

Figure Listing

Figure 1: John Kay's flying shuttle. [online image] Available from: https://upload.wikimedia.org/wikipedia/commons/6/6d/Bradford_Industrial_Museum_014.jpg [accessed 25 January 2019]

Figure 2: Hargreaves' spinning jenny. [online image] Available from: <http://www.newlanark.org/uploads/The%20spinning%20jenny.jpg> [accessed 25 January 2019]

Figure 3: Silk design with spotted lilies by Anna Maria Garthwaite, watercolour on paper, 1743 [online image] Available from: <http://spitalfieldslife.com/wp-content/uploads/2017/01/Image5SpitalsLife.jpg> [accessed 6 February 2019]

Figure 4: Example of points rentrés, The British Broadcasting Corporation (2014) [online image] Available from: <https://ichef.bbci.co.uk/images/ic/1920x1080/p0206g45.jpg> [Accessed 6 February 2019]

Figure 5: Gown made from silk designed by Anna Maria Garthwaite. M van Kampen (2018) at the Victoria and Albert Museum London [Accessed 10 October 2018]

The early mechanisation of British textile production and the importance of Anna Maria Garthwaite to the silk industry.

Introduction

This article will discuss the changes in British textile production in the late seventeenth and early eighteenth centuries. The focus will be on the silk industry and particularly on Anna Maria Garthwaite, who played a major role in the improvement of the Spitalfields luxury silk production during that time.

Early development of the English textile industry

All fibres, animal, vegetable or mineral, except silk, require spinning before they can be used to produce fabric (Lebeau, 1994, pp.13-16). The processes involved with textile manufacture have been known for centuries; Egyptians used flax to spin and weave linen at the time of the Pharaohs, waterwheels were known to the Romans (Yorke, 2005, p.10), and the horizontal loom had arrived on the European mainland by the thirteenth century (Whewell and Abrahart, 2017, p.16).

In England, the production of textiles remained a cottage industry, with skills passed on within families, until the early eighteenth century (Lebeau, 1994, pp.13-16).

The demand for luxury textiles increased at the end of the seventeenth century when trading routes with India and China opened up and exotic novel objects, designs and raw goods became available. These included silk and cotton, the latter being a new, hitherto unknown, fabric in Europe. At the same time the improved standard of living of a wider part of the population meant that luxury goods and fabrics were no longer the prerogative of royalty and the Church but were now increasingly purchased by the middle classes. The increase in society's wealth was not only coupled with a change in fashion, with an increased emphasis on luxury and comfort for clothes as well as for upholstery, but also with a new trend to protect expensive furniture with printed cotton covers. This meant that the demand for new, exotic fabrics rose exponentially (Petzold, 1991, pp.35-43).

It became increasingly difficult for the cottage industry to meet this rising demand with hand-operated looms so when John Kay invented the flying shuttle in 1733 (see

Figure 1) the domestic cloth production was soon doubled. This, in turn, led to an increase in the number of looms in the country (Trinder, 2013, p.390).



Figure 1: [John Kay's flying shuttle](#)

Cloth production further increased with the invention of the drop box, which improved the speed with which coloured weft could be incorporated into fabric. The subsequent shortage of spun thread increased the demand for yarn which then prompted the

invention of machines that could spin thread fast and economically. In 1764 James Hargreaves produced the spinning jenny (see Figure 2), a hand-operated spinning machine (Crump, 2010, p.86). It was the first machine of its kind, so named after the regional word for machine (Trinder, 2013, p.391). According to Freedgood *'Hargreaves should be regarded as one of the greatest inventors and improvers in the cotton manufacture'* (Freedgood, 2003, p.76).

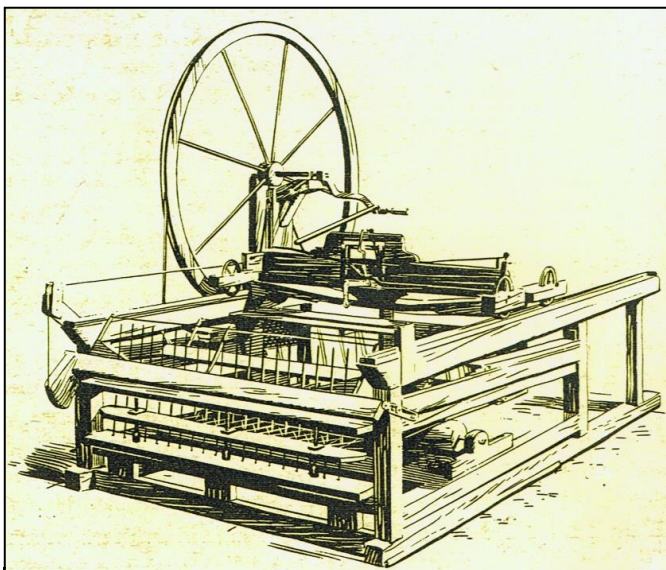


Figure 2: [Hargreaves' spinning jenny](#)

