Chapter 3
The Industrial Revolution (1750-1914)

Section 1- Dawn of the Industrial Age

Since the beginning of civilization, most people have lived in small villages and have used simple handmade tools. During the 1700s, production began to shift from simple hand tools to complex machines, and new sources of energy replaced human and animal power.

Section 1- Dawn of the Industrial Age

This turning point is known as the **Industrial Revolution**. This transformation marked a crucial turning point in history and changed the lives of people all over the world.

Section 1- Dawn of the Industrial Age (cont.)

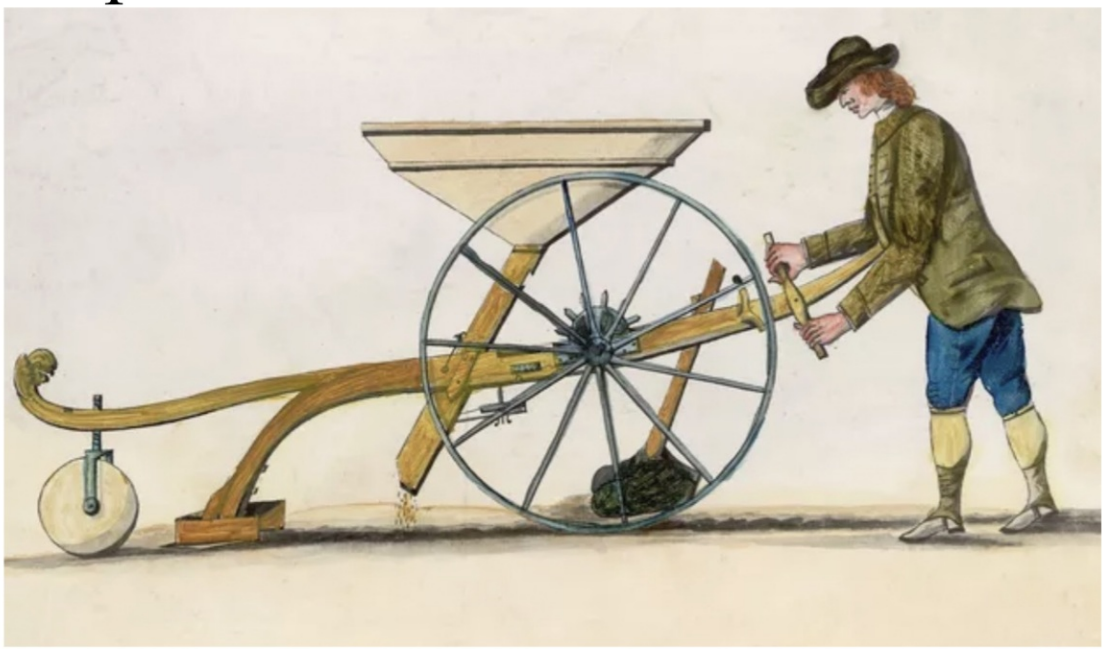
The Industrial Revolution began with an **agricultural revolution** (time when more and better crops were grown) in Western Europe that contributed to a population explosion. This population increase in turn fed the growing industrial labor force.

Section 1- Dawn of the Industrial Age (cont.)

In the 1600s, the Dutch built **dikes** (dams) to protect drained farmland from the sea and used animal fertilizer to improve their soil. Farms also increased their production by creating **enclosures** (fenced in land).

Section 1- Dawn of the Industrial Age (cont.)

Then, in the 1700s, British farmers discovered ways to produce more food. A British man invented the seed drill that plants seeds in rows. Another pioneer bred stronger horses for work and fatter sheep and cattle for meat.



Section 1- Dawn of the Industrial Age (cont.)

Rich landowners forced many peasants off the land. With no work in the country, peasants moved to cities. There, they became the laborers who would soon operate the new machines.

Section 1- Dawn of the Industrial Age (cont.)

Since women ate better, they had healthier and stronger babies. At the same time, medical care improved. People lived longer lives.

Section 1- Dawn of the Industrial Age (cont.)

In the 1700s, an energy revolution occurred. People continued to use human, animal, and wind power but now began to also use giant water wheels to power new machines. English inventors next used coal to power the steam engine. Steam engines became the power source of the early Industrial Revolution.

Section 2- Britain Leads the Way

The Industrial Revolution began in **Britain**. Britain had plenty of natural resources, many workers for the new mines and **factories** (buildings where goods are manufactured), and a lot of **capital** (money to invest). The British overseas empire made the economy strong.

Section 2- Britain Leads the Way (cont.)

As a result, the middle class had money to invest in mines, railroads, and factories. During the early Industrial Revolution, iron and coal were very important. Iron was needed to build machines and steam engines.

Section 2- Britain Leads the Way (cont.)

