£0.155
Jan.1845	350	1,477	1,827	19%	£51.95	£0.148
Apr.1845	404	1,671	2,075	19%	£61.70	£0.152
Jul.1845	390	1,525	1,915	20%	£61.52	£0.158
Oct.1845	367	1,537	1,904	19%	£66.73	£0.154
Jan.1846	434	1,905	2,339	19%	£66.73	£0.154
Apr.1846	319	1,316	1,635	20%	£53.05	£0.166
Jul.1846	315	1,943	2,258	14%	£52.61	£0.167
Oct.1846	302	1,399	1,701	18%	£52.03	£0.172

can say though, that in this period of transition, the fall in earnings experienced by the hand-loom weaver was caused more by a fall in the number of pieces worked, than by a fall in the piece rate. Within the earnings series, unemployment was low and stable. However, this sample was based on weavers who remained in work to the end of the period, perhaps only 20% of the original workforce. Therefore, the decline in the hand-loom weavers' earnings occurred via a few weavers remaining in almost full employment, whilst the majority were made redundant. Generally, the hand-loom weavers were used as non-fixed capital in this period, the employers keeping the power-looms in production whenever possible and varying the amount of work done by the hand-loom weavers to adjust total output to supply and demand conditions.

The overall picture then, of the hand-loom weavers' earnings during the period of transition, is a fall 1836-1839, followed by a slight recovery and then stagnation, for those in employment. Earnings for this group were an average of £1.05 per month in 1845, a level comparable to the earlier, abnormally low level of £1.20 for those in employment in 1826. This fall was caused by a fall in both the piece rates and the amount of work available 1836-1837, but a fall in the latter only in the period 1838-1839. The figure of £1.05 in 1845 represents a reduction in the order of 30% from 1827-1833, of 60% from 1817-1825 and of nearly 50% from 1804/1805. This decline would have been exacerbated if the fall in the piece rates implies that more work had to be done to produce the same income. The situation was perhaps worse however, for those weavers, up to 80%, made redundant before 1846. These people would, in all likelihood, suffer at least temporary financial hardship before finding new occupations. The first major redundancies (or final dismissals) at Brigg's seem to have occurred from mid-1837 to early 1839, whilst the second phase was from late 1846 onwards when all remaining hand-loom weavers were made redundant. In the industry as a whole, however, redundancies would have been staggered, as different firms introduced power-loom weaving in different years.

The hand-combers were the other important occupational group to suffer redundancy for technological reasons, although this came at a later date. Since the combing machines were put to use very rapidly throughout the industry, the demise of the hand-comber generally took place much more quickly than that of the hand-loom weaver. There are three series available relating to hand-combers' net earnings, plus an estimate of their wage rates. Again all firms probably used a common pool of out-working labour, although this might be less true of Bairstow's workers, who were based in Sutton in Craven. The Clough wage books show hand-combers living in a mixture of local and more distant (and usually northern) locations, with the local places becoming more predominant. The Bairstow hand-combers on the other hand came either from Sutton itself, or the villages just to the north.

Because of the way in which hand-combing was organised, as with hand-loom weaving, earnings tended to be paid out at infrequent intervals. Hence, the early part of the Bairstow series, in particular, is notable for its erratic levels. However, one can see a slow increase, beginning in late 1834, with monthly earnings of £2.30 (November 1834), to a peak in early 1836, 1836, when earnings averaged £4.50 in the first six months of the year and there was full employment. Then there was a fall to a minimum of £1.50 in November 1837, followed by a rise to the range £4.40 to £2.60 for almost all of 1838/1839 for those in employment. The early part of 1838 was the only period, prior to the imposition of technological redundancy, with more than negligible unemployment, two out of the sample of twelve handcombers were unemployed in both February and March, reducing the earnings of the average hand-comber to between £3.10 and £2.50. The drop of earnings through 1836 and 1837 is mirrored by the fall in hand-combers' wage rates from £3.00 in October 1836 to £2.60 in October 1837. However, the contemporary Bairstow earnings are higher in 1836 and lower in 1837, suggesting that a reduction in the amount of work available, as well as in the piece rates, was responsible for the fall in earnings. This may reflect the beginning of an influx of redundant hand-loom weavers into hand-combing. The table overleaf shows hand-combers' annual monthly earnings.

Table 3.5. :

Annual average monthly earnings of hand-combers, 1835-1859

<u>Date</u>	<u>Earnings of employed combers</u>	<u>Earnings of average comber</u>	<u>Source</u>
1835	£3.6420	£3.6097	Bairstow
1836	£4.2829	£4.2829	Bairstow
1837	£2.7869	£2.7044	Bairstow
1838	£3.1013	£2.8111	Bairstow
1839	£3.4727	£2.9985	Bairstow
1836	£3.00		Poor Law
1837	£2.60		wage rates
1838	£2.4328	£2.4328	Brigg
1839	£2.3582	£2.2212	Brigg
1840	£2.3100	£2.3100	Brigg
1841 (7mth)	£2.3614	£2.3614	Brigg
1843	£2.5732	£2.4278	Clough
1844	£3.1810	£3.1810	Clough
1845	£3.0527	£2.9496	Clough
1846	£2.2087	£1.8723	Clough
1847	£2.3973	£1.5748	Clough
1848	£2.2473	£2.0969	Clough
1849	£2.3415	£2.1414	Clough
1850	£3.0456	£3.0158	Clough
1851	£2.7752	£2.6946	Clough
1852	£2.2729	£2.0232	Clough
1853	£2.5050	£1.7743	Clough
1854	£2.2753	£0.9993	Clough
1855	£2.3101	£0.8909	Clough
1856	£2.3914	£0.9642	Clough
1857	£2.3528	£0.5004	Clough
1858	£1.3828	£0.0814	Clough
1859 (8mth)	£1.7389	£0.1014	Clough

The Brigg earnings series is fairly similar in trend to that of Bairstow, but its fluctuations are of a smaller amplitude and the general level of earnings is somewhat lower. In the period 1837-1841, the Brigg hand-combers' earnings fluctuated largely between £2.50 and £2.00, although there was a decline between the two terminal dates, from the higher part of this range in the earlier years to the lower part in the later ones. Thus, in the first three months of the series, December 1837 to February 1838, average monthly earnings were £2.40, whilst in the last three months, May 1841 to July 1841, they were £2.05 (using standard four-week months).

The Clough series begins in 1843 with a trough in March of that year at £1.55, for employed hand-combers and £1.35 for the average hand-comber. This was followed by a very rapid rise which also eliminated unemployment until July 1845. By 1845, the range of earnings was £3.50 to £2.60 for those in employment, with an annual average of £3.05. Late 1845 and the first half of 1846 saw a deterioration in earnings, so that by August 1846, they were £2.45 for those in employment and £2.20 for the average hand-comber. Then in September 1846, no hand-combers at all were employed at Clough's and no wages paid. This, of course, was owing to the Keighley hand-combers' and weavers' strike which began at Clough's in that month and was not settled until 20th November (9). Evidently some hand-combers returned to work in October because wages were paid again then. By January 1847, the earnings of those in employment had reached £2.60, but there followed a slight decline. Many hand-combers remained unemployed though, either because of a post-strike depression at Clough's, or because of victimisation by the management, or perhaps because they had found alternative temporary employment elsewhere. With unemployment levels running at over 50% till June 1847, the earnings of the average hand-comber failed to reach the £2.60 level until October 1847. From then until the beginning of 1849, unemployment was low and the earnings of those in employment were between £2.75 and £1.85. They then rose again, so that by the first six months of 1850, levels of £3.25 to £2.55 were attained, only to fall again in the second half of 1851.

It is possible that the disruption caused by the strike encouraged employers to introduce combing machines sooner and more rapidly than they otherwise would have done. During this period of transition, moreover, there was an interesting comparison to be made between the earnings of those hand-combers in employment and the earnings of the average hand-comber. Thus in September 1852, there was a temporary slump in both to under £1.50 (£1.45 for employed hand-combers, £1.20 for the average hand-comber). The earnings of those in employment recovered, however, to £2.85 by January 1853 and then fluctuated in the range £2.95 to £1.75, until December 1855. During 1856 and 1857, these

fluctuations increased in amplitude, to between £3.70 and £1.70. At the same time, the annual average monthly earnings fell from £2.50 in 1853 to £2.35 in 1857. In December 1857, the earnings of those in employment fell sharply to £1.60 and from this date to the end of the series in August 1859, earnings were in the range £2.05 to £0.80, with the exception of August and September 1858 when they were below £0.40. The average monthly earnings for those in employment in 1859 (eight months only) was £1.75.

The series relating to the average hand-comber, including those unemployed or made redundant, shows a different story. After the temporary slump in 1852, average earnings only recovered to £2.40, there being at this time about 16% unemployment. Average earnings then declined steadily until June 1854 and between then and May 1857, remained in the range £1.15 to £0.70, with the exception of December 1855 to March 1856, when they were in the range of £1.20 to £1.05. Thus in early 1857, unemployment was about 63% implying that the average hand-comber was unemployed for 63% of the working year. Another sharp fall in earnings for the average hand-comber was recorded between May 1857 and July 1857, so that by the latter month, unemployment was at 91% and earnings were less than £0.25. A further steady decline occurred to zero employment and earnings in September 1859.

This means that previous levels of earnings were largely maintained by those hand-combers in employment through the period of transition, until 1858 when earnings, though fluctuating rapidly, fell by about 40% (the annual average monthly earnings being £2.35 in 1857, £1.40 in 1858 and £1.75 in 1859, January to August). The levels of employment fell gradually however, from 80% in employment in 1852 to 37% in mid-1854. This latter level was maintained until mid-1857 and then, slightly before the drop in earnings for those in employment, employment levels fell away again, to less than 10%, in two months. In general, hand-combers' earnings seem to have been at their maximum around 1835/1836, falling afterwards through the late 1830's perhaps because of the incoming redundant hand-loom weavers.

A short-run peak occurred in 1843/1844 but the strike of 1846 brought levels to zero and recovery was slow, especially in terms of the numbers employed. By late 1847 however, earnings and employment levels corresponded to those of 1840/1841. Earnings rose again in 1850/1851 to a level slightly below the peak of 1843/1844, but then the transitional decline described above set in. Until this period and with the exception of the aftermath of the 1846 strike, near-full employment was generally the norm.

The two remaining occupations which will be discussed in this chapter are the mill-based replacements for the occupations discussed above, that is the power-loom weavers and the machine combers. Power-loom weaving was an important occupation both numerically and industrially within the worsted industry and one on which there is an almost continuous series of data between 1836 and 1915, as the following table shows. This is composed of four series and three surveys. According to Hodgson, power-looms were first introduced into Keighley in 1833 and 1834, but the first direct evidence available relates only to 1837 when both the Brigg and Clough wage-books show that each firm was producing cloth woven on power-looms. However, there is a gap in the Clough weavers' wage books between 1833 and 1837 and it seems likely that Clough's were using power-looms at least as early as 1835. The survey of the Poor Law Commissioners shows that at least one firm was employing power-loom weavers in October 1836 (10). Power-loom weavers were generally female, although some male juveniles were employed.

The Poor Law Commissioners' survey indicates that power-loom weavers' wage rates were £2.00 and £1.70 in October 1836 and, for the same types of cloth, £1.70 and £1.30 one year later. This shows that the wage rates for power-loom weaving were in the middle range of, but on average slightly lower than, the wage rates for hand-loom weaving. The Clough power-loom weavers' earnings begin in September 1837 at £0.90, but increased steadily to £1.90 by June 1838, then remained in the range £2.10 to £1.35 until February 1843. In March and April of that year, there was a short slump,

Table 3.6. :

Annual average monthly earnings of power-loom weavers,
1836-1915

<u>Date</u>	<u>Earnings of employed weavers</u>	<u>Earnings of average weaver</u>	<u>Source</u>
1836	£2.00, £1.70		Poor Law
1837	£1.70, £1.30		wage rates
1837(3mth)	£1.3340	£1.3340	Clough
1838	£1.8112	£1.8112	Clough
1839	£2.0092	£2.0092	Clough
1840	£1.9233	£1.7925	Clough
1841	£1.9614	£1.8923	Clough
1842	£1.8745	£1.8183	Clough
1843	£1.7843	£1.6477	Clough
1844	£2.1479	£1.8397	Clough
1845	£2.1976	£1.7316	Clough
1846	£1.8911	£1.3565	Clough
1847	£1.9955	£1.6534	Clough
1848	£1.7030	£1.5099	Clough
1849	£1.9509	£1.8848	Clough
1850	£2.1811	£2.1811	Clough
1851	£2.1053	£2.0390	Clough
1852	£1.7385	£1.6558	Clough
1853	£1.8917	£1.8282	Clough
1854	£1.7178	£1.6895	Clough
1855	£1.7706	£1.6379	Clough
1856	£1.8461	£1.7395	Clough
1857	£1.5922	£1.4791	Clough
1858	£1.4222	£1.2355	Clough
1859	£1.7571	£1.7216	Clough
1860	£2.0607	£2.0607	Clough
1861	£2.2258	£2.2258	Clough
1862	£2.1509	£2.1509	Clough
1863	£2.1282	£2.0746	Clough
1864	£2.1662	£2.1662	Clough
1865	£1.9829	£1.9546	Clough
1866	£2.1607	£2.1607	Clough
1867	£2.3027	£2.3027	Clough
1868	£2.5554	£2.5554	Clough
1869	£2.8948	£2.8948	Clough
1870(6mth)	£3.5583	£3.5583	Clough
1860	£2.1235	£1.9471	Clough
1861	£2.4132	£2.3062	Clough
1862	£2.4714	£2.4714	Clough
1863	£2.2680	£2.2680	Clough
1864	£2.4066	£2.4066	Clough
1865	£2.2798	£2.2798	Clough
1866	£2.5402	£2.5402	Clough
1867	£2.3830	£2.0851	Clough
1868	£2.5391	£2.1592	Clough
1869	£3.1670	£2.1745	Clough
1870	£3.3946	£3.3946	Clough
1871	£3.1417	£3.1417	Clough
1872	£2.9022	£2.9022	Clough
1873	£3.1422	£3.1422	Clough

Table 3.6. Continued :

Annual average monthly earnings of power-loom weavers,
1836-1915

<u>Date</u>	<u>Earnings of employed weavers</u>	<u>Earnings of average weaver</u>	<u>Source</u>
1874	£3.0833	£2.6874	Clough
1875	£2.8969	£2.3674	Clough
1876	£2.7120	£2.5026	Clough
1877	£2.7947	£0.9315	Clough
1878	£2.4471	£2.4471	Clough
1879	£1.8998	£1.8486	Clough
1880	£1.7938	£1.7025	Clough
1881	£1.8462	£1.6537	Clough
1882	£2.5619	£2.5619	Clough
1883(6mth)	£1.8986	£1.8986	Clough
1866	na	£2.1714	Bairstow
1867	na	£2.2068	Bairstow
1868	na	£2.0425	Bairstow
1869	na	£1.9942	Bairstow
1870	na	£1.9560	Bairstow
1871	na	£2.0450	Bairstow
1879	na	£1.1000	Bairstow
1880	na	£1.8233	Bairstow
1881	na	£1.5954	Bairstow
1882	na	£1.8812	Bairstow
1883	na	£2.1234	Bairstow
1884	na	£2.2960	Bairstow
1885	na	£2.0057	Bairstow
1886	na	£2.2295	Bairstow
1886(9mth)	£2.8888	£2.4325	Bairstow
1887	£2.6370	£2.2162	Bairstow
1888	£2.7757	£2.2156	Bairstow
1889	£3.0739	£2.6884	Bairstow
1890	£2.9265	£2.7226	Bairstow
1891	£2.7897	£2.1260	Bairstow
1892	£2.8027	£2.2491	Bairstow
1893	£2.5931	£2.1141	Bairstow
1894	£3.1147	£2.4804	Bairstow
1895	£3.2589	£2.6538	Bairstow
1896	£3.1145	£2.3119	Bairstow
1897	£3.1743	£2.4076	Bairstow
1898	£2.9481	£2.0828	Bairstow
1899	£3.2459	£2.2095	Bairstow
1900	£3.0043	£1.9800	Bairstow
1901	£3.1953	£2.2194	Bairstow
1902	£3.2214	£2.3307	Bairstow
1903	£2.8942	£2.0444	Bairstow
1904	£2.9000	£1.8019	Bairstow
1905	£3.1132	£2.1171	Bairstow
1906	£3.2438	£2.3832	Bairstow
1907	£3.2528	£2.4096	Bairstow
1908	£3.0390	£2.0472	Bairstow
1909	£3.4867	£2.7211	Bairstow

Table 3.6. Continued :

Annual average monthly earnings of power-loom weavers,
1836-1915

<u>Date</u>	<u>Earnings of</u> <u>employed weavers</u>	<u>Earnings of</u> <u>average weavers</u>	<u>Source</u>
1912(5mth)	£3.6791	£3.4477	Bairstow
1913	£3.6341	£3.5845	Bairstow
1914	£3.8528	£3.7716	Bairstow
1915(4mth)	£3.8459	£3.8031	Bairstow

with earnings for those in employment at £1.30 to £1.15 and for the average power-loom weaver at £1.15 to £1.05, unemployment being 9%. Recovery from this slump was fairly rapid, but unemployment levels increased. Thus by early 1844, earnings for those in employment had reached the range £2.20 to £1.90 in February to April of that year. This level was maintained, with few exceptions, to the strike in September 1846. The average earnings of all power-loom weavers however in early 1844, were in the range £1.90 to £1.65 and this declined to £1.45 in August 1846. September 1846 saw a depression in earnings brought about by the hand-combers' and weavers' strike, so that they fell to £0.90 for those in employment. Whilst unemployment levels did not change in September, by November they had risen to 40%. Thus at any time in November only 60%, on average, of the power-loom weavers were working. Thus there was a marked reduction in the amount of work done during the strike, but nothing as severe as the total stoppage carried out by the hand-combers, perhaps reflecting the poorer organisation amongst the female power-loom weavers. By January 1847, the earnings of those in employment were £1.85, but this was followed by a decline to the range of £1.55 to £1.15 by March to August 1848. Again there was a rise in earnings however, so that by the end of the decade, earnings of those in employment were around £1.80. Unemployment remained high through the early part of 1847 and was to remain substantial for most of the decade. Thus the range of earnings for the average worker was £1.70 to £1.20 for most of 1847 and 1848, but had risen to £1.75 by the end of the decade.

The first half of 1850 saw earnings fluctuating between

£2.20 and £1.80, with the exception of one month, but then a slow decline commenced so that by mid-1852, they were in the range £1.60 to £1.30, in May to July, for those in employment. By 1853 however, there had been some recovery and from this date, until late 1857, most earnings were in the range £2.00 to £1.30 with little unemployment. In the three months from November 1857, there was a sharp slump in earnings with levels as low as £0.90 to £0.60, although there was no increase in unemployment. Recovery was slow, but continuous, at first to a plateau in the range £1.85 to £1.20 in late 1858 for those in employment, and then to another plateau at £2.25 to £1.75 by 1861, by which time, unemployment was zero. There are two Clough wage series in use at this time but they both maintain similar levels. The range of earnings present in 1861 stayed constant to mid-1865, when it fell slightly, but by 1867, the two Clough series and the Bairstow series were all in the range £2.50 to £1.80 for those in employment. It is interesting that the two Bairstow wage rates for power-loom weavers in November 1863 were £1.90 for women and girls and £2.60 for men. This fits in with the Clough information, which shows that in the same month the largely female labour force, who were not suffering any unemployment, nor probably any short-time working, were earning £2.05 to £1.95.

During the late 1860's, the earnings recorded in the Clough series continued to climb as the industry enjoyed favourable conditions in the aftermath of the Cotton Famine and by 1870/1871, they had reached the range £3.30 to £2.70. Bairstow's earnings continued largely in the range £2.25 to £1.50 however, but as was explained in the introductory part of this chapter, these probably underestimate the true level of earnings. The Clough series becomes increasingly erratic in the 1870's because of its dependence on a small number of workers. Also its composition may change slightly, in that overlookers are categorised as a separate occupation from 1872, and thus if any are removed from the power-loom weavers' series, it will tend to lower the level of earnings. However, it does seem possible to draw some conclusions from this series. The later part of 1873 saw a decline in earnings to a range from £3.10 to £2.25 and this range was

then maintained until late 1877 (11). Earnings fell to a range between £2.10 and £1.65 in mid-1878 in May to August, and as low as £1.40 to £0.85 in late 1880, between September and November. By the end of the series, in 1883, earnings had risen to a peak of £2.90, in June 1882, and then fallen back to £2.00. It is interesting that the Factory and Workshop Returns for 1871 give women weavers' average earnings as £2.60 - slightly below that prevalent at Clough's at the time.

The Bairstow power-loom weavers' earnings series recommences in 1879 and after 1883 is the sole source of evidence. From 1886, it is possible to consider the earnings of those in employment, thus reducing the risk of understating the level of earnings. In the first quarter of 1879, Bairstow earnings were below those of Clough, being in the range £1.00 to £0.80, but they rose gradually so that by 1883, the range was £2.35 to £1.75, similar to the contemporary Clough level. This level was slightly exceeded in 1885, but earnings then fell slowly to a short run trough of £1.40 in January 1886. Recovery was swift however, and by the middle of 1886, average earnings were in the range £2.55 to £2.00. It is at this point that the earnings of those in employment can be calculated, being in the range £3.05 to £2.50. Both series then declined slowly to January 1888, when the average earnings of all workers were £1.65 and the earnings of those in employment £2.05. The latter series then rose again to a range of between £3.15 and £2.25 in 1889, followed by a fall, in 1890, to levels around £2.60 to £2.50 in October to December 1890, this range being maintained until late 1893. Earnings of those in employment then rose slightly and from late 1894 to the end of the decade were largely in the range of £3.35 to £2.60. The average earnings of all power-loom weavers broadly followed the trend of earnings of those in employment, but remained largely in the range £2.25 to £1.75.

The final part of the series sees the earnings of those in employment fairly static until the end of 1902, but with severe short depressions in August 1900 and 1901 and July 1902, caused by the taking of unpaid holidays. In 1903,

earnings declined, so that by the second half of the year, they were in the range £3.00 to £2.05, but from the beginning of 1905, earnings rose again to reach a range of £3.25 to £2.80 in the first six months of 1906. Another severe, but temporary recession occurred in 1908 when the range of earnings fell to £2.40 to £2.05 in June - August, but recovery was swift and by 1909, when the series ends, earnings of those in employment were in the range £3.50 to £2.50. The average earnings of all power-loom weavers followed a similar pattern, being in the range £2.25 to £1.55 in the period 1900-1902, falling to £2.15 to £1.35 in 1903-1904, but rising again to £2.35 to £1.95 by late 1906. A similar slump was recorded in mid-1908, but by the end of 1909, the average earnings of all power-loom weavers were in the range £2.95 to £2.00. Finally, in the period 1912-1915, the earnings series is based on actual per capita earnings. The level of earnings in August 1912 was £2.95, but this was probably deflated by holidays. It rose fairly rapidly, though erratically, to a range of £3.90 to £3.25, which was then maintained until the end of the series in April 1915. Unemployment levels were low in this period.

On the whole, this long series is remarkable for the long-run stability of earnings. Through the late 1830's and all of the 1840's, the annual average monthly earnings of those in employment were generally between £2.20 and £1.80, then they fell to their lowest level for the whole series, excluding the three months of 1837, at £1.40 in 1858. Earnings then rose steadily to a plateau around £2.50 to £2.05 in the early 1860's, and then to a peak in 1870, at the height of the worsted boom to between £3.55 and £3.40. The boom, caused by the cotton famine, evidently caused a shortage of labour in this sector. Earnings began to fall in the mid-1870's, just as profits and prices did, and by 1880 were at £1.80. Recovery ensued during the 1880's and 1890's so that by the mid-1890's, those in employment were earning between £3.25 and £3.10 and the average power-loom weaver £2.65 to £2.50. This level was generally maintained until the end of the series, in spite of a few short-run slumps. By 1912-1915, earnings of those in employment were £3.85 to £3.65, those of the average weaver, £3.80 to £3.45.

Finally in this chapter, discussion centres on the machine combers about whom there is relatively little information, as the following table shows.

Table 3.7. : Machine combers' earnings 1871-1913

<u>Date</u>	<u>Earnings of employed combers</u>	<u>Earnings of average comber</u>	<u>Source</u>
1871	£2.80	na	Factory & Workshop Returns
1873 (Nov.)	£2.85 (men) £2.07 (boys)	na na	Bairstow Bairstow
1890 (7mth)	£2.8411	£2.8411	Bairstow
1891	£2.7855	£2.7855	Bairstow
1892 (9mth)	£2.9900	£2.9900	Bairstow
1912 (5mth)	£3.5980	£3.5980	Bairstow
1913 (5mth)	£3.4746	£3.4746	Bairstow

Combing machines were introduced in the late 1850's and machine combing was predominantly a male occupation. However, Bairstow's are the only firm with any surviving records of machine combers' earnings. In 1871, the Factory and Workshop Returns recorded that the average earnings for Keighley comb tenters were £2.80. This corresponds to the Bairstow records for November 1873, when men working in the combing room were earning £2.85 and boys £2.07. The men's earnings' level was similar to the contemporary level of weavers' earnings. In the period 1890/1892, combers warnings seem to have fluctuated quite rapidly. In June 1890, they were £2.20, but had risen to £3.05 by September and October of the same year. They then fell back to £2.25 by the following April and again rose to £2.95 by December 1891. In 1892, they fluctuated in the range £2.95 to £2.45. The average monthly earnings for each year or part of a year were in the range £3.00 to £2.80. By 1912/1913, the combers' earnings fluctuated in the range £3.50 to £2.70 whilst the two five-month averages were in the range £3.60 to £3.45. Therefore, whilst in the short run combers' earnings fluctuated rapidly, in the long run they do seem to have shown some improvement, particularly after the early 1890's.

Having discussed the major domestic occupations and their replacements in this chapter, the next chapter will deal with all the other mill-based occupations for which there is information.

References

- (1) Report to the Poor Law Commissioners, 1837. P.R.O., MH 12/15224
Return of the number of manufacturing establishments in which hours are regulated by Act of Parliament, P.P., 1871, (440), Commons Volume LXII, p. 255.
- (2) G. Ingle, op. cit., p.190.
- (3) Sources : E. Baines, History..., op. cit., pp.229-231; W. White, 1847, op. cit., p.418; W. White, 1837, op. cit., pp. 689-690; W. White, 1853, op. cit., p. 545; W. White, 1861, op.cit., p. 706; A. Craven, op. cit., pp. 229-231.
- (4) One cannot expect identity between Hodgson and the directories, as both their sources and their method of dating are different, but there is a broad similarity between them.
- (5) Undated note loose in Bairstow wage book, number 31.
- (6) The number of setts relates to the number of threads woven, per unit width. Thus the higher the number, the more closely woven and dense the material.
- (7) E. Baines, Account, op. cit., pp. 164-165.
- (8) ibid., p. 151.
- (9) A. Briggs, 'Industry and politics in the early nineteenth century Keighley', Bradford Antiquary, Volume 9.
- (10) Report to the Poor Law Commissioners, op. cit., p. 395.
- (11) The apparent slump in average earnings in the early part of 1877 can be ignored, as the two-thirds employment that caused it occurred in a group of only three workers.

CHAPTER 4 : WORSTED WORKERS' WAGES, 1804-1915 (PART TWO).

The mill-based occupations are typified by the first to be discussed in this chapter, the mill hands. Information on this group is available from the Clough records for the period 1830-1871, as shown in the following table.

Table 4.1. :

Annual average monthly earnings of mill hands, 1830-1871

<u>Date</u>	<u>Earnings of employed workers</u>	<u>Earnings of average worker</u>	<u>Source</u>
1830(3mth)	£1.8377	£1.8377	Clough
1831	£1.7394	£1.7394	Clough
1832	£1.6167	£1.6167	Clough
1833	£1.5591	£1.5591	Clough
1834	£1.2695	£1.2695	Clough
1835	£1.2760	£1.2760	Clough
1836	£1.5419	£1.5419	Clough
1837	£1.2472	£1.2472	Clough
1838	£1.3476	£1.3476	Clough
1839	£1.3169	£1.3169	Clough
1840	£2.0797	£2.0797	Clough
1841	£2.1113	£2.1113	Clough
1842	£2.1443	£2.1443	Clough
1843	£2.1492	£2.1492	Clough
1844	£2.5822	£2.4561	Clough
1845	£2.3233	£2.1980	Clough
1846	£1.7919	£1.7532	Clough
1847	£2.0170	£2.0170	Clough
1848	£1.8753	£1.8753	Clough
1849	£1.9439	£1.9439	Clough
1850	£1.8080	£1.8080	Clough
1851	£1.8009	£1.8009	Clough
1852	£1.9593	£1.9593	Clough
1853	£2.1654	£2.1654	Clough
1854	£1.9533	£1.9533	Clough
1855	£2.1654	£2.1654	Clough
1856	£2.2074	£2.2074	Clough
1857	£2.0730	£2.0611	Clough
1858	£1.8539	£1.8474	Clough
1859	£2.0114	£2.0114	Clough
1860	£1.5643	£1.5643	Clough
1861	£1.4383	£1.4084	Clough
1862	£1.5151	£1.5151	Clough
1863	£1.9068	£1.9068	Clough
1864	£1.7743	£1.7743	Clough
1865	£1.6734	£1.6734	Clough
1866	£1.9414	£1.9414	Clough
1867	£2.3491	£2.3491	Clough
1868	£2.7784	£2.7784	Clough
1869	£2.4239	£2.4239	Clough
1870	£2.3850	£2.3850	Clough
1871(11mth)	£2.4904	£2.4904	Clough

The group consisted of most of the semi-skilled and skilled workers within the mill, these workers being predominantly male. However, no indication of individual occupations is given. From 1872, the separate occupations are recorded and the term 'mill hand' is not used.

After the first three years of the series, the short-run fluctuations in earnings were minimal, probably because being centrally organised, the mill hands were paid on a fairly regular basis. During 1830 and 1831, earnings (in the standard four-week month) fluctuated between £2.15 and £1.15, but they then declined slowly, so that by 1834/1835, they were in the range £1.35 to £1.00. A slight recovery is evident during late 1836, but, with the exception of a short-run slump in the summer of 1837, earnings remained in this range until the end of the decade. Thus in 1839, they were in the range £1.35 to £1.15. The use of a new sample of workers in the new decade provoked a jump upwards in the series to the range £2.40 to £1.50 in 1840. This rise was maintained in 1841 when the range of earnings was £2.25 to £1.70. A steady upwards movement continued, despite the short slump in May 1843 which was also reflected in hand-combers' and power-loom weavers' earnings. By spring 1844, a peak in earnings had been reached, for those in employment, with earnings between £2.45 and £2.40 in February to April in that year. Thereafter, there was a decline in earnings, coinciding with the first evidence of a small amount of unemployment. By the summer of 1846 (July - August), earnings were only between £1.80 and £1.70. The hand-combers' and weavers' strike of September 1846 reduced the mill hands' earnings to £0.90 that month, although there was no unemployment of one or more calendar months' duration and hence, one would believe, no mill hands on strike. By December 1846, the first full month after the strike's cessation, earnings had regained their level of six months earlier and were at £1.75. No further improvement was made however, and earnings remained in the range £2.15 to £1.55 until November 1851.

In fact, earnings even declined slightly, since by 1850 they were concentrated in the range £1.80 to £1.60. A short

depression lowered the range of earnings to between £1.85 and £1.30 in the first six months of 1852, but then earnings climbed steadily and slowly so that by the first six months of 1855, they were in the range £2.10 to £1.90. A slow decline then set in again to a range of £2.05 to £1.60 by the last six months of 1859. This was interrupted only by a short sharp depression in January 1858, which brought earnings down to £1.25 and from which recovery took five months. From the beginning of 1860 to the end of 1862, earnings were in the range £1.55 to £1.20, with the exception of February 1861, this being the lowest sustained level that earnings reached. By the last six months of 1863 however, they had risen to a short-run peak in the range £1.90 to £1.80, that is similar to the levels prevalent in late 1859, but by March 1864, another slump had occurred and between this month and December 1865, earnings were in the range £1.65 to £1.40. Earnings then climbed steadily to the range £2.90 to £2.55, May 1868 to January 1869. This, the highest sustained level attained in the series, occurred during the great boom in the worsted industry. However, a sharp decline followed and the range of earnings until the series ended in November 1871 was £2.40 to £1.95, with the exception of one month.

This series is thus characterised by a long-run cyclical pattern which reoccurs every 12 or 14 years, the causes of which are difficult to ascertain. The general overall movement in earnings is upwards, but this is rather inconclusive. Thus in 1830, the average monthly earnings were £1.85, they then declined almost continuously to £1.25 in 1837, recovering to £2.60 by 1844. Again they fell to £1.80 in 1850/1851, only to rise to £2.20 in 1856 and fall to £1.45 by 1861. By 1868, the last peak in the series, earnings were at £2.80, in the final year, 1871 they were at £2.50. Unemployment in this occupation, throughout most of the series, was non-existent and in the few years of its presence, very low.

Power-loom weavers, spinners and genappers together make up the lowest quartile of earnings in the industry, if the quartiles are calculated by the number of different

occupations rather than the number of workers. The earnings of power-loom weavers have already been described in chapter three, but the next section of this chapter will deal with the spinners and genappers.

Spinning is, and was, an important occupation within the worsted industry, carried out by female labour, more particularly by teenage girls and young half-timers. The Bairstow material (1) shows that, by number, 54% of the spinning workforce was made up of half-timers in May 1863, 60% in September 1864, 70% in November 1873 and 69% in March 1875. Unfortunately the information on spinners' wages is complex but rather sparse, as the following tables show. There are several surveys but only one major series, from Clough's, covering the period 1872-1908 and, as will be seen later, reflecting only the earnings of the adult worker. This series also depends on a small sample of workers and, therefore, may not be typical even of the adult spinners as a group.

Table 4.2. : Spinners' wage rates, 1836-1863

<u>Date</u>	<u>Full-timers'</u> <u>wage rate</u>	<u>Half-timers'</u> <u>wage rate</u>	<u>Source</u>
Oct.1836	£1.10	£0.40	Poor Law
Oct.1837	£1.00	£0.40	Poor Law
Nov.1863	£1.15	£0.45	Bairstow

In October 1836, the Poor Law Commissioners' survey recorded the wage rate for full-time spinners as £1.10, that for half-timers as £0.40. One year later the former rate had declined to £1.00, but the latter was constant. In May 1863, as table 4.3. shows, full-timers' earnings at Bairstow's were £1.00, in November 1863 their wage rates were £1.15 and in September 1864 their earnings were £1.10. Similarly in May 1863, half-timers' earnings were £0.39, in November 1863 their wage rates were £0.45 and in September 1864, their earnings were £0.40 (2). For both groups then, there was very little difference between the wage rates paid in 1836/1837 and those paid in 1863. The figures also suggest that some short time was being worked in May 1863 and September

Table 4.3. : Spinners' earnings, 1863-1913

<u>Date</u>	<u>Full-timers'</u> <u>earnings</u>	<u>Half-timers'</u> <u>earnings</u>	<u>Source</u>
May 1863	£1.00	£0.39	Bairstow
Sep.1864	£1.10	£0.40	Bairstow
Nov.1873	£1.82	£0.62	Bairstow
Mar.1875	£1.80	£0.62	Bairstow
1871	£1.80	na	Factory & Workshop Returns

<u>Date</u>	<u>Earnings of</u> <u>employed spinners</u>	<u>Earnings of</u> <u>average spinner</u>	<u>Source</u>
1872	£2.1074	£2.1074	Clough
1873	£2.0111	£1.6807	Clough
1874	£2.4302	£2.1415	Clough
1875	£2.7055	£2.2394	Clough
1876	£2.7406	£2.3785	Clough
1877	£2.9292	£2.9292	Clough
1878	£2.8921	£2.7712	Clough
1879	£3.0198	£3.0198	Clough
1880	£3.1203	£3.1203	Clough
1881	£2.6623	£2.6623	Clough
1882	£3.3926	£3.3926	Clough
1883	£3.8422	£3.8422	Clough
1884	£4.1423	£4.1423	Clough
1885	£4.1398	£4.1398	Clough
1886	£4.2321	£4.2321	Clough
1887	£4.0395	£4.0395	Clough
1888	£4.0951	£4.0951	Clough
1889	£4.1872	£4.1872	Clough
1890	£3.9267	£3.9267	Clough
1891	£3.8416	£3.8416	Clough
1892	£3.9506	£3.5273	Clough
1893	£3.7817	£3.6121	Clough
1894	£3.7173	£3.3463	Clough
1895	£3.8979	£3.8979	Clough
1896	£3.9556	£3.9565	Clough
1897	£3.9244	£3.9737	Clough
1898	£3.8407	£3.8407	Clough
1899	£4.0394	£4.0394	Clough
1900	£3.2426	£3.2426	Clough
1901	£3.4898	£3.4898	Clough
1902	£3.4598	£3.4598	Clough
1903	£3.6192	£3.6192	Clough
1904	£3.5575	£3.4722	Clough
1905	£3.6965	£3.6965	Clough
1906	£3.6432	£3.6432	Clough
1907	£3.7678	£3.7678	Clough
1890(7mth)	£1.4028	£1.3896	Bairstow
1891	£1.6265	£1.6177	Bairstow
1892(9mth)	£1.9802	£1.9802	Bairstow
1912(5mth)	£2.4265	£2.4032	Bairstow
1913(5mth)	£2.4908	£2.4309	Bairstow

1864, or alternatively, that wage rates were a little lower at these times. By 1871, the Factory and Workshops Return shows that the average earnings of "spinners, young persons" was £1.80, a figure that was much higher than those prevalent in the early 1860's, but which perhaps reflected, as in other occupations, the boom conditions in the worsted industry at the time.

The Clough series begins in 1872 and it is subject at first to severe monthly fluctuations. Earnings were between £1.85 and £1.65 in the first quarter of 1872, but then rose, so that they were in the range £2.75 to £2.40 three years later. This increase continued, so that by the first six months of 1877, they were in the range £3.15 to £2.70. The average full-time spinner at Bairstow's was earning £1.82 in November 1873 and £1.80 in March 1875, the average half-timer £0.62 at each date. This seems to confirm that the Clough series relates only to full-time spinners. It also confirms that there was a marked rise in both full-timers' and half-timers' earnings between the first half of the 1860's and 1870's. Clough's spinners' earnings fell into a short recession around May 1878, to £2.05 for those in employment, but recovered almost immediately, resuming a gradual, if erratic, movement upwards. By the second half of 1880, earnings were in the range £3.20 to £2.75. A more lengthy, if less severe, depression reduced earnings to the range £2.40 to £2.20 from December 1880 to October 1881 and after a short recovery, again to £1.50 in April 1882. This time however, recovery was swift and between July 1882 and March 1883 earnings were maintained in the range £3.40 to £3.20. They then climbed further still, to £3.85 to £3.45 in 1884, and this range was generally maintained till the end of the decade.

Earnings at the beginning of the next decade remained at this level, but then gradually rose, so that by the last six months of 1892, they were in the range £4.10 to £3.50 for those in employment, but £3.40 to £2.95 for the average spinner as one worker from the sample of six was unemployed. This situation continued through 1893, to be followed by another slump in 1894, when earnings for those in employment

fell to £3.25 to £2.80 in the first quarter and for the average spinner to £2.90 to £2.35. Recovery was fairly rapid and one year later a range of £3.45 to £3.10 had been attained, with full employment. With the exception of a small slump in mid-1897, earnings remained in the range £4.00 to £3.25 to the end of the decade. On the other hand, the short Bairstow series 1890-1892 shows much lower levels and an opposite trend to the Clough series, probably because it was dominated by half-timers. Here earnings in mid-1890 were at a level between £1.30 and £1.00 (June to August), rose to £1.45 to £1.35 by the last quarter of the year, then maintained this general level through the first half of 1891, but then rose again to end in the range £1.80 to £1.55 (July to September, 1892).

In the last decade of the Clough series, earnings were remarkably stable. They started at a slightly lower level, in the range £3.30 to £3.10 in the first quarter of 1900, but improved steadily, so that by the end of the series, (November 1907 to January 1908) the range was £3.65 to £3.40. The second short Bairstow series for the period 1912/1913 indicates that earnings fluctuated within the range £2.45 to £2.10, with the exceptions of August 1912, when holidays led to lower earnings, and December 1912, when Christmas bonuses seem to have been given out.

For the full-time spinner then, one can say that wage rates in the mid-1860's equalled those of the mid-1830's, whilst earnings rose strongly from the late 1860's to the early 1880's (excepting 1881), despite the 'slump' in the industry after the mid-1870's. Earnings then fell very slowly to the mid-1890's, but almost completely recovered by the end of the decade. They were then at a lower level in the 1900's, but again rose slowly in the eight years for which there is information. Unemployment was infrequent and never very high. The earnings of the half-timers are more difficult to analyse. Again wage rates were at the same level in the mid-1860's as they had been in the mid-1830's. However, earnings were higher in the 1870's than in the 1860's and had probably risen again by the 1890's. However, some of this increase through the period may have been

caused by the rising age of the average half-timer, as the youngest children were forbidden to work.

Genapping is a minor sector of the worsted industry, producing a specially treated yarn which in the 1820's at least, was used to make fringes, braids, carpets and hosiery. The Clough records give some details of genappers' earnings between 1880 and 1908, as shown in the table below, so that analysis can be carried out for this period.

Table 4.4. : Annual average monthly earnings of genappers,
1880-1908

<u>Date</u>	<u>Earnings of</u> <u>employed workers</u>	<u>Earnings of</u> <u>average worker</u>	<u>Source</u>
1880	£3.2532	£3.2532	Clough
1881	£2.9412	£2.9412	Clough
1882	£3.6662	£3.6662	Clough
1883	£3.5860	£3.5860	Clough
1884	£3.6176	£3.6176	Clough
1885	£3.6398	£3.6398	Clough
1886	£3.5078	£3.5078	Clough
1887	£3.4962	£3.4962	Clough
1888	£3.2846	£3.2846	Clough
1889	£3.4636	£3.4636	Clough
1890	£2.9499	£2.9073	Clough
1891	£2.9133	£2.7945	Clough
1892	£3.3040	£3.3040	Clough
1893	£3.3679	£3.3679	Clough
1894	£2.8506	£2.8506	Clough
1895	£2.5371	£2.5371	Clough
1896	£2.7665	£2.6939	Clough
1897	£3.3942	£3.3942	Clough
1898	£3.2893	£3.2893	Clough
1899	£3.1664	£3.1664	Clough
1900	£2.4647	£2.4647	Clough
1901	£2.5578	£2.5578	Clough
1902	£2.2036	£2.2036	Clough
1903	£3.0652	£2.9863	Clough
1904	£3.0973	£3.0973	Clough
1905	£2.9679	£2.9679	Clough
1906	£2.9763	£2.7866	Clough
1907	£3.4636	£3.2634	Clough

At the start of the series, in 1880, earnings were in the range £3.55 to £3.10 (January to March), but a slump beginning in the second half of the year, reduced them to the range £1.85 to £1.80 one year later. Recovery was fairly swift however, so that by June 1881, earnings were at £3.25 and, despite a slump in January 1882, at £3.60 to £3.50 in

early 1882 (February to April). These levels were maintained for the rest of the year, but not during 1883, when earnings fell to £3.60 to £2.90. By 1884, earnings were in the range £3.75 to £3.10 and stayed at this level till the end of the decade, with the exception of short-run depressions in 1886 and 1888. The years 1890 and 1891 saw a slump, with earnings in the range £3.15 to £2.55 for those in employment. Recovery again was fairly swift, with earnings in the range £2.95 to £2.45 recorded in the period July 1892 to July 1893. The last years of the 'Great Depression' saw a steady fall in earnings to £2.20 to £1.80, in the first five months of 1896, followed by a rapid rise to £3.80 to £3.40, by the last quarter of the year. The period to the end of the decade was marked by very wide short-run fluctuations, within the general range £3.50 to £2.50. These fluctuations continued to early 1901, with a particularly severe depression, April to June 1900, but from April 1901 to November 1901, a steady fall in earnings took place, bringing the level down to £1.35 in the last two months of that year. An erratic rise in earnings then took place, until the range of £2.75 to £2.25 had been reached by the last quarter of 1902. This was maintained until the series ended in January 1908, broken only by a slump to £2.45 to £2.20 (March to May 1906) and a rise to £3.65 to £3.60 in the last three months of the series.

One can say then, that from a peak in the early 1880's genappers' earnings drifted erratically downwards to the early 1890's. In 1882, their annual average monthly earnings were £3.65, but by 1891, the comparable amount was £2.90. Earnings fluctuated rapidly in the 1890's, but from about 1897, seem to have continued their downward trend to a series minimum in 1902 of £2.20. They then made an erratic recovery to £3.45 in 1907, a figure below those prevalent in the mid-1880's. Unemployment throughout the series was negligible.

Three groups of occupations are in the second lowest quartile as regards earnings. These are the twisters and drawers, the menders and burlers and the machine combers. The latter group have already been discussed in chapter

three, but the other two will be dealt with now. As the following tables show, information is quite limited on these occupations.

Table 4.5. : Twisters' and drawers' wage rates, 1836-1863

<u>Date</u>	<u>Twisters'</u> <u>wage rate</u>	<u>Drawers'</u> <u>wage rate</u>	<u>Source</u>
Oct.1836	£2.00	£1.30	Poor Law
Oct.1837	£2.00	£1.20	Poor Law
Nov.1863	na	£1.80	Bairstow

Table 4.6. : Twisters' and drawers' earnings, 1863-1913

<u>Date</u>	<u>Twisters'</u> <u>earnings</u>	<u>Drawers'</u> <u>earnings</u>	<u>Source</u>
May 1863	na	£1.70	Bairstow
Sep.1864	na	£1.60	Bairstow
Nov.1873	na	£2.15	Bairstow
Mar.1875	na	£2.15	Bairstow
1871	na	£2.00	Factory & Workshop Returns

<u>Date</u>	<u>Earnings of</u> <u>employed workers</u>	<u>Earnings of</u> <u>average worker</u>	<u>Source</u>
1890(7mth)	£2.1685	£2.1685	Bairstow
1891	£2.1540	£2.1269	Bairstow
1892(9mth)	£2.4050	£2.3826	Bairstow
1912(5mth)	£2.5926	£2.5518	Bairstow
1913(5mth)	£2.5752	£2.5277	Bairstow

Both twisting and drawing were occupations confined to the younger worker. Twisters were involved in the yarn-making process, whilst the description 'drawers', at this time, applied to those who corrected slight faults in the weaving and spinning processes, such as broken threads. In October 1836, according to the Poor Law Commissioners' Survey, the wage rates for twisters was £2.00 and for drawers £1.30; a year later these rates were £2.00 and £1.20 respectively. In November 1863, the wage rate for young female drawers at Bairstow's was £1.80. Likewise, the

average earnings of drawers in May 1863 was £1.70; in September 1864, £1.60; in November 1873, £2.15; and in March 1875, £2.15. In 1871, the Factory and Workshop Returns indicate that the average earnings of women drawers was £2.00. Thus for drawers at least wage rates were higher in the mid-1860's than in the mid-1830's and earnings were higher in the first half of the 1870's than in the mid-1860's. In 1890/1892, the average earnings of twistors and drawers together fluctuated between £2.30 and £1.60, with the annual or part-annual average rising through the period from £2.15 to £2.40. By 1912/1913, earnings were in the range £2.50 to £2.15 with the exception of the first month, which was a holiday month. The five-monthly averages had risen to £2.60 by this date. Thus again there is a possibility that earnings, in net terms, rose in the intervening twenty years.

The final group in this quartile are the menders and burlers. The task of the menders is self-evident, whilst the burlers were responsible for removing foreign matter from the woven cloth. As the table overleaf shows, the only information comes from a Clough series on menders, 1887-1900, and two short Bairstow series, 1890-1892 and 1912-1913 which take menders and burlers together. The Clough series only covers two workers, both female, and therefore tends to be slightly erratic and must be treated with caution.

Between 1887 and mid-1888, earnings were generally in the range £2.60 to £1.75, but then rose to £3.15 by January 1889. From then to late 1895, earnings were generally in the range £3.00 to £2.00, although they fluctuated within that range on an almost cyclical basis, with a frequency of almost one year. It is difficult to find an explanation for this pattern, as one would not have thought that seasonal variations would have affected menders' earnings. Between October 1895 and March 1896, menders' earnings peaked at £3.45 to £3.40 but then fell back rapidly to the range £2.50 to £1.90 in the second half of 1896. A gradual recovery then ensued, so that by 1899, when the series ends, the range of earnings was £3.15 to £2.45. The Bairstow series, 1890/1892, fluctuated in the range £2.50 to £1.70, thus seemingly showing that burlers were not as highly paid as menders and

Table 4.7. :

Annual average monthly earnings of menders and burlers,
1887-1913

<u>Date</u>	<u>Earnings of</u> <u>employed menders</u>	<u>Earnings of</u> <u>average mender</u>	<u>Source</u>
1887	£2.3377	£2.3377	Clough
1888	£2.3541	£2.3265	Clough
1889	£3.0651	£3.0651	Clough
1890	£2.5857	£2.5857	Clough
1891	£2.9379	£2.8322	Clough
1892	£2.7693	£2.7693	Clough
1893	£2.8946	£2.8946	Clough
1894	£2.6172	£2.6172	Clough
1895	£2.9780	£2.9780	Clough
1896	£2.8257	£2.8257	Clough
1897	£2.7460	£1.9609	Clough
1898	£3.2549	£2.8737	Clough
1899	£3.0110	£3.0110	Clough

<u>Date</u>	<u>Earnings of</u> <u>employed menders</u> <u>and burlers</u>	<u>Earnings of</u> <u>average menders</u> <u>and burlers</u>	<u>Source</u>
1890(7mth)	£2.2821	£2.2821	Bairstow
1891	£2.4337	£2.4337	Bairstow
1892(9mth)	£2.4310	£2.4310	Bairstow
1912(5mth)	£3.3420	£3.3420	Bairstow
1913(5mth)	£3.6294	£3.6294	Bairstow

that burlers and menders together were not as highly paid as machine combers. In 1912/1913 however, the range of earnings for menders and burlers was £3.45 to £3.00. In the long run, menders' earnings seem to have risen, for the annual average monthly earnings were £2.35 in 1887 and £3.00 in 1899. This was also the trend of the combined menders' and burlers' earnings in the later period.

The second most highly-paid quartile of occupations included carters, warp-dressers, wool sorters and finishers. All of these were semi-skilled occupations and all were performed entirely by male workers. Unlike the other three however, carters were not based within the mill and were not unique to the textile industry.

As the table overleaf shows, there is a small amount of information on carters' earnings in the Bairstow collection,

Table 4.8. :

Annual average monthly earnings of carters, 1872-1913

<u>Date</u>	<u>Earnings of employed carters</u>	<u>Earnings of average carter</u>	<u>Source</u>
1872(11mth)	£2.9091	£2.9091	Clough
1873	£3.1843	£2.8843	Clough
1874	£3.2256	£3.0006	Clough
1875	£3.6234	£2.0484	Clough
1876	£3.5263	£2.7763	Clough
1877	£3.7188	£3.2688	Clough
1878	£4.0250	£4.0250	Clough
1879	£3.8625	£3.8625	Clough
1880	£4.1373	£4.1373	Clough
1881	£3.6706	£3.6706	Clough
1882	£4.1703	£4.1703	Clough
1883	£4.2435	£4.2435	Clough
1884	£4.2336	£4.2336	Clough
1885	£4.2356	£4.2356	Clough
1886	£4.3152	£4.3152	Clough
1887	£4.2217	£4.2217	Clough
1888	£4.2166	£4.2166	Clough
1889	£4.1085	£4.1085	Clough
1890	£4.5599	£4.5599	Clough
1891	£4.4625	£4.4625	Clough
1892	£4.5500	£4.5500	Clough
1893	£5.0500	£5.0500	Clough
1894	£4.7666	£4.7666	Clough
1895	£4.7666	£4.7666	Clough
1896	£4.7666	£4.7666	Clough
1897	£4.7666	£4.7666	Clough
1898	£4.7666	£4.7666	Clough
1899	£4.7666	£4.7666	Clough
1900	£4.8451	£4.8451	Clough
1901	£5.6076	£5.6076	Clough
1902	£5.6333	£5.6333	Clough
1903	£5.6333	£5.6333	Clough
1904	£5.7416	£5.7416	Clough
1905	£5.6333	£5.6333	Clough
1906	£5.6333	£5.6333	Clough
1907	£5.6333	£5.6333	Clough
1890(7mth)	£4.8107	£4.8107	Bairstow
1891	£4.8833	£4.8833	Bairstow
1892(9mth)	£4.7166	£4.7166	Bairstow
1912(5mth)	£5.0741	£5.0741	Bairstow
1913(5mth)	£4.9691	£4.9691	Bairstow

plus one series from Clough's, for the period 1872-1908. However, the latter must be treated with caution, since it relates to between only one and three workers and may, therefore, reflect life-cycle earnings in the long run, rather than changes through time in carters' earnings.

In November 1863, the Bairstow carters' wage rates were £3.40. In 1872, the Clough series starts with earnings at £2.80. It is as well to point out that this series is a very good example of the uniformity of earnings of those skilled and semi-skilled workers who were paid on a time basis rather than a piece rate basis. The earnings of those carters in employment moved steadily upwards from £2.80 in steps reflecting the changes in hourly or weekly wage rates. Thus by May 1872, £3.00 had been reached and by December 1874, £3.60, a level which was to be maintained until 1879. Earnings then climbed more erratically, to reach another plateau in March 1883 at £3.95, this level then being maintained until the end of the decade. The new decade found earnings at £4.20 and this was maintained generally until June 1893, with the particular exception of August 1891 (possibly a holiday month) when earnings fell to £3.15. Genappers' and warp-dressers' earnings also fell in this month. The level of carters' earnings at Bairstows', 1890/1892, was in the range £4.60 to £4.00 and though this too only reflects the earnings of one man, it does confirm the approximate level of carters' earnings at the time. By June 1893, Clough's carters' earnings were £4.40 and this level was maintained until the end of 1900. Earnings then rose again and from February 1901 to the end of the series, in January 1908, were steady at £5.20. Bairstow's series for 1912/1913, based on two men, was somewhat lower, being in the range £4.65 to £4.50. On this small amount of evidence, one can perhaps say then that carters' earnings were always very steady and rose gradually through the period.

Warp-dressing is another occupation for which there is little information. One has to rely primarily on a single Clough series for the period 1880-1908, as the following table shows. This series relates to two or three workers. The earnings pattern is unusual in that it shows extremely wide fluctuations in the short run. Obviously, the job was well-paid but earnings were insecure. They were probably based on a piece rate.

In 1871, the Factory and Workshop Returns show that the average earnings of a Keighley warp-dresser were £4.20. By

Table 4.9. :

Annual average monthly earnings of warp-dressers, 1880-1913

<u>Date</u>	<u>Earnings of employed workers</u>	<u>Earnings of average workers</u>	<u>Source</u>
1880	£4.8202	£4.8202	Clough
1881	£2.2994	£1.7812	Clough
1882	£2.4877	£1.9689	Clough
1883	£4.5263	£4.2283	Clough
1884	£4.8508	£4.8508	Clough
1886	£5.2096	£5.2096	Clough
1887	£5.2219	£5.2219	Clough
1888	£5.1810	£5.1810	Clough
1889	£5.3872	£5.3872	Clough
1890	£4.9694	£3.9889	Clough
1891	£5.0060	£4.5265	Clough
1892	£5.2279	£5.2279	Clough
1893	£5.8782	£5.8782	Clough
1894	£5.7292	£5.7292	Clough
1895	£6.1884	£6.1884	Clough
1896	£5.0031	£5.0031	Clough
1897	£5.9439	£5.9439	Clough
1898	£5.0799	£5.0799	Clough
1899	£5.2013	£5.2013	Clough
1900	£5.0964	£5.0964	Clough
1901	£5.2780	£5.2780	Clough
1902	£5.0466	£5.0466	Clough
1903	£5.0736	£5.0736	Clough
1904	£5.1281	£5.1281	Clough
1905	£5.0530	£5.0530	Clough
1906	£4.9079	£4.9079	Clough
1907	£5.0562	£5.0562	Clough
1890(7mth)	£4.5138	£4.5138	Bairstow
1891	£4.3261	£4.3261	Bairstow
1892(9mth)	£4.4817	£4.4817	Bairstow
1912(5mth)	£5.4143	£5.4143	Bairstow
1913(5mth)	£5.3847	£5.3847	Bairstow

the first quarter of 1880, the Clough warp-dressers' earnings were in the range £6.00 to £4.70, but they then fell rapidly to £1.20 to £0.40, February to June 1881. There then followed a slight recovery, but this too was followed by another slump to zero earnings in July 1882. Again a fairly rapid recovery brought earnings to £4.65 to £3.95 in the first quarter of 1883 and, with the exception of short depressions in early 1884 and mid-1888, earnings then stabilised and even rose slightly so that they were in the range £5.40 to £4.70 by the last quarter of 1899. The first three months of the new decade found earnings in the range £4.90 to £4.65. By the third quarter of 1896, they

had risen gradually to the range £6.35 to £6.05, but this was followed by a fall to as low as £3.65 to £3.25 in August and September 1893. By 1900, the range of earnings had recovered to £5.35 to £4.10, however, and from 1901 to the end of the series (January 1908) they fluctuated in the range £5.15 to £4.05. The Bairstow series tend to confirm that of Clough, although they too fluctuate wildly. In 1890/1892, earnings were in the general range £5.00 to £3.25, in 1912/1913, £5.50 to £3.80. In the long run, earnings may have risen during the 1870's (the data in 1871 being too little for firm conclusions), but they declined in the early 1880's, only to rise erratically through the rest of the decade. In the early 1890's, they fell back nearly to their 1880 level but rose to new peak, which was their overall maximum, in the mid-1890's. They then fell rapidly and from the late 1890's to the end of the series, stagnated at only a little above their 1880 level. However, the reduction in the amplitude of fluctuations in earnings that occurred in the 1890's and 1900's must have partially compensated for the 'failure' of earnings to rise for long greatly above their original level.

There is very little information on the earnings of wool sorters - a group which one would expect perhaps to be well-paid, because of the highly skilled nature of the job and the relatively high degree of unionisation amongst the wool sorters. In addition wool sorters faced the possibility of catching anthrax from diseased fleeces. As the table overleaf indicates, one is forced to rely on isolated data and two short series.

In both October 1836 and October 1837, the wool sorters' wage rate was £3.20 for 69 hours, according to the Poor Law Commissioners' survey. In November 1863, they were £3.10, at Bairstow's. In 1871, the wool sorters on piece work had average earnings of £4.10, those on day work £4.00. In 1890/1892, earnings fluctuated widely in the range £4.20 to £2.80, with the annual and part-annual average in the range £4.10 to £3.70. In 1912/1913, earnings fluctuated in the range £5.25 to £4.40 and the average for the whole period was £5.25. This seems to indicate that the wage rates of

the mid-1860's were virtually identical to those of the mid-1830's but between the 1860's and the 1870's, earnings rose. The level of earnings in the early 1890's may have been slightly lower than in the early 1870's, but a new peak had been reached by 1912/1913.

Table 4.10. :

Wool sorters' wage rates and earnings, 1836-1913

<u>Date</u>	<u>Wool sorters'</u> <u>wage rates</u>	<u>Source</u>
Oct.1836	£3.20	Poor Law
Oct.1837	£3.20	Poor Law
Nov.1863	£3.10	Bairstow

<u>Date</u>	<u>Earnings of</u> <u>employed workers</u>	<u>Earnings of</u> <u>average worker</u>	<u>Source</u>
1871	£4.10 (piece rate)	£4.00 (day rate)	Factory & Workshop Returns
1890(7mth)	£3.9370	£3.8785	Bairstow
1891	£4.1159	£4.0929	Bairstow
1892(9mth)	£3.7078	£3.7078	Bairstow
1912(5mth)	£4.9837	£4.9837	Bairstow
1913(5mth)	£5.4769	£5.4769	Bairstow

The final group of workers in this quartile are the finishers, for whom one series is available, summarised in the table overleaf. This comes from Clough's and is for the period 1886-1908. Since the movement of earnings in this series is very erratic, it was decided to concentrate on the annual average monthly earnings for the purposes of analysis. On this basis, earnings rose almost continuously from £4.40 in 1886, to £6.40 in 1896 and 1898. Earnings then fell into the range £5.70 to £5.55, 1901-1906, punctuated by slumps to £5.20 to £5.10 in 1902 and 1904. 1907 saw a sharp rise in earnings to £6.40 again. There was very little, and essentially only short-term, unemployment amongst the finishers.

Table 4.11. :

Annual average monthly earnings of finishers, 1886-1908

<u>Date</u>	<u>Earnings of employed workers</u>	<u>Earnings of average worker</u>	<u>Source</u>
1886	£4.4241	£4.4241	Clough
1887	£4.1078	£4.1078	Clough
1888	£4.8263	£4.8263	Clough
1889	£5.6845	£5.6845	Clough
1890	£5.4803	£4.3844	Clough
1891	£5.9113	£5.3371	Clough
1892	£5.8312	£5.6355	Clough
1893	£5.9378	£5.9378	Clough
1894	£5.7872	£5.7872	Clough
1895	£6.2390	£6.2390	Clough
1896	£6.4178	£6.4178	Clough
1897	£5.9853	£5.9853	Clough
1898	£6.4247	£6.4247	Clough
1899	£6.3407	£6.3407	Clough
1900	£5.4067	£5.4067	Clough
1901	£5.5704	£5.5704	Clough
1902	£5.1954	£5.1954	Clough
1903	£5.6913	£5.6913	Clough
1904	£5.0917	£5.0917	Clough
1905	£5.6250	£5.6250	Clough
1906	£5.5693	£5.5693	Clough
1907	£6.4184	£5.3250	Clough

The most highly paid quartile of occupations included mechanics and joiners, overlookers and piece room workers - all highly skilled or supervisory occupations and almost completely restricted to males. The mechanics and joiners can be taken together, as both were highly skilled jobs, often involving apprenticeships. In the later period, for mechanics at least, examination qualifications were increasingly desired. The earnings information available for these two occupations is set out in the table below:

Table 4.12. :

Mechanics' and joiners' wage rates and earnings, 1836-1913

<u>Date</u>	<u>Joiners' wage rates</u>	<u>Source</u>
Oct.1836	£4.20	Poor Law
Oct.1837	£3.80	Poor Law

Table 4.12. Continued :

Mechanics' and joiners' wage rates and earnings, 1836-1913

<u>Date</u>	<u>Earnings of employed mechanics</u>	<u>Earnings of average mechanic</u>	<u>Source</u>
1872	£2.6085	£2.6085	Clough
1873	£2.9058	£2.7504	Clough
1874	£3.6022	£3.1895	Clough
1875	£4.8417	£3.3751	Clough
1876	£4.1140	£4.1140	Clough
1877	£4.6234	£3.9527	Clough
1878	£4.4073	£4.4073	Clough
1879	£5.2410	£5.2410	Clough
1880	£5.8396	£5.8396	Clough
1881	£4.9033	£4.9033	Clough
1882	£5.8643	£5.8643	Clough
1883	£6.6239	£6.6239	Clough
1884	£6.5180	£6.5180	Clough
1885	£5.9890	£5.9890	Clough
1886	£6.4495	£6.4495	Clough
1887	£6.9662	£6.9662	Clough
1888	£7.2278	£7.2278	Clough
1889	£7.3780	£7.3780	Clough
1890	£6.8133	£6.8133	Clough
1891	£6.9039	£6.9039	Clough
1892	£6.7175	£6.7175	Clough
1893	£6.8181	£6.8181	Clough
1894	£7.1424	£7.1424	Clough
1895	£7.1910	£7.1910	Clough
1896	£7.1474	£7.1474	Clough
1897	£7.4930	£7.4930	Clough
1898	£7.3449	£7.3449	Clough
1899	£7.7442	£7.7442	Clough
1900	£7.5918	£7.5918	Clough
1901	£7.4865	£7.4865	Clough
1902	£7.5079	£7.5079	Clough
1903	£7.8143	£7.8143	Clough
1904	£7.8051	£7.8051	Clough
1905	£7.8179	£7.8179	Clough
1906	£7.6880	£7.6880	Clough
1907	£7.7265	£7.7265	Clough

<u>Date</u>	<u>Earnings of employed mechanics and joiners</u>	<u>Earnings of average mechanics and joiners</u>	<u>Source</u>
1890(7mth)	£5.0879	£5.0879	Bairstow
1891	£5.3035	£5.3035	Bairstow
1892(9mth)	£5.3842	£5.3842	Bairstow
1912(5mth)	£5.7289	£5.7289	Bairstow
1913(5mth)	£6.0072	£6.0072	Bairstow

The Poor Law Commissioners' survey does not include mechanics, but joiners were then the highest-paid group,

having wage rates of £4.20 in October 1836 and £3.80 in October 1837. At the beginning of the Clough series, in the first quarter of 1872, the range of earnings for mechanics was very low at £2.35 to £1.80, but a steady rise meant that by the first quarter of 1875, the range had gone up to £4.80 to £4.60 for those in employment. Earnings then fell back to the range £3.95 to £3.65 in 1876, but rose again to reach £5.20 to £4.95 by the last half of 1879. In the first three months of the next decade, earnings stood at £6.10 to £5.45, but soon fell, although erratically. By April 1881, they had reached a minimum of £3.10. Again recovery was fairly swift and by the first quarter of 1883, earnings were in the range £6.35 to £6.00. By 1885, they had fallen back to the range £6.00 to £5.10, but afterwards climbed steadily to reach the range £7.10 to £6.55 by 1889. The new decade began with a return to earnings around £7.10 to £5.60 in 1890, but they moved gradually upwards to the range £8.05 to £6.60 by 1899. In the 1900's, earnings' levels were more erratic, but remained in the range £7.80 to £6.35. The Bairstow earnings, either because of the inclusion of joiners or because of a different age structure, are consistently below those of Clough, but they do show an increase through time. Thus in 1890/1892, earnings were in the range £5.30 to £4.35, in 1912/1913, excluding August 1912 which was the holiday month, £5.85 to £5.20.

In general, mechanics in particular seem to have enjoyed rising earnings, with infrequent interruptions and low unemployment. Mechanics' earnings in the early 1870's seem to have been appreciably lower than the joiners' wage rates of the 1830's, but a rapid increase took place in this decade, so that by the late 1870's, they were at the same level. The rate of increase of earnings was still quite high in the 1880's and 1890's, but during the 1900's, earnings virtually stagnated.

The earnings of the piece room workers have been analysed separately. As the table overleaf shows, there is a relevant Clough series for the period 1880-1908, plus two short series 1890/1892 and 1912/1913. The latter each relate to five people, the Clough series to only one or two. Hence the Clough data, particularly, must be used with caution.

Table 4.13. :

Annual average monthly earnings of piece room workers,
1880-1913

<u>Date</u>	<u>Earnings of</u> <u>employed workers</u>	<u>Earnings of</u> <u>average worker</u>	<u>Source</u>
1880	£1.9866	£1.9866	Clough
1881	£1.9442	£1.9442	Clough
1882	£2.3387	£2.3387	Clough
1883	£3.0289	£3.0289	Clough
1884	£2.8248	£2.8248	Clough
1885	£2.7824	£2.7824	Clough
1886	£3.1474	£3.1474	Clough
1887	£4.1018	£4.1018	Clough
1888	£4.6599	£4.6599	Clough
1889	£5.1267	£5.1267	Clough
1890	£5.2833	£5.2833	Clough
1891	£5.3145	£5.3145	Clough
1892(9mth)	£5.4215	£5.4215	Clough
1893	£6.4435	£6.4435	Clough
1894	£5.7300	£5.7300	Clough
1895	£6.5487	£6.5487	Clough
1896	£7.4270	£7.4270	Clough
1897	£6.7015	£6.7015	Clough
1898	£6.7444	£6.7444	Clough
1899	£6.3791	£6.3791	Clough
1900	£7.1851	£7.1851	Clough
1901	£7.2750	£7.2750	Clough
1902	£7.2507	£7.2507	Clough
1903	£7.2532	£7.2532	Clough
1904	£7.2725	£7.2725	Clough
1905	£7.2600	£7.2600	Clough
1906	£7.2517	£7.2517	Clough
1907	£7.4310	£7.4310	Clough
1890(7mth)	£3.9967	£3.9967	Bairstow
1891	£4.0235	£4.0235	Bairstow
1892(9mth)	£4.1992	£4.1992	Bairstow
1912(5mth)	£5.1322	£5.1322	Bairstow
1913(5mth)	£5.3444	£5.3444	Bairstow

In the first quarter of 1880, earnings were in the range £2.00 to £1.75, but they steadily rose, so that by the last quarter of 1883, the range was £2.85 to £2.65, by the last quarter of 1887, £4.40 to £4.20 and by the first quarter of 1890, £.60 to £5.35. This progress was erratic however, and this tendency did not begin to disappear until around 1895. By the first quarter of 1896, the range of earnings was £7.55 to £6.75, but this fell back to £6.40 by the first quarter of 1898, only to rise to £6.70 two years later. This level was then maintained until the second half

of 1907, when earnings rose to the range £7.00 to £6.70. The Bairstow earnings are consistently lower than Clough's, but they too show an increase. In 1890/1892, the range was £4.00 to £3.50, in 1912/1913, again excepting August 1912, £4.95 to £4.75. Thus one can say that there was a rise in piece room workers' earnings in this period, but it is very likely that the Clough series, at least, over-estimates this increase.

Finally one comes to the overlookers - the foremen or chargehands of the worsted industry. This occupation forms quite a complex group for two reasons. Not only are there many different types of overlookers working in the different departments, but there are different grades of overlookers with earnings closely linked to age. Therefore, one must use the large amount of material that is available with caution, especially as the age structure of any sample is not known. The material is set out in the following tables:

Table 4.14. : Wage rates of overlookers, 1836-1863

<u>Date</u>	<u>Overlookers'</u> <u>wage rate</u>	<u>Assistant</u> <u>overlookers'</u> <u>wage rate</u>	<u>Source</u>
Oct.1836	£4.00	£3.00	Poor Law
Oct.1837	£3.60	£3.00	Poor Law

<u>Date</u>	<u>Combing</u> <u>overl'rs</u> <u>wage rate</u>	<u>Drawing</u> <u>overl'rs</u> <u>wage rate</u>	<u>Weaving</u> <u>overl'rs</u> <u>wage rate</u>	<u>Source</u>
Nov.1863	£4.80	£4.60	£4.40	Bairstow

Table 4.15 : Earnings of overlookers, 1863-1913

<u>Date</u>	<u>Earnings of overlookers</u>				<u>Source</u>
	<u>Combing</u>	<u>Drawing</u>	<u>Weaving</u>	<u>Spinning</u>	
May 1863	na	£4.45	na	£4.45	Bairstow
Sep.1864	na	£5.00	na	£4.40	Bairstow
Nov.1873	£7.20	£6.00	na	£4.15	Bairstow
Mar.1875	na	£6.10	na	£4.35	Bairstow
1871	£5.60	na	£4.60	£4.60	Factory & Workshop Returns

Table 4.15. Continued :

Earnings of overlookers, 1863-1913

<u>Date</u>	<u>Earnings of employed overl'rs</u>	<u>Earnings of average overl'r</u>	<u>Source</u>
1876	£4.4929	£4.4929	Clough
1877	£4.4622	£4.4622	Clough
1878	£4.5263	£4.5263	Clough
1879	£4.0587	£4.0587	Clough
1880	£3.5044	£3.5044	Clough
1881	£3.4041	£3.4041	Clough
1882	£4.2823	£4.2823	Clough
1883	£4.1907	£4.1907	Clough
1884	£3.9926	£3.9926	Clough
1885	£4.1393	£4.1393	Clough
1886	£4.0781	£4.0781	Clough
1887	£4.5854	£4.5854	Clough
1888	£4.9097	£4.2295	Clough
1889	£5.5760	£5.4030	Clough
1890	£6.3681	£6.3681	Clough
1891	£6.8379	£6.8379	Clough
1892	£6.1215	£6.1215	Clough
1893	£6.8644	£6.8644	Clough
1894	£6.6061	£6.6061	Clough
1895	£6.7500	£6.7500	Clough
1896	£6.9364	£6.9364	Clough
1897	£6.5526	£6.5526	Clough
1898	£7.0478	£6.8854	Clough
1899	£7.1294	£6.9902	Clough
1900	£6.7746	£6.7746	Clough
1901	£7.4254	£7.4254	Clough
1902	£7.0442	£6.9003	Clough
1903	£7.2061	£7.2061	Clough
1904	£7.1093	£7.1093	Clough
1905	£7.0486	£7.0486	Clough
1906	£7.0066	£7.0066	Clough
1907	£7.1748	£7.1748	Clough

<u>Date</u>	<u>Earnings of overlookers</u>				<u>Source</u>
	<u>Weaving</u>		<u>General</u>		
	<u>Employed</u>	<u>Average</u>	<u>Employed</u>	<u>Average</u>	
1890(7mth)	£5.4205	£5.4205	£5.4300	£5.4300	Bairstow
1891	£5.5440	£5.5440	£5.5018	£5.5018	Bairstow
1892(9mth)	£5.8381	£5.8381	£5.7575	£5.7575	Bairstow
1912(5mth)	£6.6130	£6.6130	£5.8062	£5.8062	Bairstow
1913(5mth)	£6.9436	£6.9436	£5.4832	£5.3809	Bairstow

The Poor Law Commissioners' survey records the wage rates of overlookers as £4.00 in October 1836 and £3.60 in October 1837, whilst those of assistant overlookers were £3.00 in both months. By November 1863, Bairstow's wage rates for combing overlookers were £4.80; for drawing over-

lookers, £4.60; for weaving overlookers, £4.40. Similarly, spinning overlookers earned an average of £4.45 in May 1863, £4.40 in September 1864, £4.15 in November 1873 and £4.35 in March 1875; whilst in the same months, the drawing overlookers earned £4.45, £5.00, £6.00 and £6.10. There is one reference in the Bairstow records to combing overlookers, who were earning £7.20 in November 1873. The Factory and Workshop Returns for 1871 show that the average earnings of overlookers in Keighley were £5.60 for combing and £4.60 for both spinning and weaving.