At this time the quality of yarn was rough and only suitable for weft until Arkwright designed the water-frame which produced cotton yarn strong enough to be used for warp. When Crompton combined the spindles of the spinning jenny with the rollers of the water-frame he created a machine that produced yarn suitable for weft as well as warp and a cotton cloth of a quality that could compete with Bengali imports (Crump, 2010, pp. 79-93).

While the cotton and wool industries in England in the eighteenth century saw immense changes in production processes, the story for silk is slightly different. As Flanagan put it *'the drawloom was used at Spitalfields long after it had been*

superseded elsewhere in Britain' (Flanagan, 1954, p.21). This was due to the complex techniques required to weave brocaded silks.

Although silk had been woven in limited amounts in Norwich and London since the middle of the fifteenth century (Whewell and Abraham, 2017, p.21), most luxury silk cloth **still** had to be imported into England. This changed when John Lombe smuggled the blueprint for an Italian silk-throwing machine into England and a highly twisted silk yarn, comparable to the very expensive yarn that had to be imported from Italy to make silk warp, could then be produced in England. Lombe, supported with capital from his brother Thomas, instructed George Sorocold to build a silk mill in Derby. By 1722 the mill was fully operational and open to visitors to marvel at its novelty. Swan (2016) observes that '*the Derby silk mill was possibly even the first true example of modern industry*'. It is thought that Arkwright, at least partially, modelled his cotton mill design on it (Swan, 2016, p.114). Despite the increased supply of yarn, silks remained expensive because of the time the weaving of complex patterns required (Petzold, 1991, p.45).

The development of the silk industry in Britain was helped as well by the revocation of the Edict of Nantes in 1685. Many of the Huguenots, who were no longer welcome in France because of their protestant faith, had fled to other countries and a group of them had settled in Spitalfields, London. They were highly accomplished craftsmen and artists in different disciplines, including master weavers, who had been working in the silk industry in France. The skills of the members of this group were acknowledged when they were admitted to the Weaver's Company in 1712 as '*foreign masters*' (V&A display, n.d. and Trenow, 2017, p.396). The combination of availability of high-quality silk yarn and the presence of a large group of master weavers meant that by the mid-eighteenth century England was among the top three producers of highest quality silk cloth which was traded throughout the empire by the East India Company (Schoeser, 2007, pp.50-53).

Around 1735 a change in fashion resulted in coloured and brocaded silk designs with patterns of strange and fantastical imagery, as used by the court and upper classes, to be substituted for a more romantic and naturalistic style. Botanically correct images based on new gardening practices in England, France and the Netherlands

gained popularity and were also adopted in the English fashions of the era (Philadelphia Museum of Art, 2019).

Around the same time the middle classes had become interested in the sciences, including botany (Anishanslin, 2017). Anna Maria Garthwaite (1690-1763), daughter of a Lincolnshire clergyman, was a talented painter of naturalistic, botanically accurate watercolours of flowers and plants and this was a favourite pastime for middle class women in the eighteenth century (see Figure 3).

Anna Maria Garthwaite's career

At some stage, in her middle age, Anna Maria Garthwaite turned her watercolours into templates that could be used to produce patterned textiles. She sold them to the



Figure 3: [Silk design with spotted lilies by A M Garthwaite, watercolour on paper, 1743](#)

master silk weavers of Spitalfields through an agent (BBC Teach, 2014).

Natural history knowledge was now no longer only shared in books, letters and through exchange of plants and seed specimens, it also travelled across the British Empire in the form of highly fashionable and desirable floral silks and this was one of the few ways in which women at this time could show their

interest in, as well as their knowledge of, the subject of botany (Anishanslin, 2017).

Exactly when Garthwaite, who never married and lived with her father in Grantham until his death in 1719 (Anishanslin, 2017), started designing patterns for the silk industry remains unknown. In fact, there are no details about her early life and even

her place of birth remains uncertain. Some sources quote it as Leicestershire and some Lincolnshire and her date of birth has been reported as 1688 as well as 1690, even by the same source (Ginsburg, 2004, and Ginsburg, 1991, p.214). The confusion over her place of birth is likely to have been caused by the fact that her father came from Grantham in Lincolnshire, but was rector of Harston in Leicestershire.

