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## STATEMENT OF SIGNIFICANCE

# STANLEY MILLS



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# HISTORIC ENVIRONMENT SCOTLAND INTERIM STATEMENT OF SIGNIFICANCE

## STANLEY MILLS

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Please note, the research for this Interim document was undertaken during 2020-2021 with limited access to archives and resources, as a result of Covid-19. While every attempt was made to ensure accuracy throughout the statement, errors or omissions may remain. Please direct comments or suggestions to [CRTenquiries@hes.scot](mailto:CRTenquiries@hes.scot)

## 1.1 Introduction

Stanley Mills is a large complex of stone and brick-built structures dating from the late 18th century. Located nine miles north of Perth, they were built to spin, and later to weave, cotton and other fabrics; relying upon water diverted from the river Tay to provide power, first to water wheels and later to turbines to drive the mill machinery. As well as the tall mill buildings there are associated infrastructure of lades, wheelpits, roadways and ancillary buildings, all set in wooded surroundings. At their height, the mills employed around 1000 people, many of whom lived in nearby Stanley village.

The mills ceased production in the 1980s and after a period of dereliction were acquired by Historic Scotland (predecessor body to Historic Environment Scotland [HES]). Part of the complex was converted into housing while part remains managed by HES as a heritage site (or Property in Care [PIC]) which attracts around 9,000 visitors annually and is an important site for educational groups.

## 1.2 Summary Statement of Significance

This assessment of significance should be regarded as interim and provisional, and is in process of revision (June 2021) pending ongoing research. Some of the key values associated with the site are highlighted in the bullet points below, while the later sections of the document give an outline history, description of the site and a fuller discussion of its heritage values.

- Stanley is the best-preserved mill with which Sir Richard Arkwright had direct involvement. Arkwright was renowned as the motive force behind the early industrial revolution in Britain. The physical structures are therefore of crucial importance, particularly Arkwright's Bell Mill, the oldest known factory to be fitted with cast-iron columns. Arkwright provided capital, expertise and training to the project at Stanley and was key to its initial 18<sup>th</sup> century set-up. The later influence of David Dale and Robert Owen continued Stanley's association with key innovators in the industrialisation of textile manufacture.
- The interest in developing and improving industrial processes occurred alongside equally important societal changes from the 18<sup>th</sup> to the 20<sup>th</sup> century. The lives and surroundings of the increasingly urbanised working classes changed significantly. Planned villages with schools and churches developed as domestic infrastructure to support and contain increasing numbers of workers. Child and female labour were critical to the success of cotton factories such as Stanley. While much of this "infrastructure" at Stanley exists well outside the area in State care, it is nevertheless a visible and important aspect of the significance of the complex. Understanding, by research and interpretation, these intangible historical aspects is a key value for the site.
- The story of cotton at Stanley can also be seen in a broader global context, as it depended upon a raw material often produced by the forced labour of enslaved people overseas. Some of the capital underpinning Stanley Mills

during its period of greatest expansion (the 1820s – 50s) most probably derived from the profits of businesses dependent upon slavery. This, together with Stanley's association with Dale and Owen, offers potential to explore complex intertwined narratives around colonial wealth and links to slavery and abolition, exploitation, paternalism and philanthropy. Within the HES portfolio, Stanley is one of the best fitted sites through which to explore these aspects in relation to the industrial revolution.

- Stanley Mills illustrate changes to and developments in the use of sources of power, particularly waterpower. There is evidence of several generations of water wheel and later of turbines; in 1921 a hydroelectric station was built (it is now restored to feed power into the national grid). The flues and the gas works complete the story of power, heat and light at Stanley.
- The Mill complex is now also a domestic setting, containing many homes. It is a focus for a community of people who are attached to the site as residents, by their own personal or family history, by their interests and also as visitors, including the many schoolchildren who visit and learn at the site.

## 2.0 Background

Although it had been in almost continuous use since the late 18th century, by 1989 Stanley Mills was redundant, with parts of the site in a rapidly deteriorating condition. In 1997 Historic Scotland<sup>1</sup> took the unusual step of purchasing the mills to save the key structures from demolition and to conserve them as a visitor attraction. Large parts of the rest of the site have been sympathetically converted into housing, while appropriate adaptive projects are still (2021) being sought for remaining areas of the site.

