

PENNINE NORTHLIGHT WEAVING SHEDS
- APPENDIX A - HERITAGE ASSESMENT



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1.0 INTRODUCTION

1.1 Aims of the Heritage Assessment

This Heritage Assessment has been researched and written by Liz Humble, IFA Archaeologist and Buildings Historian with input from Lee Hutchings, Architectural Historian, Purcell Miller Tritton architects. This assessment has been prepared for Elevate East Lancashire. It considers extant purpose built north light weaving sheds located in Pennine Lancashire and comprises the boroughs of Burnley, Pendle, Hyndburn, Rossendale, Blackburn with Darwen and the Ribble Valley.

This assessment has three primary aims. The first aim is to research and explore the history and development of weaving sheds as a distinct building type. This involves an investigation into why and when they were built; who built, owned and occupied them; and what their role was in the manufacturing process. The second aim is to assess the built form of weaving sheds in Pennine Lancashire and develop an overarching typology. The third aim is to examine the significance of these locally distinctive assets and seek to develop a series of criteria that could be used when assessing individual sites. This will involve issues such as their character, historic and architectural value, completeness and integrity.

This report forms part of a larger study undertaken by Purcell Miller Tritton. The aims of this wider study are to:

- Raise awareness of the threat to weaving sheds.
- Offer an understanding of the issues faced when redeveloping weaving sheds and provide practical guidance and solutions to their potential repair and reuse.
- Provide guidance to owners and developers of weaving sheds to encourage investment confidence and secure their reuse.
- Assist local authority planning and regeneration staff who are charged with forward planning policy affecting former industrial sites and in determining planning applications.

1.2 Scope of Study and Methodology

This Heritage Assessment is limited by both area and building type to extant purpose built north light weaving sheds in the region. There is a surprising lack of secondary sources which synthesise the existing information regarding textile mills and weaving sheds in Pennine Lancashire. The starting point for this analysis has therefore been through consultations with experts in the field, an assessment of a small number of key primary records, site visits and reference to relevant secondary sources including *Pendle Textile Mills* (2000) and *Yorkshire Textile Mills* (1992). Useful gazetteers detailing individual weaving sheds in particular localities have been produced by Mike Rothwell and by Oxford Archaeology North (ongoing). Ian Miller, Oxford Archaeology North, has generously provided information on specific mill sites compiled during his survey of Lancashire Mills. This report does not seek to duplicate the excellent research listed above, rather the objective is to draw out overarching trends and issues and illustrate with reference to individual sites.



001: Boundary of the study area, East Lancashire

2.1 Site Location

The site comprises north light weaving sheds in Pennine Lancashire namely the boroughs of Burnley, Pendle, Hyndburn, Blackburn with Darwen, Ribble Valley and Rossendale.

Extant weaving sheds are differentially spread across the boroughs in Pennine Lancashire. For example large numbers survive in Burnley (particularly within the Weavers Triangle) whereas much fewer are present in Blackburn with Darwen and only a few survive in the Ribble Valley. The main reason for this is differing pressures and opportunities for redevelopment in different boroughs and localities. Many of the weavings sheds that survive continue to be under threat from demolition or substantial alteration.

2.2 Pennine Lancashire Origins of Integrated Mills

In Pre-Industrial England most textile working was undertaken by individuals and families in domestic residences. Early industrial buildings are rare and often comprised small workshops. The economy of England was transformed during the Industrial Revolution (c.1750-1850) with associated social, demographic and political changes. Improvements in mechanisation for spinning and later for weaving ultimately led to the emergence and growing profitability of the factory system of production. As mechanisation for cotton spinning, transport links, efficiency and demand all improved, mills and factories became increasingly common during the 18th century. Many integrated textile mills and specialist weaving sheds appeared from the early-mid 19th century in most parts of Pennine Lancashire.

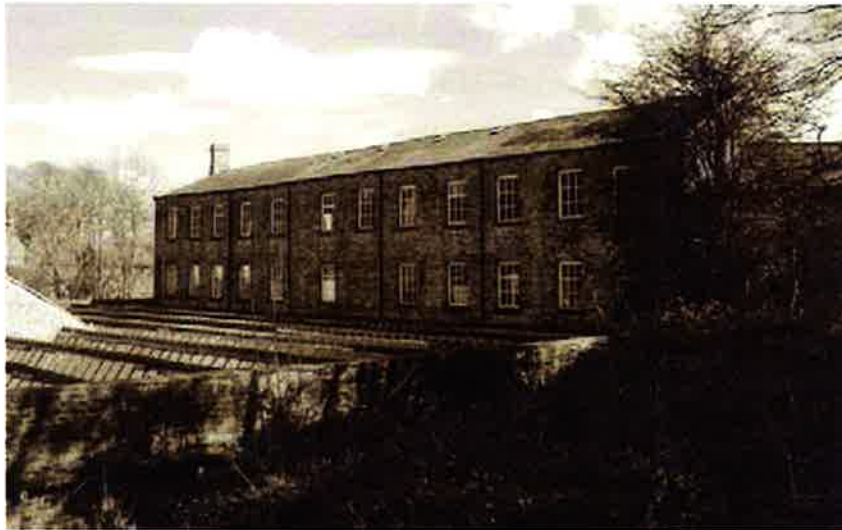
For much of the 19th and early 20th centuries Britain was the “workshop of the world” and textile manufacture was concentrated in the north of England. Pennine Lancashire developed as a specialised cotton-weaving area during the 19th century. There was very little wool and worsted production by the end of the century. By the late 19th century, particularly the 1870s and 1880s, cotton spinning areas were concentrated in and around Manchester and cotton weaving areas further north in areas such as Pendle, Blackburn, Burnley and Preston. Increasing specialisation is apparent when examining the development of mills. For example the Smith family built and ran Hill End Mill (1846), Lane Bottom, Briercliffe, Burnley as a woollen mill. It was later bought by a member of the Nuttall family acting on behalf of the employees when the woollen industry was declining¹. The mill then switched to cotton.

The cotton industry became the backbone of many of the towns and boroughs in the region particularly Pendle, Burnley, Hyndburn and Blackburn with Darwen. Across Pennine Lancashire successful exploitation of cotton manufacture resulted in the creation of new towns such as Nelson whilst established towns expanded. The expansion of the cotton industry resulted in a wave of new housing, urban expansion and the creation and expansion of related industries and facilities.

The spread of mechanisation (especially powered looms) from c.1820, and a series of innovations, partly in the way cotton was produced, led to the decline of the domestic system. As the efficiency of power looms improved so their numbers increased. For example Burnley reached the peak of cotton cloth production in 1911. At this time the borough had a record number of over 100,000 looms at work².

¹ The woollen industry had been in decline in north east Lancashire since the 1790s.

² OAN (2004). Weavers Triangle Archaeological Assessment.



002: Higherford Mill, an example of an integrated mill

Increasingly from the 1820s onwards textile manufacture was concentrated in integrated spinning and weaving mills. The factory system became increasingly widespread. One of the earliest examples in Pennine Lancashire is Higherford Mill (Higherford, Pendle). It is commonly thought to have been built in 1824, on the basis of a reset datestone in the side wall of a later weaving shed. It was probably a four-storey building in which weaving took place on the third and second floors.

The Multi-Storey Mill became more widespread as part of the factory system. From the 1820s a number of cotton spinning mills were multi-storey with powerlooms housed in large single-storey weaving sheds built beside the multi-storey block. This situation is not uncommon in Pennine Lancashire with a concentration in the Weavers Triangle, Burnley. Blackburn provides an example of a borough with very early weaving sheds. In 1825 power looms were installed in Jubilee and Park Place Mills. Early purpose-built weaving sheds in Blackburn were built alongside existing spinning mills as part of integrated complexes. Amongst the earliest examples are Brookhouse Mill (1830), Nova Scotia Mill (1833) and George Street West Mill (1834). Examples of these complexes can also be seen at Brierfield Mills (Brierfield, Burnley), built before 1844, Albert Mills (Barrowford), built between 1844 and 1879, Spring Gardens Mill (Colne), built between 1844 and 1854, and Victoria Mill (Earby), built in 1854. In Barnoldswick integrated cotton production was chiefly motivated by a single entrepreneur - William Bracewell - who built Butts Mill (1846) and Well House Mill (1854), both cotton-spinning and weaving mills and both now largely demolished³. Bracewell also owned mills and engineering works in Burnley.

³ English Heritage (March, 2007). Industrial Buildings Selection Guide. Heritage Protection Department.

2.3 Pennine Lancashire Development of North Light Weaving Sheds: An Overview

2.3.1 The Origins of North Light Weaving Sheds

Although integrated mills appear from the 1820s, most specialist weaving sheds (particularly purpose built stand-alone north light sheds) are a later development. Most examples seem to date from the 1840s and 1850s onwards. These include Brierfield Mill (Brierfield) built before 1844 and Spring Bank Mill (Colne) c.1844-1854. In the cotton industry the integrated firm, which peaked around 1850, was gradually replaced by firms concentrating on either spinning (e.g. Manchester, Oldham, Bolton areas) or weaving (e.g. Burnley and Blackburn areas). Industries became increasingly concentrated and specialised. For example spinning was a declining industry in Burnley by the 1880s and increasing numbers of specialist weaving sheds were constructed.

Specialist purpose-built north light weaving sheds emerged as a novel type of building that appeared to solve many of the problems faced by contemporary weaving. Marsden sets forth an explanation for the reasoning behind the distinctive north light roof. 'The plan of the building should provide that the bays of the roof of the weaving shed should run in a direction from east to west in order to present the glazed portion of the bay to the north, the volume of light obtained from this point of the compass being the greatest, most steady, uniform in quality, and the best adapted for manufacturing purposes'. Once this is established, the looms ought to run in aisles at right angles to the bays in the roof, 'In order that the slays or lathes of the looms shall not cast shadows upon the warp shed in the process of weaving'. By following this common practice, the weaver can quickly see yarn breakages and flaws within the material, that would otherwise be disguised by shadow.

By the end of the 19th century and into the 20th century smaller subsidiary industries developed, serving the needs of the main cotton-weaving industry. Thus specialist tape sizing firms, dye works, foundries and factories producing steam engines, looms, loom components and so on developed in many Pennine Lancashire weaving towns. Primet Foundry (Colne) built in 1861 provides a good example of a foundry which produced power looms. The Globe Foundry (Accrington) was one of the largest manufacturers of looms in Pennine Lancashire.

The move towards increasing specialisations was likely to have been, at least in part, a consequence of the Cotton Famine brought about by the American Civil War (1861-1865). Without a supply of cotton from America the lack of employment opportunities led to considerable hardship and poverty. During this period Burnley became a specialist in the printer trade whilst heavier cloths passed to Blackburn where the more suitable "tape" looms were increasingly used⁴. Rawtenstall in Rossendale was a centre of wool spinning and calico printing.

2.3.2 Weaving Sheds Diversification and Decline

Weaving sheds continued to be built in the early 20th century. From 1904 onwards a series of weaving sheds were built in Blackburn with companies financing construction via issues of shares. For example, Pioneer Mill on the canal bank near Moorgate was worked by the Blackburn Pioneer Company following

⁴ Marsden, R. (1895). Cotton Weaving: Its Development, Principles, and Practice, 361.

⁵ Ratcliffe, D. A. (undated). Burnley and the Weavers Triangle. A future for our past.

sale of shares. Many early 20th century mills were large in size and housed numerous manufacturers such as Crow Nest Shed (Barnoldswick) built in 1914-15. At least four weaving sheds were built in nearby Darwen in the early 20th century. Anchor Mill was built by John Catlow & Sons in 1900-1901. The surviving buildings provide an early example of an Ashton, Frost & Company design. By 1939 the site was occupied by Lancashire Silk Mills Ltd who operated 120 looms and produced necktie silks, crepe-de-chines, crepe satins and georgettes. Unfortunately a large portion of the weaving shed has been replaced with a modern industrial unit. John Catlow also owned and built Olive Mill (1894) in Darwen. Other 20th century weaving sheds in Darwen include Premier Mill (1912) built by the Darwen Mill Building Company Ltd who built a total of four mills in the town and Unity Mill (1905). The last weaving shed to be built in Darwen was Sunnyhurst Mill built by the Sunnyhurst Mill Company Ltd in 1913. It housed 782 looms producing mulls, cambrics, muslins, splits, voiles and poplins⁶.

The onset of the First World War in 1914 almost extinguished the building of new mills and marked the beginning of the lingering end of the cotton industry in Britain. Few mills were built in Pennine Lancashire after the 1920s. Those that were built tended to be smaller than the vast cotton sheds built previously, and the trend towards specialisation increased with mills often specialising in branches of the textile industry other than cotton weaving itself. Boundary Mill (Nelson), for example, was built between 1923 and 1930 as a taper and sizer mill.

'As the century progressed new mill building virtually ceased, although many of the existing mills remained in production until the early 1970s, diversifying, as the market demanded, into synthetic materials and into more specialist products. Glen Mills, Colne; and Brierfield Mill, Brierfield; manufactured surgical dressings, and label weaving was carried out at Excelsior Works, Colne, which began as a laundry became a tape sizing works and later adopted label weaving. By 1998 only a very small handful of manufacturers were still in business in Pendle. Many of the mill buildings had been put to new uses or demolished entirely to make way for new housing and new urban development'⁷.

Traditional textile industries steadily declined throughout the 20th century. Almost all manufactories and mills have now closed or been converted to other uses. There have been problems of redundancy in a number of areas in Pennine Lancashire and swathes of the Victorian industrial landscape have fallen into increasing disrepair and dereliction with a number of demolitions and replacement with new housing and commercial development.

A number of extant weaving sheds are however still in use. These often have non-intensive, often small workshop, garage, or storage, functions. Where structural alterations have taken place these generally involved stripping the shed down to the bare structure and inserting modern supporting steelwork.

2.4 Pennine Lancashire North Light Weaving Sheds in Detail

2.4.1 Reasons for the Construction of North Light Weaving Sheds

From c.1850 onwards cotton spinning was becoming increasingly unviable as it became concentrated in Manchester and surrounding towns. Instead attention turned to specialising in weaving and large steam-powered weaving sheds spread in most urban, and a number of rural locations, in Pennine Lancashire. In Burnley for example there were 25 firms engaged in cotton manufacture in 1848. This had increased to 52 in 1852 and 100 (mainly weaving) in 1876⁸.

Weaving sheds spread rapidly as they brought a number of advantages over weaving areas in multi-storey mills. The main advantages were related to the cheap cost of construction, large floor area that was possible, good lighting and humidity conditions, less vibration and ease of supervision. *'The weight and vibration of powerlooms, together with the need for good internal lighting, encouraged the construction of weaving sheds from an early date'⁹.*

Following the introduction of more efficient spinning machines¹⁰ yarn became cheaper and more plentiful. Several individuals invented looms which could be driven by a power source and so could weave cloth faster. Most early power looms could weave three to four times faster than a handloom and a single worker could operate several looms at once. Marsden, having a contemporary understanding of the tedious conditions handloom weavers, stated, *'This beautiful automation, the power-loom, may justly be regarded, even in its simplest form...as one of the wonders of mechanical science. It has a still greater claim to man's estimation owing to the enormous degree to which it has relieved him from laborious drudgery'¹¹.* However the problem with the power loom was that it could (in its early days) weave only very simple cloths efficiently.

Power looms became increasingly common from the end of the Napoleonic Wars (1815 onwards) with handloom weavers suffering from increasing levels of unemployment and falling wages as their products could not compete with the cheaper ones offered by the power loom weavers. Indeed Marsden points out that these new looms now needed only power derived from steam and *'Little supervision by the attendant, who is called the weaver, but to whom this name no longer properly appertains, he or she is simply an attendant upon an automatic weaving machine'¹².*

It became increasingly cost efficient to house large numbers of machinery and weavers on the same floor in a single building. Stratton explains 'The humble single-storey shed is the most successful of virtually all industrial building forms and, as a result, is the least understood and appreciated. Derived from agriculture, used for iron making in the eighteenth century and for cloth and brick in the nineteenth, it

⁶ Miller, I. Email sent 8 June 2009, OAN.

⁷ Taylor, S. (2000). *Pendle Textile Mills*, 9. English Heritage.

⁸ Kneeshaw, J. W. (1897). *Burnley in the Nineteenth Century*.

⁹ Williams, M. (1992). *Cotton Mills in Greater Manchester*, 11.

¹⁰ In particular Hargreaves' spinning jenny (1764), Arkwright's spinning frame (1768) and Crompton's spinning mule (1779).

