



Resource Pack

National
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Quarry Bank

By Jessica Owens

Introduction

Quarry Bank is the most complete and least altered factory colony of the Industrial Revolution. It is a site of international importance.

The Industrial Revolution of the late 18th century transformed Britain and helped create our modern world. Quarry Bank Mill, founded in 1784 by a young textile merchant, Samuel Greg, was one of the first generation of water-powered cotton spinning mills and thus at the forefront of this revolution.

Today, the site remains open as a thriving, living museum, and is a fundamentally important site for educational groups looking to study the Industrial Revolution.

This book has been designed as a comprehensive resource for students studying the site. As such, the book has been split into the following seven sections - however, we would encourage you to read through all the sources first, as many can be used to support various lines of investigation.

Section 1 Life Pre-Industrial Revolution in Styal

Section 2 Why was the Mill built here?

Section 3 Life for the Apprentices

Section 4 Life for the Workers

Section 5 Were the Gregs good employers?

Section 6 Typicality of the site

Section 7 The development of power at the Mill

A note on the National Trust

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For places: We stand for beautiful and historic places. We look after a breathtaking number and variety of them - each distinctive, memorable and special to people for different reasons. Our job is to keep the spirit of each of these places alive.

For ever: Our responsibility is to give these places a life far into the future, which means caring for them beautifully, helping them evolve over time, and acting in a way that helps protect the planet we're part of.

For everyone: Our places are open to all, and we thrive by involving as many people as possible in what we do - local communities, members, visitors, volunteers and donors. We help people belong to places, and places belong to people.

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Life pre-Industrial Revolution in Styal

Section 1

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Source 1 - Andrew Pearson, *Wilmslow Past and Present: A Handbook of Local History*, (Swain and Co. Ltd, 1901. E.J. Morten, 1972)

The principal manufactures in the Parish at one time were "mohair," "buttons," and "jersey spinning." Also cotton handloom weaving was carried on by the inhabitants to a very large extent, almost every cottager had one or more looms in the cellar, or in outside buildings called loomshops; and as you passed to and fro in the neighbourhood you would have heard the sound of the loom in every direction, which seemed to be saying, "Nickety, knockety, Friday come Saturday," from which sound and speed of the shuttle you could have formed some idea as to whether the weaver intended to finish one or two cuts in the week. A cut varied in length from 50 to 70 yards, and in weight from 25 to 30 pounds. The children were employed in winding pins, by which they would earn from one to two shillings per week. For some time good wages were earned by inhabitants, but the introduction of steam looms soon reduced the wages of handloom weavers, hence every loom in the district soon became silent, and to-day I do not know of a single cotton loom being worked in the Parish. Dean Row was formerly noted for silk weaving. Today there are only a few looms going in that district.

Source 2 - Robert Peel, *Some Notes on the Wilmslow Parish Registers*, (Richard Gill, Manchester, Tib Lane, Cross Street, 1916)

Entries in parish registers help to make foundations for history, and at times solve questions of great importance in domestic and social life, often deciding the distribution of wealth and rank. There is one striking feature too about parish registers and that is, their absolute impartiality. When a man sits down to write history, which should be a true record of men, matters, and movements, some one will always be found to impute bias of one kind or another. That cannot be truthfully alleged against the makers of parish registers. With one exception, I think, they may be relied upon implicitly, and that exception is human weakness or frailty. It must be admitted that mistakes occur, I don't like to say about, in parish registers, but they are the failures of an honest effort, carelessness, or ignorance, or perhaps both. It is conceivable that faults of omission as well as of commission have occasionally occurred, such as possibly (though unlikely) may have happened in Shakespeare's case...

I will confine myself this evening to the parish registers, and as a matter of fact to one only, the earliest volume, 1558 to 1652. There are several altogether. As Earwaker states, they are very voluminous, in a good state of preservation, and fairly kept up during civil war times. I must here thank the rector (the Rev. F. Edwards) for his courtesy in allowing me to bring down the first volume for inspection.

It is between 1580 and 1590 that mentions of trades and occupations begin to appear; and such classification increases as years go on, although I do not think it became a rule (at least in this volume) to qualify the entry in that manner to make it complete. Carpenters are mentioned nineteen times, milners or millers sixteen, shoemakers thirteen, cobblers one, tanners fourteen, butchers eight, smiths seven, schoolmasters three, tailors three, dyers three, tinkers three, pedlars two, barbers two, glovers two, hardware man one, mercer one, shopkeeper one, chapman one, tyler one, and cooper one. There is only one entry of a thatcher –

May 1613. The 12 day was baptized Thomas Peeres sonne of Edward Peeres Thatcher of daine rowe. I have not noticed any entry of a "Fletcher" as such. This entry for a time exercised me a little – January 1612. The 17 day was buried Richarde Rigbie alias sithermann.

I have come to the conclusion that the clerk intended to write sithermann = sycthemann = mower.

Source 3 - Wilmslow Historical Society, *Wilmslow of Yesterday*, (Wilmslow Historical Society, 1970)

Being on the fringe of the textile industry, small dependent industries grew up in the Wilmslow area.

In the 17th Century, glove making was done and around 1787 the principal industry of the parish was the making of mohair and silk stitched and capped buttons. Women and children did this work and they were employed by silk manufacturers in Macclesfield. Business declined when metal buttons became fashionable.

The Yorkshire woollen manufacturers arrived and introduced the spinning of Jersey which was done in the employees' homes. The introduction of the spinning jennies caused a decline in employment.

Handloom weaving was also a principal method of employment in the parish. This was done in the homes and almost every cottager had one or more looms in the cellar or in outside buildings called loomshops. For some time good wages were earned but the introduction of steam looms soon reduced the wages of the handloom weavers and by 1877 they were barely gaining a living. Although the handloom weaving industry was largely based on cotton, there was some weaving of silk done. Dean Row was noted for its silk weaving and the weavers were employed by Macclesfield silk firms. There is still a row of cottages with a weaving room attached which is now used as a sitting room.

Owing to the availability of water power, several cotton mills were erected on the Bollin. A Mr. Ralph Bower erected a water powered cotton mill at the foot of Hawthorn Carrs. This was eventually worked as a silk mill by Mr. Charles Barber. In 1850 Mr. Bower erected a Mill near Wilmslow Bridge which carded and slubbed cotton and prepared it for the jennies.

About 1800, 8 or 9 silk, cotton and paper mills were erected near the village and church but by 1882, 2 or 3 silk and cotton mills alone existed. Two of these stood on ground near the river which now forms part of the churchyard.

One of the most important mills on the Bollin was Quarry Bank Mill at Styal erected in 1784 by Mr. Samuel Greg, which started off spinning and changed completely to weaving in 1896. The mill continued weaving until 1959, when it was closed.

Source 4 - Robert Murray, 'Quarry Bank Mill: I: The Story of the Mill', *British Journal of Industrial Medicine*, 15 (1958)

The total population of Styal in 1787 was 420, and until the coming of the mill the community had existed mainly on domestic industries, though there was a small tannery and bootmaking establishment. Mohair and silk stitched and lapped buttons were made from material brought by the "putters-out" from Macclesfield, and jersey, a cotton and wool mixture was spun on what were called "tow" wheels. The jersey material was brought from Yorkshire by the salters who used the caves near Quarry Bank as a camp on their way with pack horses to Middlewich and Northwich. Such was the industry of the people that "boys and girls of 6 years old could almost earn their living" (Finney, 1785). At 8 years they could earn 3d. to 4d. a day, and an active, diligent woman, 4s. a week. The fashion for mohair buttons was short-lived, and the supply of the raw material for jersey spinning was uncertain, but they produced in the village a reservoir of skilled and semi-skilled labour which welcomed the opportunity of regular employment afforded by Quarry Bank Mill.

Source 5 - Alfred Fryer, *Wilmslow Graves and Grave Thoughts from Wilmslow*, (Stockport, 1886)

One hundred years ago that which Mr Samuel Finney described as “a most noble cotton work” had just been erected on the banks of the river Bollin at Disley Kirk in Styal. The picturesque ivy-clad old mill of today was then fresh and new and modern. Even a generation previously, Lancashire was known as one of the seats of the cotton manufacture, but the process was conducted in a very primitive fashion. It was the custom of the weavers – who were scattered over the country, mostly dwelling in the timbered and thatched cottages (more numerous then than now) – to purchase the raw materials and to work them up into cloth, which they carried to the market. About the year 1760 a different practice was introduced. The merchants of Manchester supplied the weavers with yarn for warp, and with cotton wool, which was converted into weft by the family by means of the spinning wheel. When the whole was woven into cloth it was returned to the merchants, who paid an agreed price for the manufacture. No other motive power than human muscles was employed; one thread was spun at a time, and the loom did not move more rapidly than the arm of the weaver could swing its beam to and fro. The fly shuttle of Kay, one of the most important inventions in the art of weaving, was only introduced in 1750. But mighty changes were impending. The fertile brains of two or three persons in humble life were not only destined to bring Samuel Greg to Styal as one of the pioneers of the new system of cotton manufacture, but also to lead to the accumulation of “wealth beyond the dreams of avarice” which has made Liverpool and Manchester, with the district of which the latter is the metropolis, what they are today.

In 1763, Thomas Highs, of Leigh, a reed maker, improved upon the primitive art of spinning by the construction of a machine which produced several threads at one operation, and to this he gave the name of his favorite daughter, Jane. The “jenny” was improved by James Hargreaves, an illiterate weaver of Blackburn, and in his hands it became a practical machine for spinning eight threads at one time. So strong was the prejudice against the use of machinery that it was necessary to use the contrivance only in the strictest privacy, yet the comparatively large quantity of yarn which the family brought forward for sale aroused suspicion, and the house of Hargreaves was entered, his jenny and his furniture were wrecked, and he was driven from the district. In 1770 Hargreaves obtained letters patent for his invention, but as the machine had been used and sold previously, his patent when contested was declared void.

Hargreaves, whose inventive powers were of a high order, had previously devised the carding engine. In the condition of cotton wool the fibres lie across each other in every direction, and it is needful before it can be spun, not only to beat out the sand and other foreign matter, but also to arrange the fibres in one direction. This was effected by the tedious process of combing or carding by hand. The new carding engine consisted essentially of a horizontal cylinder upon the surface of which brushes of iron wire were attached. This was made to revolve rapidly within a hollow casing, the inner surface of which was covered with similar brushes or cards. The cotton wool regularly and slowly fed into the machine passed rather a trying time during the few seconds it remained between the wire teeth. The fixed cards sought to detain it, and the revolving cylinder to drag it round, and between the two the cotton arranged itself in the direction of motion upon the points of the wires. Almost in contact with an exposed portion of the revolving drum, a roller armed with tin vanes took off the cotton, but as the fibres were injured, a saw blade afterwards substituted; this by a crank was made to reciprocate rapidly up and down, and detach the thin sheet of arranged fibres, which were gathered together in a loose rope or “sliver,” and passing between rollers was delivered into a can placed to receive it.

About the same time the youngest child of thirteen, the offspring of poor parents in Preston, by occupation a barber, brought a powerful mind and a rare faculty of invention to bear upon the problem of improving the manufacture of cotton. Richard Arkwright, like George Stephenson, combined the art of devising and applying mechanical arrangements, with the ardour and

perseverance essential to ensuring the adoption of any important invention. Arkwright employed a clockmaker to construct a model of his contrivance or spinning frame, and soon afterwards a working machine followed. Fearing the fate which had befallen Hargreaves, the ex barber removed to Nottingham, and met with those who gave him the assistance he required. In order to convert the sliver into a thread it is needful to draw it out, sliding the fibres over one another, and to twist them together. To effect this, Arkwright passed the sliver between two small rollers which held, and at the same time delivered it at an invariable speed. It was grasped by a second pair which were made to revolve at a higher velocity, and thus the cord was extended and of course made thinner. By the application of the spindle and fly previously used in the spinning of flax, the elongated cord was twisted, and wound upon a bobbin. A number of these contrivances were mounted upon a frame and worked by horse power.

In 1771, Arkwright and his partner erected a mill at Cromford, in which the spinning frames were driven by water power, and they thenceforth acquired the name of "water frames," and the product "water-twist." Hargreaves' jenny had closed the career of the spinning wheel, and Arkwright's water frame which had enslaved the rivers and forced them to spin cotton on their way to the sea, had superseded the use of human muscles for the purpose.

Another genius next appeared in the person of Samuel Crompton, of Bolton. He perceived the advantage of combining the essential principles of Hargreaves's jenny and Arkwright's frame. The hybrid machine which he constructed received the appropriate name of the "mule" or the "mule jenny." The cotton by this machine is first drawn and then stretched. Numerous spindles are arranged upon a carriage which recedes from the rollers with a velocity somewhat greater than that at which the material is delivered from them (the yarn receiving its twist by the rapid revolution of the spindles), and when the rollers are arrested the jenny still continues slowly to recede, and the operation of stretching is effected. The carriage is returned to the rollers and the process is continuously repeated.

The throstle is only a modification of the arrangement of the water frame. Instead of four or six spindles being coupled together, the rollers and spindles on both sides of the machine are connected together and driven by bands from a tin cylinder revolving under the machine. The throstle is used for coarse threads, and the mule for fine "counts." Unlike Arkwright, Crompton who was possessed of some little means, took out no patent, but gave his invention to the world. Parliament afterwards granted him £5,000.

Such is the nature of the inventions on which the cotton manufacture of the world is based. They were all made during the lifetime of Samuel Greg, and in order to profit by them he erected the "noble work" at Styal.

In 1785, the jenny was wholly given to the public. So early as 1782, Arkwright computed that the new manufacture employed a capital of £200,000. The demand for water power suddenly became pressing and all the useful streams in this and the neighbouring counties were laid under contribution. The water power in time became insufficient and the reduction in its supply during dry weather proved a great inconvenience. It occurred to some enterprising individuals that the steam engine, then coming into use might be pressed into the service, and employed to pump back to the upper level more or less of the water which flowed away from the tail-race of the water wheel. The possibility of obtaining from the steam engine "turning" sufficiently steady to spin cotton was too remote to claim notice.

But another master mind was at work – one inferior to none now under review. This was James Watt, who in 1781, and the four following years, obtained a series of patents for those improvements in the steam engine which will for ever make his name famous. The separate condenser, the parallel motion, the closed cylinder, and the centrifugal governor, perfected the engine, and rendered it possible for a cotton factory to be established wherever water could be found in sufficient quantity to supply the condenser. In 1787 Peel, of Warrington, was introducing the improved steam engine, and in 1789 Mr Drinkwater first employed that prime mover for spinning cotton in Manchester.

Source 6 - Samuel Finney, *An Historical Survey of the Parish of Wilmslow 1785*, Cheshire and Chester Archives and Local Studies Service, DFF/38 (1785)

The principal Manufactory of this Parish was formerly Mohair, and Silk Stitched and Capped Buttons, in which article all the Women and Children were employed by the Manufacturers of Macclesfield; there were two of them that came weekly from thence to Wilmslow, to put out and take in that Article; one of them, Mr. Street, told me his usual payments amounted from twelve to eighteen pounds a week; the other, whose name I have forgot, did not so much business, but I think I may, without exaggeration, set down the weekly payments at twenty-five pounds. When Metal Buttons came into Fashion, this Manufactory gradually declined, which is now reduced so low that I believe there are not twenty people employed in it here. A good diligent Button maker would have got about three Shillings and Six-pence a week, I have heard of one who frequently got five. When this Business declined, the Yorkshire Woollen Manufacturers found their way into the Parish, and introduced the Spinning of Jersey, and in a few years there were few houses, the Farmers not excepted, wherein the Wheel was not a-going. This was one of the most favourable Events that had ever happened to the Inhabitants, for not only the Women were employed, but even Children, Boys, and Girls, of six or eight years of age, could almost earn their living; it is usual with their parents to task children of this age, or younger, to Spin, Twopence, Threepence, and Fourpence a-day, according to their abilities; an active diligent woman will spin Four shillings a-week. I have not been clearly informed of the weekly Value of this Article, but from the numbers of putters-out in the Parish, when this business was in the greatest prosperity, I think fifty pounds a-week was the least Sum paid. There are still a great number of Women and Children employed in this branch of Manufactures; but, to the great misfortune of the Parish, it is now upon the decline, for it certainly is one of the most healthy employments in the world for the poor, as every action of the Limbs, motion, and attitude of the body, tend to promote health, vigour, and agility; this evidently appears from the clear florid countenances, the fine straight persons, strength, activity, and free open (and let me say) graceful Air and carriage of the young people brought up in it, far beyond the preceding generation. These advantages, I fear, will be soon lost in the manufacturing of cotton yarn by Spinning Jennys.

Source 7 - John Howard Hodson, *The Story of Wilmslow*, (J. Andrew & Co. Ltd, 1971)

Wilmslow is unfortunate in not possessing very many medieval records. In particular, we have no long series of manorial documents which might tell us how Wilmslow was governed in the middle ages, and how its agriculture was organised...

It is, in fact, only when we come to the 17th century that we are able to see the life of Wilmslow in any detail. We can do this particularly from one rich series of records, the so-called probate inventories – lists of the belongings of an individual made soon after his death by two or three of his neighbours. About 200 of these inventories survive for Wilmslow between the end of the 16th and the middle of the 18th century. From probate inventories one can hope to find out much social and economic information, for instance, about the size of houses, the amount and variety of furniture, the kinds of agriculture, the prosperity or poverty of individuals, the comparative wealth of the classes in the population, and changes in the standard of living.

One of the earliest (though undated) of the Wilmslow inventories is that of Katherine Alcock, widow. No rooms are mentioned but from the extent of her belongings her house is likely to have been one-roomed. The total value of her belongings was £1 6 8 and consisted of one gown, 13/4; one petticoat and waistcoat, 2/-; one hat, 4d; three smocks, 6/-; three aprons, 2/-; partlets and other linens, 2/-; hose and shoes, 12d. The earliest dated inventory is that of John Upton of 1582. Once again, no rooms are mentioned, nor is his occupation, but he is likely to have been a husbandman. The total value of his goods was £54 19 8. They included quite a number of animals: 29 cattle, five horses, five pigs, geese, hens etc. Then he had husbandry ware: ploughs, harrows, axes, nagars (augers), bills, etc. No crops are mentioned but he had 10/- worth of bacon, 6/8 worth of cheese and butter, and 20/- worth of corn, malt with meal, and gretes (groats). The rest of his belongings consisted of £5 worth of bedding, brass

and pewter, wooden ware (stounds [vessels for small beer], eshens [milk pails], forms, arks, stools and a cupboard), and 30/- worth of clothing.

The first Wilmslow inventory which mentions rooms at all comprehensively is that of John Hulme of Pownall, tanner, 1610. As often with tanners, the total value of his goods was substantial - £324 4 4. He had seven cattle, and, what is more unusual in Wilmslow, 21 sheep. His leather (12 dicars [lots of ten hides each] at £7 the dicar) was worth £84, and his bark £13 6 8. His worklooms at the barkhouse were worth 5/-. He had £15 worth of corn in the house and barn, and 10/- worth of turves (with firewood) at home and "on the moss". Apart from the barkhouse and barn there were only four rooms: "house", parlour, lower parlour, and high chamber. Unfortunately, as is often the case with Wilmslow inventories, it is not always clear to which rooms the furniture is allocated. In the house, however, was presumably most of the domestic equipment - coffer, arks, a cupboard, a homber (hammer), a wountide (girth), a hatchel (flax comb), and a pair of weights, candles and swine's grease, boards and forms, chairs and stools, a salting coffer, treen (wooden) ware, earthenware, and two spinning wheels. Specifically in the parlour was a bed with bedstocks; and one in the lower parlour, one in the high chamber, and one in the barkhouse. Debts amounting to about £100 were owing to him; his clothing was worth £4...After Handforth Hall the next house in Wilmslow which had its rooms listed is that of William Baguley, senior, of Stanneyland's Green, 1619. Though described simply as a husbandman he seems to have been of some standing; his appraisal was made by two tanners, a husbandman, a yeoman, and a miller. He had eight cattle worth £20, and corn and hemp growing worth £16. His agricultural equipment included ploughs, harrows, carts, pickles (pitchforks), fellies (wheel sections), and a swingletree (plough crossbar). In the stable, as well as two old swine troughs, were a couple of beds. In the shippen was 3/- worth of muck. Very interestingly, there was a loomhouse with a linen loom, two spinning wheels and a sitting wheel.

The following rooms in Baguley's house and their contents are then listed: high chamber over the entry (mainly beds); loft over the chamber below (tools - e.g. nogars [augers] and turf spades - linen yarn, barley, sacks, pokes [bags], cheeseboards and 12 cheeses, wheat, barley malt); parlour below (beds, two pairs of ploughs, axes, mattocks, muckhooks, wountye [girth], etc.); house (three cheeseboards, 22 cheeses, table, chairs, stools, butter tubs, cheese press, beef, bacon, swine's grease, etc); buttery (gallon of butter); chamber above the house (mainly beds); loft over chamber above the house (malt, barley malt, greates [groats], oats, a little what in a tennel); entry (brundret [gridiron], treen [wooden] pans, pots, kettle, chaffing [warming] dish, cushions, old churn, saddle, bridles, etc.). Finally, he had tacks of ground (enclosures) worth £10 10 0, his apparel was worth £3, and he had 51/10 in ready money.

Although it is not possible to work out the precise relationship of the rooms of Baguley's house it is interesting to notice that it has three storeys, with lofts over two of the upstairs rooms. These lofts contain crops and tools. Beds are contained in the high chamber over the entry, in the chamber over the house, but also, along with a miscellany of ploughs, etc., in the parlour. The "house" is the living-room and kitchen, with kitchen equipment and miscellaneous items spilling over into the entry...

Wilmslow's 17th century inventories reveal a predominantly agricultural community with craftsmen, gentlemen, and clergymen, as well as husbandmen and yeomen, engaged in farming. However, the presence of spinning wheels (sometimes as many as four in one house), the frequent reference to flax, growing or stored, and to large quantities of linen ware in the form of sheets and napery, and the occasional mention of a loom, indicate a pervasive domestic linen industry, associated perhaps with the contemporary one in south-east Lancashire...

In the eighteenth century the number of people not engaged in farming increases: Hugh Pownall, senior, described in 1757 as a yeoman, has neither animals nor agricultural equipment. Houses become recognisably "modern": Elizabeth Worthington's in 1753 has seven rooms, including a kitchen. Her hall contains 14 pictures, six cane chairs, one black clock and a screen; sleeping is mainly upstairs, where there is no storage; though there are beds in the little parlour, the main parlour is a sitting-room equipped with clock, glass, sconces, dressing table, chimney glass, two chairs, and grate fender with tongs, shovel and poker.

Source 8- Contemporary photograph from Quarry Bank Mill showing costumed interpreters using spinning wheels and looms



Source 9 - *Quarry Bank Mill and Styal: A Souvenir Guidebook*, (Hephaistos Media Limited, 1995)

A Cottage Industry

Traditionally, cloth-making in this country was carried out in the home as a cottage industry. Since the Middle Ages all members of the family, including children, might be employed in various stages of producing fabrics. Initially, the material produced was used solely to clothe the family and make bed clothes, but as some families became more proficient they sold any excess fabrics at markets. Most fabrics produced at that time were woollen or linen based, but the introduction of cotton, from the 16th century onwards, saw a marked increase in demand for material.

Textile manufacture lent itself very well to mechanisation and was instrumental in the growth of the factory system. In the mid-to-late 18th century many enterprising businessmen saw the opportunity of employing the home spinners and weavers as out-workers, collecting the yarn or woven material by pack horse on a weekly basis.

Hand Carding

This monotonous task was often performed by the children of the house. The raw fibre was combed between two hand-held wire brushes until all the individual fibres lay in one direction and the tangles were removed. It was then made into soft, fleecy rolls about 12 inches long and 3/4 inch thick (30cm long and 2cm thick).

Hand Spinning and Weaving

For centuries the manufacturing processes of spinning and weaving hardly changed. The spinning wheels and weaving looms in use at the beginning of the 18th century were largely the same as had been used since the Middle Ages. The spinning wheel was introduced around 1300 but production was still somewhat slow and intermittent. The introduction of the bobbin and flyer wheel in the 15th century allowed for more continuous production. Similarly, hand looms of the early Middle Ages, which were quite slow and produced narrow fabrics were, until about 1300, operated vertically. The introduction of the horizontal loom after that date, operated by treadles, speeded up the process considerably and allowed wider fabrics to be produced. Machines were being developed to improve and speed up the manufacture of textiles as early as the 16th century.

Source 10 - *Dr Aikin, A Description of the country from thirty to forty miles around Manchester*, (John Stockdale, London, 1795)

It was about the year 1784 that the expiration of Sir Richard Arkwright's patent caused the erection of water machines for the spinning of warps in all parts of the country, with which the hand engines for the spinning of weft kept proportion. At the time he wrote he estimates the number of

Water mills or machines, at - - - 143

Mule jennies or machines, consisting of 90 spindles each, - - - 550

Hand jennies of 80 spindles each, - - - 20,070

Of the water mills, 123 are in England, and nineteen in Scotland. Of those in England,

Lancashire has - - - 41

Derbyshire, - - - 22

Nottinghamshire, - - - 17

Yorkshire, - - - 11

Cheshire, - - - 8

Staffordshire, - - - 7

Westmorland - - 5

Flintshire, - - - 3

These establishments, when in full work, are estimated to give employment to about 26,000 men, 31,000 women, and 53,000 children, in spinning alone; and in all the subsequent stages of the manufacture, the number of persons employed is estimated at 133,000 men, 59,000 women and 48,000 children; making an aggregate of 159,000 men, 90,000 women, and 101,000 children, in all, 350,000 persons, employed in cotton manufacture.