As part of the Historic Scotland project, the site was archaeologically investigated and recorded, supplemented by documentary research. The results were published as *Force and Fabric, Archaeological Investigations at Stanley Mills*<sup>2</sup> and this report provides much of the detail on which this assessment is based.

While this assessment focusses on those parts of the site that are in State care, it recognises that assessing significance requires consideration of the whole site, including the related elements of lades, tunnels and indeed workers housing that are more distant from the core area of the PIC. The assessment also seeks to articulate the intangible values of the site in relation to social and economic contexts, and to communities, by oral history, traditions and feelings of attachment.

## 2.1 Historical summary

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<sup>1</sup> Historic Scotland was the predecessor body to Historic Environment Scotland – HES.

<sup>2</sup> Cressey, M and Fitzgerald, R, *Force and Fabric: Archaeological Investigations at Stanley Mills* (Historic Scotland, 2011)

Stanley Mills consists of a large complex of mill buildings begun in the late 1780s. It is set in a now-wooded landscape by the river Tay. The mills were built to spin cotton and later also wove cloth. Cotton spinning was the first factory process to be carried out on a modern industrial scale. The economics of cotton manufacture depended upon imports of raw cotton from overseas, mainly from the Americas. This was often produced by enslaved people forced to work under terrible conditions. Capital investment for textile and other industries, together with more general infrastructure and agricultural “Improvements” was often also linked to profits from transatlantic slave economies during the 18th and early 19th centuries.

1784 – 1799

Developments at Stanley<sup>3</sup> were initiated by John Murray, 4<sup>th</sup> Duke of Atholl who in 1785 advertised in the Manchester newspapers for a business partner to set up a cotton manufactory at Stanley. The aim of this seems to have been to lure Richard Arkwright to share his expertise in Scotland. Arkwright, as inventor and entrepreneur, was the pre-eminent figure in the early industrial revolution. Arkwright did indeed join in the Stanley enterprise (as he did at New Lanark) contributing his engineering and design skill. The first Stanley Company was formed by a group of landowners, merchants and entrepreneurs who each invested £1000. The partners included: the Duke of Atholl, who feued the land to the Company; Richard Arkwright; George Dempster, MP for the Perth Burghs; William Sandeman, owner of Luncarty Bleachfield who supplied much of the expertise in textile manufacture; and Andrew Keay, Perth merchant, who became the first manager at Stanley. While Arkwright was key to the design and setting up of Stanley, by the time the final contract for use of the mills was signed, Arkwright had withdrawn from the project, as he did at New Lanark.

Enterprises such as Stanley Mills required a large labour force and a good power supply. The river Tay was the source of the water power which drove the mill machinery and was a primary reason for the complex’s location. In 1785 a seven-hundred-foot-long tunnel was constructed to carry water from the rapids at Campsie Linn to the site<sup>4</sup>. The Duke boasted: “at Stanley... by perforating the Hill I can bring in any quantity of the Tay I please.”

Many of the initial workforce came from the Duke of Atholl’s estates - which were then being cleared of tenants in order to introduce larger sheep farms - records indicate about 80 families were recruited from Gaelic-speaking Highland Perthshire. Training in the new factory system was important and Andrew Keay spent a period at Arkwright’s mills in Cromford, Derbyshire, before taking on the management of Stanley Mills. Additionally, between 40 and 50 Stanley workers went to be trained at Cromford in May 1785. By 1795, 350 people worked at Stanley of whom 300 were women or children under 16.

Despite the careful planning and investment, the mill did not prosper as hoped. Stanley’s location was relatively remote from the centre of the cotton industry in Lancashire and the west of Scotland, and also from the Glasgow ports: this was

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<sup>3</sup> The name Stanley derives from Lady Ameila Stanley (1633 – 1703), daughter of the Earl of Derby, who married John, 1<sup>st</sup> Marquis of Atholl.

<sup>4</sup> Prior to Stanley Mills’ inception, there was a corn mill on the site, which was fed by the first such tunnel, constructed in 1729.

always a disadvantage. Evidence recently uncovered<sup>5</sup> indicates a manager, David McVicar, had been “fiddling” the books, paying mill foremen and women to declare more cotton waste than necessary and selling this off for his personal profit. The business environment was clouded by the French Revolutionary Wars, and further, in 1799 part of the complex (see the East Mill below) was destroyed by fire and the complex lay empty until 1801.

