



by Fiona Ellis

If you peruse the history of knitting by hand you'll find that little evolution in the techniques we use has taken place. Knitting by machine is another story. Have you ever stopped to think about how the mechanization of the knitting industry began and evolved?

Framework knitting, as the early version of machine knitting is known, developed in the East Midlands region of England, which also happens to be where I grew up. If you were to visit the Ruddington Framework Knitters Museum, as I did on a recent trip to my hometown, you'd discover a rare gem. Dating back to the early 19th century, this tiny cluster of restored cottages and workshops is staffed by enthusiastic volunteers who do an amazing job of bringing this little bit of textile history to life. But the invention of mechanized knitting began centuries earlier, during the reign of Elizabeth I.

A Brief History

In 1589 an entrepreneurial sort by the name of William Lee, living in the small Nottinghamshire town of Calverton, invented the machine that came to be known as the stocking frame. As in all good stories there are subplots and unconfirmed facts and this one is no exception. It is said that Lee's inspiration to create a device to speed up the act of knitting was a woman. In some versions of the story the woman is a sweetheart who paid more attention to her knitting than to Lee (Ouch, that sounds familiar doesn't it?); in others it was to help his poor overworked wife, as he was distressed to see how slowly she toiled over her handwork. My own suspicion is that his endeavors probably had more to do with money than with love.

Lee's machine for making stockings came into existence a good 200 years earlier than other mechanical devices for textile manufacturing. The spinning Jenny, for example, didn't come along until 1764; the power looms invented by Richard Arwright and Edmund Cartwright appeared in 1769 and 1784, respectively. We can likely thank the fashions of the Tudor era for the stocking frame's early arrival.

The men of the 16th century liked to show a little (or more accurately a lot of) leg. (Think of Henry VIII and you can immediately picture him wearing a large full ruffle around his neck, a tight-fitting doublet, puffy trunks, and fancy stockings above his buckled shoes.) As a result, somewhere around 1560-1590 stockings made from fine silk, rather than from coarse wool, became much desired. English knitters stopped making caps, previously a highly sought-after item, and started

stitching stockings. This led to hosiery becoming a very important export trade. Lee, like any savvy businessman, decided to take advantage of the wealth that the industry was producing. Unfortunately he failed to obtain a patent for his machine—it's said that Elizabeth I bowed to the pressure of the knitters' guilds and refused it for fear of putting hand-knitters out of work. So Lee packed up his machine and headed to France (no word on whether or not his knitting-obsessed sweetheart went with him) where he did quite well for himself under the patronage of Henry IV. Henry's assassination in 1610 put an end to Lee's success and he died in poverty. His brother James however, returned to England and slowly established a framework knitting industry there.



Machines at the [Framework Knitters Museum](#), Ruddington .

Cottage Industry

Working a stocking frame is a very physically demanding task (you can try it out for yourself at the

Ruddington museum) so the workers doing the actual knitting were usually men. A stocking-frame uses bearded needles, which have long stems with ends that curve backwards to form a simple hook. Using a series of treadles and plates, loops are formed by laying a thread over the stem of all of the needles. Then small metal plates are pushed between each needle until loops are formed and pushed into the hooks. The hooks close and as the carriage of needles is released new loops are formed and pulled through the previous row of stitches.

The original frames could only produce a plain stockinette stitch; any patterning had to be done by laborious reversing the stitches. The stockings produced were knit flat and shaped by increasing or decreasing stitches just as we do when knitting by hand. They were then seamed to produce a tube that would enclose a leg, a job often done by the knitter's wife.

Framework knitting was literally a cottage industry. But it wasn't as cozy as that phrase implies. The frames were set up at home with the whole family involved in the stocking production. Men worked the frames, women seamed the stockings, and the children were responsible for winding yarn onto the bobbins. The frame-knitter's life was hard and not well paid. There were middlemen taking their cut and wealthy frame owners who rented out the machines and drove hard bargains. Knitters had to pay rental for the frames whether there was work or not.

By about 1800, machines capable of making several stockings at a time came along. The ability to produce more stockings at once drove down the value of the product and caused economic hardship to the workers. Frame owners rented out more and more frames—without an increase in the demand for stockings. As the industry progressed, with more automated wide frames, the frames moved out of homes and into factory like setups. Though machines for weaving and spinning began using water and steam for power by the late 18th century, knitting was one of the last areas of the textile production to benefit from industrialization. Brunel had been granted a patent for a steam-powered circular knitting machine in 1816, but disruptions within the industry (more on that later) kept this type of machine from being fully adopted until after the 1830s.



A piece in progress at the Framework Knitters Museum.

Rising Up and Fading Away

Methods and machines may have improved but the framework knitters, who remained at the bottom of the industrial chain, felt the pinch more and more. By the beginning of the 19th century, low wages, high taxation, poor economic climate, and unfavorable working conditions drove many of them to rebel, blaming their unfortunate state of affairs on the factory owners and the middlemen. Angry mobs formed, but unlike today when workers march to raise awareness of their plight, these mobs were much more direct in their opposition. They stormed the factories and went to work smashing the machines contained within. Here again another fanciful character enters the story of the stocking-frame. Ned Ludd, more mythical figure than real man (some stories even have him hiding out in Sherwood Forest like Robin Hood), was heralded as the leader of this movement. His very real flesh-and-blood supporters earned the nickname “Luddites” and are the origin of the term that today refers to somebody who is resistant to advances in technology. There was a large wave of frame-breaking throughout the East Midlands in 1811-1812, and it seems it carried on sporadically until at least 1816. The perpetrators were dealt with very severely, especially after it became a capital crime in 1812. In one trial six frameworkers were hanged and three were transported, presumably to the penal colonies of Australia.

The workers had prominent supporters such as Lord Byron (who lived in Nottinghamshire) and the government tried to help with legislation by introducing a bill prohibiting the manufacture of cheaper, less labor-intensive cut-ups (stockings cut from cloth and seamed), but it was defeated, presumably after petition by the wealthier frame owners. Wages were stabilized for a while but this was only a short-term success. The framework knitters continued to live in poverty, often requiring charitable assistance to survive. The phrase “as poor as a stockinger” was very commonly used throughout the 19th century.

From the midcentury on the government began to introduce acts to improve the conditions in factories, along with other social reforms. These included an education act requiring children to attend school until age 10, preventing them from being available for labor in the framework factories. This added pressure on the industry hastened the demise of the hand-worked frame.

Then during the 1880s and 1890s, with the wide adoption of steam power, factories in all areas of the textile industry were extensively developed. This sealed the fate of the hand operated knitting frames and they were resigned to history.

Living History

If you'd like to get a feel for how the framework knitters lived, the [museum in Ruddington](#) is well worth the visit. There you'll find two cottages where the knitters and their families lived, a larger workshop building, and a few outbuildings. All are set out around a quadrangle of approximately 2,000 square feet. The workshop, where the machines were situated, is clearly identifiable by the plentiful windows on the upper floor, installed to provide the workers with light while they toiled. When it was fully operational this building was the workplace for dozens of knitters.



The grounds of the Framework Knitters Museum, Ruddington.

The museum still houses several working machines and demonstrations are given of their operation. There are also interpretative exhibits of various parts of the workings. Walking though the cottages give you an insight into what living conditions were like for the knitter and his family. The museum is also home to an extensive library that houses publications and artifacts dealing exclusively with all things hosiery related. It's a wonderful piece of history and a unique bit of insight into the lives of those who knit, not for love as we do today, but purely for survival.

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