The Clough overlookers' earnings series begins in the first quarter of 1876, in the range £4.40 to £3.80. Two years later the range was £4.90 to £4.15, but a slump in the first half of 1897 reduced this. By the first quarter of 1883, earnings had recovered to the range £4.35 to £4.00 and through 1885 and 1886, earnings stabilised in the range £4.10 to £3.20. Another period of rising (though erratic) earnings then occurred, so that by 1891, they were in the range £6.55 to £5.75 and by the end of the decade, £7.05 to £6.10. The period 1900/1902 saw some fluctuations in earnings, but by 1903, they had restabilised largely in the range £6.90 to £6.00, which was then maintained until the end of the series in January 1908. The Bairstow figures are again consistently below those of Clough, but again show rising earnings, at least for the weaving overlookers. In 1890/1892, the weaving overlookers' earnings were in the range £5.35 to £4.60, the general overlookers', £5.30 to £4.80. In 1912/1913, the weaving overlookers' earnings were in the range £6.60 to £5.80, the general overlookers', £5.45 to £4.85.

In general then, overlookers' wage rates rose slightly between the mid-1830's and the mid-1860's, but whilst the drawing overlookers' earnings rose between the mid-1860's and the mid-1870's, those of the weaving overlookers remained static or even declined. Earnings generally declined from the mid-1870's to the early 1880's, but then rose almost continuously till the early 1890's and more erratically through the 1890's to a peak in 1901. They then drifted downwards slightly through the 1900's. Unemployment

was negligible throughout the period.

In conclusion, something should be said about the relative levels of different workers' earnings through the period. As has been shown, it is possible to categorise different occupations by their earning power from the 1870's. Those with the lowest earnings were generally the weaver, spinners and genappers; the next to lowest quartile included the menders and burlers, machine combers and twistors and drawers; the second highest quartile included the carters, finishers, wool sorters and warp-dressers; whilst the highest earnings went to mechanics, piece room workers and overlookers. It is not really possible to make any such clear-cut distinction before the 1870's, for two reasons. The difference between higher and lower earnings was neither relatively nor absolutely so great and the higher earnings themselves were not so stable in their range.

In the early 1830's, the mill hands' earnings were roughly equal to those of the hand-loom weavers, whilst those of the hand-combers were approximately double. This difference was decreasing, however, and by the late 1840's, they were all very roughly equal, even though the hand-loom weavers had been displaced by the power-loom weavers. By the early 1860's, the hand-combers had disappeared and the weavers were earning slightly more than the mill hands. The spinner, even those working full-time, were earning at this time less than the mill hands. The latter series ended in the early 1870's. By the early 1880's, the weavers earned the lowest amount in the bottom quartile, whilst the spinners and genappers were roughly equal and more highly paid. The carters and warp-dressers too were earning roughly the same amount and only slightly more than the spinners and genappers. The piece room workers, at this time, were level with the latter group, the overlookers with the former. Only the mechanics, in the highest quartile stood well above the others. The Bairstow material is convenient for showing the relative positions by the early 1890's. The whole spinning group had the lowest earnings and, in order above them, came the weavers, the genappers,

and the full-time spinners. The twistors and drawers, the menders and burlers and the machine combers were all about level with the genappers, that is below the full-time spinners. The wool sorters earned slightly more than the latter group and again in order above them came the carters, the warp-dressers and the finishers. The piece room workers earned approximately as much as the wool sorters, but the mechanics and overlookers both earned more than any other group, with the exception perhaps of the finishers. By the end of the period, the general spinners still earned the least, the genappers, full-time spinners and weavers, together with the machine combers and menders and burlers, all earned a little more. The twistors and drawers still earned less than these occupations. The next quartile were well above this group, with the carters earning slightly less than the warp-dressers and wool sorters, whilst the highest quartile too were well above the latter group. Piece room workers now earned the least in this group. whilst mechanics and overlookers had approximately equal earnings.

The pattern generally occurred that the weavers and spinners, wholly female occupations, were usually the lowest paid, whilst the mechanics, and later the overlookers too, were the highest. Certain occupations changed their relative positions within the period, but the most important movement was the increased differentials between the lowest and highest paid occupations, as the next two tables show.

Table 4.16. :

Comparative wage levels through time, 1836-1912

Notes : a-Poor Law, b-wage rate, c-Factory and Workshop Returns, d-earnings, e-Clough, f-Bairstow, x-Mechanics and joiners, y-weaving overlookers, z-joiners.

<u>Date</u>	<u>Power-loom weavers</u>	<u>Overlookers</u>	<u>Mechanics</u>	<u>Notes</u>
1836	£1.85 (100)	£4.00 (216)	£4.20 _z (227)	a, b,
1871	£2.60 (100)	£4.60 (177)	na _z	c, d,
1876	£2.71 (100)	£4.49 _y (166)	£4.11 (152)	e, d,
1891	£2.79 (100)	£5.54 _y (199)	£5.30 _x (190)	f, d,
1907	£3.25 (100)	£7.17 _y (221)	£7.73 _x (239)	e, d,
1912	£3.68 (100)	£6.61 _y (180)	£5.73 _x (156)	f, d,

Table 4.16. Continued :

Comparative wage levels through time, 1836-1912

<u>Date</u>	<u>Sorters</u>	<u>Carters</u>	<u>Notes</u>
1836	£3.20 (173)	na	a,b,
1871	£4.05 (158)	na	c,d,
1876	na	£3.53	e,d,
1891	£4.12 (148)	£4.88 (175)	f,d,
1907	na	£5.63 (173)	e,d,
1912	£4.98 (135)	£5.07 (138)	f,d,

Table 4.17.

Comparative earnings levels through time, 1876-1907

<u>Date</u>	<u>Power-loom weavers</u>	<u>Overlookers</u>	<u>Mechanics</u>	<u>Carters</u>	<u>Source</u>
1876	100	100	100	100	Clough
1907	120	160	188	160	Clough

Table 4.16. shows that earnings for different occupations generally remained in separate ranges, with the power-loom weavers at the bottom, the wool sorters and carters a little higher and the overlookers, mechanics and joiners at the top. Earnings seem less differentiated than wage rates but analysis is hindered by the variety of sources used. Table 4.17. concentrates solely on data from Clough's. This shows that between 1876 and 1907 at least, the disparity between the earnings of power-loom weavers and those of overlookers, mechanics and carters increased. This phenomenon was particularly marked between the weavers' earnings and the mechanics'.

References

- (1) Bairstow collection, box number 47.
- (2) Earnings in this section are taken to the nearest £0.01.

CHAPTER 5 : PRICES IN THE NINETEENTH CENTURY.

The second important part of any study of the standard of living is the level of, and changes in, prices - particularly the prices of those goods and services consumed by the working class. This study ideally requires the compilation of a price index from both local consumption patterns and local price data, so that the index might be comparable with the wage data. However, as will be seen later, this aim had not been met entirely with success.

The indexes constructed to date do show a remarkable uniformity, especially those on a national basis, but they are not wholly sufficient for the purposes of this thesis, because of several major defects. The ideal price index to be used in the study of working class living standards would have the following attributes (1).

Such an index would be based on retail prices, but more particularly on retail prices in working class districts, as these reflect the cost of goods to the working class. If truck shops were prevalent in the area then the prices of goods sold there should be included, as they were generally acknowledged to be higher than normal retail prices. Whilst wholesale prices must correlate quite highly with the retail prices in the long run, and to a lesser extent with truck prices, their use can be misleading in the short run. The correlation between contract prices and retail and truck prices will probably not be so high and their use, too, will possibly be misleading in the short run. Therefore, whilst wholesale and contract prices may give a clear indication of the long-run direction and magnitude of movements in retail and truck prices, they cannot give a very clear indication of the level of retail and truck prices. The relationship between, for example, the wholesale price of 1 cwt. of American dried bacon and the retail price of 4 oz. bacon could be tenuous. If one does rely on wholesale or contract prices then one is forced to assume that the (unknown) margin between these prices and retail or truck prices is constant through time - an assumption whose validity it is difficult to prove.

The ideal index would include all goods and services consumed by the working class, that is food, clothing, fuel, housing, alcohol, tobacco and perhaps also entertainments, literature, and insurance etc. It is to be noted that 'consumed' is not synonymous with 'purchased'. If a family consumes goods which are produced by themselves, given to them, or taken by them, then such goods should be included in the price index but given a zero-price rating. Since the term 'working class' covers a large number of sub-groups, each exhibiting to some extent different consumption patterns, then the optimum method of study would be to construct not one single index including all the goods consumed by the working class, but a series of price indexes embracing the different arrays of goods consumed by the different sub-groups within the working class. It is important in this context that food is not the sole constituent of the price index - although it was a major part of working class expenditure (varying, for example, from 81% of the total for an agricultural labourer and his family in Suffolk in 1843 to 48% for a Lancashire cotton spinner and his family in the 1820's (2)), it was the exceptional family that purchased only food and paid nothing for housing or fuel, let alone 'luxuries'.

Of course, the collection of price data is, on its own, generally insufficient, as one needs to relate the data to a pattern of consumption, so that each component is weighted by its importance to the consumer. Unweighted indexes have been produced, the most important national one being Rousseaux's and a more local example being provided in Hopkins' recent study, but the use of such indexes can be limited (3). Therefore, there is a need to weight accurately the index according to ascertained patterns of working class consumption. If one can fairly assume that all goods are purchased, then one can use patterns of expenditure instead. In a long-term series, for instance the one required in this study, there may well be a need to change the weighting given to goods at certain intervals, by using new consumption patterns, because of important changes through time in the pattern of consumption.

An important omission in many indexes is the cost of housing. This omission occurs either because of the difficulty in obtaining data, or because the assumption is made, but not usually verified, that the cost of housing changes in the same direction and with the same magnitude as other consumption costs. However, since rent is usually the second major drain on working class incomes after food (varying, for example, from 18% of the total expenditure of a York labourer and his family in 1899 to 7% of total expenditure for a skilled Lancashire storeman and his family in 1841 (4)) then the importance of its inclusion in any price index is obvious.

The time-span covered by an index has an important effect on its usefulness. Short-run indexes, such as those produced by Gourvish and Ashton, have only limited usefulness, because of the difficulty of differentiating between the long-run and the short-run movements within the index - in effect it is difficult to assess any long-run changes. Likewise, if an index covers several centuries, such as that produced by Phelps-Brown, then distortions are likely to occur, particularly if the weights are not changed frequently, and short-run trends are likely to be ignored. Thus the optimum length of any price index is likely to be in the middle range where some, but not too many, changes occur. In the period covered by this study, such a time-span is taken to be between thirty and fifty years. A point closely allied to this is the need not only to include long-run and short-run trends, but to be able to differentiate between them. This problem has been discussed earlier in chapter three and a similar argument can be applied here.

Finally, an ideal index, if it was based on national data, would differentiate between different regions, or between rural and urban areas, in order to acknowledge the marked economic and social differences between such areas in the period of this study.

Bearing in mind the attributes of the ideal index, the first intention was to produce an index relating to working class consumption during the nineteenth century and to

compare it with one or more of the national indexes available. A preliminary survey of the available Keighley price data, however, indicated that this material was insufficient for a long-run study. Therefore, it was decided that it would be advisable to construct a similar index using Leeds data and if, after comparison, in the same time period the two indexes were shown to be similar, then the Leeds index could be used to replace the Keighley index when the latter proved unreliable. In order to satisfy Flinn's point that different groups of workers consuming different arrays of goods should be represented by different indexes, it was decided to produce two indexes for each locality. As in Gourvish's work, one index was to refer to the consumption patterns of the poorly-paid workers and one to those of the relatively well-paid workers.

Thus the first requirement was to devise or discover some consumption patterns for the Keighley worsted workers during the nineteenth century, both for the poorly-paid workers and for those who were well-paid. On studying the wage data available, it was realised that although the latter covered the period 1804-1915, the coverage of the two sections was unequal, for whilst the poorer worker was included throughout the period, series relating to the well-off workers only covered the period 1872-1908. From 1872, information was available on workers who had a steady and fairly high income and were thus generally well-off, whilst in the earlier times, the only workers who occasionally had high earnings were the hand-loom weavers and the hand-combers. However, their income was very erratic in both its level and the frequency of payment and thus affluent periods could quickly change to ones of hardship. Therefore it was decided to class these workers as poor, on the assumption that they habitually expended a minimal amount on housing and food and used the extra money obtained during periods of high earnings to purchase 'semi-luxury' items of food, or items such as clothing which, for reasons that will be explained later, were not included in the final index. Thus it is argued that wildly fluctuating incomes are just as pauperising as lower but steady incomes. The time-spans of the two types of indexes were finally resolved, then, as

1804-1915 for the poorly-paid workers and 1872-1908 for the well-off workers, and consumption patterns were only required for these periods.

Obviously, within these periods there need to be some changes in weighting to correspond to the changes in the patterns of consumption that were occurring. Thus more than one consumption pattern is required for each index. However, no information is known to have been preserved on working class consumption patterns in Keighley and therefore the problem had to be approached in a more indirect manner using data from the surrounding region. Eventually material was used which related to Oldham (Lancashire) in 1810; Leeds in 1831; and York in 1899 - not an entirely homogenous group, but one which reflects the northern industrial experience. An additional problem relating to the choice of this material is the steady shift eastwards of the locality from which the consumption pattern is obtained, through time, but in the event this problem proved irrelevant, as will be shown later.

The consumption patterns that were chosen were Eden's consumption pattern for a family of six, 1810-1819 (5); Humphrey Boyle's estimate of living costs in Leeds for a family of five (6); and Rowntree's data on the consumption patterns of York workers 1899-1901 (7). Only the latter refers to actual consumption patterns, rather than estimated ones, but with minor adjustments they are comparable. Using these data it was then necessary to decide on the times at which the weights in the index should be changed. These times were devised using the following criteria - firstly, the economic periods of fluctuation into which the whole period can be divided; secondly, the amount of price data available and the length of time for which price material from each source was present; and thirdly, the amount of wage material available and its duration. The fact that 1872 marked the beginning of the series on the well-paid workers, as well as the approximate start of a long-run period of deflation, made this year ideal for the start of one period. Likewise, the price material was at its least sporadic in the period 1845-1860 - a period also in which

working class living standards are generally acknowledged to have risen. Again, economic considerations would lead to a separate period after 1895, whilst the controversy over working class living standards in the first half of the nineteenth century necessitated the use of a period 1804-1845.

Ultimately then, the following time periods were chosen. The 'poor' index would be sub-divided into the periods 1804-1844 (based on Eden's work); 1845-1860 (based on Boyle's work); 1861-1895 (based on a comparison of Boyle's and Rowntree's work); and 1896-1915 (based on Rowntree's work). Likewise, the 'well-off' index would be sub-divided into two periods - 1872-1895 (based on a comparison of Boyle's and Rowntree's work) and 1896-1908 (based on Rowntree's work).

Eden's consumption pattern refers to a family of six who are reasonably well-off. As such, it includes the following items of consumption.

Table 5.1. : Eden's original consumption pattern, 1810-1819

Carbohydrate	: 8½ lbs. flour, 17 lbs. oatmeal, 20 lbs. potatoes
Dairy produce	: 1 lb. butter, 2 lbs. cheese
Meat & fish	: 2 lbs. bacon, 2 lbs. meat
Other food	: 1 lb. sugar, 2 lbs. treacle
Other items	: none

This was adapted slightly to relate to a family of five who were poorly-paid, by reducing the butter, meat and treacle content and by introducing some non-food items. Thus the final consumption pattern used for the 'poor' index 1805-1844 was as shown in table 5.2.

Table 5.2. : The 'poor' consumption pattern, 1804-1844

Carbohydrate	: 7½ lbs. flour, 15 lbs. oatmeal, 17 lbs. potatoes
Dairy produce	: 2 lbs. cheese

Table 5.2. Continued :

Meat & fish	: 2 lbs. bacon, 1 lb. meat
Other food	: 1 lb. sugar, 1 lb. treacle, 1 oz. tea
Other items	: $\frac{1}{2}$ lb. soap, 2 ozs. candles, rent

Boyle's consumption pattern is based on an estimate of the living costs for a family of five in 1832, given that they should be well fed. As such it probably over-estimates actual contemporary working class consumption. It includes the following items:

Table 5.3. : Boyle's estimate of consumption, 1832

Carbohydrate	: 24 $\frac{1}{2}$ lbs. flour, 3 $\frac{1}{2}$ lbs. oatmeal
Dairy produce	: 10 $\frac{1}{2}$ pts. milk
Meat & fish	: 5 lbs. meat
Other food	: 1 $\frac{1}{2}$ lbs. sugar, 1 lb. treacle, 1 $\frac{1}{2}$ oz. tea, 2 oz. coffee
Other items	: none

It can be said that working class living standards were relatively higher (although not yet stable) by the late 1840's and early 1850's and this is reflected in the higher real incomes of Keighley mill hands and power-loom weavers in this period, although the hand-combers, of course, suffered a deterioration in their living standards. Thus it seems reasonable to use Boyle's earlier but over-optimistic estimate in the later period. However, some modifications were needed - in particular the reduction of the meat and coffee content and the addition of potatoes and some non-food items. Thus the final consumption pattern used for the 'poor' index in the period 1845-1860 was as follows :

Table 5.4. : The 'poor' consumption pattern, 1845-1860

Carbohydrate	: 24 $\frac{1}{2}$ lbs. flour, 3 $\frac{1}{2}$ lbs. oatmeal, 20 lbs. potatoes
Dairy produce	: 10 $\frac{1}{2}$ pts. milk
Meat & fish	: 2 lbs. bacon, 2 lbs. meat
Other food	: 1 $\frac{1}{2}$ lbs. sugar, 1 lb. treacle, 1 $\frac{1}{2}$ oz. tea,

Table 5.4. Continued :

1 oz. coffee
 Other items : $\frac{1}{2}$ lb. soap, 2 ozs. candles, rent

The Rowntree material was used for the period 1896-1915. This related to an arithmetic average or the consumption patterns of sixteen working class families, whose incomes were less than £1.30 and whose average family size was two adults and three children. The average consumption pattern was as follows, given that some alterations were made to unify the diverse consumption patterns. (Thus the average consumption of fish per family was $\frac{1}{4}$ d. of kippers, $10\frac{1}{4}$ oz. fish and one-sixteenth of a mackerel. This was simplified to 12 oz. fish.) The consumption pattern that follows was to be used in the 'poor' index 1896-1915 (8).

Table 5.5. :

Rowntree's 'poor' average consumption pattern, 1899-1901

Carbohydrate : 18 lbs. flour, 1d yeast, 1d baking powder,
 9 lbs. potatoes, $\frac{1}{4}$ lb. rice, $\frac{1}{4}$ lb. oatmeal
 Dairy produce : 12 oz. butter, 8 oz. lard, 4 oz. dripping/
 suet, 7pts. milk, 4 eggs, 4 oz. cheese
 Meat & Fish : 2 lbs. bacon, 6 oz. pork, 5 oz. meat,
 $2\frac{1}{2}$ lbs. beef, 3oz. sausage, 6oz. mutton,
 $\frac{1}{2}$ lb. offal, $\frac{3}{4}$ lb. fish
 Other food : $\frac{1}{2}$ lb. onions, 1 cabbage, 1 lb. vegetable/
 fruit, 4 lb. sugar, 5 oz. currants, 6 oz.
 jam/treacle, 5 oz. tea, 3 oz. coffee/cocoa
 Other items : 1 lb. 6 oz. soap, 1 bag coal, $1\frac{1}{4}$ pts. lamp
 oil, $\frac{1}{2}$ d firewood, 2 oz. candles, rent

The consumption pattern for the 'poor' index in the period 1861-1895 was then based on a comparison of Boyle's and Rowntree's data. As such, it included the following :

Table 5.6. : The 'poor' consumption pattern, 1861-1895

Carbohydrate : 20 lbs. flour, 1 lb. oatmeal,
 15 lbs. potatoes

Table 5.6. Continued :

Dairy produce	: 7 pts. milk, 6oz, butter, 2 eggs
Meat & Fish	: 2 lbs. bacon, 3 lbs. meat, 4 oz. fish/other meats
Other food	: $\frac{1}{4}$ lb. onions, 1 lb. vegetable/fruit, $2\frac{1}{2}$ lbs. sugar, $\frac{1}{2}$ lb. treacle, 3 oz. tea, 1 oz. coffee
Other items	: 1 lb. soap, 2 oz. candles, $\frac{1}{2}$ pt. lamp oil, rent.

It may be noted that fish might have been more important in York than in Keighley because of the former's proximity to the coast. Cocoa was certainly more popular in York, because of the importance of the chocolate-producing firms in the local economy. In general terms, clothing has been completely omitted and heating fuel from all but the last period, because of the irregularity of purchase, the difficulty in obtaining any information on costs and the problem of estimating what type of fuel and clothing was purchased.

The major part of the 'well-off' index is based on Rowntree's consumption patterns for 1899-1901. Rowntree gives the consumption patterns of four working class families earning more than £1.30 per week. Three families earned between £1.35 and £1.90, the other £2.60. The latter was excluded as being untypically highly paid. The arithmetic average of the three consumption patterns was produced (for an average family of two adults and three children) and when simplified slightly but also with the addition of some non-food items, included the following goods and services :

Table 5.7. :

Rowntree's 'well-off' average consumption pattern, 1899-1901

Carbohydrate	: 32 lbs. flour, 2d yeast, 1 lb. oatmeal, 21 lbs. potatoes
Dairy produce	: 1 lb. butter, 11 oz. dripping, 12 pts. milk, 6 eggs, 1 tin condensed milk, 5 oz. cheese

Table 5.7. Continued :

Meat & Fish	: 2½ lbs. bacon, 4 lbs. pork, 1 tin fish/meat, 2½ lbs. beef, 1 lb. fish, 10oz. sausage, 1 lb. mutton, 1 lb. offal
Other food	: 1 lb. onions, 1 lb. vegetable/fruit, 4 lbs. vegetables, 8 oz. dried fruit, 6 lbs. sugar, 1 lb. jam, 8 oz. tea
Other items	: 2 lbs. soap, 1 bag coal, 1½ pts. lamp oil, 4 oz. candles, rent

The consumption pattern for 1872-1895 was produced by modifying Rowntree's data in the light of Boyle's earlier estimate. Thus it included the following items:

Table 5.8. : The 'well-off' consumption pattern, 1872-1895

Carbohydrate	: 25 lbs. flour, 1 lb. oatmeal, 25 lbs. potatoes
Dairy produce	: ¾ lb. butter, 10½ pts. milk, 4 eggs
Meat & Fish	: 1 lb. bacon, 2 lbs. beef, 2 lbs. pork, 1 lb. mutton, ½ lb. fish/other meats
Other food	: 1 lb. onions, 1 lb. vegetable/fruit, 4 lbs. sugar, 1 lb. jam, 6 oz. tea
Other items	: 1½ lbs. soap, 4 oz. candles, ¾ pt. lamp oil, rent

Having devised the consumption patterns that were to be used, the next requirement was to find satisfactory price data, both in Leeds and in Keighley. The Keighley material was ultimately found in a variety of small sources, plus two major sources - the newspaper reports of market prices and the quotations of successful food tenders for the workhouse. Unfortunately, there seem to be no records of retail prices in any systematic form for Keighley. There are four minor sources of data; the records of truck payments in the Clough wage books, the cost of living as recorded by a local farmer, the results of a comparison of the cost of living in different West Riding towns in October 1836 and October 1837 and the results of a similar study in 1908.

The truck payments are very sporadic, but cover a variety of goods sold during the period 1813-1855. The most common good to be 'sold' was cloth but this has been ignored for these purposes, partly because cloth is not in any of the consumption patterns given above and partly because one cannot be sure that the information relates to the voluntary purchase of cloth by the worker, rather than its forced purchase, its acceptance as wages in kind, or its purchase because of damage done by the worker. The Clough data otherwise cover oatmeal, potatoes, bacon, blankets, trousers and coal. As table 5.9. shows, the information is not only sparse and sporadic, but generally does not compare chronologically with any other Keighley data and hence its use is rather limited.

Table 5.9. :

The cost of truck goods sold by Clough's, 1813-1855

<u>Date</u>	<u>Potatoes</u> (load)	<u>Oatmeal</u> (load)	<u>Bacon</u> (lb.)	<u>Trousers</u> (pair)	<u>Coal</u> (load)	<u>Blankets</u> (pair)	<u>Source</u> (book no)
1813	10/-	-	-	-	-	-	212
1814	6/-	-	-	-	-	-	212
1815	5/6	-	-	-	-	-	212
Nov.1817	6/-	-	-	-	-	-	18
Nov.1818	6/6	3/-(stone)	-	-	-	-	18
Feb.1819	-	51/-	-	-	-	-	18
July1821	-	-	8d	-	-	-	18
Dec.1831	-	33/6	-	-	-	-	23
Sep.1843	-	-	-	7/6	-	-	32
Dec.1846	-	-	-	-	10/-	-	32
Dec.1848	-	-	-	-	-	14/6	31
Nov.1849	-	-	-	-	-	12/6	32
Dec.1849	-	-	-	-	-	14/10	31
Jan.1850	-	-	-	-	-	13/-	31
July1850	-	-	-	-	-	15/-	31
Oct.1850	-	-	-	-	-	15/-	31
Jan.1851	-	-	-	-	-	15/-	32
Oct.1851	-	-	-	-	-	16/-	32
Dec.1851	-	-	-	-	-	16/-	32
Oct.1854	6d (stone)	-	-	-	-	-	47
Oct.1855	6½d large (stone)	-	-	-	-	-	47
	3¼d small (stone)	-	-	-	-	-	47

The Poor Law Commissioners' survey, referred to earlier, shows an interesting comparison of both the wage levels and the cost of living in various West Riding towns, that is Keighley, Leeds, Bradford, Bingley and Halifax. As table 5.10. shows, prices are given for potatoes, oatmeal, bacon, various meats, fish and dairy produce for October 1836 and October 1837.

Table 5.10. :

The comparative price of provisions in October 1836
and October 1837

<u>Oct.1836</u>	<u>Leeds</u>	<u>H'fax</u>	<u>B'ford</u>	<u>Bingley</u>	<u>Keighley</u>
Fine beef (lb.)	-	7½d	-	6½d	6½d
Coarse beef (lb.)	5 d	5 d	-	4½d	4½d
Mutton (lb.)	-	6½d	-	6 d	5½d
Veal (lb.)	-	6 d	-	5½d	5 d
Pork (lb.)	-	7 d	-	-	7 d
Bacon (lb.)	8½d	8 d	-	8 d	8½d
Salt herring (24)	-	4/-	4/-	4/-	4/-
Grade 1 flour (st.)	2/4	-	-	2/6	2/6
Grade 2 flour (st.)	2/2	-	-	2/6	2/-
Grade 3 flour (st.)	2/-	-	-	-	1/8
Oatmeal (st.)	-	-	-	2/-	2/4
Potatoes	-	-	-	-	7½d (st)
Butter (18 oz.)	-	1/-	-	1/9	1/1½d
Cheese (lb.)	-	-	-	8 d	7½d
<u>Oct.1837</u>					
Fine beef (lb.)	7½d	7½d	7½d	6½d	6 d
Coarse beef (lb.)	5 d	5½d	6 d	4½d	4½d
Mutton (lb.)	6½d	6½d	6½d	6 d	6 d
Veal (lb.)	7½d	6 d	7½d	5½d	6½d
Pork (lb.)	7 d	7½d	7½d	-	8 d
Bacon (lb.)	8½d	8 d	8½d	8 d	8½d
Salt herring (24)	-	4/-	4/-	4/-	4/-
Grade 1 flour (st.)	2/4	45/- (pk)	2/4	2/10	2/10
Grade 2 flour (st.)	2/2	40/- (pk)	2/2	2/2	2/4
Grade 3 flour (st.)	2/-	38/- (pk)	2/-	-	1/10
Oatmeal (st.)	2/2	29/- (pk)	2/2	2/1	2/4
Potatoes	10d (42 lbs)	4 d (load)	10d (48 lbs)	6 d (st)	9 d (st)
Butter (18 oz.)	1/2½d	1/-	1/3	1/9½d	1/2
Cheese (lb.)	9 d	7½d	9 d	8½d	9 d

The prices of most goods were higher on the second date, but this is of little analytical value, in that it represents only two points within a continuous series. However, the

relative cost of living in the different towns is interesting, as Keighley was generally known as a low-wage area and thus one might expect to find low food prices compensating for low wages. On the other hand, because of its fairly isolated position, off the main roadways, without railways until 1847, the Leeds and Liverpool canal the only national link and that more than a mile outside Keighley, and its small size, one might reasonably expect Keighley prices to be higher than those in the more advantaged West Riding.

However, the material in the table 5.10. paints a somewhat confusing picture, in which Keighley seems to have had no decisive position in the comparison of West Riding living costs. Generally, the indication is that fresh meat, particularly beef and mutton, was consistently cheaper at this time in Keighley than in the other towns, whilst bacon and oatmeal were more expensive,

This compares interestingly with Keighley's relative position in 1908, as ascertained by the Board of Trade. As the following two tables show, all West Riding prices and rents were lower than in London, but Keighley had the lowest prices and the lowest prices and rents combined, despite having rents in the middle range (9). In addition, the prices of carbohydrates seem to have fallen in the intervening years, whilst those of meat were approximately the same.

Table 5.11. :

The comparative price of provisions and housing in 1908

Town	London	Leeds	H'fax	B'ford	Hud'field	Keighley
Prices	100	93	94	95	97	92
Rent	100	56	55	59	64	57
Rent & Prices	100	86	86	88	90	85

Table 5.12. Overleaf :

Table 5.12. : The cost of provisions in Keighley in 1908

Household flour	(st.)	1/3 - 1/4
Potatoes	(st.)	7d
Butter	(lb.)	1/0 - 1/2
Cheese	(lb.)	7d
Milk	(qt.)	2½d
Eggs	(12)	1/-
Beef, shin with bone	(lb.)	3d - 4d
Beef, rumpsteak	(lb.)	10d
Mutton, breast	(lb.)	4½d - 5d
Mutton, chops trimmed	(lb.)	10d - 11d
Pork	(lb.)	7d - 9d
Bacon, roll	(lb.)	8d - 9d
Sugar, white granulated	(lb.)	2d
Coal	(cwt.)	8d - 11d
Paraffin	(gal.)	7d - 8d

The final minor source of data on Keighley prices is the record given by Robert Atkinson, a farmer living at Exley Head, on the outskirts of Keighley, in a letter written to a relative in 1853 (10). As the following table shows, this refers solely to carbohydrates and dairy products. Its main use is as a check against the contemporary workhouse records.

Table 5.13. : Food prices in Keighley in 1853

Potatoes	(16 lbs.)	1/2	Butter	(16 oz.)	1/1½d
Flour	(28 lbs.)	3/8	Milk	(qt.)	1½d
Meal	(28 lbs.)	4/4	Eggs	16 for	1/-

The major sources of price data for Keighley are the newspapers and the workhouse tenders. The local newspapers used were the Keighley News (1863-1873) and the Keighley Herald (1873-1915), with the Keighley Chronicle being used for checking purposes (1905-1909). The changeover was made to the Keighley Herald in 1873 because of its more comprehensive coverage of the market prices. The prices of goods sold in Keighley market are recorded weekly in all papers, but, for the purposes of this thesis, it was found to be sufficient to record the prices of goods in the first week of every month. Generally, the prices given were

wholesale, but for butter and occasionally eggs and potatoes, retail prices were given too. Of those foods included in the consumption patterns, material on the following was available - eggs (between 1863 and 1915); potatoes (1863-1915); pork (1872-1873); butter (1863-1915); onions (1863-1895 and 1896-1915); apples (1863-1895 and 1906-1915); and other more sporadic data were available on the price of rabbit, pigeons and various fruits and vegetables. One of the major defects of this material is obviously the lack of information on the prices of the most commonly eaten meats (bacon, beef and mutton) and on the major carbohydrates (flour and oatmeal).

Keighley Workhouse was built at Exley Head in 1842 and sporadically from this year and regularly from December 1844, records of the goods purchased for inmates' consumption were kept, in the form of a list of the accepted tenders for the provisions of the two workhouses (one in Keighley and one in Bingley) for the ensuing quarter (11). In the period from December 1844 to June 1858, the tenders are recorded quarterly, towards the ends of the months of March, June, September and December or at the beginning of the next month. There is then a short gap and from June 1859 to September 1862, the information is recorded six-monthly. Unfortunately, from March 1863, the acceptance of tenders is noted in the minute books without any reference to the cost of the goods and therefore, the information becomes useless for the purpose of this thesis. The goods recorded in the tenders between 1844 and 1862 include oatmeal, flour, mutton, beef, milk, tea, coffee, sugar, treacle, soap, candles and clogs, with a smaller amount of data available on salt and coal. Thus the only items from the contemporary consumption pattern for which there is no data is potatoes.

The Leeds price material comes solely from the newspaper reports of market prices in Leeds. Both the Leeds Mercury and the Leeds Intelligencer were used during the period 1804-1915 and largely wholesale prices were obtained. Of course, these wholesale prices are the target for all the usual criticisms mentioned earlier, but they do have the advantage of comparability with the Keighley newspaper data.

Both newspapers were sampled by taking the market prices shown on the same day of the first week of each month. The longest series of prices are available for oatmeal, wheat, potatoes, bacon, mutton, beef and tallow or rough fat; shorter series are available for other, largely vegetable, products. The main deficiency in the Leeds material is the absence of dairy food prices and the necessity of using wheat prices instead of flour prices.

The final item in the consumption patterns for which information is required is the cost of housing. Fortunately there is a large amount of material on rents in Keighley available, although none in serial form was discovered for Leeds. The material on Keighley came from three sources - the wage books of Clough's (in particular the hand-loom weavers', power-loom weavers', mill hands', genappers' and Old Mill wage books); the Marriner collection (box 27); and the records of income tax paid by Bairstow (12). The Clough material is particularly useful, in that it relates definitely to Keighley and in particular to houses occupied by worsted workers. However, the housing might be untypical, in that it is employer-owned and it is possible that both the employer and the employees accepted non-economic constraints in such a situation. Despite these reservations, the series is very useful. Rents were paid in one case six-monthly, but mostly weekly or fortnightly, depending on the frequency with which earnings were received. The information covers both cheaper and dearer houses. In all, the material covers the period 1836-1908, with one earlier reference to 1826, although there are one or two short gaps and at times the series relate to only one house.

The Clough housing material is supplemented by the data in the Marriner and Bairstow collections. The Marriner information refers to cottages in two areas - Frizinghall and Keighley, although the latter identification is not certain. It covers the period 1824 to 1865, for both cheap and dear houses, and is based on semi-annual rent payments. The Bairstow material is concerned with Sutton in Craven, not Keighley, and therefore may be expected to display different characteristics, in keeping with the possibly

different conditions in the housing market of the smaller town. Thus it is only useful for comparative purposes. The rental is given on a yearly basis and covers the period 1871-1902. The average rentals from all three firms are given in appendix two.

Having decided on the theoretical framework to be used and having studied the quantity and quality of price data available, a study was then carried out on the feasibility of producing four local price indexes - a 'poor' and a 'well-off' index for Keighley, plus two similar ones for Leeds. For the purposes of constructing such indexes, it was thought best to use only that material which was present in a series of ten years or more, although short omissions within such a period could be tolerated. The amount of data which was not then eliminated was small - for Leeds, oatmeal 1800-1863; wheat 1800-1863; bacon 1875-1915; mutton 1828-1915; beef 1828-1915; and tallow or rough fat 1800-1915. There was however much more data on Keighley prices in this form - oatmeal 1844-1862; flour 1844-1862; eggs 1863-1915; potatoes 1863-1912; mutton 1842-1861; beef 1842-1861; butter 1863-1915; milk 1843-1860; onions 1863-1895 and 1896-1915; apples 1863-1895; candles 1845-1855; clogs 1848-1860; and rent intermittently between 1824 and 1908, with the main part of the Clough data covering the period 1836-1908.

As table 5.14. shows, this information is inadequate for most of the periods of this study, in both the 'poor' and the 'well-off' indexes. On the basis of this survey, it was decided then that only the 'poor' consumption pattern for the period 1845-1860, and then only for Keighley, could be used, because of the paucity of data for other periods. However, the Keighley rent series for 1836-1908 could be used to supplement this, as well as the data on clogs which had not been included in the original consumption patterns. The other periods (1804-1844 and 1861-1915) had to be covered by the use of national, not local, price indexes.

As has been shown then, the price material for the period 1845-1860 is largely satisfactory in terms of the 'poor' index, but it omits potatoes and bacon. Therefore,

Table 5.14 : The availability of price data, 1804-1915

Date	'Poor' indexes		'Well-off' indexes		
	Keighley	Leeds	Keighley	Leeds	
1804-1844	12	12	-	-	Items in index
	1	2	-	-	Items available
1845-1860	13	13	-	-	Items in index
	11	4	-	-	Items available
1861-1895	17	17	-	-	Items in index
	6	4	-	-	Items available
1872-1895	-	-	19	19	Items in index
	-	-	6	4	Items available
1896-1915	34	34	26	26	Items in index
	5	5	5	4	Items available

the consumption pattern had to be altered to compensate for these omissions. In evidence presented to the Select Committee on Manufactures, Commerce and Shipping in 1833 (13), flour and oatmeal were treated as direct substitutes by weight and this practice had been followed here so that instead of 20 lbs. potatoes, 24½ lbs. flour and 3½ lbs. oatmeal, the adapted index has 42 lbs. flour and 6 lbs. oatmeal. Since flour, at least, is a more expensive good than potatoes, this can mean that the new consumption pattern is slightly more expensive and more nutritious than it would otherwise be. The second substitution would also produce a similar effect, since 4 lbs. meat replaces 2 lbs. bacon and 2 lbs. meat. Where meat is sub-divided into beef and mutton, 2 lbs. of each is included in the index. Thus the substitute consumption pattern that is used is as follows:

Table 5.15. : The final 'poor' consumption pattern, 1845-1860

Carbohydrate	: 42 lbs. flour, 6 lbs. oatmeal
Dairy produce	: 10½ pts. milk
Meat & Fish	: 4 lbs. meat (or 2 lbs. beef & 2 lbs. mutton)
Other foods	: 1½ lbs. sugar, 1 lb. treacle, 1½oz. tea 1 oz. coffee
Other items	: ½ lb. soap, 2 oz. candles, rent

The index was constructed at first quarterly, and then semi-annual intervals using this consumption pattern for one week's consumption. The rent, therefore, was altered to a weekly basis. The prices given in the workhouse tenders were mostly for medium size units (stones of meat, pounds of tea etc.) and the smaller quantities required for the index were calculated directly from these, without any attempt to introduce a (hypothetical) contract-retail price differential. Therefore, while the rent series represents actual expenditure by the workers, the food price data under-values this, as contract prices were generally below retail prices. At the same time, the inclusion of flour instead of potatoes overvalues the index, so that the cost of total consumption cannot be directly compared with the level of earnings, but there is comparability between movements in the two levels.

The other major methodological point concerns the omission of data within the series. There are short gaps in all the commodity prices, but the most important ones, those lasting four quarters or longer, occur three times in the flour series; twice in the oatmeal series, the milk series and the candle series; and four times in the treacle series. These omissions were rectified by dividing the difference between the two terminal points in the data by the number of time lapses omitted and adding the resulting amount to each successive number (14). This method has the effect of smoothing out any fluctuations and perhaps, when prices are frequently changing, of misplacing the turning points in the trend. This is not important in the cases of treacle and candles, which form only a minor part, by value, of the price index and which also tend to exhibit fairly static prices. However, it is important particularly in the case of flour which accounts for about 40% to 50% of the total value of the price index. Since the omissions in oatmeal prices occur at the same time as the omissions in flour prices, the former tend to exacerbate the effects of the latter. Thus one can expect to find a dampening down of fluctuations in the total price index, caused by the dominating effect of the carbohydrate prices and their absence.

Unfortunately the only cross-check that can be made on the workhouse prices, using the Exley Head data, is on milk, as potatoes, butter and eggs are not mentioned in the workhouse series and flour and oatmeal are absent in 1853. In any case, the prices of the latter two goods are only quoted for large wholesale amounts, not by the pound. In the case of milk, there was little difference in the two levels, the Exley Head prices being perhaps slightly lower. In the first half of the year, the workhouse milk cost 6d a gallon, in the second half 7d; the Exley Head quotation is 1½d a quart or 6d a gallon.

In all, five indexes were compiled using the workhouse material. They are set out in full in appendix two. Three are without rent and two include it. The first pair follow the amended consumption pattern exactly - one including rent and one excluding it. These are called Index 1a and Index 1b and cover the period March 1845 to September 1855. The second pair omit treacle and candles which both end in September 1855, but are without the addition of any compensatory factor. These are called Index 2a (with rent) and Index 2b (without rent) and cover the period March 1845 to June 1859. Finally, Index 3 includes only flour, oatmeal and meat, the three most important food items by value and the three for which records are kept for the longest period. This index covers the period March 1845 to December 1862. In addition, there is a separate analysis of clog prices from March 1848 to September 1862.

For reasons that have been explained earlier, all the series are artificially smoothed before 1855, because of the omissions in the carbohydrate data. However, they can still yield interesting results. In the period 1845-1859, the cost of housing moved downwards, although after the first fall of 14%, 1845/1846, and a second slower fall contributing another 4%, 1846/1849, rents remained stationary. On the other hand, none of the food and household goods series (Indexes 1b, 2b and 3) exhibited such a fall and thus the effect of the inclusion of rent is to deflate in increase in the cost of living. As the table overleaf shows, Indexes 1a and 1b, including all goods (with and without rent), show

Table 5.16. : Summary of Indexes 1a and 1b, 1845-1855

<u>Date</u>	<u>Index 1a</u>	<u>Index 1b</u>	<u>Date</u>	<u>Index 1a</u>	<u>Index 1b</u>
Mar.1845	100	100	Mar.1851	92	94
Jun.1845	101	101	Jun.1851	96	98
Sep.1845	102	103	Sep.1851	97	99
Dec.1845	109	111	Dec.1851	100	104
Mar.1846	108	112	Mar.1852	102	106
Jun.1846	110	114	Jun.1852	104	108
Sep.1846	113	116	Sep.1852	107	111
Dec.1846	108	112	Dec.1852	110	115
Mar.1847	106	110	Mar.1853	112	117
Jun.1847	105	108	Jun.1853	114	120
Sep.1847	98	101	Sep.1853	116	123
Dec.1847	101	104	Dec.1853	118	124
Mar.1848	99	102	Mar.1854	120	127
Jun.1848	96	99	Jun.1854	122	129
Sep.1848	95	97	Sep.1854	122	130
Dec.1848	97	99	Dec.1854	126	134
Mar.1849	94	96	Mar.1855	130	137
Jun.1849	93	95	Jun.1855	130	137
Sep.1849	92	94	Sep.1855	132	141
Dec.1849	92	93			
Mar.1850	91	92			
Jun.1850	88	89			
Sep.1850	87	88			
Dec.1850	92	93			

similar trends of rise, fall and rise in living costs.

Without rent, living costs rose from a base of 100 (£0.4989 or 9/11³/_d) in March 1845, to a short-run peak of 116 in September 1846. They then fell gradually, but not continuously, to a minimum of 88 in September 1850, passing the base level in June 1848. This fall was followed by a steady rise in the index, so that it finished in September 1855 at 141, having passed the base level again in December 1851 and the previous short-run peak (116) in March 1853. When rent is included, the trend is similar but slightly deflated and because, in the final part of the index, rent is stationary whilst food costs rise steadily, the margin of deflation increases. Thus living costs at the base date were £0.5902 (or 11/9³/_d), represented as 100. By September 1846, a short-run peak of 113 had been reached, but living costs then began to fall. The base level was passed in March 1848 and a minimum of 87 again attained in September 1850. A steady rise in this index also followed, with the base level reattained by December 1851 and the previous peak

in June 1853. By the end of the index, in September 1855, a maximum level of 132 had been reached, several percentage points lower than that of Index 1b.

Indexes 2a and 2b (without treacle and candles but with and without rent) cover the period 1845-1859, as the following table shows. Two points can be made immediately. The omission of treacle and candles makes very little difference to either the level or the trend of either index, because of the small proportion of expenditure for which these goods account. Also, after 1855, it is noticeable that both indexes begin to fluctuate more rapidly, but this is probably due to the statistical treatment of omissions, which are less frequent after this date.

Table 5.17. : Summary of Indexes 2a and 2b, 1845-1859

<u>Date</u>	<u>Index 2a</u>	<u>Index 2b</u>	<u>Date</u>	<u>Index 2a</u>	<u>Index 2b</u>
Mar.1845	100	100	Mar.1853	112	118
Jun.1845	101	101	Jun.1853	115	121
Sep.1845	102	103	Sep.1853	117	123
Dec.1845	110	111	Dec.1853	118	125
Mar.1846	108	112	Mar.1854	120	127
Jun.1846	110	114	Jun.1854	122	130
Sep.1846	111	116	Sep.1854	123	130
Dec.1846	108	112	Dec.1854	126	134
Mar.1847	106	110	Mar.1855	129	138
Jun.1847	104	107	Jun.1855	129	138
Sep.1847	98	101	Sep.1855	132	142
Dec.1847	101	104	Dec.1855	135	145
Mar.1848	99	102	Mar.1856	124	132
Jun.1848	96	99	Jun.1856	128	137
Sep.1848	96	98	Sep.1856	121	129
Dec.1848	95	97	Dec.1856	114	121
Mar.1849	94	96	Mar.1857	109	115
Jun.1849	93	95	Jun.1857	122	129
Sep.1849	92	94	Sep.1857	115	121
Dec.1849	91	93	Dec.1857	103	107
Mar.1850	91	92	Mar.1858	95	97
Jun.1850	90	91	Jun.1858	96	98
Sep.1850	88	89	Sep.1858	98	101
Dec.1850	92	94	Dec.1858	98	102
Mar.1851	92	94	Mar.1859	99	102
Jun.1851	96	99	Jun.1859	99	103
Sep.1851	97	100			
Dec.1851	101	104			
Mar.1852	103	106			
Jun.1852	105	109			
Sep.1852	107	112			
Dec.1852	110	115			

Index 2b, without rent, follows a similar course to Index 1b, until 1855. From a base level of 100 in March 1845 (£0.4859 or 9/8½d), the index first rose to a level of 116 in September 1846 and then fell gradually to one of 89 in September 1850, having passed the base level in June 1848. There was then a rise to the maximum level attained in the series, 145 in December 1855, with the base level being reattained in September 1851 and the previous peak level of 116 being passed in March 1853. The index then fell erratically to 115 in March 1857, this being followed by a rise to 129 the following quarter. A short slump reduced this index to below base level, to 97, in March 1858 but mild inflation then occurred so that the index was at 103 when it terminated in June 1859. In Index 2a, rent continues to act as a deflationary factor, as the cost of housing was stationary up to and beyond 1859 at 82% of its original level, whilst food costs continued to fluctuate above this level. From a base level of 100 in March 1845 (£0.5772 or 11/6½d), the index rose to a short-run peak of 111 in September 1846, then fell gradually to a minimum of 88 in September 1850, passing the original level both in September 1847 and March 1848. The index then rose to its series maximum of 135 in December 1855, re-passing the base level in December 1851 and the short-run peak of 111 in March 1853. It then fell again to 109 in March 1857, but rose to 122 the following quarter. Again it fell, this time to below the original base level, to 95 in March 1858 and although some upward movement then occurred, the index failed to regain its base level, terminating at 99 in June 1859.

Thus the four indexes described so far illustrate the same general trend. The period March 1845 to September 1846 was one of mild inflation, in the order of 11 to 16 percentage points, if the base level is taken as 100%. Then there was a long period of deflation until September 1850, with the indexes falling 23 to 28 percentage points. Another long period of inflation caused a rise of 47 to 56 percentage points by December 1855. Again however, deflation occurred and by March 1858, the indexes had fallen by 40 to 48 percentage points. Prices then remained nearly constant, rising only very slowly between March 1858 and June 1859.

Before discussing the trends of Index 3, which covers only flour, oatmeal and meat, it is interesting to ascertain what costs would have been produced in October 1836 and October 1837 using this consumption pattern and how this relates to the level in March 1843. In October 1836, the total cost of 42 lbs. third grade flour, 6 lbs. oatmeal, 2lbs, coarse beef and 2 lbs. mutton was £0.3833 (7/8d), in October 1837, it was £0.4125 (8/3d). Given that the base level (100) of Index 3 is £0.3830 (7/8d), this means that the earlier prices were by comparison almost identical being 100 in October 1836 and 108 in October 1837. This may indicate that retail prices were lower in 1836/1837 than in 1843, for one would expect retail prices to be higher than the contemporary contract prices.

The very close resemblance between Index 3, as shown in the table overleaf, and the other indexes, indicates the dominant position of flour, oatmeal and meat, especially in the indexes which exclude rent. In March 1845, these goods accounted for 65% of the total cost of all goods, including housing, and 79% of the non-housing costs alone. It is evident that during the period 1853-1856 in particular, not only was rent acting as a deflationary factor, but the changes in the level of the minor foodstuffs' prices were also not as great as those for these three goods. Thus in this period at least, the changes in these three foods' prices were having a relatively inflationary effect on the price index.

Index 3 begins in March 1845 with a value of £0.3830 (7/8d), represented as 100. By September 1846, prices had risen to a short-run peak of 120, but they then fell slowly to a minimum position of 88, in September 1850, having reached base level again in June 1848. A gradual inflation then occurred to the series maximum in December 1855, 152, with the base level having again been attained in September 1851 and the previous peak of 120 passed by March 1853. Prices fell erratically from December 1855 to March 1857, when they reached 117, but by the next quarter they had risen to 134. A sudden deflation brought prices down to 96 in March 1858 and recovery was slow, with the level still at

Table 5.18. : Summary of Index 3, 1845-1862

<u>Date</u>	<u>Index 3</u>	<u>Date</u>	<u>Index 3</u>	<u>Date</u>	<u>Index 3</u>
Mar.1845	100	Mar.1851	95	Mar.1857	117
Jun.1845	102	Jun.1851	97	Jun.1857	134
Sep.1845	103	Sep.1851	100	Sep.1857	122
Dec.1845	113	Dec.1851	105	Dec.1857	106
Mar.1846	114	Mar.1852	108	Mar.1858	96
Jun.1846	115	Jun.1852	111	Jun.1858	99
Sep.1846	120	Sep.1852	115	Sep.1858	100
Dec.1846	113	Dec.1852	119	Dec.1858	101
Mar.1847	110	Mar.1853	125	Mar.1859	102
Jun.1847	108	Jun.1853	130	Jun.1859	104
Sep.1847	101	Sep.1853	130	Sep.1859	103
Dec.1847	106	Dec.1853	133	Dec.1859	103
Mar.1848	103	Mar.1854	136	Mar.1860	117
Jun.1848	100	Jun.1854	139	Jun.1860	131
Sep.1848	97	Sep.1854	140	Sep.1860	133
Dec.1848	96	Dec.1854	140	Dec.1860	133
Mar.1849	96	Mar.1855	151	Mar.1861	131
Jun.1849	95	Jun.1855	151	Jun.1861	131
Sep.1849	93	Sep.1855	151	Sep.1861	122
Dec.1849	91	Dec.1855	152	Dec.1861	122
Mar.1850	92	Mar.1856	139	Mar.1862	124
Jun.1850	91	Jun.1856	147	Jun.1862	124
Sep.1850	88	Sep.1856	137	Sep.1862	115
Dec.1850	94	Dec.1856	126	Dec.1862	115

103 in December 1859. By the second half of 1860, however, another short-run peak at 133 had been reached, within a plateau of high price levels lasting from June 1860 to June 1861. Prices then began to fall sporadically, however, so that by the end of the series, in December 1862, they had declined to a level of 115.

The provisions tenders for the Keighley Poor Law Union also provide data on the various types of clogs. Whilst clogs were undoubtedly the footwear in most common use amongst the working class at this time (although children frequently went barefoot), the information has not been included in the price index, because of the difficulties of calculating the weekly expenditure on such goods. Also, the contract price for providing clogs for a large number of inmates may not be of the same magnitude as the retail price of a pair of clogs, or the cost of repairing them. However, the changes in the level of contract prices must reflect the changes in the level of retail prices and, therefore, this information can be usefully analysed.

Information is given for three types of clogs in the period March 1848 to September 1862 - firstly the repair of old clogs by re-ironing and re-clogging them (that is replacing the iron strips and repairing the wooden soles); secondly 'new' second-hand clogs with iron on the sides; and thirdly new clogs with iron on the sides. This information is given in appendix two, but is summarised in the table below. In general, the price movement is downwards, as it is for housing. The cost of repairing clogs and the cost of second-hand clogs are generally very similar and move in the same way, but new clogs are more expensive and follow different trends. June 1848 has been taken as the base date in all three series, to aid comparison between them.

Table 5.19. : Summary of clog prices, 1848-1862

<u>Date</u>	<u>Second-hand clogs</u>	<u>Repairs</u>	<u>New clogs</u>
Mar.1848	106	na	na
Jun.1848	100	100	100
Sep.1848	100	na	na
Dec.1848	99	99	na
Mar.1849	94	100	94
Jun.1849	94	94	94
Sep.1849	na	na	na
Dec.1849	94	94	91
Mar.1850	94	na	na
Jun.1850	89	87	88
Sep.1850	89	na	88
Dec.1850	89	na	88
Mar.1851	89	94	88
Jun.1851	89	na	55
Sep.1851	na	na	na
Dec.1851	89	106	88
Mar.1852	89	94	88
Jun.1852	94	100	na
Sep.1852	na	na	na
Dec.1852	94	100	94
Mar.1853	94	100	88
Jun.1853	94	na	94
Sep.1853	94	100	94
Dec.1853	94	100	94
Mar.1854	na	na	na
Jun.1854	94	na	94
Sep.1854	na	na	na
Dec.1854	na	na	na
Mar.1855	83	87	83
Jun.1855	81	84	88
Sep.1855	86	na	88
Dec.1855	86	91	91
Mar.1856	86	91	91
Jun.1856	89	94	91

Table 5.19. : Continued :

Summary of clog prices, 1848-1862

<u>Date</u>	<u>Second-hand</u> <u>clogs</u>	<u>Repairs</u>	<u>New clogs</u>
Sep.1856	89	94	86
Dec.1856	89	97	88
Mar.1857	89	97	88
Jun.1857	89	106	100
Sep.1857	89	97	91
Dec.1857	89	94	94
Mar.1858	89	94	91
Jun.1858	89	94	88
Sep.1858	na	na	na
Dec.1858	na	na	na
Mar.1859	na	na	na
Jun.1859	89	94	91
Sep.1859	89	94	88
Dec.1859	na	na	na
Mar.1860	89	94	91
Jun.1860	89	94	91
Sep.1862	89	94	na

In March 1848, second-hand clogs were at 106, but by June 1848, this had fallen to base level 100 (£0.0750 or 1/6d). Prices continued to fall rapidly until March 1849, when they stagnated at 94, then falling to 89 for the period June 1850 to March 1852. The index then rose to 94 and maintained this level until June 1854. A rapid fall in prices then ensued, to 81 by June 1855, but recovery was fairly swift and by June 1856, 89 had been reattained. This level was maintained until the series ended in 1860 and repeated in September 1862. The cost of repairing clogs followed a similar pattern, generally at a slightly lower level, but the deflation in this series was not so great. Repair prices too tended to move erratically. In June 1848, the base level (100) equalled £0.0667 (1/4d). By June 1850, this had fallen to 87, but recovery was swift and by December 1851, prices were at 106. Between June 1852 and March 1854, the level stabilised at base level (100). By June 1855, however, prices had fallen to 84, but this was followed by a gradual recovery to 106 by June 1857. Prices then stabilised again, but at the lower level of 94, between December 1857 and the end of the series in June 1860, this

level being repeated in September 1862.

The cost of new clogs was much more erratic, but generally varied between £0.1500 and £0.1250 (3/- and 2/6d) and most commonly between £0.1417 and £0.1333 (2/10d and 2/8d). At the start of the series, the base level (100) represents £0.1500 (3/-) but prices fell rather rapidly to stabilise, in the period June 1850 to March 1852, at 88. (The unexplained drop to 55 in June 1851 is probably the result of a clerk writing 1/8d in error, instead of 2/8d.) Prices then rose slightly and a level of 94 was maintained between June 1853 and June 1854. By March 1855, however, prices had again fallen, to 83, but this deflation occurred for only one quarter and between September 1855 and June 1856, prices again stabilised at 91. In June 1857, the price level rose to 100 but this was only temporary and for the rest of the series, prices varied between 88 and 94, terminating in the first half of 1860 at 91.

One would expect the poorer working class, with whom this section deals, to use second-hand and repaired clogs, rather than new ones and so it is these series that are more interesting. The range of prices for second-hand clogs was 25 percentage points around the base level (106 to 81) which would seem to be quite high. The range of prices for repaired clogs was scarcely lower at 22 percentage points around the base level (106 to 84). In general, one can say that the cost of footwear declined during 1848 and 1849, but stabilised during 1850 and 1851, rising slightly in early 1852 to restabilise at less than base level for second-hand clogs, but at base level for repairs, from late 1852 to early 1854. Prices of both types experienced a fall in early 1855 and then a rise, but ultimately stabilised in 1858 and 1859, at their lowest continuous level.

As explained earlier, there is extensive material on rents available from three sources (Clough's, Marriner's and Bairstow's), together with some comparative material from the Board of Trade survey of 1908. The Clough material is particularly important, in that it had the longest time-span, it definitely relates to the cost of housing in

Keighley and the occupation of each tenant is known. The Marriner material is important in that it predates that of Clough and can be used to extend it, but it relates only to one or two houses which cannot with certainty be said to be in Keighley. The usefulness of the Bairstow material is likewise limited by its location in Sutton in Craven, but it can be used as a contrast and does relate to the largest number of houses. All the material was treated statistically in the same way, as described here. All rents were studied on an annual basis, with weekly and fortnightly data being adjusted accordingly (it being assumed for convenience that a year consists of exactly 52 weeks). It was possible to divide all rents into two sections, cheaper housing and dearer housing, because of a distinct gap in monetary terms between the costs of different houses. The rents in both sections rose through the period and thus the sum taken as the median point between the two types also rose. Thus from 1826 to 1865, cheaper housing was defined as that with a rent below £5 per annum, dearer housing as that with a rent of £5 or more; from 1866 to 1889, cheaper housing was defined as that with a rent below £6 per annum, dearer housing as that with a rent of £6 or more; and from 1890 to 1908, cheaper housing was defined as that with a rent below £7 per annum, dearer housing as that with a rent of £7 or more. All the indexes are given in full in appendix two, but a description of the changes within them will be given in the following section.

The Clough cheap rent series covers the periods 1836-1865 and 1872-1895, with one isolated item in 1826. The latter only involves one house, the first period involves between one and eight houses, the second, between one and five. The tenant in 1826 was a hand-loom weaver, whilst between 1836 and 1865, all the tenants were mill hands. Between 1872 and 1895, the tenants included three carters, one mechanic, one finisher and one genapper. Only the mechanic in this group was in the highest quartile as regards earnings, the carters and the finisher were in the second highest, whilst the genapper was in the lowest earnings quartile.

Table 5.20. :

Summary of Clough's cheaper and dearer rents, 1828-1908

<u>Date</u>	<u>Cheaper</u> <u>rents</u>	<u>Dearer</u> <u>rents</u>	<u>Date</u>	<u>Cheaper</u> <u>rents</u>	<u>Dearer</u> <u>rents</u>
1826	76	na	1872	82	na
			1873	82	na
1836	100	na	1874	82	na
1837	100	na	1875	82	na
1838	100	na	1876	82	na
1839	100	na	1877	109	na
1840	82	na	1878	109	188
1841	82	na	1879	109	188
1842	100	na	1880	109	188
1843	100	na	1881	109	156
1844	100	na	1882	109	156
1845	100	na	1883	109	163
1846	86	na	1884	103	166
1847	85	na	1885	107	171
1848	85	na	1886	107	171
1849	85	na	1887	107	171
1850	82	na	1888	106	190
1851	82	100	1889	114	194
1852	82	100	1890	109	194
1853	82	100	1891	109	204
1854	82	100	1892	120	204
1855	82	100	1893	120	206
1856	82	100	1894	120	206
1857	82	100	1895	109	206
1858	82	100	1896	na	196
1859	82	100	1897	na	196
1860	82	100	1898	na	196
1861	82	100	1899	na	200
1862	82	100	1900	na	200
1863	82	100	1901	na	195
1864	82	100	1902	na	194
1865	82	100	1903	na	196
1866	na	150	1904	na	196
1867	na	125	1905	na	194
1868	na	125	1906	na	191
1869	na	125	1907	na	191
1870	na	125	1908	na	191
1871	na	125			

As the table above shows, the first part of the series starts in 1836, with a rental of £4.75 (£4-15-0), represented as 100. On this basis the rent in 1826 had only been 76. Cheap rents were stable until the mid-1840's, with the exception of 1840/1841, when the inclusion of a cheaper house reduced the level to 82. The late 1840's saw a fall in rent levels, however, to stabilise at 82 again between 1849 and 1865. The second part of the series begins in 1872 at the

same level and this was maintained until 1883. In the middle and late 1880's, rent levels were erratic, but by 1889, they had risen to 114 and by 1892-1894, were stabilised at a series maximum of 120. They then fell back slightly, to terminate in 1895 at 109.

The Clough dear rent series covers two periods, 1851-1871, and 1878-1908. The first section involves only one house, as does the second between 1878 and 1880, but it gradually expands until seven houses are included by 1887. This level is generally maintained for the rest of the period. In the first period, the single tenant was an over-looker, in the second, tenants included six mechanics, three leaders or overlookers, two finishers, one carter and a warp-dresser. Whilst the range of occupations is not very different from those of the tenants of cheaper houses, there is a much higher proportion of the highly-paid occupations. The leaders and mechanics are in the highest-paid quartile, the other three occupations in the second highest quartile.

The dearer rent series commences in 1851 at £5.20 (or £5-4-0 and represented as 100) and this level was maintained until 1865. 1866 saw a sudden rise in rent levels, but from 1867 to 1871, they were stable at 125. The second section begins with a high level of rents (188) which is maintained 1878-1880 but which fell to 156 by 1881/1882 because of the inclusion of a cheaper house. From 1883, more houses were included but rents climbed steadily upwards to a series maximum of 206 in the period 1893-1895. Rent levels then declined, but not continuously, to stabilise at the end of the series, in 1906/1908, at 191.

The Board of Trade's survey of 1908 seems to suggest that by this year, £9 per annum was the dividing line between cheaper and dearer housing in Keighley. Council housing cost between £2.60 and £14.30 (£2-12-0 and £14-6-0) a year, cellar dwellings £7.15 (£7-3-0) and two room back-to-back houses between £7.15 and £9.10 (£7-3-0 and £9-2-0). In addition, it was not uncommon for two or more of the poorest families to share the tenancy of a house costing £11.70 (£11-14-0) per annum. On the other hand, the three,

four and five room houses cost between £9.10 and £18.20 (£9-2-0 and £18-4-0) per annum. Four and five room houses were noted as being the homes of artisans and foremen, whilst it was stated that six room houses were not generally occupied by working class tenants. This would seem to indicate that the contemporary Clough dearer rents were legitimately in that category, but at the lower end of the range, since in 1908, the range of Clough dearer rents was £9.10 to £11.70 (£9-2-0 and £11-14-0) per annum. In addition, according to the Board of Trade criteria, this implies that they were all three room houses.

Both Marriner rent series deal with far fewer houses and a shorter time-span, as table 5.21. shows. With the exceptions of 1839/1840, mid-1844 to 1845, 1854 and 1858 to mid-1859 where it includes two houses and the second halves of 1849 and 1856, where it includes none, the Marriner cheaper rent series deals with only one house, which remains the same house throughout the series. This may have affected the series adversely, since the house considered could have been untypical of local houses in general. The series begins in 1824 at £2.20 (£2-4-0 and represented as 100) and this level was maintained until 1843, with the exception of 1839/1840, when the inclusion of a second house raised rent levels as high as 124. From 1843, rents rose, to stabilise at 114 in the period 1846-1849. In 1850, rents then fell again to 91 and, with the exception of an extraordinary peak of 182 in 1851, maintained this level to 1853. By 1855, however, rents had exceeded their previous plateau level, being at 118. With the exception of a peak to 127 in 1858/1859, this level (118) was maintained until the series ended in 1865.

The dearer Marriner rent series exhibits very simple characteristics. Throughout the series, from 1851 to 1865, it deals with only one house, the rent of which is constant for the whole period at £5.00 (represented as 100).

As table 5.22. shows, the Bairstow series are more complex in that they contain several omissions. The cheaper rent series covers the years 1871-1874, 1877, 1879-1883, and 1885-1902. Between 1871 and 1881, it contains nine houses,

Table 5.21. :

Summary of Marriner's cheaper and dearer rents, 1824-1865

<u>Date</u>	<u>Cheaper</u> <u>rents</u>	<u>Dearer</u> <u>rents</u>	<u>Date</u>	<u>Cheaper</u> <u>rents</u>	<u>Dearer</u> <u>rents</u>
1824	100	na	1845	107	na
1825	100	na	1846	114	na
1826	100	na	1847	114	na
1827	100	na	1848	114	na
1828	100	na	1849	114	na
1829	100	na	1850	91	na
1830	100	na	1851	182	100
1831	100	na	1852	91	100
1832	100	na	1853	91	100
1833	100	na	1854	105	100
1834	100	na	1855	118	100
1835	100	na	1856	118	100
1836	100	na	1857	118	100
1837	100	na	1858	127	100
1838	100	na	1859	124	100
1839	124	na	1860	118	100
1840	116	na	1861	118	100
1841	100	na	1862	118	100
1842	100	na	1863	118	100
1843	100	na	1864	118	100
1844	105	na	1865	118	100

in 1882 twenty, and between 1883 and 1902, nine again. The series begins in 1871 at £5.00 (represented as 100) and remained at this level until 1873. By 1877/1879, a series maximum of 116 had been attained, but by 1886, rents had fallen to a stable level of 91, at which they remained until 1898. Rents then fell further to terminate (1899-1902) at 83.

The Bairstow dearer rent series also covers a varying number of houses and an incomplete set of years. Within the period 1872-1902, material is missing for the years 1875, 1876, 1878 and 1884. Likewise, generally, the index related to six houses but this number does rise as high as thirteen in 1882 and falls as low as one in 1889. In 1872, the base level for dearer rents is £8.00 (represented as 100). Rent levels then fell slowly to stagnate at 77 in 1880/1881 and again, despite a short recovery, in 1886/1887. A rapid rise in levels then occurred however, so that in the period 1890/1893, they stabilised at 128. Despite a consequent fall to 122 by 1897/1898, rents recovered to this level (128) by the

Table 5.22. :

Summary of Bairstow's cheaper and dearer rents, 1871-1902

<u>Date</u>	<u>Cheaper</u> <u>rents</u>	<u>Dearer</u> <u>rents</u>	<u>Date</u>	<u>Cheaper</u> <u>rents</u>	<u>Dearer</u> <u>rents</u>
1871	100	na	1887	91	77
1872	100	100	1888	91	101
1873	100	100	1889	91	100
1874	96	88	1890	91	128
1875	na	na	1891	91	128
1876	na	na	1892	91	128
1877	116	79	1893	91	128
1878	na	na	1894	91	124
1879	116	79	1895	91	125
1880	109	77	1896	91	125
1881	100	77	1897	91	122
1882	93	81	1898	91	122
1883	91	84	1899	83	128
1884	na	na	1900	83	128
1885	93	84	1901	83	128
1886	91	77	1902	83	128

end of the series, 1899-1902.

In the analysis of the movement of rents generally, the Clough series will be relied on primarily, but the Marriner series will be used to extend the analysis backwards in time. The Bairstow series will be used for comparison only. It should be noted that the Marriner cheaper rent series in particular occupies a much lower level than the contemporary Clough cheaper rent series, presumably because it refers to smaller or poorer quality housing, or housing generally in lower demand. Therefore, the Marriner series will only be analysed for changes in the level of rents, rather than the actual amount paid in rent. The material on cheaper rents show that they were probably static in the late 1820's and 1830's, but rose slightly around the late 1830's and early 1840's. They then fell again slightly and remained static from the late 1840's to the mid-1870's. The beginning of the economic depression saw a rise in both Clough and Bairstow cheaper rents, although in the latter case, this rise was only temporary, whilst the increase was maintained for Clough's cheaper rents and even enhanced slightly in the years to 1895. What is remarkable is the frequently slow movement in cheaper rents, which were stable for most of

this period, and the relatively minor increase in rents during the period. From 1836, to the series maximum in 1892/1894, cheap rents rose only by 20% (100 to 120) and the differential between the minimum cheaper rent (£3.5917 or £3-11-10d in 1826) and the maximum cheaper rent (£5.6889 or £5-13-9½d in 1895/1896) is only 58% over seventy years. However, most of this increase came in the period 1872/1876 to 1877/1883, when rents rose by 33%, thus adding a large burden to contemporary working class expenditure in a time of otherwise falling prices. The Bairstow series cannot be used to extend the analysis from 1895 to 1902 for although it shows a similar rise between 1874 and 1877, rents then fell again whilst the Clough rents remained static. From the mid-1880's, Bairstow cheaper rents, moreover, were static whilst the Clough cheaper rents slowly rose, thus making any extrapolation from one series to the other meaningless.

An analysis of dearer rents is only possible for the period 1851-1908. Both the Clough and the Marriner series show that rents were static during the 1850's and early 1860's. The Clough series then indicates that rents rose erratically in the late 1860's and 1870's, but steadily through the 1880's, to reach the maximum for the series in the early 1890's. The Bairstow series too indicates that rents rose rapidly after the early 1880's, to the early 1890's but this is in the context of prior low and stagnant levels. After the mid-1890's, the Clough rents fell back slightly, but to levels still higher than any prior to the late 1880's. The Bairstow series, on the other hand, maintained its high level. Overall, the increase in dearer rents seems to have come from the mid-1860's to the mid-1890's, with the most rapid increases occurring towards the middle of the 'Great Depression' in the mid- and late 1880's. This is different from the trend in cheaper rents where the rise was more rapid and occurred at the beginning of the economic depression. As a result of this dichotomy, the disparity between cheaper and dearer rents increased. In 1851, the average cheaper rent was £3.90, the average dearer rent £5.20 (£3-18-0 and £5-4-0) - a difference of 33%; this figure was the same in 1865. By 1878 however, the two rents were £5.20 and £9.75 respectively (£5-4-0 and £9-15-0) - a

difference of 87%; and by 1895, they were £5.20 and £10.73 respectively (£5-4-0 and £10-14-6d) - a difference of 106%.

To complete the analysis of price data, some of the national price indexes for the period were used. In particular, the Rousseaux Total Agricultural Product price index was used for the period 1804-1913 (15); the Gayer Rostow Schwartz Domestic and Imported Goods price index was used for the period 1804-1850 (16); the Sauerbeck-Statist Total Price Index was used for the period 1846-1914 (17); Wood's average retail price index was used for the period 1850-1902 (18); and finally the Ministry of Labour's retail price indexes for food, clothing and coal were used for the period 1892-1914 (19).