#### 1801 - 1813

In 1801 the mill complex was bought by James Craig, a Glasgow muslin manufacturer. Craig was closely associated with David Dale and relied upon him for finance. Dale was acknowledged as the “father of the cotton Industry” and founder of New Lanark Mills. Dale’s son-in-law, Robert Owen was involved in the running of Stanley, but despaired of the mills ever being profitable. He eventually withdrew finance, and the mills closed again in 1813, lying empty until 1823.

#### 1823 - 1852

Stanley Mills’ new owners were Dennistoun, Buchanan and Company, a Glasgow firm who invested heavily in an ambitious expansion programme. Eleven of the partners were heavily involved in the Caribbean and Americas,<sup>6</sup> and it is extremely likely that much of their investment in Stanley derived from enterprises reliant upon enslaved people’s labour. Research is ongoing (2021) to understand the complex business dealings of the many partners involved at Stanley at this time. This is especially difficult as a fire in 1825 consumed many business records and was suspected of being started deliberately by David Laird<sup>7</sup>, one of the partners.

However, the extent of the investment is not in doubt, as works included a new tunnel to carry water, six new wheel pits, a gasworks, a church, a new mill (Mid Mill) and the extension of East Mill. The 1844 will of James Buchanan of Dowanhill shows he invested £40,000 into Dennistoun Buchanan and Co, which indicates the scale of the project<sup>8</sup>. Essentially, under Dennistoun Buchanan and Co, Stanley developed much as we see it today. In 1831 the population of Stanley village was 2,000 with over 1,000 employed in the mills, the vast majority being women and young people.

#### 1852 – 1989

In 1852, the mills were bought by Samuel Howard of Burnley, Lancashire for under £20,000. This is far below the estimated £160,000 invested by Dennistoun Buchanan in the works, and research is ongoing into the implications of this<sup>9</sup>. Howard’s tenure had little effect upon the structures at Stanley, in fact he closed the mill temporarily 1862–7 during the “cotton famine” when the American Civil War interrupted the

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<sup>5</sup> Mark Watson, pers comm

<sup>6</sup> For further details see University College London Centre for the Study of the Legacies of British Slavery <https://www.ucl.ac.uk/lbs/>. The project website gives access to an extensive database of individuals and companies with connections to slavery, for example for Dennistoun, Buchanan and Co <https://www.ucl.ac.uk/lbs/firm/view/2144928775>

<sup>7</sup> Laird was a founding partner in Dennistoun Buchanan and Co from 1806 and imported goods from New Orleans and New York. After the fire in 1825 he left Perth and Glasgow to set up as a merchant in Liverpool but retained links with some of the Stanley partners.

<sup>8</sup> Anthony Cooke, *An Elite Revisited: Glasgow West India Merchants, 1783–1877*, in JSHS 2012.0048.

<sup>9</sup> Mark Watson, pers comm



supply of cotton. Howard had stockpiled cotton preferring to profit by hoarding and speculation rather than continue manufacturing.

After Howard's death, the mill was managed by Frank Stewart Sandeman, who bought out the complex in 1880. Sandeman had built the Manhattan Jute works in Dundee in 1874 and made a series of modernising improvements at Stanley including installing water-powered turbines and electric lighting. Production switched to cotton belting which was exported all over the British Empire for use as drive belts in machinery. During the First World War, webbing was produced for the armed forces and later "endless tape" for cigarette manufacture. After the war, Sandeman's mills joined the conglomerate Jute Industries Ltd, and spun selvage yarn for jute cloth, helped by mechanical teams from Dundee when necessary.

While the Second World War ensured demand again for webbing, the post-war era saw declining demand for belting (as UK steam-powered machinery was phased out and former colonies imposed import tariffs to foster their own industries) and Stanley's fortunes declined. By 1979 a management buy-out switched production to acrylic yarn, but this was not successful, and the complex finally closed in 1989.

