PowerPoint® Presentations in World History

The Industrial Revolution

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The Industrial Revolution refers to the rapid changes in the organization of manufacturing industry that transformed countries from rural agricultural to urban industrial economies. It began in the late 18th century in the Midlands area of England, then spread throughout the country, into continental Europe, and to the northern United States.
Famine, war, and disease were common in Europe prior to the Industrial Revolution. Many of the innovations we will explore in the following slides contributed to the decline of these problems.

By the end of the 17th century, Europeans had developed many measures (including quarantining the ill) to prevent the spread of the plague. In 1721, the last plague outbreak occurred in Marseilles, and the disease did not recur in Britain or on the European continent. The brown rat thrived during the 17th and 18th centuries, while the black rat, which carried *pasteurella pestis* (the plague), was eliminated.
Further Reasons for Population Growth

- Advances in medicine, such as inoculation against smallpox
- Improvements in sanitation promoted better public health
- An increase in the food supply meant fewer famines and epidemics, especially as transportation improved

In December of 1715, Lady Mary Wortley Montague came down with smallpox and developed severely pitted skin. Though the disease had previously killed her brother, she managed to survive. As a result of her experience, Montague become a crusader for the practice of inoculation, which she had learned while living in Turkey with her ambassador husband. She began her campaign by having her son and daughter inoculated.

Edward Jenner (1749–1823) would eventually receive credit for the smallpox vaccine, but it was really Lady Mary Montague who pioneered and made the approach acceptable in Western Europe. The practice of inoculation would eventually filter throughout society and would be extended to prevent a variety of infectious diseases.

Europeans had improved urban sanitation during the plague years because they believed that dangerous miasmas (vapors or smells) caused disease. They created safer water delivery systems and carried away refuse on a more regular basis. Although miasma theories proved inaccurate, the sanitary improvements did help a great deal in controlling disease.

Increased food supply helped reduce famine. We will now explore several of the reasons for this phenomenon.
The Enclosure Acts curtailed access to public lands, allowing the landed gentry to better organize and keep track of crops, land, and animals. Landowners also enclosed their own territory to deny access to peasant farmers. Several methods of enclosure proved popular, including growing hedges or putting up stone walls or wooden fences. The former method was particularly popular in Britain’s Lowlands region. The movement began in Britain, having the biggest effect on the Midlands, East Anglia, and Central England. It spread to many other European countries, including Russia, Hungary, Germany, France, and Denmark. Although dating to the medieval era, enclosure was particularly common throughout the late 17th, 18th, and early 19th centuries.

**The Pros:** Many farmers benefited from the Enclosure Movement, which led to more productive methods of farming and an increase in food production. Small, unproductive farms went out of business, ceding their land to larger, economically-sound farms. Poor farmers who had been making no profits were able to work on large farms to support their families.

**The Cons:** The Enclosure Movement was a practical strategy for organizing land among wealthy landowners, but it adversely impacted peasant farmers, who struggled with poverty and lack of adequate work. Many poor farmers were forced to give up their parcels to wealthy landowners and move to cities in search of work. Peasant families holding land by custom were generally unable to produce legal documents proving their ownership. Accustomed to using the public lands to obtain firewood, fruit, nuts and “pig fodder,” a tradition sometimes known as “gleaning rights,” this access no longer existed.
Scottish mechanical engineer Andrew Meikle invented the threshing machine (c. 1796) for use with crops. The machine separated the grain from the stalks and husks far more quickly than hand threshing; as a result, crop production increased and led to agricultural abundance.

The following slides show several innovations that proved critical to the early Industrial Revolution in Britain. Without the greatly increased yields that these machines fostered, society would not have gained the security in its food supply that allowed for increased industrial specialization and innovation in areas other than agriculture.
Englishman Jethro Tull invented the mechanized seed drill around 1701. Uniform seeding allowed weeding between the rows of seedlings during growth, thus improving crop yield.

Before this invention, farmers carried their seeds in bags and walked through the fields throwing the seeds into hand-ploughed furrows, or rows. This method did not allow for a very even distribution and wasted a good deal of the seed, resulting in lower plant yield.

Tull’s seed drill, on the other hand, could be pulled behind a horse. It had wheels and contained a box filled with seed. A wheel-driven device sprayed the seed out evenly as the entire machine was pulled across the field.
Despite his aristocratic background, Jethro Tull’s simple, elegant tool made him an icon and hero for small farmers in his era and today.
After 1730, Charles “Turnip” Townshend introduced the four-field method of crop rotation. Crop rotation is critical because consistent planting of the same crop on a field leads to a decline in important soil nutrients, thus decreasing crop yield.

In Townshend’s system, farmers would plant a staple crop such as barley or wheat one year, change to another staple crop the next year, and plant turnips and clover for the next two years. The latter two crops helped replenish the soil with nutrients it had lost during the barley and wheat planting years. The droppings from animals that grazed on the clover and turnips further helped fertilize the soil. Turnips had been used in England as cattle feed since the 1660s, but Townshend was the first to use them for crop rotation.
Robert Bakewell and other livestock experts interbred different types of sheep, trying to create a new breed that combined the best characteristics of others. These experiments greatly increased the average sheep’s size. One of these cross-bred sheep, the Dishley, had long, coarse wool and produced a high quality and yield of meat.

Bakewell also experimented with breeds of cattle. In 1769, he produced the Longhorn, which provided exceptional meat. Bakewell was also the first to hire his animals out to be bred with other people’s livestock. His farm in Dishley, Leicestershire, became a model of scientific management.

Another farmer, Thomas Coke, also experimented with cattle, sheep, and pigs and produced several new breeds.
Britain Takes the Lead

Great Britain’s advantages:

- Plentiful iron and coal
- A navigable river system
- A strong commercial infrastructure that provided merchants with capital to invest in new enterprises
- Colonies that supplied raw materials and bought finished goods
- A government that encouraged improvements in transportation and used its navy to protect British trade

The last three of these advantages (commercial power, colonies, and government support of transport improvements) can be credited in part to the relatively calm political situation in England. The European continent, on the other hand, suffered volatile political conditions that impeded innovation.