Source 11 - Anthony Calladine and Jean Fricker (eds.), *East Cheshire Textile Mills*, (RCHME, 1993)

At the beginning of the 18th century east Cheshire comprised several small communities, of which Macclesfield was the largest, whose economic basis was agricultural and whose cottage industries, including the making of buttons and the spinning of jersey wool, supplemented the low level of income provided by agriculture. Building stock, therefore, was largely domestic and agricultural. The process of industrialisation which took place from the mid 18th century onwards altered the face of these communities. The rural aspect of towns and villages was transformed by the introduction of the water-powered silk mills and later the cotton industry. This resulted in a movement of people into new urban centres to work in the textiles mills and a substantial phase of building which expanded the small communities and their communication systems in order to serve the needs of an industrial society.

Various cloths and smallwares were produced in east Cheshire during the 17th and 18th centuries, with local districts specializing in particular kinds of manufacture. Ribbon weaving was the predominant manufacture in the south of the region, centered on Congleton, whereas in the north, around Bollington, Rainow, Wilmslow and Disley, the spinning and weaving of cotton and linen were carried out. In Macclesfield and neighboring villages, the manufacture of silk buttons and the throwing and weaving of silk were characteristic local industries. Woollen cloth was manufactured in Cheshire and regular fairs were held in Macclesfield for the sale of wool. The cloth was fulled (felted) in mills known to have existed at Macclesfield, Rainow and Congleton, and there is some evidence for the existence of bleaching and dyeing industries in the area.

Macclesfield buttons, produced as early as the 16th and 17th centuries, were made from wooden or horn moulds which were padded and embroidered with combinations of silk or linen thread, horsehair, ox hair and mohair. In 1574 a debt was entered into the Macclesfield town accounts for 'buttons and for making buttons of ye value of 15s. 2d'. In 1631, the inventory of Richard Turton, a Buttonman of Rainow, included, '13 great grosse of silke buttons... 1 pound weight of untwisted silke... twisted silke' as well as '20 sheep and 4 lambs... 2 bullorks'. By the mid 17th century, the industry had become so well established that in 1655 the Corporation of Macclesfield considered that owing to 'the trade and manufacture of the skilful and well making of buttons here and the blessing of God thereupon the inhabitants thereof and places adjacent are much bettered in their livelihood and estates than heretofore.'

It seems to have been usual for button merchants to have supplied the button makers with the materials, returning later to collect the completed article. Stephen Rowe, a Macclesfield button merchant, organized his business on this putting-out system. In 1617, the contents of his house included amounts of raw materials, namely hair, thread, linen, yarn and silk, moulds for the bases of buttons and quantities of finished buttons amongst which were '4 great gr [gross] of 4 courst sylk buttons'. Goods to the value of £3 9s 0d were assessed in work 'put forth', that is to say put out to button makers. His will provides evidence of trade links with Flushing in Belgium, and London, whilst his home interests also included agriculture, with cattle and arable farming. Joseph Street, who described himself in his will of 1781 as a 'button maker', was in fact a button merchant and a partner of John Acton. According to Samuel Finney, writing in the late 18th century, Street frequently paid out £12 to £18 a week to the Wilmslow button makers he supplied. Finney himself knew that 'a good diligent button maker would have earned about three shillings and sixpence a week' and this would mean that Acton and Street were supplying between sixty and a hundred button makers in Wilmslow alone.

Source 12 - Mary Rose, *The Greys of Quarry Bank Mill: The Rise and Decline of a Family Firm*, (Cambridge University Press, 1993)

Textile manufacturing, like most of England's industrial production, was organised under the domestic system in the eighteenth century. The low value of raw materials, the cheapness and simplicity of hand spinning wheels, cards and looms and the ease with which processes could be subdivided made it ideal for this mode of production...

There were certain inherent problems with the 'putting out' system. These included embezzlement of raw materials, lack of quality control and irregularity of work, especially at harvest time, for many workers continued to be closely tied to agriculture. Nevertheless, when technology was static and labour fairly cheap, it was possible to expand output effectively, without any change in organization.

Because of the prevalence of the putting out system, there existed a network of middlemen who were agents for both the merchants and manufacturers. For example, both the country manufacturers and the Manchester merchant/ employers sometimes used agents for the distribution of raw materials, the collection of finished goods and the payment of wages. This subcontracting by employers significantly reduced the time they spent travelling around the country districts, though it did of course increase costs...

Not only was there a network of middlemen in the eighteenth century, but commerce was bound together by a complex system of credit. As Defoe asserted, credit was 'the choicest jewel the tradesman is trusted with... [since] if a man has £10,000 in money he may certainly trade for £10,000 and if he has no credit he cannot trade for a shilling more.' Raw materials were purchased and goods sold on credit; the main instrument was the bill of exchange, which was often drawn on a London factor. Credit terms varied, though it was customary to buy on long credit and sell on short...

There were, of course, hazards to this system, given the complex web of credit which developed. In rising markets, some businessmen relied too heavily on credit. A sudden fall in prices could render them unable to meet their debts. Their default could have dire consequences for the entire business community. Shock waves would be felt not just in Lancashire, but in London as well and the subsequent tightening of credit could lead to the bankruptcy of many marginal firms.

Country banks did not develop in Lancashire until late in the eighteenth century. Thus, the credit system was largely informal. Ability to gain credit was based upon individual trust and accumulated creditworthiness. Business in Lancashire was dominated by the Nonconformist community. Frequent intermarriage created a 'charmed circle' of commercial families, between whom funds and short-term credit flowed freely, reinforcing members' positions. New entrants to the business world, from outside this community, inevitably found it more difficult to gain credit and customers. At the same time, their ability to withstand a credit crisis was predictably low.

The Lancashire economy of the early eighteenth century was thus a complex web of commerce and manufacturing, middlemen and credit. By 1750, however, the seeds of change were being sown and the demise of the domestic system, first in spinning and much later in weaving, was the result. Several interrelated factors explain the changes which took place in the organisation of cotton spinning and the eventual development of the factory system. Of these the most important was the ending of technical inertia in the industry in the 1730s, with the invention of the flying shuttle and the hosiery frame. Moreover, the demand for cotton mixes, as a substitute for more traditional cloths, was growing. This put pressure on the domestic system of organisation and highlighted the managerial problems, especially the absence of quality control and irregularity of work inherent in it.

Although initially slow to diffuse, the flying shuttle and the hosiery frame were beginning to create

supply bottlenecks in spinning by 1760, as the output of weavers and framework knitters increased. At first, of course, it was possible for manufacturers to employ more spinners, which meant putting out materials over a wider area. This, however, not only increased transport costs but also the number of middlemen to co-ordinate operations. Faced with eroded profit margins, employers were eager to reduce costs. At the same time, the irregularity of work at harvest time and inadequate quality control were growing problems as demand grew.

The bottlenecks in the spinning sector were solved by technical and organisational changes. The invention, first of the Jenny by Hargreaves in 1764 and then Arkwright's roller frames in 1769, substantially increased production of coarser yarns. Crompton's mule of 1779 allowed finer threads to be spun mechanically. The inventions themselves did not, however, make the demise of the domestic system in spinning inevitable. Early Jennies had only eight spindles, whilst the roller frame could be operated by hand. Although these machines were beyond the means of the average cottager, employers could have rented them out. The desire for greater supervision of workers led employers to build workshops, for both weaving and spinning, where operations could be closely monitored. Arkwright, however, recognised the potential of powered machinery for the expansion of output. He applied horse power and then water power to his spinning machines at Cromford and achieved a combination of sharply rising output and close supervision. Inevitably, other manufacturers followed suit, attracted by Arkwright's high profit margins. Although initially the operation of his patents restricted diffusion, these lapsed in the mid-1780s. By 1787 there were said to be 143 Arkwright-type factories. By 1795 Chapman has estimated there were 300. These water-powered mills were in rural areas 'where streams were found, capable of affording the requisite power to work the machinery... In the neighbourhood of many, indeed most of these new erections, the population was extremely limited...' As a result, most early cotton masters imported labour. This was often from parish poorhouses, though some masters offered house, gardens and even livestock to attract workers.

Source 13 - Anthony Calladine and Jean Fricker (eds.), *East Cheshire Textile Mills*, (RCHME, 1993)

The invention of the flying shuttle by John Kay in 1733 vastly improved the efficiency of the loom by allowing the shuttle to be knocked through the warp threads rather than being passed from one hand to the other. The production of cloth was thereby speeded up so that the output of yarn by hand spinning became inadequate to keep pace with weavers' demands. The situation inspired several attempts in the early decades of the 18th century to invent a machine by which yarn could be spun faster. However it was not until 1776 when James Hargreaves, a Blackburn weaver, invented the spinning jenny that this was achieved successfully. Based on the principle of the spinning wheel known as the 'great wheel', on which the yarn was spun and wound on in two separate stages, the jenny was designed to operate with up to sixteen spindles. It nevertheless remained hand powered, and though primarily used in domestic workshops it also came to be used in spinning factories.

In 1769 Richard Arkwright patented a spinning frame which combined the stages of spinning and winding-on into one mechanical process, and he followed this in 1775 by patenting a range of preparatory machines for carding and roving cotton fibres. By these means cotton spinning became mechanised and, for the first time, driven by non-human methods of motive power. Initially, the new spinning machines were housed in a mill built in Nottingham in 1769, and were driven by horse power. Two years later, at Cromford in Derbyshire, only fourteen miles from Lombe's Derby silk mill, Arkwright erected a mill in which his machines were driven by water power, and thus his invention came to be known as the water frame. The patent on Arkwright's water frame and its subsequent improvements was finally annulled in 1785. Many entrepreneurs, realising the opportunities in utilising the newly released cotton-spinning technology, invested in the building of cotton factories. These included Samuel Greg at Styal, David Dale at New Lanark and Robert Peel at Burton.

Source 14 - Contemporary photograph of the remains of the medieval Styal Cross, built from local sandstone, once the centre of Styal village's cattle market



Source 15 - Keith Robinson, *Styal Village Interpretation Manual*

The site of Greg's industrial development, consisting partly of ancient woodland, belonged to the estate of the Earl of Stamford and Warrington, the owner of Dunham Massey. The village is situated about twelve miles south of Manchester and two miles north-west of Wilmslow.

Styal was originally part of the Wilmslow 'township of Pownall Fee' and belongs to the parish of St Bartholomew, Wilmslow. The place-name, which was originally spelled 'Stiale' and later 'Styall', is said to be of Anglo-Danish origin and to mean 'the place of the secret'. Although Pownall had been noted on Saxton's map of 1577, Styall did not appear until Burdett placed it on his map of Cheshire in 1777. The latter shows seven centres of settlement, but sheds little light on the actual number of dwellings.

Some of the early inhabitants of Styal made their meagre living by digging and selling peat which was a valuable source of fuel. Many farmers and local gentry themselves had the right to cut turf, the area allotted for the purpose being known as their moss-room. By the late sixteenth century Styal was the centre of a thriving agricultural community and at about this time a cattle market was established in the village. The remains of the market cross still stand in the village near Norcliffe Chapel. In the eighteenth century, however, the need was felt to supplement agricultural incomes.

Samuel Finney, who wrote a "Historical Survey of the Parish of Wilmslow", in 1785, said that local farming methods were sixty years behind those of Yorkshire", and he blamed this for the decline in prosperity. It was not surprising, therefore, that the inhabitants of Styal wished to take on work they could do in their own homes.

Women and children were engaged in 'putting out' work for the Macclesfield silk manufacturers, producing mohair and silk covered buttons. The fashion for these declined, but another source of income was discovered and fully exploited. The Yorkshire woollen mills were expanding and needed outworkers, and many Styal villagers began spinning jersey, a mixture of cotton and wool, in their own homes. Finney says that "within a few years there were few houses, the farmers not excepted, which had not wheels agoing in them." Finney also talks of a family living in a cave by the River Bollin (this is in the grounds of Quarry Bank House).

Styal remained fairly isolated, not lying in any of the main turnpike roads such as that from Congleton to Stockport via Wilmslow, or from Chester to Manchester, connecting Northwich, Knutsford and Altrincham. It was crossed by several bridle paths, including the salt road which followed the path over the pack horse bridge near the Mill and which leads to Northwich.

In the late 18th century, Styal itself had no shops, and must have been fairly self-sufficient as regards food. Tudor Cottage, situated near Oak Farm, has at one end of the cottage an extension housing a large bread oven, which probably acted as a bakery for the community. Extra purchases would have been made in Wilmslow, where the tradesmen were enjoying increasing custom.

Source 16 - John Howard Hodson, *The Story of Wilmslow*, (J. Andrew & Co. Ltd, 1971)

In Wilmslow in the early 18th century... we are rapidly plunged into darkness by the virtual end of the probate inventories. There is no equivalent original source to take their place, and we become dependent on other, sometimes secondary, sources. For the most illuminating account of what happened to Wilmslow in the 18th century we are in fact indebted to one man, and it is interesting, though perhaps not altogether surprising, to discover that he is none other than that busy local patriot, man of affairs, and antiquarian, Samuel Finney. It is an additionally attractive feature of his account, and one which helps to give it authenticity, that he himself was intimately involved with some of the changes which were so radically to alter Wilmslow.

It is intriguing to appreciate that the revolutionary alteration in Wilmslow's way of life – which was to destroy the largely static world revealed in the 17th century probate inventories and eventually result in the Wilmslow we know today – originated in a cloud on its eastern horizon no bigger than a silk button. What happened – and we are dependent on Finney for our knowledge of it – was that two Macclesfield button manufacturers arrived in Wilmslow with work for, particularly, women and children. The indefatigable Finney even knew the name of one of them – Street – and learned from him that each week, when he came to Wilmslow to give out the materials and take back the finished mohair and silk buttons, he paid out about £18 in wages. Finney didn't know what the other man paid, but he estimated that total wages were about £25 a week. "Diligent" was the quality in workpeople that most excited Finney's approbation: "a good, diligent buttonmaker" could earn 3/6 a week, and he knew of one who frequently made 5/-.

But then the bottom fell out of the market: mohair and silk buttons went out of fashion and were replaced by metal ones. Silk button makers became redundant, and at the time Finney was writing (1787) he thought there must be fewer than 20 of them in Wilmslow. However, in a way that was perhaps characteristic of a quickly changing economy, when one door closed another opened. What Finney calls "one of the most favourable events that ever happened to the inhabitants" of Wilmslow, occurred. The Yorkshire woollen industry was getting under way, and experiencing a great shortage of spinners. So the manufacturers, Finney tells us, extended their search for labour to areas as far away as Wilmslow. Within a few years, he says, there were not many houses in Wilmslow, farms included, where jersey spinning wheels were not "agoing".

Thus in rapid succession Wilmslow was in industrial and commercial contact, first with Macclesfield, and then, much further afield, with Yorkshire. The transport of materials and finished goods was, no doubt, by packhorse. There is a strong tradition, readily accepted by local historians, that the route of the jersey woolmen crossed the Bollin at Styal, by the bridle path at the north end of Quarry Bank Mill. If they were simply bringing work to Wilmslow this seems a rather out of the way route to take from the direction of Yorkshire. However, there is another suggestion that the woollen materials were actually transported by saltmen, who carried salt from the Cheshire wiches to Yorkshire and who found the caves at Styal useful for storage; this would fit in with a route over Lindow Moss suggested by the name Saltersley Hall Farm...

Both button making and jersey spinning as carried out in Wilmslow were domestic industries; this sort of industry Finney welcomed. He was particularly glowing about the effects of jersey spinning. Like button making, it was work for women and children. Boys and girls of eight or even six, he says enthusiastically, could almost earn their own living at it, i.e. 3d. or 4d. a day. As for "an active, diligent woman", she could earn 4/- a week. Finney reckoned that at least £50 was paid out each week to spinners in Wilmslow – twice as much as had been paid for button work. In addition, Finney was very pleased about the physical effects of jersey spinning: "it certainly is one of the most healthy employments in the world for the poor, as every action of the limbs, motion, and attitude of the body, tend to promote health, vigour, and agility; this evidently appears from the clear, florid countenances, the fine straight persons, strength, activity, and free open (and let me say) graceful air and carriage of the young people brought up in it, far beyond the preceding generation".

Finney felt the improvement could be seen also in the people's standard of living. Previously all the poor people wore clogs. Now there were only two or three clogmakers in Wilmslow, but at least a dozen shoemakers. There had been a big increase in crafts like joiners, carpenters, brickmakers, and bricklayers. The number of shops, too had increased amazingly, dealing in a greater variety of valuable articles unknown in former times: tea, coffee, loaf, sugar, spices, printed cottons, calicoes, lawns, cambrics, fine linens, silks, velverets, silk waistcoat pieces, silk cloaks, hats, bonnets, shawls, laced caps. The butchers could not get enough meat locally and had to go into Yorkshire for it: everybody ate butcher's meat, whereas previously labourers and even the lower farmers only tasted it at wakes or a christening. In other ways, too, the food of the poor had improved: wheat bread, instead of barley bread, of the finest and well buttered, bacon (the fatter and better) and tea, "forsooth, generally thrice a day"...

Finney was apprehensive that the advantages which he saw accruing from domestic industry would "soon be lost in the manufacturing of cotton yarn by spinning jennys" in factories. It was, in fact, about this time that his apprehensions were to be realised. Enterprising men were already looking round for sources of labour and sources of power... The sequence of industrialists who came to Wilmslow in the 1780s is difficult to establish, but by 1787 there were "about one hundred and fifty employed... in and about Wilmslow, in Picking, Carding, and Slubbing Cotton, and Spinning the same Yarn under four or five Masters"...

Thus, beginning about the mid-1780s, there was a remarkable industrial activity in Wilmslow, starting in domestic spinning and developing into small factories. This industrial activity determined, with agriculture, the character of Wilmslow until its suburbanisation under the influence of Manchester, a process of which the earliest beginnings can be detected in the 1840s, but which has gathered momentum only in succeeding generations.

In this account of Wilmslow's increasing industrialisation there has so far been one conspicuous omission, whose sizeable remains are still very much in evidence. Finney says that it was the success of the smaller men in tapping the water of the Bollin and in creating a labour supply for working spinning jennys that induced Samuel Greg, a rich Manchester cotton manufacturer, to build a much bigger factory on the river, with a large water wheel, for carding, slubbing, and spinning cotton yarns for warp – Quarry Bank Mill. The mill was built in 1784.



Why was the mill built here?

Section 2

National
Trust

Quarry Bank

Source 17- Mary Rose, *The Gregs of Quarry Bank Mill: The Rise and Decline of a Family Firm*, (Cambridge University Press, 1993)

Samuel Greg was born in Belfast in 1758, the second surviving son of Thomas and Elizabeth Greg. Thomas had married Elizabeth Hyde in 1742, and the couple had thirteen children. It was a typical union of two commercial families. Thomas Greg was a substantial merchant and shipowner at the time of his marriage. Samuel Hyde, Elizabeth's father, was a small Lancashire landowner who became involved in the Belfast linen trade... Thomas Greg became a wealthy man. By 1785 he had business ventures in America, Russia and England, as well as Ireland, and he owned land in both North America and the West Indies. He experienced frequent financial difficulties as a result of speculating in trade and later in minerals. This, combined with the liability of an ever growing family, meant that when his childless brother-in-law, Robert Hyde, offered to adopt and educate the eight-year-old Samuel, in 1766, he had no qualms about letting the boy go. Robert and his brother Nathaniel had expanded their father's linen business and it must have seemed an excellent opportunity. From then on Thomas had little contact with his son and his will, in which he left Samuel only £300 and a parcel of land worth £500 in New York State, suggests he felt his son was already provided for...

In 1750, Robert Hyde had set about expanding his father's firm. He set up a merchant-manufacturing partnership in Manchester with Robert Hamilton. The partnership flourished and, by its dissolution in 1762, had trade debts of £20,000 in its favour. Linen yarns from the Hydes' Belfast firm were put out to Lancashire cottagers and woven into fustians and other coarse cloths. These were then sold in the home market, in Ireland and America. After Robert Hamilton's retirement, Nathaniel Hyde joined his brother and, together, they expanded the scope of their firm. By 1782, Hyde and Company of Chancery Lane was one of Manchester's largest merchant-manufacturers. They continued to sell their own produce at home and abroad but also became yarn and cloth dealers. Additionally, as commission agents, they acted on behalf of other putters out.

Samuel Greg owed his career to his uncles. They provided him with an invaluable business training and considerable wealth and, perhaps, most important, the wide range of trading connections, which accompanies long establishment. As a young man of twenty, Samuel Greg began learning as much as possible about the textile trade and 'travelled the continent taking orders for the House of Hyde and [became] a regular manufacturer in Manchester of stuffs, chiefly velveteens, nankeens and quiltings'... In 1780, his apprenticeship served, he became a junior partner in the firm. It was not long before he became a very wealthy man. In 1782, Robert Hyde died, leaving him £10,000. This was not all, however, for by this time Nathaniel Hyde was a confirmed alcoholic and had to retire. This meant that Samuel took over the firm. Stocks of cloth were valued at £26,691, mainly held in fustians. Samuel Greg, in partnership with John Middleton, took possession of this stock and paid Nathaniel 5 per cent per annum interest over a five-year period. Additionally, a financial reserve of not more than £10,000 was put at their disposal. The ending of the American War of Independence provided an unanticipated bonus: it increased the value of stocks by £13,000. All this meant that Greg was in an exceptional financial position, just when extraordinary investment opportunities were opening up. Beyond this, the goodwill of the House of Hyde gave him customers and access to credit. In addition, since the Hydes were amongst the leaders of Manchester's Nonconformist society, he also gained business connections of the first quality. Manchester, although comparatively small at the end of the eighteenth century, was a growing town. A commercial rather than industrial centre, it remained sufficiently attractive for many merchants to live there. They met on a daily basis through business and pleasure. In a world where personal contact was the essence of success, this was most important. From the start Greg was closely acquainted with such influential commercial families as the Philipses, Hibberts and Heywoods, and became part of the Nonconformist commercial network. By joining the Manchester Literary and Philosophical Society in 1790, a body dominated by Nonconformist businessmen, he further consolidated his position. A newcomer would have taken years to acquire such a situation.

Well established in business, Samuel thus moved easily in Manchester society and also had connections in Liverpool, the home of his bride. He was 29 when he married Hannah Lightbody, the third daughter of Adam Lightbody, a Unitarian merchant from Liverpool. Samuel's marriage to Hannah benefited his business...[as she brought] him a dowry of £10,000...

It was a logical step for established merchant-manufacturers to become millowners. In the early 1780s, the Hydes had already moved towards becoming factory owners by building a hand weaving shed at Eyam, in Derbyshire. In this way they could better control the quality of cloth produced while, at the same time, guaranteeing steady production. By 1783, however, it was clear to Samuel that a regular supply of yarn was essential, if output at Eyam was to progress smoothly. For this reason work began on Quarry Bank Mill at Styal in 1783.

Why Samuel should have chosen a site in Cheshire, many miles from his Eyam shed, remains a mystery. It is true that the water site on the River Bollin, near Wilmslow, proved to be an unusually good one. It seems unlikely, however, that in 1783 Samuel was aware of its potential. One possibility is that Arkwright's activities in Derbyshire meant that prime sites in the country were becoming scarce and, because of rising water rights, expensive. Whatever the explanation, Greg chose the deep, wooded valley of the Bollin, near Styal, to build his first cotton mill.

That he waited until 1783 before starting work is interesting. It was the year that the American War of Independence ended. This potentially widened the market for cotton goods – as the rise in the value of his stocks suggests. As a result, many manufacturers began to expand production, and a wave of investment, which lasted until 1787, began. Equally significant was the ongoing controversy surrounding Arkwright's patents. Until 1781 Arkwright had, via his patents for cotton spinning and carding, restricted the use of his devices by licence. The latter were expensive and there were many infringements. Ultimately, his patent rights were challenged by manufacturers who objected to his powerful position. A series of lawsuits followed. In 1781 his carding patent was declared invalid whilst, in 1783, the spinning patent was due to expire. Thus, many manufacturers, including Samuel Greg, were encouraged to build cotton mills free from the burden of Arkwright's licence fee. In 1785, Arkwright was able to overthrow the earlier verdict, but his success was short-lived. In November of that year his patent was finally cancelled. This was, no doubt, much to the relief of the new millowners who, like Samuel Greg, would have otherwise faced heavy licence fees.

Source 18 - A contemporary photograph of the surrounding sandstone, from which Quarry Bank Mill was built



Source 19 - John Howard Hodson, *The Story of Wilmslow*, (J. Andrew & Co. Ltd, 1971)

After the invention of the Hargreaves spinning jenny and the Arkwright frame there was a rush to find suitable spots on the banks of streams where the amount and the fall of water were sufficient to drive small mills. Samuel Greg explored Lancashire and Derbyshire and finally settled on Quarry Bank (then called Ferney Brow). From Pownall Ford to the proposed site of the mill there was a fall of 14'. Transport facilities were satisfactory: there was the old bridle path used by the jersey woolmen; access by coach from Wilmslow to Manchester, Birmingham and London; and the nearby Bridgewater Canal, giving transport for both passengers and merchandise to Manchester and Liverpool.

Greg leased the land from Lord Stamford in January, 1784. By early summer the mill was in operation – the first employee, a local girl, Peggy Chapman, started work in May. The total cost, including the Arkwright machinery, was £16,000. It was a four-storey building, 90' long by 30' wide, with mullioned windows and a little bell tower. There were 3,000 spindles worked by two wooden water wheels, of 10' diameter. Brazilian cotton was used, costing 5/- per lb. The spinning into warp for the finest muslins sold at 20/- per lb. The men earned 10/- to 12/- a week, the women 5/-, and the children 1/6 to 3/-. From Quarry Bank the manufactured yarn was carried through Altrincham to the Bridgewater Canal at Broadheath where Greg had a warehouse. Each day two drays set out with the day's quota of yarn. This was stored in the warehouse at the wharf, and the waggon returned with raw cotton which had come by barge from Liverpool. This system remained in use for 90 years.