1989 – 2021

After closure the site and its historic buildings declined rapidly. Empty and prone to vandalism, roofs and windows suffered, exposing the mills to structural damage from wind and weather and vulnerable to fire which damaged the North Range. In 1992 a Public Local Inquiry was heard on applications to demolish most buildings and convert two of them to housing: permissions were granted but this project did not proceed.

In 1997 Historic Scotland took the unusual step of purchasing the mills to save them from demolition and unsympathetic development. A partnership formed with the Phoenix Trust (now the Prince's Regeneration Trust) to save the site, aided by a funding contribution from the Heritage Lottery Fund.

Because of the scale and perilous condition of the site, careful consideration was given to identify the elements of greatest cultural significance and least capable of adaptation. These were agreed to be Arkwright's Bell Mill, the lades and associated water wheel pits. These were therefore retained by Historic Scotland, and opened as a visitor attraction while the other areas of the site were sympathetically converted into housing or a variety of commercial uses. With this pragmatic, hybrid approach, it was possible to save all of the principal structures. Two mills were converted to housing by the Phoenix Trust and sold on to new residential owners. A small proportion of the site remains unused and the work of conservation and adaptation is ongoing.

The project was preceded by a major research initiative including excavation and recording of the site and documentary and oral history research projects. The main outputs were published as *Force and Fabric: Archaeological Investigations at Stanley Mills* 2011.



## 2.2 Descriptive summary

The Stanley Mills site developed and changed over time. A description of the main component parts is given below with fuller details in *Force and Fabric*. The complex stands on a bend of the river Tay, and this overview identifies the buildings from west to east:

- **West Lodge:**  
Small circular building, probably c.1820-30, with eyecatcher and gateway supervision function. The ogee roof was attributed stylistically to JM Robertson, Dundee, c.1880-90 but the circular building is present on an 1851 map. The gazebo, or Monkey House, no longer extant, that replaced the gasholder also had an ogee roof.
- **Bell or West Mill:**  
Built in 1786 and despite some alterations is the best- preserved mill with which Sir Richard Arkwright, pioneer of cotton spinning, had direct involvement. Weaving of cotton belting began here and in the adjacent shed (sited on a corn mill of 1729) at the end of the 19th century.

The ground and first floors probably originally carried the spinning frames, driven from a shaft in the basement connected to an external waterwheel, (the hole survives for a large timber axle); the next two floors carried the carding machines and drawing frames, turned by straps from above, while the 4th floor contained reeling, doubling and twisting machines. The layout is most clearly illustrated in Rees's Cyclopaedia<sup>10</sup>, taking the example of North Mill in Belper. Once carding machines became bigger the arrangement, a logical use of gravity, was usually reversed but in this case, carding transferred to the new Mid Mill. The west gable is signalled by a bellcote and doorpiece to serve first floor office (note the wall safe) divided from spinning flats by an internal stair. Soon after, this was relocated to the east gable semi-circular tower - water tank removed and a timber spiral stair has been replaced in steel. A belt-dipping device is in a lean-to at its foot, for coating heavy canvas belting in tar. A small two-phase weaving shed added in the later 19th / early 20th century over the corn mill lade was removed because it was of lesser importance and intruded negatively into views from the riverbank.

- **Mid Mill:**  
built in 1823-5, is fireproof, that is the floors are of arched brick between cast iron beams and on cast-iron columns. The mill was lengthened to either end c.1830-40 (a floodmark is dated 1847, different ironwork and stone colour at each end) and one storey was removed (evidence in the brickwork of Bell Mill stair tower). The mill was to be used for cotton blowing and carding, requiring heavy machinery. The dust meant a high fire risk. Four cotton cards by Howard & Bullough, c.1920, still survive in position, the only to do so in Scotland and dust extraction equipment is now in the collections store. Most

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<sup>10</sup> Rees, A, *Manufacturing Industry* (1819) plate XIV in Volume 2, The related text is in Vol Three pp374-402. Reprinted David & Charles 1972.

of the mill is now terraced houses and maisonettes developed by Phoenix Trust, identifiable by their additional attic windows and balconies.

