

**JAMES HARGREAVES**

1730(?)–1778

Before industrialization, spinning had always been done in houses and small workshops with spinning wheels worked by hand. This was a slow process and not enough yarn could be provided to keep pace with the knitters and weavers who made the yarn into garments and cloth. In 1767, James Hargreaves, an illiterate weaver from Lancaster, invented the “spinning jenny,” a device that speeded up the production of yarn. This was a useful machine, but operating it was difficult and required skilled laborers. The spinning jenny allowed one person to turn eight spindles at once in order to spin eight threads. The threads were not strong enough, however, to make good yarn. Unfortunately, people who were left without work because of mechanization destroyed Hargreaves’ original machine. He died in poverty in 1778.

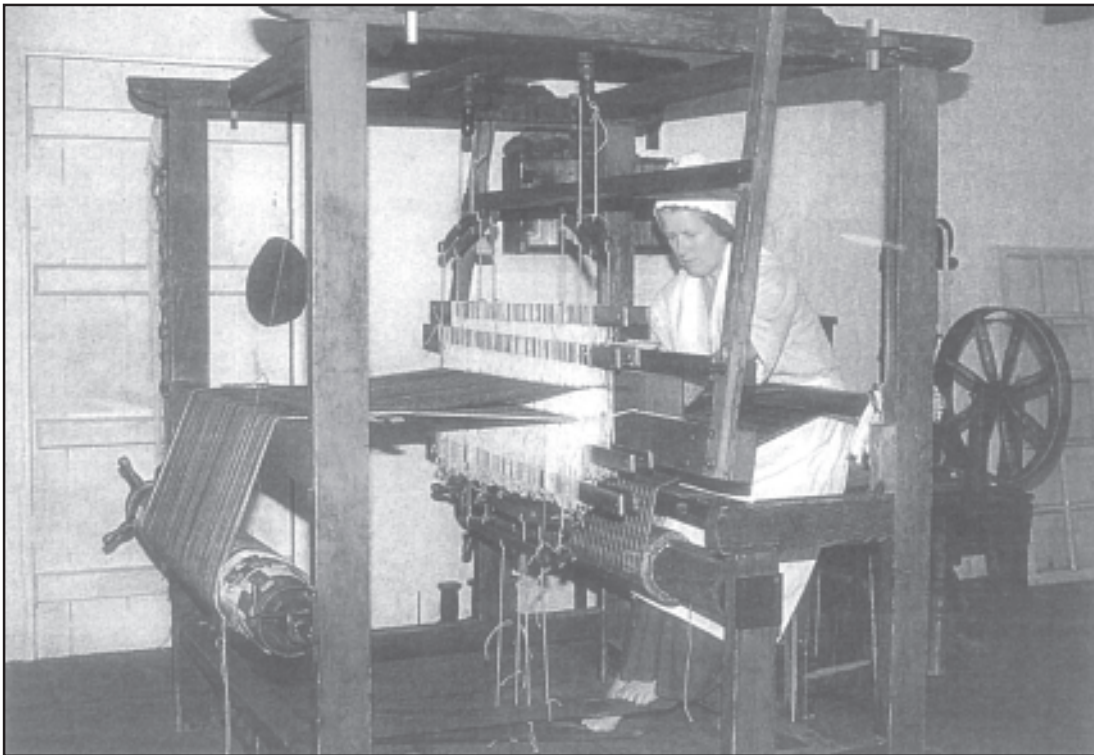


Photo by Linda Miller

**Foot-powered spinning loom**

The advent of a steam-powered spinning loom during the Industrial Revolution, greatly sped up weaving. The “spinning jenny” was a response to the resultant need for thread to be produced faster.

**ABRAHAM DARBY**

1678(?)–1717

In 1708, Abraham Darby I, whose family originally settled in the English Midlands, left Bristol to take up residence in Coalbrookdale. Originally a brass founder, he succeeded in 1709 in smelting iron with coke instead of expensive charcoal. He made cheap iron pots, which launched his family dynasty of iron founders. The introduction to Darby's patent in 1707 says:

A new ways of casting iron bellied potts . . . in sand only, without loam or clay by which iron potts . . . may be cast fine . . . and with more ease and expedition and in regard to their cheapnesse may be of great advantage to the poore of this kingdome, who for the most part use such ware . . . and likewise may in time supply foreign markets with that manufacture of our own dominions.

For Darby, success came only after years of failure. He he finally solved the method of utilizing coal for the production of iron. This was important because wood in England was becoming scarce. This scarcity drove up the price of wood, making iron smelting with charcoal too expensive. Darby's procedure made iron cheap. In the years following his death, the Coalbrookdale ironworks became well known. His son, Abraham II, worked on perfecting the forging of wrought-iron using coke, and he built more furnaces to cope with increasing demand.