Source 20 - Walter Lazenby, *The Social and Economic History of Styal 1750-1850*, Unpublished MA Thesis, Manchester University (1949)

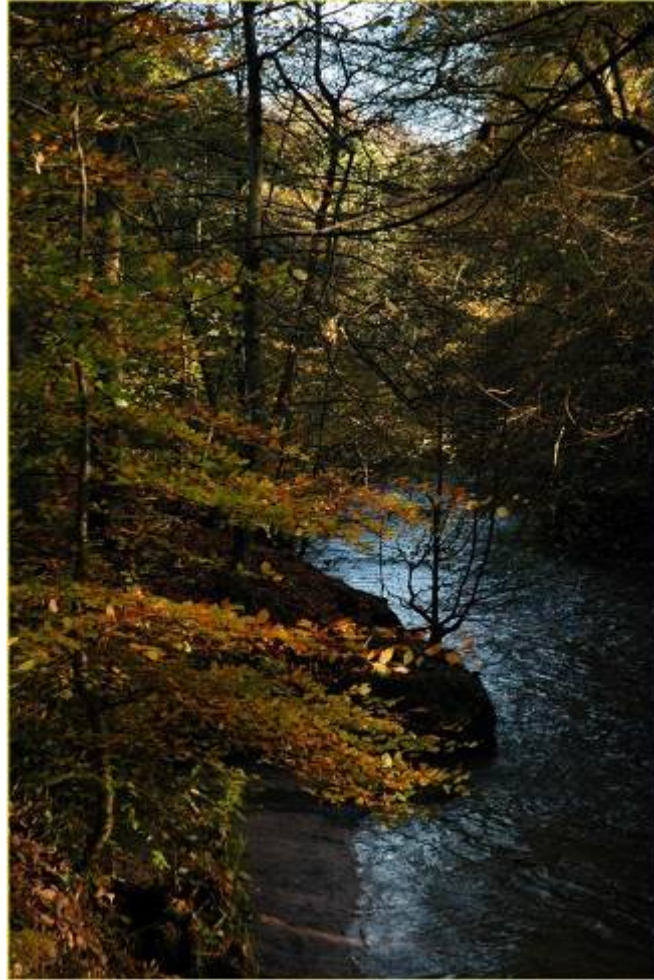
“Instead of sharing the brutish animosity of the manufacturers of Lancashire to the new processes, Greg discovered their immense importance. The vast prospects of the manufacturing industry grew upon his imagination. He looked about him in search for water-power in the neighbourhood of Manchester...

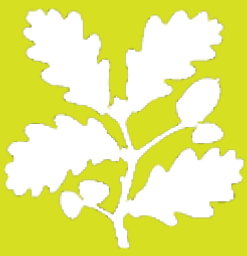
It was that search that eventually led him to Styal where lay a fine opportunity for their exploitation.

He chose a site on the banks of the river that gave him excellent advantages. His surveyor, Hugh Oldham, found that from Pownall Ford, a little distance away, there was sufficient fall of water (14ft. 2¾ inches) to provide the necessary power for the mill. The sandstone rock which abounded there supplied not only a firm foundation for the factory, but also useful building materials for its construction. Other points must have occurred to him also; an old bridle path ran across the waste, passing through Styal at the place where he had chosen to build his mill, and continuing towards Manchester, with a fork towards Altrincham, a path which had been used by the pack-horses of the Jersey Spinners bringing the raw materials for the former domestic industries; there was access by coach to Manchester from Wilmslow and also to Birmingham with connections to London... a service of coaches running through the village on Tuesdays, Thursdays and Saturdays; and, away to the west, the Bridgewater Canal made a way to Manchester both for merchandise and passenger traffic. Goods could be sent at any time by arrangement with the wharfinger but passenger boats sailed at regular intervals from the wharf at Broadheath, an arrangement noted in the Directory in the following terms; “Two elegant passage boats for passengers and their luggage only. Altrincham at four, arriving Manchester at six. Tea and cakes elegantly served for breakfast, or in the afternoon, on each boat.” It was evidently a twice daily service.

With these advantages, a good fall of water, a firm foundation, roads to Manchester and beyond, Styal, in spite of the isolation, was the place for such a project as Greg had in mind.

Source 21 - Contemporary photographs showing the River Bollin (above) and highlighting the location of the mill directly beside the river (below)





Life for the apprentices

Section 3

National
Trust

Quarry Bank

Source 22 - Factory Acts

| | |
|---|--|
| 1802 | Health and Morals of Apprentices Act - This was the first piece of factory legislation. It limited the work of children in textile mills to 12 hours per day; prohibited night work; and required minimum standards of accommodation. It also made necessary some elementary education to be provided; factories to be periodically lime washed; infectious diseases attended to and reported; and ventilation provisions to be put in place. It was largely ignored though, as no system put in place for monitoring it |
| 1819 | Cotton Mills and Factories Act - Children under 9 prohibited from working in factories, whilst children over 9 were limited to 12 hours a day. Again though, there was no inspection to enforce legislation |
| 1825 | Factory Act - Reiterated that children aged 9 - 18 were to work a maximum of 12 hours a day, and that there should be no night work for those under 21. The act was still ineffective though, and the Ten Hours Movement is soon established to campaign for reform. Robert Hyde Greg is opposed to this movement |
| 1831 | Hobhouse's Factory Act - Limited working day to 12 hours for those under 18. To show support for this bill to get it passed, worker's spontaneously began forming what were known as Short Time Committees |
| 1833 | Mills and Factories Act (Althorp's Act) - Repeated and extended the act of 1831. Children under 9 were stopped from working in the textile mills. Children aged 9-13 could work 9 hours a day and 48 hours per week, and were not allowed to do night work. Those under 13 had to be certified by a physician or surgeon as being the appropriate age, and that they were fit and strong enough to do the work. Young people aged 13-18 were restricted to 12 hour days and 69 hours per week. Younger children were to attend school for at least two hours, six days a week, with holidays for young persons to include at least 8 half days off, as well as Christmas Day and Good Friday. The Act gave powers for the appointment of inspectors, because provisions from the previous acts had widely been ignored. The inspectors were empowered to enter any factory at any time and to examine the children, and to enquire about their condition, employment and education. Only four full-time factory inspectors were appointed however, which was inadequate |
| Robert Hyde Greg is unhappy with the provisions of Factory Act, as he had been petitioning Edwin Chadwick, the Poor Law Commissioner, to make poor families from South-East England available to mill owners in the North | |
| 1837 | Robert Hyde Greg publishes <i>The Factory Question...</i> , in which he outlines his grievances with the Factory Acts |
| 1842 | Miner's Act - Females and males under 10 years are banned from working in mines, and winding gears may only be worked by those over 15. This act was limited, due to extensive evasion of it |
| 1844 | Labour in Factories Act (Peel's Act) - Provisions included amending the regulations concerning factory inspectors and certifying surgeons; requiring, for the first time, that machinery be fenced off; reducing the age at which children could be employed from 9 to 8 years; and prescribing the maximum hours of work for children and women. No labour was allowed for those under 8; children aged 8-13 could work a 6 1/2 hour day; whilst females were restricted to a 12 hour day with no night work. Hours for machinery were set between 5.30 am and 8.30 pm; public clocks were to be introduced; and half day schooling was required for 3 days a week. The act was effective as inspectors had the power to prosecute offenders, and it addressed the needs of women for first time. It was however still evaded by some through the use of the relay system. Robert Hyde Greg opposed this Act, already having written a 'defence' of the factory system in 1837 |

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| 1847 | Fielden's Ten Hours Act - Bans women and children aged 13-18 from working more than 10 hours a day, or 58 hours per week. It had a limited impact before 1850, as employers avoided it using the relay system |
| 1850 | Amendment to Fielden's Act - Applied to textile mills only. This act redefined the workday which had been established under the Factory Acts of 1844 and 1847. No longer could employers decide the hours of work. The workday was changed to correspond with the maximum number of hours that women and children could work. The act included the following provisions - that children and women could only work from 6 am to 6 pm in the summer and 7 am to 7 pm in the winter; that all work would end on Saturday at 2 p.m; and the work week was extended from 58 hours to 60 hours. However, the relay system was still being exploited to avoid the constraints of such legislation |
| 1853 | Employment of Children in Factories Act - Applied to textile factories and allied textile industries only. In order to restrict the use of shift labour, hours of work for children were restricted to between 6am and 6 pm, with one and a half hours for meals. With this act the relay system is finally ended, which many millowners had been exploiting to avoid properly enforcing earlier acts |
| 1867 | Factory Acts (Extension) Act - Brings all factories employing more than 50 people within the terms of all existing factory legislation, such as forbidding the employment of children, young people and women on Sundays |
| 1870 | Education Act - Groundbreaking act, that imposes state education for all |
| 1874 | Factory Act - Applied to textile factories, with the minimum working age set at 9, then raised in 1875 to 10. Women and young people could work 10 hours per day, whilst children up to 14 were allowed to work half a day |
| 1878 | Factory Act - Half time work put in place for workers under 14. As this act applied to all factories, it meant a majority of the workforce was now protected |
| 1891 | Factory and Workshop (Consolidating) Act - Raises the minimum age of employment in factories to 11; consolidates all previous safety and sanitary regulations |
| 1901 | Factory Act raises minimum working age to 12 years |

Source 23 - Interpretation of Life in the Apprentice House, produced c.1980-1990



Source 24 - Evidence given by William Rathbone Greg before the Select Committee on Manufactures, Commerce and Shipping, Parliamentary Archives, vi HC 690 (1833)

11411. Are any of your mills worked by apprentices? – Yes, one of our mills in the country is; two were formerly; and now the largest at Quarry Bank is worked, in a great measure, by apprentices.

11412. Whence do you derive those apprentices? – We have derived some from Chelsea; but now we get them chiefly either from our own parish, or still more from the Liverpool poor-house.

11413. Are those apprentices fed and clothed by yourself? – Fed, clothed, lodged and educated; we take complete care of them in every particular.

11414. Have you or any of your family been in the habit of paying attention to the physical and moral condition of those apprentices out of the mill hours? – We have engaged a man and a woman, who take care of them in every way; we have a schoolmaster and schoolmistress; and in addition to that, my sisters have been in the habit of superintending the education of the girls, and my brother or myself, when on the spot, that of the boys. At present we have very few boys, and are increasing the number of girls.

11415. What is the kind of education they receive? – Reading, writing and arithmetic, and the girls sewing, and the necessary domestic occupations.

11416. Have you erected any place of worship near your mill, at which they are required to attend? – Yes, we have erected a chapel, where we leave it optional with them to attend once a day; but they are compelled, by the arrangements that have been made, to go to church once a day.

11417. On whom does the expense of the minister of that chapel fall? – The larger part upon ourselves; and the remainder is paid by the seat-rents paid by the surrounding population.

11418. What is the general state of health of those apprentices? I believe it is unequalled by that of any other class of workmen in any occupation. We had a medical certificate, which we showed to the Factory Commissioners, and the result was, that the deaths were only one in 150, which is just one-third of the average of Lancashire.

11419. At what age do they come to you? – From 10 to 21; we have taken them as low as 9, but not lately, as we prefer having them older.

11420. When they pass away from the state of pupilage, in what way do they generally dispose of themselves? – They almost always marry, very often among themselves, and remain with us as workmen; we then pay them rather higher wages than the other workmen, because they are obliged to take a house for themselves; and, with a few exceptions, they have remained with us, and we have only, I believe, one or two instances during the 40 years we have followed this system of any of them coming upon the parish.

Source 25 - Letter from Henry Russell Greg to George Melly, Quarry Bank Mill Archive (28 Dec 1883)

We boys sat on top of boxes to be given to the departing apprentices – the table with rows of prizes, the coffee cans and the buns and Mrs Shawcrosses private pantry...

Source 26 - Andrew Ure, *The Philosophy of Manufactures*, (London: Knight, 1835)

At Quarry Bank Mill, near Wilmslow, in Cheshire, is situated the oldest of the five establishments belonging to the great firm of Messrs. Greg and Sons, of Manchester, who work up the one-hundredth part of all the cotton consumed in Great Britain... The country round is beautiful, and presents a succession of picturesque wooded dells, interspersed with richly cultivated fields. At a little distance from the factory, on a sunny slope, stands a handsome house, two stories high, built for the accommodation of the female apprentices. Here are well fed, clothed, educated, and lodged, under the kind superintendence, sixty young girls, who by their deportment at the mill, as well as in Wilmslow Church on a Sunday, where I saw them assembled, evince a degree of comfort most creditable to the humane and intelligent proprietors. The Sunday scholars, equally numerous, belonging to the rural population, appeared to great disadvantage alongside the factory children, the former being worse clad and worselooking than the latter, and worse behaved during divine service...

The female apprentices at the Quarry Bank mill come partly from its own parish, partly from Chelsea, but chiefly from the Liverpool poor-house. The proprietors have engaged a man and a woman, who take care of them in every way; also a schoolmaster and schoolmistress, and a medical practitioner. The Messrs. Greg are in the habit of looking after the education of the boys, and their sisters superintend that of the girls, who are taught reading, writing, arithmetic, sewing, and other domestic avocations. The health of these apprentices is unequalled by that of any other class of work-people in any occupation. The medical certificate laid before the Factory Commissioners proves that the deaths are only one in 150, being no more than one-third the average of Lancashire. Their ages vary from ten to twenty-one years. When they grow up, they almost always marry some of the men belonging to the factory, often continue to work, and receive better wages than the other operatives, as they are obliged to take houses for themselves. Only one or two instances have occurred in the course of forty years, since the system was begun by Mr. Greg sen., of any of them coming on the parish. The apprentices have milk-porridge for breakfast, potatoes and bacon for dinner, and butcher-meat on Sundays. They have bacon every day. About 550 young people of this description have passed through the mill in the course of forty years. Mr. W. R. Greg says, that the general state of education among their mill hands is remarkably superior to that of the agricultural people. He has attended sometimes a sort of little club established near one of their country mills, to which some of the farmers' people came, and he found an astonishing difference between their intelligence and that of the mill-workers. He has observed, that the children are a great deal more fatigued and less willing to go to school after a holiday, than after the business of an ordinary day. They all attend school with regularity.

Source 27 - *Transcribed Letter from the Vicar of Biddulph to Samuel Greg, Manchester Central Reference Library, 1817*

Ans^d. 27th Feby
Biddulph Vicarage, near Congleton, Feb:24th: 1817.

Dear Sir,

The thought has occurred to me that some of the younger Branches of the poor of this parish might be useful to you as Apprentices in your Factory at Quarry Bank. If you are in want of any of the above, we could readily furnish you with ten or more at from nine to twelve years of age of both sexes.

My Wife desires to join in best wishes for Mrs. Greg & Family, with,

D^r. Sir,
your obed^t. serv^t.
James Sewell

Source 28 - Leon Faucher, *Manchester in 1844: its present condition and future prospects*, (London: Simpkin, Marshall and Co., 1844)

It is true that the apprentices of Quarry Bank work hard for their bread, and merit well the care that is bestowed upon them, for the future. The greatest portion labour twelve working-hours per day. Mr. Robert Greg, being asked in the Inquiry of 1833, if the children were disposed to go to the evening school, after a long day's labour, and if they profited by the instruction there given, replied, "We have no examples of the contrary; we find that the children are much more fatigued, and less disposed to go to the evening school, after a holiday, than after a working-day, and they always wish to go to bed earlier on Sunday." Dr. Ure gives the same testimony in regard to the apprentices employed in the factories of Messrs. Ashworth and Messrs. Grant; and says, that the children who work in the day-time, go to the evening school, and with countenance as fresh, and as well disposed, as those who attend the day-school. The comparison is an unworthy one. We can conceive that the apprentices of a well-regulated establishment, being better fed, and better cared for, than other children, are not inferior in health and intelligence, notwithstanding the long hours of labour; but who would dare to say that they would not be far stronger, and still more intelligent, if they had a less amount of labour to perform? I complain of those who think it natural, that a child, after having worked twelve hours, should be confined for two additional hours in a school, and that its attention should be continually on the strain, and without any other repose than the hours of sleep. It seems to me, that He who makes the dew descend upon the tender herb, has designed that there should be also for man an interval set apart from the daily labour, and which should be consecrated to the refreshment of the imagination, and the solace of the heart.

Source 29 - John Morley, 'W.R. Greg - A Sketch', *Critical Miscellanies*, Vol. III, (London: Macmillan, 1909)

The Gregs had always been distinguished for their efforts to humanise the semi-barbarous population that the extraordinary development of the cotton industry was then attracting to Lancashire. At Quarry Bank the sedulous cultivation of their own minds had always been subordinate to the constant and multifarious demands of their duties towards their workpeople. One of the curious features of that not very distant time was the Apprentice House. The employer procured children from the workhouse and undertook the entire charge of them. The Gregs usually had a hundred boys and girls between the ages of ten and twenty-one in their apprentice house, and the care of them was one of the main occupations of the family. They came from the refuse of the towns, yet the harmony of wise and gentle rule for the young, along with dutifully adjusted demand and compliance between the older hands and their employers, ended in the transformation of the thin, starved, half-dazed creatures who entered the gates of the factory into the best type of workpeople to be found in the district.

There is a touch of grace about the picture of the pleasant house with its old beech trees and its steep grassy lawns sloping to the river, with the rhythmic hum of the mill, the loud factory bell marking the hours like the voice of time itself, the workers pouring through the garden in the summer morning on their way to Wilmslow church, and receiving flowers and friendly salutation from the group at the open door of the great house. It was little wonder that these recollections acquired a fascination for William Greg that never passed away, and gave that characteristic form to his social ideas which they never lost.

At Bury and Quarry Bank the two brothers [William Rathbone and Samuel Junior] were unrelaxing in their efforts both to acquire knowledge for themselves and to communicate it to their neighbours. They delivered courses of lectures, and took boundless trouble to make them interesting and instructive. In these lectures William Greg took what opportunities he could find to enforce moral and religious sentiment. 'I lay it down,' he said, 'as an indubitable fact that religion has double the effect on Saturday than it has on Sunday; and weekday morality, incidentally introduced, meets with far more attention than the tautology of Sabbath subjects, treated in the style in which they generally are by professed teachers.' A more questionable diligence displayed itself in the zealous practice of experiments in animal magnetism and mesmerism.

**Source 30 - *Transcript of the Examination of Thomas Priestley, Manchester*
Central Reference Library, C5/8/9/5 (1806)**

Examination of Thomas Priestley ACC – who did on Sunday the 22nd day of June last elope from and desert the employment of his said Master (Samuel Greg)

Thomas Priestley, I was born as I am informed by my mother near Gray's Inn Lane. I am 13 years of age, I have no father, he has been dead for more than 2 years, he was one of the Turnkeys at Newgate. I have been informed that for about 5 years since I was taken to Hackney Workhouse. I was there about 2 years and then I consented before the Magistrate at Worship Street Office to go as apprentice to the Cotton Manufactory of Samuel Greg, which is situated at Styal in Cheshire. I was bound with others from this office and went to the said cotton manufactory; when we came there, we were, after a day's rest, set to work, I was the same as the others to attend 2 machines for spinning cotton, each of which spun about 50 threads, my business was to supply these machines, to guide the thread occasionally and to twist them when they snapt, and I soon became perfect in these operations, also learned to take the machinery to pieces and apply the oil, a matter that required some care. In this manner I have been employed all the while that I have been in the cotton manufactory of Mr Greg aforesaid – during the time working, and there was a great deal of cotton in the machine, one of the wheels caught my finger and tore it off, it was the forefinger of my left hand. I was attended by the surgeon of the factory Mr Holland and in about 6 weeks I recovered. I have no reason to complain of the wage I received during the time I was at the factory, nor do I know that the other apprentices who were I believe about 90 had. Richard Bamford who is the Master of the Works was very good to me and to the rest of us, there were girls and boys, more of the former than the latter. For these apprentices of both sexes there was one house called the 'Prentice House' short distance from the mill or factory. This house is superintended by Mr Richard Sims and his wife, these persons with their assistants see to all the matters respecting the lodging, washing and the diet of the apprentices. We slept in long rooms, the girls on one side of the house and the boys on the other. There were a good many beds in each room and we had clean sheets oftener than once a month, our blankets and rugs were perfectly clean. The floors of the rooms were kept very clean, the rooms were whitewashed once a year, and were aired every day, we had clean shirts every Sunday, and new clothes when we wanted them. Our diet consisted of the following articles, with porridge for breakfast and supper throughout the week, we had plenty of it and brown bread with it.

Our working hours were from 6am in summer and winter until 7 in the evening. There was no night workers. We had only ten minutes allowed for our breakfasts, which were always brought up to the mill for us and we worked that up at night again – 2 days in the week we had an hour allowed us for dinner, while the machines were oiled, for doing this I was paid a halfpenny a time, and other days we were allowed half an hour for dinner, when the boys worked overtime, they were paid 1d per hour. With respect to my elopement I had no reason to be dissatisfied with my situation, but during my illness, I (thought) of my mother, and wanted to see her. She sent me a Crown, so I set off with Joseph Sefton, we enquired the road, and walked nearly all the way to town. We slept in barns and did not spend more than 3 pence a day. I have been in town 5 weeks in Hackney Workhouse and am very willing to go back again.

Taken before me this 2nd day of Aug 1806.

The mark of Thos. Priestley

The above examination took place in the County of Middlesex

Source 31 - Transcript of the Examination of Joseph Sefton, Manchester Central Reference Library, C5/1/8 (1806)

Middlesex to Whit: The examination of Joseph Sefton brought under a warrant of the Rev. Croxton Joseph Clerk of His Majesty's Justices of the Peace for the County of Chester for his having eloped and deserted the service of Samuel Greg Cotton Spinner and Manufacturer of Pownall Lee in the said county of Chester, to whom he was apprentice etc.

Joseph Sefton

I am 17 years of age this August. My Father, I am informed, deserted me or went for a soldier, when I was about 2 years old. His name was Joseph Sefton. I have been told that I was born at Clerkenwell. I have been in the workhouse of the Parish of Hackney from an infant. About 3½ years since I consented before the Magistrates at this office worships and tried to be bound apprentice to Samuel Greg, Cotton Spinner and Manufacturer. There were 8 boys and 4 girls of us bound at the same time. We went to Styal and were employed in the cotton mills of Samuel Greg, which are a short distance. I was first employed to drop bobbins i.e. taking a full bobbin off the spindle and putting an empty one on. I then saved straps and put these round the binders (the straps twisted the lists and the lists turned the wheels). I used to oil the machinery every morning. In fact I was employed in the mill work. I did not spin. I like my employment very well I was obliged to make overtime every night but I did not like this as I wanted to learn my book. We had school every night but we used to attend about once a week (besides Sundays when we all attended) 8 at a time. I wanted to go oftener to school than twice a week including Sundays but Richard Bamford would not let me go tho' the mill had stopped but this was the time that the straps and frames wanted mending. I have no reason to complain to my Master Mr Greg nor Richard Bamford who overlooks the works. There were 42 boys and more girl apprentices. We lodged in the Prentice House near the mill under the care of Richard Sims and his wife. The boys kept at one side of the house and the girls on the other. The girls all slept in one room, the boys in 3. Our rooms were very clean the floor frequently washed. There was a door betwixt their apartments, which was locked of a night. The rooms were aired every day, whitewashed once a year. We had clean shirts every Sunday. We had new clothes for Sunday once in two years. We had working jackets new when these were worn out and when our working trousers were dirty we had them washed. Some had not new jackets last Summer but they were making new ones when I came away. On Sunday we went to Church in the morning and to school in the afternoon after which we had time to play. On Sunday we had for dinner boiled pork and potatoes. We had also peas, beans, turnips and cabbages in their season.

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| Monday | We had for dinner milk and bread and sometimes thick porridge We had always as much as we could eat |
| Tuesday | We had milk and potatoes |
| Wednesday | Sometimes bacon and potatoes and sometimes milk and bread |
| Thursday | If we had bacon on Wednesday we then had bread and milk |
| Friday | We used to have Lob scouse |
| Saturday | We used to dine on thick porridge |

We had only water to drink, when ill we were allowed tea. With respect to my coming away I wished to see my Mother. I had asked leave to absent for a month of my Master Mr Greg and he refused me so I set off without his consent with Thos. Priestley about 6 weeks ago. We walked all the way to London except about 10 miles we were a week coming. I had a shilling when we set out we slept in barns and did not spend more than 2d or 3d a day each. The shilling I had arose from my overwork. I was paid 2d per week for which I worked 9 hours. The money that the apprentices get for overwork is set down in a book. They had only a little of it, the rest is saved till they come out of their time.

Source 32 - An Impression of Ufe in che Apprenrice Hous Scyal, before 1847, (1982)



Source 33 - Evidence given to the Factory Commission by George and Elizabeth Shawcross, Superintendents of the Apprentice House at Quarry Bank Mill, Parliamentary Archives, XX HC 450 D2 (1833)

George Shawcross and Elizabeth Shawcross, superintendents of the Children apprenticed to Messrs. Greg's Mills, Quarry Bank, Wilmslow.

(The assent of each witness was required to each answer.)

How long have you been superintendents of the factory children of Messrs. Greg's mills?

- Twenty-two years last 8th of January.

How many children had you under your superintendence when you first came?

- Seventy-three when we first came, and now sixty-seven; but we have had as many as ninety-seven: they vary as they go out of their time and fresh come; the average number is eighty-five.

Do you superintend any children but those who are apprenticed in Messrs. Greg's Mills?

- No

How long do the children work in the mills?

- Twelve hours, from six in the morning to seven at night; an hour at noon for dinner, and half an hour at eight o'clock for breakfast; they always go out of the mill for their meals.

What are the terms on which they are taken?

- From nine to eighteen years of age: they are bound according to their ages when they come, generally nine years of age, but their apprenticeship never lasts after eighteen. They all live and eat in our house, and we take entire care of them.