¹¹ Marsden, R. (1895). *Cotton Weaving: Its Development, Principles, and Practice*, 174.

¹² Marsden, R. (1895). *Cotton Weaving: Its Development, Principles, and Practice*, 173.

has evolved into the modern metal-framed and metal-clad factory¹³.

Another significant factor is highlighted by Marsden, *'Experience has long ago demonstrated that the weaving process at least should always be conducted upon the ground floor, and never in rooms, however apparently firmly built'*. He goes on to explain that this process is *'injurious'* and to remedy the result of heavy vibration is to spend more money on superior looms, so as to neutralise the effects of vibration and produce cloth equal in quantity and quality of that found with cheaper looms upon the ground floor. At the time of his writings in 1895, there was *'severe competition and low profits'* thus Marsden believed that the disadvantage of weaving on anything other than the ground floor would increase the chances of failure and bankruptcy¹⁴. Markus explains that not only were single storey sheds the answer to the problem of vibration they also enabled very large floor areas to be created¹⁵.

Single storey sheds also enjoyed several other advantages. They were cheaper to build and thus more companies, co-operatives and entrepreneurs could set them up. The north light roofs provided ample natural light in which to inspect the weaving; *'Economy ruled out high, large-span roofs so the problem was solved by a series of small pitched roofs glazed on one or both sides'*¹⁶. The lighting arrangements and single storey nature of the sheds also enabled them to be partially set underground where necessary to help create the correct humidity conditions. Furthermore, single storied sheds presented less of a fire risk than multi-storey warehouses as they used natural light rather than flammable gas lighting, thus enjoying lower insurance premiums and a longer lifespan.

2.4.2 The Location of Weaving Sheds

There are several common determinants regarding the location of weaving sheds. These are considered below:

Fast Flowing Water Sources / Abundance of Water

*'In the early stages of the factory, as a separate place of manufacture, it was naturally located near the only source of power then available – a running stream of water'*¹⁷. The availability of water was a key determining factor in the origins and growth of the textile industry in Pennine Lancashire. In the late 18th and early 19th centuries water was needed as a source of power to drive water wheels and for machinery. Water-powered textile mills on the banks of fast flowing streams include Old Mill on Barrowford Beck and Narrowgates Mill (Barley) in the upper valley of Pendle Water.

In the Rossendale Valley many of the main towns – Bacup, Hasingden, Rawtenstall and Whitworth – are in close proximity of the main river flowing through the valley. The River Irwell flows down through the valley and then onto Manchester and Salford. The Rossendale towns with their ready supply of fast flowing water from the moors above were ideal for the spinning and weaving of cotton. Mills and weaving sheds rapidly developed along the river banks. For example Whitaker's

Mill, Helmshore, Rossendale was built adjacent to the River Ogden and associated ponds.



003 - Gibson Mill by pond

Marsden makes this necessity clear, *'An abundant and never-failing supply of water is an essential requisite, and if this is not present in a stream, river, or canal, provision will have to be made for storing the necessary quantity in a reservoir'*²⁰. The latter solution was found in the form of mill ponds, locally known as *'lodges'*. These large reservoirs of water were supplied by streams and brooks. It appears that every effort was made to introduce any degree of moisture into the weaving sheds. Marsden suggests *'Should it be necessary to store a water supply, the lodge to contain it should always be placed on the side from which the dry winds blow, mostly the east. This will help to temper the dry atmosphere to the advantage of the work in process'*²¹.



004 - Queens Mill Millpond

Following the introduction of steam power in the early 19th century, new textile mills and weaving sheds no longer required flowing water for power, however a plentiful supply of water was still needed for condensing engines, to feed the boilers and to create the ideal atmospheric conditions¹⁸. In Burnley the Canal Company began to supply water to the mills – for their boilers – from 1843. A number of mills were built along, or close to, the canal from this date. For example Finsley Mill and Albion Mill in Finsley drew from the canal in 1843. Trafalgar Mill drew water from 1849, Victoria Mill from 1858, Belle Vue Mill from 1864 and so on.¹⁹

13 Stratton, M. (2000). *Industrial Buildings Conservation and Regeneration*.

14 Marsden, R. (1895). *Cotton Weaving: Its Development, Principles, and Practice*, 360-361.

15 Markus, T. A. (1993). *Buildings and Power*, 275.

16 Markus, T. A. (1993). *Buildings and Power*.

17 Nasmith, J. (1909). *Recent Cotton Mill Construction and Engineering*, 7.

18 A high moisture content in the air was necessary. Early forms of air conditioning included the dowsing of weaving shed floors with water thus requiring a plentiful supply of water.

19 Kneeshaw, J. W. (1897). *Burnley in the Nineteenth Century*.

20 Marsden, R. (1895). *Cotton Weaving: Its Development, Principles, and Practice*, 259.

21 Marsden, R. (1895). *Cotton Weaving: Its Development, Principles, and Practice*, 359.

2.0 UNDERSTANDING PENNINE LANCASHIRE NORTH LIGHT WEAVING SHEDS

Damp Climate and Humidity

Plentiful sources of water, fast flowing streams, canals and damp atmospheric conditions in Pennine Lancashire were ideal for the manufacturing processes involved in cotton weaving. Marsden states '*it is a fact known to every cotton spinner and manufacturer that cotton works best and makes least waste in a humid atmosphere, and worst in a relatively dry one*'²².

Much of Pennine Lancashire is hilly. To overcome the problem of steeply sloping land, to be found even in most of the urban areas, weaving sheds were often deeply terraced into the ground in order to create the huge level floor area required. This construction necessity also solved the major problem of providing a continual level of humidity to the shed so as to work the cotton more easily in conditions of dry winds, frost or hot summer days.

Queen Street Mill (Briercliffe) provides an example of this as it has one shed wall built halfway below the ground surface so as to provide a continual level of moisture through the masonry and into the shed. Domestic hand looms which predated weaving sheds, were often positioned in cellars with bowls of water beneath the loom or a water filled hole in the ground so as to maintain humidity levels, enabling easier working of the cloth.

Good Transport Routes

Early-mid 19th century mills in Blackburn, Burnley, Nelson, Barnoldswick etc tend to cluster around the Leeds and Liverpool Canal which provided excellent transport routes for raw materials such as coal, water and yarn and the finished products. Later mills, for example in Nelson, line railway routes such as the East Lancashire Railway. Furthermore, Marsden explains '*Good roads giving easy access for cartage purposes, and to and from the residences of the operatives are important. The site should be within such a distance of the homes of the latter as will permit all employed to go to meals and return within the time legally provided for that purpose*'²³.



005: Trafalgar Mill, Burnley is terraced and set partially underground



006 - Mills lining the Leeds and Liverpool Canal, Burnley

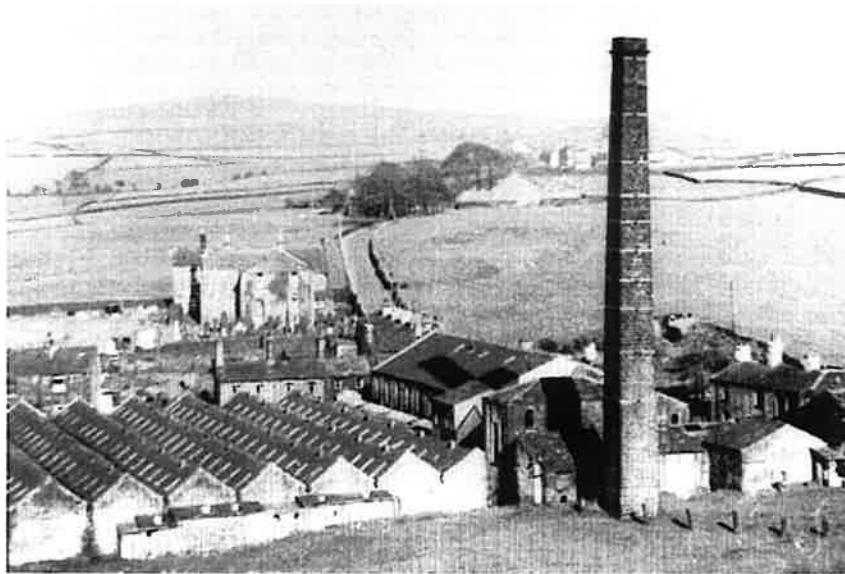
22 Marsden, R. (1895). *Cotton Weaving: Its Development, Principles, and Practice*.

23 Marsden, R. 1895. *Cotton Weaving: Its Development, Principles, and Practice*, 359.

Pre-Existing Industry

Briercliffe was an important early mill area in Burnley. It was a hand loom weaving area prior to, (and in the early stages of), the Industrial Revolution. Three pre-Industrial water mills in Briercliffe were converted to textile production²⁴. The tradition of mills in the area continued into the Industrial Period despite the fact that the Leeds and Liverpool Canal did not pass through Briercliffe, indeed it was not until the early 1840s when an Act of Parliament allowed water from canals to be extracted for use in industry. The mills before this were instead powered by steam engines with water provided by mill ponds²⁵. A few weaving mills, often woollen rather than cotton, in Briercliffe therefore pre-date the purpose built north light examples seen from the mid 19th century onwards.

A number of handloom weavers worked together in Hill Factory woollen mill in Lane Bottom, Briercliffe as early as 1777 (now demolished). This building which was not powered was later replaced by Hill End Mill in c.1846 (also demolished). This was sold, along with its machinery, to a group of weavers in 1905. It was operated thereafter by the workers who all had shares in the mill. This situation ensured that generations of weaving families were guaranteed employment at the mill.



007: Hill End Mill; note its domination of the landscape and the industrial community (reproduced from Nadin 2008)

24 Roger Frost, pers. comm. January 2009.

25 The only surviving above ground mill pond in Briercliffe is at Queen's Street Mill.

At Green Lane Mill, Burnley a small weaving shed was added in 1856 to a site built originally as an iron foundry c.1850 by Thomas Dewhurst. Part of the site was used by J & C Thompson, millwrights and engine builders. A multi-storey spinning block was erected in 1864-1865. Following a fire in 1903 a second building was converted into a weaving shed creating two on the site.

There are a number of other examples of pre-existing industry influencing the development of later weaving sheds and mills. At Helmshore, Rossendale a woollen fulling mill was built by the Turner family in 1789 by the River Ogden. One of their sons later built an integrated carding, spinning and weaving mill (Whitaker's Mill) in the late 1820s. This was situated adjacent to the older fulling mill. Following a fire in 1857 there was considerable rebuilding in c.1860. Following the death of William Turner in 1852 Whitaker's Mill switched between wool and cotton a number of times under a succession of operators. The Turner enterprise brought people to the area seeking work and William Turner was responsible for much of the early development of Helmshore.

The earliest factory-system cotton mills were generally spinning mills. When powered cotton weaving first became economically viable these spinning mills were adapted and enlarged to house the new weaving process and sheds were attached to an existing mill or spaces converted for use by weaving looms. It was not until later, when weaving became profitable in its own right, that purpose built weaving establishments were constructed.

The existence of local labour, local textile traditions and the presence of shareholders (which included handloom weavers and others involved in the local pre-existing textile manufacturing processes) seeking to fund the erection of new weaving sheds and work within them was also an important determinant in their location. However as weaving sheds, and room and power, proved to be successful the building type increasingly spread throughout both rural and urban areas irrespective of existing traditions.

Indeed Markus, writing about the space now needed by the new north light weaving sheds, points out '*The increased land required now set off a reverse migration out of the large towns*'²⁶ whereas before, the migration of mills was focused upon the towns.

2.4.3 Who built North Light Weaving Sheds

When considering issues of ownership and management it is apparent that most weaving sheds were built by one of two main groups. The first were capitalist entrepreneurs who tended to build entire sheds as owner-occupiers, particularly in the late 19th and early 20th centuries. An example of this kind of "capitalist mill", often large enterprises, is Kings Mill Briercliffe, Burnley. The second group were designed for occupation by two or more tenants with rooms rented. These could be built by speculators, small scale businessmen or collectives. Co-operatives or collectives were often formed by groups of former handloom weavers and textile workers. Many of these sheds operated the "room and power" system whereby space was leased to tenant manufacturers.

26 Markus, T. A. (1993). '*Buildings and Power*', 275

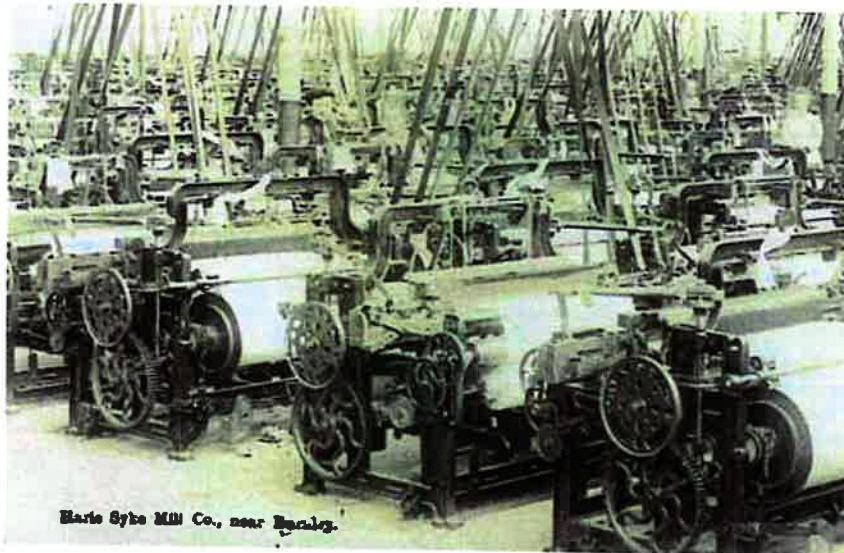
2.0 UNDERSTANDING PENNINE LANCASHIRE NORTH LIGHT WEAVING SHEDS

Owner-Occupier Capitalist Mills

The traditional means of building and operating cotton mills and weaving sheds was via the owner-occupier system. For example Kings Mill (1912) in Briercliffe, Burnley was a capitalist mill built by three people – Mason, West and Bather - from their private income. They had each married daughters of a wealthy mill owner who helped to finance their new firm.

Harle Syke Mill (1855-56) is one of the oldest extant purpose-built weaving sheds in Burnley. The warehouse was located to the front, on the road frontage. The mill was built by about 16 men, all of whom were handloom weavers or employed in the textile industry. They feared there was no future in the hand looms and that this would force them out of work, so they all put a shilling down and from this initial commitment they bought shares in the new company. Harle Syke Mill was one of several mills that changed owners and/or management. After 1865, as a result of poor trade and the effects of the Cotton Famine, and facing financial failure, the company was reconstituted as a room and power concern, the looms in the former company divided among the initial shareholders who set up their own cotton enterprises. The new company built in 1904 an adjacent mill whilst still operating in the earlier mill as room and power.

Hill End Mill, Lane Bottom, Briercliffe was one of the earliest north-light weaving sheds in the area. Now demolished it was built in the late 1840s and was run by the Smith family as a single capitalist enterprise.



Harle Syke Mill Co., near Burnley.

008 - Harle Syke Mill (reproduced courtesy of the Briercliffe Society)

Again this situation changed when in 1905 it was sold together with 428 power looms to the Nuttall family, on behalf of a group of its mill workers.

In the Ribble Valley the Co-operative Mill was established by the Ribchester Cotton Manufacturing Company Ltd in 1888-1889. However rather than wealthy businessmen providing all the funds, the local co-operative society helped to fund the construction and fitting of the mill. This was not atypical with a number of co-operatives helping to provide industry and therefore employment in their local areas. The buildings on the site today comprise a stone-built single storey weaving shed, large engine house, boiler house and a circular brick built chimney. Single storey lean-to offices front a former cloth warehouse and large extensions have been added to the northwest wall of the original mill²⁷.

Room and Power Mills

Rothwell notes that in the Room and Power system '*Landlords, including individual owners and limited companies built, or purchased existing mills, and leased space to tenant manufacturers. Rent was based on loom space, and included motive power from the engine. Landlords also provided room for yarn preparation and warehousing. Tenants usually owned their own looms, winding, warping and taping frames. In some instances, the latter process was undertaken by independent commission sizers.*'²⁸

Room and power was a way of providing manufacturing capability for large numbers of smaller entrepreneurs, speculators and small businesses due to the low start-up costs. The system was widely adopted in the Nelson area during the last half of the 19th century and was also used in other parts of Pennine Lancashire including Pendle and Burnley from c.1850 onwards²⁹. The system was often particularly important in specialist weaving areas as weaving attracted people of limited capital when compared to spinning or integrated companies. The principal design requirement was flexibility.

