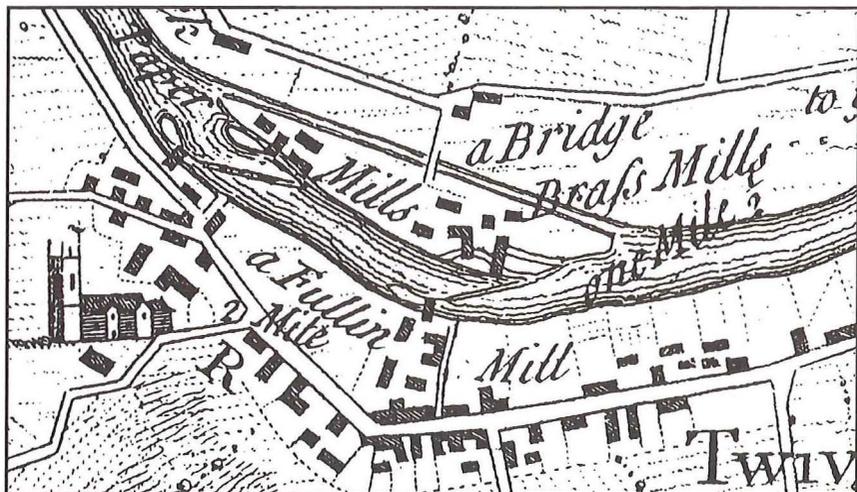


THE CLOTH INDUSTRY OF TWERTON FROM THE 1780s TO THE 1820s

Nicholas von Behr

During the period of the early Industrial Revolution, the West of England region acquired an internationally-acknowledged reputation for the manufacture of superfine woollen cloth, a superior quality textile, woven with yarn made from the shorter, finer wool on the fleece, and specially finished to produce a smooth, felt-like surface. The region comprised two main topographical sub-regions: the Stroudwater, Cam and Little Avon valleys of southern Gloucestershire; and the Avon, Frome and Wylye valleys of western Wiltshire and north-east Somerset. The second of these sub-regions is commonly referred to as the Wiltshire-Somerset area, and within it lay the mills of the Bath area. During the period, wool textile manufacturing processes took place on mill sites at Batheaston, Bathwick and Twerton, or 'Twiverton' as it was then known. It is the sites on the south side of the two weirs across the River Avon at the last-named village, located about one-and-a-half miles to the west of Bath, which are the subject of this study (fig. 1).



1. Map of Twerton mill sites in the eighteenth century. This section of the *Survey of Five Miles round the City of Bath* by Thomas Thorpe, 1742, shows the River Avon with its two weirs, the Twerton mills on the south bank, and the Weston mills on the island created by the Weston Navigation Cut.

The origins of cloth manufacturing at Twerton are inextricably linked with the River Avon. The very name of the village suggests the presence of two fords before Saxon times, and in 945AD there is the first mention of a weir. In the Domesday Book, four mills each worth 30 shillings rent are mentioned in two entries for 'Twertone', and subsequent records of Bath Abbey for the thirteenth and fourteenth centuries show that watermills at Twerton were being leased for grist milling. The Abbey was at that time involved in a thriving local woollen cloth manufacture, but there is no evidence to show that the Twerton mills were used for fulling the woven material – that is, subjecting the wet cloth to continuous hammering by water-powered stocks, making the threads shrink and thicken to produce a matted finish. By the late fifteenth century, however, two mills on the Twerton bank of the Avon were being used to full cloth, each containing two sets of stocks. The lower of the mills reverted to grist milling in the seventeenth century, long after the collapse of the original Bath cloth industry in the middle of the previous century, while the upper one continued fulling into the eighteenth century. In 1727, the completion of the Avon Navigation linking Bath to Bristol saw the creation of what would subsequently be called 'Dutch Island' on the north bank of the River Avon opposite Twerton. At around the same time, a new building was erected at the lower mill site, adjoining the original grist mill known as Chatterton's Mill, and used for paper manufacture.¹

By the third decade of the eighteenth century, the upper mill on the Twerton bank of the Avon had come into the proprietorship of Isaac Sperin. Sperin proved to be a successful entrepreneur, starting with the manufacture of drugget (a coarse wool cloth, made from worsted yarn) and eventually producing serge, a popular, lighter and cheaper hybrid woollen cloth, made by weaving worsted with woollen yarn.² The success of his business is evidenced by a painting of Twerton Upper Mill dated February 1781, on which a written description refers to the fact that Isaac Sperin had 'made a fortune' – the occupier of the mill at that time was Samuel Heaven, a clothier from Gloucester, and James Lockstone, a serge maker, continued manufacturing in the 'fabrik' after Sperin's son.³ In January 1787 an advertisement appeared in the *Bath Chronicle* for the sale of the mill together with its contents, 'now in the possession of Mr Samuel Heaven'.⁴ Apart from the original fulling mill, the manufacturing premises also included a dyehouse, several large workshops, and a rack close for tentering the woven cloths by stretching them out to dry after fulling. More importantly, an undisclosed number of spinning jennies and a gig mill were put up for auction, the first direct reference to textile machinery used at Twerton.