There are difficulties associated with the use of all these indexes, since none of them fulfil all, or even most, of the criteria required of Flinn's ideal index. Rousseaux's index is an unweighted average of the prices of 27 agricultural goods prior to 1850 and 40 afterwards. Only a few of these are relevant to the working class diet (20). Obviously then, this can only be used as a general guide as it is nationally based, depends on wholesale prices, contains only foodstuffs and agricultural products and, whilst including more foodstuffs than are found in the working class consumption patterns, does not always contain all the foodstuffs found in the different consumption patterns. Thus, in the period before 1850, potatoes are an important omission and, in the period after 1850, eggs and milk. However, most working class foods are included and the Rousseaux index does have the important advantage of covering the whole of the period relevant to this study.

The Gayer Rostow Schwartz index again only includes foodstuffs and whilst a weighting system has been used, it tends to place too much importance on mutton, relative to beef, and on wheat, relative to other foodstuffs. In addition, the weighting does not change within the period 1790-1850, although consumption patterns were not then constant. The Sauerbeck-Statist index has similar faults - it contains a large number of wholesale prices of foods not

eaten by the working class, but omits some items that are important, particularly cheese, milk and eggs (21). Again, there is no change in the weighting given to goods in the period 1846-1914. Wood's index is unusual in that it does purport to use retail prices, but again there are no housing costs included and the weighting is unchanged during the period 1850-1902. Finally, the Ministry of Labour's indexes of retail prices for clothing, coal and food are, as their names imply, derived from retail prices, but they do include more goods than were purchased by the working class and it is possible that the prices that they record were not those found in working class districts. In addition, these indexes are too short to be of extensive use.

As Flinn notes in his article, there is a marked similarity between all the national price indexes up to 1846, despite their separate disadvantages, their different sources and the different methods used to produce them. This is also true to a large extent for the period after 1846, although differences in the magnitude of change, rather than its direction, can be noted. Before 1846, both the Rousseaux and the Gayer Rostow Schwartz indexes move in a very similar manner and after 1846, this is true for the Rousseaux, Wood and Sauerbeck-Statist indexes. The Ministry of Labour's indexes too move in a generally similar manner, but the comparison breaks down for short-run changes because of the specialist nature of these indexes compared with the general, comprehensive nature of the others.

In the period 1845-1862, as table 5.23. shows, the national price indexes show remarkably similar trends to the local price indexes, given the faults inherent in both sets of series. This similarity can be seen more clearly if the local indexes are used in an annual form. Use has been made of Index 2b (all foodstuffs excepting treacle and candles, without rent) and Index 3 (flour, oatmeal and meat) for these purposes.

Index 2b peaks in 1846, whereas the national indexes all peak in 1847, but then all indexes decline sharply. The local index is then at its minimum in 1850, whilst the

Table 5.23. : Comparison of price indexes, 1845-1862

<u>Date</u>	<u>Index 2b</u>	<u>Index 3</u>	<u>Rousseaux</u>	<u>Sauerbeck</u>	<u>Wood</u>
1845	104	102	120	na	na
1846	114	106	118	95	na
1847	106	106	125	105	na
1848	99	99	107	84	na
1849	95	94	102	76	na
1850	92	91	98	75	100
1851	99	99	94	74	97
1852	111	113	94	75	97
1853	122	130	113	91	106
1854	130	140	125	101	122
1855	141	151	128	101	126
1856	130	137	128	99	126
1857	118	120	130	102	119
1858	100	99	110	88	109
1859	103	103	113	89	107
1860	na	129	122	98	111
1861	na	127	117	97	114
1862	na	120	116	94	111

Sauerbeck-Statist index is in this position in 1851 and the Rousseaux and Wood indexes in 1851/1852. In 1855, the local index experiences its next peak - Sauerbeck-Statist shows this a little earlier, in 1854/1855, Wood a little later, in 1855/1856 and Rousseaux, whilst showing a minor peak in 1855, has its major peak even later in 1857. The local index falls sharply after this peak, as does the Wood index, whilst the other national indexes fluctuate around the same level. All the indexes reach a minimum in 1858 and begin an upswing in 1859.

Index 3 moves slightly differently and in a more exaggerated way. This index reaches its first peak in 1847, the same year as the national indexes and its first trough in 1850, as does Index 2b. Another peak in Index 3 occurs in 1855, another trough in 1858 and another peak in 1860, this latter peak being accompanied by peaks in the Rousseaux and Sauerbeck-Statist indexes in the same year, although the Wood index peaks in 1861. The local index then falls in the period 1860-1862, as does the Sauerbeck-Statist index, whilst the Rousseaux index falls only in the years 1860/1861 and the Wood index 1861/1862. The reason for the apparent one year time-lag in the Wood index and the smaller amplitude of its fluctuations, may well be that Wood relates to retail

prices, whilst the other indexes relate to wholesale and contract prices, for a similar pattern was found by Gourvish for Glasgow's retail prices. It is possible that any major change in the movement of prices might take about a year to transfer from the wholesale to the retail markets, in this period.

With this demonstration of the similarity between movements in the local and national price indexes, it is possible to have more confidence in the use of the national indexes for the rest of the period, although caution should of course prevail. Since none of these indexes include rent, it will be necessary when considering changes in living costs to use the national price indexes in combination with the local rent series.

From 1804, one sees a steady but erratic climb in prices in both the Rousseaux and the Gayer Rostow Schwartz indexes, to the maximum peak of both series in 1813. In the Rousseaux index, this is a rise from a base level of 157 to 216, in the Gayer Rostow Schwartz index, from a base level of 124.3 to 168.9. Prices in both indexes then fell steadily, with a short-run peak in 1817 in the Rousseaux index and 1818 in the Gayer Rostow Schwartz index, until a minimum is reached in both in 1822. Here the Rousseaux index was at 116, the other at 87.9. Several cycles are then described with peaks in 1825 (144 and 113.0 respectively) 1839 (143 and 104.3) and 1847 (125 and 96.8 with the new Sauerbeck-Statist index at 105). The associated troughs can be seen in 1835 (118 and 84.5 respectively) and 1843 (113 and 79.7). The national indexes then all decline in the late 1840's along with the local indexes, as described earlier. The whole period can be seen as one in which prices peak towards the end of the Napoleonic Wars and then fluctuate cyclically in a downwards trend.

In 1850, the base levels of the three national indexes were 98 (Rousseaux), 75 (Sauerbeck-Statist) and 100 (Wood). After 1858, all indexes show prices moving upwards in a cyclical pattern to a peak, in 1873, in the Wood and Sauerbeck-Statist indexes, at 112 and 107 respectively, but

in 1872 in the Rousseaux index, at 129. The economic depression and the ensuing deflation then reduced prices to a short-run minimum in 1887, when Rousseaux stood at 82, Sauerbeck-Statist at 70 and Wood at 89. This was followed by a short -run peak in prices in 1891/1892 but by 1896, all three indexes had reached their minimum for the series at 72 (Rousseaux), 62 (Sauerbeck-Statist) and 83 (Wood). This minimum position was also reflected in the Ministry of Labour's food and coal indexes which stood at 92 and 68 respectively, when 1900 was 100, but the clothing index, which exhibits much smaller fluctuations, did not reach its minimal point until 1899, at only 96.2, despite experiencing a short-run minimum in 1895. From 1896, prices recovered slightly in the Rousseaux and Sauerbeck-Statist indexes to a short-run peak in 1900, but then declined to another trough in 1903 (Sauerbeck-Statist, at 66) and 1904 (Rousseaux, at 81). The Wood index continued to rise from 1896 to 1902, when it terminated. This cyclical fluctuation is not displayed in the Ministry of Labour's food index, which continued to rise, and is only shown in the clothing index from 1899 to 1903, but it is recorded most spectacularly in the coal index, from 68.2 in 1896, to 100 in 1900 and to 78.4 in 1905. After 1903/1904, the two long-term indexes showed a more continuous rise, this being reflected in a more erratic manner in the Ministry of Labour's indexes, so that by 1913, the Rousseaux index ends at 99, by 1914, the Sauerbeck-Statist index at 81.

Thus in the second half of the period, the national price indexes show a steady but cyclical rise in price levels from the late 1850's to the early 1870's, followed by a steady fall to the mid-1880's. Prices then recovered slightly but fell again to their minimum value in 1896, at about 54% below their 1804 level and 27% below their 1850 level (Rousseaux). Another slight rise, enhanced by coal prices, led on to another trough in the early 1900's, but thereafter, prices rose steadily to the end of the period.

References

- (1) This section follows closely Flinn's article:
M. W. Flinn, 'Trends in real wages 1750-1850', E.H.R.

References Continued

- (2) J. Burnett, History of the Cost of Living, (Pelican, 1969), pp. 260-262.
- (3) E. Hopkins, 'Small town aristocrats of labour and their standard of living, 1840-1914', E.H.R., Second Series, XXVIII, 2, 1975, pp. 222-242.
- (4) B. S. Rowntree, op. cit., pp. 310-315.
J. Burnett, Plenty and Want, (1966) p. 47.
- (5) Quoted in F. Collier, The family economy of the working classes in the cotton industry, 1784-1833, (1964), p. 63.
- (6) W. G. Rimmer, loc. cit., p. 199
- (7) B. S. Rowntree, op. cit., pp. 272-342.
- (8) £.s.d. will be used in this chapter for prices because of small size of the price changes. A conversion table is given in appendix three.
- (9) Report of an enquiry by the Board of Trade into working class rents, housing and retail prices...., P.P., 1908, Cd. 3864, CVII, pp. xliv, 248-249.
- (10) Quoted in I. Dewhurst, Gleanings ..., op. cit., p. 48.
- (11) Keighley Union Minute Books, 1842-1862.
- (12) Bairstow collection, book number 85, Account Book 1871-1902.
- (13) Report from the Select Committee on Manufactures, Commerce and Shipping..., P.P., 1833, (690), VI, p.606.
- (14) Thus if the series is c, a,b, d, with n omissions, then the difference between the terminal points is (b-a) and the number of omitted time lapses is (n+1). Therefore the recalculated series becomes c, a, $a + \frac{b-a}{n+1}$, $a + \frac{2(b-a)}{n+1}$, $a + \frac{n(b-a)}{n+1}$, b, d.
- (15) B. R. Mitchell & P. Deane, op. cit., pp. 471-473.
- (16) ibid., pp. 470-475.
- (17) ibid., p. 475.
- (18) G. H. Wood, loc. cit., pp. 102-103
- (19) B. R. Mitchell & P. Deane, op. cit., p. 478.
- (20) Before 1850, the components are wheat, rye, oats, bread, peas, flour, hops, beans, oatmeal, tea, coffee, rice, logwood, olive oil, tobacco, pepper, cinnamon, sugar, rum, beef, mutton, pig-meat, butter tallow, cheese, whale-oil and milk. After 1850, the components are wheat, flour, barley, oats, hops, bread, potatoes, linseed oil, oatmeal, coffee, cocoa, tea, rice, lemons, oranges, figs, sago, tobacco, cinnamon, pepper, ginger, rum, linseed currants, palm oil, olive oil, logwood, raisins, raw sugar, linseed oil, cake, beef mutton, pig-meat, butter, bacon, native tallow, foreign tallow, cheese, whale-oil and cod liver oil.
- (21) The index contains the following goods - English wheat, American wheat, flour, barley, oats, maize, potatoes, rice, prime beef, middling beef, prime and middling mutton, pork, bacon, butter, West Indian sugar, beet sugar, Java sugar, tea and coffee.

CHAPTER 6 : QUALITATIVE ASPECTS OF THE STANDARD OF LIVING

No study of the standard of living can be said to be complete unless it includes a discussion of the qualitative changes, as well as the quantitative ones. Thus, if working conditions and urban conditions improve because of some external force, whilst earnings and prices are unaffected, a simple study of the latter two variables would not indicate the resulting rise in living standards. Similarly any increase in earnings attained by working longer hours or by (in the case of children) working half-time instead of attending school, must have negative effects on living standards in addition to the more obvious positive benefits. These non-quantifiable effects must be included in any study of living standards.

For the purposes of this study, the qualitative components of the standard of living have been organised into several sections, the first two of which are concerned mainly with the workers' physical environment. The first is working conditions, which can be extended to cover workers' organisations and the reaction to them. The second aspect of the physical environment is urban and housing conditions, including conditions of tenancy. The other sections in this chapter have, however, a rather different emphasis. One deals with the problem of technological redundancy, particularly as it affected the hand-workers. This is linked to material on social leadership and thence to material on leisure activities, which is considered separately. The two remaining sections deal with the role of children in the economy and society, and the use of the life-cycle approach in the study of living standards.

Much of the information on working conditions comes from the Yorkshire Factory Times and the Keighley Labour Journal (later the Keighley Journal), both newspapers started in the late nineteenth century and oriented towards the working class (1). Other major sources of data are records kept either in or alongside the wage books by various local employers. In addition, an interview with a retired employee, Mr. Edgar Preston, provided much useful

material about conditions generally.

The main determinant of the maximum number of hours worked in the mill-based occupations was, of course, the various Factory Acts which limited the number of hours that could be worked especially by women, young adults and children. The limitation of hours was generally opposed by employers and sometimes by the employees themselves, particularly the adult males, but pressure gradually increased for a shorter working week. An undated petition, perhaps written in the 1870's, sent to Clough's by 54 male workers is an example of this demand (2).

"Gentlemen - in October last yr we appealed to you through our committee for a decrease in our working hours viz. to cease work at 12oc on Saturdays. We then pointed out to you that while Engineers, Millwrights, Mechanics, Masons, joiners, plasterers +c were working from 48 to 58 hours per week, we were working 60 hours in an atmosphere as unhealthy as any of the above trades. In addition to the above we now wish to call your attention to what the employers of Bradford and Halifax have done and are about doing.

The undersigned (your own Employees) respectfully beg that you will grant us the same boon that on and after the 1st Saturday in April you will permit us to cease work at 12oc on Saturdays."

By the late 1880's it is apparent that this 'boon' had been granted for the Clough employees now ceased work at 12.30 on Saturdays and generally worked a 56.5 hour week, arranged into shifts of 6a.m. to 8a.m.; 8.30a.m. to 12.30p.m.; and 1.30p.m. to 5.30p.m. in the week; but 6a.m. to 12.30p.m. on Saturdays. If the workers were employed for longer hours than these, then an overtime bonus was generally paid. Thus J. Nicholson, working at Clough's, received a rise when he began working longer hours at the weekend in December 1901 (3). However, according to Edgar Preston, Clough's were very strict in ensuring that workers worked all the hours they wished them to and it was impossible to leave the mill during working hours. In addition, there were frequent complaints in the Y.F.T. of employers 'stealing' time from their employees by reducing the dinner-hour or running the machines rather early in the morning and rather late in the evening (4).

A major source of contention between the employer and

the employees was the constant practice, as the latter saw it, of reducing labour costs by increasing the worker's productivity, without increasing his or her earnings by the same proportion. Thus, although earnings did rise slightly, they failed to compensate for the extra work the employee was involved in. The material from Bairstow's shown in table 6.1. (5) shows that a rapid rise in machines per worker occurred in the 1860's, with the economic boom, but that this ratio stagnated from the late 1890's.

Table 6.1. :

The ratio of looms to weavers at Bairstow's, 1866-1910

<u>Date</u>	<u>Total looms :</u> <u>total weavers</u>	<u>Working looms :</u> <u>working weavers</u>
1866	1.41	na
1867	1.49	na
1868	1.63	na
1869	1.76	na
1870	1.76	na
1871	1.80	na
1879	1.93	na
1880	1.93	na
1881	1.98	na
1882	1.98	na
1883	1.98	na
1884	1.98	na
1885	1.98	na
1886	1.97	na
1887	1.90	1.94
1888	1.91	1.92
1889	1.88	1.91
1890	1.93	1.98
1891	2.00	2.06
1892	1.92	1.97
1893	1.93	1.94
1894	1.92	1.90
1895	1.90	1.95
1896	1.93	2.00
1897	1.92	1.97
1898	1.92	2.00
1899	1.92	2.00
1900	1.97	1.99
1901	1.96	2.00
1902	2.00	2.00
1903	2.00	2.00
1904	2.00	2.01
1905	2.00	2.01
1906	2.00	2.01
1907	2.00	2.00
1908	2.00	2.00
1909	2.00	2.00
1910	2.00	2.00

This evidence is corroborated by the number of complaints in the Y.F.T.. At various times twistors, weavers, comb and box minders and machine spinners all complained that they were being expected to look after extra pieces of machinery. It was also common for employers to try and lower the piece rate or to try to make workers such as warp-dressers and engine tenters take on ancillary work. Yet another method of 'defrauding' the worker was to run the machines at increased speed.

The final practice that will be discussed in this section before looking at physical conditions within the mills, is the levying of fines. The payment of fines was generally disliked by the worker, especially when fines were exacted for petty reasons, although the most frequent cause seems to have been damage to cloth. At Marriner's, however, in the late 1830's and 1840's, workers could be fined for wearing iron-soled clogs in the mill, the money received being added to the sickness benefit scheme run by the firm. Historically it is argued that fines were a method by which the non-industrial worker was forced into habits suitable for the factory, but whilst this might be valid for the early part of the period, it is difficult to see its relevance to the late nineteenth century. However, the Y.F.T. gives many examples of what it considers to be illegal, excessive, or unjust fines in this period. There were many complaints regarding the fines and punishments meted out for bad time-keeping, particularly when lateness was fined by the minute but overtime only paid for by the quarter-hour. In 1890, there was even an attempt in one mill to fine doffers unless they found an extra doffer to work in the mill within one week, but this novel attempt to deal with a labour shortage soon ceased after workers' protests. It is difficult to judge the changing use of fines through time, however, as reporting was much more effective in the later period.

Workers also constantly complained of the physical conditions at work and the bad behaviour of their supervisors, who were accused of both bullying and unfair discrimination. This, of course, was supposedly one of the

main advantages of the domestic workers - that they worked relatively freely at home - but domestic conditions were often poor and unregulated and the demands of the clothiers and employers within the domestic system could be just as rigorous, if not as immediate, as those of the mill overlookers.

By law, mills were required to do a certain amount of whitewashing every year around the building, but obviously this did not mean that all mills were automatically clean and sanitary. Complaints were numerous concerning sanitation, rats, heating and ventilation in the mills. In early 1900, it was stated in the Y.F.T. that employers did not heat mills in winter because they believed their employees would work harder in the cold.

It has always been realised that textile mills are dangerous places. Many of the Factory Acts were designed to reduce some of this danger, particularly by forbidding the cleaning of moving machinery and making the use of machine guards compulsory. However, accidents were still commonplace - between 1891 and 1913, the Y.F.T. recorded 79 serious accidents in the worsted mills of Keighley, the most important single cause being the hoist, or lift, which at this time did not have automatic door, and which led directly to 18 accidents. Only two of all the accidents however were known to be a result of violations of the Factory Acts, which probably indicates that the latter were not wide-ranging enough to protect the worker in the mill. Again, lack of data from the early nineteenth century prevents analysis of the changing importance of accidents.

In parallel with the problem of accidents, the employers' attitude to compensation for accidents, sick pay and leave of absence during sickness or pregnancy was important. Sick clubs, as will be seen later, were frequently organised by the workers themselves, but occasionally by the employer. Thus Marriner's organised a sick club between 1832 and 1848 (6) and possibly between 1882 and 1902. This was financed partly by the employers themselves (in 1837 they agreed to double their subscriptions), but largely by the workers' own

subscriptions and fines paid by them. Generally, of course, sickness, if not caused by an accident with machinery, originated outside the mill, but anthrax, 'the wool sorter's disease', was one serious occupational disease. It was generally fatal and two Keighley wool sorters are known to have died of it in the period after 1886 (in 1896 and 1913).

The attitude of the employer to a worker's sickness or incapacity varied, but was generally unsympathetic. The Y.F.T. records five cases between 1889 and 1905 of dismissal because of illness, but in the same period only three cases of the payment of compensation or the provision of new jobs, and these only occurred after strong pressure or when the accident was the fault of the firm. Interestingly, Clough's provide one example of a firm paying either a pension or a sickness benefit to a worker. J. Ramsden had been employed as an overlooker at £1.10 per week, was absent from work for three months, but then received £0.50 per week from February 1893 to his death in January 1896. The length of time pregnant women could work before and immediately after their confinement was defined by the Factory Acts, but even in the 1890's, fines of only £0.50 were levied by the courts for flagrant contraventions of the law.

The other major complaint of the worker was the violence shown, particularly by the overlookers, and the retaliation made by employers on other family members. Violence does not seem to have been too serious a problem in general terms - the Y.F.T. recorded only six examples, of which only three were thought to be serious. On the other hand the continuing strength of the family unit within the mill, even in the last quarter of the nineteenth century, meant that the employer had another stranglehold over the employee, although the family unit did afford the younger workers some protection from more senior workers. Between 1892 and 1906, the Y.F.T. recorded seven examples of other family members being sacked when one member complained or left the firm. In addition, Mr. Preston recalls that family influence was used by the employers to break up young boys' strikes in the early twentieth century. The millowners impressed upon the adult workers that they were losing earnings when the boys

struck and so the fathers of those on strike gave them "a belt over the ear" and sent them back to work again.

Of course, the ultimate sanction of the employer was dismissal - 'the sack'. In the early years of the nineteenth century, employees were frequently dismissed for belonging to, or supporting, a union. Thus in November 1812, when earnings were abnormally low and prices exceptionally high, a group of 35 Keighley worsted manufacturers met to discuss the problem of wool-combers joining the United Societies of Great Britain (7). The statement they wrote included the following passages:

"After a mature consideration of the Articles entered into by a Society of Woolcombers calling themselves "The United Societies of Great Britain" the following resolutions were adopted and agreed to:

1. That we consider the said Articles to be unjust and pernicious to both Master and Workman.
2. That we, the undersigned, will not on any Account or Pretence whatever....employ, or suffer to be employed, any workman who is now and shall continue to be, or who hereafter may be connected with any society or societies of a similar nature."

Similar action was taken against unions in the period of economic difficulties in the mid-1820's. Another meeting was held in September 1825 to discuss the workers' membership of the Combers and Weavers Union (8). Extracts from the statement issued are as follows:

"we....do decidedly oppose the combination now formed amongst workpeople...

First. That it is our determination to turn off all who are in the Combers and Weavers Union.

Second. That it is our determination to turn off all who can be ascertained to support the Combers and Weavers Union in any manner direct or indirect."

This statement was signed by the representatives of 55 local worsted employers and thus, like the earlier statement, represented an almost unanimous and unfavourable reaction by such employers to attempts at unionisation within the industry.

During the 1830's, the 1840's and the 1850's, the most important source of dismissals was the technological redundancy of the domestic hand-workers. After this period, groups of workers were only dismissed for economic, not technological reasons, for example as firms went bankrupt or transferred their business to other towns (9). By the 1890's, dismissal of individual workers for their union activities seems to have ceased however, the main cause then being illness and others including absence, problems with wages, complaints and poor workmanship. However, as Edgar Preston recalls, the employer's informal rules could be quite severe. Not only could workers be dismissed for 'cheek', but also if they looked up from their work at a manager. This latter restriction applied even more rigorously in the case of directors. In addition, a man could be dismissed for coming to work in a collar and tie, for it was then evident that he was "thinking too big for his job".

The most obvious power that the worker has to oppose the employer is to withdraw his, or her, labour, either by striking, or, if alternative work is available, by changing his, or her, job. In the early years, the power to strike was used particularly by the hand-combers and sometimes by the hand-loom weavers, with major upheavals occurring in 1826, 1846 and 1849. In 1846, the strike lasted nearly three months, but the outcome was inconclusive. As has been shown earlier, the employers tried to combat unionism, which they feared would, amongst other things, lead to strikes and they sometimes persuaded their employees to rebuff those who sought radical action. Thus a statement was signed by 49 of Marriner's employees in August 1842 (11 using a mark), to indicate that "they would not join any riotous assembly but would steadily mind their work and eject any intruders" (10). This probably reflects not only the contemporary riots at Calversyke Mill, but the growing influence of Chartism in the area at this time and the passage through Keighley of those involved in the Plug Riots.

The Y.F.T. shows that, in the later part of the period, strikes were primarily the weapon of the skilled male adult

and were primarily related to earnings, particularly reductions in wages, new systems of payment, iniquitous fines or unfair wage lists.

The most successful strikes were those that were well organised, usually by unions. As has been seen, the employers were attempting to counteract the weavers' and combers' efforts to form unions as early as 1812 and 1825. It should be realised that the hand-combers, in particular at this time, were amongst the highest paid and the most powerful groups of workers. Although they were still part of the domestic system, the fact that they worked in groups in the comb shops probably encouraged union organisation. In general however, unions were only effective in the short run and the textile industry was notorious for its lack of unionisation. This was particularly true from the mid-nineteenth century onwards, as the industry became more heavily dependant on female, child and young adult labour - precisely those groups who were less likely to form unions because of their lower pay and their often short-term stay in the industry. In the 1890's, the (female) Weavers Association had only a small membership and even such men as carters and wool sorters found it difficult to start up a healthy union. In numerous cases this lack of organisation meant the failure of workers' protests. Hence, the agitators believed, wages were low. "There is no organisation in textiles at all and therefore the wages are only half those in cotton although worsted profits are higher" (11). In 1904, it was estimated that although workers saved £0.25 to £0.20 per week in expenditure, because of the strong co-operative movement in the Keighley area, they lost the same amount in earnings, because of the weakness of the local trade union movement (12).

Thus the picture is one of continually weak organisation although, as will be shown later, other forms of working class organisation - the Oddfellows, the Mechanics' Institute and the Co-operative Movement in particular - were strong. This could mean that the workers were sceptical of the powers of the trade unions, or just that the employers were strong enough to dissuade them from joining. It can be

noted here that the working class in Keighley was politically aggressive in the nineteenth century, if not yet powerful. In the 1830's during the popular revolt against the Poor Law Amendment Act, Keighley was described as a particularly unsafe place for an unpopular 'foreigner' to visit. In the 1840's, Chartism and support of the Plug Riots was important locally. By the end of the century, with the extension of the franchise, these feelings had been channelled into the democratic process and the I.L.P. was able to report that "Keighley is a town from which one will always hear good reports of Socialism and most excellent contests in the party division" (13).

A less controversial aspect of working conditions is the provision of holidays. In the nineteenth century, holidays took two forms - the statutory holidays allowed at traditional times such as Christmas and Easter, plus the 'treats' or fetes and excursions given paternally to the workers by the employers on special occasions. At the beginning of the nineteenth century, holidays seem to have been given to adults only at Christmas and Easter, but by the 1830's and the 1840's, the holidays given had increased, at least at Brigg's (14). Between 1837 and 1843, it was noted that every person under the age of 18 was entitled to "two entire holidays" on Christmas Day and Good Friday, but others were generally given. Thus the average number of days holiday given in the seven year period was nine, with the actual number ranging from seven to eleven. The latter year was exceptional however, in that 3.5 days of the 'holidays' occurred, in fact, when no work was done because of rioting in August 1842. It is interesting to note that up to 1842, Old Christmas Day (January 6th) always warranted at least a half-day holiday and from 1839, this was true for Shrove Tuesday. Good Friday always warranted a full day's holiday and from 1838, Easter Monday was usually given as a half-day. The May Keighley Fair was usually given as two days holiday and Whit Monday, on three occasions, warranted at least a half-day. The Parish Feast in July usually led to a day's holiday and on two occasions the Bingley Feast was the cause of a half-day holiday. The November Keighley Fair again meant perhaps two days holiday and one day was always given

for Christmas Day.

The Y.F.T. shows that by the 1890's, holidays were given predominantly at Easter, Whitsun, the Parish Feast (or Tide Time) and Christmas. At Easter, however, it was generally Easter Monday and Tuesday that were given as holidays and by 1906, it was stated that Good Friday had almost ceased to be regarded as a holiday. In 1910 too, only one or two mills were "playing Good Friday". For mills working short time, the Easter holiday could be extended to 7.5 days (as happened in 1902), but generally it was two or three days. The Whitsun holiday, too, expanded to at least two days by 1899 and the Parish Feast in late July or early August to two days. Generally two or three days were given at Christmas.

By the early twentieth century then, the amount of holiday given does not seem to have been much greater than that given to young workers in the 1830's, but instead became grouped into longer periods. Thus in 1890, workers received about eight days in four periods and in 1911, 11.5 days in the same four periods. The reasons for which holidays were given became more secular and less traditional. This, and the longer periods taken at each break, may have been associated with the increased possibilities of long distance travel and the consequent decline in the need for workers to make their own entertainment at home. In the later nineteenth century, occasional informal holidays were also given, or perhaps just taken, when events of local or national importance occurred. The most popular of these were the visits to Keighley of circuses and fairs, but royal funerals and 'Peace Holidays' too often meant a holiday.

Another source of relief from work was the treats provided by the employer. These sometimes took the form of monetary bonuses or gifts and sometimes the form of fetes and excursions. Thus in 1862, Clough's gave all their workers a bonus of £0.075 (1/6d) to celebrate the coming of age of the Prince of Wales and in the 1900's, bonuses of £0.05 (1/-) at Christmas were the norm at one Keighley firm. Likewise, Bairstow's commonly gave their workers a Christmas

bonus in this period. One employer gave his workers £0.25 (5/-) in 1901 to commemorate his own wedding and in 1912, another firm gave each worker a souvenir booklet and silk handkerchief on the occasion of its expansion. On the whole though, non-monetary treats in the form of fetes and excursions were more common. In 1857, Marriner's held an afternoon fete for their workers and in 1876, the same firm held a religious service for the employees at its mill. By the 1900's, mill suppers and teas were commonplace and trips to Morecambe or Blackpool (to celebrate family weddings and births) were quite frequent. The growth of the railway network seems to have changed the treat from a local fete to a trip to the seaside, but the paternalism inherent in these activities remained unabated. According to Edgar Preston, Clough's had made an almost formal set of rules regarding 'treats' - the marriage of a son of the Clough family warranted a trip to Morecambe for the workers, whilst the birth of a male child warranted a flag flown over the mill.

Of course, this sort of activity was not entirely one-sided and the workers frequently made gift presentations to both senior employees and employers, as well as quite often to the employer's family. In addition too, employees often made their own 'treats' - in the 1890's, the machine room workers of Clough's, for example, held an annual tea and social evening.

The final aspect that needs to be covered in this section is the special position that the better paid, more highly skilled male workers found themselves in at work. Not only were they higher paid, but generally they received more fringe benefits than the ordinary worker and their earnings were more regular. They did not, however, constitute a homogeneous group as regards education or ability (15). The Clough wage books record many examples of skilled workers receiving their basic pay through short illnesses and, as has been stated earlier, an invalided overlooker received a half-pay pension from Clough's for three years. It was rare for the skilled worker to be fined for a misdemeanour and he often enjoyed longer holidays than the average worker. Skilled workers were often made to work

overtime, but they could be sure of receiving extra pay for this. Overlookers, in particular, enjoyed great power and prestige at work, as is obvious from the number of complaints from workers at their inability to stop the wrongful exercise of this power.

The Bairstow collection includes three notebooks giving the conditions of employment of various skilled male workers between 1866 and 1915. These illustrate the advantageous position such workers were in. During their long training, earnings rose on average by £0.05 (1/-) per week each year and then rose quite considerably when the worker ceased to be an 'assistant', usually at the age of 21. One particularly long-serving employee, J. Petty, may be cited as an example. He started work at Bairstow's in 1874 as a trainee wool sorter receiving £0.5750 (11/6) per week. In 1875, this rose to £0.65 (13/-); in 1876 to £0.75 (15/); in 1877 to £0.85 (17/-) and then £0.90 (18/-). His earnings remained static at this level from late 1877 to 1881, but in 1882 rose to £1.10 (22/-) and in 1883, to £1.20 (24/-). In 1885, they rose again to £1.35 (27/-); in 1886 to £1.40 (28/-); in 1887, the final year, to £1.50 (30/-). This is a pattern of rapid rise in training and a steady, but less spectacular, increase after training had been completed. The overlookers, in particular, had additional monetary bonuses, since they frequently received £5 in return for teaching their methods to younger trainee overlookers.

The skilled workers were not, however, omnipotent and new entrants into the trades, in particular, could be made to feel the power of the employer. Thus there were frequent complaints that in times of poor trade, low rates of pay were offered to, and accepted by newly-trained skilled workers. Edgar Preston mentions the same problem, that when an assistant overlooker had finished his training, he could not be sure of a 'space' as an overlooker and might be forced to continue on an assistant's wage until such a 'space' was available.

The next section deals with the type of housing available to the worker and the conditions of tenancy

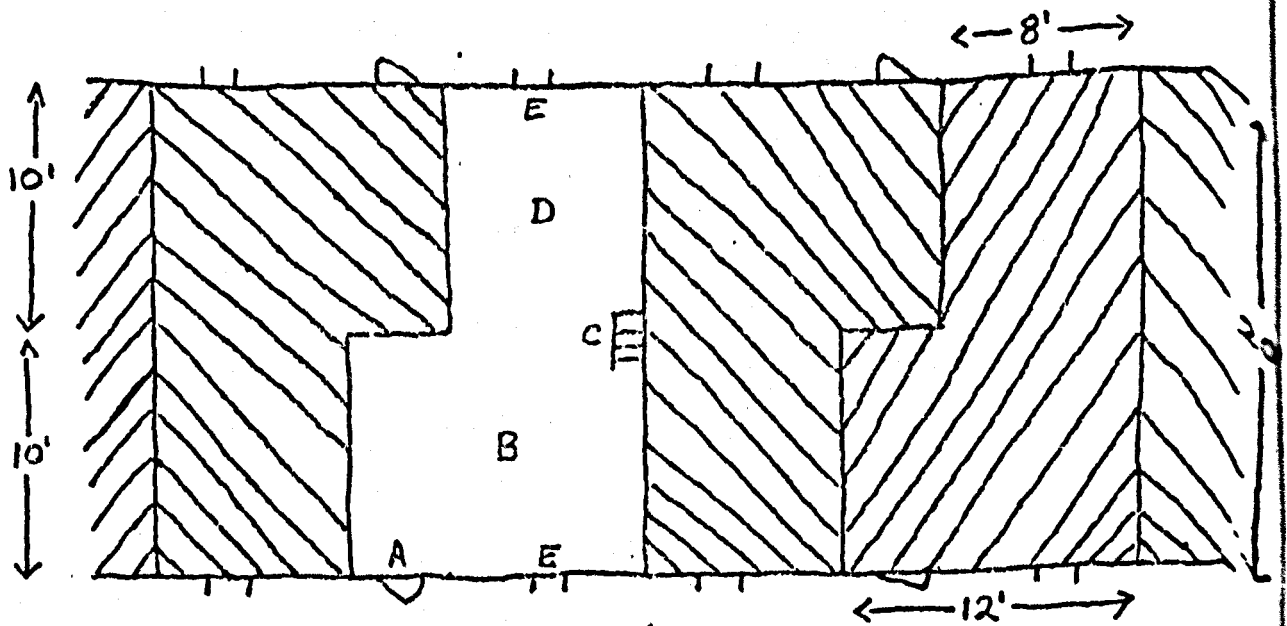
applicable to him, or her. Urban conditions in general have already been discussed in chapter two and the levels of rent in chapter five.

In a letter written in 1868 (16), it was stated that "Houses are very bad to meet with in Keighley", thus indicating, one assumes, a local housing shortage, just at the time when dearer Clough rents were beginning to rise. As has been shown in chapter two, many working class houses were in very poor condition, but they were replaced only very slowly. When street widening was being carried out in the central area in the 1890's, it was proposed that replacement houses should be built on the outskirts of the town at Parsonsfield and Thwaites, but the worst slum areas such as Westgate, which were already being decried in the 1910's were not demolished until the 1930's.

The interview with Edgar Preston shed much light on mill-owned housing since Mr. Preston has lived in a Clough house all his life. The house he lives in was built in the 1890's and in the 1900's was considered to be of good quality, convenient and of reasonable cost. He remembers the rent as £0.15 per week or £7.80 annually (3/- or £7-16-0) at this time. The small community of mill houses was built to one side and above the mill yard. Four rows consist of adapted back-to-back houses with through ventilation, whilst the fifth row consists of through houses. The end-most row of adapted back-to-backs are known as the "bosses' cottages", since they are not overlooked and they have gardens. At the bottom of the rows are long lines of outside toilets. The plan of each house is as shown in plan 1 overleaf. Each house has a cellar, a kitchen and a living room on the ground floor, a large and a small bedroom on the first floor and an attic under the roof and it stone built. Whilst not being true back-to-backs, these houses are not yet terraces, since each 'front' door alternates with a 'back' window. They are obviously a superior adaptation of the back-to-back, designed to lessen noise and improve ventilation.

Mr. Preston was brought up in a family with four children in such a house, at the time regarded as a satis-

Plan 1: A Clough-owned adapted back-to-back house, ground floor.



Grass

Next row of houses

Key:

- A only entrance/exit
- B living room
- C stairs down to cellar, up to bedrooms, attic
- D kitchen/scullery
- E windows providing through ventilation

factory dwelling. The two boys slept in the attic, the two girls in the smaller bedroom, the parents in the larger bedroom. Despite the fact that Clough's were regarded as fair landlords and a fair firm, several petty tyrannies were imposed. Thus the houses were for the use of Clough employees only and there could be a waiting list for prospective tenants. If the worker left his, or her, job after getting a house, then he, or she, had to leave the house too and Mr. Preston can remember evictions occurring for this reason. More important, it was the tradition that the children of Clough's employees who lived in mill houses must go to work in the mill, for perhaps two years, before they went to their chosen job, which might not have been in the worsted industry. In this way, Clough's ensured for themselves a constant supply of young labour. If this traditions was defied the family was likely to be evicted.

Another major factor in the standard of living is the use made of leisure time, either by the consumptions of ready-made entertainment, or by the organising of societies designed to entertain and to educate. It has already been shown that some work-based entertainment was provided by the employers and occasionally by groups of workers themselves, but this section is concerned with entertainment and leisure facilities not connected with the mills - public houses, theatres, picture houses, circuses, libraries, non-union organisations etc.

Robert Roberts describes the public house in early twentieth century Salford as "the shortest road out of Manchester" and likewise it is certainly true during the nineteenth century that for many, the local public houses were the 'shortest road out of Keighley'. It is possible however, that as other roads became cheaper to travel on (the railways), or more open to all workers, male and female (picture houses and libraries), or wider (self-help through workers' organisations) then this road became less frequently used. In the early 1800's however, beer-drinking was one of the major leisure-time activities of the older male textile workers as John Kitson's diary relates: "But when I got to be a comber and gave over waxing my Lameness

Left me I neglected my books and went with combers to Publick houses and some times got drunk".

The habit of hard drinking and the institution of 'St. Monday' long remained common amongst the domestic workers. In his old age, after conversion to teetotalism and chapel-going, John Kitson complained about drunkenness in Haworth at tide time (the old Parish Feast): "and now October 21st, 1854, it has Been Haworth tide and a sore time its Been for Drunkenness and one man as Been killed By a fall in the night Drunk". This pattern of behaviour was not limited to Haworth, for in Keighley at this time there were many beer retailers, lax licensing laws and many customers. For the 'lowest orders', not necessarily always textile workers, entertainment consisted of drinking, fighting and prostitution.

Table 6.2. : Beershops and Inns in Keighley, 1822-1884

<u>Date</u>	<u>Total number of beershops and inns</u>	<u>Population per beershop or inn (17)</u>
1822	12	785
1837	34	370
1847	37	440
1853	46	410
1861	40	540
1884	64	535

As the above table shows, the number of beershops and inns, both in total and relative to the population, increased rapidly in the 1830's, with the passing of the 1830 Beer House Act. By the mid-1840's, there had been some improvement, but the late 1840's and early 1850's saw a temporary decline, contemporary with other social problems in Keighley. By 1861, a more moderate ratio of population per beershop or inn prevailed, and this was to continue into the 1880's (18).

Gradually however, leisure-time activities became less violent and more acceptable to the non-working class groups in Keighley. As has been stated earlier, visiting circuses and fairs were very popular in the town by the end of the century. Other more permanent sources of melodramatic or exciting entertainment were the theatres and cinemas.

Keighley's first, and for a long time only, theatre opened in 1880 - it played to sparse audiences however, despite, or perhaps because of, its provision of 'innocent amusement'. The cinema arrived in Keighley right at the end of the period (19). In the late 1900's, a man toured Keighley "with a horse and trap loaded with films, slides and projection equipment" and in 1909, Keighley's first regular cinema opened at Oakworth, showing locally-made films together with news items. Two more cinemas quickly followed, but the first purpose-built one did not come until 1913.

Children, of course, were avid cinema fans, but prior to the cinema's arrival they had been able to make their own entertainment, despite a large proportion of them being half-timers. Thus in the 1860's, it was recorded that several children were absent from school on what was locally known as Collop Monday - in fact the day before Shrove Tuesday (20). On this Monday it was the children's custom to beg for collops or pieces of bacon, just as on the Tuesday, it was the more widespread custom to eat pancakes.

A more sober form of entertainment was reading. As will be seen later, a library had always formed part of the Mechanics' Institute, but Keighley obtained a public library in 1901 thanks to the paternal generosity of Andrew Carnegie. Figures printed locally show that between November 1st, 1904 and October 31st, 1905, 93,000 library books were taken out by 1,959 people - 1,286 residing in the North West ward, 418 in the South ward and 255 in the East ward (21). This was an average of 47.5 books per person per year, or nearly one per week. The concentration of borrowers in the North West ward seems to indicate that most were either middle class or skilled working class and this is confirmed by the information given on the occupations of borrowers. The largest single group of borrowers - 520 or 39% of the total with known occupations - were married women, spinsters and juveniles - a group whose economic and social status it is impossible to ascertain precisely. The other 818 borrowers with known occupations can be put into four categories, however - clerical or professional workers, 397 or 49% of this total; skilled workers (mainly mechanics), 216 or 32%;

self-employed workers (mainly grocers), 59 or 7%; and finally semi-skilled workers (mainly painters), 101 or 12%. Thus the majority of borrowers with known occupations were middle class or skilled working class, few were semi-skilled or unskilled.

The other major form of, if not entertainment, then leisure-time activity, for many workers was, of course, religion and in particular, non-conformity. This was very strong in Keighley in the early nineteenth century with many inter-chapel disputes occurring and many new chapels being set up, but such activity gradually lessened during the rest of the period.

Finally something must be said about the clubs and societies that the workers organised for their own entertainment, education or self-help. The earliest record of such an organisation in Keighley dates from 1811, when the new rules and regulations of the Royal Union Benefit Society were issued. This society was limited to the highly-paid worker, since its subscription was £0.505 (10/6d) per quarter. It described itself as a "society of workmen and other persons, being free and accepted masons". Benefits were £0.30 (6/-) per week during illness, £2.10 (£2-2-0) on the death of a member or his wife and £0.0375 (9d) per week for a member's dependents after his death. Hodgson states that in the 1820's two different hand-combers' clubs were operating in Keighley in a similar way, offering sickness benefit (£0.40 or 8/- per week) and acting as centres for unemployed tramping hand-combers (22).

One of the first major permanent organisations in Keighley was the Oddfellows, in the formation of which the hand-combers were also important. The Oddfellows' first lodge in Keighley was founded in November 1823 (23). According to the official history, "the establishment resulted from the efforts of working men, particularly hand wool combers, who were advance politicians (chartists and the like) whose souls revolted against an unprotected and precarious existence." The Oddfellows believed in "equal opportunities for all, a fair field to all and a special

care for the sick and needy". The lodge thus formed a social and political centre, as well as the basis of a benefit society which paid out claims for sickness, unemployment and death. It is interesting that in 1850, the lodge branched out from these concerns, probably because of a financial surplus, and decided to build eight houses in central Keighley. Despite their position in the most unhealthy part of Keighley, the houses were, the lodge believed, the best working men's houses in the area at the time. Like the employers, the Oddfellows imposed rules on their tenants - but these were seemingly not so strict. Tenants could not sell alcoholic drinks from their houses and combers were ordered to confine their employment (ie. hand-combing) to the cellar.

As table 6.3. shows, membership increased rapidly both in the 1830's and in the 1890's and the early 1900's, the latter phase being the result of members deciding to "propagandise for new members". The stagnation of the 1860's, 1870's and 1880's was probably due to the growing importance of other associations, particularly the Mechanics' Institute, plus the increasing prosperity of the skilled workers from whom the Oddfellows were generally recruited. This prosperity meant that other new forms of entertainment and education could be entered into. In addition, the demise of the hand-combers, a group that dominated the Oddfellows, must have reduced the number of potential members.

Table 6.3. :

Membership of the original Keighley Oddfellows' lodge,
1829-1913

<u>Date</u>	<u>Number of members</u>	<u>Date</u>	<u>Number of members</u>
1829	33	1890	225
1833	56	1900	392
1840	149	1905	550
1857	207	1910	664
1864	207	1913	698

Another important working class organisation in Keighley was the Mechanics' Institute. This was started in February

1825, with the aims concerned with self-help and self-education rather than insurance or good fellowship. As the first annual report stated, attendance at the Mechanics' Institute might mean that "latent genius may be excited and prompted into action. The dormant abilities of individuals, yet unknown, may be roused, brought to light, improved, and exerted for the general good" (24). Despite the name however, and the provision of classes for workers, the Institute's membership was biased towards manufacturers, shopkeepers and artisans. As table 6.4. shows, membership, after a rather difficult start in a time of economic hardship grew steadily through the nineteenth century, although the growth rate fell in the 1850's. The number of books in the Institute's library however continued to grow at a higher rate, until in 1901, the whole collection was transferred to the new Central Library.

Table 6.4. :

Membership and book collection of the Keighley
Mechanics' Institute, 1825-1901

<u>Date</u>	<u>Total members</u>	<u>Total books</u>
1825	71	150
1828	109	na
1830	106	na
1835	na	800
1848	400	na
1864	445	3,362
1901	na	13,000

It is evident that the library grew far faster than the membership - in 1825 there were only two books per member, in 1864, over seven. However, membership was quite high in terms of the size of the town - in 1851 over 2% of the total population were members of the Mechanics' Institute and this implies perhaps 5% of the eligible population were. However, not all members were active members - in the early years, at least, only 40% to 50% of all members were active. In 1834, the first Mechanics' Institute was built, a centre of education and learning. By 1870 however, when the new Mechanics' Institute was opened, the emphasis had swung away from this role and the Mechanics' Institute became the

centre of social, cultural and sporting activities, despite the steady growth of the library. This corresponds to the more widespread availability of education generally and the increasing amount of leisure time.

The third important working class organisation to gain power in Keighley was the Co-operative Movement. According to the official history, a co-operative society was formed in 1829, but lasted only a short time and disappeared without trace (25). The Keighley District Flour and Provision Society was founded in February 1854 with the intention of selling pure flour, as opposed to the more usual adulterated flour sold locally. The immediate effect of the society was to force other flour dealers to reduce their prices by 2d (£0.0083) per stone and the society even undercut these prices by 1d or 2d (£0.0042 or £0.0083). However, the society failed within three years, largely because of consumer resistance to non-white flour. At the same time, the early 1850's, the hand-combers had tried to form a Distributive Society amongst themselves, wherein they combined to buy goods which were then stored at each member's house in turn. This was an attempt to combat the economic hardship endured by the hand-combers at this time but ultimately failed, as their destitution increased.

The first Co-operative Society to be successful in the long run was opened in Keighley in 1862, when it had 42 members. Each had to subscribe £2, thus limiting membership to the more highly paid. Of the 30 founder members with known occupations, 20 were skilled workers (the majority mechanics) and only 4 semi-skilled or unskilled. As the table overleaf shows, after the initial burst of growth 1860/1861, the first decade of the society was marked by slow growth, but in the 1870's and even more so in the 1880's and 1890's, growth was more rapid, despite the slowing down of population growth at this time.

Besides operating shops, the Co-operative Society concerned itself with self-education, providing lectures, a library and various affiliated associations. By the late 1890's, it was a very important sector within Keighley

Table 6.5. :

Membership of the Keighley Co-operative Society, 1860-1896

<u>Date</u>	<u>Number of members</u>
1860	42
1861	126
1870	337
1882	1,723
1896	6,131

society. In 1896, it was estimated that about 80% of the inhabitants of Keighley were supplied with at least some of their necessities by the Co-operative Society and in 1901, the average worker was reputed to save £0.20 to £0.25 (4/- to 5/-) per week on foodstuffs when he, or she, was a member, but these figures may, of course, be exaggerated in the cause of propaganda.

Finally mention must be made of the holiday clubs that were established in the area in the early twentieth century. These were generally run by employers and employees together but in age of increasing affluence were not savings clubs for sickness and funeral benefits but for holidays away from home. They were especially popular in the outlying villages - Glusburn, Silsden and Sutton - Keighley workers were described as too independent and thrifty to be attracted by such clubs.

The next major section in this chapter deals with the impact of technological redundancy on aspects other than wages, together with the effect such unemployment had on such groups as the hand-combers who were in the forefront of contemporary working class movements, both political and social.

The major source of technological redundancy in the worsted industry was the changeover from hand power to water or steam power in three particular sectors - spinning, weaving and combing. The disruption caused by the first changeover, in spinning, is difficult to trace because spinners were generally female and in any case, it lies

largely outside the period of this study. Neither of these points is true for weaving and combing. As explained earlier, worsted power looms were first used in Keighley in 1834 and had been adopted by most of the local manufacturers by 1838. If the hand-loom weaver wished to remain in this occupation, then he, or she, (it was generally he as the female hand-loom weaver found it relatively easy to become a power-loom weaver) could combat the process of mechanisation slightly by weaving fancy goods, which the power looms could not originally deal with. However, as the latter became more complex, especially after the introduction (in 1837 in Keighley) of the Jacquard loom, the hand-loom weaver was forced to work for lower and lower wages in an ever-shrinking sector of the industry. Ultimately, the hand-loom weaver was forced out of the industry by the 1850's. In contrast, the demise of the hand-comber was short, sharp and brutal. Whilst the hand-combers' position had been deteriorating since the unsuccessful strike of 1825, they remained essential to the industry until the early 1850's when the widespread introduction of efficient combing machines occurred. Most firms seem to have adopted this machinery by the early 1860's. Unlike the situation in weaving, there was no 'fancy' combing available to the hand-comber and the advance of the machines was relentless. Thus most hand-combers had been made redundant by the early 1860's in Keighley and all of them probably by the mid-1860's.

Technological redundancy caused material hardship, loss of earnings, loss of an occupation and for some, loss of status and prestige. The problem of lost earnings has been dealt with in chapter three, but the other factors will be examined now.

The material hardship found amongst the hand-combers was described by Ranger in 1855 in a study of 37 families headed by hand-combers (26). The average family size was six persons, the average family income £0.5811 per week and the average weekly rent £0.0796. The consumption of meat varied greatly between the families, with five eating no meat (mainly below-average-size families with little or no

income other than that of the hand-comber) and one family eating 5 lbs. per week (the largest family in the study with eleven members and only one-third of the income coming from the hand-comber). The largest group of families (eight in all) consumed between $\frac{1}{2}$ lb. and 1 lb. meat per week, these families having an average size of just over five members. Thus the hand-combers and their families had been reduced to a very low standard of consumption, particularly where the hand-comber's earnings formed the bulk of the family's income.

Two important factors in redundancy were the sex of the worker and the timing of the redundancy. Since most of the mechanised jobs, with the exception of machine combing, were almost wholly reserved for women, adolescents and children, the hand-spinners and the one-third of the hand-loom weavers who were female were generally able to find alternative occupations in the mills, usually in their old (but now mechanised) jobs. This was true only to a small extent for the male hand-loom weavers, as few unskilled and semi-skilled mill jobs were available to them. Likewise, those hand-loom weavers who were unable to find mill jobs, or who wished to remain in the domestic system, were able to turn to hand-combing. On the other hand, hand-combers suffered so badly precisely because they were the last remnant of the domestic system and there were very few alternative occupations available. It is true that machine combing was generally carried out by men, but there were not sufficient opportunities in this work for all the displaced hand-combers.

Information on the subsequent careers of redundant hand-workers comes from the Censuses and the records of the Oddfellows and other associations. It is difficult to trace the life histories of female workers because many married and changed their surname and few joined associations. The only hand-loom weaver who has been traced is a man, Richard Petty. In 1851, the Census records his occupation as hand-loom weaver, but in 1861 and 1871 (when he was 66 years old) he was described as a tailor. Thus, this particular worker made the relatively easy transition from domestic hand-loom weaver to self-employed tailor, an occupation he may have

already been carrying out on a part-time basis.

Much more material is available on the hand-combers - in all 14 life histories have been traced. Three hand-combers can be said to have continued in the textile industry; nine continued to work for employers in other industries and trades; and two became self-employed. In 1851, the Census shows that John Ramsden was a wool comber (by hand), by 1861 (at the age of 50) he had become a wool sorter - an occupation with which he was still involved in 1871. Likewise in 1851, David Spencer was described as a hand-comber, but by 1861, he had become one of the few local hand-combers to 're-train' as a machine comber (he was then 54). In 1871 he was still in this new occupation. Joshua Toothill too was recorded as a hand-comber in 1851 and in 1861 as a wool comber (but this probably implied 'by hand' as generally machine combers were specifically described as such). By 1871, at the age of 42, Toothill had become a mechanic. These three men then remained in the textile industry, although they necessarily had to become mill workers to do so.

The nine hand-combers who became employed in other industries and trades took on a variety of jobs, none highly skilled and several of low status. In 1851, James Greenwood was a hand-comber but by 1871, at the age of 42, he had become a labourer in an ironworks. Nathan and Jesse Midgley (father and son) were both hand-combers in 1841 and 1851. By 1861 (at the ages of 69 and 40 respectively), they were both road repairers. Other examples in this category come from the Oddfellows' records, John Gregson (born 1814) became a parish constable; Thomas Driver (born 1790), a canal barge-man; Timothy Earnshaw (born in 1824), a chapel custodian; Joseph Town (born in 1803), a nightwatchman; John Town (born in 1807), a wood turner; and John Spencer (born in about 1800), a gardener.

The Oddfellows' records also give the only examples of hand-combers becoming self-employed. John Bottomley (born in 1814) became a milk dealer and later a wool dealer and estate agent; Joseph Firth (born in about 1796) became an itinerant tea and coffee dealer.

To ascertain what these changes imply in terms of status and prestige, it is first necessary to find out the value attached to the hand-combers' position in society. All the available records seem to show that not only was the hand-comber one of the most highly-paid textile workers, but also he was in the forefront of local leadership. Not only were the largest and most successful strikes led by the hand-combers, but most of the societies were formed by, or catered for the needs of, this group. The hand-combers of the 1820's and 1830's have been described as "strong and well organised, powerful because they were indispensable" and this is also true for the earlier period (27). As has been seen already, the hand-combers had organised a union locally as early as 1812. They were also influential in setting up the Odd-fellows' lodge in 1823, as the membership records show. In 1829, there were 19 members with known occupations. Of these, 14 were hand-combers, two cordwainers, and there was in addition a tailor, a mechanic and a glazier. All were fairly high status jobs, but the hand-combers accounted for over 70% of the total. However, this position of status and responsibility was lost when the group was made redundant.

The formation of a distributive society amongst the hand-combers in the 1850's may have indicated their continuing organisational ability, but it also showed the plight to which they had been reduced, when the cheapness of food became more important than the political meetings of the Oddfellows. In 1855, Ranger was able to state that the great bulk of applicants for medical relief was formed of impoverished hand-combers and their families and thus one realises that their benefit societies, too, had proved incapable of meeting the demands and strains of technological redundancy.

From the life histories given above, one can see that only four hand-combers changed to jobs of approximately equal status - the wool sorter, mechanic, chapel custodian and estate agent. It is possibly over-generous to describe the chapel custodian's job as one of equal status, but while the economic status of this job was low, its social status was higher. The other ten suffered a loss of status to

become an ironworks labourer, a machine comber, two road repairers, a canal bargeman, a nightwatchman/parish constable, a nightwatchman, a wood turner, an itinerant tea and coffee dealer and a gardener. Interestingly, there is a marked difference in the average age of the two groups in 1861, when the transition was virtually completed. Despite the fact that arduous low status jobs such as an ironworks labourer were usually taken on by younger men, the average of the four men in high status jobs in 1861 was 41½, the average age of the ten others 55 and the average of the whole group 51. Thus it seems not only did the younger men (those under 50) find a greater choice of jobs available, but the older men (over 50) found it impossible to take on jobs of equal status.

The low status of these 10 occupations, relative to the other four, can be shown by examination of the Oddfellow records. In these, some details are given of the life histories of 101 Oddfellows. Only one member (a wood turner) joined the Oddfellows whilst engaged in one of the nine low status trades, whilst 13 members (seven mechanics and six wool sorters) did so from the four other trades.

Children had an important place in the nineteenth century economy and society, particularly in the textile area. There they formed an important part of the workforce, doing small but essential jobs. Frequently the money they earned formed an essential part of the family income, since adults' earnings were generally low. The first Factory Acts related specifically to children (at first pauper children and then all children), but were then gradually extended to cover all young persons, then women and finally all workers. In law, there were two types of children; those under the age of 13 whose hours of work were the first to be controlled and who ultimately became the half-timers, plus those between the ages of 13 and 18 who were considered to be capable of being independent of their parents, neither adults nor children but 'young persons'.

John Kitson's diary shows that, for the poorer child at least, the chances of any extensive education at the

beginning of the nineteenth century were slight. John was born in 1781 "of poor parants (sic) and my father went to be a soldier when I was but a child so as I could not tell on him going But he left my mother with three lads". Thus the opportunities available for his education were few : "there I went to free school for some were near one year and when I was about five years of age I Began spinning worstied (sic) yarn". Therefore, he had only one year of schooling before being forced to earn his living full-time, because of family poverty. This situation improved gradually during the nineteenth century, as the minimum age of working increased and the provision of schools became more common, as described in earlier chapters.

In general, the young child performed very simple tasks - doffing bobbins (replacing full bobbins of yarn with empty ones on the spinning frame), or mending broken threads. Gradually however, the child would work his, or her, way up through the more difficult jobs, until at the age of perhaps 15 he, or she, would either be doing or learning an adult job. Mechanised spinning was commonly done largely by girls under the age of 13 and many adolescent girls worked as power-loom weavers. The older boys, if sufficiently adept, were able to enter into a period of training or apprenticeship for the more highly skilled jobs when they were about fifteen.

John Kitson gives a detailed picture of the varied training given to a child at the beginning of the period, and the number of different types of work a child might to, both within and outside the textile industry:

"when I was about five years of age I Began spinning worstied (sic) yarn and had five hanks st. for my work a day from thence we went to live at Haworth Hall I Span there till I was about seven years of age and I had seven Hanks for my work But there was one called Blakey that took a mill at Bridgehouse of Mr Greenwoods & span cotton & I Began to go there when I was about seven years of age & tented five pair of cards near three years then I Left and went to a mill called Whrights Mill ... There I went to work near three years in the night then they took me out to make up twist and I did that near two years ... When I was about 16 years of age I Left mill & began to learn to

weave ... and I was a weaver near five years then
I thought I would learn to comb ... and so I did"

Mr. Kitson apparently then remained a hand-comber for the rest of his working life.

The Brigg records show (28) that by 1837, young persons (aged 13 to 18) generally worked the maximum number of hours per week legally permitted, 69, but in months when business was slack this could be reduced to 66½. The actual hours worked varied but generally the young persons were in the mill for 13 to 13½ hours on a weekday and 10 to 10½ hours on a Saturday. There is also, from the same source, a certain amount of information on younger children working in the mills, 1837-1844. In this period, there was an average of 13 half-timers working in the mill, of whom seven were male. They worked an average 30.9 hours per week (falling steadily from 32.7 in 1837, to 29.8 in 1844) and were employed by Briggs for an average of 18 months.

The millowners, in general, were antagonistic to the Factory Acts, which directly or indirectly sought to regulate the number of hours worked. Often they attempted to justify their dislike of the law by claiming support from other interested parties, particularly the parents of half-timers. Typical of this attitude is the statement issued by a group of Keighley mill owners after a meeting in April 1839 (29) :

"1st. That the Factory Act now in force limiting the labour of children from nine to thirteen years to eight hours per day, and that of young persons of thirteen to eighteen to sixty-nine hours per week, affords ... every reasonable protection to the persons employed in the mills; but ... were power given to admit children to full work when eleven years of age, it would be generally advantageous both to the mill owners and to the working classes, especially as such a plan would afford the latter opportunity of obtaining a better education.

...3rd...continental manufacturers have no such (time) limits to contend with ... any further limitation of the hours of labour will be extensively injurious both to occupiers of mills and to the parties employed therein, by excluding the former more effectively from markets, and by lowering the wages of the latter."

The two local working class papers both comment on half-timers and children in general from the 1890's onwards. There are several reports about young persons being forced to work illegally long hours and one or two about the employment of pauper children in the textile mills, despite complaints from the ratepayers.

The attitude of the Y.F.T. in general was hostile to half-timers, as it was argued that if adults were paid more then there would be no need to send children to work and thus deny them their education. In 1899, it was calculated that Keighley had the largest proportion of half-timers in the country, there being 915 half-timers in the Keighley schools (30). By 1904, there were 1,018 half-timers employed in Keighley, but by 1909, the number at school in the town had fallen to 667 (31). This made up 12% of the 5,511 pupils comparing favourably with the 44% of the school-age children of Keighley in 1875 who were half-timers. In 1901, the Census had shown that, with a slightly different system of categories, 36.0% of the boys in Keighley over the age of ten but under fourteen and 33.6% of the girls were 'occupied'. By 1911, these proportions had risen slightly, to 37.1% and 36.8% respectively, although the proportion in the West Riding as a whole had fallen in the same period (from 30.3% and 19.8% to 29.0% and 18.1%). At no time in the period 1901-1911 was Keighley not among the five worst West Riding towns in this respect, but Halifax and Bradford, the two other major worsted centres, also had very high proportions of 'occupied' children. In 1913, the Y.F.T. reported that half-timing was "as bad as ever" in the worsted industry and the following year again chastised parents who preferred to "sponge off half-time children" rather than fight for higher wages (32). The 1901 Census seems to indicate however, that the high rate of employment amongst children compensated for the relatively low rate of employment amongst married women. Half-timing certainly diminished in importance during the late nineteenth and early twentieth centuries but it was still common in Keighley in 1914 and was certainly more common there than in almost any town where worsted was not a major industry.

Finally an attempt must be made to demonstrate the importance of the family as an economic unit. As has already been shown, children were economically important in an industry where adults were relatively low-paid. It is useful then to look at the life patterns of individual families to see how their prosperity varies, as both the economic fortunes of the various occupations, and the composition of the family itself change. As Neale has pointed out, life cycle earnings are a significant factor in the standard of living debate, for it was possible for individual people and families to experience, for instance, falling living standards in a time of general improvement.

Using the 1841 to 1871 Censuses, it has proved possible to follow the life patterns of 11 families which each include at least one member whose earnings are known. These relate to six male hand-combers, one male hand-loom weaver, two female power-loom weavers, two male mechanics and one male wool sorter. It is particularly difficult to follow the life cycle of a woman simply because if she marries and changes her surname, then all definite trace of her, in the following Census is lost. Of these 11 families, four will be discussed in this section.

Nathen Midgley in 1841 was a 45 year-old hand-comber living at Bocken, with two adults and nine children living at home. His wife was not in paid employment, but five of the children were; three boys as hand-combers (including Jesse aged 15), one boy as a bobbin winder and one girl as a power-loom weaver. In 1851, there were two adults and six children living at home. Again Nathan's wife was not in paid employment, but all six of the children were. Two of the sons (including Jesse) were hand-combers, one son a power-loom weaver and one a sailor (at home at the time of the Census). One of the daughters was also a power-loom weaver, the other a factory spinner. By 1861, there was only one adult and three children living at home, Nathan's wife having disappeared (presumably dying). Nathan and his son Jesse were both now road repairers and the two daughters power-loom weavers. In 1871, there was no trace of the family. For the Midgleys then, one can see a rise and then

a fall in their earnings, as first more and more of the children take on paid employment, but then the father and some of the sons get trapped in hand-combing and ultimately their earnings decline. At the end, it seems likely that the weaving daughters were supporting their father financially. For this family then, the pattern of family earnings closely matched the changing fortunes of the hand-combing sector of the worsted industry.

Richard Petty too was affected by technological redundancy, but managed, with his family, to overcome the disruption. In 1851, he was a 43 year-old hand-loom weaver living in Sutton, with two adults and five children living at home. His wife and one son were hand-loom weavers, another son a bobbin minder, whilst the other children were not in paid employment. This domestic working arrangement continued in the next 20 years despite the demise of hand-loom weaving. By 1861, there were two adults and four children living at home, all in paid employment. Mr. Petty and two of his sons were tailors, his wife and daughter had become worsted winders, the third son a power-loom weaver. In 1871, the family was still the same size and Mr. Petty and his two sons continued as tailors. His wife was no longer in paid employment however, whilst the third son had become a warp-dresser and the daughter a power-loom weaver. For this family then, the most prosperous period probably occurred after the technological redundancy suffered by the father.

Betty Waddington's career is possible to trace because untypically, she remained unmarried and continued to live with her parental family. In 1851, she was a 22 year-old power-loom weaver in a family of two adults and their four children in Sunset Terrace, Keighley. Her father was a paper-maker, her mother an unpaid housewife, her three sisters all power-loom weavers. By 1861, her father had died and the household consisted of the mother and three daughters. Both the mother and one of the sisters were now in unpaid employment, whilst Betty and the third sister still worked as power-loom weavers. The family size was unaltered in 1871, but the mother was now described as a pauper. Betty and her sister were still power-loom weavers, the

other sister returning to paid employment as a dressmaker. It seems that for this family, the father's death led to a poorer existence, although there were no industrial changes occurring at this time whose impetus was in this direction.

Finally the family of J. Longbottom can be looked at. In 1841, this family consisted of husband, wife and child, with the husband, a 33 year-old mechanic, the only person in paid employment. The family lived in Sutton. By 1861, Longbottom was combining the occupation of mechanic with running a farm of eleven acres. There were now two adults and four children in the family. Longbottom's wife and two of their children were not in paid employment (but probably worked on the farm), whilst one son was a wool sorter and one daughter a power-loom weaver. By 1871, the family had shrunk to two adults and two children and Mr. Longbottom had reverted to being solely a mechanic. The other three members of the family were all in paid employment - his wife as a dressmaker, their two daughters as milliner and power-loom weaver. The most prosperous period for this family, then, was in the later years, as all the children became employed but before they left home - the typical pattern as revealed by Rowntree.

Thus the information that had been used in this chapter reveals much about changing qualitative conditions in the nineteenth and early twentieth centuries. In general, amenities such as housing and sanitation were improving, at least after the mid-nineteenth century, although pockets of very poor housing remained in Keighley until the 1930's. It could be said that entertainments changed rather than improved. More choice was available by the end of the period but it was a different choice. As the data on holidays and leisure time activities show, traditional, rural and religious activities became less important, despite the increasing amount of leisure time available, and were replaced by commercially based activities. Within the work situation, changes in reporting methods make any chronological analysis difficult.

Within the family, children gradually came to be

regarded as potential workers rather than miniature workers, although half-timing remained important in Keighley. The family unit remained strong throughout the period, both in and out of work. It is obvious that biological and familial changes were just as important for the welfare of each individual family, as the economic and social changes which affected the whole community.

References

- (1) Henceforth these newspapers will be referred to as the Y.F.T. and the K.L.J.
- (2) Clough collection, number 260.
- (3) ibid., Old Mill Wage Book, number 71.
- (4) Y.F.T., 26/3/1897, 15/11/1899, 5/9/1902.
- (5) Bairstow collection, number 58.
- (6) Marriner collection, box 47.
- (7) Scruton collection, Deed box 3, Case 16.
- (8) ibid., Deed box 3, Case 39.
- (9) In July, 1905 Ira Ickringill's, the largest spinning firm in Keighley, made many workers redundant prior to its move to Bradford.
- (10) Marriner collection, loc. cit.
- (11) K.L.J., 9/12/1899.
- (12) Y.F.T., 15/1/1904.
- (13) K.L.J., 13/2/1897.
- (14) Brigg collection, book 385.
- (15) This is shown by the following three applications received by Hattersley Sons & Co., Ltd. for an advertised mechanic's job in December 1874:
"Sir i under stand that you are in want of a mechanic one who thorouly under stands mill work and i think i ham the man for you for i have been in mills 11 years and 2 years in a machine shop i have been in one mill under my father for 8 years and i can take eather fitting or turning or smithing. I have Been among combing droying boxex spinning frames and such like mechenry But if i come i shall want 32^s per week
I am a married man and my age is 27years
Please write soon
Smith Buckley
"Dear Sir,
In Answer to your advertisement i offer you my services feeling competant that i can do the work that you wish to be done in the mill in respect to wages i shall require 30sh per week with a prospect of an advance if i should suit you
Your obediant servant
Isaac Ellison"
"Mr. Hattersley
You are advertising for a mechanic in the Keighley News of today.
I beg most respectfully to offer myself for the situation. I have had many years experience in mill work and have now held a similar situation for several years.

I hold certificates of proficiency in Engineering.
Before stating the wages required I would like to have
an interview with you.

Yours &c

James Driver"

Unfortunately it has not been possible to ascertain
which applicant got the job.

- (16) Marriner collection, box 6.
- (17) The population at each date has been approximated
using the decadal census figures.
- (18) Sources: E. Baines, History..., op. cit., p. 220,
W. White, 1837, op. cit., p. 687, W. White,
1847, op. cit., p. 415, W. White, 1853, op.
cit., p. 543, W. White, 1861, op. cit., pp.
701-702, A. Craven, op. cit., p. 198.
- (19) G. J. Mellors, Picture Pioneers, (1971).
- (20) I. Dewhirst, Gleanings..., op. cit., p. 59.
- (21) K.L.J., 18/11/1905.
- (22) J. Hodgson, op. cit., p. 137.
- (23) The information in this chapter comes from Goodfellow-
ship in Keighley 1823-1923, Eboracum lodge, I.O.O.F.,
(1923).
- (24) I. Dewhirst, A History..., op. cit., p. 34.
- (25) Most of the information in this section comes from this
book - J. Rhodes, Half a century of Co-operation in
Keighley 1860-1910, (1911).
- (26) W. Ranger, op. cit., p. 47.
- (27) J. Hargrave, op. cit., p. 18.
- (28) Brigg collection, loc. cit.
- (29) Clough Collection, number 259.
- (30) K.L.J., 13/5/1899.
- (31) Y.F.T., 20/3/1908, 19/8/1909.
- (32) ibid., 6/11/1913, 21/5/1914.

THE STANDARD OF LIVING OF KEIGHLEY WORSTED WORKERS (PART ONE)

When drawing conclusions about the changing standards of living of worsted workers in Keighley during this period, it is important to take account of both quantitative and qualitative data. The heterogenous nature of the workforce is also an important factor, but certain groups did share similar experiences, although perhaps at different times. Therefore, this section will be approached by combining two methods. Firstly, both changes in real income and changes in qualitative aspects will be considered, as the two elements which together synthesise the standard of living. Secondly, the changing fortunes of those in each occupation will be followed chronologically, but with occupations that follow similar patterns (for instance hand-loom weaving and hand-combing) being grouped together. For this purpose then, the domestic non-mechanised occupations will be written about first - the hand-loom weavers and the hand-combers. Then the low-status mechanised jobs performed mainly by women and children will be discussed - spinning, power-loom weaving, genapping and machine combing (although the latter was an exception in that it was generally carried out by males). In part two, the higher status male jobs will be considered - the skilled mechanised jobs (warp-dresser, mechanic); the supervisory occupations (primarily overlookers); and the outdoor jobs not solely associated with the worsted industry (for example, the carters). For all these groups real income will be looked at, together with urban conditions and the extent to which workers suffered from them, conditions at work, changing status and the problem of temporary unemployment or even redundancy.

In order to look at living standards, indexes had to be calculated using the earnings and price data referred to in earlier chapters. This had to be done on an annual basis, since all but the Keighley price indexes are calculated on this basis, although this entails some inaccuracies as economic fluctuations are not confined to January to December. For each occupation, individual years have been

chosen as the turning points within the index. These were generally determined by the fluctuating level of earnings.

Taking the hand-loom weavers and the hand-combers first, it is obvious that these two occupations faced similar problems in the advent of industrialisation and one would expect their respective standards of living to move in the same way, that is to suffer a decline in the face of effective competition from the machines. Whilst this is true however, the combers and weavers did react differently to the process of industrialisation - with resulting different effects on their living standards.

Taking the hand-loom weavers first, it can be seen that entry into the occupation was quite easy and thus weavers were not able to benefit personally from the bottleneck caused by the growing demand for worsted, since unlike the combers (at their most powerful) they were not able to restrict entry into their trade. Unskilled workers flooded into hand-loom weaving and increased production was attained by the use of many more workers at fairly low earnings, rather than a few workers being able to boost their personal earnings as a result of a frustrated demand for their skill. In addition, it is obvious that hand-loom weavers' earnings exhibit the opposite trend to prices, that is when prices were high earnings were low and vice versa. Unemployment too was generally much higher when earnings were low. This would have had a disastrous effect on living standards as real incomes must have fluctuated rapidly - causing an instability as impoverishing in itself as low earnings.