- **East Mill:**  
was “near unfinished” according to an insurance valuation in 1796, but burned down in 1799. The gable to the river contains evidence of 18th century heating systems and the string course between basement and ground floor, arched at the original wheelpit suggests that these elements are 18th century. It was rebuilt by 1809, on Robert Owen’s advice, for flax and cotton spinning, enlarged to the west in 1823-5 and altered in a small way after a further fire in 1848. At least two phases of internal timber construction, with respectively crosswise and lengthwise timber beams on iron columns reflect the phasing. A stair of stone flags and iron beams served as a firebreak between it and another 1820s mill (North Mill or A Mill) which was begun but seemingly never completed. East Mill held 12,000 mule spindles in 1822. This number rose to 27,288 in 1845 (possibly distributed into Mid and Bell Mills too, but these mills would also house 10,224 throstle spindles) was used in 1892 for ring spinning and doubling, and, most recently to spin artificial fibres. A single storey outshot built over wheelpits has been demolished, replaced by a lawn and garaging. A weighbridge remains.
- **The wheelpits:**  
these appear to date in the most part from 1823-5, when seven wheels were turning in place of the original, probably wooden, wheels. A number of changes include the installation of turbines in 1879. The method of conveying power by shafts and belts to the machines deserves investigation. It seems that in the 1820s there were two sets of wheels in tandem formation between Bell and Mid Mills. The stonework here is shattered, demonstrating the forces exerted by water on the wheels. The 1820s pits at East Mill (below garages) have not yet been investigated, but the 18th century pit within East Mill is now an excavated feature in the stairway.
- **The gas works:**  
built 1823-5, lit the mills year-round, enabling spinning to carry on 12 hours per day, even in winter<sup>11</sup>. As this was particularly important to water-powered mills, many of the first gas works are to be found in rural locations. A water-lined circular tank sealed the gasholder. The chimney was 120 feet high, now reduced to c.85 feet. There also survives curious vaulted structures, probably retort houses. (This is more than survives at New Lanark.)
- **North Range:**  
was built 1823-5 for hand weaving, later used for cloth finishing and the cigarette tape-making department. The office for administration of the mill was at the west end, with a clock. The interior of the two-storey part is modern

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<sup>11</sup> The Factory Commission was shown records of 12 hour day, 9 hours on Saturdays, and exceptionally 12 ½ hours to catch up after stoppages, in 1832-1833

following a fire in 1995. A gap for a new footbridge was reopened by removal of an unimportant infill, then there is a 1.5 storey block similar in construction to the Back Shop. This and a picturesque Gothick lodge (which led to Stanley House) was the Phoenix site office and later offices for Innergy.

- The Back Shop/ East Range:  
was probably built 1823-5, used for weaving by hand and power loom (there is a small waterwheel pit, later replaced by a turbine which pumped water for a hydraulic press) and adjoins a cotton warehouse via the stove, an area with underfloor heating to dry starched warp threads before they were woven.
- The Bleachworks:  
probably dates from 1822-5, with later alterations (the light steel truss roofs). During the- 20th century it too was pressed into weaving, connected to the backshop by a now-collapsed walkway. Joiners and mechanics shops nearby made the mills relatively self-sufficient. The joiners' shop has been removed. The garage and the light steel trusses are of low significance.
- Hydro-electric power station:  
built 1921-2. Two turbines by Boving and Co were coupled to a 450KW English Electric generator which generated all the power and light required in the mills, and much of that in the village, until abandoned in 1965. Now re-used to supply power to the National Grid. An adjoining functional shed contained Ruston and Hornsby diesel engine, 1947, scrapped.

### 3.0 Historical Overview

Stanley Mills is of great historical importance in its ability to demonstrate very significant themes in Scotland's history, principally:

- The technological advances of the early industrial revolution including strong connections to leading figures Richard Arkwright, David Dale and Robert Owen
- Its demonstration of the social and economic conditions of working people which underpinned these technologies and economies

Additionally, the complex history of Stanley's finances (which are still being unravelled) does illustrate the nature of 18th and 19th century capitalism within a Scottish context of inter-related family and business networks. This includes the linkages to the exploitation of enslaved people and colonial populations. Latterly the acquisition of the complex by Historic Scotland and its adaptive re-use was a major and important conservation project in its time.