2. Aerial view of Twerton Upper Mill site in 1930. Bamford, Cook & Company's original factory buildings dating from the late eighteenth century form a T-shape in the centre of the complex. (Reproduced by courtesy of the Turner-Messer Twerton Archive)

The spinning jenny, invented by James Hargreaves in 1764, was a hand-powered, multi-spindle machine designed to replace the traditional spinning wheel in the Lancashire cotton industry. Its use eventually spread to the neighbouring Yorkshire wool industry, and the first machines arrived in the West of England region at Shepton Mallet in 1776, causing a riot and their subsequent destruction.⁵ Because of this adverse response, and the fact that the early jennies were not ideally suited to producing a fine woollen yarn, the machine did not take hold in the region until the late 1780s, when Twerton Upper Mill became one of the first recorded premises to operate them.⁶ The gig mill, probably originating in Tudor times, was a large revolving drum fitted with teasels, used in place of manual labour to raise the nap of woven cloth before it was sheared. Where it was water-powered, which was probably the case at Twerton, it was usually connected by gearing to the fulling stocks.⁷ Petitioners against its use in 1796 claimed that a 250-year old statute had made the machine illegal, though it seems more likely that this had been intended to prevent damage to finer cloths.⁸

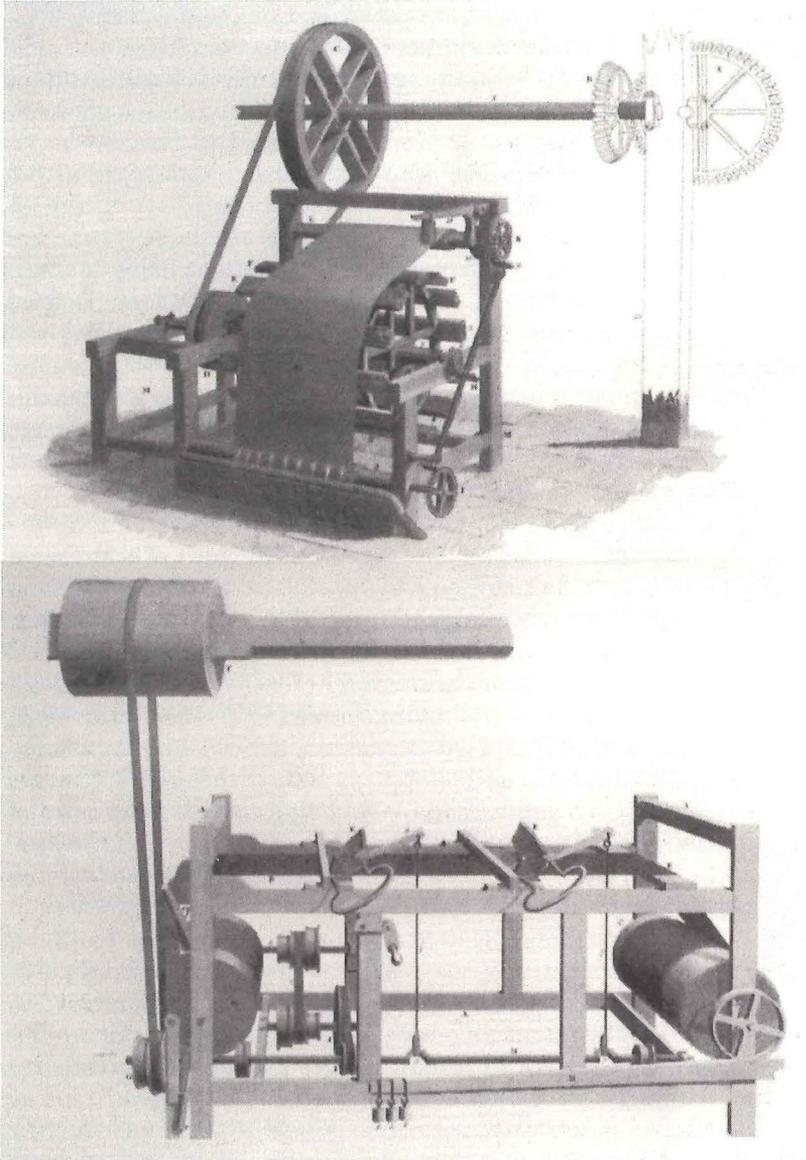
Samuel Paul Bamford was in occupation at Twerton Upper Mill site by 1789, having probably come from the Devon area of the serge industry. This last supposition is supported by the fact that he seems to have returned there four years after his involvement with Twerton Upper Mill had come to an end: the records of the Bath and West Society, of which he was a member from 1793 to 1815, show that from 1806 onwards he was residing in Exeter.⁹ Moreover, in 1815 he is recorded as leasing a serge factory with spinning machinery in Chudleigh.¹⁰ The first local record of Bamford's name at Twerton is in the minutes of the parish vestry, where his signature is found with those who attended the meeting of 13 April 1789.¹¹ A covenant of January the following year between Bamford and Ebenezer Coombs, a clothier from Corsley in Wiltshire, refers to two mills which had been 'converted into and then used by the said Samuel Paul Bamford as a Worsted Mill', but gives no indication of when this happened.¹² The two original mills were the fulling mill and an adjoining china mill. It seems likely that the block referred to in 1802 as the 'Worsted Mill', whose dimensions were 106 by 32 feet, rising six storeys, was the newly-constructed building which replaced them.¹³ The larger, adjoining 'Cloth-House or Mill' of 122 by 32 feet was probably built at a later date, and may have been occupied by James Clifford who was manufacturing woollen cloth at Twerton in 1796, and who, together with a John Cook from Trowbridge, became a partner of Bamford's by the turn of the century (fig. 2).¹⁴

The first clear evidence of textile machinery operated by Bamford is a letter written by him in February 1792 to Sir George Yonge, the War Secretary, requesting military protection for his mill against an imminent attack by a group of Wiltshire scribblers.¹⁵ The reason for their planned act of violence was his recent introduction of a 'scribbling machine'. This piece of machinery, perfected by Richard Arkwright in 1775 for use in the cotton industry, was designed to replace the process of opening and mixing the raw wool by hand-held cards before spinning. With mechanization the process was separated into two parts: a scribbling machine opened up the raw wool, which was then placed in a carding machine, worked further, and converted into slivers ready for use on a spinning jenny. Both stages were usually powered by water, though occasionally by horse. The machinery had been introduced successfully into the West Riding from the late 1770s, but it was not until May 1791 that its presence was first recorded in the West of England region, causing a riot in Bradford-on-Avon and the destruction of the offending machine.¹⁶ Bamford may have felt that the distance of Twerton from the main cloth towns of Wiltshire and Somerset, and the permanent presence of troops in the west of England, meant that he would be untroubled by such a violent response.¹⁷ John Ford, a manufacturer of scribbling and carding machinery, had moved to Bath from Frome in December 1791, probably as a result of intimidation by cloth workers.¹⁸ By April 1792 he had certainly supplied his machinery to William Abrahams, who was probably operating it on premises at the Bathwick Mill site, on the opposite side of the Avon from the city.¹⁹ It is possible that Ford's move in some way contributed to the subsequent focus of hostility on the Bath area, though it seems that in this case the threat of violence against Twerton Upper Mill did not materialize.