Table 7.1. : Hand-loom weavers' real income, 1804-1846 (1)

<u>Date</u>	<u>Earnings</u>		<u>Price levels</u>		<u>Real income</u>	
	<u>Employed</u>	<u>Average</u>	<u>Rousseau</u>	<u>GRS.</u>	<u>estimate</u>	
					<u>Highest</u>	<u>Lowest</u>
1804/1805	£1.93	£1.83	162	130	100	95
1814/1815	£0.91	£0.60	187(+15)	142(+9)	43	27
1822	£3.60	£3.60	116(-38)	88(-38)	276	260
1826	£1.22	£1.09	126(+9)	100(+14)	82	73
1830	£1.82	£1.62	124(-2)	95(-5)	129	110
1846	£1.01	£0.84	118(-5)	86(-9)	79	60

As table 7.1. shows, between 1804/1805 and 1814/1815, earnings fell, unemployment increased and price levels rose. This had the effect of more than halving real income in a period of ten years - a severe and sharp decline. However, recovery was rapid, for by 1822, earnings had reached their peak for the series and unemployment had been eliminated. This corresponds to the growth in the worsted industry generally during the post-war years. Since prices too exhibited a decline (which was at first erratic), real incomes rose to more than two-and-a-half times base level - that is they apparently increased between six- and eight-fold in eight years. Although this index probably over-estimates the actual improvement, this period must have been marked by a phenomenal increase in hand-loom weavers' real income at a time when, although urbanisation was increasing, the mortality rate in Keighley was low. Hence living standards too must have risen rapidly in this period.

However, this spectacular change in fortunes did not endure, as the later 1820's and 1830's saw earnings fall below their base level, whilst prices continued to rise. This was exacerbated by the growing squalor of urban conditions in Keighley, for hand-loom weavers were becoming increasingly town based. Rents however were generally static. In 1826, the economic crisis known locally as the Butterfield Panic reduced earnings and increased unemployment, so that real incomes fell back to below base level. This again is an example of the remarkable instability of the hand-loom weavers' real income, as after increasing so markedly in the previous eight years they now fell to one-quarter or one-third of their apparent level in 1822, in only four years. However, this slump was in some ways 'artificial' being caused by temporary labour unrest, as well as economic depression, and by 1830, earnings had risen, although unemployment remained about the same level. Thus real incomes rose by about one-half of their 1826 level to just above that of 1804/1805. Standards of living too must have risen, despite the steadily worsening urban conditions.

The 1830's and 1840's are marked by a steady fall in earnings, employment and living standards. Real income fell

too, despite falling prices. This reflects both the inability of the hand-loom weaver to keep the trade exclusive and his, or her, status high, and the disastrous effects of mechanisation and technological redundancy. By 1846, at the end of the series, real income had fallen to between four-fifths and three-fifths of the 1804/1805 level. This was not as low as the disastrous levels prevalent in 1814/1815, however, and in terms of the previous experience marked only a slow decline (for those able to remain in hand-loom weaving) of just under one-half in real income over the 16 years since 1830. Living standards too must have fallen steadily, despite almost static rents, as the worsening urban conditions exacerbated the fall in real income.

The effect of mechanisation on the hand-combers was in some ways different to this. Not only were the hand-combers originally in a position of higher status and income, but the innovation of a successful combing machine did not occur until nearly twenty years after the innovation of the power-loom. Thus for most of the first half of the century, the hand-combers benefitted from the fact that they were a necessary, but unmechanised, sector in an otherwise increasingly mechanised industry. As mechanisation increased productivity and output in spinning and weaving then, the value of the hand-comber was actually enhanced - with a reflection too on his income and status, at least whilst the hand-combers could restrict entry into their trade. This they were able to do at least up to the mid-1830's, when redundant hand-loom weavers (especially the adult males living in rural areas) began to take up hand-combing. Of course, the hand-combers had to 'pay' for the advantages they had gained from their stranglehold over the industry - by the 1850's industrialists were willing to incur very high costs to mechanise combing, for economic and non-economic reasons. The demise of the hand-comber was short, sharp and brutal.

There is no material on earnings available for the period before 1835, but it seems reasonable to assume that hand-combers' earnings were at least maintained, if not improved, by the process of mechanisation which affected the expanding industry but excluded their sector. As has been

seen, they were certainly able to form unions and hold strikes and in addition were important in the social life of the town. During this period there was inflation up to 1813/1814, followed by a fairly steady deflation until the early 1820's with prices then stagnating from the late 1820's. Comparing these two trends, one would expect the hand-combers' real incomes to have improved continuously at least from 1813/1814. Even in the earlier period, their earnings may have risen sufficiently to counteract the worst effects of inflation. Given the increasing status of the hand-comber and his position of importance in the industry, then one can say that living standards too must have risen at least from 1813/1814 to the mid-1830's.

As table 7.2. shows, in the mid-1830's, the hand-combers were at the peak of their earning power, at least for that period for which material is available, 1835-1859. 1836 represents the year of maximum earnings with no unemployment. Again the table shows how rapidly real incomes could fluctuate for in twelve months (1835-1836) they rose by up to 20%. From this date however, earnings decline, unemployment rises and prices show no great fall. Thus real incomes begin their

Table 7.2. : Hand-combers' real income, 1835-1858

<u>Date</u>	<u>Earnings</u>		<u>Price levels</u>			<u>Real income</u>	
	<u>Empl'd</u>	<u>Av'ge</u>	<u>Rousseaux</u>	<u>GRS.</u>	<u>Index 2a</u>	<u>estimate</u>	
						<u>High</u>	<u>Low</u>
1835	£3.64	£3.61	118	87		100	99
1836	£4.28	£4.28	129(+9)	85(-2)		120	108
1846	£2.21	£1.87	118(-7)	86(+1)	109	61	51
1850	£3.05	£3.02	98(-17)	74(-14)	90(-17)	101	98
1854	£2.28	£1.00	125(+27)		123(+37)	59	26
1858	£1.38	£0.08	110(-12)		97(-27)	41	2

erratic decline. In addition, the status of the hand-comber began to fall in this period, with the uncontrollable influx of redundant hand-loom weavers into the trade. Similarly, environmental and urban conditions were declining. As has been seen in chapter three, earnings fell more than wage rates, but these too fell, thus tending to confirm the hypothesis of over-supply of labour. As the number of hand-

combers increased faster than the amount of work available, then employers were able to cut wage rates, but in addition, earnings also fell as the amount of work available per man fell.

In 1846, the 22 week long strike of hand-combers reduced their earnings to a short-run minimum and increased unemployment levels. Since price movements were indecisive in the previous 10 year period, this served to reduce real incomes to about half their previous level. This fall in real income must have been mirrored in falling living standards, as qualitative conditions too deteriorated. Within four years, however, recovery was virtually complete in employment terms, although earnings were never again to reach the levels prevalent in the 1830's. Combined with a steady fall in prices (2), this resulted in a near doubling of real income in four years, to bring it back to base level. However, the deteriorating urban conditions and the reduced status of the hand-combers must have meant that living standards did not improve as quickly as real incomes.

After this recovery, earnings once again declined and by 1854, as combing machines were being introduced, they had fallen to the level of the strike year (1846) but unemployment was much more severe. Combined with the rapid inflation which occurred in the early 1850's which the Keighley Index 2a suggests is under-estimated, for local conditions, in the Rousseaux Index, this had the result of, at best, halving real income and at worst cutting it by three-quarters, in only four years. Real income in 1854 was at its lowest level ever. Given that at this period Keighley was at its 'nadir' and that the degraded hand-comber was facing technological redundancy, then living standards too must have fallen at least as rapidly. At this time less than half the hand-combers could find work. Conditions, however, continued to worsen as earnings and employment fell, this being relieved only partially by a slight fall in price levels. By 1858, the last full year in the series, earnings of those in employment were at the lowest for the series and unemployment was running at more than 90%. As a consequence, real income for the average hand-comber was virtually non-existent

and even for the employed hand-comber was at its lowest ever, having fallen by one-third in four years and being about two-fifths base level. Since there were no marked changes in qualitative variables, living standards too must have displayed a similar severe fall.

Thus one can say that for the hand-combers, living standards increased at least from the end of the Napoleonic Wars to the mid-1830's. They then declined slowly for the next ten years and were reduced sharply by the 1846 strike, although this may have been alleviated if strike pay was issued. The recovery that followed the strike brought real incomes up to the level of the mid-1830's, although by this time non-quantifiable factors were beginning to deteriorate. In the 1850's real incomes and living standards fell very sharply, this being particularly marked in terms of employment. As has been shown, the once proud hand-comber found it very difficult to find another job of equal status to the one he had been forced out of, particularly if he was no longer young.

There are several wages series for power-loom weavers, which together stretch from 1837 to 1915 with a total break of only three years. Given the amount of material on prices and qualitative conditions, this permits fairly decisive conclusions about changing living standards. In general however, it must be remembered that although power-loom weaving was of low status compared with most male-dominated jobs in the worsted industry, it was, throughout the nineteenth century, a very high status occupation for women within the industry.

As the table overleaf indicates, the base date for this series has been taken as 1839 rather than 1837. This is because earnings were abnormally low in the first two years of the series, but increasing rapidly, presumably as the use of power-looms became more familiar and trade conditions improved. Thus earnings rose by 50% in two years and real incomes too rose sharply, by one-third, despite inflation. Living standards, too, must have risen rapidly in these years. After 1839 however, change was slower. Earnings

Table 7.3. : Power-loom weavers' real incomes, 1837-1913

<u>Date</u>	<u>Earnings</u>		<u>Price levels</u>			
	<u>Employed</u>	<u>Average</u>	<u>Rousseaux</u>	<u>GRS.</u>	<u>Index 3</u>	<u>Sauerbeck</u>
1837	£1.33	£1.33	129(-10)	94(-10)		
1839	£2.00	£2.00	143	104		
1850	£2.18	£2.18	98(-31)	74(-30)	91	75
1858	£1.42	£1.24	110(+12)		99(+11)	88(+17)
1862	£2.47	£2.15	116(+5)		120(+20)	94(+7)
1870	£3.40	£3.40	112(-3)			93(-1)
1880	£1.80	£1.70	109(-3)	<u>Min.Lab.</u>		94(+1)
1886	£2.89	£2.89	86(-21)	<u>Food</u>		72(-23)
1894	£3.11	£3.11	78(-9)	95		66(-8)
1913	£3.63	£3.58	99(+27)	115(+21)		77(+17)

<u>Date</u>	<u>Real income estimates</u>	
	<u>Highest</u>	<u>Lowest</u>
1837	74	74
1839	100	100
1850	159	153
1858	92	81
1862	152	133
1870	217	217
1880	118	112
1886	240	240
1894	285	285
1913	262	259

fluctuated, falling especially in the strike year of 1846, but the general movement was erratically upwards, so that earnings rose by 10% in 11 years. Given the deflation current in the 1840's however, this meant that real incomes had risen by more than one-half by 1850. Although qualitative changes would have negated some of this benefit, living standards must have improved noticeably in the 1840's, despite the strike.

After 1850, earnings began to decline and by the low point of 1858, real income had fallen to below that present in 1839, with unemployment increased too. The Keighley Index 3 seems to suggest that the Rousseaux index is a satisfactory guide to local price movements in this period. The fall in real incomes then, during most of the 1850's, together with the increasing urban squalor and despite static local rents, must indicate a sharp setback in power-loom weavers' living standards, to levels only previously

experienced during the difficulties of innovation. This deterioration was soon checked however and by 1862, rising earnings had overcome the effect of rising prices, to raise real incomes for those in employment to the level prevalent in 1850. Since unemployment was quite high however, the real income of all power-loom weavers was a little lower. Index 3 suggests that Rousseaux may under-estimate the amount of local inflation in this period, but despite this, such an apparent rise in real incomes, together with static local rents and slowly improving urban conditions, must have meant that living standards improved by perhaps one-half in the four year period, to a level virtually as high as experienced in 1850.

During most of the 1860's, earnings, price levels and real incomes remained virtually static and power-loom weavers' living standards could have risen only slightly, at most. However, in the late 1860's, earnings rose rapidly, a sign of the economic boom being enjoyed by the worsted industry at this time in the wake of the Cotton Famine. By 1870, earnings were at a peak and unemployment was non-existent. Since the price movement had been very slightly downward in this period, the effect was to raise real incomes by more than one-third over the decade, to a level never before attained, at more than double the base level. Cheaper local rents were static in this period, whilst urban conditions were improving significantly and the mortality rate declining. The 1860's then, marked a significant rise in the power-loom weavers' living standards particularly in the last few years of the decade.

The boom conditions within the industry were not long-lasting however, and as changes in the level and type of demand adversely affected the industry, so earnings and employment levels fell. The effect of these changes was likely to be especially disadvantageous to the power-loom weavers, for as has been shown in chapter one, the weaving sector diminished in importance within the industry in this period. By 1880, power-loom weavers' earnings had virtually been halved. The movement of prices was insufficient to have any significant effect on this fall, so that real

incomes too virtually halved in the 1870', falling to only slightly above the base level of 1839. Local cheaper rents, too, had increased sharply in this period, although urban conditions continued to improve. The 1870's then marked a sharp decline in the power-loom weavers' living standards, although not quite to the levels of the late 1830's, because of the better urban and working conditions prevalent at the later date. This decline however, was only temporary and by 1886, earnings had recovered to some extent and full employment had been regained. The recovery was enhanced by the sharp fall in prices occurring in the early 1880's, so that real incomes in fact reached their highest level to date, slightly higher even than those of 1870. Real incomes more than doubled in the six-year period and the real incomes of 1886 were more than twice those of 1839. Thus recovery was effected in only six years, due to a combination of favourable movements in both earnings and prices. Economic depressions are of course beneficial to those who manage to stay in employment. Given that local cheaper rents were static in this period and that qualitative conditions were improving generally, living standards too must have risen sharply in the early 1880's

After this swift recovery, further advance proceeded more slowly, with a small rise in earnings being enhanced by a small fall in price levels. Thus by 1894, real incomes had risen by about one-sixth, to what was their highest level in the series at just under three times base level. Local cheaper rents were however rising in this period and whilst no adverse qualitative changes occurred, no specifically beneficial ones did so either. Therefore living standards probably failed to rise as fast as real incomes, but they must have risen. For the power-loom weavers then, the mid-1890's represented the years of the highest living standards. After this period, whilst earnings continued to rise and unemployment was never a very important factor, the inflationary movement of prices cancelled their effect. Thus by 1913, real incomes had fallen slightly. They were still higher than any level prevalent before 1894, but had fallen by almost one-tenth in the twenty-year period. Although qualitative conditions were probably improving in this

period, particularly with the increasingly interventionist role of the state, this seems to indicate that living standards too were slowly declining in the early years of the twentieth century.

In all then, one can say that power-loom weavers' living standards rose up to 1850, despite the deteriorating environmental conditions. They then fell sharply during most of the 1850's and the larger part of this improvement was wiped out. Recovery began, however, at the end of the decade and by 1870, living standards were perhaps double those of the late 1830's. The 1870's saw a recession down to nearly these levels but recovery set in in the early 1880's and by the mid-1890's, living standards were nearly three times the level of the late 1830's. During the next twenty years, however, they declined slowly.

As table 7.4. shows, it is difficult so say much about machine combers' living standards, because of the paucity of data. However, one can compare living standards at different points in time.

Table 7.4. : Adult machine combers' real incomes, 1871-1912

<u>Date</u>	<u>Earnings</u>		<u>Price Levels</u>		<u>Real income estimate</u>	
	<u>Employed</u>	<u>Average</u>	<u>Rousseaux</u>	<u>Sauerbeck</u>	<u>Highest</u>	<u>Lowest</u>
1871	£2.80(wage rate)		119	98	-	-
1873	£2.85	£2.85	124	106	100	100
1891	£2.79	£2.79	91(-27)	77(-27)	133	133
1912	£3.60	£3.60	100(+10)	81(+5)	165	157

Like the power-loom weavers, it seems that machine combers may have been experiencing real income falls in the early 1870's, as inflation occurred faster than increases in earnings. However, the 1871 material is in the form of a wage rate and this makes any less tentative conclusion impossible. In 1873, adults were earning just under £3.00 per month, boys about three-quarters of this. By 1891, adult earnings had fallen slightly, although this was more than compensated for by falling prices. Thus real incomes

had increased by one-third over a twenty-year period. Given improved environmental conditions living standards too must have risen quite sharply by 1891, although this would have been offset by the rise in local cheaper rents. By 1912, real incomes had risen again, by about one-quarter, to a level more than half as great again as that in the early 1870's. This rise was caused by rising earnings, despite a slight amount of inflation. Given the improvements in urban and working conditions, by this date, machine combers must have been enjoying their highest living standard for any of the three known years, although improvement was probably more rapid in the earlier period.

The next group to be discussed, a group crucial to the worsted industry, is the spinners. However their living standards are difficult to assess for a number of reasons. Since spinning is carried out mainly by young and teenage girls, few spinners remain in the occupation for ten years or more. Secondly, the earnings of the young half-timers and the older full-timers are very different, thus making aggregate figures difficult to use. Also, the material available comprises both wage rates and earnings. Therefore, as the tables overleaf show, the material has been divided into full-time and half-time wage rates, then full-time and half-time earnings. One more point must be made here. Since spinners were always young and teenage girls and hence were regarded as the least important members of the family, then throughout this period one would expect spinners to suffer from poor diet and low status (3).

The 'real' wage rate of half-time spinners was virtually static in the 1830's but had risen by over one-quarter by the early 1860's owing to the combination of a rise in money wage rates and a fall in price levels. This movement partly reflects the increasing age of half-time spinners in this period. The full-time spinners' 'real' wage rates, on the other hand, declined slightly between 1836 and 1837 and increased by only one-fifth in the period to 1863. By the early 1870's however, their 'real' wage rates had risen by another half, this being caused entirely by a rise in money wage rates. If one can assume that wage rates had

Table 7.5. :

Half-time and full-time spinners' wage rates, 1836-1871

<u>Date</u>	<u>Wage</u> Rate	<u>Price Levels</u>			<u>'Real' wage rate</u> estimate	
		<u>Rousseaux</u>	<u>GRS.</u>	<u>Sauerbeck</u>	<u>Highest</u>	<u>Lowest</u>
<u>Half-time spinners</u>						
1836	£0.40	129	95		100	100
1837	£0.40	129(0)	94(-1)		101	100
1863	£0.45	114(-12)		89	127	127
<u>Full-time spinners</u>						
1836	£1.10	129	95		100	100
1837	£1.00	129(0)	94(-1)		92	91
1863	£1.15	114(-12)		89	118	118
1871	£1.80	119(+4)		88(-1)	177	177

Table 7.6. :

Half-time and full-time spinners' real income, 1863-1907

<u>Date</u>	<u>Earnings</u>		<u>Price Levels</u>			<u>Real income</u> estimate	
	<u>Empl'd</u>	<u>Av'ge</u>	<u>Rousseaux</u>	<u>Sauerbeck</u>	<u>Min.Lab.</u> Food	<u>High</u>	<u>Low</u>
<u>Half-time spinners</u>							
1863	£0.37	£0.37	114	89		100	100
1864	£0.40	£0.40	113(-)	88(-1)		109	109
1873	£0.61	£0.61	124(+10)	107(+22)		152	137
<u>Full-time spinners</u>							
1863	£1.03	£1.03	114	89		100	100
1872	£2.11	£2.11	129(+13)	102(+15)		181	179
1886	£4.23	£4.23	86(-33)	72(-29)		544	508
1894	£3.72	£3.35	78(-9)	66(-8)	95	528	439
1899	£4.04	£4.04	81(+4)	65(-2)	95(0)	552	537
1900	£3.24	£3.24	87(+7)	69(+6)	100(+5)	412	406
1907	£3.77	£3.77	89(+2)	72(+4)	105(+5)	469	452

a constant relationship to earnings, then the real incomes, and the living standards, of all spinners must have risen only slowly between the 1830's and the 1860's, whilst those of the full-time spinners rose dramatically during the 1860's (as did those of the power-loom weavers), when the worsted industry entered into an economic boom.

Information on half-timers' real income is only

available for the period 1863-1873. This shows that whilst real income was increasing in the early 1880's, it increased most dramatically from 1864 to 1873, rising by almost one-half. Living standards too must have risen on a similar scale, especially as education was increasingly available to all children. The 1860's and early 1870's, then, were a period of increasing living standards for the half-time spinners, or perhaps only for their families if the half-timers were not able to control the way in which their earnings were spent.

The real incomes (and therefore the living standards) of the full-time spinners can be examined from 1863-1907. In the decade between 1863 and 1872, real incomes almost doubled, despite the rise in price levels, indicating that the full-time spinners were able to benefit from the economic boom within the worsted industry to a greater extent even than the half-time spinners. By 1886, this improvement had become insignificant however, since real incomes had virtually trebled since 1872, owing to a combination of increased earnings and falling prices. Hence real income was now at more than five times base level. Whilst this increase may be exaggerated because of the structure of the earnings series (as explained in chapter three), a real improvement in full-time spinners' real incomes must have taken place in the first half of the 'Great Depression'. Given that for those in employment qualitative changes were beneficial, then living standards too must have experienced a substantial rise.

This improvement did not continue however, although real incomes and living standards were never to fall greatly below this level. By 1894, real incomes had fallen by up to one-tenth, despite a small net fall in price levels. The drop was caused both by falling earnings and by increasing unemployment, but even for the average full-time spinner, real incomes were still more than four times base level. Qualitative factors would have mitigated against this decline, especially the fact that local mortality rates were falling, but living standards must have fallen at least slightly in the late 1880's and early 1890's. However, recovery was

swift, for by 1899 real incomes were slightly above their 1886 level. This was almost wholly owing to a rise in earnings and the cessation of unemployment, since the movement in prices was indecisive. Thus living standards too must have risen to at least as high as their previous peak in the mid-1880's and perhaps a little higher.

A year later, in 1900, conditions had changed with a drastic fall in earnings, perhaps partly caused by the decadal change in the sample used in the earnings series. Although unemployment was still nil, earnings fell and combined with the rise in prices, this meant that real incomes fell to their lowest level since the 1880's, at only four times base level. Thus they had fallen by almost one-quarter in one year. Despite the positive changes in qualitative conditions and the possible exaggeration in these figures, living standards must have fallen noticeably in the early 1900's. However, by the end of the series some recovery had been made, but real incomes were still low in terms of the experience of the 1880's and 1890's. This was because earnings failed to recover fully and prices continued to rise. Real income had risen by about one-eighth in seven years and living standards too must have shown a similar improvement.

In summary then, the wage rates of both half-time and full-time spinners indicate that there probably was some improvement in living standards between the 1830's and the 1860's, with the rate of improvement increasing in the 1860's. This is also shown in the data based on earnings. Full-time spinners' living standards increased rapidly to the mid-1880's at a time when the spinning sector increased in importance within the worsted industry, but then suffered a slight recession to the mid-1890's, only to recover by the end of the decade. In the early 1900's however, living standards were much lower and any improvement in this period was not sufficient to raise them to previous levels.

The last occupation to be discussed in this chapter is genapping. This was of only minor importance within the industry since it was a process that only some materials

went through. However, the presence of an earnings series from 1880 to 1907 enables one to analyse genappers' changing living standards. Their earnings were extremely erratic however, even in terms of annual averages and this has necessitated the use of no less than nine real income calculations in the 27 years of the series, as table 7.7. shows.

Table 7.7. : Genappers' real incomes, 1880-1907

<u>Date</u>	<u>Earnings</u>		<u>Price Levels</u>			<u>Real income estimate</u>		
	<u>Empl'd</u>	<u>Avg'e</u>	<u>Rousseaux</u>	<u>Sauerbeck</u>	<u>Min.Lab.</u>	<u>Food</u>	<u>High</u>	<u>Low</u>
1880	£3.25	£3.25	109	94			100	100
1882	£3.67	£3.67	107(-2)	89(-5)			119	115
1891	£2.91	£2.79	92(-14)	77(-13)			109	102
1893	£3.37	£3.37	86(-7)	72(-6)	99		135	131
1895	£2.53	£2.53	74(-14)	64(-11)	92(-7)		114	114
1897	£3.40	£3.40	78(+5)	65(+2)	96(+4)		151	146
1902	£2.20	£2.20	87(+12)	67(+3)	101(+5)		95	85
1904	£3.10	£3.10	81(-7)	68(+1)	102(+1)		132	128
1907	£3.46	£3.26	89(+10)	72(+6)	105(+3)		139	123

In the early 1880's, there was no unemployment amongst genappers whilst earnings rose and prices fell. Therefore, real incomes rose by at least one-sixth in the period 1880-1882 and living standards too must have improved quite sharply. However, during the rest of the 1880's, earnings declined. This was largely compensated for by falling prices so that by 1891, real incomes were still slightly above the base level. Unemployment had come into existence by this time, but it was still only at a very low level. In the 1880's then, the genappers' living standards improved at first, were then maintained at a high level, but ultimately declined to only slightly above base level.

During the 1890's and the early 1900's, the real incomes of genappers, and hence their living standards, underwent cyclical fluctuations. These were primarily owing to changes in earnings, as prices moved steadily downwards to 1895 and then fairly steadily upwards. Unemployment, however, was non-existent until 1907. Thus real incomes in 1893 had improved by one-third, to a new maximum, but within two years

had fallen by more than one-eighth, bringing them to the previous maximum level of 1882. In another two years, by 1897, real incomes rose to their highest for the series, at one-and-a-half times base level, having risen by about one-third in only two years. In the next two years, earnings fell only slightly, so that real incomes too fell but slowly. However, between 1899 and 1902, a drastic fall in earnings took place to reduce real incomes to their lowest for the series, at just below base level. Within the five-year period, real incomes had fallen by more than one-third. By 1904 however, recovery had been achieved, for real incomes again increased by one-third to make them one-third greater than base level. This level was then maintained so that by 1907, despite the presence of some unemployment, real incomes were between one-quarter and two-fifths higher than base level.

So far the discussion has been centred on real incomes. Living standards too must have been improving, but the very fact that real income was so erratic implies that living standards were probably lower than one would otherwise expect, since genappers would have been unlikely to be able so save their earnings for less-prosperous times with perfect efficiency. Generally, however, living standards, as has been seen, must have risen in the early 1880's but then returned to base level. In the 1890's and early 1900's, living standards were again rising in trend, but with severe slumps in the mid-1890's and the early 1900's. By the mid-1900's however, living standards had stabilised appreciably above their 1900 level.

References

- (1) In all the real income tables, the highest estimate of real income is produced by using the earnings of those in employment together with the price index which has shown the greatest fall or smallest rise, whilst the lowest estimate uses the earnings of all workers and the less advantateous index. The highest estimate in the first year is always taken as 100. Figures in brackets () in the price column refer to the percentage change in price levels since the previous entry.
- (2) The Rousseaux index shows the same rate of decline in the short run as the Keighley Index 2a during this period.
- (3) R. Roberts op. cit., p. 84.

CHAPTER 8 :

THE STANDARD OF LIVING OF KEIGHLEY WORSTED WORKERS (PART TWO)

Part two is concerned with the semi-skilled and skilled mill-based jobs together with occupations such as carters, which were important to the worsted industry but not unique to it. Most of the occupations discussed in this chapter were exclusively male.

The material on mill hands occupies a special position, as this occupation was not broken down into the separate component occupations until 1872. From 1830 to 1871 then, the mill hands' index can be used as an indicator of the changes in living standards for semi-skilled and skilled workers, as table 8.1. shows.

Table 8.1. : Mill hands' real income, 1830-1871

<u>Date</u>	<u>Earnings</u>		<u>Price Levels</u>			
	<u>Employed</u>	<u>Average</u>	<u>Rousseaux</u>	<u>GRS.</u>	<u>Index 3</u>	<u>Sauerbeck</u>
1830	£1.84	£1.84	124	95		
1837	£1.25	£1.25	129(+4)	94(-1)		
1840	£2.08	£2.08	141(+9)	103(+10)		
1844	£2.58	£2.46	119(-16)	81(-21)		
1850	£1.81	£1.81	98(-18)	74(-9)	91	75
1856	£2.21	£2.21	128(+31)		137(+50)	99(+32)
1861	£1.44	£1.41	117(-9)		127(-7)	97(-2)
1868	£2.78	£2.78	118(+1)			100(+3)
1871	£2.50	£2.50	119(+1)			98(-2)

<u>Date</u>	<u>Real income estimates</u>	
	<u>Highest</u>	<u>Lowest</u>
1830	100	100
1837	69	65
1840	104	99
1844	164	139
1850	126	124
1856	116	116
1861	83	81
1868	159	159
1871	142	142

Throughout the period, whatever the changes in real income, the demand for, and the status of, mill hands was rising. Also mill hands generally enjoyed more regular earnings than

other workers.

Although unemployment was minimal until the mid-1840's, earnings fell steadily in the 1830's, whilst the movement of prices was uncertain. This meant that by 1837, real income had fallen to about two-thirds of the 1830 base level. Local rents were static however, and the urban and environmental conditions only deteriorating gradually, so that while mill hands' living standards must have fallen sharply in the 1830's, the measured drop in real income perhaps over-estimates this fall. In the late 1830's, earnings underwent a rapid recovery, although the effect of this was dampened by rising prices. As a result, real incomes in 1840 were approximately equal to those in 1830, although given the urban deterioration that occurred in this decade, living standards must have been slightly below those of ten years previously. The rise in earnings continued in the early 1840's at a slightly slower pace and this time it was accompanied by falling price levels. Thus in 1844, real incomes peaked at two-fifths to two-thirds above base level and the level of 1840, despite the presence of some unemployment. Living standards too, for both the average and the employed mill hand, must have been at their highest for the period 1830-1844 at this time, despite worsening environmental conditions and the potentially increased competition for mill hands' jobs from redundant hand-loom weavers.

This advantageous position was only temporary, however, for mill hands' earnings fell steadily in the later 1840's, although unemployment did cease. The fall in earnings was partly a result of combers' and weavers' strike of 1846, but even afterwards they failed to recover fully. This was in part compensated for by falling price levels, but by 1850, real incomes had fallen by as much as one-sixth, so that they were only 25% above the base level. The worsening urban conditions must have pulled living standards even nearer to base level. The deterioration in real incomes continued during the early 1850's, primarily owing to rapid inflation, as earnings rose between 1850 and 1856. By the latter year, real incomes had fallen by about one-twelfth. This fall may be even under-estimated as the Keighley Index 3 shows a much

higher rate of inflation than the two national indexes. At the same time, whilst local dearer rents were static, Keighley had reached its "nadir" and hence living standards must have fallen even lower than real incomes.

In the second half of the 1850's, real incomes continued to fall, eventually passing the 1830 base level. The reason had changed however, as falling earnings were now reducing real incomes despite falling price levels. By 1861, real incomes had fallen by more than one-quarter in five years, a much greater rate of fall than that in evidence in the first half of the decade. They were now at almost 20% below base level and had virtually halved in 17 years. The effect of this on living standards would have been ameliorated by the beginnings of urban improvement and the static nature of local rents, but even so, living standards must have been at their lowest for the whole series in the early 1860's. Recovery, however, was rapid, led by a sharp rise in earnings which virtually doubled in eight years. As there was very little inflation in this period, real incomes too virtually doubled by 1868, standing at more than 50% above base level. Although local dearer rents rose quite steeply in this period, the changes in urban conditions were favourable, so that living standards too must have risen rapidly in the 1860's, marking the economic prosperity of the worsted industry. Living standards at the end of the 1860's, for mill hands, were probably slightly better than in the mid-1840's and thus at their highest for the series. By the end of the series in 1871, a small fall in earnings reduced real income to just over 40% above base level, that is by one-tenth in three years. Despite static rents and improving urban conditions, living standards too must have fallen in this period.

Overall then, mill hands' living standards deteriorated steadily in the 1830's, but probably recovered by the end of the decade and by the mid-1840's were at perhaps 150% of the 1830 level. They then declined steadily for nearly two decades, aided at first by the combers' and weavers' strike and then by worsening urban conditions. By 1861, living standards had halved and were noticeably below base level.

The favourable economic conditions of the 1860's, however, led to a rapid recovery and by 1868, living standards were slightly higher than the mid-1840 level. There had been only a slight drop from this peak by the end of the series in 1871.

The next section deals with those occupations within the general description 'mill hands' for which there is very little information - the wool sorters, the finishers, the menders and burlers and the twisters and drawers. Conclusions drawn about the living standards of these groups can only be limited and tentative.

Wool sorting was carried out entirely by males and was a fairly highly-paid job, partly in compensation for the fact that wool sorters ran the risk of catching anthrax. As the table below shows, there is very little material available on wool sorters:

Table 8.2. : Wool sorters' real incomes, 1871-1913

<u>Date</u>	<u>Earnings</u>		<u>Price Levels</u>		<u>Real income estimate</u>	
	<u>Employed</u>	<u>Average</u>	<u>Rousseaux</u>	<u>Sauerbeck</u>	<u>Highest</u>	<u>Lowest</u>
1871	£4.10 - £4.00 (wage rate)		119	98	-	-
1891	£4.12	£4.09	92	77	100	100
1912/1913	£5.23	£5.23	100(+9)	79(+2)	124	117

By 1891, the wool sorters were earning as much as their wage rate had been in 1871, although price levels had fallen considerably in the intervening years. This perhaps implies that real incomes definitely had risen in this period. By 1912/1913, real incomes certainly had risen, by about one-fifth, due mainly to rising earnings counteracting the effect of rising prices. Living standards too must have risen by this time, not only because of improving urban conditions, but because of improving working conditions. The greater knowledge of the effective prevention and treatment of anthrax not only increased the wool sorters' living standards but also lengthened their potential life expectancy.

A similar amount of material is available for the twisters and drawers, as shown in the table below. This was a fairly low-paid job, usually done by the younger workers and of no special status.

Table 8.3. : Twisters' and drawers' real incomes, 1871-1912

<u>Date</u>	<u>Earnings</u>		<u>Price Levels</u>		<u>Real income estimate</u>	
	<u>Employed</u>	<u>Average</u>	<u>Rousseaux</u>	<u>Sauerbeck</u>	<u>Highest</u>	<u>Lowest</u>
	1871	£2.80 (twisters' wage rate)		119	98	-
	£2.00 (drawers' wage rate)				-	-
1891	£2.15	£2.13	92	77	100	100
1912	£2.60	£2.55	100(+9)	81(+5)	115	109

This shows that twisters, in 1871, had a considerably higher wage rate than drawers. In 1891, the twisters' and drawers' average earnings were near to the wage rate of the drawers' in 1871 and there was a slight amount of unemployment. The latter still existed in 1912, but earnings had risen sufficiently to counteract the rising prices and raise real incomes by about one-tenth above their 1891 level. In the latter period then, given improving environmental conditions, living standards would have had the net effect of rising very slowly.

As table 8.4. shows, there is slightly more data available on menders and burlers although some differentiate between the two occupations and some do not. The menders' series is very erratic, but shows an upward trend. Therefore only the terminal dates have been considered. These show that between the late 1880's and the late 1890's, real incomes rose by up to 40%, largely because of rising earnings. Living standards, too, must have risen overall in this period, although primarily in the first half when prices were falling, since environmental conditions were improving and local rents rising little. The menders and burlers combined material reinforces this interpretation, since it shows that real incomes in 1912 were over one-quarter

Table 8.4. : Menders' and burlers' real incomes, 1887-1912

<u>Date</u>	<u>Earnings</u>		<u>Price Levels</u>		<u>Real income estimate</u>	
	<u>Employed</u>	<u>Average</u>	<u>Rousseaux</u>	<u>Sauerbeck</u>	<u>Highest</u>	<u>Lowest</u>
<u>Menders</u>						
1887	£2.34	£2.34	82	70	100	100
1899	£3.01	£3.01	81(-1)	65(-5)	140	131
<u>Menders and burlers</u>						
1891	£2.43	£2.43	92	77	100	100
1912	£3.34	£3.34	100(+9)	81(+5)	131	126

higher than on 1891. Menders and burlers, throughout this period, must have experienced long-run improvements in their standard of living.

Finally in this section, it is necessary to deal with the finishers, for whom there is one earnings series 1886-1907, as shown in the table below. Finishers were a fairly well-paid group, but were not of high status within the industry. The earnings series relied on only three to five people and may, therefore, tend to exaggerate improvements in earnings as people within the group age.

Table 8.5. : Finishers' real incomes, 1886-1907

<u>Date</u>	<u>Earnings</u>		<u>Price Levels</u>			<u>Real income estimate</u>	
	<u>Empl'd</u>	<u>Av'ge</u>	<u>Rousseaux</u>	<u>Sauerbeck</u>	<u>Min.Lab.</u>	<u>High</u>	<u>Low</u>
					<u>Food</u>		
1886	£4.42	£4.42	86	72		100	100
1898	£6.42	£6.42	82(-5)	68(-6)	100	154	152
1900	£5.40	£5.40	87(+6)	69(+1)	100(0)	127	121
1904	£5.09	£5.09	81(-7)	68(-1)	102(+2)	122	122
1907	£6.42	£6.33	89(+10)	72(+6)	105(+3)	145	117

During the second half of the 1880's, and most of the 1890's, finishers' earnings moved erratically upwards and when combined with the predominantly downwards movement of

prices, this was sufficient to raise real incomes by one-half between 1886 and 1898. Living standards, too must have risen dramatically in this period for unemployment was negligible, local dearer rents rising only slowly and environmental conditions improving. This situation was only temporary however, for the next two years saw a rapid fall in earnings. Exacerbated by rising prices, this reduced real incomes by about one-fifth, to about 25% above base level, although there was still no unemployment. Living standards too must have tumbled in this period. In the first half of the 1900's, the fall of earnings continued, but this time ameliorated by falling prices, so that real incomes barely moved downwards at all by 1904 and, given continued urban improvement and falling dear rents, living standards may even have risen slightly. This tentative trend was confirmed by 1907, especially for those in employment. Except in the most extreme case, rising earnings overcame the effect of rising prices (which the national indexes might over-estimate). In the most favourable estimate real incomes rose by nearly one-fifth to almost 50% above base level. Living standards too must have reflected this rise.

Overall then, finishers' living standards rose steadily in the late 1880's and most of the 1890's, only to decline rapidly in the period 1898-1900. In the early 1900's, they probably improved very slightly, despite the slow fall in real incomes and by 1907, for most finishers, they had risen to their highest level in that decade.

When dealing with the skilled mill-based occupations, on which there are rather more data, a different problem arises. The mechanics' and overlookers' earnings series are based on between two and six people and, therefore, must be treated with caution, since they may exaggerate not only the amount of unemployment, but the increase in earnings through time, as earnings in these skilled occupations tended to increase at least in the first half of the life cycle (1). However, it is believed that the mechanics' and overlookers' earnings series can be used with cautious confidence. Much more care is required in the use of the piece room workers' and warp-dressers' earnings series however, as these only

rely on between one and three people. Thus any conclusions drawn from these series can only be tentative.

Taking piece room workers first, this was a reasonably well-paid job of no special status, with little or no unemployment. Two sets of earnings data are available, but these must be treated separately as they show widely different earnings levels (caused, one suspects, by a different age composition in the shorter, but more widely-based, samples). The material is set out in table 8.6. below.

Table 8.6. : Piece room workers' real incomes, 1880-1912

<u>Date</u>	<u>Earnings</u>		<u>Price Levels</u>			<u>Real income estimate</u>	
	<u>Empl'd</u>	<u>Av'ge</u>	<u>Rousseaux</u>	<u>Sauerbeck</u>	<u>Min.Lab.</u>	<u>High</u>	<u>Low</u>
					<u>Food</u>		
<u>Clough</u>							
1880	£1.99	£1.99	109	94		100	100
1896	£7.43	£7.43	72(-34)	62(-34)	92	565	565
1899	£6.38	£6.38	81(+13)	65(+5)	95(+3)	434	431
1901	£7.28	£7.28	84(+4)	67(+3)	100(+5)	513	475
1907	£7.43	£7.43	89(+6)	72(+7)	105(+5)	487	457
<u>Bairstow</u>							
1891	£4.02	£4.02	92	77		100	100
1912	£5.13	£5.13	100(+9)	81(+5)		121	117

During the 1880's and the early 1890's, piece room workers' earnings rose sharply, halted only by temporary slumps in 1884/1885 and 1894. This rise in earnings was enhanced by the heavy deflation occurring in these years, so that by 1896, real incomes had increased more than five-fold in 16 years. Local dearer rents did increase in this period and it is highly doubtful that urban and working conditions improved as rapidly as real incomes. Therefore living standards must have risen substantially in this period, but not as fast as real incomes. After the mid-1890's, the trend in real incomes was downwards, although not much of the improvement of the past 16 years was lost. Thus by 1899, earnings had fallen and, exacerbated by rising prices, this meant that real incomes fell by more than one-fifth in only

three years. However, they were still more than four times base level. This decline in real income must have been mirrored by a fairly sharp fall in living standards, although local dearer rents were approximately static at this time and environmental conditions may have been improving.

By 1901 however, a quite successful recovery had been made from this slump, although the near full recovery in earnings was deflated by the continuing rise in prices, so that real income, whilst rising by between one-fifth and one-tenth, failed to reach the 1896 level. In 1901, real income was about five times base level. Given that local dearer rents were falling and urban conditions slowly improving in this period, one would expect that living standards too were improving, but not to the levels prevalent in the mid-1890's. By 1907, earnings at least, had reached their previous maximum, but again this improvement was negated by rising prices. Thus real incomes actually fell by up to one-tenth, although it is possible, at the extreme limit, that they may have risen slightly. Local dear rents were virtually static in this period and changes in qualitative conditions not decisive, so living standards too must have fallen, although not as far as they had in the late 1890's.

This picture of rising living standards in the 1880's and early 1890's, followed by slowly but erratically falling living standards, can be seen to be confirmed by the Bairstow series, although this is at a much lower level of earnings. Between 1891 and 1912, earnings rose and so did real incomes, by up to one-fifth, despite the counteracting effect of rising prices. Given the qualitative changes in this period, living standards in 1912 must have been slightly higher than those of 1891. Overall then one can say that the piece room workers enjoyed rapidly rising living standards in the 1880's and early 1890's and that the subsequent decline was both erratic and (in terms of the previous increase) relatively slight, so that the living standards of 1912 were still higher than those of 1891.

The method of analysing the warp-dressers' series is very similar to that used for the piece room workers.

However, it must be noted that whilst the warp-dressers were fairly well paid, their earnings fluctuated widely even on an annual basis and employment too was erratic. Partly as a result of this, the warp-dressers' status was not exceptionally high. As the table below shows, real income calculations have had to be made very frequently because of the erratic nature of the material:

Table 8.7. : Warp-dressers' real income, 1871-1912

<u>Date</u>	<u>Earnings</u>		<u>Price Levels</u>			<u>Real income</u>	
	<u>Empl'd</u>	<u>Av'ge</u>	<u>Rousseaux</u>	<u>Sauerbeck</u>	<u>Min.Lab.</u>	<u>estimate</u>	
						<u>High</u>	<u>Low</u>
1871	£4.20		119	98		-	-
	(wage rate)						
<u>Clough</u>							
1880	£4.82	£4.82	109	94		100	100
1881	£2.30	£1.78	105(-4)	91(-3)		50	38
1883	£4.53	£4.23	109(+4)	89(-2)		99	88
1889	£5.39	£5.39	85(-22)	75(-16)		143	140
1890	£4.97	£3.99	91(+7)	73(-3)		133	99
1895	£6.19	£6.19	74(-19)	64(-12)	92	189	189
1898	£5.08	£5.08	82(+11)	68(+6)	100(+9)	146	140
1907	£5.06	£5.06	89(+9)	72(+6)	105(+5)	137	129
<u>Bairstow</u>							
1891	£4.33	£4.33	92	77		100	100
1912	£5.41	£5.41	100(+9)	88(+5)		131	111

A comparison shows that the earnings level of 1880 was nearly one-fifth higher than the wage rate of 1871, although prices had fallen slightly during the intervening years. Tentatively then, one can say that real incomes probably rose over this period and living standards too.

The erratic nature of the series is immediately apparent in the 1880's, as earnings halved for those in employment between 1880 and 1881 and fell even further for the average worker, as unemployment increased. Despite the fall in price levels, real incomes dropped by more than one-half in one year and living standards too must have suffered almost as great a fall. By 1883, earnings had returned almost to base level and unemployment had become much less severe. Coupled with the uncertain movement in prices, this meant

that real incomes recovered almost to base level. One would expect a similar movement to be apparent in living standards. During the rest of the 1880's, earnings increased less rapidly and more erratically and by 1889, they were at their highest to date. Since the 1880's saw a heavy fall in prices, real incomes too rose to their highest levels yet, at 40% or more above base level, having risen by at least two-fifths in six years. Although local rents were rising in this period, environmental conditions were improving and living standards would have reflected the rise apparent in real incomes.

A setback occurred in the following year, when earnings fell and unemployment increased, resulting in a fall of real income between one-tenth and three-tenths. In the extreme case, real incomes fell as low as the level of 1880 and 1883. As qualitative changes were slight in this short period and local rents static, living standards too must have experienced some decline. The early 1890's, however, showed a phenomenal rise in real income, increasing by between one-half and nine-tenths to almost double base level, as a result of both rising earnings and falling prices. Qualitative changes were probably beneficial in this period, although local dearer rents were static, so that living standards too must have risen to their maximum for the period, appreciably above the previous peak of 1889. This improvement was, however, short-lived and by 1898, falling earnings and rising prices had reduced real incomes to the 1889 level. Living standards may not have been reduced so far, as qualitative conditions continued to improve and local dearer rents even fell slightly.

Between 1898 and the end of the series in 1907, the movement of earnings was erratic but small and the continuing rise in prices meant that real incomes fell by perhaps one-tenth. However, the continuing decline in local dearer rents and the improvement in qualitative conditions would have meant that living standards fell little by 1907 if at all.

Again the Bairstow series tends to confirm the conclusions drawn from the Clough material. By 1912, earnings had risen enough to counteract the rise in prices

and raise real incomes by 10% to 30% above the 1891 level. Living standards, too, must have risen by a similar proportion. Overall then, one can conclude that warp-dressers' living standards probably rose in the 1870's, suffered a slump in the early 1880's, but then continued a rather erratic progress, with the long-run trend being towards improvement, although, particularly in the 1900's, this could be interrupted by short-run periods of falling or static living standards. It is important to note that the irregularity of the warp-dressers' earnings, both in the long and the short run, prevented them from enjoying as high a living standard as their average earnings imply, since they would be unable to even out the fluctuations in their earnings perfectly.

The last two mill-based occupations are the mechanics (and joiners) and the overlookers. For both of these there are a large amount of information. Mechanics and joiners have been taken together, partly because of a basic similarity between the occupations and partly because the Bairstow records do not distinguish between them. In general the discussion will centre on mechanics, however, as most of the material does relate specifically to them. Mechanics were highly paid in relation to other occupations within the industry and held a job of high status, particularly as it involved a certain amount of technical knowledge. All mechanics were male. Although earnings were regular and unemployment rare, there were frequent fluctuations in annual average monthly earnings, particularly in the early part of the series. As the table overleaf shows, this necessitates the use of frequent real income calculations. Again the wage rate data and the Bairstow data have been treated separately.

The joiners' wage rate material shows that there was some deterioration in 'real' wage rates between 1836 and 1837, caused by falling money wage rates. By 1872, the earnings of mechanics were far below the wage rates of joiners in 1836/1837, although price levels were the same. Tentatively then, this may indicate that real income and hence, living standards, were lower in the early 1870's than

Table 8.8. : Mechanics' and joiners' real incomes, 1836-1912

Date	Earnings		Price Levels			Real income estimate	
	Empl'd	Av'ge	Rousseaux	Sauerbeck	Min.Lab.	High	Low
1836	£4.20		129		95(GRS.)	100	100
	(joiners' wage rate)						
1837	£3.80		129(0)		94(-1)	91	90
<u>Clough mechanics</u>							
1872	£2.61	£2.61	129		102	100	100
1875	£4.84	£3.37	124(-4)		100(-2)	193	132
1876	£4.11	£4.11	123(-1)		99(-1)	165	162
1880	£5.84	£5.84	109(-11)		94(-5)	265	243
1881	£4.90	£4.90	105(-4)		91(-3)	231	210
1883	£6.62	£6.62	109(+4)		89(-2)	300	291
1885	£5.99	£5.99	91(-17)		74(-17)	325	316
1889	£7.38	£7.38	85(-7)		75(+1)	429	385
1892	£6.72	£6.72	87(+2)		73(-3)	382	360
1907	£7.73	£7.73	89(+2)		72(-1)	429	420
<u>Bairstow mechanics and joiners</u>							
1891	£5.30	£5.30	92		77	100	100
1912	£5.73	£5.73	100(+9)		81(+5)	103	99

in the mid-1830's, if one can assume that joiners in the 1830's were not under-employed. Real income rose rapidly in the first half of the 1870's however, with a small fall in prices enhancing a large rise in earnings. However, unemployment was quite severe, so that whilst the real incomes of those in employment almost doubled 1872-1875, those of the average mechanic only rose by one-third. Living standards generally must have increased by similar proportions, especially for those in employment, as environmental changes were favourable. 1876 saw the cessation of unemployment and from that year, the range of experiences was narrowed. Although earnings fell, causing real incomes for those in employment (at the highest estimate) to fall, for the extreme poor case real incomes rose. Hence real incomes stabilised at just over 60% above base level and living standards, too, would have moved in the same direction.

In the late 1870's, there was another, but less rapid rise in earnings which was coupled with a steady deflation of prices. Therefore by 1880, real incomes had increased by

more than one-half since 1876, being about 250% of base level. Qualitative changes would not have occurred so fast, but even so, living standards must have improved rapidly in the late 1870's, reaching previously unknown levels by 1880. The erratic nature of the series, however, is demonstrated by the fact that earnings fell sharply in the next year, although only to the highest level prevalent in 1875 and there was still no unemployment. Although the effect of this fall was partly alleviated by falling prices, by 1881, real incomes had fallen by perhaps one-tenth to stand at about 220% of base level. However, this fall would have been alleviated by the steep fall in local dear rents 1880-1881. In addition, there were no decisive qualitative changes in this year, so living standards would not have fallen as much as earnings.

In the rest of the 1880's, there was continuous improvement in both real income and living standards. Between 1881 and 1883, real incomes rose by one-quarter to 300% of base level, as rising earnings overcame the effect of uncertain changes in prices. Living standards too would have risen although not quite as steeply, for local dearer rents were rising and qualitative changes were not so rapid. Between 1883 and 1885, earnings fell slightly, but prices fell even more, so that real incomes continued to rise, but more slowly. By 1885, they had only risen by less than one-tenth, but this was sufficient to raise them as high as 32% of base level and living standards would have reflected this. In the second half of the 1880's, improvement was again caused by rising earnings overcoming the effect of uncertain price movements. Real income rose by between one-fifth and almost one-third in four years, to unprecedented heights around 400% of base level. Local dearer rents continued their upward trend in this period and qualitative changes were not great, but the improvement in real income was such that living standards too must have risen quite rapidly in the late 1880's, although not as fast as real income.

The early 1890's saw the first set-back in real incomes for a decade, caused by falling earnings and uncertain price movements. However, the fall was less than one-tenth in most

cases and was not sufficient to reduce real incomes to the level of the mid-1880's. Although local dearer rents were rising, qualitative changes were generally favourable and this may have been sufficient to ameliorate the effect on living standards so that they would have declined only very slightly. In the 1890's and 1900's, the level of earnings became much less erratic, making frequent real income calculations unnecessary. However, the general trend was upwards as rising earnings more than compensated for rising prices. Thus by 1907, real incomes had increased by more than one-tenth and were at about 425% of base level, that is equal to the most favourable estimate of the late 1880's. As local dearer rents declined slightly in this period, environmental conditions improved and unemployment was non-existent amongst mechanics, living standards must have displayed a similar improvement.

The Bairstow material can be seen to fit in with this picture as it shows that, as a result of rising earnings and rising prices, mechanics' and joiners' real incomes were almost the same in 1912 as in 1891. Given that rents were rising in Sutton in this period, but that qualitative changes were generally favourable, this would have been true for living standards too. Overall then, living standards may have been lower in the early 1870's than in the mid-1830's. They rose rapidly in the 1870's although suffering a set-back in 1876. Another set-back was evident in 1881, but recovery was rapid and living standards rose, perhaps more slowly, in the 1880's only to stagnate in the early 1900's. For the rest of the period, they rose only very slowly and may even have declined a little in the late 1900's. Even so living standards after the late 1880's never fell back to the levels prevalent in, and before, the mid-1880's.

The material on overlookers' real income is both more numerous and more steady in its trend, although different types of overlookers are dealt with at different times, as can be seen in the tables overleaf. Overlookers held a highly-paid stable job which was of high status, although the overlooker himself (they were predominantly male) might not have been highly regarded because of his role as

protector of the employer's interests. As has been shown in chapter six, overlookers had a great deal of power, which they sometimes abused; they were also individually assured of a semi-permanent position with steadily rising earnings.

Table 8.9. : Overlookers' 'real' wage rates, 1836-1871

<u>Date</u>	<u>Wage rates</u>		<u>Price levels</u>		
	<u>Overlooker</u>	<u>Other</u> (assistant)	<u>Rousseaux</u>	<u>GRS.</u>	<u>Sauerbeck</u>
1836	£4.00	£3.00	129	95	
1837	£3.60	£3.00	129(0)	94(-1)	
	(comber)	(spinner/weaver)			
1871	£5.60	£4.60	119(-8)		98

<u>Date</u>	<u>'Real' wage rates estimate</u>	
	<u>Highest</u>	<u>Lowest</u>
1836	100	75
1837	91	75
1871	152	125

When the earnings of the group did fall, it was generally the result of young entrants being paid low wages, not older workers having their earnings cut.

Between 1836 and 1837, 'real' wage rates for assistant overlookers were constant, but those of overlookers fell by almost one-tenth due to falling wage rates. By 1871, the 'real' wage rates of all overlookers had risen, as falling prices enhanced increasing wage rates. Hence the 'real' wage rates of combing overlookers were over 50% above base level, those of spinning and weaving overlookers, 25%.

In 1876, the overlookers' earnings in general were lower than any of the wage rates in 1871. Since price levels rose between these two years, it is possible that overlookers' real incomes and living standards declined in the first half of the 1870's. This putative decline continued in the later 1870's as earnings fell faster than prices. Thus real

Table 8.10. : Overlookers' real incomes, 1876-1912

Date	Earnings		Price Levels			Real income estimate	
	Empl'd	Av'ge	Rousseaux	Sauerbeck	Min.Lab.	High	Low
					Food		
1876	£4.49	£4.49	123	99		100	100
1881	£3.40	£3.40	105(-15)	91(-8)		89	82
1891	£6.84	£6.84	92(-12)	77(-15)		204	196
1901	£7.43	£7.43	84(-9)	67(-13)	100	245	242
1907	£7.17	£7.17	89(+6)	72(+7)	105(+5)	221	220
	(weaving)(general)						
1891	£5.54	£5.50	92	77		100	99
1912	£6.61	£5.81	100(+9)	81(+5)		113	97

incomes were more than 10% below the 1876 base level in 1881. The effects of this decline may have been ameliorated by falling local dearer rents and improving environmental conditions, but living standards must, at best, have stagnated and probably in fact, fell slightly in this period.

The 1880's were however, a period of rapid recovery as earnings doubled and prices continued to fall. Thus real income more than doubled, to stand at about 200% of base level in 1891. Although there had been a short-term slump in the middle of the decade, real improvement was recorded in this period. Living standards, too, must have risen sharply as the improvement in qualitative conditions generally would have counteracted the effect of rising local dearer rents. In the 1890's, this improvement continued, although less rapidly, with most benefit being gained in the first half of the decade when prices were falling. Thus by 1901, real incomes had risen by one-fifth, to nearly two-and-a-half times base level. Qualitative conditions were improving in this period (although the overlooker may have been losing some of the power he had to abuse his authority) and local dear rents were falling steadily, hence living standards too must have risen steadily in this decade. The 1900's saw a reverse in this trend however, as earnings fell and prices rose to reduce real incomes by up to one-tenth, to bring them to 220% of base level, but still above any level found prior to the 1890's. Although local dearer rents continued to fall in this period, living standards must have at least stagnated

and probably fell for some overlookers.

Again the Bairstow data confirm this impression, for they show that whilst the weaving overlookers enjoyed slightly higher real incomes in 1912 than in 1891, since earnings rose faster than prices, the general overlookers' real incomes stagnated. Overall then, overlookers' living standards may have been greater in the early 1870's than the mid-1830's, but then they declined, or at most stagnated, until the early 1880's. In the next two decades (and particularly up to 1896) living standards rose rapidly but they again stagnated or even fell slightly in the 1901-1912 period, especially, it seems, for non-weaving overlookers.

The last occupation which will be discussed is the carters. Whilst this was not a mill-based occupation and was obviously not solely carried out within the worsted industry, it was an important occupation in the manufacturing process, dealing as it did with transport and distribution.

Table 8.11. : Carters' real income, 1872-1912

<u>Date</u>	<u>Earnings</u>		<u>Price Levels</u>			<u>Real income</u>	
	<u>Empl'd</u>	<u>Av'ge</u>	<u>Rousseaux</u>	<u>Sauerbeck</u>	<u>Min.Lab.</u>	<u>Estimate</u>	
						<u>High</u>	<u>Low</u>
<u>Clough</u>							
1872	£2.90	£2.90	129	102		100	100
1886	£4.32	£4.32	86(-33)	72(-29)		223	211
1889	£4.11	£4.11	85(-1)	75(+4)		215	193
1894	£4.77	£4.77	78(-8)	66(-12)	95	272	254
1899	£4.77	£4.77	81(+4)	65(-1)	95(0)	262	258
1901	£5.61	£5.61	84(+4)	67(+3)	100(+5)	297	295
1907	£5.63	£5.63	89(+6)	72(+7)	105(+5)	281	275
<u>Bairstow</u>							
1891	£4.88	£4.88	92	77		100	100
1912	£5.07	£5.07	100(+9)	81(+5)		99	96

The carters' job was fairly arduous but reasonably well paid and with little unemployment. A carter's status was quite high, but not as high as a mechanic's or overlooker's. Carters were paid on an hourly basis and thus the monthly

and annual fluctuations in their earnings were not great, as table 8.11. shows. However, the Clough material (but not the Bairstow material) is based on between only one and three carters and therefore must be used cautiously.

Real income rose steadily in the 1870's and early 1880's, as earnings rose and prices fell. Thus by 1886, real incomes were about 220% of the 1872 base level. Living standards, too, must have more than doubled in this period, since there were no marked negative qualitative changes. In the late 1880's, earnings fell slightly whilst the movement of prices was uncertain, so that by 1889, real incomes had fallen slightly, although at the most favourable extreme, they may only have stagnated. Local dearer rents were still rising in this period, but other qualitative changes would have been favourable. Therefore, one can say that in the late 1880's, living standards at least stagnated and may even have declined slightly.

In the 1890's and 1900's, one can expect some exaggeration of the trends because the series depends on only one man. By the mid-1890's, earnings had risen to a new maximum and this level was maintained until the late 1890's whilst prices at first fell and then experienced uncertain movement. Thus by 1894, real incomes had risen to more than 250% of base level, a rise of perhaps three-tenths in five years and by 1899, they had consolidated into a smaller range at the same level. Living standards, too, must have risen in the period 1889-1894, particularly as local dearer rents were stagnating. In the rest of the 1890's, living standards probably rose slightly despite stagnant real incomes, partly because of falling local dearer rents and improving environmental conditions, partly as a result of carters beginning to unionise amongst themselves.

By 1901, real incomes had risen again to virtually three times base level, a rise of more than one-tenth in two years, as a result of rising earnings overcoming rising prices. Living standards too must have risen in this period, particularly as local dearer rents continued to fall. By 1907 however, real incomes had fallen slightly, though they

were still above any pre-1900 level. This was due to stagnating earnings and rising prices. However, since local dearer rents continued their slow fall, it is possible that living standards only stagnated.

The Bairstow material shows that real incomes in 1912 were slightly below those in 1891, since the rise in earnings failed to compensate for the rise in prices. However, given the qualitative improvements between the two years, it is probable that living standards were at the same level in both years. Overall then, one can say that carters' living standards rose rapidly in the 1870's and early 1880's, stagnated in the late 1880's but then rose again in the early 1890's. Again they stagnated in the mid-1890's, but rose again at the end of the decade, only to stagnate in the 1900's. By 1912, living standards were no higher than in the early 1890's.

Overall then, in part two, one can say that living standards generally seem to have risen most in the economic boom of the late 1860's and the deflation of the 'Great Depression' (particularly for those who remained in employment), whilst they often fell in the early 1850's, when inflation was high, and stagnated in the 1900's.

References

- (1) In a bigger group the latter difficulty would still arise, but might be offset by the presence of older workers within the series whose earnings might be stationary or even falling.

CHAPTER 9 : CONCLUSION

The intention of this study has not been to produce a single index of the 'typical' worsted worker's standard of living in the period 1804-1915. Given the vast diversity of experience within the industry, such an index would be artificial and arbitrary in both its meaning and its compilation and as such would be meaningless. It seems obvious that the dozen occupations recorded over a span of more than 100 years cannot be treated as a homogeneous group when one considers the great changes taking place in the worsted industry in the nineteenth century - in particular, mechanisation and the changeover from male to female within the workforce.

This diversity notwithstanding, it is still necessary to relate this study to other similar studies, in order to position it within the matrix of present knowledge on the subject. The standard of living, after all, can only be a comparative concept. Therefore, in this study, the group "worsted workers in the nineteenth century" has been split, for comparative purposes, into several homogeneous sub-groups as will be discussed below. In this way, each sub-group consists of occupations experiencing roughly the same changes and conditions and therefore it is easier to make comparisons with other groups outside the industry.

There seem to be five groups that will obviously and easily render themselves to analysis in this fashion. The first is the hand-workers : the hand-loom weavers and hand-combers. It is true that this group was composed of both males and females, working partly within the domestic system and partly at the mill; but the workers did have a lot in common - particularly the instability of their earnings and their ultimate demise. The hand-workers then, in the period 1804-1860, form the first group. The second group consists of unskilled and semi-skilled factory workers : the mill hands, the power-loom weavers, the spinners and others following occupations of lesser importance. Again, there is the problem of both males and females, and also children, constituting the workforce, but this group, the new factory

workers, obviously have much in common. The second group then is the mill workers, 1830-1915. The third easily identifiable group is the 'labour aristocracy' of the worsted industry - primarily the overlookers and the mechanics. Although their qualifications and abilities changed during the period, they remained an all-male, highly-trained group with high and regular earnings. This group, then, can be described as the skilled labour aristocracy, 1870-1913.

The first three groups have been distinguished either by occupation (skilled or unskilled) or by method of working (hand-working or mechanised). However, the final two groups are formed in a different manner, as they relate to differences in the workforce itself, not in the job done. Thus the fourth group relates to female workers and specifically to adolescent and adult women. Generally, women did the same jobs throughout the period - weaving, spinning and some of the ancillary work - and it is interesting to see how their living standards varied during and after mechanisation. With the strong and increasing sexual differentiation of occupations within the industry in the nineteenth century, it is not too difficult to ascertain the living standards of female workers. Thus the fourth group is female workers, 1804-1915. Finally, one must try to separate the juvenile workers from the adults. Again they formed an important and stable part of the workforce, performing many of the ancillary tasks in the early twentieth century that they had done in the early nineteenth century, although generally at an older age. Increasingly, during the period, their working environment was protected and their involvement curtailed, but they continued to be important in Keighley even at the end of this study. Therefore the fifth and final group is children in the period 1804-1915.

Before discussing each of these groups separately, however, it is as well to comment on the general position of the worsted industry in Keighley. As has been shown, Keighley was, in this period, one of the three main centres of worsted production, the others being Halifax and Bradford. Each centre specialised to a large extent in one area of worsted production and Keighley's specialisation was in the

heavier dress goods. Thus the town was perhaps more affected by changing fashions and by weight-specific tariffs than the worsted industry in general. Keighley was the smallest of the three centres, the most rural in its surroundings and therefore the most isolated. Wages and prices were often settled in conditions of scarcity and references are frequently found to Keighley as a low wage and high price area. Thus Bowley gives wool sorters' average wages in the West Riding in 1891 as £6.00 per month and overlookers' in 1886 as £6.25 (1). The comparable figure for Keighley, however, was £4.10 for both occupations. Finally it is important to note that Keighley was dominated by the worsted industry in two distinctly separate ways. Worsted production, as has been shown, was important in the town throughout the nineteenth century and employed the majority of both male and female workers in the 1850's. However, by the early 1900's, its dominance had changed subtly, for whilst it still employed the majority of women, far fewer men were involved, as the largest group of men were now working in the textile machinery manufacturing firms. Thus whilst worsted production was still the major employer at this time, far more men worked in engineering than in the worsted mills. It is fair to say that by the early 1900's, Keighley was the premier centre of textile machinery manufacture, whilst it remained only the third-most important centre of worsted production.

So, one comes to the comparison of each group : first, the hand-workers. In the period being discussed, this group consisted of hand-loom weavers and hand-combers. For weavers, data exists during the period 1804-1846, whilst for the combers, the period covered is 1835-1859, although extrapolation backwards has been made for the combers into the earlier part of the period. Both kinds of hand-work were done by older juveniles and adults in this period, but combing was almost exclusively a male occupation, whilst approximately one-third of the hand-loom weavers were female.

As has been shown in earlier chapters, the hand-loom weavers were not able to control effectively entry into their occupation and were thus unable to benefit, by scarcity,

from the growing demand for worsted. Moreover, their income not only was very unreliable, but generally fluctuated inversely with prices, this causing a vastly impoverishing instability in real incomes. The hand-combers, on the other hand, could, until at least the mid-1820's, assert a dominance over the worsted industry whilst they retained control of entry into an occupation which formed an unavoidable, but still unmechanised, sector in an increasingly mechanised industry. Later on however, particularly in the 1840's and 1850's, it is evident that hand-combing was flooded by new entrants, especially unemployed male hand-loom weavers; and with the threat of mechanisation hanging over it, this sector was then unable to 'hold the industry to ransom' as it had previously.

During the Napoleonic Wars, for that period when there are records (1804-1815), hand-loom weavers suffered a drastic fall in living standards, with their real income falling by more than 50% and in some cases, by almost 75%. Whilst there are no data for hand-combers in this period, they must have suffered from a similar phenomenon. After 1814/1815, however, living standards rose in both of the unmechanised sectors of the industry, with the hand-loom weavers enjoying rapidly rising living standards, so that by 1822, their real incomes were more than double those of 1804/1805. Although there was a sharp recession around 1826, associated with the combers' and weavers' strike together with the current economic depression, living standards in 1830 were still slightly higher than those of 1804/1805. It is probable too, that, with the exception of the 1826 strike period, hand-combers' earnings rose steadily in this period.

The 1830's saw the beginning of mechanisation in the weaving sector and hence the ultimate decline in hand-loom weavers' living standards. Thus the earnings, the employment and the standard of living of the hand-loom weavers all fell in the 1830's and 1840's, so that by the mid-1840's, living standards and real income were both well below the 1804/1805 level, although not as low as the catastrophic level of 1814/1815. But whilst those weavers in employment experienced a fall in real income and living standards, they were still

amongst the elite one-fifth who actually remained in employment, as perhaps 80% of hand-loom weavers were made redundant in the late 1830's.

Since mechanisation did not occur in the hand-combing sector until the 1850's, although it had been foreseen for several decades, hand-combers were able to maintain high living standards in at least the first half of the 1830's. However, as they lost their monopoly power and particularly as unemployed hand-loom weavers entered the occupation, real income and living standards were depressed. This trend was exacerbated by the strike of 1846, although by 1850, real income but not the standard of living, was comparable to that of the mid-1830's. During the transition period of the 1850's however, both real incomes and the standard of living declined rapidly. At first, those in employment, forming an increasingly small proportion, managed almost to maintain their real income, but in the last few years of the decade, even the employed hand-combers experienced falling earnings. As has been shown, most of the unemployed hand-workers found it difficult to obtain satisfactory new work. The female hand-loom weavers did not suffer too much in this respect, as they were able to become power-loom weavers, but many male hand-loom weavers became hand-combers, which in the circumstances could only be a temporary expedient. In addition, the study of hand-combers' later occupations has shown that only a small group of younger workers found it possible to obtain work of equal status to that of hand-combing.

How similar is this to the results shown by other research into the subject? As well as comparing these conclusions with the general work on the standard of living debate, one needs to look at Neale's work, which deals with rural workers in the same period, and Gourvish's study, which specifically mentions hand-loom weavers.

The general works on the debate are, as one might expect, not too useful in this context. Hobsbawm relates his remarks to a period beginning in the 1780's, which is outside the scope of this study; whilst Hartwell's general conclusion,

that real wages increased for a large part of the workforce in the first half of the nineteenth century, is so stated that it cannot be said to be contradicted by the more specific results of this study. The more local studies are useful however. Gourvish found that there was little or no improvement in the real incomes of Glasgow hand-loom weavers in the period 1810-1831, a conclusion which seems to contradict the results found here for the period 1814/1815-1830, or even 1804/1805-1830. Neale, however, stated that the Bath labourers suffered falling living standards from the 1780's to 1812, but then they rose, so that by 1832, they equalled those of the 1780's and by 1850, having risen again, were double those of 1804. Here there does seem to be some broad similarity, in that the living standards of both hand-loom weavers and hand-combers in Keighley fell in the period of the Napoleonic Wars and rose afterwards; in the case of the hand-loom weavers, rapidly only until the early 1820's, but for the hand-combers until the mid-1830's. With the mechanisation of these sectors from the 1830's however, the experience of workers in Keighley and in Bath diverged, for the living standards of the former did not continue to rise in the 1840's.

Thus, as one might expect, it seems that the hand-workers did not, in the long run, benefit from industrialisation, although at first, when they were able to create and control temporary bottlenecks in the mechanising industry, they were able to reap some financial benefit. Ultimately, however, they were unable to prevent their own demise. It would seem that the domestic hand-workers experienced conditions more similar to the rural non-textile labourers in Bath than the city dwelling hand-loom weavers of Glasgow. Any conclusions drawn from this can only be tentative however, for when the evidence collected by Chapman is taken into account, one can say that most of the hand-workers in the West Riding worsted industry experienced similar conditions to those in Keighley (2). Certainly, the ultimate fate of the hand-workers accords with the 'pessimistic' view of living standards in the first half of the nineteenth century, for they were indeed, as an occupation, 'victims' of industrialisation.

The second group to be considered can in some ways be thought of as the creation of the industrial revolution - the unskilled and semi-skilled factory workers, In this category have been included the following occupations : mill hands (for whom there are data 1830-1871), power-loom weavers (1837-1915), spinners (1836-1912), machine combers (1871-1912), genappers (1880-1907), wool sorters (1871-1913), twisters and drawers (1871-1813), menders and burlers (1887-1913) and finishers (1886-1907). In addition, the changing living standards of carters (1872-1913) have been looked at in this section.

The mill labour-force included people of all ages and both sexes, although steadily through the century the adult female workers came to predominate, as the census returns show. Power-loom weavers were generally female. The majority were adult, although some juveniles, and even some boys, formed part of this workforce. Spinners were also female, although this occupation was dominated by young half-timers. The genappers, menders and burlers, twisters and drawers, and finishers included both males and females; both the menders and burlers and the twisters and drawers using juvenile labour to a certain extent. The mill hands also included both males and females, mostly adult, although men dominated the occupation. Finally both machine combing and carting were the preserve of the adult male.

Despite these differences, changes in the living standards of factory workers correspond quite closely. In the early 1830's, living standards deteriorated for the mill hands, the only occupation recorded in this period. From the late 1830's however, both the power-loom weavers and the mill hands experienced improvement and recovery in their standard of living, until the mid-or late 1840's. Through the late 1840's and 1850's, until the late 1850's or early 1860's, there was a decline in living standards, reaching the levels prevalent in the 1830's and consequent on the industrial disruption of the 1840's. However, the 1860's saw a rapid recovery for both groups of workers and, by 1870, living standards were almost double those of the 1830's. The spinners too, had experienced some improvement between the 1830's

and the 1860's.

Information is increasingly available in the 1870's and 1880's. The 1870's was a mixed decade, with a sharp fall in weavers' living standards being counteracted by a rapid increase in those of the full-time spinners. However, from the early 1880's, experiences were more uniform, with a recovery in living standards taking place for most occupations to the mid- or late 1890's, so that by this date, the finishers' living standards were perhaps one-and-a-half times their 1880 level and the power-loom weavers', double. The main exception to this trend was the spinners, whose standard of living fell slightly in the early 1890's. Both genappers and the finishers experienced a sharp fall in their living standards in the late 1890's and, from 1900 to the end of the period, the general trend was one of stagnation or even decline. This, however, does correspond to the trend shown in those occupations where only short spans of data are available, as these show some improvement between the early 1890's and the early 1910's.