Abraham III, grandson of Darby, built the iron bridge over the Severn River near the terminus of the Shropshire Canal. Darby's team of workmen raised the arches of the Iron Bridge in the summer of 1779 and opened it in 1781. Despite detailed records of the Darby family that survive, there is no detailed account of the bridge's actual construction. The bridge gave its name to the industrial town Ironbridge, and it is today a British national monument, one of the icons of the Industrial Revolution.



Coalport Factory

As appears in *Victorians at Work* (Coalbrookdale: Ironbridge Gorge Museum), 1997

## JOSIAH WEDGWOOD

1730–1795

In 1765, Josiah Wedgwood founded a new manufacturing plant for pottery. He was the last born of twelve children in a family of four generations of potters. The outlook for a young master-potter might not have been promising, but steam power, turnpike roads, and canals began to make an impact on the industry. Demand grew for cheap, durable earthenware dishes, partly because polite society drank coffee and chocolate and most people drank tea. Prosperity was growing for most social classes. In 1759, Wedgwood opened a business in Staffordshire, and his most important product was cream-colored earthenware. A new standard of craftsmanship called “engine turning” was developed which made fluting and beading of ceramics easier to do. Wedgwood soon attained social prominence, and he was asked by his fellow potters to be their spokesman before Parliament in promoting construction of a new turnpike and the Grand Trunk Canal to their region to ship pottery to a larger market. Wedgwood married a distant cousin and was the master not only of a thriving business but a growing family.

In 1765, he received an unexpected order from Queen Charlotte for a tea service. After that, he added “potter to her majesty” to his bill heads. He later had several other royal clients, including Czarina Catherine of Russia. His growing business needed a new factory, so in 1769 he built one he called Etruria. This was a tribute to the widely held but mistaken belief that the pottery found around the excavations at Pompeii in Italy was Etruscan. He created a neo-classical style and reproduced ancient cameos. In 1770–72, he faced difficult times because his poorly managed factory suffered from workers embezzling funds. In 1772, he was faced with a labor strike. He now rethought his business and focused more on producing for the “middling class of people.”

Library of Congress, LC-USZC4-5321



This image appeared on several medallions made by Josiah Wedgwood for the Society for the Suppression of the Slave Trade in England. In 1837, it subsequently appeared on a broadside publication of an antislavery poem by John Greenleaf Whittier.

In 1774, he invented Jasper ware. It did not need glazing and could be cut and polished on a wheel. He also invented a pyrometer, a thermometer capable of measuring high temperatures. In recognition of this achievement, he was elected a Fellow of the Royal Society in 1783. He was also instrumental in the formation of the General Chamber of Manufacturers, which helped maintain prices. In 1787, he became involved in the Society for the Suppression of the Slave Trade. In 1790, he turned his business over to his sons. He then devoted his time to reproducing the Portland Vase, an object that had been found near Rome in 1644 and that had belonged to a Roman killed in 235 CE. It took him four years to make a copy.

Wedgwood died in 1795 after having established not only a great firm but a great industry. His managerial efficiency, avoidance of waste, and use of cheap transport allowed him to undercut his competitors. He became a leader of popular tastes. He was also a sincere philanthropist and model employer. In 1863, William Ewart Gladstone,

statesman and collector of Wedgwood Pottery, commended him for “uniting art with industry.”

## RICHARD ARKWRIGHT

1732–1792

In 1769, Richard Arkwright built a spinning machine that used water power. Called a water frame, it was too big to be used in cottages, so factories had to be built to house it. Arkwright and his partners signed a lease to land in Cromford, Derbyshire, where he built a cotton mill in 1771. This would become Europe's first successful water-powered cotton spinning mill. A second mill built in 1776–77 was powered by stream. Arkwright's mills are seen by historians as representing an essential first phase in the factory system. Derbyshire has even been described as the "cradle of the industrial revolution," and Arkwright's factories were copied by industrialists in England and abroad. His water frame made strong twisted yarn. Mill women operated it. He also had a carding engine, which cleaned raw cotton by brushing out all the bits of dirt. This machine was run by men. The advantage of Arkwright's machine over the spinning jenny was that young people with very little training could operate it. Arkwright's new process of roller spinning was also a major success because it enabled much larger quantities of cotton to be spun more quickly. Besides providing buildings, he had to find a labor force. Some came locally but other came from outside the region. Cromford village was built so that Arkwright could fulfill his commitment to provide housing for his workers. The mill at Cromford is currently being restored.



Photo by Linda Miller

Cromford Village  
Many buildings still appear as they did when Arkwright lived there.