The next reference to machinery at Twerton Upper Mill came a little over a year later in April 1793, in a further letter from Bamford to the War Secretary.²⁰ He began by stating that 'for some time past we have carried on a very extensive manufactory in spinning worked by machinery and lately have introduced several branches of the new invented patent machinery obtained by the Rev Edmund Cartwright of Duncaster [Doncaster] in Yorkshire'.²¹ This last was a woolcombing machine, patented by Cartwright between 1790 and 1792, and designed to sort the longer wool staples before spinning into worsted yarn.²² Bamford may have been one of the earliest purchasers of the machine, for having gone up north to see it for himself in December 1792, he promptly ordered one, which he had in operation at his factory by the following February.²³

The threat of violence now came from the West of England woolcombers, and the response to Bamford's appeal for protection (his letter was endorsed by two Somerset magistrates) was more positive than previously, Yonge authorizing the dispatch of a troop of dragoons to Bath. Nonetheless, a year later petitions were sent to Parliament by woolcombers in Devon, Somerset and Wiltshire complaining of the 'invention and practice of a machine for combing of wool, which diminishes labour to an alarming degree'.²⁴ In the subsequent hearings before a House of Commons select committee, William Eales, a woolcomber from Plymouth who had worked at Bamford's factory, testified that the Twerton machine was powered by water. It seems to have run continuously, day and night, and of most significance to those listening, could 'clear out' 18 pounds of wool per hour, a size of output which Eales maintained could only be equalled by the best workers in 30 hours. Indeed, such was the machine's productivity, that Eales and most of his fellow woolcombers were soon laid off.²⁵

At the end of 1797, Bamford's factory was again associated with the threat of anti-machinery violence. One night in December of that year, a group of 800 to 900 armed shearmen and sympathisers from the Wiltshire-Somerset area woollen towns gathered together. Some of their number having forcibly entered a workshop near Frome, in which they had discovered and destroyed shears belonging to the Twerton Upper Mill, they resolved to meet again the following Sunday to 'proceed to Twerton in order to hang up Bamford and two of his men, to burn down his works and those of Collicott and Co. on the opposite side of the river'.²⁶ It seems likely that the destroyed implements were being used in a number of shearing frames at the factory. These machines had been invented ten years before by John Harmer of Sheffield, in order to replace the manual shearing of raised cloth to give it a smooth finish, and had already been introduced into the West of England region of the woollen industry by the mid-1790s.²⁷ In the event, the plan was uncovered by a Bath magistrate, who drafted in soldiers to discourage an attack. A group of about 150 men did get as far as the cottage of one of the factory workers, but rapidly dispersed when a troop of cavalry was called in. The other main threat to the livelihood of the West of England shearmen was the gig mill, and as its use spread from Gloucestershire down to Wiltshire and Somerset, their increasing hostility was directed at those mills which operated the machinery. Influenced no doubt by the pace of mechanization at Twerton, where two gigs were probably in operation by that time, other mills in the Bath area also began to employ cloth-dressing machinery, attracting



3. An early water-powered gig mill (above) and shearing frame (below), the object of anti-machinery violence at Twerton at the turn of the eighteenth and nineteenth centuries. (*Abraham Rees, The Cyclopaedia (1802-19)*, courtesy of Bath Reference Library)

custom from clothiers in Bradford-on-Avon, Trowbridge, Chippenham and Melksham.²⁸ Thus in April 1799, the proprietor of Batheaston Mill, John Bell, was threatened by the cloth workers of those towns, warning him not to use his gig mill, and to give his 'Brother Brown a Caution of this as hee will shear the same fate and Cook and Bamford Allso'.²⁹ 'Brother Brown' was Ebenezer Brown, Bell's brother-in-law, who by 1800 had moved his cloth manufactory from Bradford-on-Avon to the lower mill site at Twerton (see below), in which Bell eventually acquired a sharing interest.³⁰

A contemporary description of Twerton Upper Mill during this busy period comes from a *History of Bath*, published in 1800, in which the author, the Reverend Richard Warner, describes 'some useful manufactures' in the neighbourhood of the city.³¹ He specifically mentions the presence at 'Bamford, Cook & Co.' of 'curious machinery, consisting of many thousands of small wheels, worked by one large water-wheel', and was probably referring to a range of water-powered, worsted-spinning machines, including Richard Arkwright's waterframe originally patented in 1769.³² According to Warner, manufacturing was carried out on the premises by 300 adult and 80 child employees. But the business evidently felt the effects of the trade depression of 1801-2, for it was declared bankrupt, and the machinery and premises were advertised for sale, firstly in February 1802, and subsequently in July.³³ Here at last is a detailed inventory of the factory, and what it reveals in terms of mechanization by that time is quite impressive: for worsted production there were 'washing, combing, regulating, drawing, roving, and spinning machines and frames'; for woollen manufacture, 'engines for opening wool, scribbling and carding machines, billies, jennies, reels, ... two gig-mills, ... eighteen patent shearing frames, shears and brushing-up machine'.³⁴ While the exact type of machine used is, in some cases, unclear from the description, it is worth making a brief examination of the new machinery mentioned.