Thus the main periods of improving living standards were the early 1840's, the 1860's and the 1880's, with the early 1890's. The intervening periods were ones of decline, except the post-1890's period which was one of stagnation. The carters' experience was broadly similar. In the 1870's, their standard of living rose rapidly, but unlike the factory workers', it stagnated in the 1890's. The 1890's saw it rise irregularly and in the 1900's, there was stagnation. Thus carters' living standards in the early 1910's were no greater than those in the early 1890's - a similar trend to that experienced by the factory workers.

This information can only be compared with national aggregative studies, particularly Hobsbawm's. No local study in the second half of the century is particularly relevant and both Neale's and Gourvish's work lie largely outside the worsted factory workers' period. Hobsbawm described rising living standards after the mid-1840's, followed by stagnation in the 1850's, but rapid recovery in the mid- and late 1860's and early 1870's. This is largely contradicted by data

relating to the worsted industry, where, as has been shown above, living standards rose in the early 1840's and the whole of the 1860's, but declined after the mid-1840's and during the 1850's. However, the industrial disruption of 1846 must be one major reason for this difference. Hobsbawm described a situation with stagnating living standards in the late 1870's, but recovery was evident in the early 1880's. This rise then continued, with living standards at new high levels by 1900, but the 1900's and 1910's saw, he believed, stagnation and even decline. This is very similar to the pattern described above for the worsted factory workers.

In conclusion, it would seem that the factory-based worsted workers' living standards were influenced more, at the beginning of the period, by regional and local factors - the expansion of the industry in the late 1830's and early 1840's and the industrial disruption of 1846. The boom years of the 1860's coincided with rising living standards nationally, however, and afterwards, the changes experienced by the worsted factory workers were similar to the national trend. This similarity is to be expected of course, because falling prices were the main determinant of changes in real income, and hence living standards, during the last quarter of the nineteenth century and, as has been shown, the movement of prices in Keighley was very similar to national price movements.

The third group in the series consists of the 'labour aristocracy' of the worsted industry - the highly skilled male workers with high and regular earnings. This group includes the overlookers and the mechanics and joiners, whilst some reference can also be made to the piece room workers and the warp-dressers. The workers in these occupations were adult males who generally had undergone a period of training or even a formal apprenticeship. Their living standards can be discussed for the period after 1870, although some discussion of the earlier period can take place, using isolated sources of data.

In the period between the mid-1830's and the late 1870's, the experience of the mechanics and joiners seems to have

differed from that of the overlookers. Thus between the mid-1830's and the early 1870's, the standard of living of the former seems to have fallen, whilst in the later 1870's it rose rapidly. For the overlookers however, living standards seem to have risen in the earlier period, but then stagnated or even declined in the later 1870's. The warp-dressers' living standards probably rose in the 1870's. This inconclusive overall trend continued into the first half of the 1880's, when the mechanics and joiners, together with the piece room workers, were enjoying rising living standards but the overlookers' continued to stagnate or even decline and the warp-dressers' living standards slumped. Thus changes in the standard of living of the 'labour aristocracy' were, at best, indecisive between the mid-1830's and the early 1870's and mixed from that date until the mid-1880's. From then however, the group's experience was more uniform.

In the second half of the 1880's, all the occupations in this group benefitted from rising living standards, although the rate of improvement did vary. The warp-dressers experienced only an erratic rise, whilst that of the overlookers was particularly rapid. This improvement generally continued until the mid-1890's, but the standard of living of the mechanics and joiners did stagnate in the early 1890's. In the later 1890's and the early 1900's, stagnation or even decline set in for all four occupations, although living standards were still higher at the end of the period than they had been before the mid- and late 1880's. For the 'labour aristocracy' as a whole then, one can discern a period of rising living standards in the later 1880's and early 1890's, followed by a period of much slower improvement until stagnation or even decline set in after the early 1900's. The trends in the period prior to 1880 are too indecisive for any similar conclusions to be reached.

There are two major comparative studies for this group of workers: the general work done on living standards in the second half of the nineteenth century (particularly Hobsbawm's work); and the study by Hopkins of the labour aristocracy in the Stourbridge glass industry (3). As has been shown, Hobsbawm believed that living standards were static in the

1850's and early 1860's, rose in the mid- and late 1860's and early 1870's, but stagnated in the second half of the 1870's. This latter period of stagnation is certainly found in the Keighley overlookers' living standards, but not in those of the mechanics and joiners. Hobsbawm then went on to describe recovery in the early 1880's and continued improvement in the 1890's, although in Keighley, as has been shown, the rate of improvement did slacken off in the late 1890's. In the 1900's, Hobsbawm described a 'pause' in the rate of improvement, which corresponds to the stagnation seen in Keighley during the period. However, Hobsbawm also stated that in the inflationary periods of the 1860's and 1900's, only the skilled workers were able to increase their real incomes and hence their standard of living. The information for Keighley is insufficient to test this hypothesis for the 1860's but certainly in the 1900's, the skilled worsted workers were not able to counteract the effects of inflation.

For the period 1840-1914, Hopkins found that the standard of living of the Stourbridge glass-workers rose, although unemployment increased in the last quarter of the nineteenth century and real income fell marginally in the early twentieth century. Specifically, living standards rose notably in the period from the 1850's to the early 1870's, although this improvement was probably checked by the late 1870's. Living standards were again rising by the early 1880's and indeed, the advance in living standards in the later 1880's and the 1890's was considerable, at least for those in employment. In the 1900's, however, some decline did set in and this accelerated after 1910. As far as comparisons are possible, this was similar to the experience of the Keighley worsted workers in the later 1880's and early 1890's, and again in the 1900's. However, one cannot talk of continuous improvement in the living standards of the Keighley workers before the mid-1880's. It would seem also that the 'boom' in living standards ended earlier in Keighley (in the mid-1890's) than in Stourbridge (around 1900).

In conclusion, it seem unrealistic to treat the 'labour

aristocracy' as a homogeneous group before the 1880's, either nationally, or solely in the worsted industry itself; for profoundly differing trends were experienced by the different occupations at this time. Indeed, it is not until 1900 that the trends in the living standards of the 'labour aristocracy' are nationally uniform. It would seem that before the mid-1880's, the worsted 'labour aristocracy' was not able to profit, through rising living standards, to the same extent as its peers in the other industries, despite the expansion of worsted production. After this date, the worsted 'labour aristocracy' did share in the general improvement, but again, after the mid-1890's, it seems to have been at a disadvantage. In the 1900's, however, the moribund position of this group was shared at least by the Stourbridge glass-makers, although it was not the situation generally experienced by skilled workers as described by Hobsbawm.

The fourth group to be discussed is not defined by occupation, but by sex; the female workers. However, such was the high and increasing sexual bias in the distribution of occupations within the industry, that it is possible to distinguish between male and female occupations. Thus the hand-loom weaving workforce was one-third female, whilst the power-loom weavers and the spinners were almost totally female. Other less important occupations, particularly the genappers, the finishers and the menders and burlers, were dominated by female workers. In all, the total workforce of the worsted industry was approximately one-third female before the mechanisation of weaving, one-half female by the mid-nineteenth century, and two-thirds female by the early twentieth century. It is important then to consider the female workers separately for two reasons. The first is their numerical importance in the worsted industry, during a period when women generally were not an important part of the non-domestic workforce. The second reason is that it can be shown that women experienced different changes in their living standards compared with the workforce as a whole, particularly in the period when power-loom weaving was being introduced. For this section then, the data on the living standards of weavers and spinners have been relied on primarily, although use has also been made of the

information relating to the 'mixed' occupations - the genappers, the finishers and the menders and burlers.

To study living standards in the first part of the period, it is necessary to rely solely on the information relating to the hand-loom weavers. As has been shown, living standards fell rapidly in the period 1804/1805-1814/1815, but then rose sharply until the early 1820's, when real income was double that of 1804/1805. There was a sharp recession in the mid-1820's, centred around the current industrial disruption, but by 1830, sufficient recovery had occurred to take living standards up to, and beyond, the 1804/1805 level. However, during the 1830's and 1840's, the living standards of all hand-loom weavers fell steadily.

But it was at this point that the experience of the female weavers differed from that of their male colleagues, for power-loom weaving was open to women of all ages, but only, and for relatively short periods at that, to juvenile males. Thus whilst the male hand-loom weaver had to continue in his declining occupation, or change to the equally threatened hand-combing, the female hand-loom weaver was able to continue weaving as a power-loom weaver. That this was to her advantage can be shown in the following table which indicates that even in the early part of the transition, the earnings of employed power-loom weavers were at least between 65% and 103% higher than those of hand-loom weavers (4).

Table 9.1. :

Comparison of power-loom and hand-loom weavers' earnings,
1838-1843

Date	1838	1839	1840	1841	1842	1843
Earnings of power-loom weavers	£1.81	£2.01	£1.92	£1.96	£1.87	£1.78
Earnings of hand-loom weavers	£0.89	£0.83	£1.09	£1.19	£1.15	£1.04
Power-loom earnings as a % of hand-loom	203%	242%	176%	165%	178%	171%

Therefore, from the late 1830's, the power-loom weavers' standard of living, rather than that of the hand-loom weavers, can be taken as typical of the female labour force generally. In the 1830's then, women were able to combat their falling living standards by changing over to power-loom weaving, for real income in the latter occupation, in the late 1830's, was approximately the same as that in hand-loom weaving in 1830, at around 120% of the 1804/1805 level. Living standards continued to rise through the 1840's, only to be checked in the early 1850's. Recovery then took place in the 1860's, so that both spinners and weavers could be said to be enjoying higher living standards in the 1860's than their counterparts had done in the 1830's.

The 1870's and early 1880's saw an uneven rise in female workers' living standards, with the weavers experiencing a recession in the 1870's, but the standard of living of the spinners increasing rapidly. From the mid-1880's until the mid-1890's however, with the exception of the spinners, all groups shared a rise in living standards, primarily as a result of falling prices. Thus the mid-1890's represented the peak in female workers' living standards. As an example, the real income of the weavers was then three times its level of the late 1830's, or four times its level in 1804/1805. The later 1890's were however, a mixed period, with most female workers experiencing a fall in living standards, with the exception, again, of the spinners. As for the other groups, the period after 1900 was generally one of stagnation and decline, although the finishers did benefit from some improvement in their standard of living at this time.

As no specific studies have been carried out on the standard of living of female workers in the nineteenth century, one has to use general studies of the period for comparison. At the most general level, it is frequently said that women workers usually benefitted from increasing protection under the factory legislation. This was certainly true in the case of the female worsted workers. This factor accounts for a non-specific improvement in living standards, but, in order to give the reasons for particular changes, it

is necessary to look in more detail at specific items, particularly real income.

Hartwell believed that real wages increased for the majority of English workers in the first half of the nineteenth century. He also implied that the employment of women in the mills was more humane than in the domestic system and that women were generally the beneficiaries of increasing economic and social independence. This last point cannot be argued satisfactorily; certainly women's real income rose in this period, but without consumption figures one cannot say how much control they had over the spending of their income. Also the question of their treatment at work (in the mill or at home) cannot be answered, because of lack of data. One can say, however, that factory legislation was neither effective, nor relevant to the weavers, until at least the 1840's. Having said this, one must agree with Hartwell that, despite the conditions in the pre-1814/15 period and the early 1830's, and largely because of their ability to enter power-loom weaving, female weavers in the worsted industry did enjoy rising real wages in the first half of the nineteenth century.

Hobsbawm described a situation in the second half of the century in which living standards stagnated in the 1850's and early 1860's, but rose sharply from this date until the mid-1870's, only to stagnate again for the rest of the decade. They then improved throughout the 1880's and 1890's but stagnated or declined in the early twentieth century. The period of most rapid improvement, even for the lower-paid (amongst whom the female worsted workers can be included), was 1880-1895. It would seem that the female worsted workers' living standards correspond largely to this pattern, for Hobsbawm's first period of stagnation could imply the fall, then recovery, in living standards experienced by the Keighley group; whilst the uneven rise in the 1870's for the latter workers is not incompatible with Hobsbawm's description of a rise followed by stagnation. In the worsted industry however, the rise in living standards in the period 1880-1895 was not particularly rapid when compared with earlier periods.

Overall then, the female worsted workers fit well into the national pattern as described by Hartwell and Hobsbawm. There are two reasons for this. Firstly, female workers benefitted from mechanisation and industrialisation for they were able to enter better-paid and better-regulated mill jobs. They were not 'victims' of the industrial revolution, but to a large extent beneficiaries. Secondly, they generally took those jobs typical of the new industrialised economy - semi-skilled mill work - and thus tended to share the experience of the majority.

The final group to be considered is children. Juvenile labour was important in many industries in the nineteenth century, particularly textiles. As has been shown, a large proportion of Keighley's child population worked in the worsted industry, at first on a full-time basis and then as half-timers. In the domestically-organised system, children mainly carried out ancillary work for their parents, but as the production of worsted became predominantly mill-based, there was some specialisation in the role of juvenile labour, particularly into spinning and twisting and drawing. However, the family unit remained strong within the mills until the end of the period being studied.

There are, of course, several difficulties in any attempt to study the living standards of children. The first and most important is that they are not generally in control of their earnings, so that what one effectively studies are changes in real income and working conditions, not the changes in the child's standard of living. Also, during the nineteenth century the minimum age at which a child could work rose, whilst the permissible number of hours to be worked fell, as a result of the changes in factory legislation described in Chapter One. Therefore, one is not dealing with a static workforce. Related to this is the problem that a child's earnings varied in proportion to his or her age - a problem also encountered amongst the 'labour aristocracy'. However, it is possible to draw some conclusions concerning the changes affecting children working in the Keighley worsted industry during the nineteenth century.

A comparison of the wage rates prevalent in the mid-1830's and in the mid-1860's reveals notable improvement between those dates, although the exact pattern of change cannot be determined. In this period too, the young worker at last began to receive effective protection under the factory legislation. The period between the mid-1860's and the mid-1870's saw a rapid rise in the real income of half-time spinners and this was probably reflected in all children's earnings in the worsted industry. Again, this improvement must have been enhanced by the increased concern over education in this period, a concern which was effective in Keighley from 1875. There is no information available for the later 1870's and the 1880's, unfortunately, although deflation, combined with a continuing demand for child labour must have led to some improvement in real incomes. Comparison is possible, however, between the 1890's and the early 1910's, using the information relating to twistlers and drawers. This shows that the rate of increase of real income had slowed down, as there was only a marginal improvement between these two dates.

Overall then, children's real incomes were higher in the 1860's than in the 1830's and their conditions of work too had improved. The 1860's and 1870's saw a rapid rise in real income, whilst non-economic improvements included the more widespread provision of education from the mid-1870's and the continually increasing scope of factory legislation. Real incomes probably continued to improve in the 1880's, but after the 1890's, virtual stagnation set in, as it did in working conditions, for the proportion of half-timers was high and stubbornly refused to fall, despite the efforts of several local pressure groups.

This picture tallies well with Hobsbawm's description of changes in the nineteenth century - with sharp improvements between the mid-1860's and the mid-1870's, but improvement followed by stagnation and decline from the 1890's. Certainly children did benefit from the industrial revolution, in that public opinion could not tolerate the domestic system of child labour being duplicated in the mills. Hence the raising of the minimum age of work and the

shortening of the number of hours worked in the 1830's and 1840's, so that it was no longer possible for children to start full-time spinning at the age of five after one year's schooling, as John Kitson had done in the 1780's. However, this improvement did not continue much after the 1870's, when the great practical steps in popular education were taken. Thus by the early 1900's, child workers in the Keighley worsted industry were experiencing a deterioration in their standard of living, in so far as it can be measured. This was not solely on account of monetary factors, but because of changing expectations within society. Thus it was increasingly seen as unfortunate, perhaps even wrong, that children between the ages of ten and fourteen were working at all - a change in attitude primarily caused by the increasing value attached to education by most sectors of society. Therefore, although children were better paid and more protected in this period than in previous generations, changing values deemed that their situation was seen as increasingly unfortunate. It was a subjective, rather than an objective, deterioration.

Within the worsted industry in the nineteenth century then, there were both groups of workers who experienced rising standards of living and groups who experienced deterioration. Some groups even experienced both. Thus for the hand-worker, particularly the male hand-worker, conditions deteriorated in the long-run, as one would expect of occupations faced with technological redundancy. On the other hand, a group such as the female workers experienced long-run improvement in living standards. In fact, most mill-based occupations enjoyed rising living standards at least until the mid-1890's. The group with the most mixed experience, however, was the child workers. Certainly, their material conditions improved during the nineteenth century - indeed it is difficult to conceive how they could have deteriorated from the position in the late eighteenth century - and the demand for child labour generally rose. However, there was increased agitation and concern about the employment of a child as merely a small adult, nearly capable of an adult's workload, and correspondingly, there was a growing demand that children should receive a full-time

education until the age of fourteen. Therefore, although children had attained objective improvements by the end of the period, there was increasing dissatisfaction with their standard of living.

How then do the experiences of the Keighley worsted workers in the nineteenth century match the prevailing national pattern? After comparison with other local studies, it seems that Keighley workers had more in common with workers in other small towns and even rural areas, than they did with those in the increasingly-common large towns, be they textile workers or not. However, the Keighley workers can be used quite successfully as examples of the national aggregative patterns. Thus the male hand-workers were most definitely 'victims', in Hobsbawm's terms, of the industrial revolution; whilst the female workers, whatever their occupation, can be cited in support of Hartwell's theories.

One point is clear however. Local, not national phenomena were of over-riding importance to living standards for a large part of the period. Admittedly, the inflation of the Napoleonic Wars and the deflation current in the 'Great Depression', together with the general stagnation of the early 1900's, had nationally-felt effects which the Keighley worsted worker could not escape. But between the 1820's and 1870's, it was local events which had the most significance for living standards in Keighley - the strikes of the 1820's and the 1840's, the timing of mechanisation in weaving and combing, and the years of the Cotton Famine being all particularly noteworthy. The changes in the living standards of Keighley worsted workers in the nineteenth century were a product, then, of a diversified English economy and society, in that they only partly reflect the national trends which have been uncovered.

References

- (1) A. L. Bowley, loc. cit., pp. 110-111
- (2) Report from the Assistant Hand-Loom Weavers' Commissioner on the West Riding of Yorkshire, P.P., 1840, (43-II), Commons Volume XXIII, passim.
- (3) E. Hopkins, loc. cit.,
- (4) Sources : Appendix A, Tables A.1.3a and A.3.1.

APPENDIX A

WORSTED WORKERS' EARNINGS, 1804-1915.

This appendix consists of tables showing the average monthly earnings of workers with different occupations within the worsted industry. It is divided into five chapters, each dealing with a different source of material. The first four chapters relate to material from the firms of Clough's, Marriner's, Brigg's and Bairstow's respectively, whilst the final chapter relates to material not collected from any specific firm.

The headings used in the tables throughout this appendix can be simply explained. 'Total workers' means the total number of workers in the sample. 'Empl'd workers' means the number of workers currently employed in the sample. 'Empl'd earnings' means the average earnings of the employed workers and finally 'Average earnings' means the average earnings of all the workers in the sample. If there is no unemployment, then of course the total number of workers will equal the number of employed workers and 'Empl'd earnings' will equal 'Average earnings'. Finally it must be noted that only in the tables relating to the domestic workers (with the exception of the Brigg hand-combers) do the annual average earnings correspond to an average of the monthly earnings. As explained in the text, in all other cases the monthly earnings relate to a standard four-week month, whilst the annual average earnings do not.

CHAPTER A.1. : WORSTED WORKERS' EARNINGS AT CLOUGH'S.

From the archives relating to this firm, earnings series have been constructed for thirteen occupations, covering the period 1816-1908. These are set out on the following pages.

Table A.1.1. : Hand-loom weavers' earnings, 1816-1833.

1816	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	0	0	0	0	0	0	0	1	1	2	2	2	
Empl'd workers	0	0	0	0	0	0	0	1	1	2	2	2	
Empl'd earnings	0	0	0	0	0	0	0	£0.0000	£0.0000	£0.1375	£6.3000	£1.5750	£1.6025
Average earnings	0	0	0	0	0	0	0	£0.0000	£0.0000	£0.1375	£6.3000	£1.5750	£1.6025
1817	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	3	3	3	3	3	3	3	3	3	
Empl'd workers	2	2	2	3	3	2	2	3	3	3	3	3	
Empl'd earnings	£1.3875	£1.2125	£1.2188	£1.8500	£1.6205	£2.6500	£1.8875	£2.0915	£2.2167	£2.6167	£3.4125	£3.5708	£2.1446
Average earnings	£1.3875	£1.2125	£1.2188	£1.8500	£1.6205	£1.7667	£1.2583	£2.0915	£2.2167	£2.6167	£3.4125	£3.5708	£2.0185
1818	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	5	5	5	5	
Empl'd workers	4	4	4	4	4	4	4	4	5	5	5	5	
Empl'd earnings	£2.1188	£3.6639	£2.1531	£2.9719	£3.6000	£2.3438	£3.4875	£1.5875	£2.1950	£2.1250	£5.3850	£2.3650	£2.8347
Average earnings	£2.1188	£3.6639	£2.1531	£2.9719	£3.6000	£2.3438	£3.4875	£1.5875	£2.1950	£2.1250	£5.3850	£2.3650	£2.8347
1819	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	6	7	7	7	7	7	7	
Empl'd workers	5	5	5	5	5	6	7	7	7	7	7	7	
Empl'd earnings	£1.2400	£4.7375	£2.7100	£1.2300	£3.5525	£2.2958	£2.0929	£1.5893	£1.8464	£1.9250	£2.8571	£2.6536	£2.3942
Average earnings	£1.2400	£4.7375	£2.7100	£1.2300	£3.5525	£2.2958	£2.0929	£1.5893	£1.8464	£1.9252	£2.8571	£2.6536	£2.3942
1820	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	7	7	7	7	8	8	8	8	8	8	8	8	
Empl'd workers	7	7	7	7	8	8	8	8	8	8	8	8	
Empl'd earnings	£1.6339	£1.7875	£2.5268	£1.5054	£3.6813	£2.4094	£2.2047	£2.5406	£2.3094	£2.3141	£5.4672	£2.7719	£2.4294
Average earnings	£1.6339	£1.7875	£2.5268	£1.5054	£3.6813	£2.4094	£2.2047	£2.5406	£2.3094	£2.3141	£5.4672	£2.7719	£2.4294
1821	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	8	8	8	8	8	8	8	9	9	9	9	9	
Empl'd workers	8	8	8	8	8	8	8	9	9	9	9	9	
Empl'd earnings	£3.7894	£3.5844	£2.7844	£3.0109	£3.6594	£4.4063	£2.9141	£3.7931	£3.0056	£4.6083	£3.8264	£3.3111	£3.5583
Average earnings	£3.7894	£3.5844	£2.7844	£3.0109	£3.6594	£4.4063	£2.9141	£3.7931	£3.0056	£4.6083	£3.8264	£3.3111	£3.5583

Table A.1.1. : Hand-loom weavers' earnings, 1816-1833 (continued).

1822	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	10	12	13	13	13	15	15	15	
Empl'd workers	9	9	9	9	10	12	13	13	13	15	15	15	
Empl'd earnings	£4.0338	£3.8083	£3.5787	£2.4694	£3.9185	£3.1135	£4.0192	£3.2510	£3.3760	£4.1750	£3.9500	£3.4892	£3.5987
Average earnings	£4.0338	£3.8083	£3.5787	£2.4694	£3.9185	£3.1135	£4.0192	£3.2510	£3.3760	£4.1750	£3.9500	£3.4892	£3.5987
1823	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	23	23	23	23	23	23	23	23	24	24	24	26	
Empl'd workers	23	23	23	23	23	23	23	23	23	24	24	26	
Empl'd earnings	£2.2495	£2.0299	£2.4098	£2.0895	£2.3875	£1.9973	£2.1255	£2.1325	£1.8973	£1.9927	£2.4247	£1.8308	£2.1240
Average earnings	£2.2495	£2.0299	£2.4098	£2.0895	£2.3875	£1.9973	£2.1255	£2.1325	£1.8182	£1.9927	£2.4247	£1.8308	£2.1238
1824	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	26	26	26	26	26	26	26	26	26	26	26	26	
Empl'd workers	26	26	25	26	26	26	26	26	26	25	25	26	
Empl'd earnings	£2.0702	£1.9654	£1.9530	£1.6657	£2.1612	£2.3538	£1.7646	£1.3466	£1.5928	£1.6640	£2.1135	£2.7538	£1.9504
Average earnings	£2.0702	£1.9654	£1.8779	£1.6657	£2.1612	£2.3538	£1.7646	£1.3466	£1.5928	£1.6000	£2.0322	£2.7538	£1.9321
1825	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	26	26	26	26	26	28	30	29	30	29	29	29	
Empl'd workers	26	26	26	26	26	28	29	29	30	29	27	27	
Empl'd earnings	£2.0226	£1.5067	£2.0898	£1.7897	£2.3495	£1.3652	£1.8880	£1.8780	£1.7567	£1.8849	£2.2230	£1.9182	£1.8894
Average earnings	£2.0226	£1.5067	£2.0898	£1.7897	£2.3495	£1.3652	£1.8256	£1.8780	£1.7567	£1.8849	£2.0097	£1.7859	£1.8437
1826	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	29	29	29	29	29	29	29	29	31	31	29	29	
Empl'd workers	25	25	25	25	18	21	23	27	31	31	29	29	
Empl'd earnings	£1.5882	£1.8208	£1.3588	£0.9028	£0.6875	£0.6520	£1.3120	£0.8950	£1.2747	£1.2516	£1.4698	£1.4315	£1.2204
Average earnings	£1.3691	£1.5097	£1.1714	£0.7783	£0.4207	£0.4721	£1.0405	£0.8147	£1.2747	£1.2516	£1.4698	£1.4315	£1.0883
1827	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	29	29	30	32	32	32	32	32	32	32	32	32	
Empl'd workers	29	29	30	32	32	32	32	32	32	32	32	32	
Empl'd earnings	£1.5461	£1.5978	£1.6104	£1.2855	£1.3125	£1.7088	£1.3242	£1.5711	£1.8406	£1.6117	£1.4664	£1.4430	£1.5282
Average earnings	£1.5461	£1.5978	£1.6104	£1.2855	£1.3125	£1.7288	£1.3242	£1.5711	£1.8406	£1.6117	£1.4664	£1.4430	£1.5282

Table A.1.1. : Hand-loom weavers' earnings, 1816-1833 (continued).

1828	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	32	32	32	32	32	31	31	31	31	31	31	31	
Empl'd workers	32	32	32	32	32	30	31	31	31	31	31	31	
Empl'd earnings	£1.3732	£1.4143	£1.8544	£1.6938	£1.9422	£1.4779	£1.2956	£1.4214	£1.4960	£1.9157	£1.9585	£1.9044	£1.6450
Average earnings	£1.3732	£1.4143	£1.8544	£1.6938	£1.9422	£1.4302	£1.2956	£1.4214	£1.4960	£1.9157	£1.9585	£1.9044	£1.6290
1829	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	31	31	30	30	30	30	30	30	32	32	32	32	
Empl'd workers	31	31	30	30	30	30	30	30	31	32	32	32	
Empl'd earnings	£1.3125	£1.6274	£1.4604	£1.7717	£1.3099	£1.5749	£1.5971	£1.3771	£1.6585	£1.3637	£1.2737	£1.4793	£1.4839
Average earnings	£1.3125	£1.6274	£1.4604	£1.7717	£1.3099	£1.5749	£1.5971	£1.3771	£1.6066	£1.3637	£1.2737	£1.4793	£1.4795
1830	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	31	30	30	30	30	30	30	30	31	30	30	30	
Empl'd workers	31	30	29	30	29	29	29	29	31	29	29	29	
Empl'd earnings	£1.3718	£1.4764	£1.4746	£1.3142	£1.5165	£1.8733	£1.6720	£1.4547	£1.9448	£1.7642	£1.7940	£1.8164	£1.8227
Average earnings	£1.3718	£1.4764	£1.4254	£1.3142	£1.4660	£1.8108	£1.6163	£1.4063	£1.9448	£1.7054	£1.7342	£1.7558	£1.6261
1831	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	30	30	29	30	30	29	29	29	30	30	30	30	
Empl'd workers	29	30	29	29	29	28	28	29	30	29	29	29	
Empl'd earnings	£1.3039	£1.7956	£2.0526	£1.7672	£1.5971	£1.8330	£1.8173	£1.4741	£1.4617	£1.7435	£1.8509	£1.8112	£1.7115
Average earnings	£1.2604	£1.7956	£2.0526	£1.7083	£1.5439	£1.7698	£1.7836	£1.4741	£1.4617	£1.6854	£1.7892	£1.7508	£1.6730
1832	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	31	31	31	31	31	31	31	31	31	31	29	29	
Empl'd workers	31	31	31	30	30	30	30	30	29	29	27	27	
Empl'd earnings	£1.2865	£1.8241	£1.7181	£1.6146	£1.8425	£1.6817	£1.3221	£1.4083	£1.5943	£1.3704	£1.5259	£1.5569	£1.5606
Average earnings	£1.2865	£1.8241	£1.7181	£1.5625	£1.7831	£1.6274	£1.2794	£1.3629	£1.4914	£1.2820	£1.4207	£1.4496	£1.5075
1833	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	30	31	29	28	28	28	28	28	29	26	20	3	
Empl'd workers	29	31	29	27	28	27	28	28	25	25	19	3 (Jan-Nov.)	
Empl'd earnings	£1.3108	£1.4508	£1.6582	£1.3796	£1.9915	£1.7920	£1.4344	£1.7768	£1.5960	£1.9240	£1.3993	£0.3917	£1.5831
Average earnings	£1.2671	£1.4508	£1.6582	£1.3304	£1.6915	£1.7286	£1.4344	£1.7768	£1.5340	£1.8500	£1.3294	£0.3917	£1.5520

Sources : Clough collection. Books no. 18, 19, 20, 21, 22, 23.

Table A.1.2. : Hand-combers' earnings, 1843-1859.

1843	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	15	15	15	15	15	15	15	15	15	16	16	16	average
Empl'd workers	15	14	13	12	11	12	15	15	15	16	16	16	
Empl'd earnings	£2.7961	£1.9479	£1.5624	£2.1655	£2.0206	£2.1763	£2.8013	£2.6757	£2.8649	£3.2008	£3.0359	£3.6339	£2.5732
Average earnings	£2.7961	£1.8181	£1.3540	£1.7324	£1.4818	£1.7394	£2.8013	£2.6757	£2.8649	£3.2008	£3.0359	£3.6339	£2.4278
1844	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	16	16	16	16	16	16	16	16	16	16	16	16	average
Empl'd workers	16	16	16	16	16	16	16	16	16	16	16	16	
Empl'd earnings	£3.0269	£2.6807	£3.8140	£3.0408	£3.4236	£3.3326	£3.1565	£3.0707	£3.0030	£2.9542	£3.8671	£2.8021	£3.1810
Average earnings	£3.0269	£2.6807	£3.8140	£3.0408	£3.4236	£3.3326	£3.1565	£3.0707	£3.0030	£2.9542	£3.8671	£2.8021	£3.1810
1845	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	16	16	16	17	17	17	17	17	17	17	17	17	average
Empl'd workers	16	16	16	17	17	17	15	16	16	16	16	16	
Empl'd earnings	£2.8582	£3.4742	£3.3711	£2.8321	£2.9171	£2.7420	£2.5971	£3.0132	£3.1636	£3.1999	£3.4495	£3.0150	£3.0527
Average earnings	£2.8582	£3.4742	£3.3711	£2.8321	£2.9171	£2.7420	£2.2915	£2.8359	£2.9775	£3.0117	£3.2466	£2.8376	£2.9496
1846	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	17	17	17	17	17	17	17	17	17	17	17	17	average
Empl'd workers	17	17	17	17	17	17	15	15	0	5	5	6	
Empl'd earnings	£3.3124	£2.1620	£2.8976	£2.2980	£3.0880	£2.4355	£2.8172	£2.4711	0	£1.0037	£1.7825	£2.2366	£2.2087
Average earnings	£3.3124	£2.1620	£2.8976	£2.2980	£3.0880	£2.4355	£2.4858	£2.1804	0	£0.2952	£0.5243	£0.7894	£1.8723
1847	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	17	17	17	17	17	17	17	17	17	17	17	17	average
Empl'd workers	7	9	9	7	8	11	12	13	14	16	15	15	
Empl'd earnings	£2.6149	£2.4871	£2.6896	£2.6003	£2.4852	£2.1718	£2.3955	£2.4109	£2.1475	£2.7757	£1.7608	£2.2225	£2.3073
Average earnings	£1.0767	£1.3167	£1.4239	£1.0707	£1.1095	£1.4053	£1.6909	£1.8430	£1.7685	£2.6124	£1.5589	£1.9610	£1.5748
1848	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Empl'd earnings	£2.8271	£2.0990	£2.3654	£2.2985	£1.7471	£1.4635	£2.4444	£1.9695	£2.6506	£2.3561	£2.1482	£2.5985	average
Total workers	17	17	18	18	18	18	18	18	18	18	18	18	
Empl'd workers	15	15	17	17	17	17	17	17	17	17	17	17	£2.2473
Average earnings	£2.494	£1.8521	£2.2340	£2.1708	£1.6500	£1.3822	£2.3086	£1.8601	£2.5034	£2.2252	£2.0288	£2.4542	£2.0969

Table A.1.2. : Hand-combers' earnings, 1843-1859 (continued).

1849	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	18	18	19	19	19	19	19	19	19	19	19	19	average
Empl'd workers	18	18	18	17	17	17	17	17	17	17	17	17	
Empl'd earnings	£2.0412	£2.0207	£2.4407	£2.1842	£2.2757	£2.3038	£2.0401	£2.5712	£2.3349	£2.5086	£2.5688	£2.8087	£2.3415
Average earnings	£2.0412	£2.0207	£2.31 3	£1.9543	£2.0362	£2.0613	£1.8253	£2.3005	£2.0892	£2.2445	£2.2984	£2.5131	£2.1414
1850	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	42	43	43	43	43	43	43	43	43	43	43	43	average
Empl'd workers	42	43	43	42	43	43	43	42	42	43	42	42	
Empl'd earnings	£3.1335	£3.0340	£3.2666	£3.1728	£2.5295	£3.2253	£2.8486	£2.8534	£2.8180	£3.1525	£3.4423	£3.0710	£3.0456
Average earnings	£3.1335	£3.0340	£3.2666	£3.0990	£2.5295	£3.2253	£2.8486	£2.7870	£2.7524	£3.1525	£3.3623	£2.9996	£3.0158
1851	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	43	43	43	43	43	43	43	43	43	43	43	43	average
Empl'd workers	42	42	42	42	42	41	41	42	41	42	42	42	
Empl'd earnings	£2.9422	£2.7765	£3.1577	£2.8269	£3.1477	£2.6350	£2.8044	£2.7832	£2.8021	£2.6665	£2.5603	£2.1404	£2.7752
Average earnings	£2.8738	£2.7119	£3.0843	£2.7012	£3.0745	£2.5125	£2.7312	£2.7185	£2.6718	£2.6045	£2.5007	£2.0906	£2.6946
1852	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	43	43	43	43	43	43	43	43	43	43	43	43	average
Empl'd workers	42	41	40	40	40	38	36	37	36	37	37	35	
Empl'd earnings	£2.6969	£2.3451	£1.7701	£1.9180	£1.5323	£2.5226	£2.5406	£2.3977	£1.4488	£2.7126	£2.8343	£2.6383	£2.2797
Average earnings	£2.6342	£2.2360	£1.6466	£1.7842	£1.4253	£2.2293	£2.1270	£2.0632	£1.2129	£2.3341	£2.4388	£2.1475	£2.0232
1853	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	43	43	43	43	43	43	43	43	43	43	43	43	average
Empl'd workers	30	35	33	33	30	30	27	28	28	28	28	28	
Empl'd earnings	£2.8504	£2.2926	£2.7594	£2.9468	£2.3381	£2.1612	£2.4992	£2.2033	£2.3590	£2.8429	£2.7877	£2.0198	£2.5050
Average earnings	£2.3864	£1.8661	£2.1177	£2.2615	£1.6312	£1.5078	£1.5693	£1.4347	£1.5361	£1.8512	£1.8152	£1.3152	£1.7743
1854	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	43	43	43	43	43	43	43	43	43	43	43	43	average
Empl'd workers	26	25	22	21	19	19	17	16	16	15	15	15	
Empl'd earnings	£2.5700	£2.1080	£2.2956	£2.4008	£2.3960	£1.7613	£2.3099	£2.4025	£2.2445	£2.6818	£2.0114	£2.0613	£2.2753
Average earnings	£1.5543	£1.2250	£1.1745	£1.2018	£1.0590	£0.7783	£0.9132	£0.8939	£0.8352	£0.9355	£0.7016	£0.7190	£0.9993

Table A.1.2. : Hand-combers' earnings, 1843-1859 (continued).

1855	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	43	43	43	43	43	43	43	43	43	43	43	43	average
Empl'd workers	15	15	15	17	16	16	13	15	19	19	19	19	
Empl'd earnings	£2.2133	£2.1642	£2.3971	£1.9561	£2.2250	£2.4232	£2.2640	£2.1142	£2.2656	£2.4507	£2.4868	£2.7619	£ 3101
Average earnings	£0.7721	£0.7549	£0.8362	£0.7734	£0.8279	£0.9017	£0.6845	£0.7375	£1.0011	£1.0828	£1.0988	£1.2204	£0.8909
1856	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	43	43	43	43	43	43	43	43	43	43	43	43	average
Empl'd workers	19	18	18	18	18	18	17	17	17	16	16	16	
Empl'd earnings	£2.0383	£2.5028	£2.8949	£1.9877	£2.2612	£2.1087	£2.0964	£2.3193	£2.0835	£2.4930	£2.9099	£2.4315	£2.3914
Average earnings	£1.1657	£1.0477	£1.2118	£0.8321	£0.9466	£0.8827	£0.8288	£0.9169	£0.8237	£0.9276	£1.0828	£0.9048	£0.9642
1857	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	43	43	43	43	43	43	43	43	43	43	43	43	average
Empl'd workers	16	16	15	15	15	11	4	4	3	3	3	3	
Empl'd earnings	£3.1141	£2.0494	£2.6660	£2.1647	£2.5193	£1.7000	£2.0115	£2.5979	£2.7847	£2.9048	£2.1417	£1.5798	£2.3528
Average earnings	£1.1587	£0.7626	£0.9300	£0.7551	£0.8788	£0.4349	£0.1871	£0.2417	£0.1943	£0.2027	£0.1494	£0.1102	£0.5004
1858	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	43	43	43	43	43	43	43	43	43	43	43	43	average
Empl'd workers	3	3	3	3	2	2	2	1	1	3	3	3	
Empl'd earnings	£1.5868	£1.5438	£1.4417	£1.2368	£1.0980	£1.6698	£2.0271	£0.0833	£0.3833	£1.1931	£2.1264	£2.2035	£1.3828
Average earnings	£0.1107	£0.1077	£0.1006	£0.0863	£0.0511	£0.0777	£0.0943	£0.0019	£0.0089	£0.0832	£0.1018	£0.1537	£0.0814
1859	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	43	43	43	43	43	43	43	43	40	40	0	0	average
Empl'd workers	3	3	2	3	3	2	2	1	0	0	0	0	(Jan-Aug.)
Empl'd workers	£2.0181	£2.1361	£2.2907	£2.2118	£1.7590	£1.6688	£0.7917	£1.0354	0	0	0	0	£1.7389
Average earnings	£0.1408	£0.1490	£0.1065	£0.1543	£0.1227	£0.0776	£0.0368	£0.0241	0	0	0	0	£0.1014

Sources : Clough collection, Books no. 61, 62.

Table A.1.3a. : Power-loom weavers' earnings, 1837-1870.

1837	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	0	0	0	0	0	0	0	0	6	6	6	6	
Empl'd workers	0	0	0	0	0	0	0	0	6	6	6	6	(Oct-Dec.)
Empl'd earnings	0	0	0	0	0	0	0	0	£0.8938	£1.3458	£1.0273	£1.1153	£1.3340
Average earnings	0	0	0	0	0	0	0	0	£0.8938	£1.3458	£1.0273	£1.1153	£1.3340
1838	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£1.3056	£1.3136	£1.9458	£1.5636	£1.5500	£1.8889	£2.0219	£1.7924	£1.8167	£1.4102	£1.7750	£1.8708	£1.8112
Average earnings	£1.3056	£1.3136	£1.9458	£1.5636	£1.5500	£1.8889	£2.0219	£1.7924	£1.8167	£1.4102	£1.7750	£1.8708	£1.8112
1839	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£1.8125	£1.6479	£2.0300	£1.6213	£1.6819	£1.7299	£1.8646	£1.8667	£1.7063	£2.1209	£1.3813	£1.8396	£2.0092
Average earnings	£1.8125	£1.6479	£2.0306	£1.6213	£1.6819	£1.7299	£1.8646	£1.8667	£1.7063	£2.1209	£1.3813	£1.8396	£2.0092
1840	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	22	22	22	22	22	22	22	22	22	22	22	22	
Empl'd workers	22	21	21	21	21	21	20	20	20	20	20	20	
Empl'd earnings	£1,5682	£1.6792	£1.6635	£1.7119	£1.3394	£1.6586	£1.9243	£1.8449	£1.6208	£2.0038	£1.5756	£1.7809	£1.9233
Average earnings	£1.5682	£1.6028	£1.5879	£1.6341	£1.2785	£1.5832	£1.7494	£1.6772	£1.3998	£1.8216	£1.4324	£1.6189	£1.7925
1841	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	22	22	22	22	22	22	22	22	22	22	22	22	
Empl'd workers	22	22	22	22	21	21	20	21	21	21	21	21	
Empl'd earnings	£1.7389	£1.7943	£1.9748	£1.6852	£1.9190	£1.8375	£1.8787	£1.8042	£1.6446	£1.8256	£1.8793	£1.7573	£1.9614
Average earnings	£1.7389	£1.7943	£1.9748	£1.6852	£1.8318	£1.7539	£1.7679	£1.7222	£1.5699	£1.7426	£1.7938	£1.6775	£1.8923
1842	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	22	22	22	22	22	22	22	22	22	22	22	22	
Empl'd workers	21	21	21	21	22	22	22	22	22	21	21	20	
Empl'd earnings	£1.8393	£1.9659	£1.8898	£1.6900	£1.7939	£1.7813	£1.8127	£1.4101	£1.6879	£1.5054	£1.6719	£1.7198	£1.8745
Average earnings	£1.7557	£1.8765	£1.8039	£1.6132	£1.7939	£1.7813	£1.8127	£1.4101	£1.6879	£1.4309	£1.5959	£1.5635	£1.8183

Table A.1.3a. : Power-loom weavers' earnings, 1837-1870 (continued).

1843	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	22	22	22	22	22	22	22	22	22	22	22	22	
Empl'd workers	20	20	20	20	20	20	21	20	20	21	21	20	
Empl'd earnings	£1.5147	£1.6400	£1.1700	£1.2885	£1.3069	£1.7282	£1.8036	£1.7650	£1.6602	£1.9815	£1.9763	£1.9359	£1.7843
Average earnings	£1.3770	£1.4909	£1.0636	£1.1714	£1.7822	£1.5711	£1.7216	£1.6045	£1.5092	£1.8915	£2.8297	£1.7599	£1.6477
1844	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	22	22	22	22	22	22	22	22	22	22	22	22	
Empl'd workers	20	19	19	19	19	19	18	18	18	19	19	19	
Empl'd earnings	£1.8750	£1.9118	£2.2245	£1.9285	£2.0103	£2.1079	£1.9896	£2.0507	£1.8299	£2.0189	£1.9351	£1.8782	£2.1479
Average earnings	£1.7045	£1.6511	£1.9211	£1.6655	£1.7362	£1.8205	£1.6278	£1.6778	£1.4972	£1.7435	£1.6712	£1.6221	£1.8397
1845	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	22	22	22	22	22	22	22	22	22	22	22	22	
Empl'd workers	17	17	17	17	17	17	17	17	18	18	18	18	
Empl'd earnings	£1.9831	£1.9216	£2.0770	£2.1099	£1.9022	£2.1010	£2.2185	£1.4522	£1.8509	£1.6937	£1.9287	£1.6701	£2.1976
Average earnings	£1.5321	£1.4849	£1.6049	£1.6303	£1.4699	£1.6235	£1.7143	£1.1225	£1.5144	£1.3858	£1.5780	£1.3665	£1.7316
1846	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	22	22	22	22	22	22	22	22	22	22	22	22	
Empl'd workers	17	16	16	16	16	16	16	16	16	14	13	16	
Empl'd earnings	£1.8962	£2.2823	£2.1542	£2.2656	£2.0310	£2.0487	£1.7068	£1.9080	£0.8792	£1.1982	£1.4865	£1.9234	£1.8911
Average earnings	£1.4653	£1.6599	£1.5067	£1.6477	£1.4771	£1.4900	£1.2413	£1.4313	£0.6394	£0.7625	£0.8784	£1.3989	£1.3565
1847	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	22	22	22	22	22	22	22	22	22	22	22	22	
Empl'd workers	16	17	17	18	18	19	19	19	19	19	19	19	
Empl'd earnings	£1.8508	£2.1449	£1.6757	£1.7539	£1.8500	£1.4167	£1.6885	£1.6882	£1.5085	£1.9605	£1.9230	£1.4031	£1.9955
Average earnings	£1.3460	£1.6574	£1.2948	£1.4350	£1.5130	£1.2183	£1.4582	£1.4580	£1.3028	£1.6932	£1.6608	£1.2637	£1.6534
1848	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	22	22	22	22	22	22	22	22	22	22	22	22	
Empl'd workers	19	19	19	19	19	19	20	20	20	20	20	20	
Empl'd earnings	£1.4928	£1.6590	£1.4513	£1.4703	£1.1689	£1.5434	£1.5525	£1.2959	£1.7288	£1.5796	£1.9646	£1.5650	£1.7030
Average earnings	£1.2892	£1.4328	£1.2534	£1.2750	£1.0095	£1.3330	£1.4114	£1.1780	£1.5716	£1.4300	£1.7860	£1.4227	£1.5099

Table A.1.3a. : Power-loom weavers' earnings, 1837-1870 (continued).

1849	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	22	22	22	22	22	22	22	22	22	21	21	21	
Empl'd workers	20	20	21	21	22	22	22	22	22	20	20	20	
Empl'd earnings	£2.1217	£1.6981	£1.8345	£1.7128	£1.3542	£1.9724	£1.9205	£2.1938	£1.9511	£1.5625	£1.7863	£1.8448	£1.9509
Average earnings	£1.9288	£1.5438	£1.7511	£1.6349	£1.3542	£1.9724	£1.9205	£2.1938	£1.9511	£1.4880	£1.7012	£1.7569	£1.8848
1850	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	21	21	21	21	21	21	21	21	21	21	21	21	
Empl'd workers	21	21	21	21	21	21	21	21	21	21	21	21	
Empl'd earnings	£1.5061	£1.9845	£2.2199	£1.8157	£1.9122	£2.1744	£2.3273	£1.8720	£2.0099	£1.7919	£2.0510	£1.9042	£2.1811
Average earnings	£1.5061	£1.9845	£2.2199	£1.8157	£1.9122	£2.1744	£2.3273	£1.8720	£2.0099	£1.7919	£2.0510	£1.9042	£2.1811
1851	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	21	21	21	21	21	21	21	21	21	21	21	21	
Empl'd workers	21	21	21	21	20	20	20	20	20	20	20	20	
Empl'd earnings	£2.2877	£1.8758	£2.0101	£1.5651	£2.0054	£2.4483	£1.8501	£1.9525	£2.0233	£1.5009	£1.5738	£1.7131	£2.1053
Average earnings	£2.2877	£1.8758	£2.0101	£1.5651	£1.9099	£2.2317	£1.7621	£1.8595	£1.9270	£1.4293	£1.4989	£1.6315	£2.0390
1852	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	21	21	21	21	21	21	21	21	21	21	21	21	
Empl'd workers	20	20	20	20	20	20	20	20	20	20	20	20	
Empl'd earnings	£1.8835	£1.7791	£1.0825	£1.6838	£1.3125	£1.5052	£1.6230	£1.7270	£1.2297	£1.8106	£1.7425	£1.4596	£1.7385
Average earnings	£1.7938	£1.6944	£1.0309	£1.6036	£1.2500	£1.4335	£1.5457	£1.6457	£1.1712	£1.7244	£1.6595	£1.3903	£1.6556
1853	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	21	21	21	21	21	21	21	21	21	21	21	21	
Empl'd workers	20	20	20	20	20	20	20	20	21	21	21	21	
Empl'd earnings	£1.7491	£1.8765	£1.5113	£1.9568	£1.6585	£1.5975	£1.9648	£1.4272	£1.8840	£1.7456	£1.1767	£1.3042	£1.8917
Average earnings	£1.6658	£1.7871	£1.4393	£1.8636	£1.5796	£1.5214	£1.8712	£1.3593	£1.8840	£1.7456	£1.1707	£1.3042	£1.8282
1854	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	21	21	21	21	21	21	21	21	21	21	21	21	
Empl'd workers	21	21	21	21	21	21	21	21	20	20	20	20	
Empl'd earnings	£1.2075	£1.5089	£1.3109	£1.5210	£1.2709	£1.6272	£1.5667	£1.4498	£1.9750	£1.9763	£1.2498	£1.3100	£1.7178
Average earnings	£1.2075	£1.5089	£1.3109	£1.5210	£1.2709	£1.6272	£1.5667	£1.4498	£1.8810	£1.8821	£1.1903	£1.2477	£1.6895

Table A.1.3a. : Power-loom weavers' earnings, 1837-1870 (continued).

1855	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	21	21	21	21	21	21	21	21	21	21	21	21	average
Empl'd workers	20	19	19	19	18	19	19	20	20	20	20	20	
Empl'd earnings	£1.2305	£1.6526	£1.5349	£1.4825	£1.3343	£1.6934	£1.8404	£1.3283	£1.7345	£1.5154	£1.6619	£1.5350	£1.7706
Average earnings	£1.1719	£1.4952	£1.3887	£1.3413	£1.1437	£1.5321	£1.6651	£1.2651	£1.6519	£1.4433	£1.5827	£1.4619	£1.6379
1856	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	21	21	20	20	17	17	16	16	16	16	16	16	average
Empl'd workers	20	20	19	19	16	16	15	15	15	15	15	15	
Empl'd earnings	£1.2131	£1.5581	£1.6092	£1.2770	£1.2568	£1.7573	£1.7544	£1.8278	£1.8067	£1.4411	£1.7408	£1.3787	£1.8461
Average earnings	£1.1552	£1.4839	£1.5288	£1.2137	£1.1828	£1.6539	£1.6448	£1.7135	£1.6938	£1.3511	£1.6320	£1.2925	£1.7395
1857	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	16	16	16	16	14	14	14	13	13	12	12	12	average
Empl'd workers	15	15	15	15	13	13	13	12	12	11	11	11	
Empl'd earnings	£1.7050	£1.8858	£1.6950	£1.2061	£1.3792	£1.7667	£1.4419	£1.7594	£1.2646	£1.4170	£0.7545	£0.5837	£1.5922
Average earnings	£1.5984	£1.7680	£1.5891	£1.1307	£1.2807	£1.6405	£1.3389	£1.6240	£1.1673	£1.2990	£0.6917	£0.5351	£1.4791
1858	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	12	12	12	12	12	11	11	11	11	11	11	11	average
Empl'd workers	11	11	11	11	10	9	9	9	9	9	10	11	
Empl'd earnings	£0.7670	£0.9625	£1.1280	£1.2068	£1.1044	£1.2389	£1.7681	£1.6736	£1.1852	£1.4208	£1.3738	£0.9743	£1.4222
Average earnings	£0.7031	£0.8823	£1.0340	£1.1063	£0.9203	£1.0137	£1.4466	£1.3693	£0.9697	£1.1125	£1.2489	£0.9743	£1.2344
1859	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	9	8	8	8	8	8	8	8	8	8	8	8	average
Empl'd workers	9	7	7	8	8	8	8	8	8	8	8	8	
Empl'd earnings	£1.3722	£1.4750	£1.2917	£1.4203	£1.5138	£1.6340	£1.9177	£2.0339	£1.7409	£1.7656	£1.2993	£1.5094	£1.7571
Average earnings	£1.3722	£1.2906	£1.4302	£1.4203	£1.5138	£1.6340	£1.9177	£2.0339	£1.7409	£1.7656	£1.2993	£1.5094	£1.7216
1860	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	8	8	8	8	8	8	8	8	8	8	8	8	average
Empl'd workers	8	8	8	8	8	8	8	8	8	8	8	8	
Empl'd earnings	£1.7307	£1.1885	£1.7359	£1.5802	£1.5427	£2.5578	£1.7380	£1.9464	£2.1078	£2.1007	£2.0719	£2.0125	£2.0607
Average earnings	£1.7307	£1.1885	£1.7359	£1.5802	£1.5427	£2.5578	£1.7380	£1.9464	£2.1078	£2.1007	£2.0719	£2.0125	£2.0607

Table A.1.3a. : Power-loom weavers' earnings, 1837-1870 (continued).

1861	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	8	7	7	6	6	6	6	6	6	6	6	6	
Empl'd workers	8	7	7	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£1.0979	£1.8571	£1.8580	£1.8438	£1.8300	£2.2542	£1.7542	£2.2604	£2.1886	£2.1778	£1.9771	£1.4343	£2.2258
Average earnings	£1.0970	£1.8571	£1.8580	£1.8438	£1.8300	£2.2542	£1.7542	£2.2604	£2.1886	£2.1778	£1.9771	£1.4343	£2.2258
1862	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£1.9882	£2.2174	£2.3042	£1.9819	£2.0375	£2.2606	£1.6153	£2.0563	£2.0563	£2.2014	£2.0354	£1.4764	£2.1509
Average earnings	£1.9882	£2.2174	£2.3042	£1.9819	£2.0375	£2.2606	£1.6153	£2.0563	£2.0563	£2.2014	£2.0354	£1.4764	£2.1509
1863	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	5	5	5	5	5	5	
Empl'd workers	6	5	6	6	6	5	5	5	5	5	5	5	
Empl'd earnings	£2.0438	£2.2700	£1.9771	£1.7412	£1.6292	£1.5892	£2.2667	£1.9717	£1.9800	£2.2450	£1.9350	£2.0300	£2.1282
Average earnings	£2.0438	£1.8917	£1.9771	£1.7412	£1.6292	£1.3243	£2.2667	£1.9717	£1.9800	£2.2450	£1.9350	£2.0300	£2.0740
1864	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£1.5800	£1.9735	£1.9211	£2.0483	£1.8067	£2.2667	£1.8600	£2.2583	£2.1500	£2.1275	£1.9250	£1.9875	£2.1612
Average earnings	£1.5800	£1.9735	£1.9211	£2.0483	£1.8067	£2.2667	£1.8600	£2.2583	£2.1500	£2.1275	£1.9250	£1.9875	£2.1612
1865	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	4	5	5	5	5	5	
Empl'd earnings	£1.8325	£1.8117	£1.9933	£1.6800	£1.8667	£1.7850	£1.6969	£1.7717	£2.0075	£1.9750	£1.7700	£1.7225	£1.9829
Average earnings	£1.8325	£1.8117	£1.9933	£1.6800	£1.8667	£1.7850	£1.3575	£1.7717	£2.0075	£1.9750	£1.7700	£1.7225	£1.9546
1866	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	4	4	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£1.5333	£1.5719	£2.3708	£2.2042	£1.8417	£2.3361	£2.0458	£1.9805	£1.9000	£2.2208	£2.0458	£2.2208	£2.1607
Average earnings	£1.5333	£1.5719	£2.3708	£2.2042	£1.8417	£2.3361	£2.0458	£1.9805	£1.9000	£2.2208	£2.0458	£2.2208	£2.1607

Table A.1.3a. : Power-loom weavers' earnings, 1837-1870 (continued).

1867	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£2.0861	£2.1125	£2.3833	£2.3958	£1.8583	£2.4000	£2.3417	£2.3000	£1.9667	£2.0722	£1.9750	£1.6425	£2.3027
Average earnings	£2.0861	£2.1125	£2.3833	£2.3958	£1.8583	£2.4000	£2.3417	£2.3000	£1.9667	£2.0722	£1.9750	£1.6625	£2.3027
1868	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£2.3084	£2.4271	£2.0667	£2.2625	£2.3625	£1.7375	£2.5500	£2.5000	£2.3292	£2.4938	£2.7125	£2.6188	£2.5554
Average earnings	£2.3084	£2.4271	£2.0667	£2.2625	£2.3625	£1.7375	£2.5500	£2.5000	£2.3292	£2.4938	£2.7125	£2.6188	£2.5554
1869	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£2.4688	£2.6625	£2.7417	£2.7000	£2.5625	£2.7000	£2.9688	£2.8125	£2.7000	£2.5750	£2.7063	£2.4188	£2.8948
Average earnings	£2.4688	£2.6625	£2.7417	£2.7000	£2.5625	£2.7000	£2.9688	£2.8125	£2.7000	£2.5750	£2.7063	£2.4188	£2.8948
1870	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	1	1	1	0	0	0	0	0	0	
Empl'd workers	2	2	2	1	1	1	0	0	0	0	0	0	(Jan-June)
Empl'd earnings	£2.8125	£2.9125	£3.0500	£3.3000	£3.9000	£2.5667	0	0	0	0	0	0	£3.5583
Average earnings	£2.8125	£2.9125	£3.0500	£3.3000	£3.9000	£2.5667	0	0	0	0	0	0	£3.5583

Sources : Clough collection, Books no. 24, 30, 31, 32, 33.

Table A.1.3b. : Power-loom weavers' earnings, 1860-1883.

1860	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd workers	9	9	9	9	8	7	8	8	8	8	8	8	
Empl'd earnings	£1.6653	£1.6583	£1.7792	£1.6642	£1.7734	£2.0286	£1.9641	£2.0396	£2.2797	£1.6927	£2.2969	£2.0531	£2.1325
Average earnings	£1.6653	£1.6583	£1.7792	£1.6642	£1.5764	£1.5778	£1.7658	£1.8129	£2.0264	£1.5046	£2.0417	£1.8253	£1.9471

Table A.1.2b. : Power-loom weavers' earnings, 1860-1883 (continued).

1861	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd earnings	£1.8885	£2.0891	£2.4906	£1.8922	£2.2474	£2.0944	£2.1546	£2.2500	£2.3167	£1.9213	£2.3181	£2.3139	£2.4132
Average earnings	£1.6787	£1.8569	£2.2139	£1.6819	£1.9977	£2.0944	£2.1546	£2.2500	£2.3167	£1.9213	£2.3181	£2.3139	£2.3062
1862	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd earnings	£1.9472	£2.2556	£2.2681	£1.6833	£2.0861	£2.2972	£2.0305	£2.4250	£2.3785	£1.7333	£1.9292	£1.9426	£2.4704
Average earnings	£1.9472	£2.2556	£2.2681	£1.6833	£2.0861	£2.2972	£2.0305	£2.4250	£2.3785	£1.7333	£1.9292	£1.9426	£2.4704
1863	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd earnings	£2.2097	£2.1111	£1.8546	£2.1403	£2.3778	£2.0181	£1.9407	£2.2069	£2.0611	£2.3949	£2.0694	£1.9074	£2.2680
Average earnings	£2.2097	£2.1111	£1.8546	£2.1403	£2.3778	£2.0181	£1.9407	£2.2069	£2.0611	£2.3949	£2.0694	£1.9074	£2.2680
1864	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd earnings	£2.0250	£2.3958	£1.7519	£2.1611	£1.8786	£1.9343	£2.3694	£1.8315	£2.2583	£2.3292	£2.0080	£2.1736	£2.4066
Average earnings	£2.0250	£2.3958	£1.7519	£2.1611	£1.8786	£1.9343	£2.3694	£1.8315	£2.2583	£2.3292	£2.0080	£2.1736	£2.4066
1865	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd earnings	£1.9403	£2.1843	£1.7043	£1.7713	£2.0235	£2.1005	£2.1546	£1.7426	£2.0597	£2.2889	£1.9176	£1.7764	£2.2798
Average earnings	£1.9403	£2.1843	£1.7043	£1.7713	£2.0235	£2.1005	£2.1546	£1.7426	£2.0597	£2.2889	£1.9176	£1.7764	£2.2798
1866	Jan.	Feb.	march	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	9	9	9	8	8	8	8	8	
Empl'd workers	9	9	9	9	9	9	9	8	8	8	8	8	
Empl'd earnings	£2.3153	£2.3278	£2.6542	£2.4639	£2.1237	£2.4579	£2.2380	£1.8063	£2.2016	£2.3229	£2.2109	£2.2344	£2.5402
Average earnings	£2.3153	£2.3278	£2.6542	£2.4639	£2.1237	£2.4579	£2.2380	£1.8063	£2.2016	£2.3229	£2.2109	£2.2344	£2.5402

Table A.1.3b. : Power-loom weavers' earnings, 1860-1883 (continued).

1867	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	8	8	8	8	8	8	8	8	8	8	8	8	
Empl'd workers	7	7	7	7	7	7	7	7	7	7	7	7	
Empl'd earnings	£2.4887	£2.2661	£2.3536	£2.5732	£2.0625	£2.4714	£1.8821	£2.3876	£2.4232	£2.5661	£2.1375	£2.0429	£2.3830
Average earnings	£2.1776	£1.9828	£2.0594	£2.2516	£1.8047	£2.1625	£1.6469	£2.0891	£2.1203	£2.2453	£1.8703	£1.7875	£2.0851
1868	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	8	8	8	8	8	8	8	7	7	7	7	7	
Empl'd workers	7	6	6	7	7	7	7	6	6	6	6	6	
Empl'd earnings	£2.3286	£1.9000	£2.0646	£2.5857	£2.3750	£2.0196	£1.9886	£2.5528	£2.8875	£2.6000	£2.6521	£2.3472	£2.5291
Average earnings	£2.0375	£1.4250	£1.5484	£2.2625	£2.0781	£1.7572	£1.7400	£2.1881	£2.4750	£2.2286	£2.2732	£2.0119	£2.1592
1869	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	7	7	7	7	7	7	7	7	7	7	7	7	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£2.8042	£2.6083	£2.2931	£2.8313	£2.6875	£2.9095	£2.3625	£2.8229	£2.3583	£2.8000	£3.1021	£2.3695	£3.1670
Average earnings	£2.4036	£2.2375	£1.9655	£2.4268	£2.3036	£2.5453	£2.8821	£2.4196	£2.0214	£2.4000	£2.6589	£2.0309	£2.7145
1870	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£3.0458	£3.2729	£2.5305	£3.0021	£3.6104	£3.2014	£3.1250	£3.2917	£3.1646	£2.9250	£2.7083	£2.6375	£3.3946
Average earnings	£3.0458	£3.2729	£2.5305	£3.0021	£3.6104	£3.2014	£3.1250	£3.2917	£3.1646	£2.9250	£2.7083	£2.6375	£3.3946
1871	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£3.0188	£2.9729	£2.3000	£2.9583	£2.6847	£3.0167	£2.6354	£2.1417	£3.1011	£3.1354	£2.7805	£3.0021	£3.1417
Average earnings	£3.0188	£2.9729	£2.3000	£2.9583	£2.6847	£3.0167	£2.6354	£2.1414	£3.1011	£3.1354	£2.7805	£3.0021	£3.1417
1872	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£2.3847	£2.6771	£3.0583	£2.7667	£2.3903	£2.8292	£2.9262	£2.2583	£2.4542	£1.8972	£2.8542	£2.9917	£2.9022
Average earnings	£2.3847	£2.6771	£3.0583	£2.7667	£2.3903	£2.8292	£2.9262	£2.2583	£2.4542	£1.8972	£2.8542	£2.9917	£2.9022

Table A.1.3b. : Power-loom weavers' earnings, 1860-1883 (continued).

1873	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total weavers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd weavers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£2.5181	£2.6104	£2.7083	£3.1229	£2.9500	£3.1208	£2.9653	£3.0875	£2.9875	£2.9521	£2.6796	£2.2417	£3.1422
Average earnings	£2.5181	£2.6104	£2.7083	£3.1229	£2.9500	£3.1208	£2.9653	£3.0875	£2.9875	£2.9521	£2.6796	£2.2417	£3.1422
1874	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£2.7875	£2.9667	£2.7396	£2.1300	£3.0625	£2.5275	£2.8567	£2.5925	£2.3900	£3.0800	£3.3960	£2.4383	£3.0833
Average earnings	£2.7875	£2.9667	£2.7396	£2.1300	£3.0625	£2.5275	£2.8567	£2.5925	£2.3900	£3.0800	£3.3960	£2.4383	£3.0833
1875	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total weavers	6	6	6	6	6	6	6	6	6	6	6	5	
Empl'd weavers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£1.8125	£2.5225	£2.6400	£2.9604	£2.3475	£2.3350	£2.4750	£2.4825	£2.8050	£2.9800	£2.9575	£2.4825	£2.8069
Average earnings	£1.5104	£2.1021	£2.2000	£2.4181	£1.9563	£1.9458	£2.0625	£2.0688	£2.3375	£2.4833	£2.4646	£2.4825	£2.3674
1876	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	3	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	4	1	
Empl'd earnings	£2.7400	£3.2425	£2.0467	£3.1117	£2.3125	£2.7242	£2.3454	£1.8805	£2.0992	£1.6708	£2.2577	£3.1000	£2.7120
Average earnings	£2.7400	£3.2425	£2.0467	£3.1117	£2.3125	£2.7242	£2.3454	£1.8805	£2.0992	£1.6708	£1.8616	£1.0333	£2.5026
1877	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total weavers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£1.9500	£2.4375	£2.9167	£1.9125	£2.6125	£1.0625	£3.1375	£2.8833	£3.3625	£2.8125	£2.9625	£2.5875	£2.7947
Average earnings	£0.6500	£0.8125	£0.9722	£0.6375	£0.8708	£0.3542	£1.0458	£0.9611	£1.1208	£0.9375	£0.9875	£0.8625	£0.9315
1878	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£1.8764	£3.2000	£3.3694	£2.3174	£1.6340	£1.6604	£2.0993	£1.8518	£2.4563	£2.4333	£2.7236	£2.8181	£2.4471
Average earnings	£1.8764	£3.2000	£3.3694	£2.3174	£1.6340	£1.6604	£2.0993	£1.8518	£2.4563	£2.4333	£2.7236	£2.8181	£2.4471

Table A.1.3b. : Power-loom weavers' earnings, 1860-1883 (continued).

1879	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	average
Empl'd workers	3	2	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£2.2685	£1.8438	£1.4958	£2.0167	£2.3236	£1.3736	£1.4083	£1.5986	£1.4458	£1.4556	£1.9611	£1.7687	£1.8998
Average earnings	£2.2685	£1.2292	£1.4958	£2.0167	£2.3262	£1.3736	£1.4083	£1.5986	£1.4458	£1.4556	£1.9611	£1.7687	£1.8998
1880	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	3	3	3	3	3	3	3	3	3	3	3	2	average
Empl'd workers	3	3	3	3	3	3	3	2	2	3	3	2	
Empl'd earnings	£1,5278	£2.2424	£1.8972	£1.4070	£2.2778	£1.5722	£1.5486	£1.9959	£1.2896	£0.8736	£1.4194	£1.8069	£1.7938
Average earnings	£1.5278	£2.2424	£1.8972	£1.4070	£2.2778	£1.5722	£1.5486	£1.3306	£0.8597	£0.8736	£1.4194	£1.8069	£1.7025
1881	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	2	2	2	2	2	1	1	2	2	2	2	
Empl'd earnings	£1.9771	£1.4438	£1.4563	£1.4479	£1.0979	£1.0778	£2.2458	£2.3833	£2.2167	£2.0771	£2.3188	£1.6083	£1.8462
Average earnings	£1.9771	£1.4438	£1.4563	£1.4479	£1.0979	£1.0778	£1.1229	£1.1917	£2.2167	£2.0771	£2.3188	£1.6083	£1.6537
1882	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	1	1	1	1	1	1	1	1	1	1	average
Empl'd workers	2	2	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£2.5000	£2.0021	£2.5375	£2.1250	£2.5000	£2.8958	£2.8250	£2.9792	£2.8959	£1.9792	£2.2167	£2.1917	£2.5619
Average earnings	£2.5000	£2.0021	£2.5375	£2.1250	£2.5000	£2.8958	£2.8250	£2.9792	£2.8959	£1.9792	£2.2167	£2.1917	£2.5619
1883	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	1	1	1	1	1	1	0	0	0	0	0	0	average
Empl'd workers	1	1	1	1	1	1	0	0	0	0	0	0	(Jan-June)
Empl'd earnings	£1.9875	£1.8000	£1.1042	£1.1042	£1.6055	£1.9875	0	0	0	0	0	0	£1.8986
Average earnings	£1.9875	£1.8000	£1.1042	£1.1042	£1.6055	£1.9875	0	0	0	0	0	0	£1.8986

Sources : Clough collection, Books no. 34, 35, 36, 37.

Table A.1.3. : Spinners' earnings, 1872-1908.

1872	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£1.8125	£1.8660	£1.6365	£1.6026	£1.9964	£2.1958	£1.8719	£1.4344	£1.6417	£1.5808	£2.0141	£1.9859	£2.1074
Average earnings	£1.8125	£1.8660	£1.6365	£1.6026	£1.9964	£2.1958	£1.8719	£1.4344	£1.6417	£1.5808	£2.0141	£1.9859	£2.1074
1873	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	3	3	3	3	3	3	3	3	
Empl'd earnings	£1.8667	£1.9427	£2.0453	£1.5052	£1.8625	£1.8208	£1.8236	£1.8153	£1.9000	£1.9000	£1.9000	£1.9000	£2.0111
Average earnings	£1.8667	£1.9427	£2.0453	£1.5052	£1.3969	£1.3656	£1.3677	£1.3615	£1.4250	£1.4250	£1.4250	£1.4250	£1.6807
1874	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	3	3	3	3	3	3	4	4	4	4	4	4	
Empl'd earnings	£1.4977	£2.1465	£2.2500	£2.1618	£2.2500	£2.0542	£2.2288	£2.2521	£2.1099	£2.2000	£2.2542	£2.0962	£2.4302
Average earnings	£1.4983	£1.6099	£1.6875	£1.6214	£1.6875	£1.5406	£2.2288	£2.2521	£2.1099	£2.2000	£2.2542	£2.0962	£2.1415
1875	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	3	3	3	3	3	3	3	3	
Empl'd earnings	£2.4167	£2.6422	£2.7448	£2.2917	£2.4861	£2.0694	£2.6222	£2.3951	£2.5583	£2.6278	£2.6042	£2.4643	£2.7055
Average earnings	£2.4167	£2.6422	£2.7448	£2.2917	£1.8646	£1.5521	£1.9667	£1.7964	£1.9188	£1.9708	£1.9531	£1.8483	£2.2394
1876	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	3	3	4	4	4	4	4	3	3	3	3	4	
Empl'd earnings	£2.6479	£2.6493	£2.1490	£2.0021	£2.5459	£2.7094	£2.4417	£2.3354	£2.8729	£3.1451	£2.4857	£2.4401	£2.7406
Average earnings	£1.9860	£1.9870	£2.1490	£2.0021	£2.5459	£2.7094	£2.4417	£1.7511	£2.1547	£2.3589	£1.8643	£2.4401	£2.3785
1877	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£2.8323	£3.0563	£3.1307	£2.7313	£2.6785	£2.7776	£2.1719	£2.5370	£2.8589	£2.7844	£2.6445	£2.2856	£2.9292
Average earnings	£2.8323	£3.0563	£3.1307	£2.7313	£2.6785	£2.7776	£2.1719	£2.5370	£2.8589	£2.7844	£2.6445	£2.2856	£2.9292

Table A.1.3. : Spinners' earnings, 1872-1908 (continued).