The first room and power company in the Nelson and Marsden areas is thought to have been in 1857 when Whitehead & Holland built Victoria Mill, including a weaving shed, beside Walverden Water³⁰. Within a short time, space had been taken by at least eight separate firms. This success saw a number of existing properties, such as Nelson Foundry, converted for room and power use. At Butts Mill, Barnoldswick the mill of 1846 built and run by William Bracewell was sold by auction following his death in 1887 and went over to room and power working. The Butts Mill Company was formed, consisting mainly of tenants.

There were a number of advertisements in local newspapers offering room and power in towns such as Accrington and Church. The movement was represented by building companies, for instance the Rishton and Accrington Mill Building Companies. Leases were normally taken by established manufacturers; for example by John Bury & Company, Accrington, whilst a Blackburn firm, J&L Ward, leased the Unity Mill of the Lower Darwen Mill Investment Company Limited. Although there are examples of multi-occupancy in these towns by the late 1850s, the majority of tenants failed during the Cotton Famine and

27 Miller, I. Information provided via email 8 June 2009, OAN.

28 Rothwell, M. (2007). *Industrial Heritage - A guide to the Industrial Archaeology of Nelson, Barrowford & Brierfield, including the village of Blacko*, 85.

29 Room and power mills had been operating in Manchester in the late 18th century and were being specially built in Yorkshire in the 1830s. They were a relatively late arrival in Pennine Lancashire.

30 Taylor, S. (2000). *Pendle Textile Mills*, 8. English Heritage.

unlike in Pendle, where room and power dominated, the idea was not revived.

A number of early providers of room and power were the “shed companies” of the mid-19th century who sometimes set up and leased small mills in outlying districts. Examples include the Read Building Company and the Wheatley Lane Shed Company³¹. Other local consortiums formed in rural areas having witnessed the success of room and power in urban areas. Thus Black Carr Mill, Trawden, Pendle was for example built between 1880 and 1882 on the initiative of the villagers as a steam-powered cotton weaving mill to be let on a room and power basis³². Leading promoters of room and power were William Astley who owned and operated the Victory Brewery, Nelson; William Roberts, whose company supplied many of the mill engines; George Proctor, a Burnley accountant; and Joseph Sunderland, an established worsted manufacturer.

Many developments took place after 1880 with the formation of various companies, including those at Laurel Bank and Bradley. The Nelson Room & Power Company Limited proved to be one of the most successful and erected a line of mills in the lower Walverden Valley. Rothwell³³ notes how new companies continued to be launched in the opening years of the 20th century, and were particularly responsible for building room and power weaving sheds in the Hendon and Clover Hill districts.

The companies formed to build entirely new mills were usually started with a capital of between £15,000 and £25,000. In some cases the sale of small value shares enabled workers and other less wealthy tradesmen and businessmen to invest in the companies, but others, with higher priced shares were dominated by existing manufacturers and business men of the town. From 1904 onwards a series of weaving sheds were built in Blackburn with companies financing construction via issues of shares, for example, Pioneer Mill on the canal bank near Moorgate worked by the Blackburn Pioneer Company following sale of shares.

Some weavers set up their own company as power looms could be purchased for as little as £6.50-£7.50 each³⁴, money that could be borrowed from friends, families, colleagues etc. Many local residents then worked in these mills or had relatives who did. **Walshaw Mill (1905)** was built by a group of people all of whom were in trade - builders, an ironmonger, undertaker, and former weavers, tacklers and mill salesmen. This group pooled their resources and built the mill. This should be regarded as a practical decision rather than socialism.

It is apparent that many firms occupied the room and power sheds, ranging from one man manufacturers running less than a 100 looms, to much larger operations of over a 1000 looms. Rothwell (2007) observed that at Bridge Mill (Colne) in 1885, eight firms, including Landless Brothers with 950 looms and Sam Sutcliffe with eight looms, were leasing parts of the shed.

31 Rothwell, M. (2007). *Industrial Heritage - A guide to the Industrial Archaeology of Nelson, Barrowford & Brierfield, including the village of Blacko*, 85

32 Taylor, S. (2000). *Pendle Textile Mills*, 8. English Heritage.

33 Rothwell, M. (2007). *Industrial Heritage - A guide to the Industrial Archaeology of Nelson, Barrowford & Brierfield, including the village of Blacko*.

34 Roger Frost pers. comm. January 09. This figure relates to the 1870s and is based on records of Harling and Todd, Burnley loom-makers.

The tenants came from a variety of backgrounds and include small tradesmen, shopkeepers and mill operatives. In a number of cases mill managers and overlookers were actively involved in creating new companies and partnerships. Some, such as William Reed, William Uttley and James Nelson, proved to be highly successful and developed profitable businesses. Others, often with little capital, faced greater difficulties, and frequently sold their looms to new, aspiring manufacturers at the end of their leases. Bankruptcies were common, as with Watson & Shuttleworth who started a business with £100 capital in 1887 at Walverden Mill, but failed within two years³⁵. The room and power system could accommodate bankruptcies as a new tenant would simply move in. Movement between the mills was frequent, and tenants regularly transferred looms from one site to another, sometimes to expand, but more often to seek new accommodation.

Specialist engineers emerged to build the weaving sheds and mills. Mill engineers regularly offered architectural services i.e. a complete mill from design to architecture, engines and metalwork. Richard Jacques was a prolific architect-engineer in Nelson (e.g. Malvern and Manor Mills). In Burnley Samuel Keighley³⁶ who came from a family of power loom engineers, designed Queen Street Mill, Briercliffe in 1895 and Harle Syke Mill No. 2 in 1904. Ashton, Frost & Company of Blackburn (e.g. Britannia Mill) and the Nelson engineers, William Roberts & Company, also offered design services.

2.4.4 The Built Form of North Light Weaving Sheds

Advances in weaving mechanisation influenced the design of factories and distinctive weaving sheds emerged as an important part of the character of industrial landscapes, particularly from the 1840s onwards. These novel buildings are often considered to be the prototype of the typical modern factory where everything is arranged on one level for ease of supervision and maximum efficiency as well as taking advantage of the need for constant non direct sunlight which was provided by overhead north light roofs. An article in the Manchester City News in the 1860s about factories designed in this principle refers particularly to William and Mills loom-making business in Blackburn holding up the premises as an example to follow³⁷.

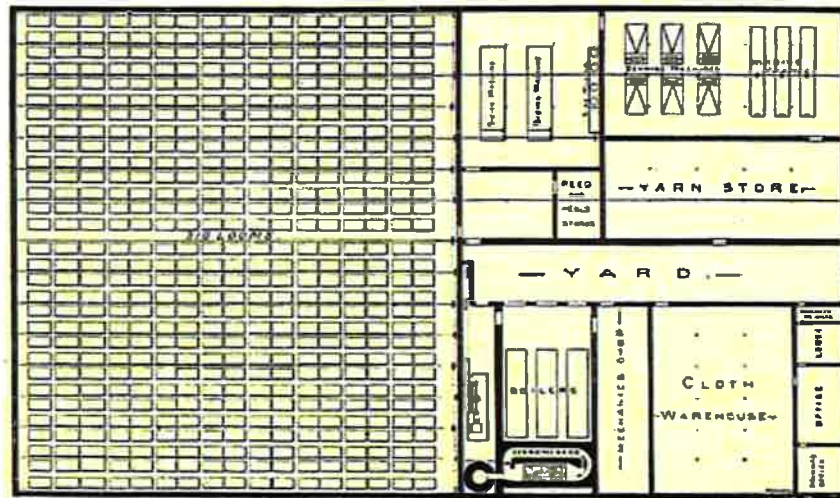
Although multi-storey weaving factories were found in the UK up to 1870; single storey weaving sheds were the predominant type. The choice of single-storey shed layout could be influenced by available land holdings, power sources, materials and so on. Fairbairn states ‘It is difficult to estimate the advantages of this description of building for manufacturing purposes; they are, however, considerable, and, where land can be had moderately cheap, it is found superior in many aspects, particularly as regards light, to buildings comprised of three, four, or more stories’³⁸, he goes on to explain that until the mid 19th century nearly all cotton mills were built of five to eight stories, with different floors for different processes. This was the accepted system when mills were adapted solely for spinning, but the introduction of the power-loom and self-acting mule ‘gave a new character to the dimensions and form

35 Rothwell, M. (2007). *Industrial Heritage - A guide to the Industrial Archaeology of Nelson, Barrowford & Brierfield, including the village of Blacko*.

36 Samuel Keighley was from a dynasty of engineers, founded by George Keighley who manufactured power looms.

37 Roger Frost, pers comm. (May 2009).

38 Fairbairn, W. (1865). *Treatise on Mills and Millwork*, 116.




009 - A typical weaving shed mill layout (reproduced from Marsden Cotton Weaving, 1895).

of factory buildings³⁹. Weaving departments were almost always found on the ground floor in early multi-storey mills.

North light weaving sheds generally share a number of easily distinguishable characteristics. These have been presented in the table overleaf. However it should be noted that some sheds, particularly early examples, will not necessarily follow this form and there are slight local variations, minor variations due to cost, topography and other local issues and some changes over time. Sometimes variant types are the result of different processes and uses such as rag grinding (one of the stages in producing shoddy and mungo), silk throwing, wool combing, dyeing and finishing and so on. This also affects the immediate setting of the weaving sheds and the surrounding complexes. For example weaving mills would generally include a weaving shed providing a manufacturing area for the looms, warehouse(s) to store yarns, warp beams and cloths, areas for hand-powered processes such as sizing and checking, offices, and power installation such as engine and boiler houses and chimneys. As noted above, weaving sheds could also be part of a larger integrated mill site with multi-storey spinning mills and larger scale complexes.



39 Fairbairn, W. (1865). *Treatise on Mills and Millwork*, 178.




2.0 UNDERSTANDING PENNINE LANCASHIRE NORTH LIGHT WEAVING SHEDS





Characteristic features	Reasons	Photographs
<p>Nearly always large scale, single storey buildings.</p> <p>Occasional examples of multi-storey weaving sheds exist, for example at Victoria Mill, Trafalgar Street, Burnley with further examples in Pendle.</p>	<p>Easier to house and supervise large numbers of machinery and workers.</p> <p>The shed was structurally secure since it could withstand the weight and cumulative vibration of working looms more easily than a storeyed building. Multi-storey mills tended to contain floors with varying functions rather than simply weaving equipment.</p> <p>Working in a single storey shed was more efficient, making it easier to move long warp beams and heavy rolls of woven cloth.</p> <p>The single shed form was easy to expand and could fit into irregular shapes of land.</p> <p>Multi-storey weaving sheds were sometimes built as spinning mills before being used to house weaving looms". It is also possible that the need for many looms for weaving, requiring a large floor area meant that mills situated on awkwardly shaped sites may have taken the decision to house looms on two floors, thus solving the problem of space, even though this was not an ideal solution in terms of light and effects from loom vibration on the process of weaving.</p>	 <p data-bbox="1240 831 1697 847">010 - Single storey weaving shed with multi-storey mill, Bell Vue Mill, Burnley</p>

** Victoria Mill in Burnley was built in 1855 by Edward Stocks Massey as a spinning mill for throstle frames. The weaving shed at the mill was added later. Windows on the south and west elevations made good use of available light to the lower shed, with the northern areas of the floor, which had no or little natural light was occupied by twist and weft warehousing. The upper floor of course made full advantage of its north light roof.

2.0 UNDERSTANDING PENNINE LANCASHIRE NORTH LIGHT WEAVING SHEDS


Characteristic features	Reasons	Photographs
<p>Series of north light saw-tooth profile roofs with rows of pitched sections. The basic saw-tooth profile comprised a long, straight (often slate) covered slope with a scarp slope which included the glazing but with varying profiles. Later in the 19th century the more practical profile with a long, single glazed slope became established as the classic saw-tooth profile shed roof.</p> <p>The north side of the roofs were at an average sloped angle of 60°, steeper than the average angle of 30° from the horizontal at the south side (Ashmore 1969, 51).</p> <p>Depending upon the orientation of the shed the last roof bay was usually either a long slated slope or a glazed south-facing slope.</p> <p>Mid-late 19th century sheds often employed cast-iron trusses, either arched or king post. This replaced, or partially replaced, the greater use of timber trusses in previous years. Angle iron was preferred in some northern areas in the early 20th century.</p> <p>The roofs were often largely hidden behind shed walls and thus were not visible from ground level.</p>	<p>Top lighting freed the restrictions on size imposed by lighting from side elevations alone and so the sheds could cover a larger area. Good light was imperative in a weaving shed as it removed shadows which could potentially disguise faults in the weaves and the quality of the cloth. The efficiency of the workers could also be increased especially when dealing with the more painstaking tasks such as drawing and reaching.</p> <p>The glazed sections of the roofs nearly always faced as near north as possible with sheds aligned east / west in order to avoid direct sunlight and hence cast an even natural light on the shed interior throughout the day.</p> <p>The end bay was designed to ensure that there was natural light at the end of the shed.</p> <p>With no need for windows in side elevations weaving sheds could be butted up against multi-story mills and warehouses and set partially underground thus creating ideal atmospheric conditions and overcoming problems of hilly terrain which would normally have restricted available floor area.</p>	 <p>011 - Interior of north-light roof, Trafalgar Mill, Burnley</p>  <p>012 - Typical saw-tooth roofs are highly visible from elevated locations within urban environments, unknown weaving shed, Burnley.</p>

Characteristic features	Reasons	Photographs
<p>Typically at least three of the four exterior walls were blind, some sheds have windows along one side wall.</p>	<p>The buildings often abutted other mill buildings leading to blind elevations or blocked windows. The roofs provided the necessary even and natural light.</p>	 <p>013 - A series of windows (some blocked) in one side wall, Trafalgar Mill, Burnley</p>
<p>Largely architecturally plain structures, occasionally the ashlar blocks (to which the brackets supporting internal line shafting were attached), doorways or ventilation openings were emphasised and embellished.</p>	<p>There was little incentive to detail a building that was often obscured by multi-storeyed mills or large warehouses or on a part of a site away from the entrance. The use of top lighting meant that most side walls could be blind.</p> <p>The most elaborate buildings tended to be the more "public" offices or larger eye-catching warehouses and multi-storey mills.</p>	 <p>014 - Decorated ashlar corbels at Queen Street Mill, Briercliffe, Burnley</p>  <p>015 - Tooled window lintel and cill, Bell Vue Mill, Burnley</p>

Characteristic features	Reasons	Photographs	
<p>Rows of internal slender cast-iron columns (often plain) form aisles and bays. Sometimes replaced in later examples by steel stanchions. Columns often have cast-iron flanged D-section bolting heads to take a bracket that carried geared drive shafts taken from the main line shaft that ran the whole length of the mill from the engine. In effect each row of cast-iron columns carrying a drive shaft defined the position of a rank of looms taking power by belt drive from the shaft.</p> <p>Timber or cast-iron beams were generally used in the 19th century. In the early 20th century steel girders supported by steel stanchions bridged the almost clear interiors.</p> <p>The evolution of the interior was marked by a steady progress towards creating wider bays.</p>	<p>Supported the timber (or occasionally cast-iron or steel) roof structure. Also supported the line shafting. The columns are fireproof and strong. Weavers would be assigned approximately 2-10 looms each depending upon their level of expertise and experience. Looms were arranged in bays which were defined by the columns and drive shafts. One line of shafting carried by the columns drove two rows of looms.</p> <p>The bays created housed machinery and as many of the looms increased in size over time so did of the dimensions of the bays created by the columns in the later sheds. The floor space was also cleared of obstructions in order to have as unimpeded an area as possible for machinery.</p>	 <p>016 - Cast-iron columns, Trafalgar Mill, Burnley</p>	 <p>017 - Detail of a column with line shaft, Queen Street Mill, Burnley</p>
<p>Regular guttering along the saw-tooth roofs.</p>	<p>Valley gutters between each of the roof bays discharged either through rainwater heads into external downpipes or into box gutters running the length of the exterior wall before discharging into a single downpipe.</p>	 <p>018 - Hoppers and downpipes on the side elevation, Belle Vue Mill, Burnley</p>	 <p>019 - Detail of a cast-iron hopper and downpipe, Belle Vue Mill, Burnley</p>

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Characteristic features	Reasons	Photographs
<p>Stone or concrete floors, sometimes retaining the impressions of the loom feet.</p>	<p>Floors needed to be strong and level to hold the weight of the machinery and limit vibrations.</p>	 <p>020 - Detail of stone flagged floor showing imprint of loom feet, Queen Street Mill, Burnley</p>

Development of, and Variation Between, Weaving Sheds

Variation between weaving sheds in the Lancashire Pennines was limited and their standard design can make them highly repetitive. Nevertheless a few general trends (both geographical and over time) can be identified. It should be noted that these are broad trends and that a number of individual examples can be found which do not precisely follow them.