#### Technology

The longevity of waterpower at Stanley is remarkable and provides linkages to modern renewable technologies. Stanley's initial association with Richard Arkwright

(though not unique) is important as Arkwright was such a dominant figure in industrial history. As well as advising on the mill structures and machinery, the skills training offered by Arkwright's Cromford Mill helped set up the operation at Stanley. The influence of Dale and Owen after 1801 continues Stanley's association with the key innovators of the time. Further detail on the significance of the architectural and technological aspects of the site are discussed in the Architectural Values section below.

## People

As well as the associations with the mill owners: merchants, entrepreneurs, engineers and landed gentry, Stanley is important in allowing people to understand and experience to some degree of the lives of its workers. While the actual physical working conditions: the heat, smell, noise and motion of the place, cannot be experienced 100% as it was, interpretation based on research and contemporary accounts does offer an insight into the past life of the mill complex, including some appreciation of its physical and sensory aspects. Here, research into oral history and the social and economic history of the village itself<sup>12</sup> (e.g. A J Cooke's research and publications) helps enhance this aspect. For instance, the water frame was particularly suited to the exploitation of child labour. At the end of the 18th century 300 of the 350 employees were female or under 16. The company provided a school in 1805 and almost all child employees could read. The factory and education acts in the 19th and 20th centuries were to reduce but not eliminate the preponderance of young and female labour. The water twist spindles that were still advertised in sale notices in 1822 had given way to throstles in an 1845 sale advertisement.<sup>13</sup> These machines which would have had longer lasting iron frames tailored to adults and may by then have been powered from overhead lineshafts.

The links with Stanley Village remain strong. Many people who live in the village worked in the mills and in some cases, families have been associated with the mills for generations. The work also attracted migrant workers, including Italians after WWII. The nearest building in the village to the mills served as a lodging house for migrant women workers.

The direct involvement of three of the most significant figures in the industrial revolution: Arkwright, Dale and Owen is an important aspect of significance of Stanley. Their collective association with the site is concentrated in its early manifestations, though is still very tangible in the fabric today. Arkwright was recognised by his contemporaries as originating the prototype cotton factory system developing the water-frame, a revolutionary water-powered cotton-spinning machine. His water frame and related textile machines were ingenious, but it was the way that they were welded together to create the factory system which has given Arkwright the credit for laying the foundation for modern industrial society.

Apart from the physical fabric there is also the opportunity to explore the complex ideas of capitalism, paternalism and society promulgated by these figures and others in later decades. Aspects such as investment, 'Improvement', 'Enlightenment', child-

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<sup>12</sup> For instance Anthony Cooke, *Stanley, from Arkwright Village to Commuter Suburb*, (2015)

<sup>13</sup> Peter Solar research, citing adverts in Glasgow Chronicle 2/7/1822 and Glasgow Herald 2/6/1845.

labour, colonial wealth and links to slavery and abolition help to weave together this complex and often contradictory story which directly links to Stanley Mills.

Stanley Mills survived for two hundred years despite significant locational disadvantages in a highly localised industry (cotton was overwhelmingly concentrated in Lancashire and tended to horizontal rather than vertical integration). That success was down to a combination of factors including the adaptability of the owners and the workforce, vertical integration (raw material to end product) and plentiful supply of water for power.

#### 4.0 Archaeological Overview

Excavation in Bell Mill and the wheel pits has helped the interpretation of the site and provided a considerable body of artefactual evidence.<sup>14</sup>

The complexity and changes to the manufacturing process can be deduced from the upstanding buildings and a close examination of their subtle changes. As much of this complexity has been retained as possible during the works for the contemporary but reversible re-use of the buildings. Standing building archaeology can be interpreted and re-interpreted without intrusion in those locations that are relatively unencumbered. In places that are now people's homes the opportunity to return to investigate non-public areas must wait, but there are numerous photos and drawings.

The mills contain rare evidence for warm air heating systems in flues in Bell, East and Mid Mills and in the hypocaust in the Back Shop. The latter was intolerably hot, according to evidence collected by Factory Inspectors in 1834. The Manager, Alexander Stevenson, reported that the highest temperature in the mills was "75 to 80 degrees but only where the warps for the webs are dressed."<sup>15</sup>

Bell and Mid Mills retain projecting sanitation towers, illustrative of the need to manage large numbers of people for long hours in confined spaces.

There remain some areas un-excavated that could add significantly to the interpretation of cotton manufacturing at Stanley, including the external wheel pits for the East Mill.