1878	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	3	3	4	4	4	4	4	4	4	
Empl'd earnings	£2.7758	£2.8240	£2.1078	£2.7167	£2.0574	£2.3365	£3.2245	£3.2203	£2.8995	£2.8924	£2.6974	£2.4990	£2.8921
Average earnings	£2.7558	£2.8240	£2.1078	£2.0375	£1.5431	£2.3365	£3.2245	£3.2203	£2.8995	£2.8924	£2.6974	£2.4990	£2.7712
1879	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	3	3	3	3	3	3	3	3	3	
Empl'd workers	4	4	4	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£2.7130	£2.6552	£2.1542	£2.3250	£2.7797	£2.6410	£2.9681	£3.2208	£3.1368	£3.0694	£3.0639	£2.5868	£3.0198
Average earnings	£2.7130	£2.6552	£2.1542	£2.3250	£2.7797	£2.6410	£2.9681	£3.2208	£3.1368	£3.0694	£3.0639	£2.5868	£3.0198
1880	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£2.7625	£2.7386	£2.8000	£3.0025	£2.6896	£3.0073	£3.0250	£2.7657	£3.1903	£2.8585	£2.9011	£2.2896	£3.1203
Average earnings	£2.7625	£2.7386	£2.8000	£3.0025	£2.6896	£3.0073	£3.0250	£2.7657	£3.1903	£2.8585	£2.9011	£2.2896	£3.1203
1881	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£2.2896	£2.2896	£2.3962	£2.1832	£2.2896	£2.2896	£2.2896	£2.2365	£2.2813	£2.4052	£3.1500	£3.3783	£2.6623
Average earnings	£2.2896	£2.2896	£2.3962	£2.1832	£2.2896	£2.2896	£2.2896	£2.2365	£2.2813	£2.4052	£3.1500	£3.3783	£2.6623
1882	Jan.	Feb.	march	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.4125	£3.2604	£3.0586	£1.4958	£2.7719	£2.4442	£3.4125	£3.2039	£3.4500	£3.4500	£3.4500	£3.2842	£3.3926
Average earnings	£3.4125	£3.2604	£3.0586	£1.4958	£2.7719	£2.4442	£3.4125	£3.2039	£3.4500	£3.4500	£3.4500	£3.2842	£3.3926
1883	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.4125	£3.3896	£3.3242	£3.4500	£3.1594	£3.4500	£3.3969	£3.4100	£3.6500	£3.8115	£4.2090	£3.8636	£3.8422
Average earnings	£3.4125	£3.3896	£3.3242	£3.4500	£3.1594	£3.4500	£3.3969	£3.4100	£3.6500	£3.8115	£4.2090	£3.8636	£3.8422

Table A.1.3. : Spinners' earnings', 1872-1908 (continued).

1884	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.7761	£3.4988	£3.6500	£3.4698	£3.8500	£3.6802	£3.8292	£3.6503	£3.8688	£4.0083	£4.5073	£4.2094	£4.1423
Average earnings	£3.7761	£3.4988	£3.6500	£3.4698	£3.8500	£3.6802	£3.8292	£3.6503	£3.8688	£4.0083	£4.5073	£4.2094	£4.1423
1885	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£4.2548	£3.8323	£3.8615	£3.6229	£3.5559	£3.7542	£3.5774	£3.9000	£3.8292	£3.8709	£3.9000	£3.9000	£4.1398
Average earnings	£4.2548	£3.8323	£3.8615	£3.6229	£3.5559	£3.7542	£3.5774	£3.9000	£3.8292	£3.8709	£3.9000	£3.9000	£4.1398
1886	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.6817	£3.9000	£3.8313	£3.6975	£3.8209	£3.7530	£3.9000	£3.5178	£3.9000	£3.9000	£3.8750	£4.0430	£4.2321
Average earnings	£3.6817	£3.9000	£3.8313	£3.6975	£3.8209	£3.7530	£3.9000	£3.5178	£3.9000	£3.9000	£3.8750	£4.0430	£4.2321
1887	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.8615	£3.8500	£3.9000	£3.6334	£3.8209	£3.5459	£3.8556	£3.5542	£3.9000	£3.8907	£3.8417	£3.7106	£4.0395
Average earnings	£3.8615	£3.8500	£3.9000	£3.6334	£3.8209	£3.5459	£3.8556	£3.5542	£3.9000	£3.8907	£3.8417	£3.7106	£4.0395
1888	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.7542	£3.8500	£3.9000	£3.7959	£3.6428	£3.8021	£3.8584	£3.5623	£3.9000	£3.8709	£3.8743	£3.5146	£4.0951
Average earnings	£3.7542	£3.8500	£3.9000	£3.7959	£3.6428	£3.8021	£3.8584	£3.5623	£3.9000	£3.8709	£3.8743	£3.5146	£4.0951
1889	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.8907	£3.8886	£3.9500	£3.8250	£3.8681	£3.5542	£3.9000	£3.5342	£3.9782	£3.8967	£4.1581	£3.9157	£4.1872
Average earnings	£3.8907	£3.8886	£3.9500	£3.8250	£3.8681	£3.5542	£3.9000	£3.5342	£3.9782	£3.8967	£4.1581	£3.9157	£4.1872

Table A.1.3. : Spinners' earnings, 1872-1908 (continued).

1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	7	7	7	7	7	7	7	7	7	7	7	7	
Empl'd workers	7	7	7	7	7	7	7	7	7	7	7	7	
Empl'd earnings	£4.1140	£3.5345	£3.7449	£3.4628	£3.3673	£3.4176	£3.6985	£3.4052	£3.7143	£3.7430	£3.7533	£3.6050	£3.9267
Average earnings	£4.1140	£3.5345	£3.7449	£3.4628	£3.3673	£3.4176	£3.6985	£3.4052	£3.7143	£3.7430	£3.7533	£3.6056	£3.9267
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	7	7	7	7	7	7	7	7	7	7	7	7	
Empl'd workers	7	7	7	7	7	7	7	7	7	7	7	7	
Empl'd earnings	£3.5484	£3.5223	£3.6780	£3.1197	£3.0902	£3.6351	£3.6046	£3.5209	£3.7396	£3.7310	£3.7324	£3.7208	£3.8416
Average earnings	£3.5484	£3.5223	£3.6786	£3.1197	£3.0902	£3.6351	£3.6046	£3.5209	£3.7396	£3.7310	£3.7324	£3.7208	£3.8416
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	7	7	7	7	7	6	6	6	6	6	6	6	
Empl'd workers	7	7	7	7	6	5	5	5	5	5	5	5	
Empl'd earnings	£3.5422	£3.6071	£3.3211	£3.5622	£4.1263	£3.4625	£4.1092	£3.5271	£3.7169	£3.6863	£3.5308	£3.6504	£3.9506
Average earnings	£3,5422	£3.6071	£3.3211	£3.5622	£3.5351	£2.8854	£3.4243	£2.9393	£3.0975	£3.0719	£2.9424	£3.0420	£3.5273
1893	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	5	5	5	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£3.2313	£3.5175	£3.6414	£3.2445	£3.2092	£3.5434	£3.6618	£3.2586	£3.5240	£3.7122	£3.6588	£3.5292	£3.7817
Average earnings	£2,6927	£2.9313	£3.0345	£3.2445	£3.2092	£3.5434	£3.6618	£3.2586	£3.5240	£3.7122	£3.6588	£3.5292	£3.7817
1894	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	5	5	5	5	5	5	5	6	6	6	6	
Empl'd earnings	£2.8962	£2.8621	£3.3658	£4.0133	£3.1679	£3.3834	£3.6600	£3.1595	£3.8417	£3.9438	£3.7675	£3.3483	£3.7173
Average earnings	£2.8962	£2.8621	£2.8049	£3.3445	£2.6400	£2.8195	£3.0500	£2.6329	£3.8417	£3.9438	£3.7675	£3.3483	£3.3463
1895	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£3.1017	£3.4552	£3.4661	£3.6392	£3.7118	£3.4195	£3.8396	£3.8669	£3.9945	£3.7594	£3.6264	£3.6583	£3.8979
Average earnings	£3.1017	£3.4552	£3,4661	£3.6392	£3.7118	£3.4195	£3.8396	£3.8669	£3.9945	£3.7594	£3.6264	£3.6583	£3.8979

Table A.1.3. : Spinners' earnings, 1872-1908 (continued).

1896	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£3.5582	£4.1917	£3.5750	£3.4403	£3.6627	£3.5486	£3,2094	£3.8323	£3.4899	£3.8110	£3.8872	£3.8743	£3.9565
Average earnings	£3.5582	£4.1917	£3.5750	£3.4403	£3.6627	£3.5486	£3.2094	£3.8323	£3.4899	£3.8110	£3.8872	£3.8743	£3.9565
1897	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	5	6	6	6	6	6	6	6	6	
Empl'd earnings	£3.2832	£3.4559	£3.3389	£3.5377	£3.7146	£3.0820	£3.5676	£3.3483	£3.6663	£3.6410	£3.7639	£3.5285	£3.9244
Average earnings	£3.2832	£3.4559	£3.3389	£2.9481	£3.7146	£3.0820	£3.5676	£3.3483	£3.6663	£3.6410	£3.7639	£3.5285	£3.8737
1898	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£3.6500	£3.7465	£3.8851	£3.1349	£3.7858	£3.4431	£3,8041	£3.2781	£3.7646	£3.7917	£3.5045	£2.9279	£3.8407
Average earnings	£3.6500	£3.7465	£3.8851	£3.1349	£3.7858	£3.4431	£3.8041	£3.2781	£3.7646	£3.7917	£3.5045	£2.9279	£3.8407
1899	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£3.8833	£3.5684	£3.5895	£3.3587	£3.5625	£3.7463	£4.1227	£3.8076	£3.9313	£3.6799	£3.8382	£3.6686	£4.0394
Average earnings	£3.8833	£3.5684	£3.5895	£3.3587	£3.5625	£3.7463	£4.1227	£3.8076	£3.9313	£3.6799	£3.8382	£3.6686	£4.0394
1900	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£3.2209	£3.0943	£3.3167	£2.8531	£3.2151	£3.1502	£3.4255	£3.0784	£3.6271	£3.5292	£3.4917	£3.1297	£3.2426
Average earnings	£3.2209	£3.0943	£3.3167	£2.8531	£3.2151	£3.1502	£3.4255	£3.0784	£3.6271	£3.5292	£3.4917	£3.1297	£3.2426
1901	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£3.4084	£3.3719	£3.2714	£3.1516	£3.1419	£3.4828	£3.2354	£3.0527	£3.1448	£3.2135	£3.3442	£2.8136	£3.4898
Average earnings	£3.4084	£3.3719	£3.2714	£3.1516	£3.1419	£3.4828	£3.2354	£3.0527	£3.1448	£3.2135	£3.3442	£2.8136	£3.4898

Table A.1.4. : Spinners' earnings, 1872-1908 (continued).

1902	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£3.1879	£3.0365	£3.3995	£3.2875	£3.3150	£3.2167	£3.2427	£3.0551	£3.1870	£3.4104	£3.2995	£3.1834	£3.4598
Average earnings	£3.1879	£3.0365	£3.3995	£3.2875	£3.3150	£3.2167	£3.2427	£3.0551	£3.1870	£3.4104	£3.2995	£3.1834	£3.4598
1903	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£3.3075	£3.4979	£3.4620	£3.0813	£3.5708	£3.3292	£3.1642	£3.4714	£2.9860	£3.5138	£3.3688	£3.2896	£3.6192
Average earnings	£3.3075	£3.4979	£3.4620	£3.0813	£3.5703	£3.3292	£3.1642	£3.4714	£2.9860	£3.5138	£3.3688	£3.2896	£3.6192
1904	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	3	4	
Empl'd earnings	£2.5983	£3.0172	£3.4729	£3.1817	£3.0750	£3.4000	£3.3190	£3.1300	£3.5766	£2.9406	£4.0958	£2.9662	£3.5575
Average earnings	£2.5983	£3.0172	£3.4729	£3.1817	£3.0750	£3.4000	£3.3190	£3.1360	£3.5766	£2.9406	£3.0719	£2.9662	£3.4722
1905	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£3.6198	£3.6104	£3.4202	£3.4453	£3.5823	£3.1242	£3.2406	£2.9531	£3.5508	£3.5110	£3.5740	£3.3621	£3.6965
Average earnings	£3.6198	£3.6104	£3.4202	£3.4453	£3.5823	£3.1242	£3.2406	£2.9531	£3.5508	£3.5110	£3.5740	£3.3621	£3.6965
1906	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£3.0313	£2.7688	£3.1621	£3.1380	£3.6813	£3.3234	£3.5318	£3.3217	£3.5886	£3.5521	£3.4990	£3.7938	£3.6432
Average earnings	£3.0313	£2.7688	£3.1621	£3.1380	£3.6813	£3.3234	£3.5318	£3.3217	£3.5886	£3.5521	£3.4996	£3.7938	£3.6432
1907	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£3.4052	£3.5099	£3.5925	£2.9667	£3.3762	£3.5563	£3.5646	£3.3217	£3.5766	£3.7735	£3.6709	£3.4099	£3.7678
Average earnings	£3.4052	£3.5099	£3.5925	£2.9667	£3.3762	£3.5563	£3.5646	£3.3217	£3.5766	£3.7735	£3.6709	£3.4099	£3.7678

Table A.1.4. : Spinners' earnings, 1872-1908 (continued).

1908	Jan.
Total workers	4
Empl'd workers	4
Empl'd earnings	£3.5658
Average earnings	£3.5658

Sources ; Clough collection. books no. 64, 65, 66, 67, 68, 69, 70, 71,72, 86. 87, 88, 89, 90, 91, 92.

Table A.1.5. : Genappers' earnings, 1880-1908.

1880	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.0907	£3.5521	£3.3656	£2.7514	£3.3167	£3.6448	£3.4201	£2.7844	£3.0688	£2.6646	£2.3052	£2.1188	£3.2532
Average earnings	£3.0907	£3.5521	£3.3656	£2.7514	£3.3167	£3.6448	£3.4201	£2.7844	£3.0688	£2.6646	£2.3052	£2.1188	£3.2532
1881	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£1.7792	£1.7844	£1.8319	£2.0032	£2.6854	£3.2729	£3.2334	£3.1334	£3.2299	£3.1636	£3.3802	£3.2667	£2.9412
Average earnings	£1.7792	£1.7844	£1.8319	£2.0032	£2.6854	£3.2729	£3.2334	£3.1334	£3.2299	£3.1636	£3.3802	£3.2667	£2.9412
1882	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£2.1990	£3.4282	£3.5229	£3.5052	£3.5865	£3.3083	£3.4729	£3.6146	£3.8625	£3.1407	£3.3292	£3.4563	£3.6662
Average earnings	£2.1990	£3.4282	£3.5229	£3.5052	£3.5865	£3.3083	£3.4729	£3.6146	£3.8625	£3.1407	£3.3292	£3.4563	£3.6662
1883	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.3854	£3.4469	£3.2389	£3.1115	£3.1365	£3.4882	£2.9063	£3.4577	£3.6292	£3.4219	£3.1386	£3.3229	£3.5860
Average earnings	£3.3854	£3.4469	£3.2389	£3.1115	£3.1365	£3.4882	£2.9063	£3.4577	£3.6292	£3.4219	£3.1386	£3.3229	£3.5860

Table A.1.4. : Genappers' earnings, 1880-1908 (continued).

1884	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.3198	£3.2712	£3.4407	£3.1344	£3.4354	£3.1188	£3.2667	£3.1445	£3.5094	£3.7302	£3.5427	£3.2906	£3.6176
Average earnings	£3.3198	£3.2712	£3.4407	£3.1344	£3.4354	£3.1188	£3.2667	£3.1445	£3.5094	£3.7302	£3.5427	£3.2906	£3.6176
1885	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.5750	£3.3417	£3.2521	£3.2667	£3.4032	£3.2515	£3.1077	£3.4334	£3.4698	£3.3636	£3.3917	£3.4803	£3.6398
Average earnings	£3.5750	£3.3417	£3.2521	£3.2667	£3.4032	£3.2515	£3.1077	£3.4334	£3.4698	£3.3636	£3.3917	£3.4803	£3.6398
1886	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.2007	£3.1511	£2.1771	£3.3886	£3.1042	£2.8917	£2.9049	£2.8417	£3.5021	£3.3448	£3.3938	£3.4271	£3.5076
Average earnings	£3.2007	£3.1511	£2.1771	£3.3886	£3.1042	£2.8917	£2.9049	£2.8417	£3.5021	£3.3448	£3.3938	£3.4271	£3.5076
1887	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.6386	£2.5959	£3.3646	£2.3428	£3.0521	£3.1469	£3.5701	£3.4823	£3.5896	£3.3625	£3.2000	£3.2160	£3.4962
Average earnings	£3.6386	£2.5959	£3.3646	£2.3428	£3.0521	£3.1469	£3.5701	£3.4823	£3.5896	£3.3625	£3.2000	£3.2160	£3.4962
1888	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.3021	£3.3229	£3.4125	£3.0896	£3.3282	£2.9219	£2.4514	£2.9584	£3.3500	£2.4073	£3.0077	£3.1344	£3.2846
Average earnings	£3.3021	£3.3229	£3.4125	£3.0896	£3.3282	£2.9219	£2.4514	£2.9584	£3.3500	£2.4073	£3.0077	£3.1344	£3.2846
1889	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.2354	£3.4313	£3.5667	£3.4188	£3.5861	£2.2031	£3.2396	£3.1566	£3.4063	£3.1999	£2.7883	£3.0531	£3.4636
Average earnings	£3.2354	£3.4313	£3.5667	£3.4188	£3.5861	£2.2031	£3.2396	£3.1566	£3.4063	£3.1999	£2.7883	£3.0531	£3.4636

Table A.1.4. : Genappers' earnings, 1880-1908 (continued).

1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	5	6	6	6	6	6	6	
Empl'd earnings	£2.5486	£2.0997	£2.5312	£2.4518	£2.4420	£3.0638	£2.8292	£3.1281	£3.1677	£2.8803	£2.8514	£2.7302	£2.9499
Average earnings	£2.5486	£2.0997	£2.5312	£2.4518	£2.4420	£2.5532	£2.8292	£3.1281	£3.1677	£2.8803	£2.8514	£2.7302	£2.9499
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	5	5	5	6	
Empl'd earnings	£2.7294	£2.7718	£3.0179	£2.5637	£2.6139	£2.6958	£2.6072	£2.8038	£2.8500	£2.4020	£2.6996	£2.0555	£2.9133
Average earnings	£2.7294	£2.7718	£3.0179	£2.5637	£2.6139	£2.6958	£2.6072	£2.8038	£2.3750	£2.0017	£2.2497	£2.0555	£2.7945
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£2.6778	£3.3080	£3.2992	£2.5768	£2.9958	£2.7689	£3.0625	£3.1896	£3.1864	£3.2830	£3.0715	£3.1326	£3.3040
Average earnings	£2.6778	£3.3080	£3.2992	£2.5768	£2.9958	£2.7689	£3.0625	£3.1896	£3.1864	£3.2830	£3.0715	£3.1326	£3.3040
1893	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£3.2604	£3.0726	£3.4270	£2.8767	£2.9677	£3.4281	£3.0348	£2.6591	£3.3545	£3.1025	£3.0275	£2.8948	£3.3679
Average earnings	£3.2604	£3.0726	£3.4270	£2.8767	£2.9677	£3.4281	£3.0348	£2.6591	£3.3545	£3.1025	£3.0275	£2.8948	£3.3679
1894	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£3.1361	£3.1601	£2.1786	£2.7316	£2.7783	£3.0267	£2.5542	£2.7854	£2.6018	£2.6396	£2.6556	£2.0569	£2.8506
Average earnings	£3.1361	£3.1601	£2.1786	£2.7316	£2.7783	£3.0267	£2.5542	£2.7854	£2.6018	£2.6396	£2.6556	£2.0569	£2.8506
1895	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£2.2764	£2.2118	£2.6108	£2.0316	£2.8047	£2.4209	£2.7910	£2.1114	£2.2934	£2.3445	£2.2993	£1.8657	£2.5371
Average earnings	£2.2764	£2.2118	£2.6108	£2.0316	£2.8047	£2.4209	£2.7910	£2.1114	£2.2934	£2.3445	£2.2993	£1.8657	£2.5371

304

Table A.1.5. : Canappers' earnings, 1880-1908 (continued).

1896	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	5	5	6	6	6	6	6	6	
Empl'd earnings	£1.8093	£1.8830	£2.0643	£1.9549	£2.2214	£2.4496	£2.2493	£2.1872	£2.4969	£3.4189	£3.7844	£3.4050	£2.7665
Average earnings	£1.8093	£1.8830	£2.0643	£1.9549	£1.8511	£2.0413	£2.2483	£2.1872	£2.4969	£3.4189	£3.7844	£3.4050	£2.7665
1897	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£3.5830	£2.6990	£2.8347	£3.0998	£3.3181	£3.0622	£3.2062	£3.0347	£3.0342	£2.9910	£3.2615	£3.4170	£3.3942
Average earnings	£3.5830	£2.6990	£2.8347	£3.0998	£3.3181	£3.0622	£3.2062	£3.0347	£3.0342	£2.9910	£3.2615	£3.4170	£3.3942
1898	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£3.7354	£3.5330	£3.1981	£2.9922	£2.6573	£2.5173	£2.8483	£2.2719	£2.8536	£3.2521	£3.2958	£3.0256	£3.2983
Average earnings	£3.7354	£3.5330	£3.1981	£2.9922	£2.6573	£2.5178	£2.8483	£2.2719	£2.8536	£3.2521	£3.2958	£3.0256	£3.2983
1899	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£3.3281	£3.1240	£2.9722	£2.1382	£2.5990	£3.5584	£3.1409	£3.0803	£3.1903	£2.9594	£2.4856	£2.3896	£3.1664
Average earnings	£3.3281	£3.1240	£2.9722	£2.1382	£2.5990	£3.5584	£3.1469	£3.0803	£3.1903	£2.9594	£2.4856	£2.3896	£3.1664
1900	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£2.5188	£2.5174	£2.6750	£2.0813	£1.7347	£2.0764	£2.9681	£2.0438	£2.7945	£2.8965	£2.7711	£2.6257	£2.4647
Average earnings	£2.5188	£2.5174	£2.6750	£2.0813	£1.7347	£2.0764	£2.9681	£2.0438	£2.7945	£2.8965	£2.7711	£2.6257	£2.4647
1901	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.1061	£3.3326	£3.0806	£2.3458	£2.5155	£2.7819	£2.3576	£1.8922	£1.8972	£2.2967	£1.3597	£1.3268	£2.5578
Average earnings	£3.1061	£3.3326	£3.0806	£2.3458	£2.5155	£2.7819	£2.3576	£1.8922	£1.8972	£2.2967	£1.3597	£1.3268	£2.5578

Table A.1.5. : Genappers' earnings, 1880-1908 (continued).

1902	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	average
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£1.9028	£1.4653	£1.5604	£2.3882	£2.1834	£1.6604	£1.7890	£1.6611	£1.7076	£2.7350	£2.5597	£2.6778	£2.2036
Average earnings	£1.9028	£1.4653	£1.5604	£2.3882	£2.1834	£1.6604	£1.7190	£1.6611	£1.7076	£2.7350	£2.5597	£2.6778	£2.2036
1903	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	average
Empl'd workers	3	3	2	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£2.6489	£2.9938	£3.4886	£2.3906	£2.4299	£2.6764	£2.6267	£2.9083	£2.9875	£2.8811	£2.8208	£2.6345	£3.0652
Average earnings	£2.6489	£2.9938	£2.3257	£2.3906	£2.4299	£2.6764	£2.6267	£2.9083	£2.9875	£2.8811	£2.8208	£2.6345	£2.9683
1904	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	average
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£2.9236	£2.9813	£2.6689	£2.3486	£2.5514	£2.6428	£2.6979	£2.9195	£3.0811	£3.2042	£3.2299	£3.0566	£3.0973
Average earnings	£2.9236	£2.9813	£2.6689	£2.3486	£2.5514	£2.6428	£2.6979	£2.9195	£3.0811	£3.2042	£3.2299	£3.0566	£3.0973
1905	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	average
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£2.2542	£2.2729	£2.9139	£2.6069	£2.9896	£3.1172	£3.1875	£2.7978	£2.7111	£2.6320	£2.8517	£2.3604	£2.9679
Average earnings	£2.2542	£2.2729	£2.9139	£2.6069	£2.9896	£3.1172	£3.1875	£2.7978	£2.7111	£2.6320	£2.8517	£2.3604	£2.9679
1906	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	average
Empl'd workers	3	3	3	3	3	3	2	2	3	3	3	3	
Empl'd earnings	£2.4048	£3.0417	£2.1800	£2.2368	£2.4446	£2.7257	£3.1459	£2.9450	£2.6326	£3.1437	£3.2489	£2.8611	£2.9762
Average earnings	£2.4048	£3.0417	£2.1800	£2.2368	£2.4446	£2.7257	£2.0972	£1.9634	£2.6326	£3.1437	£3.2489	£2.8611	£2.7866
1907	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	average
Empl'd workers	3	3	3	3	3	3	3	2	2	3	3	3	
Empl'd earnings	£3.3206	£3.3063	£3.2750	£2.9591	£2.8456	£3.1701	£2.8722	£3.1117	£3.4771	£2.9045	£3.6208	£3.6549	£3.4636
Average earnings	£3.3206	£3.3063	£3.2750	£2.9591	£2.8456	£3.1701	£2.8722	£2.0745	£2.3181	£2.9045	£3.6208	£3.6549	£3.2634

Table A.1.5. : Genappers' earnings, 1880-1908 (continued).

1908	Jan.
Total workers	3
Empl'd workers	3
Empl'd earnings	£3.6666
Average earnings	£3.6666

Sources : Clough collection, books no. 66, 67, 68, 93, 94, 95, 96.

Table A.1.6. : Mill hands' earnings, 1830-1871.

1830	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	0	0	0	0	0	0	0	0	0	10	10	10	
Empl'd workers	0	0	0	0	0	0	0	0	0	10	10	10	(Oct-Dec.)
Empl'd earnings	0	0	0	0	0	0	0	0	0	£1.6800	£1.5000	£1.9133	£1.8377
Average earnings	0	0	0	0	0	0	0	0	0	£1.6800	£1.5000	£1.9133	£1.8377
1831	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	10	10	10	10	10	10	10	10	10	10	10	10	
Empl'd workers	10	10	10	10	10	10	10	10	10	10	10	10	
Empl'd earnings	£1.1250	£1.9263	£1.1300	£1.9550	£2.1313	£2.0575	£2.0000	£1.0558	£1.5542	£1.1964	£1.5888	£1.3755	£1.7394
Average earnings	£1.1250	£1.9263	£1.1300	£1.9550	£2.1313	£2.0575	£2.0000	£1.0558	£1.5542	£1.1964	£1.5888	£1.3755	£1.7394
1832	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	10	10	10	10	10	10	10	10	10	10	10	11	
Empl'd workers	10	10	10	10	10	10	10	10	10	10	10	11	
Empl'd earnings	£1.0542	£1.0646	£1.3855	£1.9175	£1.2588	£1.5040	£1.5746	£1.4704	£0.8059	£2.0883	£1.6208	£1.2055	£1.6167
Average earnings	£1.0542	£1.0646	£1.3855	£1.9175	£1.2588	£1.5040	£1.5746	£1.4704	£0.8059	£2.0883	£1.6208	£1.2055	£1.6167
1833	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	11	11	11	11	11	11	11	11	11	16	16	16	
Empl'd workers	11	11	11	11	11	11	11	11	11	16	16	16	
Empl'd earnings	£1.4360	£1.4659	£1.2087	£1.4146	£1.5521	£1.1955	£1.5517	£1.3307	£1.3654	£1.3188	£1.1225	£1.3190	£1.5591
Average earnings	£1.4360	£1.4659	£1.2087	£1.4146	£1.5521	£1.1955	£1.5517	£1.3307	£1.3654	£1.3188	£1.1225	£1.3190	£1.5591

Table A.1.6. : Mill hands' earnings, 1830-1871 (continued).

1834	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	16	16	17	17	17	17	17	17	17	18	18	18	average
Empl'd workers	16	16	17	17	17	17	17	17	17	18	18	18	
Empl'd earnings	£1.2274	£1.2736	£1.1622	£1.1283	£1.1545	£1.0941	£1.1372	£1.1829	£1.0132	£1.2137	£1.2537	£1.2054	£1.2695
Average earnings	£1.2274	£1.2736	£1.1622	£1.1283	£1.1545	£1.0941	£1.1372	£1.1829	£1.0132	£1.2137	£1.2537	£1.2054	£1.2695
1835	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	18	18	18	18	14	14	14	14	15	12	10	10	average
Empl'd workers	18	18	18	18	14	14	14	14	15	12	10	10	
Empl'd earnings	£1.1586	£1.2346	£1.2185	£0.9949	£1.1527	£1.1571	£1.1574	£1.3180	£1.0201	£1.0262	£1.3500	£1.3606	£1.2760
Average earnings	£1.1586	£1.2346	£1.2185	£0.9949	£1.1527	£1.1571	£1.1574	£1.3180	£1.0201	£1.0262	£1.3500	£1.3606	£1.2760
1836	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	10	10	10	10	10	10	10	10	10	10	10	10	average
Empl'd workers	10	10	10	10	10	10	10	10	10	10	10	10	
Empl'd earnings	£1.3954	£0.9975	£1.4200	£1.3885	£1.3975	£1.4063	£1.4635	£1.4050	£1.4667	£1.4790	£1.4075	£1.4760	£1.5419
Average earnings	£1.3954	£0.9975	£1.4200	£1.3885	£1.3975	£1.4063	£1.4635	£1.4050	£1.4667	£1.4790	£1.4075	£1.4760	£1.5419
1837	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	10	11	11	11	11	11	9	9	9	9	9	9	average
Empl'd workers	10	11	11	11	11	11	9	9	9	9	9	9	
Empl'd earnings	£1.4252	£1.3269	£1.3434	£1.3691	£1.0648	£0.7864	£1.1326	£1.1250	£0.9431	£1.1417	£0.9439	£1.2028	£1.2472
Average earnings	£1.4252	£1.3269	£1.3434	£1.3691	£1.0648	£0.7864	£1.1326	£1.1250	£0.9431	£1.1417	£0.9439	£1.2028	£1.2472
1838	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	average
Empl'd workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd earnings	£1.2565	£1.2526	£1.2634	£1.1620	£1.1565	£1.2804	£1.1685	£1.2648	£1.4778	£1.2803	£1.3250	£1.3182	£1.3476
Average earnings	£1.2565	£1.2526	£1.2634	£1.1620	£1.1565	£1.2804	£1.1685	£1.2648	£1.4778	£1.2803	£1.3250	£1.3182	£1.3476
1839	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	average
Empl'd workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd earnings	£1.3005	£1.3352	£1.2407	£1.1778	£1.1789	£1.1778	£1.1778	£1.1602	£1.2634	£1.2667	£1.1959	£1.1343	£1.3169
Average earnings	£1.3005	£1.3352	£1.2407	£1.1778	£1.1789	£1.1778	£1.1778	£1.1602	£1.2634	£1.2667	£1.1959	£1.1343	£1.3169

Table A.1.6. : Mill hands' earnings, 1830-1871 (continued).

	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
1840													
Total workers	17	17	17	17	17	17	18	18	18	18	18	18	18
Empl'd workers	17	17	17	17	17	17	18	18	18	18	18	18	18
Empl'd earnings	£1.6433	£1.6722	£2.0495	£1.5960	£2.2093	£1.5060	£1.8969	£1.7576	£1.7554	£2.3853	£1.8675	£1.9030	£2.0797
Average earnings	£1.6433	£1.6722	£2.0495	£1.5960	£2.2093	£1.5060	£1.8969	£1.7576	£1.7554	£2.3853	£1.8675	£1.9030	£2.0797
1841													
Total workers	18	18	18	18	18	18	18	18	18	18	18	18	18
Empl'd workers	18	18	18	18	18	18	18	18	18	18	18	18	18
Empl'd earnings	£1.8819	£1.8752	£1.9324	£2.0133	£1.9088	£1.8934	£1.6907	£1.8595	£1.8731	£2.2411	£2.0041	£2.0353	£2.1113
Average earnings	£1.8819	£1.8752	£1.9324	£2.0133	£1.9088	£1.8934	£1.6907	£1.8595	£1.8731	£2.2411	£2.0041	£2.0353	£2.1113
1842													
Total workers	18	18	18	18	19	19	19	19	19	19	19	19	19
Empl'd workers	18	18	18	18	19	19	19	19	19	19	19	19	19
Empl'd earnings	£1.9056	£2.0625	£2.1061	£1.9815	£1.9042	£1.8910	£1.8873	£1.8647	£1.9076	£2.0686	£1.8520	£1.9069	£2.1143
Average earnings	£1.9056	£2.0625	£2.1061	£1.9815	£1.9042	£1.8910	£1.8873	£1.8647	£1.9076	£2.0686	£1.8520	£1.9069	£2.1143
1843													
Total workers	19	19	19	17	17	17	17	17	17	17	17	17	17
Empl'd workers	19	19	19	17	17	17	17	17	17	17	17	17	17
Empl'd earnings	£1.8682	£1.6623	£1.3726	£1.7466	£1.8564	£2.0380	£2.1408	£2.1669	£2.2540	£2.3358	£2.1618	£2.3743	£2.1492
Average earnings	£1.8682	£1.6623	£1.3726	£1.7466	£1.8564	£2.0380	£2.1408	£2.1669	£2.2540	£2.3358	£2.1618	£2.3743	£2.1492
1844													
Total workers	17	17	17	17	17	17	17	17	18	18	18	18	18
Empl'd workers	17	17	16	16	16	16	16	15	17	17	17	17	17
Empl'd earnings	£2.2885	£2.4177	£2.4397	£2.4512	£2.1832	£2.1431	£2.4133	£2.3803	£2.5208	£2.3581	£2.6221	£2.3598	£2.5822
Average earnings	£2.2885	£2.4177	£2.2963	£2.3070	£2.0548	£2.0170	£2.2713	£2.2403	£2.3808	£2.3271	£2.4764	£2.2278	£2.4561
1845													
Total workers	18	18	18	18	18	18	18	18	20	20	20	20	20
Empl'd workers	17	17	17	17	17	17	17	17	19	19	19	19	19
Empl'd earnings	£2.1264	£2.2021	£2.0018	£2.3017	£2.4553	£2.2539	£2.2567	£2.0771	£2.0581	£1.9611	£2.0990	£1.9855	£2.3233
Average earnings	£2.0084	£2.0798	£1.8906	£2.1738	£2.3189	£2.1287	£2.1314	£1.9651	£1.9552	£1.8630	£1.9941	£1.8863	£2.1980

Table A.1.0. : Mill hands' earnings, 1830-1871 (continued).

1846	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	21	21	22	22	22	22	22	22	22	22	22	23	average
Empl'd workers	20	20	21	21	21	22	22	22	22	22	22	23	
Empl'd earnings	£1.7671	£1.9068	£1.8647	£1.6366	£1.9423	£1.7536	£1.7942	£1.7249	£0.9201	£1.1991	£1.4435	£1.7696	£1.7919
Average earnings	£1.6830	£1.8160	£1.7799	£1.5622	£1.8540	£1.7536	£1.7942	£1.7249	£0.9201	£1.1991	£1.4435	£1.7696	£1.7532
1847	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	23	21	21	21	21	21	19	19	19	19	18	18	average
Empl'd workers	23	21	21	21	21	21	19	19	19	19	18	18	
Empl'd earnings	£1.6211	£1.8084	£1.7069	£1.6897	£1.5626	£2.1705	£1.8525	£1.8740	£1.8836	£1.8991	£1.9179	£1.6311	£2.0170
Average earnings	£1.6211	£1.8084	£1.7069	£1.6897	£1.5626	£2.1705	£1.8525	£1.8740	£1.8836	£1.8991	£1.9179	£1.6311	£2.0170
1848	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	18	18	16	16	16	16	16	16	17	17	17	18	average
Empl'd workers	18	18	16	16	16	16	16	16	17	17	17	18	
Empl'd earnings	£1.7390	£1.7316	£1.9126	£1.6044	£1.8311	£1.7537	£1.8129	£1.7736	£1.6797	£1.6574	£1.7501	£1.8873	£1.8753
Average earnings	£1.7390	£1.7316	£1.9126	£1.6044	£1.8311	£1.7537	£1.8129	£1.7736	£1.6797	£1.6574	£1.7501	£1.8873	£1.8753
1849	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	18	18	18	18	18	18	18	18	18	18	18	18	average
Empl'd workers	18	18	18	18	18	18	18	18	18	18	18	18	
Empl'd earnings	£1.6488	£1.7598	£1.7975	£1.8070	£1.8742	£1.8332	£1.7793	£1.8469	£1.8758	£1.7450	£1.8327	£1.6938	£1.9439
Average earnings	£1.6488	£1.7598	£1.7975	£1.8070	£1.8742	£1.8332	£1.7793	£1.8469	£1.8758	£1.7450	£1.8327	£1.6938	£1.9439
1850	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	26	26	26	26	27	27	27	27	28	28	28	28	average
Empl'd workers	26	26	26	26	27	27	27	27	28	28	28	28	
Empl'd earnings	£1.6410	£1.5759	£1.6462	£1.6205	£1.6553	£1.7324	£1.7464	£1.7084	£1.6215	£1.7780	£1.6810	£1.6124	£1.8080
Average earnings	£1.6410	£1.5759	£1.6462	£1.6205	£1.6553	£1.7324	£1.7464	£1.7084	£1.6215	£1.7780	£1.6810	£1.6124	£1.8080
1851	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	28	28	28	28	28	26	26	26	26	26	26	23	average
Empl'd workers	28	28	28	28	28	26	26	26	26	26	26	23	
Empl'd earnings	£1.7906	£1.6523	£1.6833	£1.6472	£1.5819	£1.6655	£1.6867	£1.6518	£1.6202	£1.6851	£1.5258	£1.7874	£1.8009
Average earnings	£1.7906	£1.6523	£1.6833	£1.6472	£1.5819	£1.6655	£1.6867	£1.6518	£1.6202	£1.6851	£1.5258	£1.7874	£1.8009

Table A.1.6. : Mill hands' earnings, 1830-1871 (continued).

1852	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	23	23	22	22	22	22	22	22	22	22	22	22	average
Empl'd workers	23	23	22	22	22	22	22	22	22	22	22	22	
Empl'd earnings	£1,7220	£1.8253	£1.4816	£1,7046	£1.2865	£1,7067	£1.8733	£1.9635	£1.7456	£1.8633	£1.8157	£1.8232	£1.9592
Average earnings	£1.7220	£1.8253	£1.4816	£1.7046	£1.2865	£1,7067	£1.8733	£1.9635	£1.7456	£1,8633	£1.8157	£1.8232	£1.9593
1853	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	22	22	22	22	22	22	21	21	21	21	21	21	average
Empl'd workers	22	22	22	22	22	22	21	21	21	21	21	21	
Empl'd earnings	£1.9275	£1.9819	£1.8490	£1.9081	£1.9596	£1.9367	£1.9971	£1.8872	£1.9323	£1.9849	£1.7114	£1.6641	£2.0475
Average earnings	£1.9275	£1.9819	£1.8490	£1.9081	£1.9596	£1.9367	£1.9971	£1.8872	£1.9323	£1.9849	£1.7114	£1.6641	£2.0475
1854	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	21	21	21	21	21	21	21	21	21	21	21	21	average
Empl'd workers	21	21	21	21	21	21	21	21	21	21	21	21	
Empl'd earnings	£1.7272	£1.7015	£1.8068	£1.8414	£1.7951	£1.8493	£1.8557	£1.9453	£1.9738	£1.9847	£1.7503	£1.5427	£1.9533
Average earnings	£1.7272	£1.7015	£1.8068	£1.8414	£1.7951	£1.8493	£1.8557	£1.9453	£1.9738	£1.9847	£1.7503	£1.5427	£1.9533
1855	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	21	21	21	21	21	21	21	22	22	22	22	22	average
Empl'd workers	21	21	21	21	21	21	21	22	22	22	22	22	
Empl'd earnings	£1.7396	£1.8633	£1.8025	£1.9389	£2.0863	£2.1038	£2.2124	£1.9181	£2.0024	£2.1495	£2.0771	£2.0016	£2.1654
Average earnings	£1.7396	£1.8633	£1.8025	£1.9389	£2.0863	£2.1038	£2.2124	£1.9181	£2.0024	£2.1495	£2.0771	£2.0016	£2.1654
1856	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	21	21	21	21	21	21	21	21	21	22	22	22	average
Empl'd workers	21	21	21	21	21	21	21	21	21	22	22	22	
Empl'd earnings	£2.0453	£2.0648	£2.0225	£2.0700	£2.1101	£2.0871	£2.0573	£2.0345	£2.0504	£2.0066	£1.9585	£1.9233	£2.2074
Average earnings	£2.0453	£2.0648	£2,0225	£2.0700	£2.1101	£2.0871	£2.0573	£2.0345	£2.0504	£2.0066	£1.9585	£1.9233	£2.2074
1857	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	22	22	22	22	22	22	22	22	22	21	21	21	average
Empl'd workers	22	22	22	22	22	22	22	22	22	20	21	21	
Empl'd earnings	£2.0969	£1.9673	£1.9458	£1.8504	£1.9440	£2.0049	£2.0083	£1.9948	£1,8770	£2.0053	£1.7285	£1.4786	£2.0730
Average earnings	£2.0969	£1.9673	£1.9458	£1.8504	£1.9440	£2.0049	£2.0083	£1.9948	£1.8770	£1.9098	£1.7285	£1.4786	£2.0611

Table A.1.6. : Mill hands' earnings, 1830-1871 (continued).

1858	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	21	21	21	21	21	21	21	22	22	22	22	22	
Empl'd workers	21	21	20	21	21	21	21	22	22	22	22	22	
Empl'd earnings	£1.2438	£1.2998	£1.6383	£1.5275	£1.6813	£1.8815	£1.8690	£1.7982	£1.8711	£1.9017	£1.8906	£1.9303	£1.8539
Average earnings	£1.2438	£1.2998	£1.5603	£1.5275	£1.6813	£1.8815	£1.8690	£1.7982	£1.8711	£1.9017	£1.8906	£1.9303	£1.8474
1859	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	22	22	21	21	21	21	20	20	20	20	19	19	
Empl'd workers	22	22	21	21	21	21	20	20	20	20	19	19	
Empl'd earnings	£1.8330	£1.8655	£1.8643	£1.8762	£1.9168	£1.9435	£1.9217	£1.9715	£1.7689	£2.0417	£1.7237	£1.5877	£2.0114
Average earnings	£1.8330	£1.8655	£1.8643	£1.8762	£1.9168	£1.9435	£1.9217	£1.9715	£1.7689	£2.0417	£1.7237	£1.5877	£2.0114
1860	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	11	11	12	12	12	12	12	12	12	12	12	12	
Empl'd workers	11	11	12	12	12	12	12	12	12	12	12	12	
Empl'd earnings	£1.2636	£1.4485	£1.4634	£1.4066	£1.2755	£1.4922	£1.5347	£1.4795	£1.4936	£1.4728	£1.4771	£1.4932	£1.5643
Average earnings	£1.2636	£1.4485	£1.4634	£1.4066	£1.2755	£1.4922	£1.5347	£1.4795	£1.4936	£1.4728	£1.4771	£1.4932	£1.5643
1861	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	12	12	12	12	12	12	12	12	12	12	12	12	
Empl'd workers	12	9	12	12	12	12	12	12	12	12	12	12	
Empl'd earnings	£1.4153	£1.9380	£1.4748	£1.3811	£1.4540	£1.4806	£1.3563	£1.3169	£1.4026	£1.4361	£1.4082	£1.1931	£1.4383
Average earnings	£1.4153	£1.4535	£1.4748	£1.3811	£1.4540	£1.4806	£1.3563	£1.3169	£1.4026	£1.4361	£1.4082	£1.1931	£1.4084
1862	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	12	12	12	12	12	12	13	13	13	13	13	13	
Empl'd workers	12	12	12	12	12	12	13	13	13	13	13	13	
Empl'd earnings	£1.3498	£1.4033	£1.3688	£1.2714	£1.3444	£1.3778	£1.4595	£1.3656	£1.3742	£1.4617	£1.4885	£1.5609	£1.5151
1863	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	13	13	13	13	13	13	13	13	13	13	13	13	
Empl'd workers	13	13	13	13	13	13	13	13	13	13	13	13	
Empl'd earnings	£1.5913	£1.7399	£1.7322	£1.6449	£1.6708	£1.7415	£1.8270	£1.8157	£1.8636	£1.9147	£1.8183	£1.8117	£1.9068
Average earnings	£1.5913	£1.7399	£1.7322	£1.6449	£1.6708	£1.7415	£1.8270	£1.8157	£1.8636	£1.9147	£1.8183	£1.8117	£1.9068

Table A.1.6. : Mill hands' earnings, 1830-1971 (continued).

1864	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	13	13	13	13	13	13	13	13	13	11	11	11	average
Empl'd workers	13	13	13	13	13	13	13	13	13	11	11	11	
Empl'd earnings	£1.7158	£1.6199	£1.4313	£1.4944	£1.4003	£1.6393	£1.5913	£1.6388	£1.5106	£1.6688	£1.6197	£1.5389	£1.7743
Average earnings	£1.7158	£1.6199	£1.4313	£1.4944	£1.4003	£1.6393	£1.5913	£1.6388	£1.5106	£1.6688	£1.6197	£1.5389	£1.7743
1865	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	11	11	11	11	10	10	10	10	10	10	10	10	average
Empl'd workers	11	11	11	11	10	10	10	10	10	10	10	10	
Empl'd earnings	£1.4712	£1.6331	£1.5922	£1.3633	£1.4748	£1.5559	£1.5004	£1.5563	£1.5304	£1.6044	£1.6368	£1.5939	£1.6734
Average earnings	£1.4712	£1.6331	£1.5922	£1.3633	£1.4748	£1.5559	£1.5004	£1.5563	£1.5304	£1.6044	£1.6368	£1.5939	£1.6734
1866	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	10	10	10	10	10	10	10	10	10	10	10	10	average
Empl'd workers	10	10	10	10	10	10	10	10	10	10	10	10	
Empl'd earnings	£1.7106	£1.7315	£1.7852	£1.6785	£1.6677	£1.8296	£1.8044	£1.7990	£1.6848	£1.8123	£1.9710	£1.9223	£1.9414
Average earnings	£1.7106	£1.7315	£1.7852	£1.6785	£1.6677	£1.8296	£1.8044	£1.7990	£1.6848	£1.8123	£1.9710	£1.9223	£1.9414
1867	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	average
Empl'd workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd earnings	£2.1697	£2.2171	£2.1380	£1.9602	£2.1372	£2.2204	£2.4720	£1.9912	£2.0702	£2.3001	£2.0908	£2.2044	£2.3491
Average earnings	£2.1697	£2.2171	£2.1380	£1.9602	£2.1372	£2.2204	£2.4720	£1.9912	£2.0702	£2.3001	£2.0908	£2.2044	£2.3491
1868	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	9	9	9	9	6	6	6	6	6	6	6	6	average
Empl'd workers	9	9	9	9	6	6	6	6	6	6	6	6	
Empl'd earnings	£2.3287	£2.3049	£2.1741	£2.0998	£2.7042	£2.8497	£2.6944	£2.7788	£2.5490	£2.7509	£2.7934	£2.8875	£2.7784
Average earnings	£2.3287	£2.3049	£2.1741	£2.0998	£2.7042	£2.8497	£2.6944	£2.7788	£2.5490	£2.7509	£2.7934	£2.8875	£2.7784
1869	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	6	7	7	9	9	9	9	9	9	9	9	10	average
Empl'd workers	6	7	7	9	9	9	9	9	9	9	9	10	
Empl'd earnings	£2.6215	£2.1985	£2.3923	£2.1366	£2.3178	£2.4296	£2.3535	£2.3882	£2.3373	£2.2137	£2.3229	£2.1385	£2.4239
Average earnings	£2.6215	£2.1985	£2.3923	£2.1366	£2.3178	£2.4296	£2.3535	£2.3882	£2.3373	£2.2137	£2.3229	£2.1385	£2.4239

Table A.1.6. : Mill hands' earnings, 1830-1871 (continued).

1870	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	10	10	10	10	10	10	10	10	10	10	10	10	average
Empl'd workers	10	10	10	10	10	10	10	10	10	10	10	10	
Empl'd earnings	£2.1004	£2.1763	£2.1227	£2.0465	£2.3640	£2.7379	£2.2665	£1.9667	£2.1790	£2.1919	£2.2531	£2.0648	£2.3850
Average earnings	£2.1004	£2.1763	£2.1227	£2.0465	£2.3640	£2.7379	£2.2665	£1.9667	£2.1790	£2.1919	£2.2531	£2.0648	£2.3850
1871	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	10	10	10	10	10	10	10	10	10	10	10	0	average
Empl'd workers	10	10	10	10	10	10	10	10	10	10	10	0	(Jan-Nov.)
Empl'd earnings	£2.3323	£2.2281	£2.1991	£2.0333	£2.4156	£2.3408	£2.4067	£2.2081	£2.3619	£2.3496	£2.3163	0	£2.4904
Average earnings	£2.3323	£2.2281	£2.1991	£2.0333	£2.4156	£2.3408	£2.4067	£2.2081	£2.3619	£2.3496	£2.3163	0	£2.4904

Sources : Clough collection, books no. 46, 47, 48.

Table A.1.7. : Menders' earnings, 1887-1899.

1887	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£2.2604	£2.4646	£2.1842	£1.0876	£2.2032	£2.3100	£2.3740	£2.1709	£2.4658	£2.1605	£2.4146	£1.4134	£2.3377
Average earnings	£2.2604	£2.4646	£2.1842	£1.0876	£2.2032	£2.3100	£2.3740	£2.1709	£2.4658	£2.1605	£2.4146	£1.4134	£2.3377
1888.	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	1	1	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£2.6292	£2.3542	£2.2823	£1.7292	£1.9771	£2.8053	£2.5792	£3.0698	£2.6490	£2.1302	£3.4552	£2.7490	£2.5341
Average earnings	£1.3146	£1.1771	£2.2823	£1.7292	£1.9771	£2.8053	£2.5792	£3.0698	£2.6490	£2.1302	£3.4552	£2.7490	£2.3265
1889	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.1583	£3.0000	£3.0573	£1.8757	£3.1642	£2.7105	£2.9063	£2.5292	£2.6646	£2.8938	£2.9267	£2.9511	£3.0651
Average earnings	£3.1583	£3.0000	£3.0573	£1.8757	£3.1642	£2.7105	£2.9063	£2.5292	£2.6646	£2.8938	£2.9267	£2.9511	£3.0651

Table A.1.7. : Wenders' earnings, 1897-1899 (continued).

1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£2.2617	£2.0667	£2.1438	£2.2250	£2.4800	£2.4677	£2.2442	£1.6615	£2.9906	£2.5009	£3.0438	£2.5719	£2.5857
Average earnings	£2.2617	£2.0667	£2.1438	£2.2250	£2.4800	£2.4677	£2.2442	£1.6615	£2.9906	£2.5009	£3.0438	£2.5719	£2.5857
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	2	2	2	1	2	2	2	2	2	2	2	
Empl'd earnings	£2.1261	£2.5865	£1.9594	£1.5850	£2.5375	£2.8625	£2.9000	£3.3782	£3.5969	£3.6167	£2.9386	£2.5142	£2.9379
Average earnings	£2.1261	£2.5865	£1.9594	£1.5850	£1.2688	£2.8625	£2.9000	£3.3782	£3.5969	£3.6167	£2.9386	£2.5142	£2.8322
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.0521	£2.4875	£1.5750	£1.8511	£2.5523	£2.9026	£2.8927	£2.0667	£2.9467	£2.8886	£2.7625	£2.7350	£2.7693
Average earnings	£3.0521	£2.4875	£1.5750	£1.8511	£2.5523	£2.9026	£2.8927	£2.0667	£2.9467	£2.8886	£2.7625	£2.7350	£2.7693
1893	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.0459	£2.2969	£1.3558	£1.8959	£2.2751	£2.8434	£2.8646	£2.4011	£3.4475	£3.3250	£3.1175	£3.1761	£2.8946
Average earnings	£3.0459	£2.2969	£1.3558	£1.8959	£2.2751	£2.8434	£2.8646	£2.4011	£3.4475	£3.3250	£3.1175	£3.1761	£2.8946
1894	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.8907	£2.2698	£1.2934	£1.6302	£2.5717	£2.0646	£2.7334	£2.0125	£2.7271	£3.0657	£3.5258	£3.4042	£2.6172
Average earnings	£3.8907	£2.2698	£1.2934	£1.6302	£2.5717	£2.0646	£2.7334	£2.0125	£2.7271	£3.0657	£3.5258	£3.4042	£2.6172
1895	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.1450	£3.4740	£2.9719	£1.4271	£2.1217	£2.1511	£2.2678	£2.5634	£2.5511	£3.4283	£3.4396	£3.3806	£2.9780
Average earnings	£3.1450	£3.4740	£2.9719	£1.4271	£2.1217	£2.1511	£2.2678	£2.5634	£2.5511	£3.4283	£3.4396	£3.3806	£2.9780

Table A.1.7. : Wenders' earnings, 1887-1899 (continued).

1896	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.4350	£3.4136	£3.3834	£2.8842	£3.0167	£3.5657	£1.9896	£2.1292	£2.2073	£2.5042	£2.2855	£1.8886	£2.8257
Average earnings	£3.4350	£3.4136	£3.3834	£2.8842	£3.0167	£3.5657	£1.9896	£2.1292	£2.2073	£2.5042	£2.2855	£1.8886	£2.8257
1897	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	1	1	1	1	1	1	
Empl'd earnings	£2.2979	£1.4865	£1.9698	£2.7317	£2.8657	£2.0761	£3.5134	£2.9313	£2.5466	£2.7583	£2.4917	£2.4883	£2.7460
Average earnings	£2.2979	£1.4865	£1.9698	£2.7317	£2.8657	£2.0761	£1.7567	£1.4657	£1.2733	£1.3792	£1.2459	£1.2342	£1.9609
1898	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	1	2	1	1	2	2	2	2	2	2	2	2	
Empl'd earnings	£2.7563	£1.7875	£2.9183	£2.7417	£3.1532	£3.0658	£3.5313	£2.7438	£3.5009	£3.3021	£3.3552	£3.0658	£3.2549
Average earnings	£1.3782	£1.7875	£1.4592	£1.3709	£3.1532	£3.0658	£3.5313	£2.7438	£3.5009	£3.3021	£3.3552	£3.0658	£2.8739
1899	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£2.1240	£2.5542	£2.7234	£2.3292	£2.4490	£2.8417	£2.6594	£2.6683	£3.1532	£2.7573	£3.0842	£3.1594	£3.0110
Average earnings	£2.1240	£2.5542	£2.7234	£2.3292	£2.4490	£2.8417	£2.6594	£2.6683	£3.1532	£2.7573	£3.0842	£3.1594	£3.0110

Sources : Clough collection, books no. 38, 39, 40, 41, 41, 43.

Table A.1.8. : Finishers' earnings, 1886-1908.

1886	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£4.1150	£4.1608	£4.1338	£3.9383	£4.1454	£3.8762	£4.0500	£3.7908	£4.1417	£4.1804	£4.0858	£4.2070	£4.4241
Average earnings	£4.1150	£4.1608	£4.1338	£3.9383	£4.1454	£3.8762	£4.0500	£3.7908	£4.1417	£4.1804	£4.0858	£4.2070	£4.4241
1887	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£4.0925	£4.4383	£4.4257	£2.7413	£3.9713	£3.9000	£4.1575	£4.0662	£4.4160	£4.5729	£4.5129	£4.2620	£4.1078
Average earnings	£4.0925	£4.4383	£4.4257	£2.7413	£3.9713	£3.9000	£4.1575	£4.0662	£4.4160	£4.5729	£4.5129	£4.2620	£4.1078
1888	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£4.3742	£4.1225	£4.1834	£3.9242	£4.0542	£4.5360	£4.5925	£4.4409	£4.6437	£4.6192	£4.8923	£5.0196	£4.8263
Average earnings	£4.3742	£4.1225	£4.1834	£3.9242	£4.0542	£4.5360	£4.5925	£4.4409	£4.6437	£4.6192	£4.8923	£5.0196	£4.8263
1889	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£6.0113	£5.3725	£5.1613	£4.8913	£5.2020	£4.8975	£5.4238	£4.9080	£5.2129	£5.3125	£5.3703	£5.0783	£5.6845
Average earnings	£6.0113	£5.3725	£5.1613	£4.8913	£5.2020	£4.8975	£5.4238	£4.9080	£5.2129	£5.3125	£5.3703	£5.0783	£5.6845
1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£5.4162	£5.0771	£4.6261	£4.5719	£5.0398	£5.2198	£4.3034	£5.1724	£4.9750	£5.3209	£5.5761	£5.4433	£5.4803
Average earnings	£4.3330	£4.0617	£3.7008	£3.6575	£4.0319	£4.1778	£3.4426	£4.1379	£3.9800	£4.2566	£4.4608	£4.3562	£4.3844
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£4.2209	£5.4146	£5.2281	£5.4488	£5.7485	£5.9724	£4.7650	£5.6059	£5.5354	£5.7734	£5.5358	£5.3070	£5.8312
Average earnings	£3.3766	£4.3325	£4.1825	£4.3590	£4.5988	£4.7779	£4.7650	£5.6059	£5.5354	£5.7734	£5.5358	£5.3070	£5.6355

Table A.1.8. : Finishers' earnings, 1886-1908 (continued).

1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	4	4	5	5	5	5	5	5	5	5	
Empl'd earnings	£5.3621	£5.7471	£5.3513	£5.0558	£5.7979	£5.6830	£5.7925	£5.1658	£5.0130	£5.2104	£5.4325	£5.0817	£5.8312
Average earnings	£5.3621	£5.7471	£4.2810	£4.0446	£5.7979	£5.6830	£5.7925	£5.1658	£5.0130	£5.2104	£5.4325	£5.0817	£5.6355
1893	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£5.3233	£5.1438	£5.0260	£5.0158	£5.2508	£6.0194	£6.3458	£5.5496	£6.1850	£5.6742	£5.2207	£4.8871	£5.9378
Average earnings	£5.3233	£5.1438	£5.0260	£5.0158	£5.2508	£6.0194	£6.3458	£5.5496	£6.1850	£5.6742	£5.2207	£4.8871	£5.9378
1894	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£5.5458	£4.7917	£4.6134	£5.7746	£5.9503	£6.1329	£5.3208	£4.5714	£4.8654	£4.9853	£5.7467	£5.9304	£5.7872
Average earnings	£5.5458	£4.7917	£4.6134	£5.7746	£5.9503	£6.1329	£5.3208	£4.5714	£4.8654	£4.9853	£5.7467	£5.9304	£5.7872
1895	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£6.4580	£5.6525	£5.1988	£5.3063	£5.8610	£5.6096	£6.0338	£5.5794	£5.7838	£5.7700	£5.7975	£5.9208	£6.2390
Average earnings	£6.4580	£5.6525	£5.1988	£5.3063	£5.8610	£5.6096	£6.0338	£5.5794	£5.7838	£5.7700	£5.7975	£5.9208	£6.2390
1896	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£5.8354	£5.9653	£6.0717	£5.7714	£5.5467	£5.8913	£5.1943	£5.7254	£6.2438	£6.4357	£6.2483	£6.1504	£6.4178
Average earnings	£5.8354	£5.9653	£6.0717	£5.7714	£5.5467	£5.8913	£5.1943	£5.7254	£6.2438	£6.4357	£6.2483	£6.1504	£6.4178
1897	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£6.2100	£4.8333	£5.0417	£5.4660	£6.4454	£5.7534	£6.2700	£5.4521	£5.3454	£5.4383	£4.8883	£5.0480	£5.9853
Average earnings	£6.2100	£4.8333	£5.0417	£5.4660	£6.4454	£5.7534	£6.2700	£5.4521	£5.3454	£5.4383	£4.8883	£5.0480	£5.9853

Table A.1.8. : Finishers' earnings, 1886-1908 (continued).

Year	Category	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
1898	Total workers	5	5	5	5	5	5	5	5	5	5	5	5	5
	Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	5
	Empl'd earnings	\$5,4133	\$5,9733	\$5,9226	\$5,5008	\$6,5948	\$6,2680	\$6,0262	\$5,5746	\$5,9110	\$6,0521	\$6,1537	\$5,7446	\$6,4247
	Average earnings	\$5,4133	\$5,9733	\$5,9226	\$5,5008	\$6,5948	\$6,2680	\$6,0262	\$5,5746	\$5,9110	\$6,0521	\$6,1537	\$5,7446	\$6,4247
1899	Total workers	5	5	5	5	5	5	5	5	5	5	5	5	5
	Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	5
	Empl'd earnings	\$5,5479	\$5,5263	\$5,6714	\$5,2796	\$5,5871	\$6,0563	\$6,3367	\$5,7763	\$5,9400	\$5,9496	\$6,3114	\$6,1925	\$6,3407
	Average earnings	\$5,5479	\$5,5263	\$5,6714	\$5,2796	\$5,5871	\$6,0563	\$6,3367	\$5,7763	\$5,9400	\$5,9496	\$6,3114	\$6,1925	\$6,3407
1900	Total workers	3	3	3	3	3	3	3	3	3	3	3	3	3
	Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	3
	Empl'd earnings	\$5,3889	\$5,3132	\$5,0072	\$4,6132	\$4,7950	\$4,6618	\$4,9944	\$4,6534	\$4,6639	\$5,1743	\$5,4045	\$5,2458	\$5,4067
	Average earnings	\$5,3889	\$5,3132	\$5,0072	\$4,6132	\$4,7950	\$4,6618	\$4,9944	\$4,6534	\$4,6639	\$5,1743	\$5,4045	\$5,2458	\$5,4067
1901	Total workers	3	3	3	3	3	3	3	3	3	3	3	3	3
	Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	3
	Empl'd earnings	\$5,0028	\$4,9570	\$5,3785	\$5,0674	\$4,9772	\$5,2250	\$4,6222	\$5,2181	\$5,7161	\$5,4938	\$4,7940	\$5,5704	\$5,5704
	Average earnings	\$5,0028	\$4,9570	\$5,3785	\$5,0674	\$4,9772	\$5,2250	\$4,6222	\$5,2181	\$5,7161	\$5,4938	\$4,7940	\$5,5704	\$5,5704
1902	Total workers	3	3	3	3	3	3	3	3	3	3	3	3	3
	Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	3
	Empl'd earnings	\$4,4994	\$4,4313	\$4,6479	\$4,6215	\$4,8594	\$5,2014	\$4,6461	\$4,8750	\$4,8972	\$4,8962	\$4,9639	\$5,0802	\$5,1954
	Average earnings	\$4,4994	\$4,4313	\$4,6479	\$4,6215	\$4,8594	\$5,2014	\$4,6461	\$4,8750	\$4,8972	\$4,8962	\$4,9639	\$5,0802	\$5,1954
1903	Total workers	3	3	3	3	3	3	3	3	3	3	3	3	3
	Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	3
	Empl'd earnings	\$4,8394	\$6,2500	\$5,7847	\$5,6050	\$5,3896	\$4,5792	\$4,3178	\$4,9007	\$4,8625	\$3,9845	\$5,6208	\$4,9806	\$5,6913
	Average earnings	\$4,8394	\$6,2500	\$5,7847	\$5,6050	\$5,3896	\$4,5792	\$4,3178	\$4,9007	\$4,8625	\$3,9845	\$5,6208	\$4,9806	\$5,6913

Table A.1.3. : Fishery's earnings, 1886-1908 (continued).

1901	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£4.6125	£3.8153	£3.9722	£4.6986	£4.8313	£4.5294	£4.7681	£4.0972	£4.9794	£5.2646	£5.5590	£5.2822	£5.0917
Average earnings	£4.6125	£3.8153	£3.9722	£4.6986	£4.8313	£4.5294	£4.7681	£4.0972	£4.9794	£5.2646	£5.5590	£5.2822	£5.0917
1905	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£5.5056	£5.5868	£5.4417	£5.4785	£6.2285	£5.8150	£4.7361	£4.4366	£5.4736	£5.4313	£4.3683	£3.9827	£5.6250
Average earnings	£5.5056	£5.5868	£5.4417	£5.4785	£6.2285	£5.8150	£4.7361	£4.4366	£5.4736	£5.4313	£4.3683	£3.9827	£5.6250
1906	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£5.8555	£4.9875	£4.6202	£3.9816	£4.4344	£4.3944	£4.9819	£4.7750	£5.7479	£6.1827	£6.3566	£5.4661	£5.5693
Average earnings	£5.8555	£4.9875	£4.6202	£3.9816	£4.4344	£4.3933	£4.9819	£4.7750	£5.7479	£6.1827	£6.3566	£5.4661	£5.5693
1907	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	2	2	2	2	2	2	3	3	3	3	3	3	
Empl'd earnings	£6.5583	£6.2500	£5.0875	£4.8792	£6.3417	£7.0193	£4.4701	£4.9083	£6.1708	£6.3911	£6.8806	£6.0146	£6.4184
Average earnings	£4.3722	£4.1667	£3.3917	£3.2528	£4.2278	£4.6792	£4.4701	£4.9083	£6.1708	£6.3911	£6.8806	£6.0146	£6.4184
1908	Jan.												
Total workers	3												
Empl'd workers	3												
Empl'd earnings	£6.3734												
Average earnings	£6.3734												

Sources : Clough collection, books no. 38, 39, 40, 41, 42, 43, 44, 45.

Table A.1.9. : Warp-dressers' earnings, 1880-1908.

1880	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£5.3563	£4.7094	£6.0063	£5.3907	£4.5907	£5.0969	£4.7972	£2.6854	£3.7479	£1.6303	£3.3396	£3.6105	£4.8202
Average earnings	£5.3563	£4.7094	£6.0063	£5.3907	£4.5907	£5.0969	£4.7972	£2.6854	£3.7479	£1.6303	£3.3396	£3.6105	£4.8202
1881	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	1	1	1	1	2	2	
Empl'd earnings	£2.9323	£0.4052	£0.7615	£1.2125	£0.9084	£1.0136	£3.6458	£4.3021	£2.3333	£2.1563	£2.7552	£3.4451	£2.8994
Average earnings	£2.9323	£0.4052	£0.7615	£1.2125	£0.9084	£1.0136	£1.8229	£2.1511	£1.1667	£1.0782	£2.7552	£3.4451	£1.7812
1882	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	1	2	2	0	1	1	1	2	2	
Empl'd earnings	£3.3094	£1.2729	£1.3813	£1.4833	£0.7167	£0.2625	0	£2.7375	£2.8521	£5.3792	£4.7313	£3.8140	£2.4877
Average earnings	£3.3094	£1.2729	£1.3813	£0.7417	£0.7617	£0.2625	0	£1.3688	£1.4261	£2.6896	£4.7313	£3.8140	£1.9689
1883	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	1	1	2	2	2	
Empl'd earnings	£4.5053	£4.6698	£3.9313	£4.2459	£4.8136	£5.4021	£1.8865	£3.1000	£4.0521	£3.8948	£4.4688	£4.4104	£4.5263
Average earnings	£4.5053	£4.6698	£3.9313	£4.2459	£4.8136	£5.4021	£1.8865	£1.5500	£2.0261	£3.8948	£4.4688	£4.4104	£4.2283
1884	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.9642	£3.5573	£3.6042	£3.4719	£5.0075	£4.9844	£4.3417	£4.7250	£4.7688	£4.9417	£5.0083	£5.2719	£4.8508
Average earnings	£3.9642	£3.5573	£3.6042	£3.4719	£5.0075	£4.9844	£4.3417	£4.7250	£4.7688	£4.9417	£5.0083	£5.2719	£3.8508
1885	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£4.9883	£4.6636	£4.6480	£4.3234	£4.5000	£4.8490	£4.6358	£4.9584	£4.5542	£4.9200	£4.9417	£4.6534	£5.2096
Average earnings	£4.9883	£4.6636	£4.6480	£4.3234	£4.5000	£4.8490	£4.6358	£4.9584	£4.5542	£4.9200	£4.9417	£4.6534	£5.2096

Table A.1.9. : Warp-dressers' earnings, 1880-1908 (continued).

1886	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£5.0334	£3.8428	£5.1875	£4.5634	£4.9188	£4.7303	£4.9117	£4.3959	£4.7542	£4.7917	£4.9746	£4.7576	£5.1341
Average earnings	£5.0334	£3.8428	£5.1875	£4.5634	£4.9188	£4.7303	£4.9117	£4.3959	£4.7542	£4.7917	£4.9746	£4.7576	£5.1341
1887	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£5.1115	£5.0969	£5.0909	£2.6198	£4.8990	£4.6958	£5.1302	£4.5865	£4.8452	£5.1663	£5.4136	£5.0775	£5.2219
Average earnings	£5.1115	£5.0969	£5.0909	£2.6198	£4.8990	£4.6958	£5.1302	£4.5865	£4.8452	£5.1663	£5.4136	£5.0775	£5.2219
1888	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£5.4365	£4.8547	£4.9417	£4.1334	£4.1469	£4.6475	£4.6362	£4.3718	£4.8313	£5.1938	£5.1702	£5.0261	£5.1810
Average earnings	£5.4365	£4.8547	£4.9417	£4.1334	£4.1469	£4.6475	£4.6362	£4.3718	£4.8313	£5.1938	£5.1702	£5.0261	£5.1810
1889	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£4.9092	£5.1540	£5.6017	£4.8125	£4.8884	£4.6354	£5.0833	£4.3375	£5.4000	£5.4000	£4.9642	£4.6854	£5.3872
Average earnings	£4.9092	£5.1540	£5.6017	£4.8125	£4.8884	£4.6354	£5.0833	£4.3375	£5.4000	£5.4000	£4.9642	£4.6854	£5.3872
1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	2	2	2	2	2	2	2	
Empl'd earnings	£4.8017	£4.6424	£4.8750	£4.5577	£3.4086	£4.7125	£4.4958	£4.6094	£4.7344	£4.7717	£4.8980	£4.7563	£4.9694
Average earnings	£4.8017	£4.6424	£4.8750	£4.5577	£3.4086	£3.1417	£2.9972	£3.0729	£3.1563	£3.1811	£3.2653	£3.1708	£3.9889
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	2	2	2	2	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.8656	£4.7240	£4.8761	£4.5917	£4.2243	£4.9854	£4.7800	£5.4326	£4.1361	£4.8950	£4.9577	£4.5483	£5.0060
Average earnings	£2.5771	£3.1493	£3.2507	£3.0611	£4.2243	£4.9854	£4.7800	£5.4326	£4.1361	£4.8950	£4.9577	£4.5483	£5.0060

Table A.1.9. : Ward-dressers' earnings, 1880-1908 (continued).

1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£4.9854	£4.9417	£4.7200	£4.8882	£5.0292	£4.5473	£4.8688	£4.4313	£4.9417	£4.9417	£5.1778	£4.5683	£5.2279
Average earnings	£4.9854	£4.9417	£4.7200	£4.8882	£5.0292	£4.5473	£4.8688	£4.4313	£4.9417	£4.9417	£5.1778	£4.5683	£5.2279
1893	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£4.9375	£4.2056	£5.1517	£4.8174	£5.2167	£6.5156	£6.8688	£5.9597	£5.4934	£5.2111	£5.4344	£5.0785	£5.8782
Average earnings	£4.9375	£4.2056	£5.1517	£4.8174	£5.2167	£6.5156	£6.8688	£5.9597	£5.4934	£5.2111	£5.4344	£5.0785	£5.8782
1894	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£4.7562	£4.2146	£5.2245	£6.6319	£6.2706	£6.4271	£5.3618	£5.2014	£5.2791	£5.5028	£5.0128	£4.7417	£5.7292
Average earnings	£4.7562	£4.2146	£5.2245	£6.6319	£6.2706	£6.4271	£5.3618	£5.2014	£5.2791	£5.5028	£5.0128	£4.7417	£5.7292
1895	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£5.5750	£5.1917	£5.8493	£5.6750	£6.3122	£5.6451	£6.0483	£6.5188	£5.5139	£5.6328	£5.5653	£4.8424	£6.1884
Average earnings	£5.5750	£5.1917	£5.8493	£5.6750	£6.3122	£5.6451	£6.0483	£6.5188	£5.5139	£5.6328	£5.5653	£4.8424	£6.1884
1896	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£4.8894	£5.6486	£5.6393	£6.4486	£6.4841	£6.8847	£5.9178	£6.3695	£6.0486	£5.7466	£4.0674	£3.7403	£6.0031
Average earnings	£4.8894	£5.6486	£5.6393	£6.4486	£6.4841	£6.8847	£5.9178	£6.3695	£6.0486	£5.7466	£4.0674	£3.7403	£6.0031
1897	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£5.0097	£4.9838	£6.5611	£5.6550	£6.5570	£5.9771	£5.8583	£3.6375	£5.3461	£5.3736	£5.7132	£5.2244	£5.9439
Average earnings	£5.0097	£4.9838	£6.5611	£5.6550	£6.5570	£5.9771	£5.8583	£3.6375	£5.3461	£5.3736	£5.7132	£5.2244	£5.9439

Table A.1.9. : Ward-dressers' earnings, 1880-1908 (continued).