Can you say how many have been ill during the last year, and for what length of time?

- We have very little sickness. Mr. Greg pays the doctor 20l. a year for all the medicines and attendance they receive. Children when they come first don't look so hearty as when they have been here some time, particularly when we get them from the Liverpool Workhouse. We have had no deaths this year, and the worst disease has been this influenza, and that only lasted for a few days. The worst I ever remember was the scarlet fever, and that was very slight; they had the scarlet fever at all the boarding schools round, at the same time, and a great deal worse than the apprentices here.

Can you say how many deaths have occurred among the apprentice in the twenty-two years you have been here?

- Seventeen deaths, only one of whom was killed by an accident at the machinery: it was his own play, not in the factory, but in the wheel-race; it was in the place where the water-wheel was putting up.

Do you teach the children?

- No; the ladies teach the girls, and the schoolmaster the boys, three nights a week, from eight to nine o'clock generally.

Then do you teach them nothing?

- Sewing to the girls, who all make their own clothes and the shirts for the boys.

When do they find time for this work?

- In the evening, after the mill stops.

Are they never too tired to work at the needlework?

- No; they are much more tired when they have a play-day, on the mill stopping; they want to go to bed much sooner on those days.

When do the ladies teach the girls?

- Sunday afternoon and then there is a schoolmistress besides, who teaches them at the same time; they have also a monitress to a certain number of girls, who hears her class every other evening.

Can all the apprentices read and write?

- Not all: the boys can, but the girls have not so much time, as they must mind the sewing; they

can all read very well, and most write a little, but not so much as the boys.

When they are past eighteen, do they generally remain in the mill?

- Yes; and go out to lodgings or their friends.

Are there many agricultural labourers here?

- Yes, some.

Which generally have the best characters, the children of the field-labourers or the factory children?

- The factory children know a great deal more; the agricultural people are a much more unbroken set than the factory family; not so tidy in their appearance by a great deal.

Which bears the best characters, factory apprentices, or the factory children who are not apprentices?

- I can't say exactly; the apprentices turn out uncommon well when they have been married – both boys and girls. I never knew an apprentice detected in theft; they have their faults as well as other children.

If a workman wishes to marry, would he in general prefer a woman who had been brought up in a factory, or one who had not?

- I cannot say.

Can a factory woman discharge her household duties as well as any other woman?

- Some a great deal better than some who have been agricultural servants; but I cannot say particularly whether they are better or worse. Women would a great deal sooner be in factories than in service, as they have more liberty on a Sabbath and at nights than servants. Servants are very scarce about here.

How long did the factory children work when you first came there?

- The same time nearly, except that their dinner-time was only forty minutes, and their breakfast ten minutes, which they used to take in the mill: they have had much better appetites since they have walked up to the house for their breakfast.

Are their healths better than they were then?

- We think so.

Which work at the mills do the children like most?

- They like the spinning best, but just as they are brought up.

Are any of the children deformed?

- No; I don't know that we ever had one.

Have you ever heard that the throstle-spinning injures the children?

- No.

Does it injure their legs?

- I don't believe it does; but I have heard those that have hurt themselves say that it is their own fault. If they use first one leg and then the other, to stop the throstle, there is no harm at all. They have no need to stop always with one leg. It is just as easy to stop with one leg as the other.

Is there any other work in the mill that has any tendency to injure those employed at it?

- No; I never heard of any.

Source 34 - Alfred Fryer, *Wilmslow Graves and Grave Thoughts from Wilmslow*, (Stockport, 1886)

When the improved machinery was introduced there were no operatives who had been educated to work it. Old persons could not acquire the requisite dexterity, and young ones would need to be trained. The trade was rapidly expanding, and care must be exercised lest the young persons taught the art with much patience should be tempted away before they had repaid the labour which had been bestowed upon them. In those days the hours of labour were long, not alone for those who worked in cotton mills, but for farm labourers, domestic servants, and shop assistants, as well as artificers of every kind. It was almost essential that the young persons should dwell near their work.

The plan adopted was to apprentice young persons to the business, and there were not a few children, orphans, who were a burden to the parish authorities in this and neighbouring counties eager for employment. From this class the apprentices were chiefly drawn, and it may be not without interest to learn how they fared at Styal at the commencement of the present century.

The largest gravestone in the pathway leading to the porch of Wilmslow Church is simply lettered "S.G., Styall." This is the central one of three stones placed by the grandfather of the present owners, and the builder of the cotton mill. They serve to make the graves reserved for such of his apprentices as should die in his service. Seventy years ago or more a group of neatly and soberly dressed girls could be seen every Sunday morning, when the weather permitted, filing quietly to their places in the Booth Chapel in order to take their part in the morning service. Though all dressed alike, they could scarcely be said to wear a peculiar garb. Their plain, light straw bonnets were bound over the head by a green ribbon. The neat drab dresses were of a stout cotton material – a sort of thinnish fustian, – and the bust was concealed by cross-over buff kerchiefs. Woollen stockings and substantial shoes protected their feet. Cloaks shielded them from wet or cold. A few lads came with them, but they sat apart. These wore dark corded breeches, woollen stockings, and stout shoes. Their jackets were of strong fustian, and their high crowned hats were doffed on entering the church.

A commodious dwelling standing within a well-stocked garden on the crest of the hill approached by the carriage drive leading from Mr Greg's house at Quarry Bank, was known as the "Prentice House." Its situation is salubrious, and it is not distant from the mill. The children were bound for seven years, and during their apprenticeship they received wholesome and abundant food, suitable clothing, and comfortable lodgings in return for their services, and they were taught a business from which they could afterwards obtain a comfortable livelihood, not an unimportant consideration at any time, and especially so at the time in question. The young persons also obtained something more, which they were not at all slow to appreciate. They received kind treatment from their employer, and the members of his numerous family showed a personal interest in their welfare. The appearance which the girls presented at church showed that they were well nourished, and the circumstance that the grave stones referred to have scarcely ever been raised is not without significance. The single instance met with is "Dorothy Cardwell, aged 17." Life for the humbler classes is much more desirable now than fifty or a hundred years ago; and indeed before mankind had enslaved the steam engine and compelled it to perform a large portion of the drudgery of the species the hard work must have been effected by human muscles or left undone. Much in the food, clothing, and lodging which are now considered essential were then quite out of reach. The daily routine at the Prentice House was pretty much as follows. The young people were required to rise betimes in the morning ready to attend the mill at half-past five, after consuming a piece of good wholesome, but not quite white bread. At half-past eight breakfast was served, and as only ten minutes were allowed for that meal it was taken in the mill. Oatmeal porridge with abundance of skimmed milk, if not too hot, can be placed out of sight in a remarkably short time. The dinner hour – which, by the way, was only half-an hour in duration – commenced at one o'clock. The dinner, like the other meals, was abundant in quantity and simple and wholesome in quality. Potatoes and bacon was the usual repast; sometimes a ham was substituted, and more rarely butcher's meat. Those who preferred buttermilk to bacon were allowed to have it. Sometimes the dinner consisted of hot stew. On Sunday cold boiled ham, home cured and appetising, was usually seen, and in spring and summer, raised fruit pies of rhubarb or gooseberry sometimes made an agreeable variety. "Barm dumplings," too, occasionally made their appearance. The afternoon meal was served at half-past five, and consisted of oatmeal porridge and skimmed milk. It was partaken of pretty much as the Israelites partook of the feast of the Passover. The long day's work was terminated at half-past eight, and a piece of bread served for supper. An exception was made on Friday, for the supper on that evening consisted of broth. On Sunday the family rose somewhat later, and unless the weather proved very unfavourable they attended church. Sunday was a happy day, and served to break the monotony of the week. After dinner the school was held, and then all the Misses Greg came up from Quarry Bank and taught the young people. Instruction was given in reading, writing, and arithmetic; and whilst paper and pens were employed by the more advanced scholars, the younger ones (in those days of quill pens and paper duty) commenced their education by tracing figures on a sanded board. The kindness and gentleness of the young ladies is still sweetly remembered by aged persons whose course is now nearly run. Whitsuntide was a pleasant season, for then the new clothing was supplied, and the skirt which had done duty as the best gown for the past year became the petticoat for the ensuing one. Christmas too, was a bright time, for then all the school work was exhibited to the Quarry Bank family and their

friends; prizes were awarded, recitations were given, and the honour of being distinguished as the best girl or boy, steadiest at work, most orderly in conduct, or proficient at school, was greatly coveted by all the young candidates. Then came the luxury of currant bread and the greater luxury of tea. The household was managed by a master and mistress, assisted by three women servants. One dear old lady, the serenity of whose mind is written in legible characters upon her face, was unusually young when she first entered the Prentice House, and bitterly grieved when taken from her home on the occasion of the second marriage of her mother. She relates how kind the people were to her, and how the master would take her through the garden and give her fruit and flowers, and that his very tenderness seemed to make her worse, so that she almost wished for some harsher treatment which might rouse and brace her to encounter bravely her changed lot. She recounts how the overlooker gave instructions that she must rest herself when tired, especially towards evening, and only rise if the principal should enter the room. Wages were not given to the apprentices, but when their time expired they were taken on as qualified hands, if wishful to stay. Gratuities were by no means uncommon. Her master would walk through the room and examine the work which each apprentice was producing, and not unfrequently would leave a sixpence on the frame of those who pleased him. On one occasion Mr Samuel Greg left on her frame three several sixpences during the same day. A household of young persons with such antecedents as some possessed does not seem a good school in which to bring up young girls, but in those days there appeared to be a self-restraint which is less commonly met with now. The influence of the ladies on Sundays was wholly for good, and even now when referred to they are mentioned by their Christian names with evident affection. There appear to have been no cases of running away, and nothing of a scandalous character among the apprentices is known to those who supplied the present account. It seems at the first sight to be a profitable arrangement for the master to secure seven years' service of the young persons without the payment of wages. But this is the case now with almost all other apprenticeships, and very often the occupation to which a young person is bound is not a useful trade, but something which a few months' application would be suffice to teach. Again, parents are frequently required to supply clothing, and sometimes to pay a premium, which were not exacted at Styal. Then it should be remembered that the master had his duties to discharge as well as his privileges to enjoy. During the whole of the apprenticeship he was bound to find food, clothing, and lodging, whatever might be the state of trade. On one occasion the mill of Mr John Greg was destroyed by fire, and in order to provide for the apprentices (who could not be discharged like the other work-people) they had to be sent to Styal. Abundant evidence exists of the kindly feeling subsisting between employer and employed, and this was fostered by the two parties being so frequently thrown together.

There was little to complain of in the lot of the Prentices save the long hours. But machinery did not run as rapidly then as now, and the tension was therefore not so severe; but it has been abundantly demonstrated that so long a time devoted to labour is greater than even men can sustain without inconvenience, if not injury, and for growing young people the strain was much too severe. No act had been passed for limiting the hours of labour, but this boon followed in due course. It should, however, not be overlooked that the strain was not relaxed till long afterwards on apprentices in retail shops, on farmers' boys, carriers' boys, or chimney-sweeps; and many domestic servants, some of them young girls, are at the present time subjected to a thralldom to which the prentice house system was by comparison, liberty.

With the extension of business the necessity of the apprentice system declined, and the Prentice House has long been converted into a private dwelling.

Source 35 - John Howard Hodson, *The Story of Wilmslow*, (J. Andrew & Co. Ltd, 1971)

Between 1790 and 1851 an average of 34% of the employees at Quarry Bank Mill were children – 19% boys and 15% girls; they were mainly young children from poorhouses – parish apprentices. Many of them continued to work at the mill after their apprenticeship was over, and until late in the 19th century many inhabitants of Styal spoke with a “foreign”, i.e., southern, accent. After 1830 the bulk of the apprentices were Irish immigrants from Liverpool.

Styal apprentice house was built about 1790, to house 100 apprentices between the ages of 9 and 21. The most vivid information about it comes from the evidence of two boys, Joseph Fulton, aged 17, and Thomas Priestley, aged 13, who were brought before the Middlesex magistrates in 1806, having “eloped and deserted the service of Samuel Greg”; they walked all the way to London to see their families, and were arrested four weeks later. They said they were satisfied with the treatment they received at Styal, and went on to describe it in detail. There were 42 boy-, and more girl-, apprentices. They lodged in the “Prentice House” near the mill and were under the care of Richard Sims and his wife. The boys slept at one side of the house and the girls at the other. The rooms were very clean, the floors frequently washed and aired every day; also whitewashed once a year. “Our beds were good. We slept two in a bed and had clean sheets once a month. We had clean shirts every Sunday and new clothes for Sunday once in two years, also new working jackets when those in use were worn out.” Occasionally, on Sundays they had beef, bacon, boiled pork, potatoes, peas, beans, or other vegetable in season, milk, thick porridge, and tea when ill. “On Sunday we went to church in the morning and to school in the afternoon, after which we had time to play. We also had a school every night which we used to attend once a week besides Sundays, eight boys going at a time.”

Their working hours, 5.30 a.m. to 8 p.m., were long even by the standards of those days. There was a break of ten minutes at 8.30 a.m. for breakfast, and half-an-hour at 1 p.m. for dinner. A meal was provided at 5.30p.m., but the machines were kept running. If, as frequently happened, there was trouble with the water supply, the apprentices might have to work overtime. Discipline was strict, and included corporal punishment. Fines were severe: for breaking a lamp glass, 4s.; breaking a window pane, 1s. 4d.; breaking a window pane at the Master’s house, 8s.; stealing apples, 5s. 23 children absconded between 1815 and 1845; only four were not recaptured. Nevertheless, a Dr. Andrew Ure gave a glowing account of the factory in 1835, and recorded the Gregs’ “belief that their children were superior in appearance, health, and education to the agricultural children. Mr W.R. Greg has observed that the children are a great deal more fatigued, and less will to go to school after a holiday, than after the business of an ordinary day. They all attend school with regularity.”

The aim of the mill’s educational policy was “to enable the workers to act on instructions.” In 1798 a teacher began to pay regular visits on Saturday afternoons; there was also a singing class under a special teacher. An examination, conducted by the Greg family, was held each Christmas. Use of the slide rule was taught, and James Henshall, the manager from 1847 to 1867, made important contributions to its design. In 1823 Samuel Greg built a small school for the children of the village to which the apprentices went in relays for two hours a day. In the same year an adult “mutual improvement society” was started, to which the sons of the Greg family gave lectures during their university vacations. This was still in existence in 1863, but by then it had become a Mechanics’ Institute.

Source 36 - Apprentices at Quarry Bank Mill

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| 1788 | Dr Holland is employed as one of the first factory doctors, to look after the apprentices - he is also retained as the family physician |
| | Earliest documents pertaining to the teaching of apprentices were written in this year. Records show that in this year, Greg was paying John Thornton 11s 4d per month for "schooling" the apprentices and spent 15s 6d on books and papers for "prentices" |
| 1790 | Apprentice house built for the roughly 90 parish apprentices who constituted about 50% of the workforce (approximately 60 girls and 30 boys) |
| 1831 | 100 apprentices working at the mill, from a workforce of 351 |
| 1835 | 20% of the workforce are now apprentices, as Robert Hyde Greg increasingly seeks to create a stable adult workforce |
| 1847 | Apprentice system ended at Quarry Bank Mill - Robert Hyde Greg commented this was due to 'Factory Bills, Short time Committees and Morbid Philanthropy'. However, the mill's prolonged use of apprentices had attracted considerable ire, with one supporter of the Factory Bills called John Doherty unfavourably likening the condition of apprentices at Quarry Bank Mill to that of the slaves |

Source 37 - Contemporary photograph showing a costumed interpreter with visitors in the Apprentice House



Source 38 - Contemporary photographs showing the interior of the Apprentice House



Source 39 - Robert Hyde Greg, *Account of the Circumstances Connected with the Punishment of Esther Price and Lucy Garner*, Manchester Central Reference Library, C5/8/22 (1843)

Sometime in the month of August 1835, Mrs Shawcross who with her husband had been in our employ 25 years left in consequence of the death of Mr Shawcross which occurred some months previously.

During his illness and subsequently, the children who had been in excellent order for 20 years became rather less tractable. Mr & Mrs Timperly succeeded to the charge of the Apprentice House, for which they were perhaps not perfectly qualified. In November that same year, Esther Price and another girl committed so violent an assault on a fellow apprentice that I sent them before the magistrates.

The Bench (Thomas Daintry and William Hope) declined committing and recommended that we should find some means at the home of checking disorders. They were reprimanded, sent home and no punishment was inflicted on their return. The same day on which the above took place, I ordered two disorderly girls, a week of solitary confinement but released them on the fourth day (Sarah Crop and Isabella Shaw). To deter any more from running away I announced to them all publicly that I should resort to the old punishment of cutting off the hair of all future runaways.

At the Wakes end of August 1836, Lucy Garner and Esther Price ran away on Saturday night. Lucy returned the Thursday following and Esther Price the Tuesday but one after. They said to some of their companions they did not care what was done with them, as long as their hair was not cut off.

On a consultation respecting their punishment, Mrs Shawcross and my sister Sally both remonstrated against the severity of cutting off girls hair; and I requested my brother Sam to see the Magistrates, and know what punishment they would award if the girls were sent before them.

But the girls returning before an answer was obtained recollecting their charge and (concurring in the propriety) I ordered Lucy Garner three day's imprisonment and Esther Price a week's.

Lucy Garner was confined in a spare bedroom all Friday, Saturday and Sunday, and I believe (for it seems uncertain) on Thursday night. She had water porridge twice a day. The windows were not boarded up, and the weather being warm, and there being 60 or 80 woollen cloaks hanging up in the room, Mr Timperly did not think it necessary to put in a bed which he had done for the girls confined the previous November.

Esther Price came back after Lucy Garner was gone out and was confined in the same room. The windows were boarded, partly to prevent her escape and partly to prevent communication without. The room was partially dark. Her food milk and porridge and bread, morning and evening the same as the other girls, but no dinner. She was put in on Monday or Tuesday night (that of her return); on Friday, after all the girls were in bed, Mrs Timperly died of apoplexy.

On the following day, Esther Price feeling alarmed at being by herself, in the same house as the dead body begged to come out, promising to complete her term of imprisonment afterwards.

She was thereupon let out and never put in again. Thus having her term shortened by two days. Lucy Garner (I believe she did so as soon as she got out) wrote to her mother, and shortly came Mr Dogherty and Mr Turner of the Short Time Committee. This visit was repeated two or three times. Shortly after their first visit came over also the Master of the Workhouse and Mr Marriot, to inquire into the truth of the reports spread by the men. They saw everything, questioned Esther Price and all the others, were much pleased with everything, but they said on going they thought 6 days (only 4) confinement and no bed, rather hard for the offence.

On Sunday 8 January 1837 came Mrs Doughty, Esther Price's sister, to meet Dogherty and McWilliams at the Horseshoe, and the following morning she made the Deposition accompanying this.

Tuesday I consulted my attornies, if the short time Committee could not be prosecuted for a libel and conspiracy. Same day heard from Thomas Ashton that Mr Howard of Hyde, having met some of the Short Time Committee on the road, they had told him the story with every kind of gross exaggeration and falsehood.

Source 40 - John Doherty, *Misrepresentations Exposed in a Letter, Addressed to Lord Ashley, M.P., Containing Strictures "On the Letters on the Factory Act, As It Affects the Cotton Manufacture, By Nassau W. Senior."*, (Manchester: John Doherty, 1838)

Having already had occasion to quote from Mr. R. H. Greg's pamphlet on the factory question, I must again refer to the statements of that gentleman, who, by the way, has nearly 100 free agents under the forms of female "apprentices," and has also a "prentice house," with all the &c., which he would wish the public to believe were abolished with the days of Sir Robert Peel. And he gravely tells us, that all the legislature can do for these unfortunate females, must be in the shape of education, but he does not tell us how educating *them* will prevent *him* from working them either for more than 9 or 12 hours, as the case may be.

Mr. Greg not only profits by the labour of female orphan children, collected from the various workhouses, and "apprenticed" to him by the overseers, but he assumes the right to punish them for supposed infractions of his laws, in a variety of ways. One mode of punishment is, to cut off their hair close to the head, especially those who seem to be most anxious to preserve it, from the care which they take of it. Another is of a rather more objectionable nature. It is no less than solitary confinement. It is not long since a girl named Esther Price, a Liverpool apprentice, was ordered to be confined for 5 days, for the grievous offence of going to Liverpool to see her Father, during a temporary stoppage of the works, after she had asked permission to go, and was refused. The mill was to stop during the Monday and Tuesday. She went off after the work was done on Saturday, and returned again on the Wednesday, worked till breakfast time and was then ordered into solitary confinement, in a room of the "prentice house," prepared and kept for the purpose, with the windows darkened by boards being nailed up against them on the inside. In this place she was to remain 5 days *without fire, light, or bed*. An accident, however, released her before the expiration of the term of her imprisonment. The matron of the "prentice house," died suddenly, on the Friday afternoon, and the dead body was laid in an adjoining room. The girl was soon made acquainted with this fact, became alarmed, and resolved, at all hazards to escape from her dungeon. Accordingly, when the customary meal was brought her, on the Saturday afternoon, she rushed past the person who brought it, declaring she would remain there no longer, whatever might be the consequences. This person, having some of "the milk of human kindness" in his bosom, did not insist upon her return, but contented himself with cautioning her not to be seen out of the house during that or the following day, lest Mr. Greg should see her, and get him blamed.

These facts are detailed on the authority of the Manchester short time committee, who took great pains to ascertain the facts. They even went to the overseers at Liverpool, to procure their interference. And although it is said that those functionaries, or, perhaps, more properly speaking, the keeper of the Liverpool workhouse, is said to have visited Mr. Greg's establishment, for the purpose of investigating the matter, and on his return, to have reported "all right." The interference of the committee was so far 'effectual as to cause the boards nailed up against the windows for the purpose of excluding the light, to be removed. And yet this man comes before the public to discuss the important question of a factory regulation act, as one whose statements are entitled to credit from the public, and has more than once talked of the abominations of black slavery.



Life for the workers

Section 4

National
Trust

Quarry Bank

Source 41 - Transcripts of Extracts of Answers given by Samuel Greg to the Factory Commissioners. Supplementary Report, Parliamentary Archives, XX HC 167 D.1 (1834)

Query 5: Is there any distinct nor [sic] specific provision for the ventilation of your factory; if there is any such provision, describe its nature and effects.

Answer: In scutching (cleaning the cotton) the dust and flock is carried off through flues by means of powerful fans, leaving the room perfectly free from inconvenience.

Query 6: State whether the provision depends on the opening of windows, or other casual means.

Answer: Yes, every window opens at the top.

Query 8: Are any of the dangerous parts of the machinery fenced off, or, if not, why not?

Answer: Yes

Query 9: Have you any arrangements in your manufactory for the health or convenience of the workpeople, such as arrangements to enable them to change their clothes on entering the manufactory, or any arrangements to ensure the personal cleanliness of those employed thereat; if you have, specify these arrangements and the date of their introduction.

Answer: No dressing rooms. They seldom change other than their cloaks, shawls, and bonnets; these they hang up on pegs within the rooms. Many put on white pinafores or aprons, and have slippers to work in. All are required to come clean. Can wash their hands. It is a clean employment.

Source 42 - John Howard Hodson, *The Story of Wilmslow*, (J. Andrew & Co. Ltd, 1971)

Labour was drawn from all over England (especially before 1802, when an Act was passed preventing children being sent an unreasonable distance) and built up in a community in the neighbourhood of the mill. Some workers lodged in the village, but they were usually single. Many early workers lived at Hough, Mottram, Handforth, Morley, or Ringway, but with the increasing tendency for families to work together there was a desire to live nearer the mill. Greg improvised to provide accommodation at Styal. First, he adapted farm buildings, converting, for instance, a Dutch barn into a row of four cottages – the end two with gables and the middle two with dormers. Even stables had floors and dividing walls inserted, and a farm shippen became another row of four cottages after its large central arch had been filled in. He also took over houses near the Ship Inn and in Toad Lane, and black and white cottages near the Green, but Farm Fold cottages give the best evidence of conversion: here Greg was able to extract 19 dwellings from one farmstead, a cruck house being converted into two cottages, and the farmhouse itself being made into five cottages by diving sections and piercing doors in the outer walls.

Then Greg built his own cottages, made of brick from local clay in the mill's own brickyards. One row was built with cellars, and a note in one of the account books says: "Oak cottages, 42 built at different times. The cellars were originally intended for loom shops of handloom weavers, not residences." However, the advent of the powerloom made this use unnecessary. Thomas Hall's census of 1801 shows that two, and sometimes three, families lived in each of these houses. There was a kitchen range on each floor; the ranges on the upper floors have now gone, but those in the cellars remain...

Other provisions made by the Gregs in their industrial community at Styal were a Unitarian chapel, built in 1822, and a shop where employees could make purchases and, until the Truck Act of 1831 made it illegal, have the cost deducted from their wages. A profit-sharing system was begun in 1850, but abandoned in 1863. In 1873 the shop was taken over by the Styal Co-Operative Society, and later by the Stockport Cooperative Society.

Source 43 - Maria R. Audubon, *Audubon and his Journals*, (New York: Scribner, 1897)

I accompanied the two brothers, Samuel Junior and William to a debating club instituted on their premises for their workmen; on the way we passed a chapel and a low row of cottages for the workpeople and finally reached the schoolroom, where about 30 men had assembled. The question present was 'which was more advantageous, the discovery of the compass or the art of printing'. I listened with interest and later talked with the men on some of the wonders of my own country in which they seemed much interested.