## SAMUEL GREG

1758–1834

Samuel Greg was one of thirteen children. Unfortunately, his father's businesses often lost money. His uncle, however, ran a prosperous textile company in Manchester. This man had no children and offered to adopt Samuel. At the time Manchester was becoming a center of cotton production. Samuel's uncle imported cotton and sold finished cloth both in England and abroad. Samuel learned the business quickly. In 1780, he became a junior partner. When his uncle died, Samuel, at the young age of 24, owned one of the largest merchant-manufacturing businesses. After a few years, he built a mill at Styal. Many other entrepreneurs who started cotton spinning factories went bankrupt. But he succeeded because of technical expertise, contacts, and money. He started an Apprentice House for pauper children, who worked in the mill. Mrs. Greg wanted her children to share their knowledge and skills with less fortunate children, so on Sunday afternoons her daughter taught the apprentice girls to sew, read, and write. The Greg boys taught the apprentice lads reading, writing, and arithmetic. By 1834, Greg was worth 319,000 pounds. He died that year after being butted by a stag. His son took over the business, which had become one of the largest cotton firms in the country.

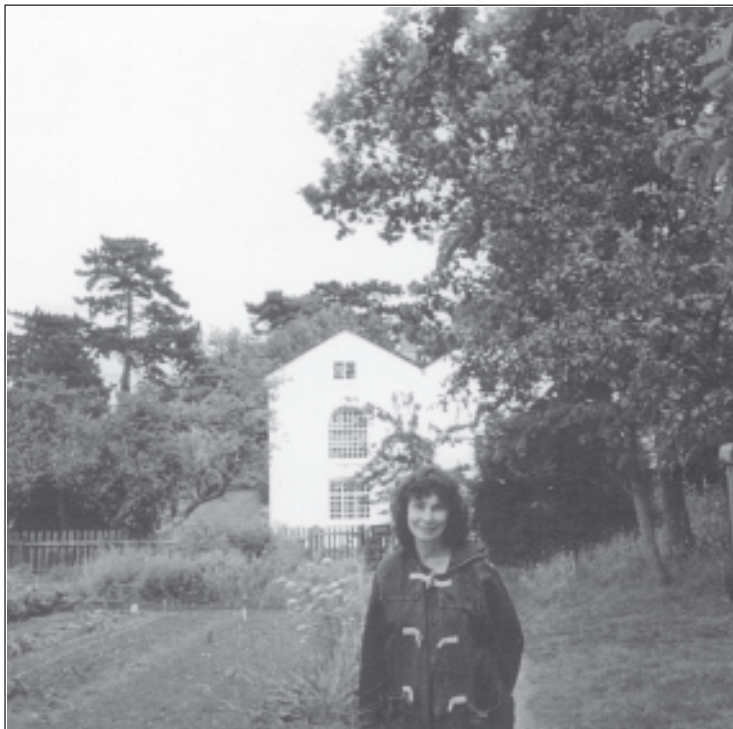


Photo by Linda Miller

### **The Apprentice House**

Greg's Apprentice House still stands today and is open for tours.

**ROBERT OWEN**

1771–1858

Robert Owen, socialist, entrepreneur, Utopian planner, trade unionist, and pioneer of the co-operative movement, became involved in manufacturing at the age of nineteen as a superintendent of a spinning mill. He was the first in England to use fine, long-fibred American sea-island cotton. He soon mastered the art of cotton spinning and earned a considerable reputation as a producer of fine textiles. His contacts eventually led him to Caroline Dale (daughter of his partner David Dale) and to partnership in mills at New Lanark in Lanarkshire, Scotland. Here he started a bold economic and social experiment for workers which became successful in New Lanark and was promoted abroad as a model. Owen's social reforms and organization extended to every aspect of village life in New Lanark. His single greatest legacy was his education institute. It was here in 1816 that the system of infant education in Britain began. Later, thousands of visitors from abroad passed through the village and their impressions home. He also established a "sick fund" to which the mill workers contributed a sixtieth part of their wages. The village shop was stocked with goods he bought wholesale and sold at almost cost. This benevolence prompted commercial efficiency. His employees made quality goods sold at reasonable prices. He also kept a check on the sale of whiskey and controlled drunkenness in the village. He said, "My intention was not merely to be a manager of cotton mills, but to change the conditions of the people who were surrounded by injurious influences upon the character of the entire population."

Owen traveled throughout Britain and Western Europe lobbying Parliament and the church on his reforms. In 1824, he headed to New Harmony, Indiana to establish an experimental co-operative community. His ideas for social reform were well received at first, but the community did not last long. He left New Harmony in the care of his son, but the experiment ended in the late 1820s in disaster at the cost of much of Owen's personal fortune. In the following years he provided trade unions with a political philosophy and strived to organize them. His efforts culminated in the founding of the Grand National Consolidated Trades Union in 1834. This idea was ahead of its time, however, and it collapsed within in a year. This was the end of Owen as an influential force.

Photo by Linda Miller



**Robert Owen Memorial Museum**  
The museum is on the ground floor of the Town Council building in Newton, Wales. Many of the exhibits can be seen on the museum's Web site:  
<http://robert-owen.midwales.com/rowen>