1898	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	2	2	2	
Empl'd workers	3	3	3	3	3	3	3	3	3	2	2	2	
Empl'd earnings	£5.6743	£6.0097	£5.2845	£3.1986	£4.6556	£5.2372	£5.6292	£3.6694	£3.2417	£4.9521	£4.6844	£4.2266	£5.0799
Average earnings	£5.6743	£6.0097	£5.2845	£3.1986	£4.6556	£5.2372	£5.6292	£3.6694	£3.2417	£4.9524	£4.6844	£4.2266	£5.0799
1899	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£2.6486	£4.6071	£5.2283	£4.6615	£5.0302	£5.2517	£5.3803	£4.8150	£5.1969	£4.7573	£5.1726	£4.5563	£5.2013
Average earnings	£2.6486	£4.6071	£5.2283	£4.6615	£5.0302	£5.2517	£5.3803	£4.8150	£5.1969	£4.7573	£5.1726	£4.5563	£5.2013
1900	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£5.1823	£5.0980	£4.8784	£4.1563	£5.3309	£4.0906	£4.2042	£4.1167	£5.0428	£4.9261	£4.9683	£4.3396	£5.0964
Average earnings	£5.1823	£5.0980	£4.8784	£4.1563	£5.3309	£4.0906	£4.2042	£4.1167	£5.0428	£4.9261	£4.9683	£4.3396	£5.0964
1901	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	1	1	1	1	
Empl'd workers	2	2	2	2	2	2	2	2	1	1	1	1	
Empl'd earnings	£4.9034	£4.9053	£4.9209	£4.5490	£4.6501	£4.9209	£4.6875	£4.7475	£5.0500	£4.9417	£5.0896	£5.1604	£5.2780
Average earnings	£4.9034	£4.9053	£4.9209	£4.5490	£4.6501	£4.9209	£4.6875	£4.7475	£5.0500	£4.9417	£5.0896	£5.1604	£5.2780
1902	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.7900	£4.9354	£4.8583	£4.4208	£3.7083	£4.8583	£4.0700	£4.8583	£4.9125	£5.0317	£4.8583	£4.8583	£5.0466
Average earnings	£4.7900	£4.9354	£4.8583	£4.4208	£3.7083	£4.8583	£4.0700	£4.8583	£4.9125	£5.0317	£4.8583	£4.8583	£5.0466
1903	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.4383	£3.0854	£4.8583	£4.5083	£5.2521	£4.8146	£4.4734	£4.6083	£4.8583	£4.8583	£4.8583	£4.6000	£5.0736
Average earnings	£4.4383	£3.0854	£4.8583	£4.5083	£5.2521	£4.8146	£4.4734	£4.6083	£4.8583	£4.8583	£4.8583	£4.6000	£5.0736

Table A.1.9. : Warp-dressers' earnings, 1880-1908 (continued).

1904	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.8583	£4.8583	£4.9100	£4.3979	£4.3771	£4.8583	£4.8583	£4.2563	£4.8583	£4.8583	£4.9354	£4.6834	£5.1281
Average earnings	£4.8583	£4.8583	£4.9100	£4.3979	£4.3771	£4.8583	£4.8583	£4.2563	£4.8583	£4.8583	£4.9354	£4.6834	£5.1281
1905	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.8479	£4.8583	£4.9100	£4.3771	£4.8354	£4.5066	£4.8583	£4.5083	£4.8188	£4.8583	£4.8130	£4.8875	£5.0530
Average earnings	£4.8479	£4.8583	£4.9100	£4.3771	£4.8354	£4.5066	£4.8583	£4.5083	£4.8188	£4.8583	£4.8130	£4.8875	£5.0530
1906	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.8583	£4.8083	£4.8750	£3.3771	£4.9266	£4.3542	£4.5542	£4.4813	£4.8583	£4.8583	£4.8583	£4.4208	£4.9079
Average earnings	£4.8583	£4.8083	£4.8750	£3.3771	£4.9266	£4.3542	£4.5542	£4.4813	£4.8583	£4.8583	£4.8583	£4.4208	£4.9079
1907	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.8234	£4.8583	£4.9229	£4.3333	£4.4734	£4.7792	£4.8583	£4.0617	£4.7375	£4.8617	£4.8583	£4.5521	£5.0562
Average earnings	£4.8234	£4.8583	£4.9229	£4.3333	£4.4734	£4.7792	£4.8583	£4.0617	£4.7375	£4.8617	£4.8583	£4.5521	£5.0562
1908	Jan.												
Total workers	1												
Empl'd workers	1												
Empl'd earnings	£4,7100												
Average earnings	£4.7100												

Sources : Clough collection, books no. 37, 38, 39, 40, 41, 42, 43, 44, 45.

Table A.1.10. : Carters' earnings, 1872-1908.

1872	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	0	2	2	2	2	2	2	2	2	2	2	2	(Feb-Dec.)
Empl'd earnings	0	£2.8000	£2.8000	£2.6000	£3.0000	£3.0000	£3.0000	£3.0000	£3.0000	£3.0000	£2.9000	£3.0000	£2.9091
Average earnings	0	£2.8000	£2.8000	£2.6000	£3.0000	£3.0000	£3.0000	£3.0000	£3.0000	£3.0000	£2.9000	£3.0000	£2.9091
1873	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	2	2	2	2	2	2	2	2	1	1	2	
Empl'd earnings	£3.0000	£3.0000	£3.0000	£3.0000	£2.4000	£2.3729	£2.9368	£2.9979	£2.3969	£3.6000	£3.6000	£2.9407	£3.1843
Average earnings	£3.0000	£3.0000	£3.0000	£3.0000	£2.4000	£2.3729	£2.9368	£2.9979	£2.3969	£1.8000	£1.8000	£2.9407	£2.8843
1874	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	1	
Empl'd earnings	£2.9333	£2.9229	£2.9594	£2.8333	£2.9542	£2.8688	£2.9515	£1.8594	£2.5198	£2.9604	£2.6021	£3.6000	£3.2256
Average earnings	£2.9333	£2.9229	£2.9594	£2.8333	£2.9542	£2.8688	£2.9515	£1.8594	£2.5198	£2.9604	£2.6021	£1.8000	£3.0006
1875	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	1	1	1	1	2	1	1	1	1	1	1	2	
Empl'd earnings	£3.6000	£3.6000	£3.6000	£3.6000	£2.3813	£3.6000	£3.6000	£3.6000	£3.6000	£3.6000	£3.6000	£2.2000	£3.6234
Average earnings	£1.8000	£1.8000	£1.8000	£1.8000	£2.3813	£1.8000	£1.8000	£1.8000	£1.8000	£1.8000	£1.8000	£2.2000	£3.6234
1876	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	1	1	1	1	1	2	2	2	2	2	2	
Empl'd earnings	£2.1333	£3.6000	£3.6000	£3.6000	£3.6000	£3.6000	£1.8555	£3.4000	£3.4000	£3.6000	£3.6000	£3.6000	£3.5263
Average earnings	£2.1333	£1.8000	£1.8000	£1.8000	£1.8000	£1.8000	£1.8555	£3.4000	£3.4000	£3.6000	£3.6000	£3.6000	£2.7763
1877	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	1	1	1	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.6000	£3.6000	£3.6000	£3.6000	£2.3007	£3.6000	£3.6000	£3.6000	£3.6000	£3.6000	£3.4500	£3.6000	£3.7188
Average earnings	£3.6000	£1.8000	£1.8000	£1.8000	£2.3007	£3.6000	£3.6000	£3.6000	£3.6000	£3.6000	£3.4500	£3.6000	£3.2688

Table A.1.10. : Carters' earnings, 1872-1908 (continued).

1878	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.6000	£3.6000	£3.6000	£3.5750	£3.6000	£3.6000	£3.6000	£3.5250	£3.6000	£3.6000	£3.6000	£3.2000	£4.0250
Average earnings	£3.6000	£3.6000	£3.6000	£3.5750	£3.6000	£3.6000	£3.6000	£3.5250	£3.6000	£3.6000	£3.6000	£3.2000	£4.0250
1879	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.6000	£3.6000	£3.6000	£3.1500	£3.6000	£3.6000	£3.6000	£3.6000	£3.6000	£3.6000	£3.6000	£3.6000	£3.8625
Average earnings	£3.6000	£3.6000	£3.6000	£3.1500	£3.6000	£3.6000	£3.6000	£3.6000	£3.6000	£3.6000	£3.6000	£3.6000	£3.8625
1880	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.5111	£3.7333	£3.8667	£3.8667	£3.3111	£3.8667	£3.8667	£3.8667	£3.8481	£3.9840	£4.0139	£4.0556	£4.1373
Average earnings	£3.5111	£3.7333	£3.8667	£3.8667	£3.3111	£3.8667	£2.8667	£3.8667	£3.8481	£3.9840	£4.0139	£4.0556	£4.1373
1881	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.2201	£3.5056	£3.5819	£3.8000	£3.7333	£3.7333	£3.7333	£3.7333	£3.6074	£3.8000	£3.8667	£3.8667	£3.6706
Average earnings	£3.2201	£3.5056	£3.5819	£3.8000	£3.7333	£3.7333	£3.7333	£3.7333	£3.6074	£3.8000	£3.8667	£3.8667	£3.6706
1882	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.8667	£3.8667	£3.8667	£3.8667	£3.7556	£3.8667	£3.7555	£3.8667	£3.8667	£3.8667	£3.8667	£3.8667	£4.1703
Average earnings	£3.8667	£3.8667	£3.8667	£3.8667	£3.7556	£3.8667	£3.7555	£3.8667	£3.8667	£3.8667	£3.8667	£3.8667	£4.1703
1883	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.8667	£3.7889	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£4.2435
Average earnings	£3.8667	£3.7889	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£4.2435

Table A.1.10. : Carters' earnings, 1872-1908 (continued).

1884	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.9333	£3.8778	£3.8222	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.8222	£3.9333	£4.2356
Average earnings	£3.9333	£3.8778	£3.8222	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.8222	£3.9333	£4.2356
1885	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.7944	£3.9333	£3.7667	£3.9333	£3.9333	£4.2356
Average earnings	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.9333	£3.7944	£3.9333	£3.7667	£3.9333	£3.9333	£4.2356
1886	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.9333	£3.7111	£3.9333	£3.9333	£3.9333	£3.9333	£3.9871	£3.9333	£2.9333	£3.9333	£3.9333	£3.8167	£4.3152
Average earnings	£3.9333	£3.7111	£3.9333	£3.9333	£3.9333	£3.9333	£3.9871	£3.9333	£2.9333	£3.9333	£3.9333	£3.8167	£4.3152
1887	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.9333	£3.9333	£3.9333	£3.9333	£3.8778	£3.8222	£3.8963	£3.8778	£3.9333	£3.9333	£3.9333	£3.8037	£4.2217
Average earnings	£3.9333	£3.9333	£3.9333	£3.9333	£3.8778	£3.8222	£3.8963	£3.8778	£3.9333	£3.9333	£3.9333	£3.8037	£4.2217
1888	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.7667	£3.9333	£3.9333	£3.8778	£3.9333	£3.9333	£3.7815	£3.8500	£3.9333	£3.9333	£3.9333	£3.9333	£4.2166
Average earnings	£3.7767	£3.9333	£3.9333	£3.8778	£3.9333	£3.9333	£3.7815	£3.8500	£3.9333	£3.9333	£3.9333	£3.9333	£4.2166
1889	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.9333	£3.4889	£3.4528	£3.9333	£3.9333	£3.9833	£3.9333	£3.9333	£3.3333	£3.6333	£3.9333	£3.8778	£4.1085
Average earnings	£3.9333	£3.4889	£3.4528	£3.9333	£3.9333	£3.9833	£3.9333	£3.9333	£3.3333	£3.6333	£3.9333	£3.8778	£4.1085

Table A.1.10. : Carters' earnings, 1872-1908 (continued).

1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.2000	£4.2000	£4.2000	£4.0250	£4.2000	£4.2000	£5.1917	£3.8500	£3.8500	£4.2000	£4.2000	£4.2000	£4.5599
Average earnings	£4.2000	£4.2000	£4.2000	£4.0250	£4.2000	£4.2000	£5.1917	£3.8500	£3.8500	£4.2000	£4.2000	£4.2000	£4.5599
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£3.1500	£4.2000	£4.2000	£4.2000	£4.2000	£4.4625
Average earnings	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£3.1500	£4.2000	£4.2000	£4.2000	£4.2000	£4.4625
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.5500
Average earnings	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.2000	£4.5500
1893	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.2000	£4.2000	£4.2000	£4.2000	£4.3000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£5.0500
Average earnings	£4.2000	£4.2000	£4.2000	£4.2000	£4.3000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£5.0500
1894	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.7666
Average earnings	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.7666
1895	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.7666
Average earnings	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.7666

Table A.1.10. : Carters' earnings, 1872-1908 (continued).

1896	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.7666
Average earnings	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.7666
1897	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.7666
Average earnings	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.7666
1898	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.7666
Average earnings	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.7666
1899	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.7666
Average earnings	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£4.7666
1900	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.5750	£4.4250	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£5.1417	£4.4000	£4.4000	£4.4000	£4.4000	£4.8451
Average earnings	£4.5750	£4.4250	£4.4000	£4.4000	£4.4000	£4.4000	£4.4000	£5.1417	£4.4000	£4.4000	£4.4000	£4.4000	£4.8151
1901	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.8000	£5.2000	£5.2000	£5.2000	£5.2611	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.6076
Average earnings	£4.8000	£5.2000	£5.2000	£5.2000	£5.2611	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.6076

Table A.1.10. : Carters' earnings, 1872-1908 (continued).

1902	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.6333
Average earnings	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.6333
1903	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.6333
Average earnings	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.6333
1904	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.7416
Average earnings	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.4716
1905	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.6333
Average earnings	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.6333
1906	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.6333
Average earnings	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.6333
1907	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.6333
Average earnings	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.2000	£5.6333

Table A.1.10. : Carters' earnings. 1872-1908 (continued).

1908	Jan.
Total workers	1
Empl'd workers	1
Empl'd earnings	£5.2000
Average earnings	£5.2000

Sources : Clough collection, books no. 64, 65, 66, 67, 68, 69, 70, 71, 72.

Table A.1.11. : Piece room workers' earnings. 1880-1908.

1880	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£1.7722	£1.8667	£2.0000	£1.7729	£1.9146	£2.1000	£2.2000	£1.9146	£1.8458	£1.7792	£1.7792	£1.9389	£1.9866
Average earnings	£1.7722	£1.8667	£2.0000	£1.7729	£1.9146	£2.1000	£2.2000	£1.9146	£1.8458	£1.7792	£1.7792	£1.9389	£1.9866
1881	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£2.1000	£1.4417	£1.4958	£1.3063	£1.3917	£1.3959	£2.0813	£2.0625	£2.1000	£2.1000	£2.1000	£2.0389	£1.9442
Average earnings	£2.1000	£1.4417	£1.4958	£1.3063	£1.3917	£1.3959	£2.0813	£2.0625	£2.1000	£2.1000	£2.1000	£2.0389	£1.9442
1882	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£2.1479	£2.0625	£2.1000	£2.0771	£2.1000	£2.0375	£2.2000	£2.3417	£2.3000	£2.0313	£2.3000	£2.2319	£2.3387
Average earnings	£2.1479	£2.0625	£2.1000	£2.0771	£2.1000	£2.0375	£2.2000	£2.3417	£2.3000	£2.0313	£2.3000	£2.2319	£2.3387
1883	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£2.8208	£2.3854	£2.7313	£2.5188	£2.4958	£3.0111	£3.2208	£2.9438	£2.9083	£2.8708	£2.8639	£2.6396	£3.0289
Average earnings	£2.8208	£2.3854	£2.7313	£2.5188	£2.4958	£3.0111	£3.2208	£2.9438	£2.9083	£2.8708	£2.8639	£2.6396	£3.0289

Table A.1.11. : Piece room workers' earnings, 1880-1908 (continued).

1884	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	£2.5534	£2.5417	£2.6000	£2.7042	£2.8234	£2.5042	£2.6517	£2.6000	£2.5313	£2.6000	£2.6000	£2.5313	£2.8248
Average workers	£2.5534	£2,5417	£2.6000	£2.7042	£2.8234	£2.5042	£2.6517	£2.6000	£2.5313	£2.6000	£2.6000	£2.5313	£2.8248
1885	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£2.4350	£2.5542	£2.8000	£2.8500	£2.5521	£2.8000	£2.6017	£2.8000	£2.1021	£1.6818	£2.3917	£2.7417	£2.7824
Average earnings	£2.4350	£2.5542	£2.8000	£2.8500	£2.5521	£2.8000	£2.6017	£2.8000	£2.1021	£1.6818	£2.3917	£2.7417	£2.7824
1886	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£2.9250	£3.0000	£2.9458	£2.8250	£3.0000	£2.7354	£3.0000	£2.6542	£3.0000	£3.0000	£3.0000	£2.7817	£3.1474
Average earnings	£2.9250	£3.0000	£2.9458	£2.8250	£3.0000	£2.7354	£3.0000	£2.6542	£3.0000	£3.0000	£3.0000	£2.7817	£3.1474
1887	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£3.0000	£2.9875	£3.7200	£1.9521	£4.2000	£4.1266	£4.1083	£3.7708	£4.3034	£4.3833	£4.3833	£4.2000	£4.1018
Average earnings	£3.0000	£2.9875	£2.7200	£1.9521	£4.2000	£4.1266	£4.1083	£3.7708	£4.3034	£4.3833	£3.3833	£4.2000	£4.1018
1888	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.2542	£4.3125	£4.2300	£3.7542	£4.4604	£4.3734	£4.7500	£4.4334	£4.3292	£4.3500	£4.2817	£4.0604	£4.6599
Average earnings	£4.2542	£4.3125	£4.2300	£3.7542	£4.4604	£4.3734	£4.7500	£4.4334	£4.3292	£4.3500	£4.2817	£4.0604	£4.6599
1889	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.9783	£4.1000	£4.2833	£4.3292	£4.8983	£4.4667	£4.5813	£4.2734	£4.6000	£5.1333	£5.8783	£5.2417	£5.1267
Average earnings	£4.9783	£4.1000	£4.1833	£4.3292	£4.8983	£4.4667	£4.5813	£4.2734	£4.6000	£5.1333	£5.8783	£5.2417	£5.1267

Table A.1.11. : Piece room workers' earnings, 1880-1908 (continued).

1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£5.5183	£5.3688	£5.6000	£5.3500	£3.4166	£5.6000	£5.6125	£4.4479	£4.6979	£4.6417	£4.8313	£4.9208	£5.2833
Average earnings	£5.5183	£5.3688	£5.6000	£5.3500	£3.4166	£5.6000	£5.6125	£4.4479	£4.6979	£4.6417	£4.8313	£4.9208	£5.2833
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£5.3117	£5.3417	£5.6500	£5.3117	£5.1875	£5.5167	£5.0566	£5.6000	£2.9500	£5.6000	£5.4750	£1.4000	£5.3145
Average earnings	£5.3117	£5.3417	£5.6500	£5.3117	£5.1875	£5.5167	£5.0566	£5.6000	£2.9500	£5.6000	£5.4750	£1.4000	£5.3145
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	0	0	0	1	1	1	1	1	1	1	1	1	
Empl'd workers	0	0	0	1	1	1	1	1	1	1	1	1	(Apr.-Dec)
Empl'd earnings	0	0	0	£1.2521	£5.6750	£5.1934	£5.5375	£5.1292	£5.3534	£5.6000	£5.7375	£5.3434	£5.4215
Average earnings	0	0	0	£1.2521	£5.6750	£5.1934	£5.5375	£5.1292	£5.3534	£5.6000	£5.7375	£5.3434	£5.4215
1893	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£5.6000	£5.6000	£6.4034	£5.6996	£5.7396	£6.8734	£6.5000	£5.2167	£6.0217	£5.9888	£5.9917	£5.3792	£6.4435
Average earnings	£5.6000	£5.6000	£6.4034	£5.6996	£5.7396	£6.8734	£6.5000	£5.2167	£6.0217	£5.9888	£5.9917	£5.3792	£6.4435
1894	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£5.6500	£4.1417	£4.9850	£5.6125	£5.1634	£5.6000	£5.3375	£4.6783	£5.6000	£5.6375	£5.7483	£5.4615	£5.7300
Average earnings	£5.6500	£4.1417	£4.9850	£5.6125	£5.1634	£5.6000	£5.3375	£4.6783	£5.6000	£5.6375	£5.7483	£5.4615	£5.7300
1895	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£5.7883	£4.4521	£5.6979	£5.1042	£6.2234	£6.1292	£6.2554	£5.9466	£6.6104	£6.4666	£6.9458	£6.8292	£6.5487
Average earnings	£5.7833	£4.4521	£5.6979	£5.1042	£6.2234	£6.1292	£6.2554	£5.9466	£6.6104	£6.4666	£6.9458	£6.8292	£6.5487

Table A.1.11. : Piece room workers' earnings, 1880-1908 (continued).

1896	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£6.7534	£7.5708	£7.2167	£7.1366	£6.3625	£6.7396	£6.6283	£7.0000	£7.0000	£7.0734	£7.0000	£5.7358	£7.4270
Average earnings	£6.7534	£7.5708	£7.2167	£7.1366	£6.3625	£6.7396	£6.6283	£7.0000	£7.0000	£7.0734	£7.0000	£5.7358	£7.4270
1897	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£6.8146	£5.6542	£6.4000	£5.9466	£6.4000	£5.5500	£6.4000	£5.8333	£6.4000	£6.4000	£6.4000	£6.0266	£6.7015
Average earnings	£6.8146	£5.6542	£6.4000	£5.9466	£6.4000	£5.5500	£6.4000	£5.8333	£6.4000	£6.4000	£6.4000	£6.0266	£6.7015
1898	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£6.4000	£6.4000	£6.4000	£5.8333	£6.4000	£5.9466	£6.4000	£5.8333	£6.4000	£6.4000	£6.4000	£5.9466	£6.7444
Average earnings	£6.4000	£6.4000	£6.4000	£5.8333	£6.4000	£5.9466	£6.3000	£5.8333	£6.4000	£6.4000	£6.4000	£5.9466	£6.7444
1899	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£6.4000	£6.4000	£6.4000	£5.8333	£5.8333	£6.4000	£6.4000	£5.9466	£6.4000	£6.2167	£6.4000	£6.0833	£6.3791
Average earnings	£6.4000	£6.4000	£6.4000	£5.8333	£5.8333	£6.4000	£6.4000	£5.9466	£6.4000	£6.2167	£6.4000	£6.0833	£6.3791
1900	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£6.7000	£6.7000	£6.7000	£6.4167	£6.7000	£6.7000	£6.7000	£6.4509	£6.7000	£6.7000	£6.7000	£6.4167	£7.1851
Average earnings	£6.7000	£6.7000	£6.7000	£6.4167	£6.7000	£6.7000	£6.7000	£6.4509	£6.7000	£6.7000	£6.7000	£6.4167	£7.1851
1901	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£6.7000	£6.6084	£6.7000	£6.9167	£6.4867	£6.8000	£6.8000	£6.5667	£6.8000	£6.8000	£6.8000	£6.6542	£7.2750
Average earnings	£6.7000	£6.6084	£6.7000	£6.9167	£6.4867	£6.8000	£6.8000	£6.5667	£6.8000	£6.8000	£6.8000	£6.6542	£7.2750

Table A.1.11. : Piece room workers' earnings, 1880-1908 (continued).

1902	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£6.4909	£6.8000	£6.8000	£6.5021	£6.5617	£6.8000	£6.4734	£6.8000	£6.8000	£6.8000	£6.8000	£6.8000	£7.2507
Average earnings	£6.4609	£6.8000	£6.8000	£6.5021	£6.5617	£6.8000	£6.4734	£6.8000	£6.8000	£6.8000	£6.8000	£6.8000	£7.2507
1903	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£6.4967	£6.3000	£6.3000	£6.5617	£6.8000	£6.4729	£6.1383	£6.8000	£6.8000	£6.8000	£6.8000	£6.6158	£7.2532
Average earnings	£6.4907	£6.3000	£6.3000	£6.5617	£6.8000	£6.4729	£6.1383	£6.8000	£6.8000	£6.8000	£6.8000	£6.6158	£7.2532
1904	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£6.8000	£6.8000	£6.8000	£6.4729	£6.4729	£6.8000	£6.8000	£6.4729	£6.8000	£6.8000	£6.8000	£6.6817	£7.2725
Average earnings	£6.8000	£6.8000	£6.8000	£6.4729	£6.4729	£6.8000	£6.8000	£6.4729	£6.8000	£6.8000	£6.8000	£6.6817	£7.2725
1905	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£6.6000	£6.8000	£6.8000	£6.4729	£6.8000	£6.5383	£6.8000	£6.5383	£6.8000	£6.8000	£6.8000	£6.5021	£7.2600
Average earnings	£6.8000	£6.8000	£6.8000	£6.4729	£6.8000	£6.5383	£6.8000	£6.5383	£6.8000	£6.8000	£6.8000	£6.5021	£7.2600
1906	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£6.8000	£6.8000	£6.8000	£6.4729	£6.8000	£6.4729	£6.8000	£6.5383	£6.8000	£6.7000	£6.8000	£6.5021	£7.2517
Average earnings	£6.8000	£6.8000	£6.8000	£6.4729	£6.8000	£6.4729	£6.8000	£6.5383	£6.8000	£6.7000	£6.8000	£6.5021	£7.2517
1907	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	average
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£6.7767	£6.8000	£6.8500	£6.6532	£6.7226	£7.0000	£7.0000	£6.7226	£7.0000	£7.0000	£7.0000	£6.8417	£7.4310
Average earnings	£6.7767	£6.8000	£6.8500	£6.6532	£6.7227	£7.0000	£7.0000	£6.7226	£7.0000	£7.0000	£7.0000	£6.8417	£7.4310

Table A.1.11. : Piece room workers' earnings, 1880-1908 (continued).

1908	Jan.
Total workers	2
Empl'd workers	2
Empl'd earnings	£6.8483
Average earnings	£6.8483

Sources : Clough collection, books no. 37, 38, 39, 40, 41, 42, 43, 44, 45.

Table A.1.12. : Mechanics' earnings, 1872-1908 (continued).

1872	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£2.1806	£2.3500	£1.8083	£1.9778	£2.1320	£2.5701	£2.6083	£2.4769	£2.6000	£2.4958	£2.7500	£2.7333	£2.6085
Average earnings	£2.1806	£2.3500	£1.8083	£1.9778	£2.1320	£2.5701	£2.6083	£2.4769	£2.6000	£2.4958	£2.7500	£2.7333	£2.6085
1873	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	2	2	3	3	3	3	3	3	3	3	
Empl'd earnings	£2.6033	£2.2458	£2.7271	£2.8657	£2.7382	£2.7167	£2.2782	£2.6813	£2.8625	£2.9056	£2.9569	£2.8473	£2.9058
Average earnings	£2.6033	£2.2458	£1.8181	£1.9104	£2.7382	£2.7167	£2.2782	£2.6813	£2.8625	£2.9056	£2.9569	£2.8473	£2.7504
1874	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	2	2	2	
Empl'd earnings	£3.0913	£2.8583	£2.8014	£2.8063	£2.9194	£2.8542	£3.0077	£3.0007	£2.4250	£3.6511	£4.1625	£3.46951	£3.6022
Average earnings	£3.0913	£2.8583	£2.8014	£2.8063	£2.9194	£2.8542	£3.0077	£3.0007	£2.4250	£2.4340	£2.7750	£3.1301	£3.1895
1875	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	3	
Empl'd earnings	£4.7761	£4.6000	£4.5844	£4.7469	£4.5323	£4.5198	£4.5056	£4.3261	£4.6032	£4.6000	£4.7490	£3.5361	£4.8417
Average earnings	£3.1840	£3.0667	£3.0563	£3.1646	£3.0215	£3.0132	£3.0037	£2.8840	£3.0688	£3.0667	£3.1660	£3.5361	£3.3751

Table A.1.12. : Mechanics' earnings, 1872-1908 (continued).

1876	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.6674	£3.7701	£4.005	£3.0708	£3.9333	£3.9562	£3.9380	£4.0993	£3.8590	£3.7313	£3.8222	£3.7354	£4.1140
Average earnings	£3.6674	£3.7701	£4.0056	£3.0708	£3.9333	£3.9562	£3.9380	£4.0993	£3.8590	£3.7313	£3.8222	£3.7354	£4.1140
1877	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	2	2	2	2	2	3	3	
Empl'd earnings	£4.1090	£3.9979	£4.0813	£3.8708	£3.7134	£4.8021	£4.8688	£4.8198	£4.8490	£4.8032	£3.8477	£3.9375	£4.6234
Average earnings	£4.1090	£3.9979	£4.0813	£3.8708	£3.7134	£3.2014	£3.2456	£3.2132	£3.2326	£3.2021	£3.8477	£3.9375	£4.6234
1878	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.9889	£3.9917	£3.9042	£3.9222	£3.3958	£3.6666	£3.9521	£4.1751	£4.4276	£4.4699	£4.4451	£4.6195	£4.4073
Average earnings	£3.9889	£3.9917	£3.9042	£3.9222	£3.3958	£3.6666	£3.9521	£4.1751	£4.4276	£4.4699	£4.4451	£4.6195	£4.4073
1879	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£4.8465	£4.6326	£4.5451	£4.6257	£4.6708	£4.6875	£4.9542	£4.9695	£4.9472	£4.8885	£5.1750	£5.1708	£5.2410
Average earnings	£4.8465	£4.6326	£4.5451	£4.6257	£4.6708	£4.6875	£4.9542	£4.9695	£4.9472	£4.8885	£5.1750	£5.1708	£5.2410
1880	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£6.0811	£5.8111	£5.4743	£6.1031	£4.7459	£5.4750	£4.8792	£4.7570	£5.3930	£5.9109	£4.9298	£4.4350	£5.8396
Average earnings	£6.0811	£5.8111	£5.4743	£6.1031	£4.7459	£5.4750	£4.8792	£4.7570	£5.3930	£5.9109	£4.9298	£4.4350	£5.8396
1881	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£4.5354	£4.3069	£3.7616	£3.0836	£4.0514	£4.2722	£4.2486	£4.4757	£4.9829	£5.4285	£5.4785	£5.7344	£4.9033
Average earnings	£4.5354	£4.3069	£3.7616	£3.0836	£4.0514	£4.2722	£4.2486	£4.4757	£4.9829	£5.4285	£5.4785	£5.7344	£4.9033

Table A.1.12. : Mechanics' earnings, 1872-1908 (continued).

1882	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£5.3986	£5.5182	£4.6908	£4.9854	£4.9729	£4.3390	£5.7049	£5.6359	£5.9174	£6.0333	£5.8486	£6.1639	£5.8643
Average earnings	£5.3986	£5.5182	£4.6908	£4.9854	£4.9729	£4.3390	£5.7049	£5.6359	£5.9174	£6.0333	£5.8486	£6.1639	£5.8643
1883	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£6.2514	£6.0083	£6.3434	£6.2042	£5.8639	£6.1019	£6.5639	£6.0295	£5.8299	£6.0674	£6.2378	£5.6528	£6.6239
Average earnings	£6.2514	£6.0083	£6.3434	£6.3042	£5.8639	£6.1019	£6.5639	£6.0295	£5.8299	£6.0674	£6.2378	£5.6528	£6.6239
1884	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£5.7681	£5.9795	£6.1292	£5.8611	£5.9451	£5.6750	£5.9000	£5.5977	£5.9236	£6.1577	£6.8986	£6.5118	£6.5180
Average earnings	£5.7681	£5.9795	£6.1292	£5.8611	£5.9451	£5.6750	£5.9000	£5.5977	£5.9236	£6.1577	£6.8986	£6.5118	£6.5180
1885	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£5.9993	£5.3806	£5.1063	£5.1958	£5.4393	£5.4243	£5.2852	£5.7007	£5.5340	£5.8224	£5.7021	£5.7236	£5.9890
Average earnings	£5.9993	£5.3806	£5.1063	£5.1958	£5.4393	£5.4243	£5.2852	£5.7007	£5.5340	£5.8224	£5.7021	£5.7236	£5.9890
1886	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£5.5480	£5.8979	£5.5181	£5.5941	£5.7688	£5.7604	£5.8126	£5.1403	£5.9111	£5.6431	£6.3639	£6.1358	£6.4495
Average earnings	£5.5480	£5.8979	£5.5181	£5.5941	£5.7688	£5.7604	£5.8126	£5.1403	£5.9111	£5.6431	£6.3639	£6.1358	£6.4495
1887	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£6.8861	£6.6028	£6.2472	£7.5827	£6.5986	£6.2993	£6.4686	£6.5222	£6.4396	£6.7104	£5.2125	£6.1880	£6.9662
Average earnings	£6.8861	£6.6028	£6.2472	£7.5827	£6.5986	£6.2993	£6.4686	£6.5222	£6.4396	£6.7104	£5.2125	£6.1880	£6.9662

Table A.1.12. : Mechanics' earnings, 1872-1908 (continued).

1888	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£6.4917	£6.2597	£6.6695	£6.3194	£6.1715	£6.1937	£6.9176	£6.5408	£7.2986	£6.9347	£8.3769	£6.0389	£7.2278
Average earnings	£6.4917	£6.2597	£6.6695	£6.3194	£6.1715	£6.1937	£6.9176	£6.5408	£7.2986	£6.9347	£8.3769	£6.0389	£7.2278
1889	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£6.7882	£7.0847	£7.0193	£6.9049	£6.8727	£6.4570	£6.6847	£6.5368	£7.0444	£6.6979	£6.8767	£6.7347	£7.3780
Average earnings	£6.7882	£7.0847	£7.0193	£6.9049	£6.8727	£6.4570	£6.6847	£6.5368	£7.0444	£6.6979	£6.8767	£6.7347	£7.3780
1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£7.1146	£6.1545	£5.6045	£5.7854	£6.1085	£5.9250	£6.0729	£5.7629	£6.2927	£6.6421	£6.7938	£7.0574	£6.8133
Average earnings	£7.1146	£6.1545	£5.6045	£5.7854	£6.1085	£5.9250	£6.0729	£5.7629	£6.2927	£6.6421	£6.7938	£7.0574	£6.8133
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£6.7479	£6.6656	£6.0351	£6.1767	£6.0178	£6.2427	£6.6740	£6.3275	£6.4326	£6.4121	£6.5188	£6.3837	£6.9039
Average earnings	£6.7479	£6.6656	£6.0351	£6.1767	£6.0178	£6.1427	£6.6740	£6.3275	£6.4326	£6.4121	£6.5188	£6.3837	£6.9039
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£5,8313	£6,2438	£6.4267	£5.6039	£6.0563	£6.1656	£6.4851	£5.9104	£6.3815	£6.5837	£6.3983	£6.5309	£6.7175
Average earnings	£5.8313	£6.2438	£6.4267	£5.6039	£6.0563	£6.1656	£6.4851	£5.9104	£6.3815	£6.5837	£6.3983	£6.5309	£6.7175
1893	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£6.4341	£6.0823	£6.4637	£6.3861	£6.1638	£6.1073	£6.4639	£6.2313	£5.9239	£6.4097	£6.3312	£6.6271	£6.8181
Average earnings	£6,4341	£6,0823	£6.4637	£6.3861	£6.1638	£6.1073	£6.4639	£6.2313	£5.9239	£6.4097	£6.3312	£6.6271	£6.8181

Table A.1.12. : Mechanics' earnings, 1872-1908 (continued).

1894	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£6.4462	£6.7580	£6.0919	£7.1399	£6.2229	£6.4882	£6.7993	£6.1619	£6.6712	£7.2833	£6.7271	£6.7854	£7.1424
Average earnings	£6.4462	£6.7580	£6.0919	£7.1399	£6.2229	£6.4882	£6.7993	£6.1669	£6.6712	£7.2833	£6.7271	£6.7854	£7.1424
1895	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£5.8993	£6.2361	£6.1000	£6.2740	£6.9319	£6.8816	£6.9139	£6.4157	£6.6330	£7.0448	£7.7825	£6.9514	£7.1910
Average earnings	£5.8993	£6.2361	£6.1000	£6.2740	£6.9319	£6.8816	£6.9139	£6.4157	£6.6330	£7.0448	£7.7825	£6.9514	£7.1910
1896	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£6.2829	£6.6854	£6.3333	£6.9479	£7.0629	£6.3580	£6.6206	£6.2021	£6.6941	£6.5768	£6.9122	£6.6420	£7.1474
Average earnings	£6.2829	£6.6854	£6.3333	£6.9479	£7.0629	£6.3580	£6.6206	£6.2021	£6.6941	£6.5768	£6.9122	£6.6420	£7.1474
1897	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd workers	6	6	6	6	6	6	6	6	6	6	6	6	
Empl'd earnings	£6.3091	£6.8108	£6.7406	£6.7608	£6.7851	£6.1646	£6.6947	£6.5986	£6.8309	£7.0462	£6.7861	£6.5919	£7.4930
Average earnings	£6.3091	£6.8108	£6.7406	£6.7608	£6.7851	£6.1646	£6.6947	£6.5986	£6.8309	£7.0402	£6.7861	£6.5919	£7.4930
1898	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	6	6	6	6	5	5	5	5	5	5	5	5	
Empl'd workers	6	6	6	6	5	5	5	5	5	5	5	5	
Empl'd earnings	£6.9531	£7.0910	£7.0084	£5.9132	£6.9050	£6.2733	£6.6900	£6.2575	£6.7308	£6.7746	£6.9642	£7.0886	£7.3449
Average earnings	£6.9531	£7.0910	£7.0084	£5.9132	£6.9050	£6.2733	£6.6900	£6.2575	£6.7308	£6.7746	£6.9642	£7.0886	£7.3449
1899	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£6.9017	£7.2008	£7.2463	£7.2108	£7.2317	£6.6119	£7.5579	£6.7279	£6.9883	£8.0700	£7.2558	£7.0814	£7.7442
Average earnings	£6.9017	£7.2008	£7.2463	£7.2108	£7.2317	£6.6119	£7.5579	£6.7279	£6.9883	£8.0700	£7.2558	£7.0814	£7.7442

Table A.1.12. : Mechanics' earnings, 1872-1908 (continued).

1900	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£7.6408	£7.6225	£7.0538	£6.5359	£7.3200	£6.3600	£7.2775	£6.7558	£6.3575	£6.7387	£7.4983	£6.9113	£7.5918
Average earnings	£7.6408	£7.6225	£7.0538	£6.5359	£7.3200	£6.3600	£7.2775	£6.7558	£6.3575	£6.7387	£7.4983	£6.9113	£7.5918
1901	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£7.0883	£7.0525	£7.1904	£6.8621	£6.6033	£6.9896	£7.2304	£6.4896	£6.8058	£6.9338	£7.2969	£6.3458	£7.4865
Average earnings	£7.0883	£7.0525	£7.1904	£6.8621	£6.6033	£6.9896	£7.2304	£6.4896	£6.8058	£6.9338	£7.2969	£6.3458	£7.4865
1902	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£7.1092	£7.5479	£6.8317	£6.3279	£6.4525	£6.8433	£6.8708	£6.7233	£7.4796	£6.6922	£7.2833	£7.3617	£7.5079
Average earnings	£7.1092	£7.5479	£6.8317	£6.3279	£6.4525	£6.8433	£6.8708	£6.7233	£7.4796	£6.6922	£7.2833	£7.3617	£7.5079
1903	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£7.3054	£7.1850	£7.3442	£7.2167	£7.1000	£6.7567	£7.0594	£7.4425	£7.3688	£7.4470	£7.2350	£7.0833	£7.8143
Average earnings	£7.3054	£7.1850	£7.3442	£7.2167	£7.1000	£6.7567	£7.0594	£7.4425	£7.3688	£7.4470	£7.2350	£7.0833	£7.8143
1904	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£6.9526	£7.0396	£7.2442	£7.0423	£6.9683	£6.8983	£6.7510	£6.7279	£6.8540	£7.1942	£7.7467	£7.4740	£7.8051
Average earnings	£6.9526	£7.0396	£7.2442	£7.0423	£6.9683	£6.8983	£6.7510	£6.7279	£6.8540	£7.1942	£7.7467	£7.4740	£7.8051
1905	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£7.0371	£7.7317	£7.5054	£6.9846	£7.2863	£7.0220	£6.8358	£6.3954	£7.3077	£8.0300	£7.2329	£7.1106	£7.8179
Average earnings	£7.0371	£7.7317	£7.5054	£6.9846	£7.2863	£7.0220	£6.8358	£6.3954	£7.3077	£8.0300	£7.2329	£7.1106	£7.8179

Table A.1.12. : Mechanics' earnings, 1872-1908 (continued).

1906	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£7.4687	£7.3734	£7.1620	£7.0592	£6.8196	£7.4380	£7.1646	£6.4714	£6.4471	£7.8725	£6.6680	£7.3775	£7.6880
Average earnings	£7.4687	£7.3734	£7.1620	£7.0592	£6.8196	£7.4380	£7.1646	£6.4714	£6.4471	£7.8725	£6.6680	£7.3775	£7.6880
1907	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£7.6296	£7.5383	£6.8790	£6.5296	£7.0477	£6.7300	£7.4762	£7.1546	£7.2772	£7.2496	£7.1314	£7.0221	£7.7265
Average earnings	£7.6296	£7.5383	£6.8790	£6.5296	£7.0477	£6.7300	£7.4762	£7.1546	£7.2772	£7.2496	£7.1314	£7.0221	£7.7265
1908	Jan.												
Total workers	5												
Empl'd workers	5												
Empl'd earnings	£7.7894												
Average earnings	£7.7894												

Sources : Clough collection, books no. 64, 65, 66, 67, 68, 69, 70, 71, 72, 80, 87, 88, 89.

Table A.1.13. : Overlookers' earnings, 1876-1908.

1876	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.8042	£4.4000	£4.1091	£3.8375	£4.4000	£4.0104	£4.2834	£4.1667	£4.2500	£4.4000	£4.3042	£3.8125	£4.4929
Average earnings	£3.8042	£4.4000	£4.1091	£3.8375	£4.4000	£4.0104	£4.2834	£4.1667	£4.2500	£4.4000	£4.3042	£3.8125	£4.4929
1877	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£3.8198	£4.2000	£4.1674	£4.1333	£4.0313	£4.3813	£4.3375	£3.9702	£4.4000	£4.3142	£4.3417	£3.3813	£4.4622
Average earnings	£3.8198	£4.2000	£4.1674	£4.1333	£4.0313	£4.3813	£4.3375	£3.9702	£4.4000	£4.3142	£4.3417	£3.3813	£4.4622

Table A.1.13. : Overlookers' earnings, 1876-1908 (continued).

1878	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£4.9237	£4.3907	£4.1667	£3.8688	£3.1567	£3.3104	£4.4000	£4.0250	£4.4000	£4.4000	£4.4000	£4.4000	£4.5263
Average earnings	£4.9237	£4.3907	£4.1667	£3.8688	£3.1567	£3.3104	£4.4000	£4.0250	£4.4000	£4.4000	£4.4000	£4.4000	£4.5263
1879	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd workers	2	2	2	2	2	2	2	2	2	2	2	2	
Empl'd earnings	£4.2570	£2.8063	£3.2032	£3.3844	£4.4000	£2.4056	£3.4582	£4.1229	£4.1823	£4.1823	£4.2000	£4.2000	£4.0587
Average earnings	£4.2570	£2.8063	£3.2032	£3.3844	£4.4000	£2.4056	£3.4582	£4.1229	£4.1823	£4.1823	£4.2000	£4.2000	£4.0587
1880	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.4593	£3.4667	£3.5416	£3.4139	£3.3062	£3.6431	£3.6403	£3.3402	£3.2340	£3.0181	£3.0736	£3.2111	£3.5044
Average earnings	£3.4593	£3.4667	£3.5416	£3.4139	£3.3062	£3.6431	£3.6403	£3.3402	£3.2340	£3.0181	£3.0736	£3.2111	£3.5044
1881	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.5556	£2.4813	£2.5743	£2.2722	£2.4111	£2.4797	£3.5958	£3.7611	£3.6333	£3.7000	£3.7597	£3.5907	£3.4041
Average earnings	£3.5556	£2.4813	£2.5743	£2.2722	£2.4111	£2.4797	£3.5958	£3.7611	£3.6333	£3.7000	£3.7597	£3.5907	£3.4041
1882	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.8528	£3.6723	£3.8792	£4.3125	£4.3542	£3.8843	£3.7917	£3.9181	£4.0750	£3.7104	£4.1181	£3.9183	£4.2823
Average earnings	£3.8528	£3.6723	£3.8792	£4.3125	£4.3542	£3.8843	£3.7917	£3.9181	£4.0750	£3.7104	£4.1181	£3.9183	£4.2823
1883	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£4.3278	£4.0208	£4.0458	£3.7611	£3.4903	£4.0759	£3.8472	£3.6632	£3.8167	£3.8347	£3.8338	£3.6257	£4.1907
Average earnings	£4.3278	£4.0208	£4.0458	£3.7611	£3.4903	£4.0759	£3.8472	£3.6632	£3.8167	£3.8347	£3.8338	£3.6257	£4.1907

Table A.1.13. : Overlookers' earnings, 1876-1908 (continued).

1884	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.5550	£3.2389	£4.0010	£3.6639	£3.8817	£3.3278	£3.6089	£3.7347	£3.7090	£3.8000	£3.8486	£3.8306	£3.9926
Average earnings	£3.5550	£3.2389	£4.0010	£3.6639	£3.8817	£3.3278	£3.6089	£3.7347	£3.7090	£3.8000	£3.8486	£3.8306	£3.9926
1885	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£3.9656	£3.6076	£3.7785	£3.6922	£3.5167	£3.8924	£3.7628	£4.0285	£3.8153	£3.9066	£4.1215	£4.0039	£4.1393
Average earnings	£3.9656	£3.6076	£3.7785	£3.6922	£3.5167	£3.8924	£3.7628	£4.0285	£3.8153	£3.9066	£4.1215	£4.0039	£4.1393
1886	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£4.1000	£3.9007	£3.3583	£3.1756	£3.9965	£3.7556	£3.9555	£3.6278	£3.6234	£3.8104	£4.0611	£3.9078	£4.0781
Average earnings	£4.1000	£3.9007	£3.3583	£3.1756	£3.9965	£3.7556	£3.9555	£3.6278	£3.6234	£3.8104	£4.0611	£3.9078	£4.0781
1887	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£4.1424	£4.0840	£3.6172	£2.8812	£4.5604	£4.4950	£4.9541	£4.1590	£4.5366	£3.8042	£4.6174	£4.8569	£4.5854
Average earnings	£4.1424	£4.0840	£3.6172	£2.8812	£4.5604	£4.4950	£4.9541	£4.1590	£4.5366	£3.8042	£4.6174	£4.8569	£4.5854
1888	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	3	3	3	3	3	3	3	2	2	2	2	2	
Empl'd earnings	£4.9924	£4.8146	£4.6622	£4.0486	£4.4695	£5.2761	£3.3840	£4.6492	£4.6573	£4.4760	£4.7942	£4.5969	£4.9097
Average earnings	£4.9924	£4.8146	£4.6622	£4.0486	£4.4695	£5.2761	£3.3840	£2.6994	£3.1049	£2.9840	£3.1961	£3.0646	£4.2295
1889	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	3	3	3	3	3	3	3	3	3	3	3	3	
Empl'd workers	2	3	3	3	3	3	3	3	3	3	3	3	
Empl'd earnings	£4.9817	£3.4910	£5.5993	£5.1966	£5.4811	£5.3924	£5.4521	£4.7928	£5.3472	£5.4854	£5.4189	£5.1049	£5.5760
Average earnings	£3.3211	£3.4910	£5.5993	£5.1966	£5.4811	£5.3924	£5.4521	£4.7928	£5.3472	£5.4854	£5.4189	£5.1049	£5.5760

Table A.1.13. : Overlookers' earnings, 1876-1908 (continued).

1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£6,2162	£5,9526	£6,3662	£6,0834	£5,7009	£5,6745	£5,3846	£5,2646	£5,5573	£6,0567	£6,1828	£6,1380	£6,3681
Average earnings	£6,2162	£5,9526	£6,3662	£6,0834	£5,7009	£5,6745	£5,3846	£5,2646	£5,5573	£6,0567	£6,1828	£6,1380	£6,3681
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£5,7650	£6,1636	£6,1188	£6,2183	£6,2854	£6,4917	£6,1883	£6,5333	£6,2208	£6,4171	£6,5672	£5,7909	£6,8379
Average earnings	£5,7650	£6,1636	£6,1188	£6,2183	£6,2854	£6,4917	£6,1883	£6,5333	£6,2208	£6,4171	£6,5672	£5,7909	£6,8379
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£6,2985	£5,8797	£5,7846	£6,6078	£6,4760	£6,2229	£6,0469	£5,5833	£6,0666	£6,5261	£6,0109	£6,1892	£6,1215
Average earnings	£6,2985	£5,8797	£5,7846	£6,6078	£6,4760	£6,2229	£6,0469	£5,5833	£6,0666	£6,5261	£6,0109	£6,1892	£6,1215
1893	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£6,2495	£6,0406	£6,5196	£6,2735	£6,4807	£7,0875	£6,9371	£6,2615	£6,4009	£6,5427	£5,5075	£5,6938	£6,8644
Average earnings	£6,2495	£6,0406	£6,5196	£6,2735	£6,4807	£7,0875	£6,9371	£6,2615	£6,4009	£6,5427	£5,5075	£5,6938	£6,8644
1894	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£5,4266	£5,0417	£6,0958	£6,7224	£6,0479	£6,7469	£6,3839	£5,4938	£6,3610	£6,3000	£6,3513	£6,3052	£6,6061
Average earnings	£5,4266	£5,0417	£6,0958	£6,7224	£6,0479	£6,7469	£6,3839	£5,4938	£6,3610	£6,3000	£6,3513	£6,3052	£6,6061
1895	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£6,0862	£6,3771	£5,9583	£6,2901	£6,3400	£6,3438	£6,5922	£5,4325	£6,3261	£6,3475	£6,3792	£6,4964	£6,7500
Average earnings	£6,0862	£6,3771	£5,9583	£6,2901	£6,3400	£6,3438	£6,5922	£5,4325	£6,3261	£6,3475	£6,3792	£6,4964	£6,7500

Table A.1.13. : Overlookers' earnings, 1876-1908 (continued).

1896	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£6.3596	£6.8734	£6.4359	£6.5342	£6.1563	£7.0287	£6.3092	£6.4990	£6.6297	£6.3542	£5.1370	£5.2246	£6.9364
Average earnings	£6.3596	£6.8734	£6.4359	£6.5342	£6.1563	£7.0287	£6.3092	£6.4990	£6.6297	£6.3542	£5.1370	£5.2246	£6.9364
1897	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£6.6917	£5.7792	£7.0280	£6.1026	£6.6193	£6.2839	£6.8025	£6.1719	£6.0083	£6.2271	£6.3063	£5.7462	£6.5526
Average earnings	£6.6917	£5.7792	£7.0280	£6.1026	£6.6193	£6.2839	£6.8025	£6.1719	£6.0083	£6.2271	£6.3063	£5.7462	£6.5526
1898	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	3	4	4	4	
Empl'd earnings	£6.7693	£6.8823	£6.8734	£6.1854	£6.5099	£6.5938	£6.9125	£4.9464	£6.2383	£6.8615	£7.1209	£6.1892	£7.0478
Average earnings	£6.7693	£6.8823	£6.8734	£6.1854	£6.5099	£6.5938	£6.9125	£4.9464	£4.6788	£6.8615	£7.1209	£6.1892	£6.8854
1899	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	3	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£6.0750	£6.6792	£6.4121	£6.2099	£6.5385	£7.0050	£7.0500	£6.5225	£6.3953	£6.6042	£6.8446	£6.5209	£7.1294
Average earnings	£6.0750	£5.0094	£6.4121	£6.2099	£6.5385	£7.0050	£7.0500	£6.5225	£6.3953	£6.6042	£6.8446	£6.5209	£6.9902
1900	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£5.9599	£6.2469	£5.4471	£5.9745	£6.9730	£6.6542	£5.7808	£4.9583	£6.9630	£7.1183	£7.0842	£6.0198	£6.7746
Average earnings	£5.9599	£6.2469	£5.4471	£5.9745	£6.9730	£6.6542	£5.7808	£4.9583	£6.9630	£7.1183	£7.0842	£6.0198	£6.7746
1901	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£6.6717	£6.7407	£7.1573	£6.5427	£6.9026	£7.2177	£7.0349	£6.2738	£6.9969	£7.0775	£6.9380	£6.8198	£7.4254
Average earnings	£6.6717	£6.7407	£7.1573	£6.5427	£6.9026	£7.2177	£7.0349	£6.2738	£6.9969	£7.0775	£6.9380	£6.8198	£7.4254

Table A.1.13. : Overlookers' earnings, 1876-1908 (continued).

1902	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	3	4	4	4	
Empl'd earnings	£5.9800	£6.5208	£6.6719	£6.2552	£6.7329	£7.4620	£6.1517	£5.1479	£6.9003	£6.8125	£6.7307	£6.7396	£7.0442
Average earnings	£5.9800	£6.5208	£6.6719	£6.2552	£6.7329	£7.4620	£6.1517	£5.1479	£5.1797	£6.8125	£6.7307	£6.7396	£6.9003
1903	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£5.8242	£6.6847	£6.8281	£6.6283	£7.0057	£6.8547	£6.3125	£6.1557	£6.7313	£6.5342	£6.7589	£6.2650	£7.2061
Average earnings	£5.8242	£6.6847	£6.8281	£6.6283	£7.0057	£6.8547	£6.3125	£6.1557	£6.7313	£6.5342	£6.7589	£6.2650	£7.2061
1904	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£6.2031	£6.7484	£6.9442	£6.2589	£6.6172	£7.2104	£6.6920	£5.9250	£6.0742	£6.5906	£6.6750	£6.4367	£7.1093
Average earnings	£6.2031	£6.7484	£6.9442	£6.2589	£6.6172	£7.2104	£6.6920	£5.9250	£6.0742	£6.5906	£6.6750	£6.4367	£7.1093
1905	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£6.4748	£6.5922	£6.7104	£6.0427	£7.0526	£6.8271	£6.9771	£7.4578	£6.4974	£6.7584	£6.2279	£6.0245	£7.0486
Average earnings	£6.4748	£6.5922	£6.7104	£6.0427	£7.0526	£6.8271	£6.9771	£7.4578	£6.4974	£6.7584	£6.2279	£6.0245	£7.0486
1906	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£6.1511	£6.2146	£7.0162	£6.3469	£7.3100	£6.9162	£6.4651	£6.9146	£6.9073	£6.0901	£6.5054	£6.0266	£7.0060
Average earnings	£6.1511	£6.2146	£7.0162	£6.3469	£7.3100	£6.9162	£6.4651	£6.9146	£6.9073	£6.0901	£6.5054	£6.0266	£7.0060
1907	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd earnings	£6.9258	£6.2177	£6.9615	£6.1719	£6.5958	£7.1469	£6.5692	£5.8492	£6.7917	£6.4621	£7.0932	£6.8552	£7.1748
Average earnings	£6.9258	£6.2177	£6.9615	£6.1719	£6.5958	£7.1469	£6.5692	£5.8492	£6.7917	£6.4621	£7.0932	£6.8552	£7.1748

Table A.1.13. : Overlookers' earnings, 1876-1908 (continued).

1908	Jan.
Total workers	4
Empl'd workers	4
Empl'd earnings	£6,2237
Average earnings	£6,2237

Sources : Clough collection, books no. 36, 37, 38, 39, 40.

41, 42, 43, 44, 45.

CHAPTER A.2. : WORSTED WORKERS' EARNINGS AT MARRINER'S.

The archives relating to this firm contain material relating to only one occupation, hand-loom weaving. The material covers the period 1804-1829 and is reproduced in the following table.

Table 1.2.1. : Hand-loom weavers' earnings, 1804-1829.

1804/1805	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Annual average
Total workers	15	15	15	15	15	15	15	15	15	15	15	15	
Empl'd workers	14	14	15	14	14	15	15	15	14	13	14	14	
Empl'd earnings	£1.7571	£2.2786	£1.7867	£2.4857	£2.4286	£2.2933	£1.4967	£2.2417	£1.9080	£1.5702	£1.3961	£1.3773	£1.9267
Average earnings	£1.6400	£2.1267	£1.7867	£2.3200	£2.2667	£2.2933	£1.4967	£2.2417	£1.7808	£1.3609	£1.3963	£1.2855	£1.8329
1812/1813	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Annual average
Total workers	25	25	25	25	25	25	25	25	25	25	25	25	
Empl'd workers	24	25	23	24	24	23	25	25	24	20	21	23	
Empl'd earnings	£1.0083	£0.8245	£0.8870	£1.3548	£1.0375	£1.2185	£1.5825	£1.2320	£1.0823	£0.9825	£1.2573	£1.4190	£1.1481
Average earnings	£0.9680	£0.8245	£0.8160	£1.0920	£0.9900	£1.1210	£1.5825	£1.2320	£1.0390	£0.7860	£1.0562	£1.3055	£1.0849
1814/1815	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Annual average
Total workers	7	7	7	7	7	7	7	7	7	7	7	7	
Empl'd workers	3	5	5	6	5	5	5	4	6	5	6	6	
Empl'd earnings	£0.5007	£0.5600	£0.7300	£0.9854	£1.1000	£0.9800	£0.8800	£1.0500	£1.0750	£0.8100	£1.1667	£1.0625	£0.9139
Average earnings	£0.2429	£0.4000	£0.5214	£0.8440	£0.7857	£0.7000	£0.6286	£0.6000	£0.9214	£0.5780	£1.0000	£0.9107	£0.6028
1815/1816	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Annual average
Total workers	8	8	8	8	8	8	8	8	8	8	8	8	
Empl'd workers	8	8	8	8	6	8	8	7	6	6	5	8	
Empl'd earnings	£1.3281	£1.0844	£1.3813	£1.5250	£1.6917	£1.2563	£1.1125	£1.1107	£0.9833	£0.9146	£0.6800	£0.7828	£1.1459
Average earnings	£1.3281	£1.0844	£1.3813	£1.5250	£1.2688	£1.2563	£1.1124	£0.9719	£0.7375	£0.6859	£0.4250	£0.7828	£1.0466
1820/1821	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Annual average
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd workers	9	8	9	8	8	7	8	9	9	9	8	9	
Empl'd earnings	£4.0750	£3.9531	£3.0069	£3.3594	£2.9094	£3.7839	£2.4906	£2.5653	£3.3153	£2.4551	£3.0234	£2.6833	£3.0784
Average earnings	£4.0750	£3.5139	£3.0069	£2.9861	£2.5861	£2.9431	£2.2139	£2.5653	£3.3153	£2.4551	£2.6875	£2.6833	£2.9193
1823/1824	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Annual average
Total workers	15	15	15	15	15	15	15	15	15	15	15	15	
Empl'd workers	15	15	15	15	15	15	15	15	15	15	15	15	
Empl'd earnings	£4.4792	£3.1492	£3.6658	£2.5383	£3.2100	£3.6350	£3.2108	£3.0725	£3.7717	£2.8083	£2.9867	£3.2517	£3.3149
Average earnings	£4.4792	£3.1492	£3.6658	£2.5383	£3.2100	£3.6350	£3.2108	£3.0725	£3.7717	£2.8083	£2.9867	£3.2517	£3.3149

Table A.2.1. : Hand-loom weavers' earnings, 1804-1829 (continued).

1825/1826	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Annual average
Total workers	11	11	11	11	11	11	11	11	11	11	11	11	
Empl'd workers	11	11	10	10	11	10	11	10	11	11	11	10	
Empl'd earnings	£3.5239	£2.8739	£3.0225	£2.4875	£2.4856	£2.0100	£2.0159	£1.7770	£1.6273	£1.5875	£1.2307	£1.5638	£2.1841
Average earnings	£3.5239	£2.8739	£2.7477	£2.2614	£2.4886	£1.8272	£2.0159	£1.6155	£1.6273	£1.5875	£1.2307	£1.4216	£2.1019
1828/1829	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Annual average
Total workers	4	4	4	4	4	4	4	4	4	4	4	4	
Empl'd workers	3	4	4	3	3	4	3	4	4	4	4	4	
Empl'd earnings	£1.9458	£1.9594	£1.7813	£1.7760	£2.0083	£2.0688	£1.6833	£1.6886	£1.2357	£1.8406	£2.0406	£1.3125	£1.7784
Average earnings	£1.4594	£1.9594	£1.7813	£1.3281	£1.5063	£2.0688	£1.2625	£1.6886	£1.2357	£1.8406	£2.0406	£1.3125	£1.6237

Sources : Marriner collecton, book no. 12, Box no. 149; book no. 15, Box no. 148.

CHAPTER A.3. : WORSTED WORKERS' EARNINGS AT BRIGG'S.

The data surviving from this firm cover two occupations, hand-loom weaving and hand-combing, in the period 1836-1846. The earnings series are set out in the following two tables.

Table A.3.1. : Hand-loom weavers' earnings, 1836-1846.

1836	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	0	0	0	10	10	10	10	10	10	10	10	10	
Empl'd workers	0	0	0	10	10	10	10	9	10	9	10	10	
Empl'd earnings	0	0	0	£1.2638	£1.3700	£1.5375	£2.4975	£1.2676	£2.1200	£1.7819	£1.7250	£2.0954	£1.7399
Average earnings	0	0	0	£1.2638	£1.3700	£1.5375	£2.4975	£1.2676	£2.1200	£1.7819	£1.7250	£2.0954	£1.7399
1837	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	10	10	10	10	10	10	10	10	10	9	9	9	
Empl'd workers	10	9	10	9	9	8	9	10	10	7	9	9	
Empl'd earnings	£1.6125	£1.6738	£1.7988	£1.5742	£0.8403	£1.7651	£1.6708	£0.8188	£1.0896	£1.0048	£0.9352	£1.0148	£1.3321
Average earnings	£1.6125	£1.6738	£1.7988	£1.4108	£0.7563	£1.4121	£1.5038	£0.8188	£1.0896	£0.7815	£0.9352	£1.0148	£1.2345
1838	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd workers	9	8	9	9	8	9	9	7	8	6	7	9	
Empl'd earnings	£0.9342	£1.2969	£1.1028	£0.9204	£0.8198	£1.2412	£0.7842	£0.5238	£0.7406	£0.9052	£0.7304	£0.6967	£0.8914
Average earnings	£0.9342	£1.1528	£1.1028	£0.9204	£0.7287	£1.2412	£0.7842	£0.4074	£0.6583	£0.6035	£0.5681	£0.6967	£0.8165
1839	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	9	9	9	9	9	9	9	10	
Empl'd workers	9	6	9	8	9	9	9	7	8	8	9	9	
Empl'd earnings	£0.6417	£0.9413	£0.9903	£0.7771	£0.9364	£0.8704	£0.8570	£0.8039	£0.9753	£0.7161	£0.7766	£0.6905	£0.8314
Average earnings	£0.6417	£0.6276	£0.9903	£0.6907	£0.9364	£0.8704	£0.8570	£0.6252	£0.8669	£0.6366	£0.7766	£0.6215	£0.7617
1840	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd workers	8	9	7	9	8	8	8	8	7	9	9	8	
Empl'd earnings	£0.9641	£1.2718	£1.0178	£1.1771	£1.2250	£1.2199	£1.0742	£1.1459	£0.8802	£1.1854	£0.7868	£1.2282	£1.0980
Average earnings	£0.8570	£1.2718	£0.7916	£1.1771	£1.0889	£1.0840	£0.9549	£1.0185	£0.6868	£1.1854	£0.7868	£1.0917	£0.9995
1841	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd workers	8	7	9	8	9	9	8	8	9	8	9	9	
Empl'd earnings	£1.1836	£0.9706	£1.2361	£1.0336	£1.1806	£0.8202	£1.6024	£1.1308	£1.2985	£1.2867	£1.2132	£1.3528	£1.1924
Average earnings	£1.0521	£0.7549	£1.2361	£0.9188	£1.1806	£0.8202	£1.4243	£1.0051	£1.2985	£1.1438	£1.2132	£1.3528	£1.1167

Table A.3.1. : Hand-loom weavers' earnings, 1836-1846 (continued).

1842	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd workers	9	9	9	9	7	9	9	6	8	8	7	6	
Empl'd earnings	£1.1313	£0.7896	£1.0792	£1.0547	£1.2313	£0.7850	£0.9639	£0.9040	£0.7901	£1.1922	£1.1161	£1.4729	£1.0476
Average earnings	£1.1313	£0.7896	£1.0792	£1.0547	£0.9576	£0.7850	£0.9639	£0.6431	£0.7023	£1.0597	£0.8681	£0.9819	£0.9180
1843	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd workers	8	8	8	8	8	8	8	7	8	7	7	8	
Empl'd earnings	£0.8400	£0.9422	£1.1688	£0.8875	£0.8609	£1.0078	£1.4078	£0.8732	£1.2047	£1.1411	£0.9857	£1.1578	£1.0398
Average earnings	£0.7472	£0.8375	£1.0389	£0.7889	£0.7653	£0.8958	£1.2513	£0.6792	£1.0708	£0.8875	£0.7667	£1.0292	£0.8965
1844	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd workers	9	9	9	9	6	9	9	9	8	9	9	8	
Empl'd earnings	£0.9611	£0.9458	£1.1514	£1.0806	£1.2646	£1.1597	£0.9542	£1.0069	£0.8734	£0.7444	£1.1000	£1.2047	£1.0372
Average earnings	£0.9611	£0.9458	£1.1514	£1.0806	£0.8431	£1.1597	£0.9542	£1.0069	£0.7764	£0.7444	£1.1000	£1.0708	£0.8928
1845	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd workers	6	8	8	8	9	9	8	6	8	7	7	9	
Empl'd earnings	£0.9021	£1.0703	£1.1469	£0.7625	£1.4750	£0.6472	£1.0688	£1.1486	£0.9000	£0.9982	£1.5339	£0.7972	£1.0376
Average earnings	£0.6014	£0.9514	£1.0194	£0.6778	£1.4750	£0.6472	£0.9500	£0.7057	£0.8000	£0.7764	£1.1931	£0.7972	£0.8879
1846	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	9	9	9	9	9	9	0	0	
Empl'd workers	8	8	8	6	7	8	8	8	5	8	0	0	(Jan-Oct.)
Empl'd earnings	£1.1438	£1.1875	£0.7656	£1.4438	£1.0607	£0.9500	£1.0547	£0.7531	£0.9975	£1.0063	0	0	£1.0063
Average earnings	£1.0167	£1.0556	£0.6806	£0.9625	£0.8250	£0.8444	£0.9375	£0.6694	£0.5542	£0.8944	0	0	£0.8440

Source : Brigg collection, Keighley, item 384.

Table A.3.2. : Hand-combers' earnings, 1837-1841.

1837	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	0	0	0	0	0	0	0	0	0	0	0	13	
Empl'd workers	0	0	0	0	0	0	0	0	0	0	0	13	
Empl'd earnings	0	0	0	0	0	0	0	0	0	0	0	£2.2545	0
Average earnings	0	0	0	0	0	0	0	0	0	0	0	£2.2545	0
1838	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	13	13	13	13	13	13	13	13	13	13	13	13	
Empl'd workers	13	13	13	13	13	13	13	13	13	13	13	13	
Empl'd earnings	£2.2450	£2.7072	£2.7331	£2.2612	£1.7981	£2.1924	£1.8625	£1.6744	£2.2747	£1.8740	£2.3915	£2.6715	£2.4328
Average earnings	£2.2450	£2.7072	£2.7331	£2.2612	£1.7981	£2.1924	£1.8625	£1.6744	£2.2747	£1.8740	£2.3915	£2.6715	£2.4328
1839	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	13	13	13	13	13	13	13	13	12	12	12	12	
Empl'd workers	12	12	13	13	12	12	12	13	12	12	12	12	
Empl'd earnings	£2.5047	£2.6662	£2.7528	£1.9849	£2.2734	£2.1413	£2.1807	£1.8353	£2.5748	£2.4314	£2.4793	£1.7852	£2.3582
Average earnings	£2.3120	£2.4111	£2.7528	£1.9849	£2.0986	£1.9706	£2.0130	£1.8353	£2.5748	£2.4314	£2.4793	£1.7852	£2.2212
1840	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	12	12	12	12	12	12	12	12	12	12	12	12	
Empl'd workers	12	12	12	12	12	12	12	12	12	12	12	12	
Empl'd earnings	£1.8084	£2.3414	£2.5353	£2.0849	£2.2651	£2.1475	£2.0721	£1.8694	£2.0813	£1.9838	£2.1216	£2.3213	£2.3100
Average earnings	£1.8084	£2.3414	£2.5353	£2.0849	£2.2651	£2.1475	£2.0721	£1.8694	£2.0813	£1.9838	£2.1216	£2.3213	£2,3100
1841	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	12	12	12	12	12	12	12	0	0	0	0	0	
Empl'd workers	12	12	12	12	12	12	12	0	0	0	0	0	(Jan-July)
Empl'd earnings	£2.2192	£2.1137	£2.2962	£2.1812	£2.2520	£1.8957	£1.9636	0	0	0	0	0	£2.3614
Average earnings	£2.2192	£2.1137	£2.2962	£2.1812	£2.2520	£1.8957	£1.9636	0	0	0	0	0	£2.3614

Source : Brigg collection, Keighley, item 385.

CHAPTER A.4. : WORSTED WORKERS' EARNINGS AT BAIRSTOW'S.

The material relating to earnings in the Bairstow archives relates to twelve occupations within the period 1834-1915. In addition there is some more general material on average earnings and average wage rates. All these earnings series are set out on the following pages.

Table A.4.1. : Hand-combers' earnings, 1834-1840.

1834	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	0	0	0	0	0	0	0	0	0	5	8	8	
Empl'd workers	0	0	0	0	0	0	0	0	0	5	8	8	
Empl'd earnings	0	0	0	0	0	0	0	0	0	£0.8121	£2.2759	£2.5604	0
Average earnings	0	0	0	0	0	0	0	0	0	£0.8121	£2.2759	£2.5604	0
1835	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	8	8	8	8	8	9	9	9	9	9	9	9	
Empl'd workers	7	8	8	8	8	9	9	9	9	9	9	9	
Empl'd earnings	£3.1039	£3.0987	£3.2768	£3.0456	£4.5253	£3.1324	£2.7093	£4.9047	£3.5252	£4.8859	£3.8864	£3.6107	£3.6420
Average earnings	£2.7159	£3.0987	£3.2768	£3.0456	£4.5253	£3.1324	£2.7093	£4.9047	£3.5252	£4.8859	£3.8864	£3.6107	£3.6097
1836	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	9	9	9	9	9	9	9	12	12	12	12	12	
Empl'd workers	9	9	9	9	9	9	9	12	12	12	12	12	
Empl'd earnings	£5.0498	£3.9831	£3.7411	£6.3070	£3.9523	£4.1114	£3.2574	£2.8967	£4.3797	£3.3958	£4.1670	£4.1538	£4.2829
Average earnings	£5.0498	£3.9831	£3.7411	£6.3070	£3.9523	£4.1114	£3.2574	£2.8967	£4.3797	£3.3958	£4.1670	£4.1538	£4.2829
1837	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	12	12	12	12	12	12	12	12	12	12	12	12	
Empl'd workers	12	12	12	11	11	11	11	11	12	12	12	12	
Empl'd earnings	£3.2953	£3.5333	£3.8464	£2.9243	£2.5061	£1.9470	£2.5411	£1.9278	£3.4616	£2.3128	£1.4787	£3.6684	£2.7869
Average earnings	£3.2953	£3.5333	£3.8464	£2.6806	£2.2972	£1.7847	£2.3294	£1.7672	£3.4616	£2.3128	£1.4787	£3.6684	£2.7044
1838	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	12	12	12	12	12	12	12	12	12	12	12	12	
Empl'd workers	12	10	10	11	11	11	11	11	11	11	11	11	
Empl'd earnings	£2.9797	£2.9873	£3.7019	£2.5709	£2.8261	£3.0265	£2.4756	£2.8187	£3.0070	£3.4371	£4.0212	£3.3634	£3.1013
Average earnings	£2.9797	£2.4893	£3.0849	£2.3566	£2.5906	£2.7743	£2.2693	£2.5838	£2.7564	£3.1507	£3.6861	£3.0832	£2.8111
1839	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	12	12	12	12	12	12	12	12	12	12	12	12	
Empl'd workers	11	11	11	11	11	11	11	11	12	12	12	12	
Empl'd earnings	£4.0082	£3.3218	£3.6013	£3.6604	£3.5985	£3.7023	£3.0172	£3.1034	£3.2610	£4.4066	£4.0863	£1.9052	£3.4727
Average earnings	£3.6742	£3.0450	£3.3012	£3.3554	£3.2986	£3.3938	£2.7658	£2.8448	£3.2610	£4.4066	£4.0863	£1.9052	£2.9985

Table A.4.1. : Hand-combers' earnings, 1834-1840 (continued).