Changes in Operation / Tenancy

Purpose-built integrated mills that could undertake the processes of both spinning and weaving cotton represent a bridging point in the development of factory-based textile production. They represent the mid-point between the period in which steam-powered spinning mills produced yarn that was put out to handloom weavers and the later realisation that specialising in weaving promised the greatest economic return. One of the earliest examples is Higherford Mill (Higherford) with origins in c.1824.

Most weaving sheds were part of specialist weaving complexes with the weaving shed with its engine house and suite of warehouses and offices being self-contained. Some powerlooms were housed in large single-storey weaving sheds built beside a multi-storey block that housed the spinning process. Examples of this can be seen in the Weavers' Triangle (Burnley) and at Brierfield Mills (Brierfield), built before 1844, Albert Mills (Barrowford), built between 1844 and 1879, Spring Gardens Mill (Colne), built between 1844 and 1854.

Integrated weaving sheds with multi-storey buildings and engine houses became rarer over time partly due to the high capital costs and partly due to their increased fire risks. Later examples were sometime separated spatially, for example with engine houses separated by a high fire-wall⁴⁰.

By c.1900 the room and power system was well established and companies continued to form and build new steam-powered cotton weaving sheds on the room and power basis into the first quarter of the 20th century. Furthermore a few of the manufacturers had amassed sufficient capital to build their own room and power sheds in the early 20th century. The number of tenants did however begin to slowly reduce after 1900, with the larger firms gradually taking over entire sheds. As a consequence a number of the mills built in the 20th century lack the characteristic features of the earlier room and power mills such as multiple loading bay doors and internal partitions. Other, existing mills, removed the internal partitions as the numbers of different tenants decreased.

Some of this variation is geographical. Rothwell⁴¹ has noted that in Nelson, unlike towns to the west such as Blackburn and Great Harwood, few entirely single storey mills were erected. *'It is likely that the need for warehousing and preparation space created by a number of tenant manufacturers influenced the continued use of two and three storey buildings, even though these presented higher fire risks. The warehouses were often provided with a number of different loading slots, again to accommodate the needs of tenants. Separate office space was seldom available, and most firms located administration within their leased space. This has risks, and a number of companies, as at Whitefield Shed for example, lost all their books in fires.'*

40 Mike Rothwell pers. comm. January 2009.

41 Rothwell, M. (2007). *Industrial Heritage - A guide to the Industrial Archaeology of Nelson, Barrowford & Brierfield, including the village of Blacko.*

The Large Mill Complex

The weaving sheds shared many features in common and most had a fairly standard set of components and characteristics. Weaving sheds are often part of a wider factory system. In integrated mills, first appearing in the late 1820s, weaving sheds are on the site as multi-storey mills with linked and complimentary processes such as spinning, preparation or warehousing. These complexes had developed by c.1850 into *'ambitious, monumentally-conceived complexes designed to impress'*⁴². Victorian industrial architecture was increasingly conceived as public architecture worthy of display. Access to the weaving shed was usually through the multi-storey block which fronted the street. Most also had a pedestrian entrance into the shed itself, usually in a far corner.

The room and power mills were generally built to a similar plan. This comprised one or more large weaving sheds, a multi-storey preparation block (often facing the road) and attached engine and boiler houses. Flexible wooden partitions were frequently erected in the room and power weaving sheds to separate each firm's manufacturing plant. These could be moved to accommodate greater or lesser space depending upon the changing needs of the tenants. Each section would have a loading bay entrance. Multiple loading bay doors in an elevation are therefore a good indicator that it once operated the room and power system. Many room and power mills had multi-storey preparation spaces along the frontage. A number of these have been retained, for example in Nelson where their associated multi-occupied sheds with multiple loading bay doors also survive. Often the sheds were divided by moveable tongue and groove timber partitions on a single floor.



021: Bay area



022: Kings Mill Exterior

In addition to the weaving shed were a multi-storeyed block, usually two or three storeys high and often fronting the main street or road on which the mill stood, an engine house, a boiler house, a chimney etc. The majority of the purpose-built north light weaving sheds had these components in various combinations, some with additional buildings or features such as offices, reservoirs (mill ponds), or gasworks. The multi-storey block was an important component, usually long, fairly narrow and mostly two or three storeys high, it acted as a warehouse for both spun yarn and woven cloth, housed the yarn preparation processes, sizing and beaming, and provided office accommodation for the administration of the mill.

42 English Heritage March 2007, 6.

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By the 1870s most new cotton-weaving mills were being built for room and power operation. A simple and common arrangement was to have a long multi storey block with a single storey weaving shed attached to the rear. There would be an engine house, boiler house and chimney attached to the side.

As noted by English Heritage⁴³ horizontal engines rather than beam engines became the norm, the former usually requiring a wider and generally larger engine house than the latter. The increased size and predominance of the horizontal engine house within the mill complex provoked the use of greater architectural embellishment. Furthermore, as many of these fronted main streets, they were often used to bear name and date stones. Chimneys, typically constructed of stone and square in plan such as the original chimney at Hill End Mill, were also built of brick allowing them to be built taller. Generally circular and tapered they often displayed elaborate oversailers. Office, warehouse and yarn preparation blocks of the mid and late 19th century had pitched slate roofs, often with rooflights, rectangular windows with rectangular sills and lintels and sometimes full stone surrounds, and rectangular pedestrian and vehicular entrances with stone surrounds and, sometimes, interrupted jambs. Vehicle entrances were usually narrow. This probably reflects the horse drawn nature of the vehicles that they were designed to accommodate. Some were widened in later years as steam and then petrol and diesel-powered lorries replaced horse drawn carts. Engine houses were also often built fronting the street and, together with the associated boiler houses, they formed an elaborate grouping facing the public at large. Boiler houses were sometimes built with the boiler openings facing onto the street. This facilitated the movement of coal from the road.

Larger single-phase mills built in the second half of the 19th century employed a variety of alternative layout arrangements, depending on the size and nature of the site.

Changes in Size

Many of the early 20th century weaving sheds were larger buildings than their 19th century counterparts. For example Crow Nest Shed (Barnoldswick), built in 1914-15 by the Crow Nest Shed Company Limited had five tenants in 1917 running a total of 2080 looms. At Barrowford, Holden Brothers, previously of Seedhill, erected a large shed in 1907-08, whilst John Halstead of Parkfield built Meadow Bank Mill (Brierfield) in 1905-06. Later sheds also tended to have higher ceilings. Whilst this may be related to changes in machinery (see below), it could also have been related to health and safety acts and concerns to provide a certain amount of air to the workers and improving their working environment.



023: Kings Mill



024: Kings Mill

43 English Heritage, (March 2007).

Changes to Bay Spacings

Large 20th century mills were generally higher, larger mills with larger bays than their 19th century counterparts. This was often a response to changing machinery. Looms tended to increase in size during the 19th and early 20th centuries and thus required larger bay sizes and heights. Nasmith gives explanation to the need of larger, unobstructed floor spaces within weaving sheds, he explains that it became desirable to place the mules or frames transversally of the building, 'It was requisite that no obstruction from any internal cause should exist'⁴⁴.

Especially in the case of mules, it was desirable that the space where the carriages ran, no pillars supporting the floors should be found. He goes on to explain that the increase in production of wrought-iron, first, and steel rolled girders 'placed in the hands of the mill architect a means to which he was not slow to use'. He ends by stating that by skilful design 'a floor has been evolved, which, while of large and comparatively unbroken area, is yet well supported'.

Fairbairn also explains that it was found, 'after the introduction of the self-acting mule that one man could work, with the assistance of two or three boys, 1,600 spindles with as much ease as he could work 600 spindles by the hand mules, this led to mills of double the width of the old ones'⁴⁵.

Older mills were occasionally re-organised and columns moved in the 20th century to accommodate developments in machinery and/or new regulations. At Queen Street Mill (Briercliffe), 1500 looms later became 828 as new regulations about loom spacing were introduced. Bay spaces changed to accommodate this⁴⁶.

Again some variation is geographical in that different areas tended to specialise in different products. Thus Nelson mainly produced coloured cloth, sateens, gaberdines and poplins; Whitworth mainly fustian and fancies; shirtings, blouse materials and other fancy goods were produced in Colne; Burnley mainly produced grey cloth⁴⁷; with further areas being mainly towels and sheets and so on. There were a large number of different kinds of looms to accommodate the various grades and sizes of fabric. These included handkerchief looms, blanket looms, plain cloth looms and so on and sizes varied. This in turn affected architectural designs, size of bays and heights of sheds. For instance shoddy mills tended to have smaller looms and vertical machinery, including spinning, in the same building with weaving looms often on the ground floor of a multi-storey building.

Variations Amongst Designers and Owners

Different designers could also have slightly different variations in design and execution. Works by Keighley thus have a distinctive style which can be identified⁴⁸. These include his characteristic water towers situated above the boilers. Differences in ornamentation may also result from differing desires for elaboration and display. For instance, although most columns are relatively plain, more ornate examples are known. At Primet Mill (Primet Bridge area of Colne) the cast-iron columns

44 Nasmith, J. (1909). 'Recent Cotton Mill Construction and Engineering', 11.

45 Fairbairn, W. (1865) 'Treatise on Mills and Millwork', 178.

46 Roger Frost pers. comm. (January 2009).

47 The main reason for this was that Burnley generally used narrow looms. Looms to produce sheetings had to be much wider than Burnley's standard 36 inch (Roger Frost comments April 2009).

48 Roger Frost pers. comm. (January 09).

supporting the roof of the 1844-1891 weaving shed are rather ornate, having composite capitals. These carry I-section bridging beams with pierced guilloche decoration which in turn carry the valley gutters of the roof.

The machinery advancements introduced by Arkwright and Crompton in the 18th century and the large profits from the cotton industry at that time, enabled the proprietors to build mills, sometimes to a colossal scale. These early mill buildings were plain square buildings with 'no pretensions to architectural form'⁴⁹. William Fairbairn, writing in his 1865 *Treatise of Mills and Millwork* explains that these plain mills continued to be built well into the early 19th century, he explains that he designed a mill in about 1827 and persuaded the proprietor to 'allow some deviation from the monotonous forms then in general use'. He regarded his simple changes in design as having no pretention to architectural design, but it gave a new impetus to the building of factories. These simple changes, according to Fairbairn were 'speedily copied' in all directions with varying designs, each differing slightly, and these generally 'improved the appearance, and produced in the minds of the mill owners and the public a higher standard of taste'⁵⁰. Fairbairn also mentions in his writings that it was during this time of architectural improvements, that architects, owners and engineers sort to improve many areas of the mill, not only external design but also layout internally and 'their adaption for the reception of the different kinds of machinery'⁵¹. Fairbairn crucially points out that it was also at this time, 'Contemporaneous with the architectural improvements in mills, the shed principle lighted from the roof, or the "saw-tooth" system, came into operation'⁵².

Materials

'As in the spinning mill the fittest material for the edifice will be decided by the circumstances of the locality'⁵³. Advances in technology and changes in transport routes affected the materials used. Thus areas close to brickworks e.g. in Accrington would be more likely to use brick in the weaving sheds whereas Nelson and other areas near stone quarries would predominantly use stone. Marsden recommends that if mill ponds need to be constructed, then the clay should be utilised in the manufacture of bricks for use in the construction of the building. He also advises that the clay can also be sought from foundation trenches⁵⁴.



025 - original cast-iron column encased in modern brickwork

In addition to local geographical variations, change can be observed over time. Steel stanchions began to replace cast-iron columns in the 20th century mills or some mills renewed in the 20th century. Kings Mill (Briercliffe) contains both its original cast-iron columns and also later steel stanchions.

49 Fairbairn, W. (1865). *Treatise on Mills and Millwork*, 113.

50 Fairbairn, W. (1865). *Treatise on Mills and Millwork*, 114.

51 Fairbairn, W. (1865) 'Treatise on Mills and Millwork', 115

52 Fairbairn, W. (1865) 'Treatise on Mills and Millwork', 115

53 Marsden, R. 1895. *Cotton Weaving: Its Development, Principles, and Practice*.

54 Marsden, R. 1895. *Cotton Weaving: Its Development, Principles, and Practice*, 360.

Light, Ventilation and Drainage

As noted earlier, ventilation was important in weaving sheds to help maintain suitable atmospheric conditions. Most 19th century sheds had rectangular ventilators set within the parapet walls. Later sheds tended to have ridge ventilators in the roof and these can be seen in some earlier sheds where the roof has been renewed.

Many roofs that survive on the sheds have been renewed in the 20th century and their girders are also often 20th century in date. The earliest sheds sometimes employed greater variation in roof types. Hill End Mill (Briercliffe, Burnley) – now demolished – had a dog tooth shed roof of equal proportions; the forerunner of the north light roof. Roger Frost has suggested that this is due to the early looms, being less complicated, allowing more natural light available to the weavers as there was less in the way to prevent light falling where the weavers needed it⁵⁵. Linked to this is the fact that as loom machinery advanced and became increasingly automatic, weavers could operate larger numbers of looms leading to a need to as much light as possible.

Some early weaving sheds appear to have had visible/exposed gable end roofs and valleys. Roger Frost⁵⁶ has suggested that after c.1855 these began to be hidden behind a wall with drainpipes protruding from each valley. This may be related to security and/or style.

Location

The widespread use of power looms for weaving later in the 19th century led to significant further geographical expansion and freedom of location⁵⁷. Many of the earliest mills were in the Pennine valleys where they were close to fast flowing water sources. By the early 19th century the application of rotative action to the steam engine began to free mills from this dependence. Textile industries therefore moved in increasing numbers from the Pennine valleys to the surrounding lowlands of Lancashire (and especially around Manchester) where they were closer to coal, imported raw materials and markets. Before 1842 a number of mills in Briercliffe and elsewhere were built with mill ponds 'Lodges' located next to them so as to provide plentiful water for the mill's boilers and to transfer the heat back to the water. The 'lodges' in Briercliffe before the 1840s were built not for this purpose but to store water for the water powered mill.

This was expensive as land had to be acquired for the construction of the ponds adding to the cost of the mill, another expense was regulating the flow of water to the pond, which often got blocked with silt as they were usually supplied by streams. An act of government was passed in 1842 allowing the canal companies to sell water to industry and mills, this effectively cashed in on the mill owners dilemma of needing a ready supply of water and needing to cut costs to keep up competition. Thereafter mills were built alongside canals, eliminating the needs to buy expensive land for mill ponds and manage the water system. During the late Victorian era, it became common for tropical fish to thrive in the canals around Burnley, owing to the much increased water temperature from the now many mills and factories using the canal water for condensing⁵⁸.

55 Roger Frost, pers. comm. (February 2009) and comments (April 2009).

56 Roger Frost, pers. comm. (February 2009).

57 English Heritage (March 2007, 5).

58 Roger Frost, pers. comm. (February 2009).

2.0 UNDERSTANDING PENNINE LANCASHIRE NORTH LIGHT WEAVING SHEDS

What variation existed was sometimes idiosyncratic or a one-off response to particular local conditions. This highlights the importance of being able to assess weaving sheds on a case by case basis as rare atypical features can be of significance. There is a rare example of a double-decker weaving mill at Brierfield with one weaving shed above another – which one?. Built in the 1860s the lower shed has no natural light. It is still used today, although the upper shed is vacant.



026 – Two storey weaving shed

Other features can be very specific. At Queens Street Mill (Briercliffe) a row of cisterns in one of the walls was a puzzling feature. Upon further investigation it was revealed that on the other side of the wall were the former staff toilets and when the building was used as a mill the supervisors could pull the chain of the cistern thus flushing the toilet of the “tardy” worker who was considered to be taking too long!

Towns and Settings

The weaving sheds and associated chimneys and mill buildings transformed urban and rural landscapes and provided certain areas with a distinct “industrial” character; a potent symbol of the Industrial Revolution and prosperity and productiveness of a locality.