William Partridge, in his 1823 account of woollen cloth manufacture, describes an 'apparatus' oblong in shape, occasionally made of sheet copper, which was perforated in the top half of its sides and, once filled with previously scoured wool, was placed in a flowing stream of water.³⁵ This may possibly be the type of wool-washing machine referred to in the 1802 inventory. The machines for 'regulating, drawing, roving' were all designed, as previously mentioned, to work on the same principle as Arkwright's waterframe, employing water-powered rollers to process slivers of wool to an increasing fineness. The machine for opening the raw wool was probably a willey, a cylindrical drum with spikes or teeth,

similar in many ways to scribbling and carding machines.³⁶ The 'slubbing billy' linked the processes of carding and spinning after the introduction of the jenny, and was based on the same principles as the latter, imparting twist to the wool slivers to create slubbings ready for spinning. It was to become the subject of much concern during the early nineteenth century debates on the reform of child labour, because of the instances of cruelty inflicted on the 'pieceners', the young children whose job it was continuously to feed the machine with slivers of wool.³⁷ Finally, the brushing machine may at this time have been unique to Twerton Upper Mill in the whole of the West of England region. Partridge described it in 1823 as 'a machine, made similar to a gig-mill, only much smaller in the barrel, and having three or four rows of brushes on it', used to give an end-finish to the woollen cloth after shearing.³⁸

Separate evidence of the extent of mechanization at Bamford's factory is provided by his recorded use of child apprentices from the very beginning of manufacturing. In August 1789, the Twerton parish vestry minutes record that he was granted the labour of two pauper children for almost two years' service at three shillings cost per week to the parish. Within a couple of months it was clear that Bamford had begun to take in apprentices from other parishes as well, for at another vestry meeting, from which he was absent, it was agreed that if he continued to do this, an application would be made to 'the Justices for Orders of removal unless they bring proper discharge from their Parish'.³⁹ Whatever the outcome of this resolution, four years later Bamford placed an advertisement in the regional press for 40 to 60 children aged nine and above (the woolcombing machines he had first installed in February of that year each required 11 children to feed them continuously with raw wool).⁴⁰ Moreover, in 1796 he responded to newspaper advertisements placed by the Exeter authorities for pauper children to work in factories. He duly received 40 to 50 boys and girls in May of that year, while James Clifford, presumably in the recently-built adjoining woollen cloth mill, received another 30 apprentices soon after.⁴¹ Thus, by the time of Warner's tour of the factory in 1800, he would report that there were 80 children employed and boarded at the factory of Bamford, Cook & Co., all of whom were 'taken at the early age of eight or ten years from the neighbouring parish workhouses and regularly bound apprentices to the firm til the age of twenty-one'.⁴²

It is possible to make some general conclusions about the regional significance of the factory at the start of the nineteenth century. Firstly, it is clear that the Twerton Upper Mill site was using the latest techniques

in worsted and woollen manufacturing, and employing a large number of workers, a significant proportion of whom were children, as well as the machinery required to achieve this. Secondly, while Samuel Bamford was certainly prominent in introducing wool-preparing machinery to the south-west wool textile industry during the early 1790s, Bamford, Cook & Co. was a driving force behind the adoption of mechanized finishing processes in the Wiltshire-Somerset area during the later years of the decade. Finally, the Twerton Upper Mill operation compares well with that of the largest wool textile manufacturer at that time, Benjamin Gott, who had established a factory near Leeds in 1793.⁴³ For example, the total insurance value of Gott's premises, machinery and stock in 1797 was £6,000 – Bamford, Cook & Co's for the same year was £5,100, half of which covered machinery alone.⁴⁴ While Gott had more employees (about 1,000 in and out of the factory) and a large number of scribbling and carding machines, he was operating neither gig mills nor shearing frames to finish his superfine broadcloth, as he was prevented from doing so by his highly skilled workforce.⁴⁵

At some time between September and December 1802, Francis Naish took over the freehold of Twerton Upper Mill and began operating his woollen cloth manufactory on its premises.⁴⁶ Naish was a Trowbridge clothier with a large trade in fancy waistcoatings, whose name had already been closely linked with new working methods and machinery in the 1790s. In 1791 he had advertised for twenty weavers to work in his large loomshop, as well as a foreman who understood carding machines.⁴⁷ The following year, Naish bought an isolated mill at nearby Littleton and rented it out for the operation of finishing machinery, including a gig mill and possibly shearing frames. He may also have been prominent in demanding wage reductions to cut the cost of finishing, a move which eventually incited the shearmen to go out on strike in the summer of 1802.⁴⁸ On 22 July of that year, following a number of outbreaks of violence, they destroyed Littleton mill at an estimated loss to Naish of £8,000. As a result, the Trowbridge clothiers conceded to all of the demands of their shearmen, but a fortnight later, following the arrest of one of Naish's workmen for his involvement in the Littleton attack, the clothier's house and workshops in town were burnt down.⁴⁹ There seems, therefore, every reason for his move to Twerton, given that it was suitably distant from the main cloth centres to allow him to rebuild his business undisturbed, and that it was already well-advanced in terms of mechanization.

A contemporary's view of Francis Naish's business at Twerton is found in a description of the West of England woollen industry in 1814:

At Twerton, near Bath, I saw looms in Naish's factory for making fine woollen cloth. These looms are fitted with an appliance which stretches the cloth during the weaving process. I saw several women weavers at work in this factory ... I saw some excellent mechanical shears for cutting cashmere cloth at Twerton. They each had four blades which are in a fixed position. The cloth was drawn length ways across the blades.⁵⁰

This new type of shearing frame, which allowed the cloth to be sheared continuously from end to end, may possibly have been an early invention of Joseph Clissild Daniell, whose name would later be more closely associated with Charles Wilkins at Twerton.⁵¹ The 'cashmere' referred to was cassimere, a fine, narrow woollen cloth which represented a significant proportion of Naish's manufacture.