#### 5.0 Architectural Overview

While presenting evidence of almost continuous operation since 1786, the complex is remarkably little altered. Bell Mill is perhaps the best-preserved example of the earliest type of cotton mill, and one with which the inventor was directly involved. Sir Richard Arkwright provided capital, expertise and training to the projectors of Stanley

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<sup>14</sup> Cressey, M and Fitzgerald, R, *Force and Fabric: Archaeological Investigations at Stanley Mills* (Historic Scotland, 2011)

<sup>15</sup> Factory Commission, Answers of Manufacturers to Queries, Perthshire No113. A Stevenson. In *Parliamentary Papers* 1833 Vols XX and XXI and 1834 vol XX

mill. Arkwright's water frame and related textile machines were ingenious, but it was the way that they were welded together to create the factory system which has given Arkwright the credit for laying the foundation for modern industrial society. Arkwright had social aspirations, that George Dempster facilitated, and that may be evidenced here in the Georgian proportions, advanced central bays and oculus of Bell Mill.

The mills used water transmitted to the water wheel via a series of lades and from the wheel, power was carried by driveshafts to the machinery. Although not all of the details are clear, the complexity of the wheel pits and drive arrangements at Stanley demonstrates a dynamic technology. No steam engine was ever installed here.

The cotton manufacturing process required good natural light to undertake careful, detailed work and the design of mills reflects this need in the size and number of windows – giving the internal spaces an open and airy aspect. A gasworks was added to enable night work: something characteristic of rural water-powered mills.

The Bell Mill is the oldest factory known to be fitted internally with cast iron columns.

The mills were used to spin yarn, mostly cotton, and to weave fabrics, everything from fine muslin to sailcloth and selvedge for jute cloth. Webbing was produced, both industrial (providing belts for engines) and military and endless tape for rolling cigarettes. Stanley Mills survived by adapting products and switching markets – finding 'niche markets' to fill.

In 1979 new owners were closely linked to the English knitwear trade; they replaced most of the cotton machinery with equipment to manufacture man-made fibres, largely acrylic. Ironically, the yarn produced was used to manufacture socks, and changing market demand for cotton socks rather than acrylic dealt the final financial blow to the Mills.

## 6.0 Aesthetic Overview

The peaceful, almost silent, setting of Stanley Mills today seems a world away from the revolutionary happenings of the first water-driven cotton mills. The rural idyll belies what would have been most striking to Arkwright's contemporaries: these were the biggest buildings of their day. They were illuminated and noisy by night, and peopled by a work force of up to a thousand women, men and children.

The River Tay not only powered the manufacturing process, it also dominates view of the site. The juxtaposition of the Mills against the river creates a very powerful image, particularly from elevated distant views.

## 7.0 What are the major gaps in understanding of the property?

NB: The social and community values of Stanley Mills have not yet been assessed, nor have the natural heritage values. An assessment of the significance of the Collections relating to the site should be integrated into this Statement.

- Despite Tony Cooke's excellent recent book on Stanley, there remain significant gaps in knowledge of the business records of Stanley Mills. Research could establish a more thorough narrative of the investment in and products of the mills and their place within the global textile trade.
- Why did an Englishman buy the mills in 1852, Samuel Howard of Burnley, (one of only two English owners of Scottish mills in the 19th century) and what was the impact of his closing the mills during the cotton famine? Was he really thinking of running a wool mill? How influential was his Scottish wife, Mary Watson, who owned the mills and church for two years after his death in 1874 and and was she connected to Dennistoun Buchanan & Co, and to Watson, Buchanan and Co?
- Significant knowledge is held locally. A project gathering this 20th century social history proved very useful and timely, in terms of oral history and artefacts gathered, during development of the interpretation of the mill. A Men's Shed group has recently revived community links. These initiatives should help inform a revision of this Statement.
- Much of the detailed working of the mills during all periods is unclear, while some clarification came with the interpretation of the archaeological excavation of the Bell Mill and the associated wheel pits<sup>16</sup>. There is still likely to be significant gaps in our understanding of the Bell Mill and the waterpower system, but publication and comparison with other associated properties will help.
- Was there ever a North Mill? The complex was insured as having mills B C and D in 1840, so was Mill A ever built, and lost to fire, (perhaps 1825?) but still intended to be built one day?<sup>17</sup> There is tooting at East Mill to enable completion of a North mill, and a fireproof stair of stone flags to act as a firebreak.
- Weaving: there were 60 power looms already in the mills when advertised for sale in 1813. Were these within the multi-storey spinning mills? By 1845 there were 216 power looms, most likely in the Backshop adjacent to the hypocaust floor for drying warp yarns. Was there a tunnel below ground or an overhead shaft to convey power from East Mill, or would one small waterwheel suffice (unlikely)? Was any power taken into North Range? By 1900 heavy canvas weaving also took place at the ground floor and outshot of Bell Mill,