027 – Cisterns, Queens Street Mill, Briercliffe, Burnley

The weaving sheds and associated buildings, and in particular room and power, presented opportunities to textile workers, and others, to enter manufacturing, whilst employment and inward migration increased greatly. Urban (and to a limited extent rural) growth was given an enormous boost. Large numbers of terraced housing were built to cater for the expanding workforce⁵⁹ such as at Hollin Grove Mill, Darwen, erected in 1863, built with associated workers housing. Local businesses, especially engineering, quarrying and building were amongst the main beneficiaries. Some companies also provided investment openings for many members of the local community such as shopkeepers, ministers of the church, teachers and numerous mill operatives.



028 – View of Briercliffe, Burnley, c.1972 illustrating the dominance of industry including weaving sheds, mills, chimneys (reproduced from Briercliffe Society)

59 Rothwell, M. (2007). *Industrial Heritage - A guide to the Industrial Archaeology of Nelson, Barrowford & Brierfield, including the village of Blacko.*

There are a number of key issues to address when considering significance. The following have been informed by reference to English Heritage's *Industrial Buildings Selection Guide* (March 2007).

The built legacy of the textile industries that dominated so much of the economy of Pennine Lancashire over the last three centuries represents an important body of evidence of the development of many types of textile mill, but most significantly of the cotton-weaving mill, the branch of the industry in which the area came to specialise so heavily. Cotton weaving mills including weaving sheds contribute greatly to the understanding of the ways in which the industry transformed both the urban and rural life of the region, influencing both the development of towns and the settlement of remote areas, and elevating small villages and hamlets from farming communities to important manufacturing centres. The buildings themselves reflect changes in technology and economy; from water to steam power and the effect of advances in steam-engine design and ultimately the adoption of oil engines, along with the rise of the room and power companies.

Although many weaving sheds, particularly those at the centre of towns have been demolished to make way for recent retail and commercial initiatives many more on the urban fringes have survived and have been put to new uses. In more rural areas the survival rate has been better still with a small handful still involved in textile production, in one instance still with Lancashire looms! Despite the apparently good survival rate, to date few mills are legally protected and as pressure to redevelop the large and potentially profitable sites they occupy intensifies so more and more gaps begin to appear, as elsewhere in the former cotton districts, where mills formerly stood, starkly illustrating the shift in industrial and economic emphasis in the former textile producing regions⁶⁰.

3.1 Group Value and Regional Significance

- Weaving sheds form part of a distinct group of functional buildings, built for a specialist purpose.
- Weaving and spinning was a particular regional specialism of the north of England during the Industrial Revolution. Weaving sheds are therefore part of an historic industrial specialism of national significance.
- Weaving sheds often have a group value both with other nearby sheds and also with associated buildings within their plot. For example weaving mills would generally include a weaving shed providing a manufacturing area for the looms, warehouse(s) to store yarns, warp beams and cloths, an area for hand-powered processes such as sizing and checking, offices, and power installation such as engine and boiler houses and chimneys. Integrated weaving and spinning sites can be even more significant when assessing the variety and evolution of processes that occurred within the sites as they are often early in date and contained a greater range of processes. When assessing significance the issue of completeness is key with the most significant weaving sheds found as part of an integrated textile factory site with for example some of the following *in-situ* - multi-storey mills, warehouses, engine houses, boiler houses, dye houses, drying houses, administrative offices, chimneys and carding areas. Single storey weaving sheds were a major component of many textile mill sites.

⁶⁰ Taylor, S. (2000). *Pendle Textile Mills*, 36. English Heritage.

3.2 Historical Significance

- The built form of surviving weaving sheds provides an important physical link with, and evidence of, an important element of industrial history. The weaving sheds are associated with the Industrial Revolution. Britain has an outstanding international significance as the birthplace of the Industrial Revolution and the north of England was a leading producer and supplier of cotton and wool.
- Those weaving sheds which survive in the most complete form and with other associated buildings on a site are likely to have the most significance. Individual weaving sheds will also vary in their historical significance based upon differing associations with notable achievements, early examples of new machinery, influential local architects/engineers and/or business leaders. Thus for example at Anchor Mill in Darwin the buildings from the weaving mill provide an early example of an Ashton, Frost & Company design.

3.3 Architectural Significance

- The primary significance of the built form of weaving sheds is the link between architecture and process. Weaving sheds reflect in their design (arrangement of windows, floor surfaces, plan form, internal arrangements such as size and arrangement of columns and bay spacings) the specific functions that they were intended to fulfil. As a consequence they display little architectural elaboration and instead share broad characteristics that enable an overarching typology to be identified. Nevertheless, caution should be applied when referring to any such typology in order that it does not obscure the differences between the sheds. This is because these can often be significant in helping to identify not only local and chronological variations but also the styles of different architects/engineers, differing management and operational factors, changes in processes and machinery and so on.

3.4 Technical Innovations and Machinery

Survival of machinery such as power looms will enhance the significance of a weaving shed. The sheds were built and designed largely as a consequence of the adoption of the power loom and the internal arrangement of columns, looms, spaces between machinery and numbers of machines in a group, drive shafts etc was dependent upon the type and size of looms employed and their number.

Weaving sheds are relatively simple buildings with few technological innovations. Perhaps the most important were innovations and improvements to the machinery and the increasing drive towards efficiency and specialisation that this represented. The regular use of north-light windows was an important development as was the use of iron.

3.5 Significance of the Setting and Wider Industrial Context

The dominance of the spinning and weaving industries in Pennine Lancashire had a profound effect on the rural and urban landscapes in the following main ways:

3.0 ASSESSMENT OF SIGNIFICANCE

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- Weaving sheds are highly distinctive and thus often form a key component of the character of an area.
- Weaving sheds were regularly part of a wider industrial complex. This can include storage areas, mills for carding and spinning, finishing, storing and packing areas, chimneys, water towers, water sources and transport routes such as canals and railways and so on.
- Multi-storey mills and larger integrated sites in particular dominated their immediate landscape. Tall chimneys broke the skyline.
- Weaving sheds and mills had a major influence on domestic settlement patterns as industrial communities grew around individual mills whilst mill towns rapidly expanded. Workers and manufacturers houses would often be found near mills and these would be supported by community buildings with churches, schools, libraries, almshouses, hospitals and so on constructed to support the workforce.
- Alongside other industrial sites, weaving sheds had a key social, economic and political importance with links to trade unionism and the growth of a new political class and the labour movement.

3.6 Statutory Significance

A number of weaving sheds are Listed; others are in Conservation Areas or are locally Listed buildings. This is particularly the case for weaving sheds that form part of wider industrial complexes and processes.

3.7 Rebuilding and Repair

Historic alterations can have a positive value in highlighting historic changes in manufacturing, operation, processes, ownership etc. Significance is often enhanced for those weaving sheds that survive reasonably intact with a good survival of historic fabric. However mid-late 20th century alterations often had a negative effect. Significance can be compromised by the undermining of the historic integrity, character and completeness of weaving sheds by unsympathetic alterations and altering buildings in a way which does not necessarily provide clear evidence of specific manufacturing techniques.

3.8 Development Potential

Former weaving sheds, in common with a number of other historic industrial sites, can be key sites for urban regeneration and rural land use programmes. They present opportunities for new uses in addition to challenges for amenity and remediation.

3.9 Detractions to the Significance

Weaving sheds are vulnerable to a loss of historic fabric, unsympathetic alterations, issues of vandalism, poor repair and even dereliction, partial demolition, loss of historic context and inappropriate new uses. These can all detract from the significance of the buildings.



029: Only the scar from the saw-tooth roof remains of this demolished weaving shed near Belle Vue Mill, Burnley

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APPENDIX A AN OVERVIEW OF THE DEVELOPMENT OF THE PENINE LANCASHIRE TEXTILE INDUSTRY

1600-1700: Domestic Residences / Workshops

Throughout the 17th century England remained predominantly rural with craftsmen comprising the most important industrial sector. Woollen textile production had been an important part of rural life from the Medieval Period and by the 17th century was an important part of the local economy of much of Lancashire. Early industrial buildings were often on a domestic scale and the workshop was a common production unit. Most spinning and weaving was however still conducted by individuals and families in their living quarters in domestic residences.

A number of vernacular buildings include provision for textile working; often the origins of textile production. Domestic workshops, commonly specially adapted, were generally pre-Industrial. Spinning wheels and handlooms were operated by individuals and families working in their own homes. Known as the domestic system, the three main steps involved in the process were carding (often completed by children), spinning (to draw and twist the carding to produce yarn) and weaving (the yarn is woven into a fabric)⁶¹. As textile production increased handloom weavers' cottages developed each containing 2-3 handlooms. These sometimes developed as rows of cottages. Marsden (1895) explained how this early domestic set-up originally introduced much essential moisture into weaving. *'The old English hand-loom weaver in the cotton trade, in order to get the advantage of a bare earth floor, preferred to place his loom on a ground floor or in a cellar to an upper room, and often dug a hole beneath his treddles, into which he poured water. The evaporation from this kept his warp in the best condition for weaving'*⁶². However it should be noted that Marsden was more familiar with urban conditions and this did not regularly apply in more rural locations.

1700-1820: Innovations

The 18th and early 19th centuries witnessed the transformation of the economy across Britain. The expansion of trade, together with a series of discoveries, inventions and innovations all contributed to the transformation of urban areas and the emergence of the factory system on a national geographic scale. The improvements made in machine spinning (notably by James Hargreaves, Richard Arkwright and Samuel Crompton) with the introduction of the spinning jenny⁶³, the water frame and the spinning mule respectively, facilitated a huge expansion of the industry. A 19th century structural engineer, William Fairbairn noted that weaving and spinning were chiefly carried out in the farmhouse and the cottages of the labouring poor. The invention of the power-loom became the precursor of future changes and *'ultimately destroyed almost every vestige of our domestic manufacture'*⁶⁴. Many workers previously distributed over a large area of country, were now being housed under one roof undertaking many different processes.

As noted by English Heritage⁶⁵ the increasing national – and international - demand for cotton textiles resulted in the import of raw cotton increasing 12 fold by 1815 with a corresponding

61 Other important processes in wool production were fulling, bleaching and dyeing.

62 Marsden, R. (1895). *Cotton Weaving: Its Development, Principles, and Practice*, 358.

63 The convention was not for factory use in its earliest days. Rather it was adapted later for factory use.

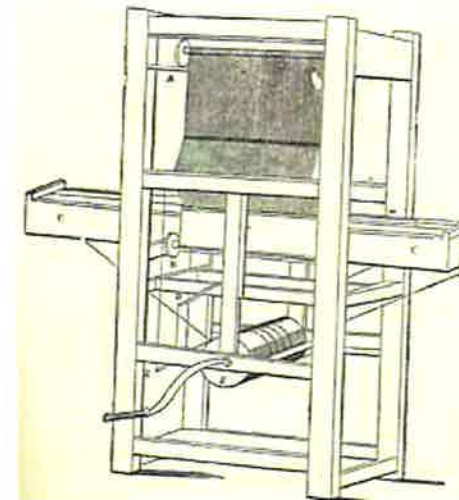
64 Fairbairn, W. (1865). *Treatise on Mills and Millwork*, 113. The power-loom was invented by Edmund Cartwright in 1785/86 but was not in common use until the 1820s and was considerably improved by the patents of Hornby, Kenworthy and Bullough in the early 1840s.

65 English Heritage (March 2007). *Industrial Buildings Selection Guide*. Heritage Protection Department.

increase in the number of mills, spindles and workers.

As mechanisation for cotton spinning, transport links, efficiency and demand all improved, mills and factories became increasingly common in the 18th century. They made an appearance from the early-mid 19th century in most parts of Pennine Lancashire.

By the early 19th century increasing numbers of handloom weavers, for example in Pendle, were employed in "dandy shops"⁶⁶. These were proto factories, a number of which comprised a row of three-storey weavers' cottages with a single long loomshop over the whole row on the third floor managed by a manufacturer. The first textile mills in Pendle tended to be water-powered spinning mills such as Jewel Mill (Reedley Hallows). Spun yarn was then transported to handloom weavers prior to the introduction of integrated spinning and weaving mills.



030 - Cartwright's first power loom, 1785 (reproduced from Marden's *Cotton Spinning*, 1895)

Weaving took longer than spinning to become mechanised. The first British patent for a power loom was taken by Edmund Cartwright in 1785/86. He spent much of the 1770s-1790s improving his initial designs with multiple further patents. Indeed it was not until the 1840s that an efficient power loom was developed (Hills 2008, 80) to prove a serious challenge to traditional handlooms and handloom weavers. A series of modifications and new designs were made in the late 18th and early 19th centuries by, for example, Austin of Glasgow (1789), Radcliffe of Stockport (1803), Williams of Manchester (1814) and Roberts (1822).

In 1850, the latest looms were described in *The Engineer and Machinist*:

*'The power-loom working at a speed so great that the eye can with difficulty follow its rapid movements, throwing the shuttle across the shed 220 times per minute, occupying a space of but 20 feet area... performing its duties with precision and regularity not to be surpassed by any other machine which the ingenuity of man has hitherto devised'*⁶⁷.

66 Dandy shops were named after the dandy loom; an improved type of handloom patented in 1805.

67 Hills, R. L. (2008). *Development of Power in the Textile Industry from 1700-1930*, 86.

APPENDIX A AN OVERVIEW OF THE DEVELOPMENT OF THE PENINE LANCASHIRE TEXTILE INDUSTRY

1820-1914: North Light Weaving Sheds and Integrated Mills

For much of the 19th and early 20th centuries Britain was the “workshop of the world” and textile manufacture was concentrated in the north of England. Pennine Lancashire developed as a specialised cotton-weaving area during the 19th century. There was very little wool and worsted production by the end of the century. By the late 19th century, particularly the 1870s and 1880s cotton spinning areas were concentrated in and around Manchester and cotton weaving areas further north in areas such as Pendle, Blackburn, Burnley and Preston. This division coincides with the introduction of the Rabbeth spindle, an American invention and precursor to the speed frame.

The cotton industry became the backbone of many of the towns and boroughs in northern England with expansion of settlements, new villages growing up around mills, population movement and new facilities to service this.

The spread of mechanisation (especially powered looms) from c.1820, and a series of innovations, partly in the way cotton was produced, led to the decline of the domestic system, although as pointed out by Williams, handloom weaving continued to be active throughout the mid 19th century ‘*Increasingly concentrating on the demand for specialised fabrics*’⁶⁸. As the efficiency of power looms improved so their numbers increased. Hills⁶⁹ records that numbers rose from 30,000 in England in 1825 to 45,000 in 1829 and 97,564 in 1835. By 1850 there were 184,816 power looms in vertically integrated mills (143,690 in Lancashire) and 36,544 in weaving sheds (31,875 in Lancashire). Burnley reached the peak of cotton cloth production in 1911. At this time Burnley had a record number of over 100,000 looms at work in the town.⁷⁰

Increasingly from the 1820s onwards textile manufacture was concentrated in *integrated spinning and weaving mills*. The *factory system* became increasingly widespread. This involved the emergence of a disciplined, systematised approach to production bringing together multiple powered processes on the same site. Purpose-built integrated mills that could undertake the processes of both spinning and weaving cotton represent a bridging point in the development of factory-based textile production. ‘*For various economical reasons...it [weaving] is to a large extent conducted as a separate business from spinning. This however, can only be done with advantage where the two branches are highly developed, and closely concentrated side by side*’⁷¹.

The *Multi-Storey Mill* became more widespread as part of the factory system. From the 1820s a number of cotton spinning mills were multi-storey with powerlooms housed in large single-storey weaving sheds built beside the multi-storey block. ‘*In integrated mills the spinning and weaving areas were usually interconnected, but spinning was still organised vertically on successive floors of a multi-storeyed block and with weaving at ground level in an adjoining shed*’⁷². The intervening wall between weaving sheds and the spinning mill was left open to allow free access between both areas of activity. This situation is not uncommon in Pennine Lancashire with a concentration in the Weavers

Triangle, Burnley.

Although integrated mills appear from the 1820s, most specialist weaving sheds (particularly purpose built stand-alone north light sheds) are mainly a later development, other than a few very early examples, such as in Blackburn, most emerged from the 1840s-1850s onwards. In the cotton industry the integrated firm, which peaked around 1850, was gradually replaced by firms concentrating on either spinning (e.g. Manchester, Oldham, Bolton areas) or weaving (e.g. Burnley and Blackburn areas). Industries became increasingly concentrated and specialised with 65% of all looms in the weaving area and over 80% of all spindles in the spinning districts by the end of the 19th century⁷³.

