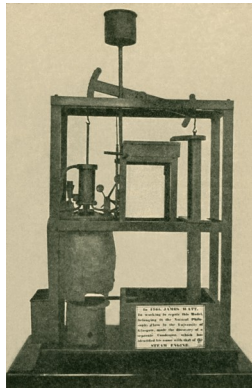


# Industrial Revolution



James Watt repaired this Newcomen steam engine, and developed the idea of condensing the steam in a separate chamber, allowing for less energy being required to run the pump. The first Newcomen engine replaced a team of 500 horses that was used to pump water out of a coal mine shaft.

*The industrial Revolution started in Great Britain in the 1800s, when machines supplemented human labor, and steam engines replaced the use of animal and natural forces as power.*

Dramatic changes took place in the following areas:

- Clothing production (wool and cotton)  
Mechanized cotton and wool looms
- Coal and steam power  
Replaced reliance upon wood and running water as power sources
- Greatly increased use of metals (Iron and Steel)

Industrial Revolution Stats		
Growth of use of power looms in England	Railroad mileage in Britain grew from 95 miles in 1830, to 6600 in 1850; although Britain saw the first steam railroad in 1830, the US soon caught up, and by 1850, had about 9000 miles of track.	Production of pig iron in Britain, in tons:
1813     2400		1740                      17,350
1833   100,000		1825                      581,367
1850   250,000		1852                      2,701,000

The Industrial Revolution brought about the creation of a middle-class, as well as mass-production of goods that middle class and lower income families could afford. While silks and furs continued to be handmade, factories mass produced cotton and woolen clothing for lower and middle classes.

### Immiseration of lower classes?

The Industrial Revolution has been often charged with lowering the living standards of poor people by pushing them into cities where they would have low-paying jobs. However:

- (1) With a rising population and enclosure laws pushing them off farmland, the English poor were streaming into cities (and emigrating from England) from the 1600s onward—long before the Industrial Revolution started. What the Industrial Revolution did was give them employment. It did not impoverish them; instead, it gave these urban masses the means of survival.
- (2) The Industrial Revolution did create conditions whereby the standard of living of BOTH the poor masses, as well as the wealthy elites, would be greatly increased.
- (3) Additionally, it was in these early industrial societies that voting rights were extended to the entire male populace (in the later 1800s), and eventually to women (early 1900s).