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<sup>16</sup> Cressey, M and Fitzgerald, R, *Force and Fabric: Archaeological Investigations at Stanley Mills* (Historic Scotland, 2011)

<sup>17</sup> Glasgow University Archives: MS Murray 605: Dennistoun Buchanan & Co Minute Book documents a fire that consumed all the business records of David Laird from March 1822 to September 1825. Also Peter Solar, Free University of Brussels: his unpublished research into cotton mills across Europe notes insurance records and sale or lease adverts (shared with Mark Watson).



(evidenced by removal of a floor and a slot leading to the tar tank), and in the 20th century narrow cigarette tape manufacture took place in the North Range's Secret Room (related numerous times by weavers to the oral history project. Several of the improvised table looms for this are in the collections store.)

- The village: no obvious hand loom shops are visible here, (such as are found not in New Lanark but in the burgh of Lanark). It appears that a lot of the housing was reconstructed to provide larger dwellings. The 1820s brick row in Store street is pebble-dashed, and if that is ever taken off opportunity might be taken to record its original form. Which was the schoolhouse (besides the instruction given from 1828 in the church)?

## 8.0 Associated and comparative sites

England, water-powered cotton mills:

- Derbyshire Mills – Cromford Mill, Masson Mill, North Mill in Belper, Boars Head Mill in Darley Abbey (all in Derwent Valley Mills WHS), Haarlem Mill, Wirksworth, Cressbrook Mill; New Mills
- Yorkshire: Gayle Mill in Hawes, Low Mill in Keighley,
- Askrigg Mill, Cumbria.
- Styal Mill, Cheshire (a museum with relocated waterwheel in place of turbine)
- Manchester: McConnell & Kennedy's Mill, Murrays Mill (urban early steam powered mills)<sup>18</sup>

Scottish cotton mills, water-powered:

- New Lanark World Heritage Site and Deanston, Doune. Both have internal mill structures that are post-1833, later than Stanley.
- Catrine and Blantyre - mills demolished. Some archaeological potential to investigate water systems (e.g. Catrine Voes). Housing survives.
- Spinningdale Mill: also owned by David Dale, now a ruined monument notable for heating towers (compare Bell Mill flues),

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<sup>18</sup> Miller I, Wild C, *AG Murray and the Cotton Mills of Ancoats* (Oxford Archaeology North, 2007). These were the biggest urban steam-powered cotton mills in the early 19<sup>th</sup> century.

- Johnstone Mill, Renfrewshire (the Old End of 1787) was the closest comparable timber structure to Stanley's Bell Mill, but has burned down.

#### Eastern Scottish mills:

- Grandholm Works, Aberdeen: large water-powered mill est. 1792, with a turbine in the wheel pit.
- Dundee: Manhattan Works (owner Col FS Sandeman also was the longest owner of Stanley Mills, and lived in Stanley House)
- Verdant Works (Dundee Heritage: main textile museum for the region)
- Blairgowrie – Keathbank and Ashgrove Mills are especially notable for in-situ water wheels and steam engines of 1865
- Luncarty- a company village associated with the now demolished bleachworks.
- Perth City Mills: fairly large waterwheel on town lade. Being developed by PKHT.

#### Outwith the UK:

- Cromford Ratingen, Germany: first continental cotton mill on Arkwright System. Rhenische Industrie Museum works replica machinery here.
- Slater Mill, Pawtucket, R.I., USA: first American cotton mill on Arkwright System. A National Historic Landmark.
- Port Law, Eire: 1820s cotton mill (now much damaged) had large cast iron waterwheels in parallel wheel pits. Paternalistic village.