Specialist purpose-built *north light weaving sheds* began to emerge as a novel type of building that appeared to solve many of the problems faced by contemporary weaving. Marsden sets forth an explanation for the reasoning behind the north light roof, ‘*The plan of the building should provide that the bays of the roof of the weaving shed should run in a direction from east to west in order to present the glazed portion of the bay to the north, the volume of light obtained from this point of the compass being the greatest, most steady, uniform in quality, and the best adapted for manufacturing purposes*’. Once this is established, the looms ought to run in aisles at right angles to the bays in the roof, ‘*In order that the slays or lathes of the looms shall not cast shadows upon the warp shed in the process of weaving*’⁷⁴. By following this common practice, the weaver can quickly see yarn breakages and flaws within the material, that would otherwise be disguised by shadow.

The image of noisy, fast and relentless activity within these modern northern weaving establishments even caught the imagination of Charles Dickens, writing in his weekly periodical, May 1860. ‘*The weaving shed, with its bright north light, is as airy as a birdcage. The flying bands, the rattle of two hundred looms, the wild varieties of motion shown in the distance by the working looms, the little tramways along which boys push wagons of cloth on their way to the measuring department, make up a scene of activity over which the eye anxiously ranges in search of an image that will realise to the outer world the marvellous order, that looks like chaos, of a great modern weavers’ shed*’⁷⁵.

By the end of the 19th century and into the 20th century smaller subsidiary industries developed, serving the needs of the main cotton-weaving industry. The move towards increasing specialisations was likely to have been, at least in part, a consequence of the Cotton Famine brought about by the American Civil War (1861-1865). This had cut off supplies of cotton from America to Lancashire. Without a regular supply of cotton from their largest suppliers a number of manufacturers declared bankruptcy and large numbers in the textile trade lost their jobs. The lack of employment opportunities led to considerable hardship and poverty.

1915-2009: Diversification and Decline

Many early 20th century mills were large in size and housed numerous manufacturers such as Crow Nest Shed (Barnoldswick) built in 1914-15. However, the onset of the First World War in 1914 almost extinguished the building of new mills and marked the beginning of the lingering end of the cotton industry in Britain. The First World War effectively cut Britain off from the world in terms of trading, and

68 Williams, M. (1992). ‘Cotton Mills in Greater Manchester’, 85.

69 Hills, R. L. (2008). ‘Development of Power in the Textile Industry from 1700-1930’, 84.

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75 Dickens, C. (May 1860). *All The Year Round*, 162.

APPENDIX A AN OVERVIEW OF THE DEVELOPMENT OF THE PENINE LANCASHIRE TEXTILE INDUSTRY

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it never recovered post war. Indeed during the years of the war other countries continued to improve machinery and manufacturing processes to which Britain could not compete. Few mills were built in England after the 1920s. Those that were built tended to be smaller than the vast cotton sheds built previously, and the trend towards specialisation increased with mills often specialising in branches of the textile industry other than cotton weaving itself.

'As the century progressed new mill building virtually ceased, although many of the existing mills remained in production until the early 1970s, diversifying, as the market demanded, into synthetic materials and into more specialist products. Glen Mills, Colne; and Brierfield Mill, Brierfield; manufactured surgical dressings, and label weaving was carried out at Excelsior Works, Colne, which began as a laundry became a tape sizing works and later adopted label weaving. By 1998 only a very small handful of manufacturers were still in business in Pendle. Many of the mill buildings had been put to new uses or demolished entirely to make way for new housing and new urban development'⁷⁶.

Traditional textile industries steadily declined throughout the 20th century. Almost all manufactories and mills have now closed or been converted to other uses. There have been problems of redundancy in a number of areas in Pennine Lancashire and swathes of the Victorian industrial landscape have fallen into increasing disrepair and dereliction with a number of demolitions and replacement with new businesses and housing and commercial development.

76 Taylor, S. (2000). *Pendle Textile Mills*, 9. English Heritage.

APPENDIX B A WEAVING SHED IN DETAIL

NAME

Queen Street Mill

DESIGNATION

Harle Syke Conservation Area, Brierfield, Burnley
Locally listed chimney

HISTORY

Queen Street Mill was set up and operated by the Queen Street Mill Manufacturing Company; a village co-operative. Before steam power Harle Syke did not exist as a village and the township of which it became a part (Briercliffe) was merely an area of scattered farms and cottages². Following the introduction of the mills Harle Syke rapidly became a thriving village, eventually joining Burnley. Construction work started 1894 and the mill opened in 1895. The company was set up and run as a worker's co-operative with £20,000 in £5 shares. Although slightly unusual, this arrangement was not uncommon in Burnley. During production it held approximately 1000 looms with 1138 looms running at the peak of production (366 looms at the Primrose Mill). The management of the mill as a worker's co-operative probably helped to ensure the survival of this machinery as there would have been little capital to spend on modernisation.

The mill was expanded to its present size in 1901 and the steam engine was improved in 1913. There was a fire on the site in 1918. The three storey preparation area at the front of the building was burnt down and the engine house was slightly damaged. Fortunately, the weaving shed was undamaged. By the end of 1918 the company had rebuilt the front of the mill.

In 1947 electricity was supplied to the mill. Prior to this any electricity was generated from the Royce generator powered from the steam engine. The weaving shed had been gas lit. The weaving shed has been partially rebuilt and raised to accommodate two heights of windows i.e. more light.

The mill closed production in March 1982. Fortunately the mill was saved by Burnley Borough Council who restored and ran the site as a museum before Lancashire County Council took it over in the 1990s. It was re-opened in 1986 by the Prince of Wales and is the *Museum of the Lancashire Textiles Industry* with approximately a third of the shed devoted to the historical operations with a third being visitor facilities and a third being commercially rented units. *It is now known as the Queen Street Mill Textile museum.*

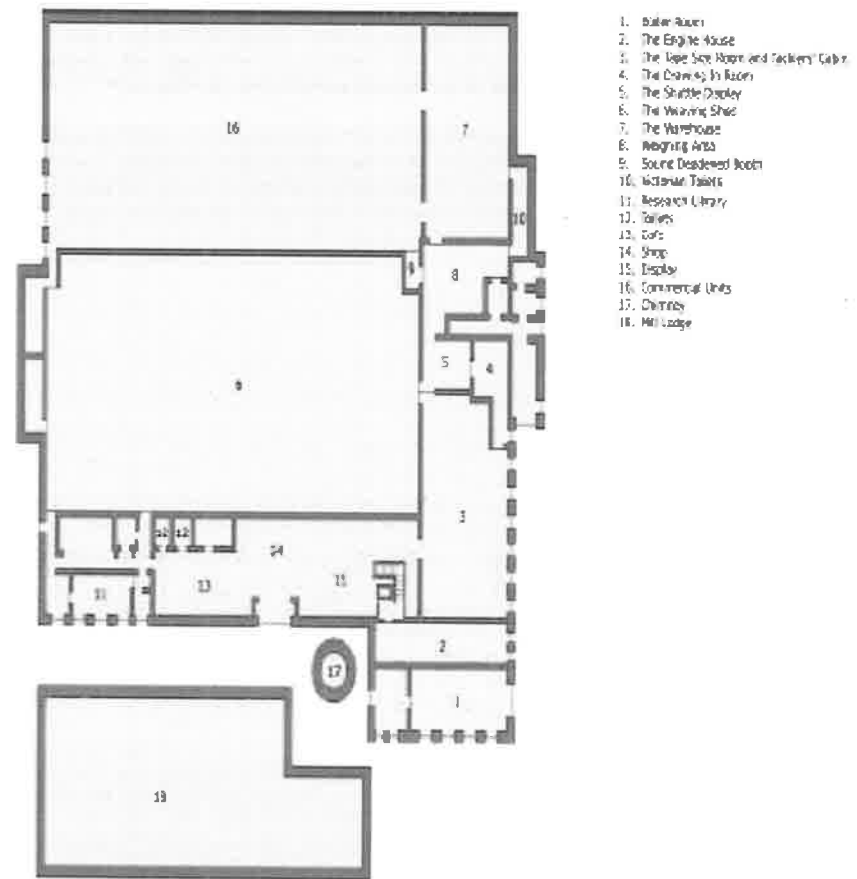
DESCRIPTION

The mill was designed as a stone-built single-storey weaving shed with a warehouse attached and a red brick chimney. The chimney bears the inscription 'Queen Street Mill'. Upon entering the weaving shed there is a reception area, café and visitor facilities. This would have originally been full of looms and the stone flagged floor shows the imprints from the loom feet and the worn pathways between the looms. Unlike in the Trafalgar and Belle Vue Mills (see below) the columns are set directly into the floor without iron floor plates.

The slots in the upper section of the columns held brackets supporting machinery the drive shafts. The raised areas of the shed have larger columns to support the higher roofs. Shafts are also supported on the ashlar wall blocks and these are a source of embellishment.

Within the weaving shed, the looms are split into groups of eight with one person expected to operate these eight. There are c.14 inches between the looms in a group and these fit between the columns.

The weaving shed forms one part of the larger mill complex. The plan below shows the subdivisions and the separate uses of the spaces that combine to allow the smooth running of the mill. Sliding timber doors often allow access between these spaces and there are both stairs and a lift.



Plan of Queen Street Mill (not to scale)

APPENDIX B A WEAVING SHED IN DETAIL

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A plan of Queen Street Mill, not to scale (based on the Queen Street Mill Textile Museum leaflet).

1. Boiler Room – houses the Lancashire coal fired boilers. By 1901 there were two coal fired boilers in the boiler house.
2. The Engine House – contains the steam engine PEACE that has featured in many TV documentaries. This coal fired engine was renamed following the armistice. It is a 500 horse power tandem compound engine. The mill engine was built by William Roberts of Nelson in 1894 and installed directly into the engine house. The engine house is a long narrow partially tiled room with large gable end windows.
3. The Tape Size Room and Tacklers' Cabin – in the tape size room the warp yarns were passed through size to strengthen them prior to being drawn up into the loom. Size is a liquid mixture containing starch, tallow, sago flour, and other ingredients. There were eight tacklers (always men) here and the cabin was there 'brew room'.
4. The Drawing In Room – where the warp ends (yarns) were drawn through the 'eyes' in the healds and then through the gaps in the reed. The assembled warp, healds and reed could then be placed into the loom and made ready for weaving.
5. The Shuttle Display – contains a knitted heald making machine, a reed making machine, a dobby lag peg making machine, the shuttle tip inserter and a large shuttle sample rack. Different makes and types of loom required different shuttles.
6. The weaving shed – contains over 300 Lancashire Looms.
7. The Warehouse – once a weaver reached the mark in the cloth at a certain length the cloth could be taken off and taken into the warehouse for inspection by the cloth-looker or overlooker, then folded and prepared for dispatch. From here the cloth was packed and taken from the loading bay onto horse and carts or from the 1930s by vehicle to a dyers and finishers.
8. Weighing Area- where all the incoming goods arrived and where the woven goods left the mill.
9. Sound Deadened Booth.
10. Victorian Toilets.
11. Research Library.
12. Visitor Toilets.
13. Visitor Café.
14. Visitor Shop.
15. Display.
16. Commercial Units.
17. Chimney – 120 foot high brick chimney, it contains a Lancashire boiler.
18. Mill Lodge – the water source of the boilers to create steam power.

SIGNIFICANCE

- Excellent restored interior. Intact steam engine and machinery.
- Surviving machinery includes Lancashire Looms (these looms use one shuttle so stripes or plain cloth was the only thing produced here), beaming frames, cylinder sizing machines, drawing-in frames and a Barber Colman knotter. The Lancashire Looms were all made in Burnley by Harling and Todd or Pembertons.
- This is the only mill from the ones examined in detail to retain the brackets on the columns, drive shafts and the machinery.
- Group value – the weaving shed is part of an associated complex (see plan above).
- Working museum and important educational resource.

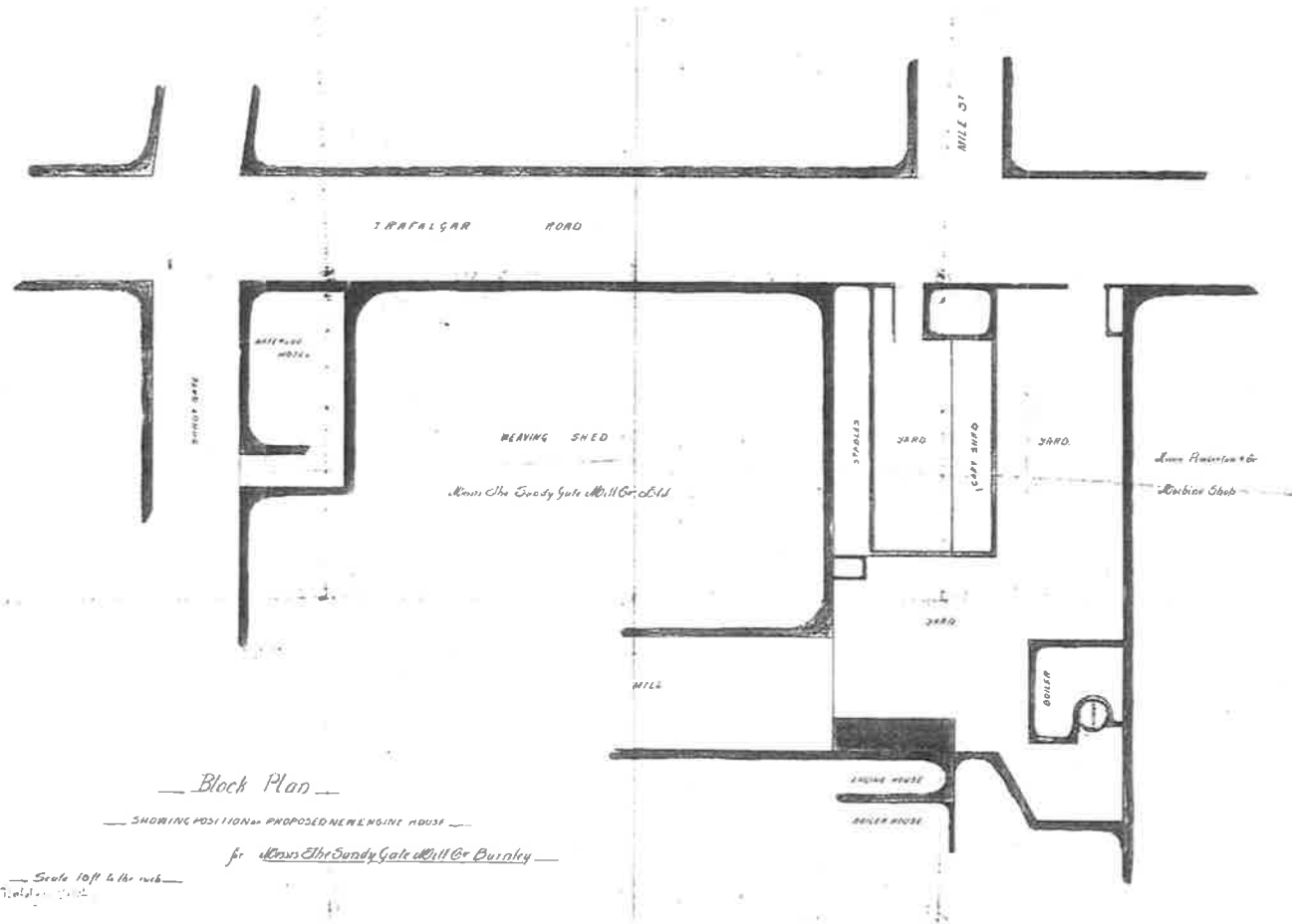
- The engine house, boiler house and chimney are scheduled. The weaving shed is under consideration for Listing.
- This is thought to be the last steam powered weaving mill in the world.

