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Machines for the Industrial Revolution

By Sharon Fabian

Caption: picture of the spinning jenny, a machine that helped initiate the Industrial Revolution

The Industrial Revolution began with inventors - people with ideas about how to make work more efficient.

The one invention that led most directly to the growth of industries was the steam engine. In 1698, Thomas Savery, an Englishman, had invented a simple steam engine. His original plan was to use it to pump water out of coal mines. Another English inventor, Thomas Newcomen, improved on Savery's steam engine and produced one that was actually used for the purpose of pumping water out of mines. A third inventor, this one a Scotsman by the name of James Watt, made more improvements to the steam engine. Watt's steam engines were more efficient than earlier models. Before too long, they were powering the machines in factory towns all over Europe and North America.

Other inventions led to the growth of industries, too, starting with the textile industry in England.

One of the inventors was an American - Eli Whitney, the inventor of the cotton gin. The cotton gin was a machine that automated the removal of cotton seeds from cotton fiber. Before the invention of the cotton gin, it took a day or more to remove the seeds from just one pound of cotton. With a cotton gin, fifty pounds of cleaned cotton could be produced in one day. Cotton produced by this faster method soon began to make its way back to England where it could be spun and woven into cloth.

James Hargreaves, a weaver from England, invented another useful machine, the spinning jenny, which he named after his daughter. The spinning jenny speeded up the next step in the production of cotton cloth, the spinning of thread. Previously, this had been done by hand, one spindle of thread at a time. The original spinning jenny, while it was still operated by hand, produced eight spindles of thread at one time. Later models produced even more. The spinning jenny required a skilled operator to produce good thread.

In 1768, Richard Arkwright, a wigmaker from England, invented a machine that further automated the process of making thread. His invention, called the water frame, was powered by a turning water wheel. It could be operated by a single unskilled worker. With its four rows of 32 spindles each, one water frame could produce 128 spindles of thread simultaneously.

Arkwright was not only an inventor; he was also an investor. He bought land and built a large factory where workers could produce huge amounts of cloth very quickly. He built a factory town full of houses to attract workers to his factory. He advertised for workers with large families. Men who could weave cloth and also had large families were often hired. While the men wove cloth, the wives and children as young as ten years old worked in the mills spinning all of the thread that the weavers would need.

Arkwright's model of a cotton mill soon spread, and sprawling mills with tall smokestacks sprang up all over England.

These inventions paved the way for the Industrial Revolution. They led to many unexpected results including child labor and the concentration of wealth in the hands of the few people who already had money to invest.

They also paved the way for our modern society in which people have a closet full of clothes instead of the few pieces that the average person once owned. They led to an increase in foreign trade and population booms in factory cities. As a matter of fact, there are few topics in modern history that can't in some way be traced back to the inventions of the Industrial Revolution.

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Questions

_____ 1. The inventions that began the Industrial Revolution were created mainly during the_____.

A. 1800s
B. 1900s
C. 1700s
D. 1600s

_____ 2. All of the following were inventions that directly affected the Industrial Revolution in England EXCEPT the _____.

A. water frame
B. spinning jenny
C. printing press
D. steam engine

_____ 3. _____ invented the cotton gin.

A. Savery
B. Watt
C. Whitney
D. Newcomen

_____ 4. _____ invented the model of the steam engine that was used in factories during the Industrial Revolution.

A. Newcomen
B. Whitney
C. Savery
D. Watt

_____ 5. Before Richard Arkwright became an inventor and factory owner, he worked as a/an _____.

A. farmer
B. weaver
C. investor
D. wigmaker

_____ 6. A _____ separated cotton fiber from cotton seeds.

A. steam engine
B. water frame
C. cotton gin
D. spinning jenny

_____ 7. Both the _____ and the _____ spun thread.

A. cotton gin, cotton jenny
B. spinning jenny, water frame
C. water frame, steam engine
D. steam engine, spinning jenny

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_____ 8. One negative effect of the Industrial Revolution was _____.

A. the invention of the spinning jenny
B. child labor
C. the invention of the steam engine
D. increase in trade

Write about one of the inventions of the Industrial Revolution. How did this one invention affect people's lives?

Do you think that the inventions of the Industrial Revolution had an overall positive or negative effect? Give a reason for your answer.