Source 44 - Friedrich Engels, *The Condition of the Working Classes in England in 1844*, (London, 1891)

The south bank of the Irk is here very steep and between fifteen and thirty feet high. On this declivitous hillside there are planted three rows of houses of which the lowest rise directly out of the river, while the front walls of the highest stand on the crest of the hill in Long Millgate. Among them are mills on the river, in short, the method of construction is as crowded and disorderly here as in the lower part of Long Millgate. Right and left a multitude of covered passages lead from the main street into numerous courts, and he who turns in thither gets into a filth and disgusting grime, the equal of which is not to be found – especially in the courts which lead down to the Irk, and which contain unquantifiedly the most horrible dwellings which I have yet beheld. In one of these courts there stands directly at the entrance, at the end of the covered passage, a privy without a door, so dirty that the inhabitants can pass into and out of the court only by passing through foul pools of stagnant urine and excrement. This is the first court on the Irk above Ducie Bridge – in case anyone should care to look into it. Below it on the river there are several tanneries which fill the whole neighbourhood with the stench of animal putrefaction. Below Ducie Bridge the only entrance to most of the houses is by means of narrow, dirty stairs and over heaps of refuse and filth. The first court below Ducie Bridge, known as Allen's Court, was in such a state at the time of the cholera that the sanitary police ordered it evacuated, swept, and disinfected with chloride of lime. Dr. Kay gives a terrible description of the state of this court at that time. Since then, it seems to have been partially torn away and rebuilt; at least looking down from Ducie Bridge, the passerby sees several ruined walls and heaps of debris with some newer houses. The view from this bridge, mercifully concealed from mortals of small stature by a parapet as high as a man, is characteristic for the whole district. At the bottom flows, or rather stagnates, the Irk, a narrow, coal-black, foul-smelling stream, full of debris and refuse, which it deposits on the shallower right bank. In dry weather, a long string of the most disgusting, blackish-green, slime pools are left standing on this bank, from the depths of which bubbles miasmatic gas constantly arise and give forth a stench so unendurable even on the bridge forty or fifty feet from the surface of the stream. But besides this, the stream itself is checked every few paces by high weirs, behind which slime and refuse accumulate and rot in thick masses. Above the bridge are tanneries, bone mills, and gas-works, from which all drains and refuse find their way into the Irk, which receives further the contents of all the neighbouring sewers and privies. It may be easily imagined, therefore, what sort of residue the stream deposits. Below the bridge you look upon the piles of debris, the refuse, filth, and offal from the courts on the steep left bank; here each house is packed close behind its neighbour and a piece of each is visible, all black, smoky, crumbling, ancient, with broken panes and window frames.

Source 45 - John Howard Hodson, *The Story of Wilmslow*, (J. Andrew & Co. Ltd, 1971)

We are fortunate in having two valuable sources of information about conditions in Wilmslow in the early 19th century. One is contained in the evidence submitted to a Parliamentary Committee on poor emigration in 1827 – when things got so bad, and the poor were becoming such a burden to their parishes, that the only solution seemed to be to encourage them to leave for America. The other source is even more detailed, more sensitive, and more revealing, with the unlikely title of “Wilmslow Graves and Grave Thoughts from Wilmslow,” by Alfred Fryer, 1886...

One of the most vivid and detailed accounts of life in early 19th century Wilmslow was given to Fryer by Bridget Earnshaw, then 86, and so probably born before the end of the 18th century. She doesn't speak of her mother, but says her father died when she was very young, so it is likely she was an orphan. When she was 10 she was apprenticed to a small muslin weaver at Stockport Moor. There she had plenty of food – more than she had ever had before – but the quality was poor: oatmeal porridge, skimmed milk, and occasionally a bit of bacon for dinner; porridge for supper; no beer, tea, new milk, or butcher's meat, and no change on Sunday. She had a cruel master who beat her with a twig-whip when she looked away from her work, or couldn't tie a weaver's knot; on one occasion he flung her down the stairs. Fortunately, she wasn't a bound apprentice and after 11 months the neighbours at Wilmslow heard about her plight and brought her back again.

Of course, she hadn't a home, so she had to go into lodgings. She got work at one of the little hand-worked cotton factories in the village, and was paid 2s. a week. Of this 1s. went for her lodging and washing, and 1s. for her porridge. When she was older and had “learnt to piece on the Billy” (the slubbing machine which, following carding, drew out and twisted cotton ready for spinning) she was paid 4s., of which 6d. was kept for her clothing. Weaving, however, was the most profitable branch of the cotton business at that time, and people paid a lot to learn. She bargained to be taught, and the terms were that she should give her instructor a half of all she earned for two years. She became an expert and, in time, could weave two cuts a week – one for him and one for herself. By now she was paying 6s. for board and lodging. In addition, she had to pay 1s. 6d. for pin-winding and 2s. for carriage and other small expenses, so that, as she said, she had nothing over for clothes until she had earned 9s. 6d.

Bridget Earnshaw told Fryer that she went to church Sunday school, held in the top room of the factory in the New Road. Reading was taught from boards, and writing by tracing letters with the finger on a sanded board; the letters were effaced by drawing a strip of wood over the surface. The teaching was poor: “I found it so difficult to learn there that I gave a penny a week to the sexton (who taught the day school) to teach me a little in the dinner-time. I thus learnt to read, but never made much progress with writing.”

She had, she said, seen many changes in the three-quarters of a century since she was a child. The tea cost 6d. or 8d. an ounce, and she never tasted any till she grew up. “Many things which are considered necessary in cottages now were not known then. We had no tablecloths, nor knives or forks, nor plates.”... Then comes a poignant vignette: “For dinner a large dish of potatoes was set in the middle of a clean table, and we all gathered round it, each with a basin of buttermilk and a spoon,” and one is reminded of an equally deprived class of the later 19th century, the Belgian miners whom Van Gogh portrayed in a famous painting, “The Potato Eaters.” On some special occasion, however, or in families a little better off, a quarter of a pound of bacon would be boiled and cut up in collops; a piece of bread would be given to each, and the bacon and bread would be eaten as a relish to finish off with. “We did not,” she concludes, “think the simple food a hardship so long as we had a sufficiency.”

Source 46 - Styal Village



Oak Cottages built from 1806 to 1823



Styal shop was built in the 1820s and was initially a truck shop but was taken over by the workers in 1831



Oak Farm which supplied meat and milk for the workers



Styal primary school built in 1823 for the workers' children



Styal bakery which may have been used by the workers to bake their bread



Norcliffe Chapel built in 1822

Source 47 - John Seed, 'Unitarianism, Political Economy and the Antinomies of Liberal

Culture in Manchester, 1830-50', *Social History*, 7, (1982)

Education of the rational intellect would redeem the individual from immorality and superstition... Intellectual 'self-improvement' via hard scientific discipline was the medicine with which to allay the fever of irrationality which sustained disorderly traits, dependence, pauperism, superstition and ultimately a corrupt political system...

The primary means by which the Unitarians strove to 'diffuse'... their rationalizing influence as a denomination was by interminable intellectual debate – courses of public lectures, study groups, theological polemics, chapel libraries...[and] in the early 1830s [we see a shift] from merely offering 'opportunities for self-improvement' to a much more active and interventionist strategy... by which the working-class family was constructed as a problem requiring treatment from experts... The working-class family and community, it was held, had an irrational tendency to preserve values, languages, and practices hostile to the disciplinary ethic...

Throughout the 1830s and '40s there was a considerable investment of resources into the construction of civil society throughout Manchester. Educational provision between 1834 and 1851 grew much faster than the population. There was rapid growth in the number of churches and chapels... The town became criss-crossed by missions, home visitors, earnest clergymen and voluntary teachers. At the same time there was administrative intervention in living conditions: regulation of factory smoke, provision of a proper water supply, regulation of house building, inspection of cellar dwellings, provision of public parks and public libraries.

Source 48 - Mary Rose, *The Gregs of Quarry Bank Mill: The Rise and Decline of a Family Firm*, (Cambridge University Press, 1993)

For a mill such as Quarry Bank to be developed, it was essential for housing to be provided. The cost was high. Before 1815 around £1,000 was spent on cottages and a further £300 on the Apprentice House. It was, however, between 1819 and 1831 that the major expenditure took place. Over £6,000 was spent on cottage development: this was nearly 18 per cent of the total required to expand Quarry Bank. This included 42 cottages and a manager's house. Later on, Robert Hyde Greg built more new cottages. In the last ten years of his life alone, he spent £2,838 on accommodation, quite apart from normal repairs. He built ten new cottages and a new road and renovated four existing properties. By 1873 he owned 108 cottages, housing 538 people. By following the lead of Arkwright, Strutt and Owen and providing far more than just housing, the Gregs ensured that this investment was remunerative.

The cottages at Styal were little different in size from any other factory housing. There were, however, no 'back-to-backs' and this, combined with the absence of overcrowding and the provision of a separate privy for each cottage, made them vastly superior to urban working-class dwellings. The best cottages in Styal had 'a parlour and a back kitchen and two bedrooms, a cistern and a yard'.

The Oak Cottages also had cellars, intended for hand-loom, though after the power looms were added at Quarry Bank in the 1830s, many families took a lodger in these basement rooms. Unlike cottages in towns, where ten people commonly lived in one room, these cottages housed seven or eight people. Each family had a good-sized garden; indeed during the nineteenth century the Oak Cottages all had long strips of land, extending over what is now the village green. Styal operatives could thus grow their own vegetables. At the same time, because it was a country district, there was a plentiful supply of meat and dairy produce. Diet was wholesome, if not very interesting. Apart from home-grown vegetables, Styal workers favoured potatoes, bacon, tea, sugar, milk, bread and butter. They purchased offal and the cheaper cuts of meat from Oak Farm.

Source 49 - Transcript of Information Board in Quarry Bank Mill

| | | |
|------------------------------------|--------------|---------------|
| Average weekly wages | Styal | Manchester |
| 1833 Children under 13 | 1/- to 3/- | 3/9d to 4/2d |
| 1833-50 Reelers and winders | 4/- to 7/- | 8/- to 9/6d |
| 1834-50 Carding (male adults) | 8/- to 17/- | 13/6d to 16/- |
| 1834-50 Carding (female adults) | 6/6d to 7/- | 8/- |
| 1838-50 Mule spinners (male) | 10/- to 13/- | 16/- to 22/- |
| 1838-50 Throstle spinners (female) | 6/- to 7/- | 7/6d to 10/6d |
| 1846-50 Weavers (male and female) | 6/6 to 8/- | 10/6d to 11/- |

British currency before 1972

12 pence (d) = 1 shilling (s) = 5p

20 shillings = 1 pound = 100p

Decimal currency after 1972

In the Cotton Industry most workers earned fixed wages; but the spinners were paid piece rates so that when there was a slump in trade wages would be reduced.

The wages paid at Quarry Bank Mill were lower than those paid at Manchester and Stockport but the standard of living of the workforce could well have been higher.

Women were generally paid less than men.

It is interesting to compare wages paid at Quarry Bank Mill with those commanded by other occupations...

| Average Weekly Wages at Quarry Bank Mill | Average weekly wages in Manchester |
|--|------------------------------------|
| 1831 | 1832 |
| Male Carders 17/- to 18/- | Shoemakers 15/- to 16/- |
| Female Spinners 6/6d | Carpenters 24/- |
| Reelers 5/- to 10/- | Tailors 18/- |
| Mechanics 18/- to 22/- | Labourers 12/- |

Source 50 - Robert Murray, 'Quarry Bank Mill: I: The Story of the Mill', *British Journal of Industrial Medicine*, 15, (1958)

The population of 420 in 1787 consisted of 131 householders, 149 male children, 114 female children, 14 male servants, and 12 female servants. This had increased to 523 by 1801, of whom 114 were engaged in agriculture, 227 in trades, and 132 in neither (the remaining 50 were probably children under working age.) The numbers employed at the mill were, according to the wage books, in 1790, 263, in 1820, 448, in 1848, 421 and in 185, 413. The average distribution of employees was 27% men, 39% women, 19% boys, and 15% girls. Some of the additional labour came from Wilmslow and outlying villages and male labour was imported from as far as Nantwich and Manchester. The social restlessness of the times led to an influx of labour from many other districts, much of it casual and unreliable. Though in some cases whole families might be sent by the Poor Law authorities, the characteristic of the times was the employment of young children from the poorhouses – the parish apprentices.

The Mill Workers

The 17th and 18th centuries were a period of great change in the working lives of ordinary people. The traditional methods of agriculture, which had been relatively unchanged for centuries and had always been very labour intensive, began to be mechanised, particularly after the invention of the steam engine. Many had to leave the land and seek work elsewhere, in towns and in the new textiles factories. The early workers at Quarry Bank Mill were a mixture of unskilled farm labourers and the spinners and weavers who previously worked at home before the textile industry was likewise mechanised. They were unused to the often quite appalling working conditions imposed upon them by the new factory owners but, faced with abject poverty or the workhouse, most were prepared to accept them in return for a regular wage.

Styal Village

Before Quarry Bank Mill was founded in 1784, Styal was a small agricultural village whose inhabitants supplemented their meagre income by doing outwork, such as woollen weaving, or button making for the Macclesfield silk industry. As most early mills were established in rural locations to take advantage of water power, from the outset their main problem was scarcity of labour. Apart from pauper apprentices, most employees were single men and women, who walked to the Mill from the surrounding villages. Gradually, more married couples were employed and Greg established a new community to house them. The factory colony he built at Styal is one of the best preserved in the country. From 1790 Greg converted existing properties and between 1806-1822 he erected a series of purpose-built houses.

Styal School

Built in 1823, a decade before education for factory children was made compulsory, Styal school was also used to educate the 'half-timers', children whose working day was divided equally between school and work.

The Village Shop

Styal shop and bakery was opened in 1823, originally for the sole use of the Mill employees to provide basic groceries. Owned by Samuel Greg, any purchases made were deducted from the workers' wages. In 1831 management was taken over by the Mill employees and in 1873 it was run by the Styal Co-Operative Society, finally closing down in 1968.

Domestic Comfort

By comparison with accommodation in the towns, the houses at Styal were quite comfortable. Many of them had a cellar, parlour, scullery and two upstairs bedrooms. Each one also had its own allotment garden to supplement the families' basic diets. Rent for the cottages was deducted from their wages at source. The cellars were often rented out separately to couples or single workers.

Sanitation

Samuel Greg was, for his time, a benevolent employer, who saw the virtues of having a healthy workforce. Ill health due to bad sanitation caused absence from work, resulting in lower profits. Each house in the factory community at Styal had its own private back yard and lavatory.



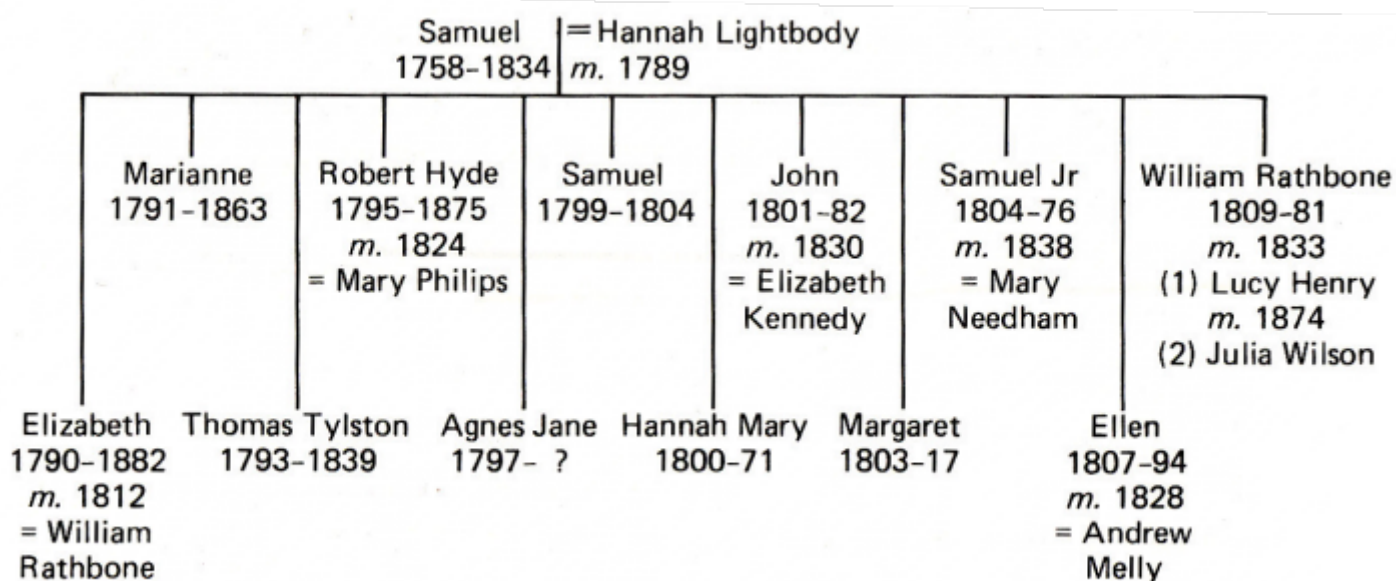
Were the Greys good employers?

Section 5

National
Trust

Quarry Bank

Source 52 - The Greg Family Tree



Source 53 - Nassau Senior, 'Letter from Mr Horner to Mr Senior, 23 May 1837', *Letters on the Factory Act*, (London: B. Fellowes, 1837)

The law was not passed for such mills as those of Messrs. Greg and Co., at Bollington, Messrs. Ashworths, at Turton, and Mr. Thomas Ashton, at Hyde: had all factories been conducted as theirs are, and as many other I could name are, there would probably have been no legislative interference at any time. But there are very many mill-owners whose standard of morality is low, whose feelings are very obtuse, whose governing principle is to make money, and who care not a straw for the children, so as they turn them well to money account. These men cannot be controlled by any other force than the strong arm of the law; and the Gregs, and Ashworths, and Ashtons, and others like them, must consider that the Act, and the rules and regulations issued under its authority have been framed to check the evil practices of those who have brought discredit upon the trade; and they must submit to some inconveniences in order that their less scrupulous neighbours may be controlled. If these gentlemen were distillers, or soap-boilers, or paper-makers, they would not, I am very sure, knowingly rob the revenue of a shilling; but would they, on account of their high character, be listened to for a moment, if they were to complain of the trouble of keeping books, and observing regulations ordered by the commissioners of excise, or were to demonstrate against being subjected to the indignity of a public officer entering their premises without their leave? And if such restraints are indispensable for the sake of the revenue, ought they not to be submitted to with cheerfulness when the sole object of the interference is to improve the condition of thousands of children, and therefore ultimately, that of the whole factory population of the United Kingdom? If the restrictions do cause a reduction in some degree of present profit, by raising the wages of children, is there not the most well-grounded reason to expect that that outlay will, in the end, return with interest, by their having a more moral and intelligent set of work-people, who will be more regular in their attendance, will take better care of the machinery, and be less apt to be misled into strikes; and that thus there will be less interruption to the productive power of the fixed capital, the great point to be aimed at, as you so clearly demonstrate?

Source 54 - Transcript of Extracts from Samuel Greg's Answers to the Questions put to him by the Central Board of Factory Commissioners, supplementary report from the Central Board of Factory Commissioners... relative to the Employment of Children, Parliamentary Archives, XX HC 167 (1834)

Query 10: Does the nature of your work require the employment of children under 12 and why?

Answer 10: No; but unless they begin early, they seldom acquire the necessary tact. Quickness, cleanliness, and attention are the requisites. No bodily labour enters into the employment.

Query 18: What is the usual number of hours during which the persons under twenty-one years of age are employed, specifying the ages at which the differences may be made?

Answer 18: Sixty-nine hours weekly for all ages. Only sixty-eight were actually worked.

Query 19: What is the greatest number of hours that your works, or any of them have been kept open in any one day during the last year?

Answer 19: Twelve hours and forty-eight minutes. Making up time lost by floods and scarcity of water.

Query 26: State whether you consider this or any excess beyond the regular hours of work avoidable; and if not avoidable, state why not?

Answer 26: Not avoidable where the moving power is water. And if water mills are to maintain a competition with other mills, provision must be made, allowing the time lost from floods, occasional deficiency of water and repairs, to be made up. Any legislation bearing hard on water mills will entirely ruin an immense property. These mills, being generally situated in country places, merit peculiar protection in consequence of the superior health, comfort, and good manners of the people.

Query 57: What are the means taken to enforce obedience on the part of the children employed in your works?

Answer 57: Barely beyond a box on the ear, to call attention.

Query 58: Are corporal punishments inflicted on any persons employed in your works?

Answer 58: Never.

Query 64: Have complaints been made or any proceedings before magistrates been taken against you, or your overlooker or foreman, on the subject of any punishment alleged to have been inflicted in your establishment within the last three years; if so, state the number of cases in which this has occurred.

Answer 64: No answer was given to this question.

Query 65: Do the workpeople live in the houses of their employers; and if so, is any control or superintendence exercised for their moral and social improvement, or any arrangements made to enforce domestic cleanliness; if so, specify the nature.

Answer 65: Many do; and for their use is a chapel, infant-school, day-school, and Sunday-school attached, with masters and mistresses.

Query 77: Have you reason to believe that the workpeople are afraid of displeasing their masters by giving evidence?

Answer 77: Think not.

Query 79: Can you suggest any other scale of penalties, or any other means which would secure obedience to the present law, or any other legislative provisions for regulating the hours of labour and the general treatment of children employed in such works as yours?

Answer 79: Where the law is reasonable and practicable, almost all are disposed to obey it: if otherwise, from necessity, they are compelled to evade or disregard it.

Source 55- Extracts from the first report from the Commissioners appointed to collect information in the Manufacturing Districts relevant to the Employment of Children in Factories, and as to the Propriety and means of Curtailing the hours of their Labour, Parliamentary Archives, XX HC 450 (1833)

Q: Have you ever had any disputes with your workmen respecting the hours of labour?

A: We have had many disputes respecting wages, and some upon discipline, but in our whole experience we never had one respecting hours of labour, and we have never heard of any difference between masters and operatives upon that subject.

Q: Whence, then, in your opinion, arises this outcry among the operatives for the Ten Hours Bill?

A: I believe it does not arise among the operatives; the reason why it exists, is, that they have been taught to believe that they may work fewer hours, and get the same wages.

Q: Do you think twelve hours preferable to any other time for working?

A: I do. In the first place, it is a time worked by a large proportion of the trade, and has in its favour the public opinion of the masters; secondly the leases, investments, expenditure, and calculations of the masters have been grounded on the basis of working twelve hours; thirdly, the wages of the men, and their scale of expenditure, have been grounded on the remuneration arising from the same period of labour; fourthly, with twelve hours per day of work we may face foreign competition, which we should be unable to do, were any reduction to be made on that time; ... sixthly, both masters and men, having less inducement to break, would be more likely to conform to the law.

Q: Would you apply these remarks on twelve hours' labour both to adult and children?

A: Their work is almost unseparable, and practically so. With respect to adults, I should be sorry to see the hours of labour increased beyond twelve, for children may be as much injured morally and physically by the too long labour of their parents, and their prolonged absence from home, as by working twelve hours themselves. In respect to children, from our own experience, we believe that twelve hours' labour is not seriously detrimental to their health; there are, however, some practical objections to their working a shorter number of hours than their parents generally.

Source 56 - Robert Hyde Greg, *The Factory Question, considered in relation to its effects on the health and morals of those employed in factories. And the "Ten Hours Bill," in relation to its effects upon the manufactures of England, and those of foreign countries*, (London: James Ridgway and Sons, Piccadilly, 1837)

It is our intention to examine the question of the "Factory System," as it is now called, in all its bearings, to weigh with care the evils which have been alleged against it, to explain the nature of the present law, which the advocates of the "Ten Hours Bill" seek to repeal, and to inquire into the objects and consequences of the measure, which they seek to substitute.

The Factory Question has been so long before the public, that we shall not enter minutely into the history of the legislation upon the subject.

The bill of Sir Robert Peel, in 1802, was, we believe, the first instance of legislation as to labour in Factories, and its operation was limited to apprentices.

We confess that we entertain some doubt of the propriety of proceeding farther than this first step in the interference with labour. A parent is the natural and only efficient guardian of a child. If parents are inhuman enough to overwork their children, Parliament cannot remedy the evil, by setting itself up as the universal guardian of the offspring of the poor. The cause obviously lies in the bad moral character of the parents, and on raising that character, which Factory Bills more effectually debase, depends the only chance of cure.

When there is no natural guardian, or, from circumstances, he is prevented from exercising his guardianship, and the law transfers to a master the privileges of a parent, amongst which is a command over the services of the child, it most properly imposes upon him the duties of a parent, the providing of food, clothing and education of the child, and, as far as it can enforce the same, it ought to impose the duty of humanity and kind treatment.

Sir Robert Peel's Bill of 1802 was therefore defective, in limiting its humane provisions to apprentices employed in cotton mills, instead of extending them to all apprentices whatsoever.

Reasonable doubts may, however, be entertained of the propriety of interference with children resident at home, under the protection of their parents, except so far as securing to them an education, which will fit them for the performance of their duties, as members of the social body, and, after a mature consideration of the Reports of the Factory Inspectors, and much conversation with intelligent mill-owners, we are satisfied that no protection of an effectual nature can be secured to children, except by some general system of education, duly enforced.

Source 57 - Transcript of Information Board in Quarry Bank Mill

Samuel Greg (1758-1834) was the founder of Quarry Bank Mill. He married Hannah Lightbody in 1789. Under his management, the family business became one of the largest in the cotton industry. Samuel was in good health until two years before his death when he was involved in an accident with a tame stag in the gardens of Quarry Bank House.

Hannah Greg nee Lightbody (1766-1828) was born in Liverpool into a wealthy Non-conformist family. Hannah had strong views about the importance of family values. She wrote 'The Art of Happy Living' as a moral guide for her children. Hannah's writings also record how strange she found moving to Manchester and to Samuel's 'bachelor household' when newly married. Later, she had an important influence on how the workers at Styal were treated.