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Lancashire Museums Factsheet: Queen Street Mill (Lancashire County Council).
Queen Street Mill Textile Museum leaflet (Lancashire County Council).
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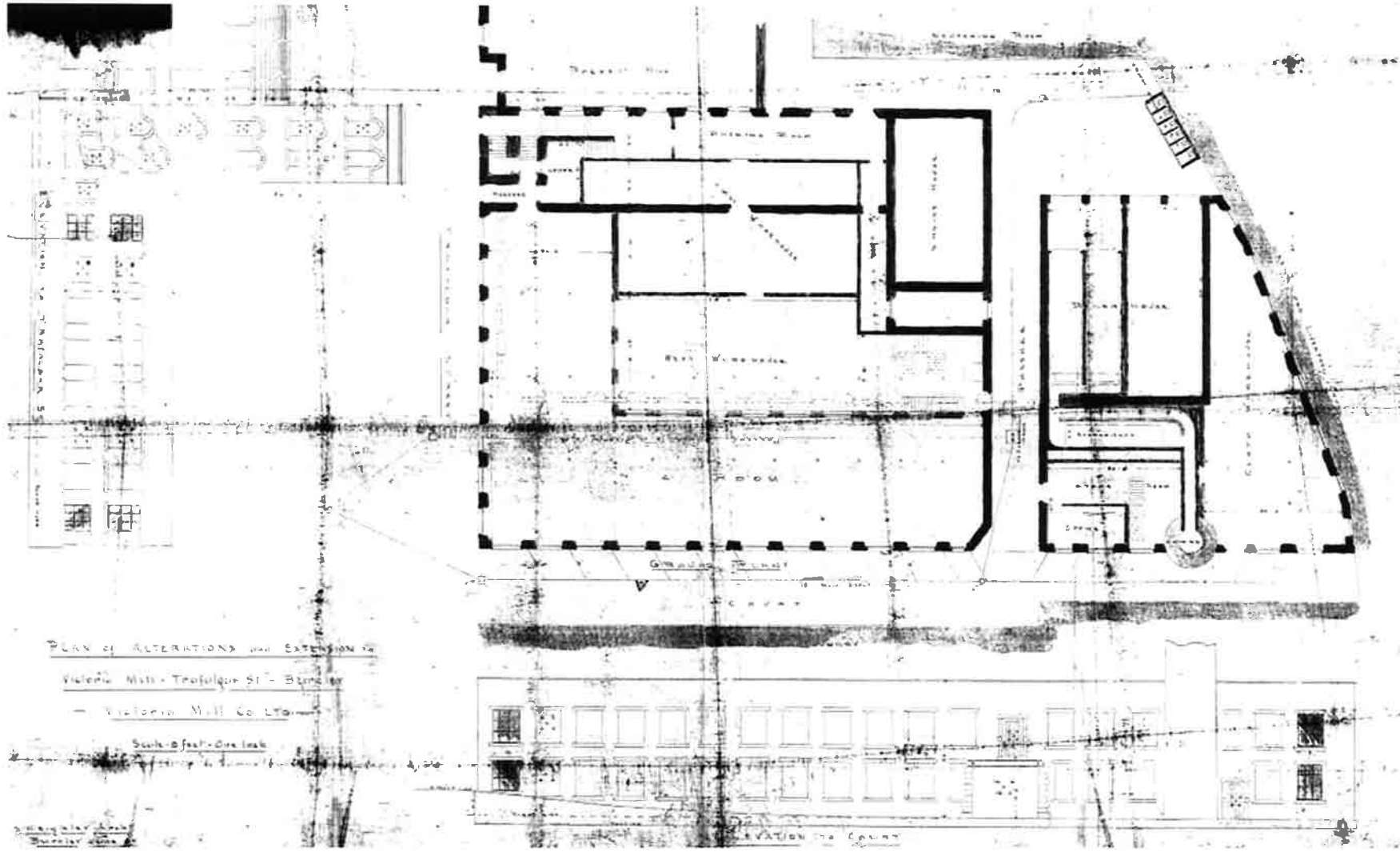
PHOTOGRAPHS





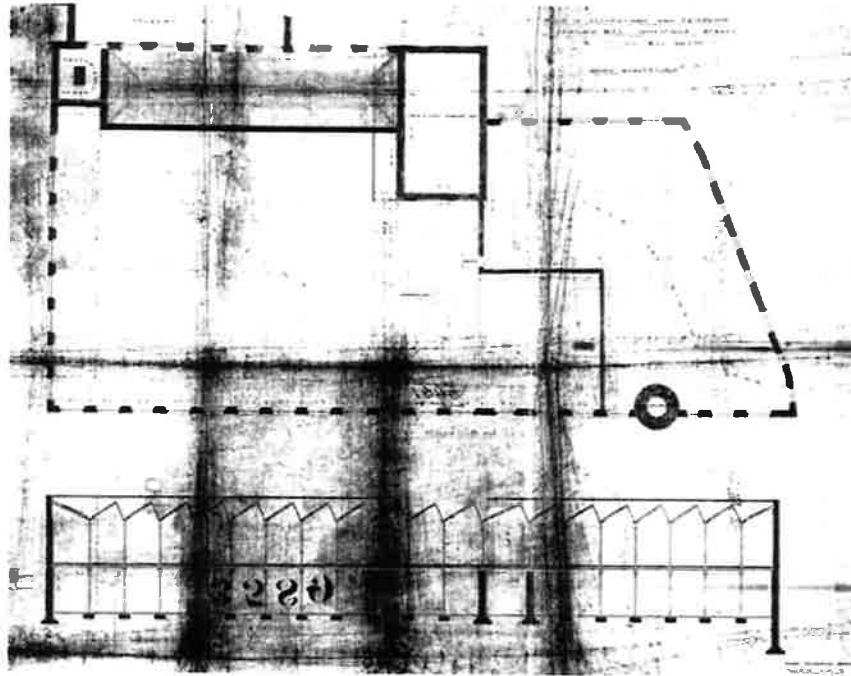
Plan of Sandygate Mill complex

APPENDIX C
EXAMPLE HISTORIC PLANS OF WEAVING SHEDS: SANDYGATE MILL & VICTORIA MILL, BURNLEY



Victoria Mill, Burnley; Plan and elevation 1889

APPENDIX C
EXAMPLE HISTORIC PLANS OF WEAVING SHEDS: SANDYGATE MILL & VICTORIA MILL, BURNLEY



Victoria Mill, Burnley; Plan and elevation, unknown date

- 1 Victoria Mill in Burnley was built in 1855 by Edward Stocks Massey as a spinning mill for throstle frames. The weaving shed at the mill was added later. Windows on the south and west elevations made good use of available light to the lower shed, with the northern areas of the floor, which had no or little natural light was occupied by twist and weft warehousing. The upper floor of course made full advantage of its north light roof.
- 2 Once steam power was widely used, mills were able to be built in relatively isolated areas as long as they were near a source of coal and good transport routes.

GAZETTEER OF WEAVING SHEDS

APPENDIX A ~ GAZETTEER OF WEAVING SHEDS

Ref	Name & Address	Designation i.e. Listed Building / Conservation Area	Date	General comments	Photographic reference
Weaving Sheds in Hyndburn					
1	Albion Mill Water Street, Great Harwood				
2	Mill at Ashworth Street Off Henry Street, Rishton				
3	Britannia Mill Off Spring Street, Rishton				
4	Wheatfield Mill Off Parker Street, Rishton				
5	Brookside Mill Brookside Street, Oswaldtwistle				
6	Hambleton Mill Off Marlborough Road, Church				
7	Lower Grange Mill Grange Lane, Accrington				
8	Perseverance Mill Grange Lane, Accrington				
9	Mill at Mary Street Rishton				
10	Moscow Mill (New Mill) Frederick Street, Oswaldtwistle		1870-1. Shed added 1906 and rebuilt/enlarg ed 1989		
11	Paddock Mill (Old Mill) Moscow Mill Street, Oswaldtwistle		1824-5. Five storey block built 1842,	Fires occurred in both 1898 and 1913, destroying the spinning	

			further spinning and weaving blocks added c1850s	mill and were reconstructed as single storied buildings thereafter. Planning Application to demolish and replace with a car park approved (11/07/0444)	
12	Palatine Mill Meadow Street, Great Harwood				
13	Devron Mill Meadow Street, Great Harwood				
14	Albert Mill, St Hubert's Street, Great Harwood				
15	Albion Mill Church Street, Accrington				
16	Premier Mill No.3 Waverledge Road, Great Harwood				
17	Queen's Mill Penny House Lane, Accrington				
18	Rhyddings Mill Rhyddings Street, Oswaldtwistle	Grade II Listed Conservation Area IoE Number: 183911	1856	An interesting example of a mid C19 textile mill designed with considerable architectural pretensions as part of a larger-scale urban development consisting of employees' housing, speculative housing and the parish church	

GAZETTEER OF WEAVING SHEDS

19	Mill at St James' Church Off Church Street, Church				
20	St. Lawrence Mill Mill Street, Great Harwood				
21	Mill at St. Paul's Street Oswaldtwistle				
22	Mill at Stone Bridge Lane Oswaldtwistle				
23	Mill at Tower Street Oswaldtwistle			Outline Application: Residential Development (11/08/0273) Approved	
24	Vine Mill Brookside Lane, Oswaldtwistle			Outline Application: erection of extension to factory and erection of new production unit Approved (11/96/0476)	
25	Woodnook Mills Victoria Street & Mount Street, Accrington			Outline Application: Residential Development for southern part Pending (11/08/0624)	
26	York Mill End of Danvers Street, Rishton				
27	Mill at Charter Street Church				
28	Mill at Fairfield Street Oswaldtwistle				
29	Globe Works Richmond Hill Street Accrington	Richmond Hill Street Works – top shop, south block only Listed Grade II	1888	Planning Applications: various change of use and a Listed Building Consent approvals	
30	Premier Mill Windsor Road, Great			Planning Application: erection of 24 No.	

	Harwood			houses and 16 No. apartments following demolition of mill (11/07/0656) Approved	
31	Waverledge Mill Waverledge Street, Great Harwood			Planning Applications: three changes of use / additional use Approved	
32	Pioneer Works Horne Street, Accrington			Outline Application: Demolition of industrial units and erection of 20 No. apartments and 14 No. houses (11.08/0142) Approved	
Weaving Sheds in Pendle					
1	Bankfield Mill Skipton Road, Barnoldswick			Shed built 1905	
2	Calf Hall Shed Calf Hall Lane, Barnoldswick			1889	
3	Crow Nest Mill Skipton Road, Barnoldswick			Shed built 1915	
4	Fernbank Mill Fernbank Avenue, Barnoldswick			Shed built 1915	
5	Long Ing Shed Long Ing Lane, Barnoldswick			1887	
6	Moss Shed Long Ing Lane, Barnoldswick			C1903	
7	Lower Clough Mill Pendle Street, Barrowford			C1891. Second shed added 1904.	A fire in 1892 damaged the warehouse, reconstructed after. Chimney was demolished.
8	Lob Lane Shed/Brierfield Clitheroe Road, Brierfield	Within Mills	Brierfield Conservation	1859. Extensions	Following a fire in 1909 the warehouse was

GAZETTEER OF WEAVING SHEDS

		Area	made in 1888-9	rebuilt. Already had consent for demolition of shed for housing, but is now stalled.	
9	Hollin Bank Mill Hollin Mill Street, Brierfield		1891-3. No Two Shed 1893-5. Additions of 1897, 1901 & 1905	A fire in 1917 gutted the west warehouse, reconstructed 1920. A second fire in 1924 gutted the same building, rebuilding followed.	
10	Brierfield Mills Glen Way, Brierfield		Original factory 1833. Shed added c1844. Mill, preparation block and shed added in 1868 (refaced 1870s),	Architecturally significant mill. Original 1833 factory destroyed by fire in 1872 and replaced by 'Middle Mill'. Soon after, the 1840s shed was demolished and the weft mill constructed. The former Low Pit was purchased in 1873 and a further shed and preparation departments were added in c1877. Chimney now demolished.	
11	Derby Street Mill Derby Street, Colne		1892, shed added in 1894		
12	Oak Mill Oak Street, Colne		C1891	Largely demolished.	
13	Glen Mills North Valley Road, Colne		1906	Also called Empress Mill	

14	Greenhill Mill Skipton Road, Colne			1854-79	Warehouse and preparation blocks now demolished.	
15	Crescent Works North Valley Road, Colne					
16	Stanley Street Works Stanley Street, Colne			C1891		
17	Riverside Mill Greenfield Road, Colne			1902-10		
18	Bradford Mill Philips Lane, Colne					
19	Primet Foundry/Greenfield Greenfield Road, Colne	Grade II Listed IoE Number: 478075		c.1850, with additions of 1861, 1880, 1895 and 1947.	This near-complete and rare survival represents an important and often overlooked aspect of the textile industry- the manufacture of textile weaving and spinning machinery.	
20	Bankfield Mill Greenfield Road, Colne			1854-79		
21	Holker Street Mill Burnley Road, Colne					
22	Primet Bridge Foundry Burnley Road, Colne			C1850		
23	Bridge Mills/Shed Burnley Road, Colne			1844-5, weaving shed built in 1865, further extensions in 1875	A fire in 1889 resulted in the engine being rebuilt. Only some lower sections of shed walls remain, new buildings occupy the site.	
24	Spring Gardens Mill Spring Gardens Road, Colne			C1844-54		
25	Boundary Mill					

GAZETTEER OF WEAVING SHEDS

	Burnley Road, Colne			
26	Garden Vale Mill (Calder Bank Mill) Greenfield Road, Colne		1854-79, much altered in 1923-33	Much altered sheds.
27	Sough Bridge Mill Colne Road, Sough			
28	Spring Mill Stoney Bank Road, Earby			
29	Brook Shed New Road, Earby			
30	Victoria Mill Albert street, Earby		C1856	Major fire in 1884.
31	Great Croft Mill Lowther Lane, Foulridge			
32	New Shed Warehouse Lane, Foulridge			
33	Clough Bottom Mill Churchill Way, Nelson		1827	Demolished with no remains.
34	Albert Mills Clayton Street, Nelson		1862-3, warehousing and offices added in 1874. New offices. Shed and warehouse built in 1899.	A fire in 1972 destroyed large areas of the mill and rebuilt thereafter. Perimeter wall of shed remains and one further shed of 1895 is intact along with a storage building.
35	Albion Dye Works Victoria Street, Nelson		1844-1890 (converted to dye works 1890-1910)	Works remain but now used as a garage. Boiler house demolished.
36	Bowling Mill Lonsdale Street, Nelson		1901 - a second shed was added in 1902	A fire in 1907 gutted the warehouse and later rebuilt.

37	Brook Street Mills Brook Street, Nelson		1880-1 and enlarged 1883-4	A fire in 1969 resulted in the preparation block being damaged and soon after demolished. 1880-1 shed has been demolished and modern building erected in 2005.
38	Brook Street Shed Brook Street, Nelson			
39	Brook Vale Mill Brook Street, Nelson			
40	Chapel Street Mill Chapel Street, Nelson		1896	A fire in 1932 ended weaving on the site.
41	Clover Mill Brunswick Street, Nelson		1903-05- extension of 1912	Large parts were demolished after 1990. A 14 bay weaving shed still exists.
42	Coronation Mill Brook Street, Nelson		1911-12	Chimney and boiler house demolished.
43	a Mill Hallam Road, Nelson		1920-1- warehouse added c1924	An almost intact weaving shed.
44	Eagle Mill Bradley Hall Road, Nelson			
45	Glenfield Mill Glenfield Road, Nelson		1907-8 - shed extension 1912	Chimney and section of 1912 shed demolished.
46	Dale Mill Hallam Road, Nelson		1913-14	
47	Malvern Mill Waterford Street, Nelson		1912	Designed by Richard Jacques
48	Oak Bank Mill Hallam Road, Nelson		1897-98 - extended	Chimney demolished.

GAZETTEER OF WEAVING SHEDS

			after 1913 and in 1921		
49	Marsden Mill Brunswick Street, Nelson		No One shed - 1907-8. No Two Shed 1911-12	Designed by Richard Jacques	
50	Hendon Mill Hallam Road, Nelson		1899-1900	A major fire in 1912 resulted in significant reconstruction.	
51	Parkfield Mill Cloverhill Road, Nelson		1896-97 shed extended 1900-01	Known locally as "Klondyke". The site is now mainly cleared.	
52	Pendle Street Mill Pendle Street, Nelson		1885-6. Further shed and separate warehouse 1886-7		
53	Primrose Mill Brook Street, Nelson				
54	Reedyford Mill Scott Street, Nelson				
55	Scholefield Mill Brunswick Street, Nelson		1906-7	One of Nelson's best preserved Room and Power sheds.	
56	Spring Bank Mills Every Street, Nelson		1891-3, extended 1900	A good example of a late 19 th century room and power shed.	
57	Throstle Nest Mill Bankhouse Road, Nelson				
58	Vale Street Mill Vale Street, Nelson		1886-7. No Two Shed built 1887-8. Sheds enlarged	Boiler house demolished.	