When a list of the area's principal woollen cloth manufacturers was presented two years later as evidence before a Parliamentary Select Committee on child labour, its main omissions were Twerton Upper Mill, and Bridge Mill in Trowbridge, both of which not only contained large amounts of machinery but were also, or had recently been, closely linked to Francis Naish.⁵² This may have been due to the fact that both factories were experiencing serious financial problems: by March 1817 all Naish's property was assigned to a commission of bankruptcy, while the new owners of his Trowbridge factory were to put it on the market in the following year.⁵³ When an advertisement for the auction of the Twerton Upper Mill site, including all the machinery Naish had accumulated, appeared in the local press in May 1818, the extent of mechanization was impressive, including as it did 30 scribbling and carding machines, 70 spinning jennies, 12 pairs of fulling stocks, six gig mills (of which two were 'nearly new, and upon the most approved principles') and 50 shearing frames.⁵⁴ The large number of spring looms, 160 in total, is interesting, as aside from those introduced in Gloucestershire, the West of England weavers were reluctant to embrace the flying shuttle which threatened to displace one in four of them.⁵⁵ Based on estimates of workers per machine, it seems that Naish probably had a similar, if not greater, number of employees as Bamford, Cook & Co. before him, and more importantly, this may have represented the largest factory workforce in the Wiltshire-Somerset area of the cloth industry at that time.⁵⁶

Final evidence of the scale of manufacture at Naish's factory comes from Twerton local historian R.G. Naish (no relation) in 1938, quoting

from an auctioneer's notebook of June 1822, then in his possession, which described the factory as being powered by two waterwheels of 90 horse power with a capacity 'equal to the consumption of 25 bags of wool and six bags of silk weekly'.⁵⁷ In May of 1822 the local press had featured an appeal for public donations to relieve the unemployed workers and their families as a result of the 'recent stoppage of all employment at the Manufactory of Mr Naish at Twerton', while an advertisement for the auction in June, which included the sale of 40 cottages built by Naish to house an expanding workforce, confirmed the 'extraordinary power' of the mills.⁵⁸ It seems therefore that manufacturing continued at the Twerton Upper Mill under Naish's name for five years after his bankruptcy, and it was only in May 1824 that he ceased to pay poor rates on it, ownership having by then been transferred to Charles Wilkins (see below).⁵⁹ In his answers to the Factory Commissioners' questionnaire in 1833, Wilkins mentioned the fact that Twerton Upper Mill had been enlarged around the year 1807, a further indication of the growth in the scale of manufacture under Francis Naish's proprietorship.⁶⁰

In 1784, the lower mill site at Twerton came into the occupation of Matthias Taylor, a leather dresser, who subsequently leased out part of the premises as an edge-tool mill. Paper manufacturing had by then come to an end, while grist milling continued at the original Chatterton's Mill.⁶¹ In 1799, Taylor offered his share in the property for sale, with newly-extended premises capable of conversion into 'any manufactory', and within a year this had been transferred to Ebenezer Brown, a clothier from Bradford-on-Avon.⁶² A plan of the site of about ten years later shows that Brown seems to have converted the main premises into a woollen cloth factory, erecting a drying house on adjoining land, and continuing to lease out Chatterton's Mill as Taylor had done before him. A witness testifying before the Parliamentary Select Committee of 1803, which was considering the repeal of restrictive Tudor legislation on the woollen industry, said that as a tenterer at Brown's manufactory he had seen cloth 'very much damaged' by the gig mill in use there.⁶³ An indenture dated 11 November 1807 records the lease of the freehold of all 'that mill or those mills now in the possession of them the said Ebenezer Brown and Charles Wilkins and wherein they now carry out the trade or business of clothiers with a machine therein called a gig and five pair of stocks for fulling or milling of cloth', for a 21-year period by Brown to Wilkins, at an annual rent of £400.⁶⁴ This is the first evidence of