1840	Jan.	Feb.	March	April	May
Total workers	10	9	6	3	2
Empl'd workers	9	8	6	3	2
Empl'd earnings	£2.0484	£2.3033	£2.3090	£1.9375	£2.3333
Average earnings	£2.3836	£2.1007	£2.3090	£1.9375	£2.3333

Source : Bairstow collection, Book no. 31.

Table A.4.2a.: Power-loom weavers' earnings, 1865-1909.

1865	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	0	0	0	0	0	357	355	average
Average earnings	0	0	0	0	0	0	0	0	0	0	£2.1751	£2.0202	0
1866	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	355	354	353	351	350	349	348	345	343	342	340	337	average
Average earnings	£2.2531	£2.3730	£2.1566	£2.0012	£1.8352	£1.9668	£1.8221	£1.8431	£1.9775	£1.8747	£2.1061	£1.8293	£2.1714
1867	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	336	336	333	329	328	329	329	329	328	330	313	315	average
Average earnings	£2.0599	£2.0331	£2.6781	£2.0035	£2.2991	£1.9442	£2.1069	£2.5726	£2.2988	£1.8070	£2.6829	£1.9958	£2.2068
1868	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	319	318	317	307	304	304	304	304	305	306	306	306	average
Average earnings	£2.0876	£1.8262	£1.9604	£1.9952	£2.0668	£1.7207	£2.0264	£1.7835	£1.9158	£1.8403	£2.0009	£1.8030	£2.0425
1869	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	306	306	306	306	306	306	306	306	306	306	306	306	average
Average earnings	£1.8098	£1.9701	£1.9987	£1.8782	£1.7348	£1.6980	£1.8622	£1.5076	£1.5034	£2.0956	£1.8020	£1.7318	£1.9942
1870	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	306	306	306	306	306	306	306	306	306	303	303	303	average
Average earnings	£1.7190	£1.7930	£2.0021	£1.8422	£1.8549	£1.5300	£1.9486	£1.6647	£1.8385	£1.9261	£1.7952	£1.7203	£1.9560

Table A.4.2a. : Power-loom weavers' earnings, 1865-1909 (continued).

1871	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	300	299	298	299	299	299	299	299	298	298	297	298	average
Average earnings	£1.6418	£1.7730	£2.0073	£1.9879	£2.1266	£1.2620	£1.5897	£1.8711	£2.1305	£2.2387	£2.3059	£2.0576	£2.0450
1879	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	263	263	263	263	263	263	263	263	263	263	263	263	average
Average earnings	£0.8333	£0.9167	£1.0167	£1.2650	£1.2777	£0.9276	£0.9624	£0.9298	£0.8733	£0.6418	£1.1846	£1.4391	£1.1000
1880	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	263	263	263	261	261	261	250	248	248	249	245	245	average
Average earnings	£1.4323	£1.6679	£1.8706	£1.8430	£1.6347	£2.2468	£2.2065	£1.7483	£1.5760	£1.1973	£1.1557	£1.3054	£1.8233
1881	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	245	245	245	245	245	245	245	249	249	249	249	249	average
Average earnings	£1.0476	£1.2854	£1.2824	£1.2615	£1.5156	£1.2747	£1.5746	£1.6551	£1.9103	£1.8342	£1.5290	£1.4305	£1.5954
1882	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	249	249	249	249	249	249	249	249	249	249	249	249	average
Average earnings	£1.6803	£1.6332	£1.5166	£1.6329	£1.8119	£1.7639	£2.0129	£1.5797	£2.0564	£1.8238	£1.7911	£1.5507	£1.8812
1883	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	249	249	249	249	249	239	236	236	237	237	237	237	average
Average earnings	£1.7772	£1.7590	£1.7354	£1.9816	£1.9851	£2.0584	£2.3638	£2.2461	£1.7494	£2.2880	£2.0978	£1.9666	£2.1234
1884	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	237	237	237	237	237	237	237	237	237	237	237	237	average
Average earnings	£2.0792	£2.1160	£2.1691	£2.0723	£2.2447	£1.8834	£2.2024	£2.0713	£2.3461	£2.3094	£2.0614	£1.8122	£2.2960
1885	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	237	237	237	237	237	237	237	237	237	237	237	238	average
Average earnings	£1.9117	£2.0355	£1.9062	£1.8434	£1.9409	£1.8691	£2.0186	£1.7506	£1.8034	£1.8534	£1.5967	£1.6089	£2.0057
1886	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	238	238	234	234	235	235	235	235	235	238	237	239	average
Average earnings	£1.3950	£1.4899	£1.6283	£2.0214	£2.1738	£2.5525	£2.0772	£2.0486	£2.2831	£2.2518	£2.3619	£2.0278	£2.2295

Table A.4.2a. : Power-loom weavers' earnings, 1865-1909 (continued).

1886	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	238	238	234	234	235	235	235	235	235	238	237	233	average
Empl'd workers	-	-	-	188	200	198	195	195	200	203	205	205	(April-Dec)
Empl'd earnings	-	-	-	£2.5127	£2.5649	£3.0372	£2.5022	£2.4688	£2.6793	£2.6396	£2.7372	£2.3595	£2.8888
Average earnings	£1.3950	£1.4899	£1.6283	£2.0214	£2.1738	£2.5525	£2.0772	£2.0486	£2.2831	£2.2518	£2.3619	£2.0278	£2.4325
1887	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	241	247	247	248	236	237	237	237	237	236	236	237	average
Empl'd workers	205	204	207	207	204	207	206	201	197	195	193	189	
Empl'd earnings	£2.4259	£2.5490	£2.4692	£2.5148	£2.7933	£2.1839	£2.5003	£2.2524	£2.1040	£2.4140	£2.1779	£2.2838	£2.6370
Average earnings	£2.0610	£2.1078	£2.0694	£2.1008	£2.4226	£1.9074	£2.1775	£1.9103	£2.1704	£1.9972	£1.7811	£1.8217	£2.2162
1888	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	238	238	238	240	240	240	240	240	240	240	240	240	average
Empl'd workers	188	184	185	184	187	191	189	184	192	203	202	205	
Empl'd earnings	£2.0726	£2.3225	£2.4144	£2.6355	£2.4678	£2.7462	£2.6494	£2.5530	£2.8738	£2.7572	£2.7633	£2.4335	£2.7757
Average earnings	£1.6350	£1.7907	£1.8808	£2.0233	£1.9203	£2.1081	£2.0809	£1.9573	£2.2990	£2.3293	£2.3258	£2.0787	£2.2156
1889	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	240	240	240	240	241	243	243	243	243	243	243	243	average
Empl'd workers	204	203	202	203	207	213	214	215	219	221	221	218	
Empl'd earnings	£2.8806	£2.8334	£3.0918	£2.5260	£2.7984	£2.2536	£3.0935	£2.8793	£3.1720	£3.0027	£2.9454	£2.5465	£3.0739
Average earnings	£2.4455	£2.3936	£2.5858	£2.1339	£2.4063	£1.9708	£2.7180	£2.5475	£2.8555	£2.7278	£2.6763	£2.2845	£2.6884
1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	233	234	233	234	234	234	234	234	234	234	234	234	average
Empl'd workers	214	212	214	217	211	224	228	226	222	220	213	212	
Empl'd earnings	£2.9102	£2.9245	£2.8624	£2.6610	£2.8593	£2.8507	£2.6881	£2.1770	£2.8898	£2.5923	£2.5189	£2.5494	£2.9265
Average earnings	£2.6730	£2.6524	£2.6201	£2.4649	£2.5831	£2.7289	£2.6192	£2.1063	£2.7447	£2.4350	£2.2875	£2.3070	£2.7226
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	247	247	247	247	247	247	247	247	247	247	247	247	average
Empl'd workers	211	209	198	195	186	177	176	176	180	183	187	189	
Empl'd earnings	£2.4222	£2.3719	£2.5928	£2.2213	£1.8943	£2.3900	£2.9868	£2.3276	£2.9859	£3.0279	£2.8863	£2.7868	£2.7897
Average earnings	£2.0652	£2.0094	£2.0758	£1.7491	£1.4295	£1.7151	£2.1282	£1.6586	£2.1699	£2.2457	£2.1794	£2.1268	£2.1260

Table A.4.2a. : Power-loom weavers' earnings, 1865-1909 (continued).

1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	247	247	247	247	248	252	252	252	252	252	252	252	average
Empl'd workers	192	195	200	203	205	206	204	202	204	201	198	200	
Empl'd earnings	£2.5745	£2.8259	£3.0283	£2.5089	£2.5791	£2.3975	£2.4909	£2.0901	£2.6023	£2.3099	£2.5969	£2.4670	£2.8027
Average earnings	£1.9991	£2.2281	£2.4459	£2.0579	£2.1324	£1.9599	£2.0184	£1.6759	£2.1025	£1.8378	£2.0353	£1.9618	£2.2491
1893	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	252	252	252	252	253	253	253	253	253	253	253	253	average
Empl'd workers	206	202	199	200	198	196	193	188	187	183	183	190	
Empl'd earnings	£2.6286	£2.5195	£2.4912	£2.6913	£2.4288	£2.7184	£2.4442	£1.9765	£2.6358	£2.5705	£2.6965	£2.6254	£2.5931
Average earnings	£2.1435	£2.0196	£1.9673	£2.1317	£1.9046	£2.1017	£1.8621	£1.4713	£1.9524	£1.8568	£1.9478	£1.9717	£2.1141
1894	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	253	253	253	253	253	253	253	253	254	256	260	265	average
Empl'd workers	199	201	202	202	201	199	198	199	198	200	215	219	
Empl'd earnings	£2.7662	£2.8790	£2.6709	£3.1022	£2.7534	£3.0512	£2.6980	£2.1058	£3.2694	£3.1697	£3.3224	£2.8015	£3.1147
Average earnings	£2.1703	£2.2845	£2.1346	£2.4799	£2.1875	£2.4023	£2.1141	£1.6563	£2.5543	£2.4794	£2.7490	£2.3173	£2.4804
1895	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	265	265	265	265	265	265	265	265	265	265	264	264	average
Empl'd workers	221	223	221	216	212	209	209	209	216	215	217	222	
Empl'd earnings	£3.1140	£3.0174	£2.8810	£2.5194	£2.8618	£2.6647	£3.0301	£2.9087	£3.3708	£3.3504	£3.3734	£3.0091	£3.2589
Average earnings	£2.5941	£2.5392	£2.4004	£2.0188	£2.2937	£2.1041	£2.3841	£2.2940	£2.7444	£2.7151	£2.7780	£2.5333	£2.6538
1896	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	272	271	271	271	271	271	271	271	271	271	271	271	average
Empl'd workers	217	212	210	208	204	197	196	196	195	196	195	189	
Empl'd earnings	£3.0087	£2.8550	£2.9596	£2.7520	£2.6721	£3.0221	£2.8989	£2.4070	£2.7882	£3.0796	£2.9531	£3.0622	£3.1145
Average earnings	£2.3982	£2.2286	£2.2880	£2.1086	£2.0134	£2.1969	£2.0966	£1.7408	£2.0088	£2.2274	£2.1168	£2.1356	£2.3119
1897	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	271	271	271	271	271	271	271	271	271	272	273	274	average
Empl'd workers	187	185	187	203	216	218	214	211	211	212	212	212	
Empl'd earnings	£2.5558	£2.6486	£3.0728	£3.1381	£3.4435	£2.6595	£3.2185	£1.7827	£3.0747	£3.0485	£2.9909	£2.7747	£3.1743
Average earnings	£1.7636	£1.8032	£2.1147	£2.3553	£2.7383	£2.1418	£2.5462	£1.3858	£2.3968	£2.3800	£2.3241	£2.1208	£2.4076

Table A.4.2a. : Power-loom weavers' earnings, 1865-1909 (continued).

1898	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	274	274	274	274	274	274	274	273	273	274	274	274	
Empl'd workers	208	203	201	197	200	199	195	194	189	185	180	179	
Empl'd earnings	£2.8923	£2.7005	£2.6330	£2.4022	£3.0702	£2.4797	£2.5667	£2.5554	£2.6574	£2.6670	£3.2462	£2.8806	£2.9481
Average earnings	£2.1957	£2.0007	£1.9291	£1.7254	£2.2354	£1.7964	£1.8262	£1.8113	£1.8417	£1.7958	£2.1355	£1.8818	£2.0828
1899	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	274	274	274	274	274	274	274	272	270	270	270	270	
Empl'd workers	178	175	182	190	191	191	191	194	189	184	180	181	
Empl'd earnings	£2.5270	£2.7694	£3.2300	£2.9443	£3.0144	£3.3068	£3.4026	£2.5701	£2.8625	£3.1197	£3.2164	£2.9104	£3.2459
Average earnings	£1.6370	£1.7688	£2.1478	£2.0363	£2.0958	£2.3027	£2.3719	£1.8307	£2.0017	£2.1260	£2.1443	£1.9510	£2.2095
1900	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	250	260	260	261	261	261	261	261	262	262	262	262	
Empl'd workers	185	184	178	173	176	174	171	166	162	164	165	163	
Empl'd earnings	£2.9195	£3.1060	£3.0657	£2.8030	£3.3057	£2.7106	£2.5263	£1.6493	£2.5061	£2.8368	£3.1229	£2.8453	£3.0043
Average earnings	£2.0773	£2.2106	£2.0988	£1.8588	£2.2291	£1.8092	£1.6528	£1.0474	£1.5472	£1.7703	£1.9643	£1.7647	£1.9800
1901	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	262	262	262	262	262	262	262	262	262	262	262	250	
Empl'd workers	168	176	184	187	189	186	186	182	177	176	180	184	
Empl'd earnings	£3.1776	£3.1993	£3.4751	£3.1034	£3.0400	£3.0089	£2.4681	£2.2950	£2.7977	£2.9298	£3.0622	£2.8182	£3.1953
Average earnings	£2.0375	£2.1430	£2.4430	£2.2150	£2.1934	£2.1390	£1.7498	£1.5907	£1.8927	£1.9709	£2.1038	£2.0742	£2.2194
1902	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	250	250	250	250	250	250	250	250	250	250	250	250	
Empl'd workers	183	179	176	177	173	178	179	181	185	186	187	189	
Empl'd earnings	£2.7762	£2.6159	£2.8817	£2.8811	£3.0993	£3.5083	£2.3000	£3.0488	£3.3072	£3.2466	£3.0462	£2.9029	£3.2214
Average earnings	£2.0143	£1.8750	£2.0316	£2.0341	£2.1497	£2.5014	£1.6437	£2.2025	£2.4407	£2.4182	£2.2725	£2.1888	£2.3307
1903	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	250	250	250	250	250	250	250	250	250	250	250	250	
Empl'd workers	186	185	185	182	182	181	180	169	166	165	164	161	
Empl'd earnings	£2.7993	£2.9363	£3.0080	£2.5313	£2.9434	£2.3653	£2.9827	£2.0408	£2.6906	£2.8700	£2.5780	£2.1854	£2.8942
Average earnings	£2.0782	£2.1670	£2.2229	£1.8453	£2.1404	£1.7125	£2.1500	£1.3755	£1.7865	£1.6917	£1.6886	£1.4096	£2.0444

Table A.4.2a. : Power-loom weavers' earnings, 1865-1909 (continued).

1904	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	250	250	250	250	250	250	250	250	250	250	250	250	average
Empl'd workers	153	151	151	156	158	158	157	156	156	156	155	157	
Empl'd earnings	£2.1807	£2.4696	£2.2775	£2.7130	£2.6834	£2.9998	£2.9022	£1.7508	£2.5777	£2.7613	£2.6647	£2.5918	£2.9000
Average earnings	£1.3418	£1.4917	£1.9763	£1.6930	£1.6906	£1.8958	£1.8203	£1.0925	£1.6082	£1.7258	£1.6397	£1.6257	£1.8019
1905	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	250	250	250	250	250	250	250	250	250	250	250	250	average
Empl'd workers	157	155	157	166	169	177	182	182	177	173	173	173	
Empl'd earnings	£2.7056	£2.7884	£3.2078	£2.8032	£3.3292	£2.8458	£3.0533	£2.4623	£2.7490	£2.8865	£2.8184	£2.7067	£3.1132
Average earnings	£1.6937	£1.7316	£2.0826	£1.8585	£2.7539	£2.0194	£2.2289	£1.7901	£1.9419	£1.9975	£1.9503	£1.9774	£2.1171
1906	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	250	250	250	250	249	250	250	250	250	250	250	250	average
Empl'd workers	177	181	179	182	183	186	188	189	187	186	185	188	
Empl'd earnings	£2.9610	£2.9179	£3.1207	£2.8002	£3.2655	£3.0093	£3.1359	£2.5982	£3.1226	£3.0424	£3.2266	£2.7335	£3.2438
Average earnings	£2.0905	£2.1067	£2.2394	£2.0398	£2.4000	£2.2414	£2.3582	£1.9001	£2.3326	£2.2666	£2.3183	£2.0556	£2.3832
1907	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	250	250	250	250	250	250	250	250	250	249	249	245	average
Empl'd workers	189	191	190	188	188	188	187	185	182	180	176	174	
Empl'd earnings	£3.0288	£3.1084	£3.0423	£2.6700	£2.8199	£2.9937	£3.0513	£2.5088	£3.2700	£3.3538	£3.1891	£3.1114	£3.2528
Average earnings	£2.2867	£2.3780	£2.3170	£2.0079	£2.1206	£2.2453	£2.2854	£1.8523	£2.3829	£2.4210	£2.2746	£2.2034	£2.4096
1908	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	248	248	249	249	249	249	249	239	247	249	244	242	average
Empl'd workers	174	173	173	172	166	163	160	158	158	160	164	174	
Empl'd earnings	£3.0821	£3.0891	£2.6075	£2.2754	£2.6306	£2.2725	£2.3956	£2.0494	£2.9090	£3.2738	£3.4758	£3.3622	£3.0290
Average earnings	£2.1657	£2.1559	£1.8153	£1.5327	£1.8870	£1.4877	£1.5432	£1.3458	£1.8587	£2.0984	£2.3290	£2.4155	£2.0472
1909	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	249	249	236	236	236	236	236	236	236	236	236	236	average
Empl'd workers	179	174	186	192	198	198	195	191	194	198	198	196	
Empl'd earnings	£3.0616	£3.5180	£3.4178	£3.1038	£3.4752	£2.9510	£3.2651	£2.1905	£3.2258	£3.5073	£2.6125	£3.1074	£3.1367
Average earnings	£2.2010	£2.1548	£2.6943	£2.5278	£2.9782	£2.4701	£2.6931	£2.0192	£2.6552	£2.9485	£2.1978	£2.6332	£2.7211

Source : Birstow collection, book no. 58.

Table A.4.2b. : Power-loom weavers' earnings, 1912-1915.

1912	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	0	0	0	0	0	0	0	21	21	21	21	21	
Empl'd workers	0	0	0	0	0	0	0	21	21	21	21	20	(Aug-Dec.)
Empl'd earnings	0	0	0	0	0	0	0	£2.9689	£3.8720	£3.7345	£3.5954	£3.2913	£3.6791
Average earnings	0	0	0	0	0	0	0	£2.9689	£3.8720	£3.7345	£3.5954	£3.1345	£3.4477
1913	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	21	21	21	21	21	21	21	21	21	21	21	21	
Empl'd workers	21	21	20	20	21	21	21	20	20	21	21	21	
Empl'd earnings	£3.2729	£3.4855	£2.6652	£3.6029	£3.4466	£3.8141	£3.1849	£2.3365	£3.8267	£3.5855	£3.5889	£3.2952	£3.6341
Average earnings	£3.2729	£3.4855	£2.5383	£3.4885	£3.4466	£3.8141	£3.1849	£2.2252	£3.6445	£3.5855	£2.5889	£3.2952	£3.5845
1914	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	21	21	21	21	21	21	21	21	21	21	21	21	
Empl'd workers	21	21	21	20	20	21	21	21	21	21	19	20	
Empl'd earnings	£3.5242	£3.9667	£3.5979	£3.6855	£3.9369	£3.2188	£3.8074	£2.6859	£2.8367	£3.3374	£3.9007	£3.3192	£3.8528
Average earnings	£3.5242	£3.9667	£3.5979	£3.5100	£3.7494	£3.2188	£3.8074	£2.6859	£2.8367	£3.3374	£3.5292	£3.1611	£3.7716
1915	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
Total workers	21	21	21	21	0	0	0	0	0	0	0	0	
Empl'd workers	20	21	21	21	0	0	0	0	0	0	0	0	(Jan-April)
Empl'd earnings	£3.5914	£3.3437	£3.6795	£3.8414	0	0	0	0	0	0	0	0	£3.8459
Average earnings	£3.4280	£3.3437	£3.6795	£3.8414	0	0	0	0	0	0	0	0	£3.8031

Source : Bairstow collection, book no. 175.

365

Table A.4.3. : Machine combers' earnings, 1890-1892 & 1912-1913.

1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	10	10	10	10	10	10	10	average
Empl'd workers	0	0	0	0	0	10	10	10	10	10	10	10	(July-Dec)
Empl'd earnings	0	0	0	0	0	£2.2038	£2.6673	£2.1799	£3.0286	£3.0417	£2.8977	£2.7794	£2.8411
Average earnings	0	0	0	0	0	£2.2038	£2.6673	£2.1799	£3.0286	£3.0417	£2.8977	£2.7794	£2.8411
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	10	10	10	10	10	10	10	10	10	10	10	10	average
Empl'd workers	10	10	10	10	10	10	10	10	10	10	10	10	
Empl'd earnings	£2.5369	£2.5163	£2.3496	£2.2583	£2.2885	£2.4117	£2.6837	£2.4121	£2.7242	£2.8171	£2.8536	£2.9637	£2.7855
Average earnings	£2.5369	£2.5163	£2.3496	£2.2583	£2.2885	£2.4117	£2.6837	£2.4121	£2.7242	£2.8171	£2.8536	£2.9637	£2.7855
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	10	10	10	10	10	10	10	10	10	0	0	0	average
Empl'd workers	10	10	10	10	10	10	10	10	10	0	0	0	(Jan-Sep.)
Empl'd earnings	£2.8374	£2.6342	£2.6281	£2.5346	£2.9498	£2,5142	£2.8864	£2,5977	£2,4660	0	0	0	£2.9900
Average earnings	£2.8374	£2.6342	£2,6281	£2.5346	£2.9498	£2.5142	£2.8864	£2.5977	£2.4660	0	0	0	£2.9900
1912	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	0	0	5	5	5	5	5	average
Empl'd workers	0	0	0	0	0	0	0	5	5	5	5	5	(Aug-Dec.)
Empl'd earnings	0	0	0	0	0	0	0	£2.7297	£3.4825	£3.4696	£3.4546	£3.4887	£3.5980
Average earnings	0	0	0	0	0	0	0	£2.7297	£3.4825	£3.4696	£3.4546	£3.4887	£3.5980
1913	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	5	5	5	5	5	0	0	0	0	0	0	0	average
Empl'd workers	5	5	5	5	5	0	0	0	0	0	0	0	(Jan.-May)
Empl'd earnings	£3.2109	£3.3363	£2.8146	£3.4983	£2.9075	0	0	0	0	0	0	0	£3.4746
Average earnings	£3.2109	£3.3363	£2.8146	£3.4983	£2.9075	0	0	0	0	0	0	0	£3.4746

Sources : Bairstow collection, books no. 172, 173.

Table A.4.4. : Spinners' earnings, 1890-1892 and 1912-1913.

1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	36	36	36	36	36	36	36	average
Empl'd workers	0	0	0	0	0	36	36	35	35	36	36	36	(June-Nov)
Empl'd earnings	0	0	0	0	0	£1.0220	£1.2877	£1.2257	£1.4872	£1.4251	£1.3257	£1.4427	£1.4028
Average earnings	0	0	0	0	0	£1.0220	£1.2877	£1.1916	£1.4372	£1.4251	£1.3257	£1.4427	£1.3896
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	36	36	36	36	36	36	36	36	36	36	36	36	average
Empl'd workers	36	36	36	36	36	36	36	36	35	35	36	36	
Empl'd earnings	£1.4023	£1.3155	£1.2668	£1.2784	£1.2408	£1.4409	£1.5616	£1.3222	£2.1571	£1.6432	£1.6753	£1.7323	£1.6265
Average earnings	£1.4023	£1.3155	£1.2668	£1.2784	£1.2408	£1.4409	£1.5616	£1.3222	£2.0972	£1.5976	£1.6753	£1.7323	£1.6177
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	36	36	36	36	36	36	36	36	36	0	0	0	average
Empl'd workers	36	36	36	36	36	36	36	36	36	0	0	0	(Jan-Sep.)
Empl'd earnings	£1.7027	£2.1137	£1.7634	£1.6479	£1.7698	£1.8813	£1.8073	£1.5627	£1.8181	0	0	0	£1.9802
Average earnings	£1.7207	£2.1137	£1.7634	£1.6479	£1.7698	£1.8813	£1.8073	£1.5627	£1.8181	0	0	0	£1.9802
1912	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	0	0	23	23	23	23	23	average
Empl'd workers	0	0	0	0	0	0	0	23	23	23	23	22	(Aug-Dec.)
Empl'd earnings	0	0	0	0	0	0	0	£1.7870	£2.1480	£2.2447	£2.3827	£2.6768	£2.4265
Average earnings	0	0	0	0	0	0	0	£1.7870	£2.1480	£2.2447	£2.3827	£2.5604	£2.4032
1913	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	23	23	23	23	23	0	0	0	0	0	0	0	average
Empl'd workers	23	23	22	22	22	0	0	0	0	0	0	0	(Jan.-May)
Empl'd earnings	£2.1253	£2.3800	£2.1923	£2.4737	£2.2202	0	0	0	0	0	0	0	£2.4908
Average earnings	£2.1253	£2.3800	£2.0969	£2.3661	£2.1237	0	0	0	0	0	0	0	£2.4309

Sources : Bairstow collection, books no. 172, 173.

Table A.4.5. : Menders' and Burlers' earnings, 1890-1892 and 1912-1913.

1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	9	9	9	9	9	9	9	average
Empl'd workers	0	0	0	0	0	9	9	9	9	9	9	9	(June-Dec)
Empl'd earnings	0	0	0	0	0	£2.0299	£2.0926	£1.8705	£2.2044	£2.1762	£2.3294	£2.3366	£2.2821
Average earnings	0	0	0	0	0	£2.0299	£2.0926	£1.8705	£2.2044	£2.1762	£2.3294	£2.3366	£2.2821
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	9	9	9	9	9	9	9	9	9	9	9	9	average
Empl'd workers	9	9	9	9	9	9	9	9	9	9	9	9	
Empl'd earnings	£2.2242	£2.3563	£2.3532	£2.1641	£1.9477	£1.9709	£2.3235	£1.7116	£2.4225	£2.4123	£2.5241	£2.5204	£2.4337
Average earnings	£2.2242	£2.3563	£2.3532	£2.1641	£1.9477	£1.9709	£2.3235	£1.7116	£2.4225	£2.4123	£2.5241	£2.5204	£2.4337
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	9	9	9	9	9	9	9	9	9	0	0	0	average
Empl'd workers	9	9	9	9	9	9	9	9	9	0	0	0	(Jan-Sep.)
Empl'd earnings	£2.3318	£2.4776	£2.2424	£1.4220	£2.7722	£1.6889	£2.0525	£2.2269	£2.4732	0	0	0	£2.4310
Average earnings	£2.3318	£2.4776	£2.2424	£1.4220	£2.7722	£1.6889	£2.0525	£2.2269	£2.4732	0	0	0	£2.4310
1912	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	0	0	5	5	5	5	5	average
Empl'd workers	0	0	0	0	0	0	0	5	5	5	5	5	(Aug-Dec.)
Empl'd earnings	0	0	0	0	0	0	0	£2.7297	£3.4825	£3.4696	£3.4546	£3.4887	£3.3420
Average earnings	0	0	0	0	0	0	0	£2.7297	£3.4825	£3.4696	£3.4546	£3.4887	£3.3420
1913	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	5	5	5	5	5	0	0	0	0	0	0	0	average
Empl'd workers	5	5	5	5	5	0	0	0	0	0	0	0	(Jan.-May)
Empl'd earnings	£3.2109	£3.3363	£2.8146	£3.4983	£2.9075	0	0	0	0	0	0	0	£3.6294
Average earnings	£3.2109	£3.3363	£2.8146	£3.4983	£2.9075	0	0	0	0	0	0	0	£3.6294

Sources : Bairstow collection, books no. 172, 173.

Table A.4.6. : Twisters' and Drawers' earnings, 1890-1892 and 1912-1913.

1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	11	11	11	11	11	11	11	average
Empl'd workers	0	0	0	0	0	11	11	11	11	11	11	11	(June-Dec)
Empl'd earnings	0	0	0	0	0	£1.5915	£2.1387	£1.8577	£2.1964	£2.1385	£2.1860	£2.1422	£2.1685
Average earnings	0	0	0	0	0	£1.5915	£2.1387	£1.8577	£2.1964	£2.1385	£2.1860	£2.1422	£2.1685
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	11	11	11	11	11	11	11	11	11	11	11	11	average
Empl'd workers	11	11	11	10	10	11	11	11	11	11	11	11	
Empl'd earnings	£2.0683	£1.9320	£1.6716	£1.7406	£1.8285	£1.9329	£2.2061	£1.9987	£2.1441	£2.1237	£1.8077	£2.2659	£2.1540
Average earnings	£2.0683	£1.9320	£1.6716	£1.5824	£1.6623	£1.9329	£2.2061	£1.9987	£2.1441	£2.1237	£1.8077	£2.2659	£2.1269
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	11	11	11	11	11	11	11	11	11	0	0	0	average
Empl'd workers	11	11	11	11	11	11	11	11	10	0	0	0	(Jan-Sep.)
Empl'd earnings	£2.2039	£2.2511	£2.2822	£2.1157	£2.2424	£1.9864	£2.2583	£1.8570	£2.2173	0	0	0	£2.4050
Average earnings	£2.2039	£2.2511	£2.2822	£2.1157	£2.2424	£1.9864	£2.2583	£1.8570	£2.2173	0	0	0	£2.3826
1912	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	0	0	25	25	25	25	25	average
Empl'd workers	0	0	0	0	0	0	0	25	25	25	24	24	(Aug-Dec.)
Empl'd earnings	0	0	0	0	0	0	0	£1.9025	£2.4954	£2.5101	£2.5126	£2.5915	£2.5926
Average earnings	0	0	0	0	0	0	0	£1.9025	£2.4954	£2.5101	£2.4121	£2.4878	£2.5518
1913	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	25	25	25	25	25	20	20	0	0	0	0	0	average
Empl'd workers	24	25	25	24	25	0	0	0	0	0	0	0	(Jan.-May)
Empl'd earnings	£2.2958	£2.5123	£2.2728	£2.4899	£2.1575	0	0	0	0	0	0	0	£2.5752
Average earnings	£2.2040	£2.5123	£2.2728	£2.3903	£2.1575	0	0	0	0	0	0	0	£2.5277

Sources : Bairstow collection, books no. 172, 173.

Table A.4.7. : Warp-dressers' earnings, 1890-1892 and 1912-1913.

1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	12	12	12	12	12	12	12	average
Empl'd workers	0	0	0	0	0	12	12	12	12	12	12	12	(June-Dec)
Empl'd earnings	0	0	0	0	0	£3.2672	£4.0913	£4.0687	£4.9056	£4.0368	£4.4826	£4.7106	£4.5138
Average earnings	0	0	0	0	0	£3.2672	£4.0913	£4.0687	£4.9056	£4.0368	£4.4826	£4.7106	£4.5138
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	12	12	12	12	12	12	12	12	12	12	12	12	average
Empl'd workers	12	12	12	12	12	12	12	12	12	12	12	12	
Empl'd earnings	£3.6187	£4.2264	£3.6306	£3.0285	£3.0302	£3.3802	£4.0173	£3.3431	£4.9156	£4.3044	£5.0080	£5.5929	£4.3261
Average earnings	£3.6187	£4.2264	£3.6306	£3.0285	£3.0302	£3.3802	£4.0713	£3.3431	£4.9156	£4.3044	£5.0080	£5.5929	£4.3261
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	12	12	12	12	12	12	12	12	12	0	0	0	average
Empl'd workers	12	12	12	12	12	12	12	12	12	0	0	0	(Jan.-May)
Empl'd earnings	£4.3949	£5.0498	£4.3677	£3.6148	£4.9607	£3.3844	£3.3682	£4.2486	£3.0651	0	0	0	£5.4143
Average earnings	£4.3949	£5.0498	£4.3677	£3.6148	£4.9607	£3.3844	£3.3682	£4.2486	£3.0651	0	0	0	£5.4143
1912	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	0	0	4	4	4	4	4	average
Empl'd workers	0	0	0	0	0	0	0	4	4	4	4	4	(Aug-Dec.)
Empl'd earnings	0	0	0	0	0	0	0	£4.7497	£3.7880	£5.5240	£5.5198	£5.1156	£5.4143
Average earnings	0	0	0	0	0	0	0	£4.7497	£3.7880	£5.5240	£5.5198	£5.1156	£5.4143
1913	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	4	4	4	4	4	0	0	0	0	0	0	0	average
Empl'd workers	4	4	4	4	4	0	0	0	0	0	0	0	(Jan.-May)
Empl'd earnings	£5.0330	£4.9308	£4.0651	£5.2177	£5.1604	0	0	0	0	0	0	0	£5.4143
Average earnings	£5.0330	£4.9308	£4.0651	£5.2177	£5.1604	0	0	0	0	0	0	0	£5.4143

Sources : Bairstow collection, books no. 172, 173.

Table A.4.8. : Wool sorters' earnings, 1890-1892 and 1912-1913.

1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	13	13	13	13	13	13	13	average
Empl'd workers	0	0	0	0	0	13	13	12	13	13	13	13	(June-Dec)
Empl'd earnings	0	0	0	0	0	£2.9615	£3.3809	£3.4613	£3.9010	£3.7772	£4.1423	£4.2045	£3.9370
Average earnings	0	0	0	0	0	£2,9615	£3.3809	£3.1950	£3.9010	£3.7772	£4.1423	£4.2045	£3.8785
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	13	13	13	13	13	13	13	13	13	13	13	13	average
Empl'd workers	13	13	13	13	13	13	13	12	13	13	13	13	
Empl'd earnings	£3.9518	£4.1718	£3.7083	£2.8286	£3.3147	£4.0864	£4.0050	£3.5880	£4.1522	£4.1325	£4.0196	£3.4537	£4.1159
Average earnings	£3.9518	£4.1718	£3.7083	£2.8286	£3.3147	£4.0864	£4.0050	£3.3120	£4.1522	£4.1325	£4.0196	£3.4537	£4.0929
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	13	13	13	13	13	13	13	13	13	0	0	0	average
Empl'd workers	13	13	13	13	13	13	13	13	13	0	0	0	(Jan-Sep.)
Empl'd earnings	£3.0342	£3.1701	£3.1460	£2.7622	£3.1711	£2.9728	£3.3989	£3.6285	£4.1194	0	0	0	£3.7078
Average earnings	£3.0342	£3,1701	£3.1460	£2.7622	£3.1711	£2.9728	£3.3989	£3.6285	£4.1194	0	0	0	£3.7078
1912	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	0	0	7	7	7	7	7	average
Empl'd workers	0	0	0	0	0	0	0	7	7	7	7	7	(Aug-Dec.)
Empl'd earnings	0	0	0	0	0	0	0	£3.4587	£5.1557	£4.9851	£5.1622	£4.4274	£4.9837
Average earnings	0	0	0	0	0	0	0	£3.4587	£5.1557	£4.9851	£5.1622	£4.4274	£4.9837
1913	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	7	7	7	7	7	0	0	0	0	0	0	0	average
Empl'd workers	7	7	7	7	7	0	0	0	0	0	0	0	(Jan.-May)
Empl'd earnings	£4.8621	£5.1277	£4.8119	£5.2699	£4.8822	0	0	0	0	0	0	0	£5.4769
Average earnings	£4.8621	£5.1277	£4.8119	£5.2699	£4.8822	0	0	0	0	0	0	0	£5.4769

Sources : Bairstow collection, books no. 172, 173.

Table A.4.9. : Carters' earnings, 1890-1892 and 1912-1913.

1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	1	1	1	1	1	1	1	average
Empl'd workers	0	0	0	0	0	1	1	1	1	1	1	1	(June-Dec)
Empl'd earnings	0	0	0	0	0	£4.2250	£4.3000	£4.5500	£4.6000	£4.5250	£4.6000	£4.6000	£4.8107
Average earnings	0	0	0	0	0	£4.2250	£4.3000	£4.5500	£4.6000	£4.5250	£4.6000	£4.6000	£4.8107
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	1	1	1	1	1	1	1	1	1	1	1	1	average
Empl'd workers	1	1	1	1	1	1	1	1	1	1	1	1	
Empl'd earnings	£4.5000	£4.4500	£4.6000	£4.5250	£4.4500	£4.1500	£4.6000	£4.5250	£4.6000	£4.4500	£4.6000	£4.6000	£4.8833
Average earnings	£4.5000	£4.4500	£4.6000	£4.5250	£4.4500	£4.1500	£4.6000	£4.5250	£4.6000	£4.4500	£4.6000	£4.6000	£4.8833
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	1	1	1	1	1	1	1	1	1	0	0	0	average
Empl'd workers	1	1	1	1	1	1	1	1	1	0	0	0	(Jan-Sep.)
Empl'd earnings	£4.2500	£4.0000	£4.0000	£4.0000	£4.0000	£4.4250	£4.4000	£4.4500	£4.6000	0	0	0	£4.7166
Average earnings	£4.2500	£4.0000	£4.0000	£4.0000	£4.0000	£4.4250	£4.4000	£4.4500	£4.6000	0	0	0	£4.7166
1912	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	0	0	2	2	2	2	2	average
Empl'd workers	0	0	0	0	0	0	0	2	2	2	2	2	(Aug-Dec.)
Empl'd earnings	0	0	0	0	0	0	0	£4.5967	£4.6333	£4.6333	£4.6333	£4.5208	£5.0741
Average earnings	0	0	0	0	0	0	0	£4.5967	£4.6333	£4.6333	£4.6333	£4.5208	£5.0741
1913	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	2	2	2	2	2	0	0	0	0	0	0	0	average
Empl'd workers	2	2	2	2	2	0	0	0	0	0	0	0	(Jan.-May)
Empl'd earnings	£4.3583	£4.4833	£4.5958	£4.6333	£4.5958	0	0	0	0	0	0	0	£4.9691
Average earnings	£4.3583	£4.4833	£4.5958	£4.6333	£4.5958	0	0	0	0	0	0	0	£4.9691

Sources : Bairstow collection, books no. 172, 173.

Table A.4.10. : Piece room workers' earnings, 1890-1892 and 1912-1913.

1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	5	5	5	5	5	5	5	average
Empl'd workers	0	0	0	0	0	5	5	5	5	5	5	5	(June-Dec)
Empl'd earnings	0	0	0	0	0	£3.9913	£3.6733	£3.6186	£3.7100	£3.7150	£3.7200	£3.7400	£3.9967
Average earnings	0	0	0	0	0	£3.9913	£3.6733	£3.6186	£3.7100	£3.7150	£3.7200	£3.7400	£3.9967
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	5	5	5	5	5	5	5	5	5	5	5	5	average
Empl'd workers	5	5	5	5	5	5	5	5	5	5	5	5	
Empl'd earnings	£3.6536	£3,7454	£3.7192	£3.6862	£3,6133	£3,7442	£3.7767	£3.4988	£3.7871	£3.7533	£3.7900	£3.8000	£4.0235
Average earnings	£3.6536	£3.7454	£3,7192	£3.6862	£3.6133	£3.7442	£3.7767	£3.4988	£3.7871	£3.7533	£3.7900	£3.8000	£4.0235
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	5	5	5	5	5	5	5	5	5	0	0	0	average
Empl'd workers	5	5	5	5	5	5	5	5	5	0	0	0	(Jan-Sep.)
Empl'd earnings	£3.7539	£3.8400	£3.8350	£3.7358	£3.8400	£3.6858	£3.8400	£3.6429	£3.8225	0	0	0	£4.1992
Average earnings	£3.7539	£3.8400	£3.8350	£3.7358	£3.8400	£3.6858	£3.8400	£3.6429	£3.8225	0	0	0	£4.1992
1912	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	0	0	5	5	5	5	5	average
Empl'd workers	0	0	0	0	0	0	0	5	5	5	5	5	(Aug-Dec.)
Empl'd earnings	0	0	0	0	0	0	0	£4.1972	£4.8016	£4.8933	£4.8862	£4.7840	£5.1322
Average earnings	0	0	0	0	0	0	0	£4.1972	£4.8016	£4,8933	£4.8862	£4,7840	£5.1322
1913	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	5	5	5	5	5	0	0	0	0	0	0	0	average
Empl'd workers	5	5	5	5	5	0	0	0	0	0	0	0	(Jan.-May)
Empl'd earnings	£4.8764	£4.9375	£4.7617	£4.8933	£4.8150	0	0	0	0	0	0	0	£5.3444
Average earnings	£4.8764	£4.9375	£4.7617	£4.8933	£4.8150	0	0	0	0	0	0	0	£5.3444

Sources : Bairstow collection, books no. 172, 173.

Table A.4.11. : Mechanics' and Joiners' earnings, 1890-1892 and 1912-1913.

1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	7	7	7	7	7	7	7	average
Empl'd workers	0	0	0	0	0	7	7	7	7	7	7	7	(June-Dec)
Empl'd earnings	0	0	0	0	0	£4.4211	£4.5482	£4.3579	£4.7545	£4.4812	£5.6128	£5.2610	£5.0879
Average earnings	0	0	0	0	0	£4.4211	£4.5482	£4.3579	£4.7545	£4.4812	£5.6128	£5.2610	£5.0879
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	7	7	7	7	7	7	7	7	7	7	7	7	average
Empl'd workers	7	7	7	7	7	7	7	7	7	7	7	7	
Empl'd earnings	£5.2048	£5.0688	£4.8929	£4.8950	£4.4429	£4.6342	£5.1953	£4.9086	£4.3935	£4.3283	£5.1827	£5.2967	£5.3035
Average earnings	£5.2048	£5.0688	£4.8929	£4.8950	£4.4429	£4.6342	£5.1953	£4.9086	£4.3935	£4.3283	£5.1827	£5.2967	£5.3035
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	7	7	7	7	7	7	7	7	7	0	0	0	average
Empl'd workers	7	7	7	7	7	7	7	7	7	0	0	0	(Jan-Sep.)
Empl'd earnings	£4.7967	£4.8333	£4.9202	£4.6869	£4.9083	£4.8655	£4.7609	£4.7181	£5.1896	0	0	0	£5.3842
Average earnings	£4.7967	£4.8333	£4.9202	£4.6869	£4.9083	£4.8655	£4.7609	£4.7181	£5.1896	0	0	0	£5.3842
1912	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	0	0	5	5	5	5	5	average
Empl'd workers	0	0	0	0	0	0	0	5	5	5	5	5	(Aug-Dec.)
Empl'd earnings	0	0	0	0	0	0	0	£3.9428	£5.5404	£5.5742	£5.7775	£5.8384	£5.7289
Average earnings	0	0	0	0	0	0	0	£3.9428	£5.5404	£5.5742	£5.7775	£5.8384	£5.7289
1913	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	5	5	5	5	5	0	0	0	0	0	0	0	average
Empl'd workers	5	5	5	5	5	0	0	0	0	0	0	0	(Jan.-May)
Empl'd earnings	£5.2111	£5.6517	£5.3638	£5.8221	£5.4421	0	0	0	0	0	0	0	£6.0072
Average earnings	£5.2111	£5.6517	£5.3638	£5.8221	£5.4421	0	0	0	0	0	0	0	£6.0072

Sources : Bairstow collection, books no. 172, 173.

374

Table A.4.12a. : Weaving overlookers' earnings, 1890-1892 and 1912-1913.

1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	19	19	19	19	19	19	19	average
Empl'd workers	0	0	0	0	0	19	19	19	19	19	19	19	(June-Dec)
Empl'd earnings	0	0	0	0	0	£4.6746	£5.1154	£5.0680	£4.6807	£5.2421	£5.3763	£5.2526	£5.4205
Average earnings	0	0	0	0	0	£4.6746	£5.1154	£5.0680	£4.6807	£5.2421	£5.3763	£5.2526	£5.4205
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	19	19	19	19	19	19	19	19	19	19	19	19	average
Empl'd workers	19	19	19	19	19	19	19	19	19	19	19	19	
Empl'd earnings	£5.2440	£5.2430	£5.1452	£5.1871	£4.9342	£4.8535	£4.6241	£5.2118	£5.2542	£5.2757	£5.3158	£5.3059	£5.5440
Average earnings	£5.2440	£5.2430	£5.1452	£5.1871	£4.9342	£4.8535	£4.6241	£5.2118	£5.2542	£2.2757	£5.3158	£5.3059	£5.5440
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	19	19	19	19	19	19	19	19	19	0	0	0	average
Empl'd workers	19	19	19	19	19	19	19	19	19	0	0	0	(Jan-Sep.)
Empl'd earnings	£5.1805	£5.3263	£5.3202	£5.2442	£5.3263	£5.3143	£5.2772	£5.0140	£5.3116	0	0	0	£5.8381
Average earnings	£5.1805	£5.3263	£5.3202	£5.2442	£5.3263	£5.3143	£5.2772	£5.0140	£5.3116	0	0	0	£5.8381
1912	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	0	0	6	6	6	6	6	average
Empl'd workers	0	0	0	0	0	0	0	6	6	6	6	6	(Aug-Dec.)
Empl'd earnings	0	0	0	0	0	0	0	£5.7887	£5.9667	£5.9667	£5.9156	£6.5333	£6.6130
Average earnings	0	0	0	0	0	0	0	£5.7887	£5.9667	£5.9667	£5.9156	£6.5333	£6.6130
1913	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	6	6	6	6	6	0	0	0	0	0	0	0	average
Empl'd workers	6	6	6	6	6	0	0	0	0	0	0	0	(Jan.-May)
Empl'd earnings	£6.2523	£6.4146	£5.8024	£6.5878	£6.5347	0	0	0	0	0	0	0	£6.9436
Average earnings	£6.2523	£6.4146	£5.8024	£6.5878	£6.5347	0	0	0	0	0	0	0	£6.9436

Sources : Bairstow collection, books no. 172, 173.

Table A.4.12b. : General Overlookers' earnings, 1890-1892 and 1912-1913.

1890	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	13	13	13	13	13	13	13	average
Empl'd workers	0	0	0	0	0	13	13	13	13	13	13	13	(June-Dec)
Empl'd earnings	0	0	0	0	0	£4,8266	£5.1159	£4.9983	£5.1231	£4.9923	£5.2423	£5.2125	£5.4300
Average earnings	0	0	0	0	0	£4.8266	£5.1159	£4.9983	£5.1231	£4.9923	£5.2423	£5.2125	£5.4300
1891	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	13	13	13	13	13	13	13	13	13	13	13	13	average
Empl'd workers	13	13	13	13	13	13	13	13	13	13	13	13	
Empl'd earnings	£5.0897	£4.9074	£4.8179	£4.8492	£5.0827	£4.8907	£5.1029	£5.0819	£5.2000	£5.2615	£5.3192	£5.3231	£5.5018
Average earnings	£5.0897	£4.9074	£4.8179	£4.8492	£5.0827	£4.8907	£5.1029	£5.0819	£5.2000	£5.2615	£5.3192	£5.3231	£5.5018
1892	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	13	13	13	13	13	13	13	13	13	0	0	0	average
Empl'd workers	13	13	13	13	13	13	13	13	13	0	0	0	(Jan-Sep.)
Empl'd earnings	£5.2211	£5.2154	£5.2154	£5.0607	£5.2154	£5.1397	£5.2371	£5.0806	£5.2032	0	0	0	£5.7575
Average earnings	£5.2211	£5.2154	£5.2154	£5.0607	£5.2154	£5.1397	£5.2371	£5.0806	£5.2032	0	0	0	£5.7575
1912	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	0	0	0	0	0	0	0	10	10	10	10	10	average
Empl'd workers	0	0	0	0	0	0	0	10	10	10	10	10	(Aug-Dec.)
Empl'd earnings	0	0	0	0	0	0	0	£5.1161	£5.2435	£5.3317	£5.4254	£5.3504	£5.8062
Average earnings	0	0	0	0	0	0	0	£5.1161	£5.2435	£5.3327	£5.4254	£5.3504	£5.8062
1913	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual
Total workers	10	10	10	10	10	0	0	0	0	0	0	0	average
Empl'd workers	10	9	10	10	10	0	0	0	0	0	0	0	(Jan.-May)
Empl'd earnings	£4.8437	£5.1192	£5.0058	£5.3060	£4.7198	0	0	0	0	0	0	0	£5.4832
Average earnings	£4.8437	£4.6673	£5.0058	£5.3060	£4.7198	0	0	0	0	0	0	0	£5.3809

Sources : Bairstow collection, books no. 172, 173.

Table A.4.13. : Average earnings of worsted workers. 1863-1875.

Date	May 1863	Sep.1864	Nov.1873	Mar.1875
Full-time spinners	£1.0328	£1.0860	£1.8232	£1.7900
Half-time spinners	£0.3688	£0.4020	£0.6120	£0.6276
Drawer hands	£1.7156	£1.6240	£2.1252	£2.1716
Machine combers, men			£2.8500	
Machine combers, boys			£2.0668	
Spinning overlookers	£4.4668	£4.4000	£4.1500	£4.3500
Drawing overlookers	£4.4668	£5.1332	£6.0000	£6.1000
Combing overlookers			£7.2000	

Source : Bairstow collection, book no. 168 (47).

Table A.4.14. : Average wage rates of worsted workers, November 1863.

Date	Nov.1863
Weavers, women and girls	£1.9000
Weavers, men	£2.6000
Spinners, below 13 years	£0.4500
Spinners, above 13 years	£1.1500
Drawers, young women	£1.8000
Wool sorters	£3.1000
Carters	£3.4000
Weaving overlookers	£4.4000
Spinning overlookers	£4.6000
Drawing overlookers	£4.8000

Source : Bairstow collection, book no. 168 (47).

•CHAPTER 5. : 'WORSTED WORKERS' EARNINGS FROM GENERAL SOURCES.

The sole table that makes up this chapter is comprised of material from the Poor Law Commissioners' report for 1836-1837 and the Factories and Workshops return of 1871.

Table A.5.1. : Average wage rates of worsted workers, 1836-1871.

Date	Oct.1836	Oct.1837	1871
Hand-loom weavers, 6/4	£2.4000	£2.0000	
Hand-loom weavers, 4/4	£2.0000	£1.7000	
Hand-loom weavers, 3/4	£1.8000	£1.6000	
Hand-loom weavers, 5/8	£1.6000	£1.2000	
Hand-combers	£3.0000	£2.6000	
Power-loom weavers, 6/4	£2.0000	£1.7000	
Power-loom weavers, 4/4	£1.7000	£1.3000	
Power-loom weavers, women			£2.6000
Machine combers			£2.8000
Spinners, 9-13 years	£0.4000	£0.4000	
Spinners, 13-18 years	£1.1000	£1.0000	£1.8000
Twisters	£2.0000	£2.0000	
Warp loomers and twisters			£2.8000
Drawers	£1.3000	£1.2000	£2.0000
Makers up	£1.6000	£1.6000	
Warp-dressers			£4.2000
Wool sorters	£3.2000	£3.2000	£4.1000
			£4.0000
Joiners	£4.4000	£3.8000	
Assistant overlookers	£3.0000	£3.0000	
Overlookers	£4.0000	£3.6000	
Weaving overlookers			£4.6000
Spinning overlookers			£4.6000
Combing overlookers			£5.6000

Sources : P.R.O. M.H. 12/15224, B.P.P. 1871, LXII, p. 250.

APPENDIX B

PRICES AND RENTS.

This appendix consists of five tables. The first table shows the price of food in Keighley during the period 1845-1862, based on the Keighley Workhouse records and using the 'poor' consumption pattern as explained in the text. The second table relates to the price of clogs in the period 1848-1862, using the same sources. Since the cost of clogs was so low, this is the only table to be expressed in £sd rather than £p. (Appendix C consists of a conversion chart between £sd and £p.) Finally the last three tables relate to the cost of housing, using data from three different firms - Marriner's, Clough's and Bairstow's.

These five tables are set out on the following pages.

Table B.1. : The Keighley Price Indexes, 1845-1862.

Date	Index 1a	Index 1b	Index 2a	Index 2b	Index 3
1845					
March	£0.5902 100	£0.4989 100	£0.5772 100	£0.4859 100	£0.3830 100
July	£0.5956 101	£0.5043 101	£0.5826 101	£0.4913 101	£0.3908 102
Sep.	£0.6028 102	£0.5115 103	£0.5896 102	£0.4985 103	£0.3949 103
Dec.	£0.6459 109	£0.5546 111	£0.6321 110	£0.5408 111	£0.4331 113
1846					
March	£0.6378 108	£0.5512 112	£0.6231 108	£0.5445 112	£0.4373 114
July	£0.6493 110	£0.5707 114	£0.6338 110	£0.5552 114	£0.4401 115
Sep.	£0.6676 113	£0.5790 116	£0.6413 111	£0.5627 116	£0.4584 120
Dec.	£0.6389 108	£0.5603 112	£0.6217 108	£0.5431 112	£0.4311 113
1847					
March	£0.6276 106	£0.5503 110	£0.6101 106	£0.5328 110	£0.4230 110
July	£0.6172 105	£0.5399 108	£0.5995 104	£0.5222 107	£0.4148 108
Sep.	£0.5808 98	£0.5035 101	£0.5673 98	£0.4900 101	£0.3884 101
Dec.	£0.5956 101	£0.5183 104	£0.5822 101	£0.5049 104	£0.4045 106
1848					
March	£0.5865 99	£0.5092 102	£0.5732 99	£0.4959 102	£0.3962 103
July	£0.5690 96	£0.4917 99	£0.5566 96	£0.4793 99	£0.3825 100
Sep.	£0.5628 95	£0.4855 97	£0.5515 96	£0.4742 98	£0.3708 97
Dec.	£0.5705 97	£0.4932 99	£0.5494 95	£0.4721 97	£0.3686 96
1849					
March	£0.5541 94	£0.4791 96	£0.5431 94	£0.4681 96	£0.3663 96
July	£0.5475 93	£0.4725 95	£0.5385 93	£0.4635 95	£0.3636 95
Sep.	£0.5440 92	£0.4690 94	£0.5321 92	£0.4571 94	£0.3566 93
Dec.	£0.5405 92	£0.4655 93	£0.5278 91	£0.4528 93	£0.3497 91
1850					
March	£0.5352 91	£0.4602 92	£0.5231 91	£0.4481 92	£0.3526 92
July	£0.5194 88	£0.4444 89	£0.5170 90	£0.4420 91	£0.3486 91
Sep.	£0.5159 87	£0.4409 88	£0.5052 88	£0.4302 89	£0.3360 88
Dec.	£0.5414 92	£0.4664 93	£0.5306 92	£0.4556 94	£0.3596 94
1851					
March	£0.5438 92	£0.4688 94	£0.5331 92	£0.4581 94	£0.3628 95
July	£0.5662 96	£0.4912 98	£0.5555 96	£0.4805 99	£0.3732 97
Sep.	£0.5700 97	£0.4950 99	£0.5593 97	£0.4843 100	£0.3813 100
Dec.	£0.5917 100	£0.5167 104	£0.5808 101	£0.5058 104	£0.4028 105
1852					
March	£0.6031 102	£0.5281 106	£0.5917 103	£0.5167 106	£0.4137 108
July	£0.6163 104	£0.5413 108	£0.6049 105	£0.5299 109	£0.4269 111
Sep.	£0.6308 107	£1.5558 111	£0.6192 107	£0.5442 112	£0.4416 115
Dec.	£0.6471 110	£0.5721 115	£0.6353 110	£0.5603 115	£0.4563 119
1853					
March	£0.6609 112	£0.5859 117	£0.6488 112	£0.5738 118	£0.4798 125
July	£0.6754 114	£0.6004 120	£0.6630 115	£0.5880 121	£0.4961 130
Sep.	£0.6869 116	£0.6119 123	£0.6743 117	£0.5993 123	£0.1997 130
Dec.	£0.6954 118	£0.6204 124	£0.6825 118	£0.6075 125	£0.5111 133
1854					
March	£0.7069 120	£0.6319 127	£0.6940 120	£0.6190 127	£0.5226 136
July	£0.7181 122	£0.6431 129	£0.7052 122	£0.6302 130	£0.5338 139
Sep.	£0.7211 122	£0.6461 130	£0.7082 123	£0.6332 130	£0.5355 140
Dec.	£0.7414 126	£0.6664 134	£0.7285 126	£0.6535 134	£0.5571 145
1855					
March	£0.7685 130	£0.6835 137	£0.7486 129	£0.6706 138	£0.5784 151
July	£0.7686 130	£0.6836 137	£0.7457 129	£0.6707 138	£0.5801 151
Sep.	£0.7762 132	£0.7012 141	£0.7631 132	£0.6881 142	£0.5772 151
Dec.			£0.7781 135	£0.7031 145	£0.5839 152

Table B.1. : The Keighley Price Indexes, 1845-1862 (continued).

Date	Index 2a	Index 2b	Index 3
1856			
March	£0.7171 124	£0.6421 132	£0.5336 139
July	£0.7384 128	£0.6634 137	£0.5642 147
Sep.	£0.7004 121	£0.6254 129	£0.5250 137
Dec.	£0.6608 114	£0.5858 121	£0.4826 126
1857			
March	£0.6319 109	£0.5569 115	£0.4483 117
July	£0.7018 122	£0.6268 129	£0.5117 134
Sep.	£0.6615 115	£0.5865 121	£0.4690 122
Dec.	£0.5928 103	£0.5178 107	£0.4071 106
1858			
March	£0.5460 95	£0.4710 97	£0.3688 96
July	£0.5535 96	£0.4785 98	£0.3802 99
Sep.	£0.5642 98	£0.4892 101	£0.3843 100
Dec.	£0.5685 98	£0.4935 102	£0.3883 101
1859			
March	£0.5708 99	£0.4958 102	£0.3924 102
July	£0.5742 99	£0.4992 103	£0.3965 104
Sep.			£0.3958 103
Dec.			£0.3952 103
1860			
March			£0.4481 117
July			£0.5010 131
Sep.			£0.5077 133
Dec.			£0.5077 133
1861			
March			£0.5017 131
July			£0.5017 131
Sep.			£0.4672 122
Dec.			£0.4672 122
1862			
March			£0.4746 124
July			£0.4746 124
Sep.			£0.4401 115
Dec.			£0.4401 115

Index 1a is composed of all foodstuffs with rent.

Index 1b is composed of all foodstuffs without rent.

Index 2a is composed of all foodstuffs, excepting treacle and candles, with rent.

Index 2b is composed of all foodstuffs, excepting treacle and candles, without rent.

Index 3 is composed of flour, oatmeal and meat only.

Table B.1. : The Keighley Price Indexes, 1845-1862 (continued).

Annual summaries

Date	Index 1a	Index 1b	Index 2a	Index 2b	Index 3
1845	103	104	103	104	102
1846	110	114	109	114	106
1847	103	106	102	106	106
1848	97	99	97	99	99
1849	93	95	93	95	94
1850	90	91	90	92	91
1851	96	100	97	99	99
1852	106	111	106	111	113
1853	115	121	116	122	130
1854	123	130	123	130	140
1855			131	141	151
1856			122	130	137
1857			112	118	120
1858			97	100	99
1859					103
1860					129
1861					127
1862					120

Sources : Keighley Union Minute Books, 1845-1862.

Table B.2. : The Clog Price Indexes, 1848-1862.

Date	Second-hand clogs		Repairs		New clogs	
1848						
March	1/7	106				
June	1/6	100	1/4	100	3/-	100
Sep.	1/6	100				
Dec.	1/5 ³ / ₄	99	1/3 ³ / ₄	99		
1849						
March	1/5	94	1/4	100	2/10	94
June	1/5	94	1/3	94	2/10	94
Sep.						
Dec.	1/5	94	1/3	94	2/9	91
1850						
March	1/5	94				
June	1/4	89	1/2	87	2/8	88
Sep.	1/4	89			2/8	88
Dec.	1/4	89			2/8	88
1851						
March	1/4	89	1/3	94	2/8	88
June	1/4	89			1/8	55
Sep.						
Dec.	1/4	89	1/5	106	2/8	88
1852						
March	1/4	89	1/3	94	2/8	88
June	1/5	94	1/4	100		
Sep.						
Dec.	1/5	94	1/4	100	2/10	94
1853						
March	1/5	94	1/4	100	2/8	88
June	1/5	94			2/10	94
Sep.	1/5	94	1/4	100	2/10	94
Dec.	1/5	94	1/4	100	2/10	94
1854						
March					2/10	94
June	1/5	94				
Sep.						
Dec.						
1855						
March	1/3	83	1/2	87	2/6	83
June	1/2 ¹ / ₂	81	1/1 ¹ / ₂	84	2/8	88
Sep.	1/3 ¹ / ₂	86			2/8	88
Dec.	1/3 ¹ / ₂	86	1/2 ¹ / ₂	91	2/9	91
1856						
March	1/3 ¹ / ₂	86	1/2 ¹ / ₂	91	2/9	91
June	1/4	89	1/3	94	2/9	91
Sep.	1/4	89	1/3	94	2/7	86
Dec.	1/4	89	1/3 ¹ / ₂	97	2/8	88
1857						
March	1/4	89	1/3 ¹ / ₂	97	2/8	88
June	1/4	89	1/5	106	3/-	100
Sep.	1/4	89	1/3 ¹ / ₂	97	2/9	91
Dec.	1/4	89	1/3	94	2/10	94
1858						
March	1/4	89	1/3	94	2/9	91
June	1/4	89	1/3	94	2/8	88
Sep.						
Dec.						

Table B.2. : The Clog Price Indexes, 1848-1862 (continued).

Date	Second-hand clogs		Repairs		New clogs	
1859						
March						
June	1/4	94	1/3	94	2/9	91
Sep.	1/4	94	1/3	94	2/8	88
Dec.						
1860						
March	1/4	94	1/3	94	2/9	91
June	1/4	94	1/3	94	2/9	91
Sep.						
Dec.						
1861						
March						
June						
Sep.						
Dec.						
1862						
March						
June						
Sep.	1/4	94	1/3	94		
Dec.						

Sources : Keighly Union Minute Books, 1848-1862.

Table B.3. : Annual average rent of Marriner houses, 1824-1865.

Date	Cheap houses			Dear houses		
	Number	Average rent	Index	Number	Average rent	Index
1824	1	£2.2000	100			
1825	1	£2.2000	100			
1826	1	£2.2000	100			
1827	1	£2.2000	100			
1828	1	£2.2000	100			
1829	1	£2.2000	100			
1830	1	£2.2000	100			
1831	1	£2.2000	100			
1832	1	£2.2000	100			
1833	1	£2.2000	100			
1834	1	£2.2000	100			
1835	1	£2.2000	100			
1836	1	£2.2000	100			
1837	1	£2.2000	100			
1838	1	£2.2000	100			
1839	2	£2.7250	124			
1840	2	£2.5625	116			
1841	1	£2.2000	100			
1842	1	£2.2000	100			
1843	1	£2.2000	100			
1844	2	£2.3000	105			
1845	2	£2.3500	107			
1846	1	£2.5000	114			
1847	1	£2.5000	114			
1848	1	£2.5000	114			
1849	1	£2.5000	114			
1850	1	£2.0000	91			
1851	1	£4.0000	182	1	£5.0000	100
1852	1	£2.0000	91	1	£5.0000	100
1853	1	£2.0000	91	1	£5.0000	100
1854	2	£2,3000	105	1	£5.0000	100
1855	1	£2.6000	118	1	£5.0000	100
1856	1	£2.6000	118	1	£5.0000	100
1857	1	£2.6000	118	1	£5.0000	100
1858	2	£2.8000	127	1	£5.0000	100
1859	2	£2.7333	124	1	£5.0000	100
1860	1	£2.6000	118	1	£5.0000	100
1861	1	£2.6000	118	1	£5.0000	100
1862	1	£2.6000	118	1	£5.0000	100
1863	1	£2.6000	118	1	£5.0000	100
1864	1	£2.6000	118	1	£5.0000	100
1865	1	£2.6000	118	1	£5.0000	100

Source : Marriner collection. Box 27.

Table B.4. : Annual average rent of Clough houses, 1826-1908.

Date	Cheap houses			Dear houses		
	Number	Average rent	Index	Number	Average rent	Index
1826	1	£3.5917	76			
1836	1	£4.7500	100			
1837	1	£4.7500	100			
1838	1	£4.7500	100			
1839	1	£4.7500	100			
1840	2	£3.8750	82			
1841	2	£3.8750	82			
1842	1	£4.7500	100			
1843	1	£4.7500	100			
1844	1	£4.7500	100			
1845	1	£4.7500	100			
1846	5	£4.0875	86			
1847	7	£4.0214	85			
1848	7	£4.0214	85			
1849	8	£3.9000	82			
1850	8	£3.9000	82			
1851	7	£3.9000	82	1	£5.2000	100
1852	7	£3.9000	82	1	£5.2000	100
1853	7	£3.9000	82	1	£5.2000	100
1854	6	£3.9000	82	1	£5.2000	100
1855	6	£3.9000	82	1	£5.2000	100
1856	6	£3.9000	82	1	£5.2000	100
1857	5	£3.9000	82	1	£5.2000	100
1858	4	£3.9000	82	1	£5.2000	100
1859	4	£3.9000	82	1	£5.2000	100
1860	2	£3.9000	82	1	£5.2000	100
1861	2	£3.9000	82	1	£5.2000	100
1862	1	£3.9000	82	1	£5.2000	100
1863	1	£3.9000	82	1	£5.2000	100
1864	1	£3.9000	82	1	£5.2000	100
1865	1	£3.9000	82	1	£5.2000	100
1866				1	£7.8000	150
1867				1	£6.5000	125
1868				1	£6.5000	125
1869				1	£6.5000	125
1870				1	£6.5000	125
1871				1	£6.5000	125
1872	1	£3.9000	82			
1873	1	£3.9000	82			
1874	1	£3.9000	82			
1875	1	£3.9000	82			
1876	1	£2.9000	82			
1877	1	£5.2000	109			
1878	1	£5.2000	109	1	£9.7500	188
1879	1	£5.2000	109	1	£9.7500	188
1880	1	£5.2000	109	1	£9.7500	188
1881	3	£5.2000	109	2	£8.1250	156
1882	3	£5.2000	109	2	£8.1250	156
1883	3	£5.2000	109	3	£8.4500	163
1884	4	£4.8750	103	4	£8.6125	166

Table B.4. : Annual average rent of Clough houses, 1826-1908 (cont'd).

Date	Cheap houses			Dear houses		
	Number	Average rent	Index	Number	Average rent	Index
1885	5	£5.0700	107	6	£8.8833	171
1886	5	£5.0700	107	6	£8.8833	171
1887	5	£5.0700	107	7	£8.9143	190
1888	4	£5.0375	106	6	£9.8585	190
1889	3	£5.4167	114	6	£10.0750	194
1890	2	£5.2000	109	6	£10.0750	194
1891	2	£5.2000	109	7	£10.5857	204
1892	3	£5.6889	120	7	£10.5857	204
1893	3	£5.6889	120	8	£10.7250	206
1894	3	£5.6889	120	8	£10.7250	206
1895	2	£5.2000	109	8	£10.7250	206
1896				7	£10.2143	196
1897				7	£10.2143	196
1898				7	£10.2143	196
1899				6	£10.4000	200
1900				6	£10.4000	200
1901				5	£10.1400	195
1902				6	£10.0750	194
1903				7	£10.2143	196
1904				7	£10.2143	196
1905				6	£10.0750	194
1906				7	£9.9357	191
1907				7	£9.9357	191
1908				7	£9.9357	191

Sources : Clough collection, books no. 20, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 64, 65, 66, 67, 68, 69, 70, 71, 72, 93.

Table B.5. : Annual average rent of Bairstow houses, 1871-1902.

Date	Cheap houses			Dear houses		
	Number	Average rent	Index	Number	Average rent	Index
1871	9	£5.0000	100			
1872	9	£5.0000	100	6	£8.0000	100
1873	9	£5.0000	100	6	£8.0000	100
1874	9	£4.7750	96	6	£7.0000	88
1875						
1876						
1877	9	£5.7833	116	6	£6.3375	79
1878						
1879	9	£5.7833	116	6	£6.3375	79
1880	9	£5.4458	109	6	£6.1667	77
1881	9	£5.0000	100	6	£6.1667	77
1882	20	£4.6625	93	13	£6.4808	81
1883	9	£4.5542	91	7	£6.7143	84
1884						
1885	9	£4.6667	93	7	£6.7143	84
1886	9	£4.5542	91	7	£6.1643	77
1887	9	£4.5542	91	7	£6.1643	77
1888	9	£4.5542	91	12	£8.0833	101
1889	9	£4.5542	91	1	£8.0000	100
1890	9	£4.5542	91	6	£10.2500	128
1891	9	£4.5542	91	6	£10.2500	128
1892	9	£4.5542	91	6	£10.2500	128
1893	9	£4.5542	91	6	£10.2500	128
1894	9	£4.5542	91	5	£10.0000	125
1895	9	£4.5542	91	5	£10.0000	125
1896	9	£4.5542	91	5	£10.0000	125
1897	9	£4.5542	91	7	£9.7714	122
1898	9	£4.5542	91	7	£9.7714	122
1899	9	£4.1667	83	6	£10.2550	128
1900	9	£4.1667	83	6	£10.2550	128
1901	9	£4.1667	83	6	£10.2550	128
1902	9	£4.1667	83	6	£10.2550	128

Source : Bairstow collection, book no 153 (75).

APPENDIX CCONVERSION OF £SD TO £p.

The following approximations were used in this thesis to convert £sd to £p.

Table C.1. : Conversion of £sd to £p.

£sd	£p	£sd	£p
$\frac{1}{2}$ d	£0.0021	1/-	£0.0500
1d	£0.0042	2/-	£0.1000
$1\frac{1}{2}$ d	£0.0063	3/-	£0.1500
2d	£0.0083	4/-	£0.2000
$2\frac{1}{2}$ d	£0.0104	5/-	£0.2500
3d	£0.0125	6/-	£0.3000
$3\frac{1}{2}$ d	£0.0146	7/-	£0.3500
4d	£0.0167	8/-	£0.4000
$4\frac{1}{2}$ d	£0.0188	9/-	£0.4500
5d	£0.0208	10/-	£0.5000
$5\frac{1}{2}$ d	£0.0229	11/-	£0.5500
6d	£0.0250	12/-	£0.6000
$6\frac{1}{2}$ d	£0.0271	13/-	£0.6500
7d	£0.0292	14/-	£0.7000
$7\frac{1}{2}$ d	£0.0313	15/-	£0.7500
8d	£0.0333	16/-	£0.8000
$8\frac{1}{2}$ d	£0.0354	17/-	£0.8500
9d	£0.0375	18/-	£0.9000
$9\frac{1}{2}$ d	£0.0396	19/-	£0.9500
10d	£0.0417	20/-	£1.0000
$10\frac{1}{2}$ d	£0.0438		
11d	£0.0458		
$11\frac{1}{2}$ d	£0.0479		
12d	£0.0500		

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Arrangements with employees, 153(75), 154(71),
155(73)

Average earnings, 168(47)

General earnings, 172, 173

Weavers' earnings, 175

Combers' earnings, 191(31)

Average weavers' earnings, 194(58)

Brigg Collection : Keighley Central Library

Weavers' earnings, 1(384)

Combers' earnings, 2(385)

Holiday book, 3(385)

Census enumerators' returns, Keighley, 1841, 1851, 1861, 1871.

Clough Collection ; Leeds University

Weavers' wage books, 18-45

Mill hands' wage books, 46-60

Hand combers' wage books, 61-63

Old Mill wage books, 64-72

New Mill wage books, 73-85

Alexandra Mill wage books, 86-92

Genapping wage books, 93-96

Midland and Becks wage books, 97-99

Sundry accounts, 212

Wages book, 216

Register of young persons, 288

Education receipts, 249

Mill-owners' resolutions, 259

Workers' petition, 260

Mill plan, 307

Hattersley Collection : Leeds University
Applications, 20(19)

Keighley Union Collection : Keighley Central Library
Minute Books 1842-1863

John Kitson's Diary : Keighley Central Library

Marriner Collection : Leeds University

Weavers' earnings, 1(Box 149, book 12),
2(Box 148, book 15)
Rents, 27
Excursions, 43
Terms, 39, 60
Fines, 47

Scruton Collection : Bradford Reference Library

Employers' resolutions, Deed box 3, case 16;
Deed box 3, case 39