It is known that Garthwaite lived with her widowed sister near York for some years after the death of their father. When both sisters moved to London in 1730 (Browne, 1996, p.106), Garthwaite was already a well respected and accepted designer who supplied the Spitalfields' weavers. Clare Browne, Textiles Curator at the V&A Museum in London, assumes that Garthwaite broke into that closed male community by using her initials on the templates she had been asked to design for some of the most famous weavers of the time (BBC Teach, 2014). In the words of Sonia Velton *'by the time the most influential master weavers realised she was a woman, Spitalfields was already captivated by her naturalistic botanical designs'* (Velton, 2019).



[Figure 4: Example of points rentrés](#)

Garthwaite's designs were not just works of art, they also contained highly detailed instructions regarding the setting up of the drawlooms, even specifying the type of fabric to be woven (*i.e.* floral silks, heavy silk, brocade *etc.*). It remains a mystery how Garthwaite gathered the knowledge about these technical details; male designers were almost all apprenticed weavers or master weavers and members of the Weaver's Company (BBC Teach, 2014) and women in the Eighteenth Century were not admitted to these positions and companies. Even more remarkable is the fact that Garthwaite was responsible for the introduction of the most innovative technique in silk weaving in the early eighteenth century when she adapted 'points rentrés', a technique used in the tapestry industry where threads of different colours are dovetailed to create shadow effects (Rothstein, p.15) for the Spitalfields silk weavers (see Figure 4). This

technique was initially developed by Jean Revel (1684-1751) in Lyon, a thriving French silk centre. It enabled silk weavers to bring naturalistic depth into a two-dimensional design (Newall and Unwin, 2011, p.164). Quite how Garthwaite acquired the technical knowledge to be able to direct master weavers in the setting up of their looms remains unknown. It is enticing to think that she may have been one of the visitors to the Derby silk mill in the first half of the eighteenth century, after all, she was in her thirties at the time and she did not live that far away. It is also tempting to assume that there may have been a Derby weaver, probably even an Italian or Huguenot master weaver, in her circle of friends.

While living near York she was not far from Leeds which had a thriving cloth market



Figure 5: Gown made from silk designed by A M Garthwaite

where Garthwaite may have been exposed to a wide variety of textiles and she would have been able to observe how clients, demanding different patterns and colours depending on the fashion of the day, were shaping the textile trade. The connections she had with learned people through her brother-in-law and access to the London Physic Garden, a major source of exotic botanicals, will have also influenced her designs (see Figure 5). It is known that Garthwaite owned patterns and silk fabric made by other designers, some of which were from Lyon and she is likely to have honed her skills by copying and incorporating part of these designs into her own work. She also showed business sense by moving to London and settling on a street where some of her neighbours were also potential clients and included the likes of Sabatier, Gobbee and Ogier, all Huguenot master weavers who commissioned work from her (Anishanslin, 2016). She had her own premises and between 1743 and 1745 alone she drew 206 patterns of

realistically rendered flowers of which she sold 205 (Rothstein, p.17).

An Eighteenth Century celebrity

Notwithstanding the hiatus in knowledge of her history, the body of her remaining work vouches for her capability and it is remarkable that Anna Maria Garthwaite was able, as a woman in a male dominated profession, to combine the emerging industrialisation in silk production with a major innovation in weaving techniques to bring about one of the biggest changes the silk industry saw in the early eighteenth century. She was instrumental in the success of the Spitalfields' silk industry and, in particular, the floral or 'figured' silks of the mid-eighteenth century, enabling weavers to create a three-dimensional impression of flowers and plants.

The combination of the settlement of a large group of Huguenot master weavers in Spitalfields around the beginning of the eighteenth century and a need for botanically accurate patterns demanded by the increasingly wealthy middle classes meant that Anna Maria Garthwaite's career could flourish. By the time she moved to London she was a respected designer of intricate, accurate watercolour patterns which were sought after by some of the most prominent master weavers in Spitalfields.

This extraordinary woman developed her own 'design-studio' through her ability to combine an outstanding artistic talent with her capacity to adapt to the fashions of the day, her tenacity to learn techniques reserved solely for men and a keen business sense. Her designs were in demand by the rich throughout the British Empire.