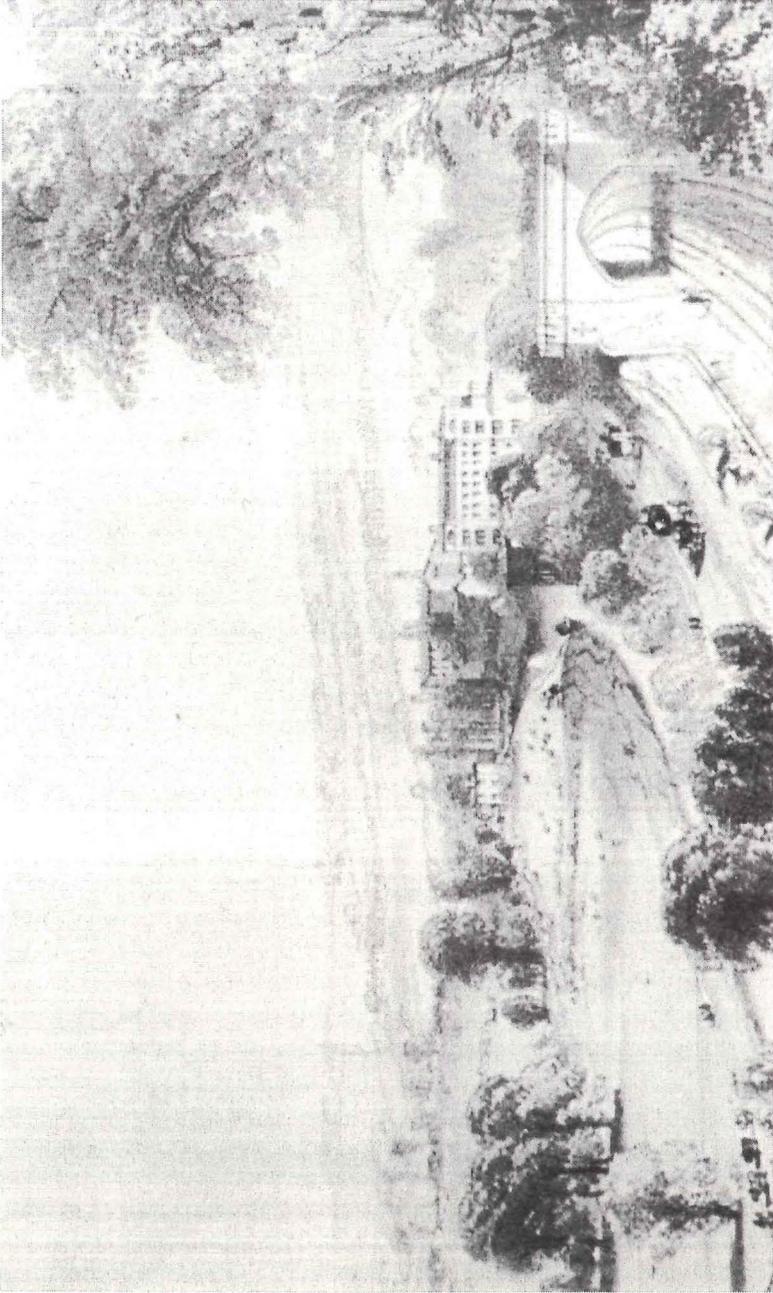


4. Twerton Lower Mill site in the late nineteenth century, showing the original five-storey factory erected by Ebenezer Brown, c.1800, in the centre. (Reproduced by courtesy of the Turner-Messer Twerton Archive)

Charles Wilkins' involvement in cloth manufacturing at Twerton. In the same year, Ebenezer Brown leased another mill in Bradford, in which he installed a 14 horse-power steam engine, the first clear proof that one of the Twerton manufacturers was using steam power.⁶⁵ He soon experienced financial difficulties, and by July 1809 he had been declared bankrupt. Two months later the total amount owed to Wilkins, who had paid off some of Brown's debts, was more than £2,000. It seems that over the following years, Wilkins negotiated with Brown's numerous creditors for the purchase of their shares in the Twerton Lower Mill property.⁶⁶

The best indication of the scale of manufacturing at the Twerton Lower Mill site at this time comes from the minutes of the 1816 'Select Committee on the State of the Children Employed in the Manufactories of the United Kingdom'. A solicitor from Bradford-on-Avon, John Bush, provided the committee with details of the number and age of employees at what he termed 'the principle woollen manufactories in Wilts, and part of Somerset', including his own family's not insignificant business.⁶⁷ The list covered thirty-two other manufacturers, half of whom were located in the main cloth areas of Bradford-on-Avon and Trowbridge – the rest were to be found within a ten-mile circumference. When ranked in order of the number of factory workers employed, the largest concern was Saunders, Fanner & Co. of Bradford, operating from two separate premises with 321 employees, while the smallest belonged to John & Thomas Clark of Trowbridge, with only 35 employees. 'Messrs Charles Wilkins & Co., Tiverton' (a misprint) came seventh in rank with 167 employees. Of these, 111 were adults and the remaining 56 children, including 13 under ten years of age. It was therefore a sizeable operation by regional comparison, though certainly not as large as Francis Naish's factory at Twerton Upper Mill which had been omitted from the list (see above). In the following year the factory was enlarged by Wilkins, and this may have included the installation of a steam engine – one was certainly operating at Twerton Lower Mill in 1819.⁶⁸ By 1824 he also occupied the larger upper mill site, and during the following decades his business leadership was to place Twerton at the forefront of the superfine woollen cloth industry in both the West of England and Britain as a whole, during the nineteenth century.⁶⁹

How did the Twerton factories compare with other wool textile manufacturing premises in the Wiltshire-Somerset area during the early part of the Industrial Revolution? Using Kenneth Rogers' comprehensive



5. View of Twerton in the first half of the nineteenth century, depicting the upper and lower mill sites at the height of their expansion under Charles Wilkins. (From J.C. Bourne, *History and Description of the Great Western Railway* (1846), courtesy of R.A. Buchanan)

survey of eighteenth- and nineteenth-century woollen mills, it can be shown that there were only a handful of comparable workshop or factory premises in the region at the start of the 1790s.⁷⁰ The earliest to be erected, in 1785, was John Anstie's four-storey workshop building in Devizes, which probably contained horse-powered carding machinery and hand-powered jennies; its total floor area was an impressive 8,000 square feet.⁷¹ Bamford's worsted mill was completed at about the same time as four other newly-built or converted water-powered wool textile mills, at Westbury Leigh, Malmesbury, Quemerford and Avoncliff, roughly around the year 1790.⁷² The significant difference between these, and indeed Anstie's workshop, and the Twerton Upper Mill, was the fact that while the former were of four to five storeys and had total working areas of between 5,600 and 7,600 square feet, the latter was six storeys high and had a total floor area of over 20,000 square feet.⁷³ By the turn of the century, only three other premises had been built or converted on a scale similar to Bamford's original building: at Christian Malford in 1795; at Weston Lower Mill, on the opposite side of the Avon in the mid-1790s (see Appendix); and at Staverton, near Bradford-on-Avon, in 1800.⁷⁴ The last of these had seven storeys and a working area of 28,800 square feet, and was thus the first factory to exceed the size of Bamford's worsted mill. However, the larger, adjoining woollen cloth mill had been built by then, which brought the complete floor area of the two main buildings belonging to Bamford, Cook & Co., to almost 44,000 square feet.⁷⁵ An impression of their combined size can be obtained from the aerial photograph taken in 1930, where they are seen forming the central part of the T-shaped factory (fig. 2). By that time, the premises at the Twerton Upper and Lower Mill sites had undergone expansion and rebuilding, firstly under Francis Naish and Ebenezer Brown, then by Charles Wilkins, from the 1820s to the 1840s, and subsequently under the family dynasty of the Carrs into the twentieth century.