Elizabeth Rathbone nee Greg (1790-1882) married William Rathbone V of the influential Liverpool merchanting family. In the Liverpool Cholera Epidemic of 1832, she worked with Kitty Wilkinson, a former apprentice at the Gregs' mill at Caton, to found the first public wash-houses in the country. In her later years, Elizabeth advised Mr. Forster on the groundbreaking 1870 Education Act.

Robert Hyde Greg (1795-1875) joined the business in 1817 and married Mary Philips in 1824. He was interested in politics and elected as M.P. for Manchester in 1839. Also a keen astronomer and horticulturalist, the gardens of his home at Norcliffe Hall were noted for their Rhododendrons and Azaleas – "the perfection of horticulture as a fine art".

John Greg (1801-1882) took responsibility for the Greg mills at Caton and Lancaster, and later the Bollington mill from his brothers, Samuel and William Rathbone. In 1836 he was elected Alderman of Lancaster and served as Mayor of the town three times.

Samuel Greg Junior (1804-1876) took charge of the Bollington mill and wanted to develop a model factory village, including a form of profit sharing. When new machinery was introduced to the Mill in 1846, his workers went on strike. Depressed that his 'utopia' had been unsuccessful, Samuel retired from the cotton business. After retirement, he was plagued by ill health, but regularly preached in Macclesfield.

William Rathbone Greg (1809-1881) was initially responsible for Hudcar Mill, Bury. William felt forced by his old brothers to take over the Bollington mill from Samuel Junior. When he retired from the cotton business in 1850, he became Controller of Her Majesty's Stationery Office. He became a leading essayist and social commentator, often with quite radical views, such as his 1869 pamphlet, 'Why are Women Redundant?'

Source 58 - William Rathbone Greg, '[Review of] Mary Barton', *Edinburgh Review*, 89, (1849)

People at a distance are not aware, either to what an extent the actual wealth of the master manufacturers is the result of patient savings from very moderate average profits, nor (which is our immediate point) of the extent to which saving is within the power of the factory operatives. In the first place, it should be known that, in spite of all we hear of fluctuations and stagnation of trade, this class suffers less perhaps than any other from variations of employment. There are two reasons for this: one is, that their employers, being generally wealthy, are able to carry on their business through any ordinary periods of depression, without curtailing or suspending production; in other words, they can afford to hold stocks. The other reason is, that the fixed capital employed is generally so large, and the consequent loss when it stands idle is so enormous, that mills are never allowed to stop if it is possible to keep them going. A large manufacturer, according to the evidence of the factory inspectors, cannot stop his factory without a dead loss of from 4000*l.* Or 5000*l.* A year. Profits, therefore, cease long before either wages or employment are affected; and it is only after a long continuance of unprofitable trade, that either are reduced. Operatives generally are now, indeed, aware of this fact; and, therefore, when their employer closes his mill, they know well what an amount of pecuniary pressure such a step indicates, and they feel that he must be truly a fellow-sufferer.

The whole book, too, is pervaded by one fatally false idea, which seems to have taken possession of the writer's mind, and can scarcely fail to be impressed with equal vividness on the merely passive reader, viz. that the poor are to look to the rich, and not to themselves, for relief and rescue from their degraded condition and their social miseries. An impression more utterly erroneous, more culpably shallow, more lamentably mischievous, it is difficult to conceive. It strikes at the root of all social improvement.

Source 59 - Two miniatures, one of Samuel Greg, and one of Hannah Greg, set in oval frames Quarry Bank Mill Archive



Source 60 - Friedrich Engels, *The Condition of the Working Classes in England in 1844*, (London, 1891)

You come to Manchester, you wish to make yourself acquainted with the state of affairs in England. You naturally have good introductions to respectable people. You drop a remark or two as to the condition of the workers. You are made acquainted with a couple of the first Liberal manufacturers, Robert Hyde Greg, perhaps, Edmund Ashworth, Thomas Ashton, or others. They are told of your wishes. The manufacturer understands you, knows what he has to do. He accompanies you to his factory in the country; Mr. Greg to Quarrybank in Cheshire, Mr. Ashworth to Turton near Bolton, Mr. Ashton to Hyde. He leads you through a superb, admirably arranged building, perhaps supplied with ventilators, he calls your attention to the lofty, airy rooms, the fine machinery, here and there a healthy-looking operative. He gives you an excellent lunch, and proposes to you to visit the operatives' homes; he conducts you to the cottages, which look new, clean and neat, and goes with you into this one and that one, naturally only to overlookers, mechanics, etc., so that you may see 'families who live wholly from the factory'. Among other families you might find that only wife and children work, and the husband darns stockings. The presence of the employer keeps you from asking indiscreet questions; you find every one well-paid, comfortable, comparatively healthy by reason of the country air; you begin to be converted from your exaggerated ideas of misery and starvation. But, that the cottage system makes slaves of the operatives, that there may be a truck shop in the neighbourhood, that the people hate the manufacturers, this they do not point out to you, because he is present. He has built a school, church, reading-room, etc. That he uses the school to train children to subordination, that he tolerates in the reading-room such prints only as represent the interests of the bourgeoisie, that he dismisses his employees if they read Chartist or Socialist papers or books, this is all concealed from you. You see an easy, patriarchal relation, you see the life of the overlookers, you see what the bourgeoisie really promises the workers if they become its slaves, mentally and morally. This 'country manufacture' has always been what the employers like to show, because in it the disadvantages of the factory system, especially from the point of view of health, are, in part, done away with by the free air and surroundings, and because the patriarchal servitude of the workers can here be longest maintained. Dr Ure sings a dithyramb upon the theme. But woe to the operatives to whom it occurs to think for themselves and become Chartists! For them the paternal affection of the manufacturer comes to a sudden end. Further, if you should wish to be accompanied through the working-people's quarters in Manchester, if you should desire to see the development of the factory system in a factory town, you may wait long before these rich bourgeoisie help you! These gentlemen do not know in what conditions their employees are nor what they want, and they dare not know things which would make them uneasy or even oblige them to act in opposition to their own interests. But, fortunately, that is of no consequence: what the working-men have to carry out, they carry out for themselves.

Source 61 - John Morley, 'W.R. Greg - A Sketch', *Critical Miscellanies*, Vol. III, (London: Macmillan, 1909)

In politics Greg was chiefly concerned with the extension of the franchise and the implications of democracy. Along with... other mid-Victorian liberal men of letters, Greg distrusted democracy. An elitist in politics as well as theology, he always held suspect the views of the popular mind. That education helped men to exercise their vote sensibly was a mid-Victorian commonplace that Greg did not doubt. Nevertheless, in the period before the second reform act, he did not agree that franchise qualifications ought to be lowered as increasing numbers of the working classes were educated. He opposed franchise extension on the ground of class interest...

For Greg the Reform Act of 1832 was a great turning point in modern English history. Before 1832 power was too highly concentrated in the hands of the aristocracy... After the great reform act, power passed from exclusive aristocratic control, and power passed, as well, from parliament to public opinion...

The age of public opinion gave a new importance to businessmen, to men who were not distinguished by 'the comprehensiveness of their views, or the delicacy of their tact', but by their energy and 'tenacity of purpose which was rebutted by no obstacles'. These men needed scientists and writers to guide them, and therefore, in the new age political economists and men of letters have a noble role as the shapers of effective political opinion. Together, the captains of industry and men of learning would work to further the progress of the entire community. Greg was evidently so certain that political economy was a science through which natural laws were discovered that he never questioned his assumption that businessmen and their philosophic guides operated for the political and economic good of the whole society. He did not raise the spectre of a selfish middle class concerned primarily with its own well-being.

The working classes were another matter. If they received the franchise they would dominate politics by their numbers, and working-class views of their own interests would always be different from the interests of the nation as a whole. Whether or not the working classes were educated did not signify; they would always act in the spirit of exclusive class concern. This was demonstrated by the new model unions; their leaders were educated, but they acted against the interests of their employers none the less. Besides, it was self-evidently wrong 'that those who labour with their hands should have supremacy over those who labour with the brain.'

Source 62 - John Morley, 'W.R. Greg - A Sketch', *Critical Miscellanies*, Vol. III, (London: Macmillan, 1909)

[Hannah Greg] was a woman of strongly marked character. She was cultivated, and had some literary capacity of her own; she cared eagerly for the things of the mind, both for herself and her children; and in spite of ill health and abundant cares, she persisted in strenuous effort after a high intellectual and moral standard. A little book of Maxims compiled by her still remains; and she found time to write a couple of volumes of Practical Suggestions towards alleviating the Sufferings of the Sick...

The home over which this excellent woman presided offered an ideal picture of domestic felicity and worth. The grave simplicity of the household, their intellectual ways, the absence of display and even of knick-knacks, the pale blue walls, the unadorned furniture, the well-filled bookcases, the portrait of George Washington over the chimney-piece...

Catherine Stanley... has left a charming memorial of the home of the Gregs.

'Have you ever been to Quarry Bank? It is such a picture of rational, happy life. Mr. Greg is quite a gentleman; his daughters have the delightful simplicity of people who are perfectly satisfied in their place, and never trying to get out of it. He is rich, and he spends just as people do not generally spend their money, keeping a sort of open house, without pretension. If he has more guests than the old butler can manage, he has his maid-servants in to wait. He seldom goes out, except on journeys, so that with the almost certainty of finding a family party at home, a large circle of connections, and literary people, and foreigners, and Scotch and Irish, are constantly dropping in, knowing they cannot come amiss. You may imagine how this sort of life makes the whole family sit loose to all the incumbrances and hindrances of society. They actually do not know what it is to be formal or dull: each with their separate pursuits and taste, intelligent and well-informed.'

Mrs. Fletcher... tells how the family at Quarry Bank struck and delighted her. 'We stayed a week with them,' she says, 'and admired the cultivation of mind and refinement of manners which Mrs. Greg preserved in the midst of a money-making and somewhat unpolished community of merchants and manufacturers. Mr. Greg, too, was most gentlemanly and hospitable, and surrounded by eleven clever and well-conducted children. I thought them the happiest family group I had ever seen.'

Source 63 - Hannah Greg, *The Art of Happy Living, in a letter from a Mother to her Son 1811, Quarry Bank Mill Archive (1811)*

Religion, my dear Son, must be the great purpose – the outline scheme of your life, as it were, into which all others should merge, & to which all others should be subservient. It must not stand as one among other virtues, or qualities, or sciences; but, as the basis of all, the root of the tree, the foundation of the structure – the circumference that encloses every virtue, & from which emanates every good quality. To one of your constitution of mind & spirits, Religion is more peculiarly the one thing needful to the Art of happy living, the very fabric of comfort & of peace...

In touching upon your Mercantile Character & reputation, now to be so deeply considered, I must observe to you, that Religion has more to do with this, than mere worldly Men are apt to allow, or to remember – This is the reason why they so often overleap the true path of prosperity & that when their feet have slipped, or they have fallen down the precipice, they are often so unable to recover themselves & stand up again, while the truly honest Man, “tho’ his Bark be split, yet saves his cargo, & has something to set up with again.”...

To learn your business, “to do your duty in that state of life to which it has pleased God to call you,” is absolutely necessary to the Art of happy living, and, must be accomplished by earnest application. “Set well your part, there, all the honor lies.”

“Whatever you do – do well”

Be a respectable something – reject Mediocrity. Had you been a Mechanic, you should not have been satisfied till you could have been the “best hand” in the Parish, &, I hope you will make a point of becoming that pride of English Characters, an upright Merchant – an enlightened, accomplished, well-informed Tradesman, a respectable Citizen of the first City upon earth – Happily for you, the prospects before you offer no violence to your habits, or education demand no sacrifice of taste, or feeling, impede no rational improvement, [obstruct any] gentlemanly pursuit, & is even more favourable to the cultivation & enjoyment of general literature than Professional life itself – Above all, I feel secured (by the characters of those concerned) from any apprehension of their inconsistency with the nicest moral taste & purity. Rectitude is the honour of a Merchant – his highest designation – his staff of Life - &, I confide in the... expectation, that, when you become a Partner in the Firm, the public confidence in its Integrity, Assiduity, and Punctuality, will be only the more confirmed & permanent.

I depend upon you, also, proving an example of a persuasion upon which your Father has liberally shaped his conduct to his Children, viz, that a good education does not spoil the Man of Business, and a taste for literature, judiciously informed, contributes to form the intelligent Merchant, as well as the virtuous Man.

I advise you to preserve the whole moral costume of the man of Business in your mode of Life, house, habits, &c – ...

Source 64 - Hannah Greg, *Catechisms of Safety and Health, Quarry Bank Mill Archive (1800)*

The full value of Health is never known but by its loss. This may be said of our other best blessings – but few things are so irreparable than the lessons of Experience come too late and are too dearly bought - Would that our own dear Children would allow the Counsels of Age and Affection to spare them the heavy expence...

Why should not a little general knowledge on this subject, simply and judiciously imparted, be brought into the routine of Education, which in these learned days, is made to comprehend so many of the Arts

and Sciences? Such a plan might admit of some instruction as to the means of preserving health, without attempting more, surely it is as well worth taking care of as any other property or profession – its preservation must be considered as more contributing to prosperity (of every description) than portfolios full of fine drawings, enamelling Music or even Greek and Italian, to say nothing of its being the very spring and spirit of enjoyment, the raw material of welfare and happiness, and the instrument of usefulness.

Health can get money – Money cannot get health...

The Necessaries or main Contributors to Health are a composed mind, an airy situation, good soil, a light and chearful abode, plain food, early hours, warm clothing, and cool rooms, perhaps at t.60^o and no draughts. What may be called its Luxuries, or making security doubly sure, are perhaps the habitual use of tepid bathing, house exercise, cheerful scenery and objects &c, but above all interesting employment in the open Air, swings various plays, gardening, Cricket, skating, housemanship, fencing, climbing trees &c, according to the sex and age. – all these are so advantageous to the bodily prosperity, purity and growth, especially on the approach to Manhood or Womanhood, that if these not a natural taste for them, I should endeavour to cultivate it.

I confess I would prefer a daughter or mine excelling as a Gardener than as a Painter – and should be sorry my son should not know Fencing, Riding &c, as well as Greek. – Scenery, I consider of first rate importance to Health – interrupting to exercise, in promoting complacency of mind & temper, in the habitual chearfulness and satisfaction it creates, and in the attachment to home it cultivates.

Light is a grand material of day by day happiness, it promotes cleanliness, and assists industry – The Eye is too much neglected in the business of education, as an inlet of Virtue and Knowledge which there is so much research & care bestowed often to less purpose.

I would have a School room, nay a whole house, hung with prints of heroic & virtuous actions, so that youth could not lift up its eye, without reading a useful lesson, receiving a wholesome impression and imbibing good humour peace and Health.

If natural objects have then such influence on the youthful mind how important must be the effect of Moral Scenery, to look on beautiful Conduct, to witness charitable actions to see good temper, to breathe an atmosphere of purity, goodness and love, to enjoy the open air of perfect truth, the fair weather of habitual Cheerfulness, and the sunshine of warm, tho' judicious, Affection.

Such provision for Health may seem foreign, or far fetched, but the Body and Mind are so linked and entangled, so mutually and alternately subordinate to each other, that nothing efficient can be done for one that does not comprehend the other...

The great increase of sedentary employment is a principle reason why our Children are not so strong as our Grandmothers, or even as ourselves.

Exercise Children early in manual, or mechanical employments suitable to their age and sex. – Girls might learn the rudiments of instrumental Music which makes such disproportioned demand on time at a later period, when time is become more valuable, Spinning and Knitting must also be very early learnt, for any expertness or pleasure in the employment ever to be obtained; and deeply do those who were not taught early, miss these employments & amusements in sickness, and old age – amusements which can then be neither attained nor compensated. Boys may have a box of tools, lathe, basket making, fishing nets, drawing &c and instructions taken from qualified persons in such things are not only a proper employment & exercise for Children, but which they may prove the welcome resource of many a “rainy day” of advanced life.

Source 65 - Jessica Owens, *Hannah Lightbody's Influence within the Greg Family*, c.1785, Unpublished BA Dissertation, University of Cambridge, (2008)

Hannah and Samuel have long been viewed as a successful pairing of Hannah's intellectual and moral influence on the one hand, as a counterbalance to the successful business acumen of Samuel on the other. Asa Briggs has suggested that the Unitarian Gregs 'represented Manchester business at its most conscientious' ...

However, from the ideological viewpoint of Samuel, the early paternalistic measures he deployed prior to his marriage may not have been the result of a defined social outlook, but rather the function of the practical demands of the growth of the early factory village, and a consequence of the remote location of Quarry Bank. With the successful exemplars of others such as Robert Owen in New Lanark testifying to the fact that educated workers appeared to produce more cotton and thus more profits, Samuel may increasingly have been further willing to embrace a certain degree of paternalistic measures from a position of calculated self-interest. From 1788 onwards some education was provided for workers, and between August and December of that year a total of £4 16s. 4d. was spent on bills for schooling. However, Lazenby believes that 'just enough' education was provided in those early days 'to minimize the gaucheries of the workhouse children' but not sufficient to 'disturb' the 'relationship between himself [Greg] and his "hands"'. Gleadle has pointed out that whilst Unitarian factory owners might generally have been picked out as the most humane, this was because they were also among the richest, and it was in their interests to appear superior to their smaller competitors, relating to wider concerns, it would seem, about 'respectability'. Such practice certainly earned them the esteem of their peers, as one contemporary, W.C. Taylor, observed, '...great capitalists are more equitable and merciful employers than persons of limited fortune'. Leonard Horner, the Factory Inspector, hinted at the rarity of such caring manufacturers as the Gregs, commenting 'The factory law was not passed for such mills as those of Messrs. Greg and Co. at Bollington, Ashworths at Turton, and Mr. Thomas Ashton at Hyde... [but for] the very millowners whose standard of morality is low, whose feelings are obtuse, whose governing principle is to make money, and who do not care a straw for the children' ...

Samuel was no 'industrial ogre', but he did see the advantages of taking such measures for the sake of his business. Paternalistic actions were for him an exercise in business management; Samuel certainly had the wealth to take such calculated gambles, and his persistence with them is in part testament to their success. Quarry Bank relied heavily on apprentices, and whilst they were clearly more expensive than free children, it was economic to employ this type of labour and treat it well, as it offered the paternalist the opportunity to experiment. Wealth carried with it certain obligations, including attending to the needs of subordinates, especially as the rich were thus 'in loco parentis, guiding and restraining them like children'. In return for caring for apprentices to a reasonable standard, Samuel sought to mould them into his ideal workers, and expected loyalty and obedience in return. Schools, chapels and evening-classes not only provided basic education but were frequently used to teach middle-class values of hard work and sobriety. Overall productivity could be improved through schemes of punishments or incentives within the mill. Thus, instead of resorting to physical violence against troublesome apprentices, Samuel made frequent recourse to a system of heavy fines, such as 5/- fine for stealing an apple, and 1/4d for breaking a window. Such measures were designed to discourage the development of those unfavourable character traits Samuel wished to avoid, as opposed to them being a form of retribution. Deriving from the same train of thought, bonuses were given to industrious apprentices, and one old lady interviewed in the 1880s recalled that her master would 'walk through the room and examine the work which each apprentice was producing, and not infrequently leave a sixpence on the frame of those who had pleased him'. Wages were paid at piece rates (as revealed in wage books), which further helped ensure productivity. The close proximity of the Greg's family home to the factory and apprentice house not only increased the sense of community interdependence, but also meant workers could be far more closely scrutinised and supervised. Thus Jones believes that such measures meant 'everything [was] for the ubiquitous control of the Greg's over their workforce...directed towards employees not only identifying with the family and the firm, but, in all aspects of their lives, replicating those values and characteristics, so essential for the maintenance of a successful business'.

Hannah herself seemed concerned by Samuel's apparent lack of charity towards the poor: 'Conversed with Mr G upon objects of Charity – thought he expected too much from the Poor and that more allowance ought to be made for their bills than for the more trivial faults of those who have the advantages of a good Education and good Society'. Philanthropic pursuits were a peculiar feature of those ideological aspirations she had imbibed as a young woman, which related to her Unitarian environmentalism that posited that people were not separated by any essential differences, but by upbringing and conditioning ...

In the realm of philanthropic endeavour, Hannah sought to extend her involvement and responsibility within the firm, and thus provide herself with a distraction from the tedium of domestic life, plus fulfil those ideological duties she had been taught were her responsibility. Largely the Greg women were wholly excluded from the running of the business. Ruth Watts acknowledges the limited, gender-determined contribution Hannah made to the family is that she brought Samuel 'a dowry of £10,000, and valuable textile connections... provided him with twelve children, including sons to carry on his business empire'. Through considerably extending the philanthropic initiatives undertaken at Quarry Bank, Hannah strove to imbue them with her much more ideologically driven stance.

Hannah seems to have felt acutely responsible for the welfare of the apprentices, and of the importance of being in a position of 'in loco parentis' towards them. It is interesting to note then, that the major paternalistic developments occurred at Quarry Bank in the 1820s, at the time when all of the Greg children had gone off to school, and Hannah seems to have felt less constricted by the demands of domesticity as she had done in the early years of her marriage, as evinced in her attempts to write a book and the formation of the Duodecimo society for the children. Indeed, it is significant that by 1822 Samuel was prepared to leave all social concerns to the Greg women, as Hannah acknowledged: 'Mr. G. having lately referred anything in the village to be done or undone to "the Ladies"' . Evidence of this is seen in the fact that the cost of building and equipping the school is found in Hannah's personal accounts. However, in the adoption of this role, and her treatment of the apprentices, Hannah unwittingly not only instilled those hierarchies of gender and controlling lessons of morality which she had fostered in her own children, she also created an ideal of womanhood which involved such responsibilities as an obligatory undertaking and extension of the feminine role in her children.

For the female workers, Hannah was particularly keen to instil the lessons of domestic economy and the importance of motherhood she had trained her own daughters in, and the concept of character formation around which the system already evolved was easily moulded to meet her more ideological aims. All apprentices received that religious instruction designed for the creation of morality and virtue, but whilst male apprentices were taught the three Rs, female apprentices received basic reading skills and sewing, alongside occasional music lessons. Among the various community facilities developed in the 1820s, were a school, chapels and a shop, along with various societies which flourished. For women, there was the female society, but only the men could draw from the advantage of the debating society. Thus whilst the daughters of the Greg family were occupied 'keeping up a close intercourse with the girls', the sons brought home 'the results of their studies and their travels to the boys and men – teaching, lecturing and stimulating'. Audubon was most impressed by the quality of debate he heard amongst the men of the village: '...I accompanied the two brothers [Samuel Jr and William] to a debating club instituted on their premises for their workmen...finally reached the schoolroom, where about 30 men had assembled. The question present was 'which was the more advantageous, the discovery of the compass or that of the art of printing'. I listened with interest and later talked with the men on some of the wonders of my own country in which they seemed much interested'...

Hannah got her children, but primarily her daughters, involved in the responsibility of teaching the children on Sunday afternoons and accompanying them to church in Wilmslow in the mornings. Elizabeth Greg reflected on such practice in her diary, that 'after tea we went to Quarry Bank; it looked very pretty, and the children were very glad to see us. We went up to the Apprentice House; all were very glad to see us.'



Typicality of the site

Section 6

National
Trust

Quarry Bank

Source 66 - Mary Rose, *The Gregs of Quarry Bank Mill: The Rise and Decline of a Family Firm*, (Cambridge University Press, 1993)

During the industrial revolution efficiency was stimulated in a variety of ways. These ranged from the overtly coercive to the persuasive. Ironically it was the pioneers who, faced with creating the first factory labour force, had the most effective tool at their disposal – that of paternalism. The relationship between rich and poor in pre-industrial England was broadly paternalistic. The basis of this was the notion that wealth carried with it certain obligations, including attending to the needs of subordinates, especially the poor... The poor, as dependants, owed their benefactors loyalty and obedience. In this way, the divisions of a hierarchical society could be maintained. Many manufacturers during the early phases of industrialisation applied this philosophy. Paternalism was both a popular and reasonably effective policy amongst rural millowners. The isolated factory colonies were an ideal environment for a close dependent relationship to develop between employer and employed. The so-called model factory owners like Owen, the Gregs, the Ashtons and the Ashworths were merely exploiting this capability. By contrast, their successors in towns were rarely community builders. Thus, whilst some of them recognised the potential fruits of paternalism, their half-hearted efforts had little real effect...

The policies of rural manufacturers should be seen in the context of the eighteenth and early nineteenth centuries. To modern Western eyes they seem unduly restrictive, if not intrusive. They undoubtedly enabled employers to exercise a high degree of control over their workforce. Yet in an age without a welfare state, the activities of these largely benevolent despots had benefit for their employees. Sick Clubs, decent living conditions, wholesome food, libraries and, most important, job security, were all enjoyed by many rural factory workers. The price was sometimes, though not invariably, political freedom. Yet, for many, if the alternative was living in uncertainty and urban squalor, it was a freedom they were rightly or wrongly prepared to forgo...

For over 150 years the Gregs were paternalistic employers. Their policies at both Styal and Reddish were successful in creating a high degree of efficiency and industrial harmony. In return for good living and working conditions, they expected hard work and commitment. They were successful because their welfare and educational schemes were an integral part of business policy...

The development of a factory colony was an essential part of investment for the rural millowner. By providing chapels, schools, shops, churches and recreational facilities, in addition to houses, he was not only creating a pleasant environment for his workers, but also tightening the links with the workforce. Industrial paternalists believed that if they enriched the lives of their operatives they would be rewarded by a more efficient factory. This was because ‘...they [the workers] mostly understood that the master’s interest is their own’ and they would thus work harder. Moreover, the high degree of control each employer exercised could prevent unwelcome developments, like drunkenness and labour unrest.