When Anna Maria Garthwaite died in 1763, the popularity of 'figured silk' had yet to fully decline (Cruikshank, D. 2015). When it did, in favour of plain silk and patterned cotton which could '*imitate the richest silk brocades, with a great variety of beautiful colours*' (Snodin, M and Styles, J 2001) Garthwaite's contribution to the textile and silk industry remained a significant one. It is perhaps surprising and noteworthy to consider then, that apart from the evidence of her actual designs and some examples of her silk cloth from the time, how it is that so very few traces of this remarkable innovator are left for the present-day textile historian to reflect upon.

Bibliography

- Anashanslin, Z. (2016) *Portrait Of A Woman In Silk: Hidden Histories Of The British Atlantic World*. [online] Available at: https://books.google.co.uk/books/about/Portrait_of_a_Woman_in_Silk. [Accessed 10 June 2019]
- Anashanslin, Z. (2017) *Anna Maria Garthwaite, Silk Designer*. [online] Available at: <http://spitalfieldslife.com/> [Accessed 11 February 2019]
- BBC Teach (2014) *The Britain That Women Made: Anna Maria Garthwaite And Textile Design*. London. [online] Available at: <https://www.bbc.co.uk/programmes/p0206g50> [Accessed 11 February 2019]
- Browne, C. (Ed.) (1996) *Silk Designs of the Eighteenth Century from The Victoria and Albert Museum, London*. London: Thames and Hudson.
- Crump, T. (2010) *A Brief History of How the Industrial Revolution Changed The World*. London: Constable and Robinson.
- Cruikshank, D. (2015) *Spitalfields: the history of a nation in a handful of streets*. [online] Available at: <https://books.google.co.uk/books/about/Spitalfields> [Accessed 10 June 2019]
- Flanagan, J. F. (1954) *Spitalfields Silks of the 18th and 19th Centuries*. Leigh on Sea: F. Lewis Publishers Limited
- Freedgood, E. (ed.) (2003) *Factory Production in Nineteenth-Century Britain*. Oxford: Oxford University Press.
- Ginsburg, M. (2004) *Garthwaite, Anna Maria* in: Oxford Dictionary of National Biography [online] Available at: <http://www.oxforddnb.com/search?q=garthwaite&searchBtn=Search&isQuickSearch=true> [Accessed 11 February 2019]

Ginsburg, M. (Ed.) (1991) *Illustrated Textbook of Textiles* London: Studio Editions Ltd.

Lebeau, C. (1994) *Fabrics: The Decorative Art of Textiles*. London: Thames and Hudson.

Newall, D., Unwin, C. (2011) *The Chronology of Pattern: pattern in art from lotus flower to flower power*. London: A&C Black.

Petzold, A. (1991) *The Dawn of the Modern Era 1550-1780*. in Ginsburg, M. (ed.) *The Illustrated Textbook of Textiles* London: Studio Editions Ltd.

Philadelphia Museum of Art (2019) *The Bizarre and the Beautiful: Silks of the Eighteenth Century*. [online] Available at:

<https://www.philamuseum.org/exhibitions/2007/240.html?page=2> [Accessed 13 February 2019]

Rothstein, N. (1994) *The Victoria and Albert Museum's Textile Collection, woven textile design in Britain to 1750*. London: V&A Publishing.

Schoeser, M. (2007) *Silk*. New Haven: Yale University Press.

Snodin, M and Styles, J. (2001) *Design And The Decorative Arts, Britain 1500-1900*. London: V&A Publishing

Swan, J. (2016) *The History of Derby Silk Mill: birthplace of the Industrial Revolution*. [online] Available at: <https://blog.derby.ac.uk/2016/11/derby-silk-mill/> [Accessed 20 February 2019]

Trinder, B. (2013) *Britain's Industrial Revolution, the making of a manufacturing people, 1700-1870*. Lancaster: Carnegie Publishing.

Trenow, L. (2017) *The Silk Weaver*. London: Pan Books

Velton, S. (2019) *Weaving a Story: Spitalfields and Silk*. [online] Available at: <http://www.historiamag.com/weaving-story-silk/> [Accessed 11 February 2019]

Victoria and Albert Museum, London (n.d.) Spitalfields Silk 1710-1770, display label [Accessed 10 October 2018]

Whewell, C. S. and Abrahart, E. N. (2017) *Development of Textiles and the Textile Industry: From prehistoric times to the 19th century*. [online] Available at: <https://www.britannica.com/topic/textile> [Accessed 3 February 2019]

Yorke, S. (2005) *The Industrial Revolution Explained, Steam, Sparks and Massive Wheels*. Newbury: Countryside Books.