Under these enterprising manufacturers the two eighteenth-century mill sites on the south bank of the River Avon at Twerton village were transformed into factory premises, where by the mid-1820s the foundations for the emergence of an internationally-renowned superfine cloth industry had been laid. The parish of Twerton became a growing industrial suburb which was absorbed into the city of Bath in the early twentieth century. Cloth manufacturing continued at Twerton until its demise in the 1950s, in the face of competition from Yorkshire and abroad.

Appendix: The Weston Mills

By the early eighteenth century, the upper part of the Weston mills was being used for the manufacture of brassware, having been acquired, in 1711, by the Bristol Brass Company.⁷⁶ We know from Warner's description of Twerton in 1800 that a Mr Collicott was running a cloth factory at what was certainly the lower mill site.⁷⁷ These premises had been the proposed target of the same group of wool workers who, as previously mentioned, had in December 1797 resolved to destroy Twerton Upper Mill. It is clear therefore that Collicott was operating textile machinery in much the same way as Bamford, Cook & Co., though on a smaller scale, and limited to the production of a superfine woollen broadcloth. Indeed, it was an enterprise that outlasted those of both Bamford and his successor Francis Naish, until Collicott's eventual bankruptcy in 1825.⁷⁸ The best available evidence of the size of his business comes from an 1829 advertisement in the local press, for the sale by auction of the mill and other property belonging to the 'mortgagee in trust' – unfortunately, no details are given of machinery.⁷⁹ The 'clothing mill manufactory', presumably the original built by Collicott in the mid-1790s, had dimensions of 68 by 46 feet, rising six storeys, giving a total floor area of almost 19,000 square feet, and making it the third largest factory in the Wiltshire-Somerset area before 1800. It was powered by two water wheels and could produce an output of twenty broadcloths per week. It is interesting to note that, according to Warner, Collicott also owned the upper mill site on the Weston side of the Avon, which continued to manufacture brass utensils as it had done since the early eighteenth century, as well as an adjoining mill for 'beating out bars of steel' – thus forming a small industrial complex.⁸⁰ These two separate premises were sold to Francis Naish at some time before his bankruptcy, and were converted by him to logwood and flour mills.⁸¹

Notes

- 1 Sources used for this paragraph are: M. Chapman, 'The Historical Background to Industrial Twerton', unpublished folio written for the Bath Industrial Heritage Centre (BIHC); W.S. Shaw, 'Notes on the History of Twerton', *Proceedings of the Bath Natural History and Antiquarian Field Club*, Vol. 2 (1870-2), pp.271-81; J. Day, *Bristol Brass: the History of the Industry* (Newton Abbot, 1973), pp.64-5; and title deeds to the Twerton Upper and Lower Mills, records of which are held at the BIHC.
- 2 R.G. Naish, *Bath & Wiltshire Herald & Gazette*, 16 December 1937.

- 3 *Ibid.*, 20 December 1937. A colour slide of the painting is held at the BIHC as part of the Turner-Messer Archive on the history of Twerton.
- 4 *Bath Chronicle*, 4 January 1787.
- 5 K.G. Ponting, *The Woollen Industry of South West England* (Bath, 1971), p.37; K.H. Rogers, *Wiltshire and Somerset Woollen Mills* (Edington, 1976), pp.19, 169.
- 6 J. de L. Mann, *The Cloth Industry in the West of England from 1640 to 1880* (Oxford, 1971), pp.123-9.
- 7 *Ibid.*, pp.141-2, 300.
- 8 A. Randall, 'The Shearmen and the Wiltshire Outrages of 1802: Trade Unionism and Industrial Violence', *Social History*, Vol. 7 (1982), p.287.
- 9 University of Bath, Royal Bath and West Society Archives, annual reports of 1793 to 1815.
- 10 Devon Record Office (DRO), 924B/B8/26, lease 17 November 1815.
- 11 Somerset Record Office (SRO), D/P/Twn-9/1/1, Twerton Vestry Minutes 1780-1848, 13 April 1789.
- 12 Wiltshire Record Office (WRO), 628, 16/17, covenant 7 February 1790. An 'Ebenezer Sperrin Coombs' was manufacturing silk at Corsley in the early nineteenth century, a fact which suggests that the Coombs and Sperin families may have been related by marriage. Rogers (1976), p.200.
- 13 *Bath Journal*, 1 December 1802.
- 14 *Ibid.*; DRO, No. 13 ECA, Corporation of the Poor Court Book 1766-1801, 20 June 1796; *London Gazette*, May 1799, p.507.
- 15 Public Record Office (PRO), WO 1/1054, letter from Bamford to Yonge, 5 February 1792. Yonge, Member of Parliament for Honiton in Devon since 1754 and War Secretary from 1782-1794, had, together with Sir John Duntze, built a new serge factory at Ottery St Mary in the early 1790s, in an attempt to revive the industry in that area. *Dictionary of National Biography*, Vol. XXI (1949-50), p.1239.
- 16 Mann (1971), pp.129-30; D.T. Jenkins, *The West Riding Wool Textile Industry* (Edington, 1975), p.117.
- 17 A. Randall, *Before the Luddites - Custom, Community and Machinery in the English Woollen Industry* (Cambridge, 1991), pp.75-80, 105.
- 18 Rogers (1976), pp.22, 168.
- 19 *Bath Herald & General Advertiser*, 28 April 1792.
- 20 PRO, WO 1/1056, letter from Bamford to Yonge, 26 April 1793.
- 21 *Ibid.*
- 22 J. James, *History of the Worsted Manufacture in England* (1857, reprint 1968), pp.565-6.
- 23 Journals of the House of Commons (JHC), Vol. XLIV, 13 March 1794.
- 24 Quoted in H.C. Oram, 'The Industrial Revolution and the Textile Industries of Somerset 1750-1870', unpublished MA thesis, University of Bristol (1930), Appendix A.
- 25 JHC, Vol. XLIV, 13 March 1794.
- 26 PRO, HO 42/41, letter from Bowen to Portland, 20 December 1797. Collicott was operating a cloth factory at the Weston Lower Mill site (see Appendix).
- 27 Mann (1971), pp.134, 149-50.
- 28 *Ibid.*, p.142; Randall (1991), pp.151-93.