In practice, there were several ways in which factory colonies could create efficiency in rural mills. In the first place, housing, whilst fairly simple, tended to be clean and well constructed, most cottages having gardens. A labour force living in comfortable surroundings, with plenty of fresh food, was likely to be healthy. Days lost through sickness were thus kept to a minimum. Schools, chapels and evening classes not only provided basic education but were frequently used to teach the middle-class values of hard work and sobriety... Most rural millowners lived close to their factories and generally owned the land on which the village was built. This not only increased the sense of community interdependence, but also meant they could supervise all activities closely and restrict any they felt were undesirable. Drunkenness could cause many working days to be lost. Some, like Arkwright, recognised that controlled drinking need not be damaging. Many, however, of the mainly Nonconformist factory masters banned drinking and beerhouses in their villages. They hoped other interests and recreations would prove an adequate diversion. Whilst operatives in rural communities may have had little freedom, they often enjoyed job security – a rare privilege in an age of uncertainty.

Factory colonies may possibly have increased diligence and regularity of work, but most employers found that productivity could be improved by schemes of punishments or incentives within the mill. Most popular were fines for shoddy workmanship. Piece rates, on the other hand, provided their own discipline. More enlightened employers, such as Strutt, experimented with bonus schemes, whilst Owen used what he described as a 'silent monitor'. This was a coloured piece of wood which hung beside each machine to denote the operative's behaviour during the previous day.

Factory colonies varied in size from the relatively modest affairs of North Lancashire to extensive developments like Cromford, Belper and Hyde... Predictably, it was the more substantial industrialists who could afford to be the most energetic paternalists. Thus, their employees were offered the widest range of facilities. As W.C. Taylor pointed out 'great capitalists are more equitable and merciful employers than persons of limited fortune'.

It is difficult to calculate the impact of paternalism on efficiency in rural mills. Robert Owen was, however, convinced that returns were commensurate with the level of investment. In 1813 he wrote '... from experience which cannot deceive me I venture to assure you that your time and money so applied, if directed by a true knowledge of the subject would return you not 5, 10 or 15% for your capital so expended but often 50 and in many cases 100%'. Although perhaps exaggerating the potential benefits of paternalism, Owen does illustrate that such policies could prove successful management tools...

Paternalism was not only successful in creating general mill efficiency, it would also prove a highly effective method of controlling trade unions. In the first place, the very isolation of many factory colonies meant that most rural millworkers rarely came into contact with trade unions or even their literature. Manufacturers hoped, too, that loyalty would prevent operatives from joining combinations. In any case, the rural employers had the ultimate weapon – the threat of loss of job, home and security. This almost certainly discouraged many from joining trade unions and helped to create industrial harmony. Urban factory masters, however, were bereft of any effective response to mass labour unrest. As more and more mills were steam-powered in the 1820s and 1830s, a growing proportion were in towns, where mill masters had no need to be community builders. Thus, their relationship with their operatives was impersonal. Added to this, the widespread use of dismissal as a disciplinary tool during depressions created an atmosphere of distrust. As a result the tumult of the late 1830s, which culminated in the Plug Riots of 1842, affected them far more severely than it did the 'model' manufacturers. It is interesting that, subsequently, a few became half-hearted paternalists. They provided tea parties and organised day trips, in the fond hope that it would stem the spread of trade unions and protect them from strikes. Had these moves been accompanied by the provision of housing or concessions on wages, they might have succeeded. As it was, most operatives remained justifiably cynical.

Source 67 - Samuel Finney, *An Historical Survey of the Parish of Wilmslow 1785*, Cheshire and Chester Archives and Local Studies Service, DFF/38 (1785)

The bad effects of the cotton business have already appeared in the pale sallow complexions of the people in it and some young tender constitutions have already fallen sacrifice to it. Whether this is to be attributed to some pernicious effluvia arising from the wool, or the smaller fussy particles of it flying about during their work and drawn into the lungs by respiration, or the attitude or action of the spinner who is obliged to lean upon his breast or stomach, or the close confinement in the crowded rooms where they suck in corrupted putrid air, or as in such numbers of men and women assembled together in this employment.

Source 68- David Roberts, *Paternalism in Early Victorian England*, (Rutgers University Press, 1979)

The dreams of the paternalists found expression not only on vast estates presided over by great dukes and in parishes governed by fatherly squires, but also alongside fast-moving streams where the new captains of industry built their textile mills. It was by the Bollin that Samuel Greg built Quarry Bank, by a tributary of the Mersey that Thomas Ashworth erected Hyde, and by the Irwell that Henry and Edmund Ashworth established the New Eagley mill. The Ashworths built their commodious and well-ventilated mill of Lancashire stone in a deep and picturesque ravine. Using the same solid glistening white stone, they built on the opposite hill rows of two-story houses each containing four to six rooms and a lavatory. On the opposite side of the ravine from these houses rose Henry Ashworth's estate, The Oaks. It stood at the top of the hill proudly looking over the chimneys, houses, chapel spires, and evergreen-clad hills. The evergreens, like the chimneys, houses, and chapels, were planted there by the Ashworths. Samuel Greg's family house, less elevated than Ashworth's, was no less "near at hand to the cottages" so that the Greg daughters "gave friendly greetings and flowers to the apprentices on their way to church." Thomas Ashton located his estate at Hyde near his men's houses, which he had "built of stone [with] at least four apartments in two stories, with a small back yard and a mews lane... improved kitchen grate, with boiler and oven." Greg's houses at Quarry Bank were equally comfortable and well-furnished, as were those at Hollymount Mills built by the three Whitehead brothers, cottages of four to six rooms, "none destitute of a clock and a small collection of books"...

The Ashtons, Gregs, Ashworths, and Whiteheads were proud of their two-storey stone houses and their good wages, but these formed only a part of their paternalist solicitude. They had an ever greater patriarchal pride in their schools, churches, chapels, libraries, playgrounds, reading rooms, news rooms, lectures halls, and baths and washhouses...

By the 1840s autocracy was a long and deeply rooted tradition for the captains of industry, particularly those in villages and smaller towns...

Sidney Pollard, in "The Factory Village of the Industrial Revolution," argues that the rise of a manufacturing paternalism was a function of the growth of the early factory village. Neither Robert Owen of New Lanark nor Samuel Greg of Bollington, Pollard argues, brought to their mills a defined social outlook, but from experience and necessity worked out – as did others in other places – a village-mill paternalism. Where there are cascading streams that can turn the wheels of cotton mills, there are often no houses, labourers, schools, churches, and stores, so if one is to attract labour, one must build houses, schools, churches, and stores. Some of these institutions, moreover, are invaluable in disciplining and training the workers. The best housing thus went to the best behaved. Those who talked of unions and strikes, or drank and were too often late, could be, and were, evicted. Infant and Sunday schools in particular were crucial in the indoctrination of the young in the virtues of promptitude, thrift, sobriety, industry, cleanliness, and respectability...

Autocratic rule was not the only aspect of factory paternalism that was functional: so were benevolence and friendly intercourse. Henry Ashworth... estimated that "the order and content" of his 1,200 workers was worth fifty pounds a week. Any friendly intercourse that encouraged such "order and content" was thus profitable, and it thus found many participants, particularly in the intercourse that took place in Sunday schools, temperance meetings, lecture halls, and chapels... Samuel Greg, Sr., architect of Quarry Bank, was full of "genial hospitality" when he met with his workers in the Sunday school and in the library, while his son, who "established games and gymnastic exercises – quoits, trap and cricket balls and leap frog" – began evening drawing and singing classes and lessons in geography and natural history which he himself taught. He invited all to evening parties, "the superior ones" more than others. He also gave the best behaved of the young "the order of the silver cross"...

Liverpool and Manchester also had their versions of the factory-village paternalist, showing that great cities were not totally inhospitable to the idea. In Liverpool the North Shore Mill had excellent schools, a medical programme, a library, and good houses. Once a year there was a boat trip for the Sunday school. With two steamships chartered by the owners, some six hundred children, all of "good conduct," sailed forth and enjoyed "sandwiches, currant loaves, and coffee." Every week one of the three proprietors... read the church service to three hundred or four hundred of their employees. This would have pleased Mr. Morris of Manchester who believed it so important to lessen the distance between master and servant that he built a library, coffee room, and class room in his mill. He sponsored weekly lectures and industrial training, particularly emphasizing household duties for the girls. Of his 500 hands, 300 were in the temperance society, and he praised highly their "docility and growing desire for instruction."

The assertion that such friendly intercourse and benevolence, with their resulting docility, were functional would have pleased many of these captains of industry. Very few of them were at ease with paternalist rhetoric. There is no evidence that they ever used the term "paternalism." Mostly nonconformist from the north of England or Presbyterians from Scotland, and either self-made men or the offsprings of such, they were strong individualists. They wished their operatives to be the same. W.R. Greg, one of the three Greg brothers, a millowner in Bury and a prolific reviewer in the *Edinburgh* and the *Westminster* reviews, denounced in his writings those feudal principles that demanded deference and servility, while Henry Ashworth insisted that his benevolence arose not from noblesse oblige but from calculated self-interest. He was convinced that there was a harmonious identity of interest that ruled the factory system. Both he and Samuel Greg considered that educated workers produced more cotton and so more profits. No paternalist rhetoric, no florid speeches like those at agricultural meetings accompanied the benevolence and supervision of the captains of industry...

To be "good men" was indeed important to the Quaker Ashworths, the Unitarian Gregs and Ashtons, and the Presbyterian Buchanans, Dales, and Finlays. The phrase "good men" suggests an outlook that extended beyond concern with profits. These Bible-reading, Sunday-school-organizing manufacturers were not inspired by mammon alone; they were desired as much, if not more, to create godly men, men worthy of their new Jerusalems. In the country valleys of Cheshire, Lancashire, the West Riding, and Scotland, the captains of industry were creating independent, self-reliant, righteous Christians, Christians fit for the new, more equal, Commonwealth...

Men do not live by self-interest alone. To the functionalism of factory-village paternalism it is necessary to add a second ingredient, an ideological factor: the Puritan and biblical and even secular visions of fashioning a more godly society on earth. Those visions ranged from the millenarianism of the former Methodist, Robert Owen, to the modernist aspirations of Unitarians and Quakers to establish a free, rational, and righteous society based on the ethics of Jesus. Such ideas lay behind the model communities of the Gregs, Ashworths, and Ashtons, just as in New England they lay behind the model factories of Lowell, Massachusetts.

Large cities called for a more general and public benevolence. It was thus the countryside that saw the fullest development of manufacturing paternalism, a fact that James Stuart, a factory inspector and propagandist for paternalism, shrewdly observed. "In the country districts," he wrote, "the owners of the factory pay scrupulous attention to the wants of the population which they have the means of collecting and of which they consider themselves the heads... [but] the factory owner in a town knows little or nothing of the people he employs but during the hours of work..."

If it was easier to be patriarchal in the countryside, so was it easier to be a patriarch if one were wealthy. Model factories were a function of capital as well as environment. "Experience has everywhere shown," wrote W.C. Taylor, "that great capitalists are more equitable and merciful employers than persons of limited fortunes." Men who farmed poor soil or manufactured cotton on a slim margin were more demanding of their men, quicker to dismiss them in bad times, and less interested in building schools

ample capital, a belief that godliness is gain, and a religious sense of the value of making men good...

There were not... many Ashworths, Gregs, and Ashtons. There were, however, in the United Kingdom, 4,800 cotton and woollen mills, thousands of collieries, and even more thousands of workshops and small manufactures. Leonard Horner, the factory inspector, was well aware of these facts. In 1837 he cautioned his friend the economist Nassau Senior, not to lose his sense of proportion. "The [factory] law," he told Senior, "was not passed for such mills as those of Messrs. Gregs and Co. At Bollington, the Ashworths at Turton, and Mr. Thomas Ashton at Hyde," but for "the very many millowners whose standard of morality is low, whose feelings are obtuse, whose governing principle is to make money, and who do not care a straw for the children." Horner himself was an apostle of paternalist ideas. He preached them to all the millowners, particularly in his pleas for better factory schools. But the results were disheartening. In 1843 Horner reported that in the eight-by-four-mile area of Oldham and Ashton, containing a population of 105,000 (90,000 of them wage earners) there was "not one public day school for children of the humbler ranks... [nor] one medical charity." He doubted if "in any part of the civilized world, out of Great Britain, a parallel case could be met with." Of the 117 factory schools he visited in 1842, 101 were "hopeless, a discreditable mockery of education." The same manufacturers, eleven years after the Factory Act of 1833, were still illegally overworking the children "a great deal." Even the model Samuel Greg had been fined twelve times in 1835-1836 for violating the Factory Act, and Henry Ashworth confessed he worked children illegal hours.

Source 69 - John Seed, 'Unitarianism, Political Economy and the Antinomies of Liberal Culture in Manchester, 1830-50', *Social History*, 7, (1982)

Nowhere so clearly symbolized the new industrial form of production and its accompanying culture as mid-nineteenth-century Manchester. Here political economy and utilitarianism had become exalted to the level of a moral and religious creed, capable of mobilizing powerful forces against the existing state, the hegemony of the landed interest and the ascendancy of London. The very name Manchester became synonymous with the new liberalism, even with a particular cultural style... [We must focus on] a leading middle-class grouping – the Unitarians – in Manchester between the 1820s and 1840s to delineate some of the nuances of liberal culture and to pinpoint some of the precise points of ideological transformation in these years...

In early nineteenth-century England religious discourse was of decisive importance in the shaping of ideology. Religious institutions were central agencies of social and cultural life.

In contrast to most of the rest of dissent, Unitarianism developed in the late eighteenth century in continuing and deepening hostility to the whole religious culture of the 'evangelical revival'. Developing out of the Presbyterians, Unitarianism was an important bearer of the radical intellectualism of the Enlightenment with its emphasis on useful and practical knowledge and its links to scientific discourses. The mystical dimension of religion faded and central Christian tenets – the divinity of Christ and the existence of the Trinity, the reality of the devil and hell, etc. – were abandoned as irrational... By the early years of the nineteenth century Unitarian congregations were enclaves of an undogmatic, relaxed, somewhat patrician rationalism and their ministers were often men of scientific and philosophical learning.

Mosley Street Chapel [a Unitarian church in Manchester]... counted among its members the elite of Manchester's commercial and industrial middle class: some of the largest cotton spinners in the town such as McConnell and Kennedy, Peter Ewart, the Gregs, the Murrays and George Augustus Lee; a number of successful merchants, several solicitors and doctors and even an artist. There were a few of the lower middle-class occupations – some clerks, a couple of wine merchants, an ironmonger, an upholsterer, a saddler – but most of the members were from the wealthiest stratum of the middle class...

For Unitarian businessmen devotion to political economy and economic expansion did not prevent them investing considerable energy, money and time in public schemes. This commitment was part of a whole ethic... [which] linked to the old puritan notion that wealth was not the exclusive property of the private individual – wealth was not solely a result of the individual's own efforts but also a gift of Providence. The individual was thus the trustee or steward of wealth 'in the management of which he is to keep in view the honour of God and the service of his fellow-men'. Throughout the 1820s and '30s, and after, this group of wealthy Unitarians supported with considerable sums of money, with endless public meetings, speeches and committees a whole range of strategies to construct a coherent cultural order...

Of course all this activity was not a selfless moral sensibility (though it often represented itself as such). These extensive cultural investments had real and important effects. They accrued prestige and authority... [Greg], Heywood, Potter, Wood and others became identified as social leaders, their names and even their faces became widely known...

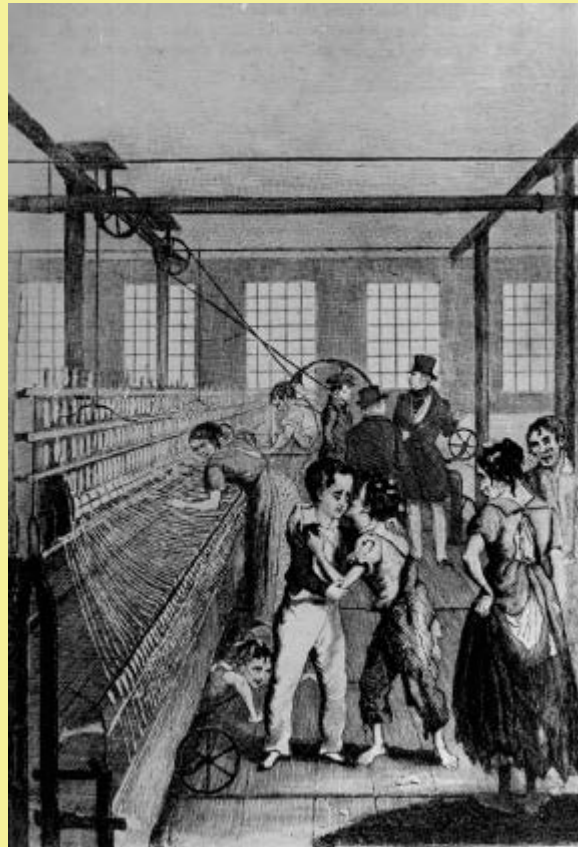
These men had all established themselves in industrial production before 1800. None had risen from the working class: several were from families of independent tradesmen, shopkeepers and yeomen in Scotland. All were educated and literate... The massive profits of the early years of machine production... were invested in fine new houses, carriages, horses, good wine, paintings, a gentlemanly style of life. They were members of the Literary and Philosophical Society and the Portico Library. They patronised the Royal Institution. They invested money in the education of their sons... The Gregs were educated at Edinburgh University before being set on lengthy 'Grand Tours', combining the traditional humanist itinerary of classical ruins and art galleries with a sharp attention to the details of European trade.

This generation of industrialists fused with the intellectual and social elite of Manchester's traditional dissenters. Unitarian dissent entailed no evangelical philistinism. Industrialists like Peter Ewart, the Gregs, Samuel Robinson, the McConnells and G.W. Wood wrote philosophical tracts, translated German and Persian poetry, read the substantial quarterly reviews, spent considerable sums of money on oil paintings, were ardent readers of the latest poetry, especially Byron. And despite the transformation of the town by industrialization, the Unitarians maintained their pretensions to high culture.

Source 70 - Engraving from Edward Baines, *History of the Cotton Manufacture in Great Britain* (H. Fisher, R. Fisher and P. Jackson, 1835)



Source 71 - Engraving from Frances Trollope, *Life and Adventures of Michael Armstrong, the Factory Boy*, (London: 1840)



Source 72 - Frances Trollope, *Life and Adventures of Michael Armstrong, the Factory Boy*, (London: 1840)

The ceaseless whirring of a million hissing wheels, seizes on the tortured ear; and while threatening to destroy the delicate sense, seems bent on proving first, with a sort of mocking mercy, of how much suffering it can be the cause. The scents that reek around, from oil, tainted water, and human filth, with that last worst nausea, arising from the hot refuse of atmospheric air, left by some hundred pairs of labouring lungs, render the act of breathing a process of difficulty, disgust and pain. But what the eye brings home to the heart of those, who look round upon the horrid earthly hell, is enough to make it all forgotten; for who can think of villainous smells, or heed the suffering of the ear-wracking sounds, while they look upon hundreds of helpless children, divested of every trace of health, of joyousness, and even of youth!

Source 73 - Information Board from Quarry Bank Mill, relaying the story of William Pickles of Ward's Mill, Bradford to the Factory Commissioners

My legs are now bent as you see (the knees are bent dreadfully, both inwards and forwards. The height of the boy, who is fifteen, is three feet nine inches.) Got my knees bent with standing so long. Remember when my knees began to fail me; I had been at the mill not two years; it was at Anderson's; my knees hurt me very bad then: when we tired, you know, there was nought to sit on; I was obliged to lay hold of someat [sic] to keep me up; it used to be very bad towards night; sometimes very sleepy; we used to get thumped sometimes by the overlooker, who was a woman...

Source 74 - Robert Dobb, *The Factory Girl*, (E. Willan: Dewsbury, 1839)

Who is she with pallid face?
That slowly moves with languid pace,
Her limbs bespeak her wearied frame
She seems in suff'ring, grief, and pain!
"A little child" – with list'ning ear,
Approach'd me with a falling tear
And said – 'tis Jane the Factory Girl!

I took her by her little hand –
Though from fatigue, she scarce could stand,
I tried to soothe her tender grief
By friendship's pow'r to give relief;
And ask'd in accents most sincere
What caus'd the anguish so severe?
Of Jane – the Village Factory Girl!

She answer'd! – near that little wood,
Once liv'd my mother – kind – and good:
My father died upon that morn,
When I unhappily was born:
And now one only sister dear
Is left – the broken heart to cheer
Of Jane – the Orphan Factory Girl!

Oh! Sir! We work from morning's light
Till darkness settles at the night:
No rest we know – no parents come
To welcome our return to home,
We call on Heaven to bless our cot
For earthly friends have all forgot
The poor neglected Factory Girl!

The overlooker – many a time,
Without a fault – without a crime,
Has beat me with such savage might
That scarce could I reach home at night:
Oh! then I've wept in anguish deep,
And blest those parents now asleep
Who lov'd poor Jane, the Factory Girl!

Oh! yes! upon their lowly bier
Oft have I shed a mournful tear!
And wish'd that I alas could sleep
No more to suffer, nor to weep:
But soon I feel that welcome death
Will claim the last – the parting breath
Of Jane, the wretched Factory Girl!

She cast her eyes with wildness round,
Then sunk exhausted on the ground:
I clasp'd the sufferer to my breast,
But she – poor girl – was now at rest!!
No cruel tyrant now could place
A tear upon the snowy face
Of Jane, the lifeless Factory Girl!

Ye! who alone on Gold are bent,
Blush! at the Murder'd Innocent,
Let not Old England's glorious pride
Be stain'd by black Infanticide!!
But let Humanity's bright Ray
Protect from greedy Tyrant's sway
The poor defenceless Factory Girl!

PRICE 1d – The profits arising therefrom to go towards forwarding the TEN HOURS BILL!!!

Source 75 - Information Board from Quarry Bank Mill, relaying the story of an apprentice from Cressbrook Mill

'We went to our work at six in the morning without anything at all to eat or fire to warm us. For about a year after I went we never stopped for breakfast. The breakfast was brought to the mill in tin cans on large trays. It was milk, porridge and oat cake. They brought them into the room, and everyone took a tin and ate his breakfast as he could catch it, working away all the while. We stopt at twelve o'clock, and had an hour for dinner, but had the cleaning to do during that time. It took some of us half an hour to clean and oil the machinery. We went to dinner, which was potatoe-pie five days in the week.'

Source 76 - Charles Darwin, 'Fencing with Humanity', *Household Words*, 264, (1855)

Upwards of two thousand accidents – being the usual average – occurred in the half year, last reported upon by the factory inspectors. Of this number, all but about a hundred were not only preventable, but such as millowners are bound by law to prevent. The law compels these gentlemen to fence their machinery; but in an unfortunately large number of instances, the obligation is resisted. As a consequence of this resistance, one and twenty persons have, in the six months, been drawn into machinery, and slain by every variety of torture, from breaking on the wheel to being torn limb from limb. One hundred and fifty working people have had torn away from them, during the same six months, a part of the right hand that earns their bread. A hundred and thirty two have lost part of the left hand. Eight and twenty have lost arms or legs; two hundred and fifty have had their bones cracked in their bodies: more than a hundred have suffered fracture or other serious damage to the head and face; and one thousand two hundred and seventy two have been painfully, but not dangerously, torn, cut, or bruised. What it costs the sufferer, all may judge who ever read London police reports, and meet from time to time with the sad stories of men, women and boys, who – having been mutilated in a factory and rendered useless to the owner thereof – are pitilessly thrown upon the world.

Source 77 - John Brown, *A Memoir of Robert Blincoe*, (Manchester: John Doherty, 1832)

Mr Needham (Master, Litton Mill, Derbyshire) stands accused of having been in the habit of knocking down apprentices with his clenched fists – kicking them about when down, beating them to excess with sticks, or flogging them with horse-whips; of seizing them by the ears, lifting them from the ground and forcibly dashing them down on the floor, pinching them 'till his nails met! Blincoe declares his oppressors used to seize him by the hair of his head and tear it off by a handful at a time, 'till the crown of his head has become as bald as the back of his hand.

Source 78 - Frances Trollope, *Life and Adventures of Michael Armstrong, the Factory Boy*, (London: 1840)

'...even at the dead of night the machinery never stopped, and when one set of fainting children were dragged from the mules another set were dragged from the reeking beds they were about to occupy, in order to take their places. The ventilation throughout the whole fabric was exceedingly imperfect; the heat, particularly in the room immediately beneath the roof was frightfully intense; cleanliness as to the beds, the floors, and the walls, utterly neglected; and even the persons of the children permitted to be filthy to excess, from having no soap allowed to assist their ablutions.'

Source 79 - James P. Kay, *The Moral and Physical Condition of the Working Classes Em-ployed in the Cotton Manufacture in Manchester*, (London: Ridgway, 1832)

The population (in Manchester) is crowded into one dense mass of cottages separated by unpaved and almost pestilential streets. This is an atmosphere loaded with the exhalation of a large manufacturing city.