			1907-8		
59	Valley Mills No.1 Southfield Street, Nelson		1895-1902. Office block added 1929- 30.	Partly reconstructed. Only some shed walls and roofs, and fragments of processing block remain.	
60	Vulcan Mill Bradley Hall Road		1896 – small extension 1906. Eagle Shed added 1921	Engine house and covered entrance demolished.	
61	Waidshouse Mill Townsley Street, Nelson		1907-08	Good example of an early smaller 20 th century weaving mill. Chimney demolished.	
62	Whitefield Mill Victoria Street, Nelson	Within Whitefield Conservation Area	1887-8	A fire in 1931 destroyed one of the preparation blocks and was later restored. Areas of site including boiler house have been demolished.	
63	Spenn Brook Mill Spennbrook Road, Newchurch		1857-8	Interesting example of a mid-19 th century 'Co- operative' weaving mill.	
64	Black Carr Mill Skipton Road, Trawden		1880-82		
65	Brook Shed Colne Road, Trawden	Within Earby Conservation Area	C1906		
66	Hollin Hall Mill Lane House Lane, Trawden				
67	Spring Mills Wheatley Lane Road, Fence		1852-3. Shed enlarged c1894		
68	Wellhouse Mill Wellhouse Road,		1854		

GAZETTEER OF WEAVING SHEDS

	Barnoldswick				
69	Westfield Mill Gisburn Road, Barnoldswick		C1911		
70	Lomeshaye Mills Lomeshaye Way, Nelson		Small weaving shed added 1845. West mill-1850-2, north shed-1862-3 and south shed-1871-3	Nelson's oldest surviving industrial site, first established in 1780.	
71	Salterforth Shed Earby Road, Salterforth				
72	Valley Mills No 3 Southfield Street, Nelson		1903, extended 1910 & 1921	Constructed on separate site. Some demolition has taken place in this area. Chimney now demolished.	
73	Riverside Mill & Bradley Crawford Street, Nelson		1890-1 - Further shed in 1896-7 and another in 1906	Majority of site demolished by 2006.	
74	Lomeshaye Bridge Mill Bridge Mill Road, Nelson	Within Whitefield Conservation Area	1841, enlarged 1881-2	The chimney has been demolished.	
75	Lee Bank Mill Pinder Street, Nelson		1913-14	Designed by Richard Jacques and demolished in 2004.	
76	Pave Shed Back Lane, Trawden				
77	Scar Top Mill Church Street, Trawden				
78	Forest Shed		C1890, shed		

	Skipton Road, Trawden			extended within 20 years	
79	Lodge Holme Dyeworks Skipton Road, Trawden			Circa late 18 th century, rebuilding phase 1892-1910 and 1910-30	Boiler house and chimney now demolished.
80	Albion Mill Albion Road, Earby			1887-93	Boiler house and chimney now demolished.
81	Valley Mill School Lane, Laneshaw Bridge			1910-30	
82	Edward Street Mill Edward Street, Nelson			1902-03 - extended 1906	Only warehouse, preparation and power blocks remain intact, and the building has been heightened and re-roofed.
83	Valley Mills No.4 Lustrification Southfield Street, Nelson			Enlarged 1933-4 and 1947-50.	Demolished, some fragments of boundary walls remain.
84	Higherford Mill Gisburn Road, Barrowford	Grade II Listed-Grade II Listed chimney - IoE Number: 186161		Originally built 1824 C1848-50. A Grade II Listed chimney survives to the rear of mill.	Example of an early shed, now artists workshop. A fire in c1844 caused unknown damage. Weaving shed added before 1868. Three storey warehouse built in c1870s. Spinning mill demolished in c1885 and replaced by weaving shed. Boiler

GAZETTEER OF WEAVING SHEDS

				house and engine shed added 1888. Not thought that much of the original mill survives.	
85	Calder Vale Shed Sandy Lane, Newbridge Barrowford		1867, shed extended in 1890-1 and pre 1890		
86	Springfield Mill Gisburn Road, Blacko		1860, extended 1891 & 1894	Demolished, new housing on site.	
87	Calder Mill Garden Street, Colne		1854-79, additions in the 20 th century		
88	Birchenlee Mill Lenches Fold, Colne		1887-91		
89	Primet Mill Burnley Road, Primet Bridge, Colne		c1844, extended 1891-1910		
90	Walk Mill Green Lane, Colne		Pre 1825	Demolished. On site of former fulling mill of shown on a map of 1787.	
91	Clover Croft Mill Higham Hall Road, Higham		1852		
92	Salterforth Shed Earby Road, Salterforth		1888, extended 1899	By 1999 only the offices, warehouse, engine house and preparation block survive.	
93	Bancroft Mill Gillians Lane, Barnoldswick		1914	Weaving shed demolished	
94	Coates New Mill		1864	Weaving shed and	

	Skipton Road, Barnoldswick				much of power block now demolished, remaining beings rebuilt following fire.
95	Butts Mill Butts, Barnoldswick		C1846		Some demolition.
96	Narrowgates Mill Barley Road, Barley		c1798, largely rebuilt c1867		Originally a water mill. Following a major fire in 1867 the mill was rebuilt, fragments of original wall were built into the new building.
97	Albert Mills Mill Street, Barrowford		1852-3. Warehouse & shed added c1860s. Offices added c1880		A fire in 1934 destroyed Park Shed. 1950 a new dye house was built and a screen printing department in 1952. Only lower sections of Middle Mill survive along with some mill buildings following partial demolition in 1963.
98	Holmefield Mills Gisburn Road, Barrowford		1907-8, warehouse built 1969		Demolished, only two date plaques, some shed wall and 1969 warehouse remain.
99	Old Mill Lowerford, Barrowford		C1780		Demolished in 1932.
100	Park Shed (<i>originally the weaving shed to Albert Mill and known as Park Shed since the early 1900s</i>) Halstead Lane, Barrowford		1852-3, 1883 engine house		Mostly demolished, outer walls used to enclose carpark.
101	Victoria Mills		1857,		A small section of outer

GAZETTEER OF WEAVING SHEDS

	Riverway, Barrowford		extended 1859	walling to sheds is still visible. Mill is extant.	
102	Richard Street Mill Richard Street, Brierfield		1912	Mill was demolished in 2005 following a fire.	
103	Albert Works Wordsworth Road, Colne		C1920s		
104	Empress Mill Buck Street, Colne		1909		
105	Excelsior Works North Valley Road, Colne		1904	Originally built as a laundry, converted to tape sizing works in 1923.	
106	Green Shed Knotts Lane, Colne		1854-79, extended 1890-1910. Shed extension of 1929-30		
107	Grove Mill Windsor Street, Colne		1891-1910, extended 1930	Eastern extension survives.	
108	Knotts Lane Mills Nicholas Street, Colne		1887-91	Demolished in 1999.	
109	Red Scar Loom Works Burnley Road, Primet Bridge, Colne		1854-79	Largely rebuilt late 19 th , early 20 century.	
110	Spring Works, (<i>Later known as North Valley Shed</i>) North Valley Road, Colne		1901-10		
111	Standroyd Mill Cotton Tree Lane, Colne		1879, extended after 1891		
112	Viaduct Shed Knotts Lane, Colne		1887-1891, shed extended	Engine house, boiler house and chimney demolished.	

			1929-30		
113	Vivary Bridge Mill North Valley Road, Colne		Late 18 th century. Shed added 1840s and enlarged 1891-1910	All demolished 1998-9.	
114	Walton Street Shed Walton Street, Colne		1879-87		
115	Grove Shed School Lane, Earby		1887-1893		
116	County Brook Mill (<i>Formally Hey Mill</i>), County Brook Lane, Foulridge		Late 18 th century, repaired 1877	Weaving sheds added 1927, 1929, 1933 and 1935.	
117	Peel Mill Station Road, Foulridge		1887-1893		
118	Clough Mill Padiham Road, Higham		Pre 1844		
119	Dotcliffe Mill Dotcliffe Road, Kelbrook		Early 19 th century, shed added 1912	A fire in 1959 most early building were demolished.	
120	Laneshaw Bridge Mill Keighley Road, Laneshaw Bridge		1844-1892, shed added 1911	Some demolition.	
121	Bankfield Mill Bradley Hall Road, Nelson		1894-5	Much of the mill was demolished after 1982. Some outer walls remain.	
122	Boundary Mill Hacking Street, Nelson		C1923, post 1929-30 extension		
123	Elder Street Works Elder Street, Nelson		1920-1	Partly demolished.	
124	Premier Dye Works Brunswick Street, Nelson		1904, enlarged	Only partial sections of perimeter wall survive,	

GAZETTEER OF WEAVING SHEDS

			1910 & 1921	now units.	
125	Fence Mill Wheatley Lane Road, Fence		1830, rebuilt 1858 and demolished 1898-9 keeping only the warehouse	Only warehouse remains.	
126	Thorneyholme Mill Barley Road, Roughlee		C1797	Part demolished leaving early block, now used for agricultural uses.	
Weaving Sheds in Burnley					
1	Riverside Mills Lune Street, Padiham		1888		
2	Alma Mill Wyre Street, Padiham		1854, enlarged 1899	Chimney has been reduced.	
3	Albert Mill Wyre Street, Padiham,		1854-5, enlarged 1877 & 1881	Outer wall of weaving shed remains. Later engine and boiler houses since demolished.	
4	Gothic Works Wyre Street, Padiham		1955- completed 1960	Principally a single storey building, parts of which has a northlight roof.	
5	Lune Street Padiham				
6	Britannia Mill Lune Street, Padiham		1854, extended 1860-1, warehouse of 1875, sheds rebuilt and enlarged	Spinning block reduced to two storeys following a fire. Watch house, office block and preparation blocks since demolished.	

			1889 & 1899		
7	Britannia Works Ribble Street, Padiham				
8	Stockbridge Mill Green Lane, Padiham				08/0108 Demolition and erection apartments
9	Greenbank Works Thompson Street, Padiham				
10	Empire Mill Lowerhouse Lane				
11	Imperial Mill Lowerhouse Lane				08/0594 Demolition and erection of 64 units.
12	Waterside Mill Langham Street		C1914		Predominantly red brick weaving shed.
13	Victoria Works Accrington Rd				
14	Hargher Clough Works Hargher Street		C1882		
15	Habergham Mill Coal Clough Lane		C1912		Fire in 1931, repaired.
16	Summit Works Manchester Road				
17	Susan Mill or Whittlefield Shed, Junction Street			Extant by 1887	
18	Woodfield Mill Trafalgar Street			C1888	
19	Belle Vue Westgate	Grade II Listed, Canalside Conservation Area	1863		Engine house demolished in 1980.
20	Victoria Mill Trafalgar Street	Grade II Listed Canalside Conservation Area	1854, extended 1889		A fire in 1856 Another fire in 1882 caused £20,000 of damage. Some demolition in the 1930s and 1970s.

GAZETTEER OF WEAVING SHEDS

21	Sandygate Mill Trafalgar Street	Locally listed Canalside Conservation Area	C1858-9	Earmarked for demolition 07/1155	
22	Oak Mount Mill Wiseman Street	Locally listed Canalside Conservation Area	Built in three stages ; shed built pre 1850, lower two storied of warehouse built 1887, top floor added in 1905. Single storey office block built in 1910.		
23	Neptune Street	Canalside Conservation Area			
24	Clock Tower Mill Neptune Street	Locally Listed Canalside Conservation Area	Earliest park dates to c1840, the new mill was built soon after, and new mill No 2 was built c1859.	A fire gutted most of New Mill No 2 and within 2 years it was rebuilt, it was during this rebuild that a clock was added which gave the mill its name. A major fire in 1987 destroyed most of the building. Demolished	
25	George Street Shed George Street	Locally Listed Canalside Conservation Area	C1879	Originally part of Burnley Ironworks. A fire in 2007 damaged the warehouse. The removal of northlight roof appears imminent	
26	Trafalgar Mill Trafalgar Street	Grade II Listed	1846,		

		Canalside Conservation Area	boilerhouse built 1867, section added to mill in 1872. Tower added 1888		
27	Celtique Mill Trafalgar Street	Locally Listed Canalside Conservation Area	1879		
28	Hope Works Trafalgar Street	Locally Listed Canalside Conservation Area	1874		
29	Thorney Bank Mill Nelson Square	Locally Listed Canalside Conservation Area	C1860	Demolition granted consent 04/0300	
30	James Proctor Cow Lane	Town Centre Conservation Area			
31	Tanner Street/Back Hammerton Street	Grade II Listed Town Centre Conservation Area			
32	Spring Hill Shed, International House, Spring Hill Rd		C1882		
33	Healey Royd Shed Healey Wood Road	Locally Listed Canalside Conservation Area	C1840s	Immediate threat structural instability	
34	Withams Mill Plumb Street				
35	Fulledge Mill Holmes Street		1854-6	Partially destroyed by fire in 1915. Demolished c1971 and datestone saved. Group with Listed Pentridge Mill Chimney.	
36	Gorple Mill Gordon Street, Worsthorne				

GAZETTEER OF WEAVING SHEDS

37	Burnley College Ormerod Road	Grade II Listed Top O' Th' Town Conservation Area		Proposed demolition	
38	Bank Hall Mill Daneshouse Road		Sometime between 1912 1931	Unusual for a Burnley mill being of red brick	
39	Throstle Mill Daneshouse Road (also known as Elm Street Shed)		C1863		
40	Elm Street Mill Elm Street		C1880s	Chimney has been reduced in height.	
41	Progress Works Elm Street				
42	Queens Works New Hall Street		1887	Under threat from demolition and redevelopment	
43	Cameron Mill Howsin Street		1902	In 1986 the two storey section was gutted by fire. Under threat from demolition and redevelopment	
44	Lodge Mill Bardon Lane		C1863	Almost entirely gutted by fire in 1905.	
45	Bardon Mill Bardon Lane		Circa early 20 th century. Extended 1953-4, warehouse added 1920,	Warehouse demolished in 1997.	
46	Britannia Mill Ruskin Street		c1911		
47	Bus Depot Colne Road				
48	Martin Street Mill Martin Street				
49	Primrose Mill Martin Street		1903, extended		

			1912		
50	Byerden Mill Martin Street		Circa late 1870s		
51	Stanley Mill Shackleton Street	Grade II Listed	C1867, extended 1891		
52	Browhead Mill Eastern Avenue		1906-7	Engine house and warehouse since demolished.	
53	Heasanford Mill Netherwood Road		1904	A fire in 1971 caused much damage to the present mill.	
54	Oak Bank Mill Casterton Avenue		1913	07/1045 permission granted for demolition of mill and residential redevelopment 21.01.08	
55	Walshaw Mill Talbot Street, Harle Syke	Harle Syke Conservation Area	1905	Site includes locally listed chimney	
56	Queen Street Mill Queen Street	Locally listed Harle Syke Conservation Area	1894-5	Site includes locally listed chimney	
57	Kings Mill Queen Street	Harle Syke Conservation Area	1912-13	Last mill to be built in Briercliffe.	
58	Briercliffe Mill Burnley road	Harle Syke Conservation Area	C1880		
59	Siberia Mill Holgate Street				
60	Oxford Mill Burnley Road	Harle Syke Conservation Area	C1874, possibly dates to c1854	Had a fire in 1946.	
61	Hill End Mill Lane Bottom, Briercliffe		C1846	Originally built as a woollen mill in 1777. Was bought out by the William Nuttall on behalf of the workforce. It is now demolished.	
62	Jewel Mill New Laund Booth		C1780, enlarged c1849, further	Fire in c1866. Demolished 1977-8.	

GAZETTEER OF WEAVING SHEDS

			extended 1966		
63	Well House Mill		1854		
64	Harle Skye Mill Harle Syke		1855-6		
65	Meadow Bank Mill Brierfield		1905-6		
66	Unity Mill				
67	Walverden Mill				
68	Manor Mill		1920-1	Designed by Richard Jacques, still extant.	
69	Spring Bank Mill Colne		c1844-54		
70	Green Lane Mill		1856	Built originally as an iron foundry in c.1850	
Weaving Sheds in Ribble Valley					
1	Co-operative (Bee Hive) Mill, Ribchester		1888-1889		
2	Friendship Mill, Read		1884 (or earlier)		
Weaving Sheds in Blackburn with Darwen					
1	Anchor Mill Darwen		1900-1901	A large portion of the weaving shed has been replaced with a modern industrial unit	
2	Hollin Grove Mill Darwen		1863		

3	Olive Mill Darwen		1894		
4	Premier Mill Darwen		1912		
5	Sunnyhurst Mill, Westwell Street, Darwen		1913	The last weaving shed to be erected in Darwen	
6	Unity Mill Lower Darwen		1905		