- 29 *London Gazette*, May 1799, p.507; Randall (1991), p.153.
- 30 BIHC, Twerton Lower Mill deeds, mortgage 8 October 1804.
- 31 R. Warner, *History of Bath* (Bath, 1801), p.215.
- 32 *Ibid.*; Mann (1971), p.134.
- 33 *Bath Journal*, 1 February 1802; *Bath Chronicle*, 8 July 1802; Randall (1991), pp.197-8.
- 34 *Bath Chronicle*, 8 July 1802.
- 35 W.Partridge, *A practical treatise on dying of woollen, cotton, and skein silk with the manufacture of broadcloth and cassimere including the most improved methods in the West of England* (1823, reprint Edington 1973), p.30.
- 36 Mann (1971), p.280.
- 37 *Ibid.*, p.288.
- 38 *Ibid.*, p.300; Partridge (1973), p.84.
- 39 SRO, D/P/Twn – 9/1/1, Twerton Vestry Minutes 1780-1848, 2 August & 5 November 1789.
- 40 K. Rogers, *Warp and Weft* (Buckingham, 1986), p.74; JHC, Vol. XLIV, 13 March 1794.
- 41 DRO, No. 13 ECA, Corporation of the Poor Court Book, 1766-1801, 12 May & 20 June 1796.
- 42 Warner (1801), p.216.
- 43 H. Heaton, 'Benjamin Gott and the Industrial Revolution in Yorkshire', *Economic History Review*, Vol. 3 (1930-1), pp.51, 55.
- 44 Jenkins (1975), pp.97-9; Rogers (1986), p.74.
- 45 Heaton (1930-1), pp.53-4, 58.
- 46 SRO, D/P/Twn – 9/1/1, Twerton Vestry Minutes, 1780-1848, 17 September & 30 December 1802.
- 47 Rogers (1976), p.22.
- 48 Randall (1982), p.291.
- 49 Randall (1991), pp.162-3.
- 50 Reproduced in Ponting (1971), p.158.
- 51 Rogers (1976), p.23; Mann (1971), p.303.
- 52 British Parliamentary Papers (BPP), 1816, Vol III, 'Select Committee on the State of the Children Employed in the Manufactories of the United Kingdom', pp.308-9.
- 53 SRO, DD/X/WBB, 17/2/1, assignment of 20 March 1817; Rogers (1976), p.136.
- 54 *Bath & Cheltenham Gazette*, 13 May 1818.
- 55 Mann (1971), pp.139-41; Randall (1991), pp.98, 100, 189.
- 56 N. von Behr, 'The Wool Textile Industry of Twerton: a study in the development of factory manufacturing during the Industrial Revolution', unpublished MSc. project report, University of Bath (1995), p.22 & Appendix I.
- 57 R.G. Naish, *Bath & Wiltshire Herald & Gazette*, 19 & 22 August 1938.
- 58 *Bath Journal*, 20 May 1822 & 3 June 1822.
- 59 Bath Record Office, Twerton Poor Rates, 6 May 1824.
- 60 BPP, 1834, Vol. XX, 'Supplementary Report of the Central Board of Factory Commissioners, Pt. II', p.54.

- 61 BIHC, Twerton Lower Mill deeds, reversion 25 March 1784 & conveyance 29 September 1801.
- 62 *Bath Chronicle*, 21 March 1799; BIHC, Twerton Lower Mill deeds, assignment 29 January 1800.
- 63 BPP, 1802/3, Vol. VII, 'Minutes of Evidence taken before the Select Committee on the Woollen Clothier's Petition', pp.118-25.
- 64 BIHC, Twerton Lower Mill deeds, lease of 11 November 1807.
- 65 Rogers (1976), pp.161-2, 1698.
- 66 SRO, DD/OB, 21, abstract of title deeds to Twerton Lower Mill, 1837.
- 67 BPP, 1816, Vol. III, *op. cit.*, pp.308-9.
- 68 BPP, 1834, Vol. XX, *op. cit.*, p.54.
- 69 BIHC, Twerton Upper Mill deeds, mortgage of 24 April 1824.
- 70 Rogers (1976), pp.45-6.
- 71 *Ibid.*, pp.30, 105.
- 72 *Ibid.*, pp. 72-3, 84-5, 164-5, 218-9.
- 73 *Bath Chronicle*, 8 July 1802.
- 74 Rogers (1976), pp.75, 96-104; *Bath Chronicle*, 23 July 1829. It is difficult to estimate the total floor area of Ebenezer Brown's factory at the Twerton Lower Mill site.
- 75 *Bath Chronicle*, 8 July 1802.
- 76 Day (1973), p.64, supplemented by the author's notes from a public lecture given by Joan Day at Bath University in March 1995.
- 77 Warner (1801), p.217.
- 78 Mann (1971), p.172.
- 79 *Bath Chronicle*, 23 July 1829.
- 80 Warner (1801), p.217.
- 81 *Bath Journal*, 3 June 1822.

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