The development of power at the mill

Section 7

National
Trust

Quarry Bank

Source 80 - The Development of Power

| | |
|-----------|---|
| 1771 | Arkwright sets up the first water powered factory at Cromford |
| 1775 | Watt's first efficient steam engine is produced |
| 1784 | The first wooden water wheel (10hp and 3.06m in diameter) is installed at Quarry Bank Mill at the northern end of the mill, in line with the Clock Tower. The wheelpit was opened to general view in 1998. The wheel was most likely of the breastshot variety. The head and tail races were also dug to bring water from the River Bollin to the wheel |
| 1785 | Steam power first used in cotton spinning at Papplewick, Nottingham |
| 1796 | Samuel Greg convinces Peter Ewart, an engineer who had trained with Boulton and Watt, to join him as partner |
| 1796-1801 | A stone weir and dam are constructed under the advice of Peter Ewart. These works flooded the valley upstream to create the mill pond: a reservoir of water to help support increased demand for power |
| 1801 | As the business expanded, a second water wheel was installed. This wheel was approximately 3.7m in diameter and generated a nominal output of 15hp. The two wheels were made to operate in tandem at a cost of £250. The number of spindles driven increased to 3452 by 1805 |
| 1807 | The original wooden water wheel is replaced by one made from iron and wood - 4.5m in diameter and 3m wide producing 20-25hp. This meant the total horsepower now available to drive the mill was 40hp. The wheel was built by Thomas Hewes. The wheel cost £840 in total, with a cost of £220 incurred for the removal of the earlier wheel |
| 1810 | First steam engine introduced, which is linked to the water wheels. It is made by Boulton and Watt and produces 10hp. The engine was a side-lever steam engine, and was originally intended for a barge on River Witham, Lincolnshire |
| 1816-1822 | The great wheel is installed - 9.7m in diameter, and 6.4m wide, it is one of the largest suspension wheels known in Britain. Weighing in at 44 tons, it provides 100hp and runs until 1904. Thomas Hewes was again employed to build the wheel. To minimise the weight the wheel was of the suspension type with spokes and a centre spindle. Power was taken off from the rim. Hewes saw he could harness much more power by increasing the fall of water. The level of the mill pond was thus raised, with a higher dam. Finally, the headrace was diverted to the new wheel and the old wheels removed |
| 1836 | A second Boulton and Watt steam engine is added to drive the looms at a cost of £1158. It is a beam engine and produces 20hp |
| 1843 | A new boiler is introduced to supply steam to the 1836 engine - it functions for only 10 years until it is made obsolete by improved engine technology |
| 1853 | The 1836 steam engine is upgraded with the installation of a high pressure cylinder. The technique was developed by William McNaught and increased the power output from the system. A second hand boiler was purchased from a tenant at Greg's mill at Reddish to supply the steam engine |
| 1871 | With the mill pool silting up, Quarry Bank Mill is increasingly reliant on steam power. A horizontal condensing engine and new boiler are installed to power the weaving and scutching rooms |
| 1880 | A Thomas Oldham boiler is installed, replacing the 1853 boiler. This boiler is 8.6m long and 2.1m in diameter, and is still in situ in the Power Gallery |
| 1904 | The massive water wheel is scrapped and the small supplementary steam engine is also removed |

Source 81 - John Howard Hodson, *The Old Community, A Portrait of Wilmslow* (The Hampsfell Press, 1974)

Water supply was one of three factors which led Samuel Greg to choose Quarry Bank as the site for his mill (the other two were transport facilities and labour supply). From Pownall ford there was a fourteen foot fall in the river, sufficient to turn the mill's two first wooden wheels. In 1795 Peter Ewart, a Scottish engineer trained by Boulton and Watt, became a partner of Greg, and made extensive alterations. The mill was doubled in length, a fifth storey was added, a fresh weir was built to give a greater head of water, and the original wooden wheels were replaced by an enormous iron one – 32' in diameter, 21' wide, weighing 43 tons, and producing 100 nominal horse-power. About 1800 the weir was raised again, creating a mill pool of five acres, but involving Greg in difficulties with neighbouring landowners: he had to buy land from Trafford to take the overspill, and build a bridge for Worrall to replace Pownall ford.

Then between 1817 and 1819, to increase power once more, Greg built a tunnel beneath the woods between the mill and the river three-quarters of a mile away. No engineer was called in: Greg superintended the work himself. The tunnel was cut mainly through rock – with pick and shovel and an immense quantity of gunpowder. Everyone was employed, including the apprentices, who worked overtime. One man was killed by falling stone in the wheelrace. The tunnel cost £5,000, and a new water wheel, weighing 36 tons, £2,300. Altogether, between 1818 and 1820, on this work and on an extension to the mill, Greg spent £17,564. These were the last big alterations to Quarry Bank Mill, although yet another wheel was installed in 1847, to be superseded by water driven turbines in 1904.

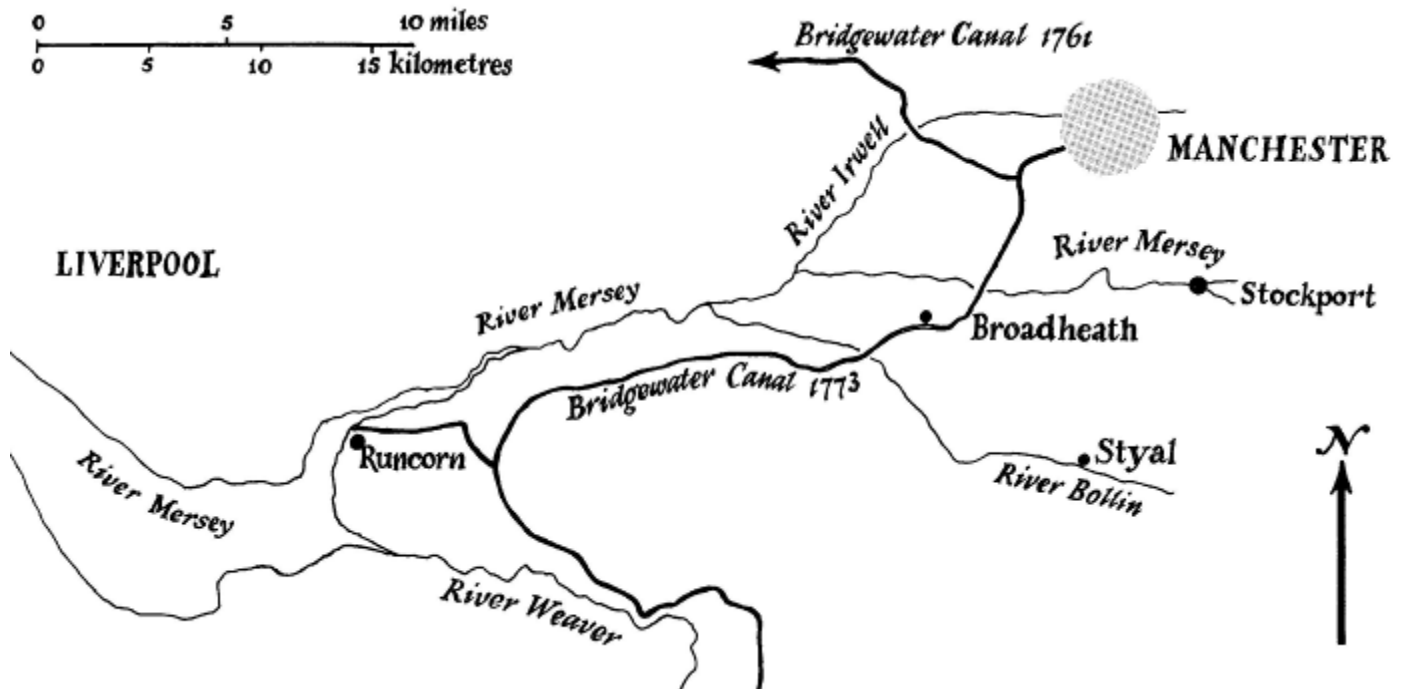
Source 82 - John Howard Hodson, *The Story of Wilmslow*, (J. Andrew & Co. Ltd, 1971)

In 1795 Peter Ewart, a Scottish engineer who had been trained by Boulton and Watt in Birmingham, was taken into partnership. Ewart was responsible for extensive alterations. The mill was extended southwards to double its length; a fifth storey was added; a fresh weir was built to give a greater head of water; the original wooden wheels were replaced by an iron one – a breast wheel with troughs instead of blades, 32' in diameter, 21' wide, weighing 43 tons, and producing 100 nominal horse power.

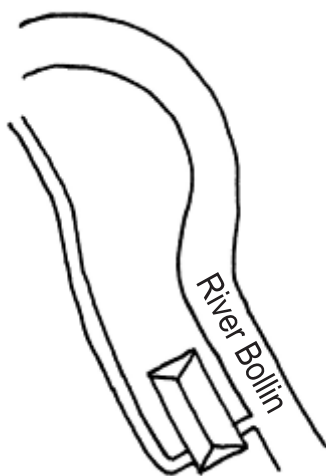
Further extensions and improvements followed. About 1800, to increase the flow of water, the weir at Kirk Hole was enlarged to create a pool behind covering five acres. This involved Greg in difficulties with neighbouring landowners: he had to buy extra land from Trafford, and replace the ford at Pownall by first a wooden and then a brick bridge. Next, between 1817 and 1819, Greg built a tunnel beneath the woods from the mill to a point three-quarters of a mile away down the river, so that he could install a yet bigger wheel. No engineer was called in: Greg supervised the whole operation himself. The cut was mainly through rock which was excavated by pick and shovel and an immense quantity of gunpowder from Thelwall. Everyone was called in to help, including the apprentices, who worked overtime. One man was killed by falling stone while working in the wheel-race. The tunnel cost £5,000, and the new wheel, weighing 36 tons, £2,300. Altogether, between 1818 and 18220, Greg spent £17,564: other expenses included an extension of the mill (£2,700), new cottages and manager's house (£5,800) and new machinery (£1,764).

These were the last big alterations at Quarry Bank. The mill could not be expanded on a large scale, and labour supply was difficult; so, between 1823 and 1833, the Gregs extended elsewhere, acquiring mills at Bury, Lancaster, Caton, and Bollington.

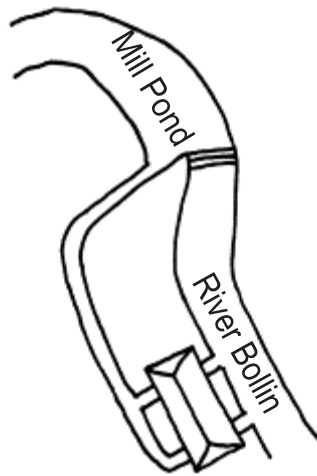
Source 83 - Drawn map of the river and canal systems leading to Quarry Bank Mill, Styal



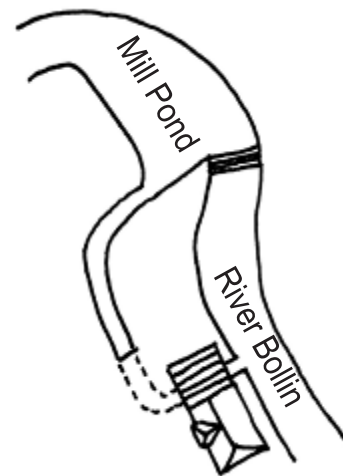
Source 84 - Diagram showing the development in power and mill building from 1784 to 1820



1784 The head race is dug to bring water from the River Bollin to the Mill. The water flowed along the head race to power the first water wheel



1801 The weir is built across the river to make a mill pond where river water was stored. A new head race was dug to ensure that there would always be water flowing along the head race to turn the water wheels in the mill



1820 More water was needed to power the great iron wheel. The mill pond became larger and the head race changed from an open channel. A new tail race was built

Source 85 - *Mill Memoranda, Quarry Bank Mill Archives (1817)*

The water wheel, which was built at the same time that the tunnel was being cut, or as soon as the wheel race was finished, was made by Thomas C. Hewes of Manchester. The weight of the wheel was 36.85 tons, the axle being 4.5 tons. The cost was about £1410.

The size and weight of the wheel are as follows:

Diameter 32ft - Width 21ft - Nominal horse power 100.

Details from the accounts of 1820:

| | |
|----------------------------------|-------|
| Tunnel and wheel race | £5000 |
| New water wheel | £2300 |
| The "New" Mill | £2700 |
| New Cottages and Manager's House | £5800 |

Source 86 - *Mill Memoranda, Quarry Bank Mill Archives (1847)*

The old wheel stopped on the 15th April 1847, and the work of dismantling immediately began... the old axle was found to be unsound, and therefore necessitated a new one being cast... The work was completed and the wheel began working on July 19th.

The cost of the water wheel, the metal materials, millwrights' wages, superintendence and expenses was £1184.52. To this must be added the amount of the mill mechanics' and labourers' wages, sundry materials, cartage, beer, board and lodgings which came to the sum of £819.27, making a total cost of £2003.79.

Source 87 - *James Henshall (Mill Manager), Calculations regarding the comparative costs of using steam power and water power at the Mill, Quarry Bank Mill Archives (1856)*

When the whole weight of the machinery is on the wheel the consumption of water is about 26,000 gallons per minute, and we can maintain the speed (of the flow of water) until the head (reservoir) is about 17 inches down. The supply of the river... varies from more than 26,000 gallons to about 4,000 gallons per minute, the medium supply is probably about 15,000 gallons per minute, being 11,000 gallons less than is required to drive the whole mill.

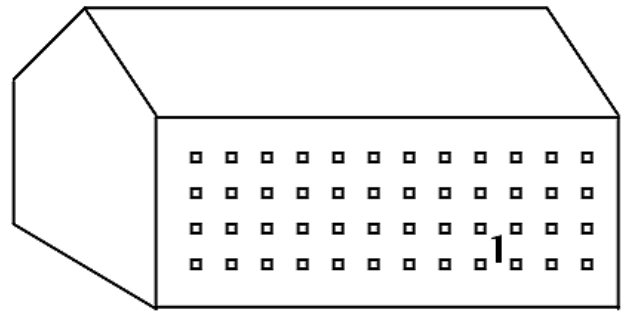
With our present reservoir and a supply of 15,000 gallons and a consumption of 26,000 gallons per minute we can only work 3.75 hours before the head is 17 inches down.

Out of the 312 working days in the year, there are probably 100 on which can work more or less without the engine. Some days when the supply is not less than 22,500 we can carry on the whole day without it.

Our consumption of coal for working the Mill, after deducting for steaming the Mill (that is, running steam through pipes in the work rooms to heat the cotton and maintain humidity so that the cotton would not break easily) is about 1.5 tons per day at 47p per ton.

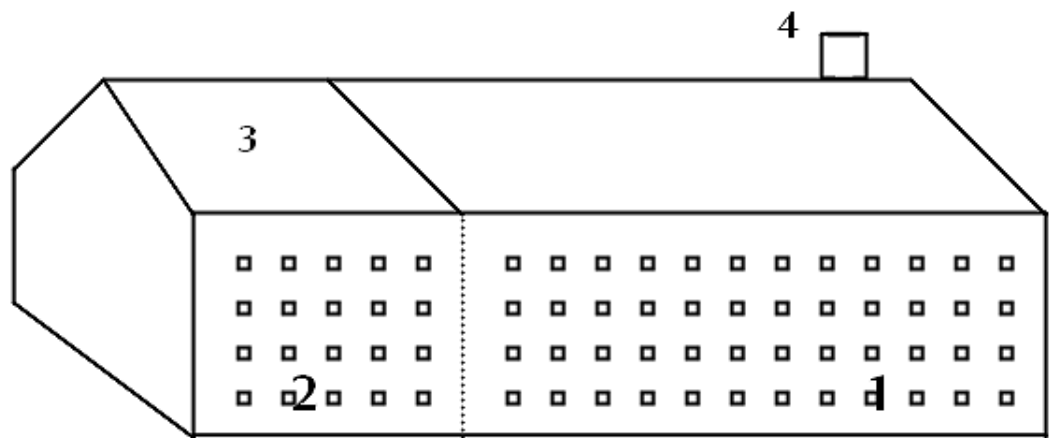
The wheel produced power of 172 horses and this should require 23 tons of coal per week, equal to £563.11p per year in coal. Our present consumption is about 600 tons per year £282.50.

Source 88 - The Physical Development of Quarry Bank Mill



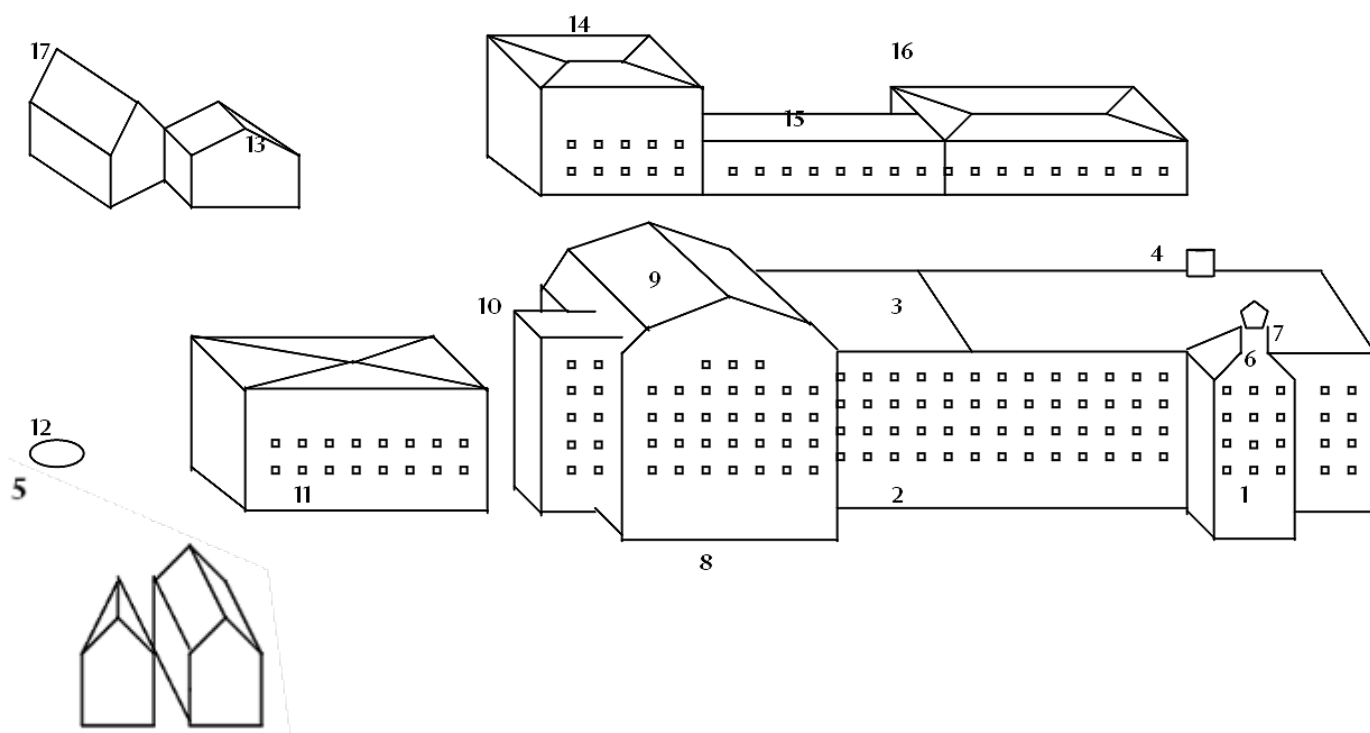
Original Mill (1784)

- The original mill was 90 feet long by 27 feet wide (27.5 by 8.25 metres) and starts near the clock tower
 - To ensure natural light was maximised throughout the building, twelve windows were placed on each floor, each window could be removed entirely
 - The cost of the building plus equipment was £16,000
1. A wooden water wheel, with a diameter of 10 feet (3.06 metres) and capable of 10hp was installed inside the building towards the north end. It was powered by a headrace channel running in front of the Mill



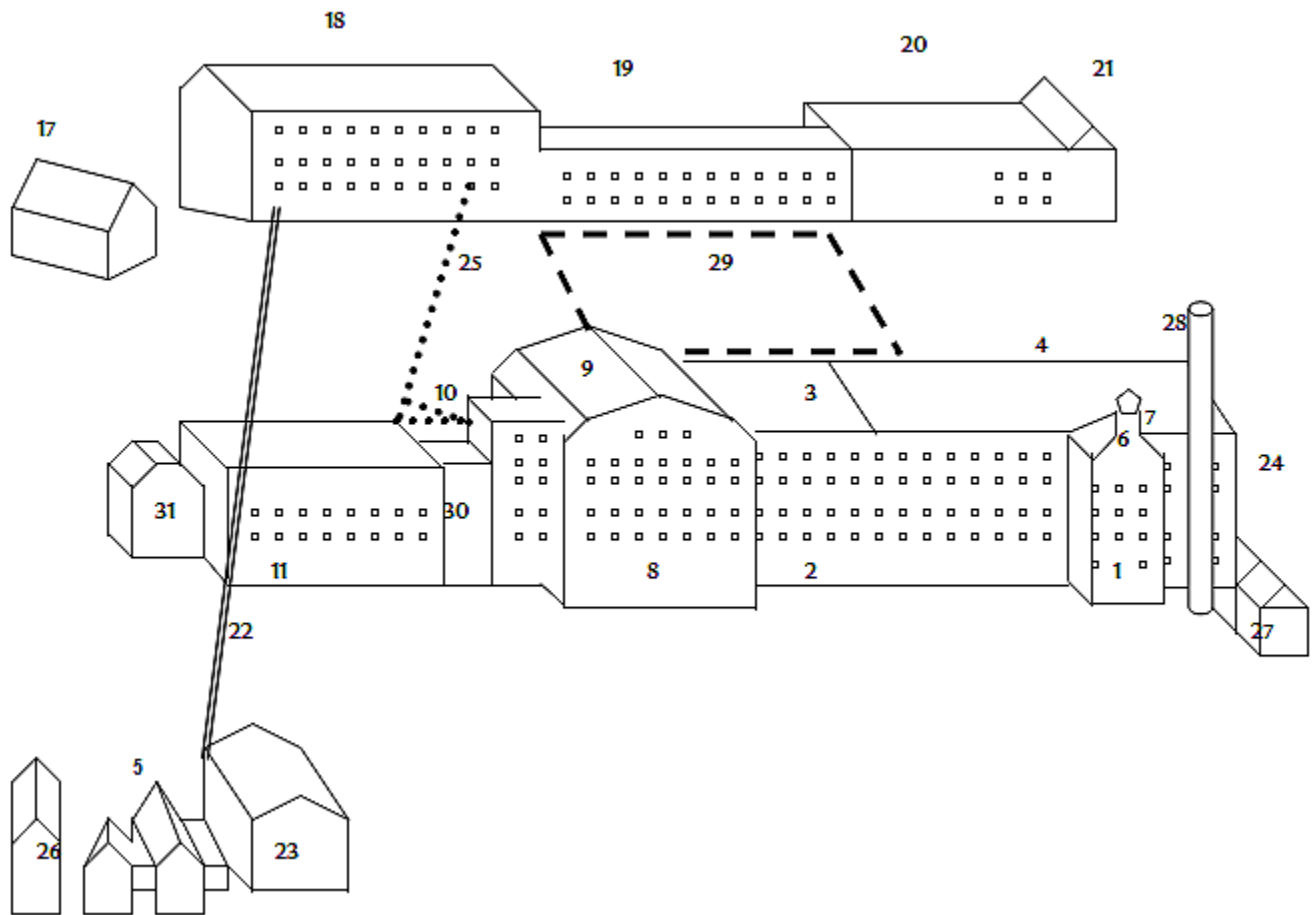
First Expansion (1796-1809)

- In 1796, Peter Ewart, an engineer, joined the business as a partner and advised Samuel Greg to make improvements to the water courses and to extend his Mill
2. The supply was improved by the installation of a second water wheel and the building of a stone weir and dam (not shown in the diagram)
 3. By 1801, the mill was expanded by a further 37 feet (11.3 metres) with five extra windows on each floor. Tie bar systems were used to strengthen the building. This join and the 1801 headrace entry at the front of the mill can still be seen. Also, tunnels for the 1801 and 1984 wheels are visible from the meadow
 4. Chimney
 5. In 1803 the stables were built for Quarry Bank House to accommodate the Greg's private and business horses. The round windows were 'pitching eyes' through which hay was placed into the first floor area. It is likely that a coach/cart stayed on the ground floor



Second Expansion (1810-1830)

6. A fireproof stairway was added to the front of the original mill with offices situated on the left side. It is possible that the Gregs used these rooms as offices
7. It is likely that the clock tower was built in this period along with other structural developments. Archaeological work connected with the power gallery development (1994-1997) indicated that the beams, being of fishtail design, were post 1800. It would be more logical that these developments were included in this period of major expansion. The beams in the tower have two bells. One to toll the beginning and end of the working day and one to strike on the hour
8. The Great Iron water wheel was installed, which replaced all previous wheels. It drove all machinery and was capable of 100 hp. It was 21 feet wide (6.5 metres) with a diameter of 32 feet (9.75 metres). A deeper wheel chamber and a longer tail race tunnel were necessary to provide the fall of water and to prevent backwatering
9. The 'New Mill' with a mansard roof was built with the attic allowing for extra storage. It cost £20,435. Iron columns supported each of the five floors. Fire prevention methods were encompassed into the design as every ceiling was covered in sheet iron
10. A fireproof stair tower was built next to the 'New Mill'
11. By 1820 a building was constructed. The upper storey was used as a Joiners shop and the lower storey was used as a Blacksmith's shop
12. A dung heap
13. A cloth warehouse was established but this was later demolished in 1836
14. A two-storey building used for storing and packing. This was later demolished in 1836 and a weaving shed was built
15. A single storey building used for picking and sorting cotton
16. A single storey building used for cleaning cotton
17. A Manager's house was built in 1810



Fourth Expansion (1855 to 1904)

4. Old chimney demolished in 1883 as it was too small to be efficient in terms of fuel economy
11. In 1871, a horizontal engine installed, replacing the 1843 boiler
26. Between 1864 and 1865 a gas retort house was erected in the yard. It eventually became disused and was altered to house lorries. Consequently, a large door was cut into the building
27. A new boiler house was built near the clock tower in 1871. In 1880 the engine house was extended to fit a boiler and then extended again in 1889
28. A new chimney, at the height of 120 feet (40 metres), was built at the front of the old mill in 1875 and the original chimney was demolished eight years later, due to being too small to be efficient
29. A glass roof was built over the passageway between the spinning and weaving mills in 1895 for storage
30. By 1900, the old mill lodge was adapted and an extra floor was added to connect to the main building at all levels
31. The Manager's Office was built with a new storeroom and oil cellar underneath between 1875 and 1877



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