In 1709, the British began using coal, instead of wood, for fuel in the production of iron. Experiments led to the production of iron that was cheaper and stronger.

Section 2- Britain Leads the Way (cont.)

The **textile** (clothing) industry was the first to use the inventions of the Industrial Revolution. In the 1600s, families in their homes spun raw cotton into thread and then wove the thread. By the 1700s, new machines allowed people to make clothing much faster.

Section 2- Britain Leads the Way (cont.)

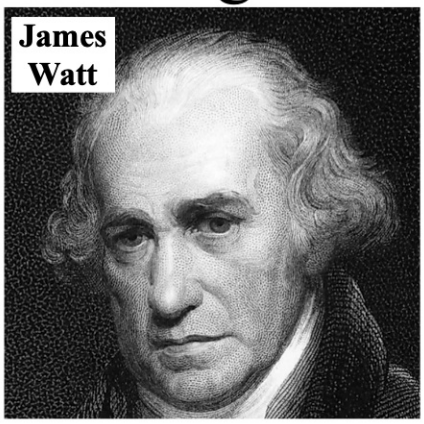
However, the machines were too large and expensive to be operated at home. Instead, spinners and weavers worked in long sheds that became the first factories. As production increased, people needed a faster and cheaper means of transportation to move goods from place to place.

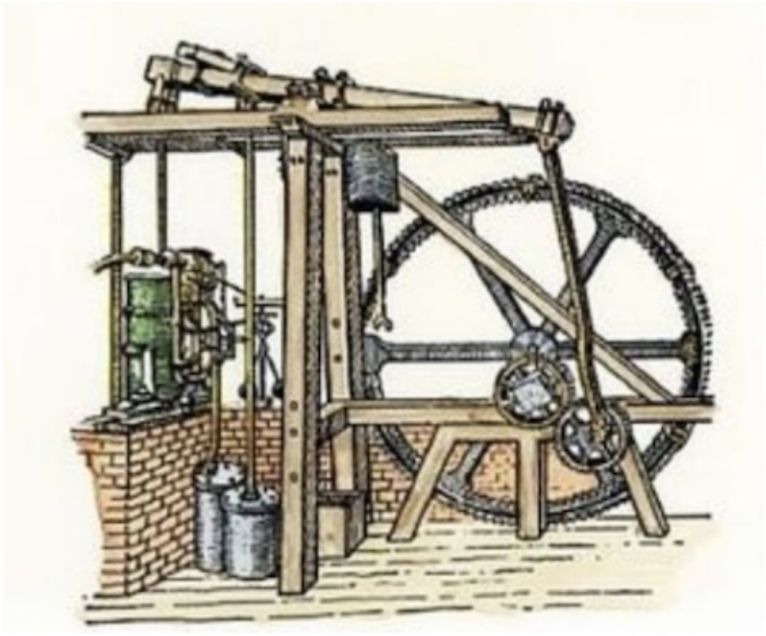
Section 2- Britain Leads the Way (cont.)

In the 1700s, people built **turnpikes** (privately built roads that charged a fee to travelers who used them), canals, and stronger bridges.

Section 2- Britain Leads the Way (cont.)

Most importantly, the invention of the steam locomotive made the growth of railroads possible, especially after **James Watt** (a Scottish inventor) perfected the **steam engine** (an engine that uses steam to generate power) in 1765.





Section 3- New Ways of Thinking

During the Enlightenment, thinkers developed the policy of laissez faire (to not interfere). They believed that a free-market economy (a country's economic system where prices are decided by the supply and demand of goods and with little government control) would help everyone, not just the rich.

Section 3- New Ways of Thinking

In the early 1800s, thinkers tried to understand the changes created by the Industrial Revolution. Two economists, Thomas Malthus and David Ricardo, believed that as long as the population kept increasing, the poor would suffer.

Section 3- New Ways of Thinking

They believed that poor people could improve their lives only by working hard and having fewer children. They did not believe that government should help the poor.

Section 3- New Ways of Thinking (cont.)

By the 1800s, some thinkers began to argue that government should help the poor. They worked to reform society without making radical changes. Jeremy Bentham taught **utilitarianism (**the idea that the goal of a society should be the happiness of its people).

Section 3- New Ways of Thinking (cont.)

Another utilitarian, John Stuart Mill, wanted government to improve the lives of the poor. Mill and other utilitarians worked for many reforms, including child labor and public health, and tried to help create the best possible life for the most people.

Section 3- New Ways of Thinking (cont.)

Other thinkers condemned industrialism. They believed it was unfair that some people were rich while others were poor. Labor unions (groups of workers that unite for a common goal) were created to help workers gain rights and better working conditions and to close the gap between those who "had" and the **proletariats** (the working class "have-nots" in society).

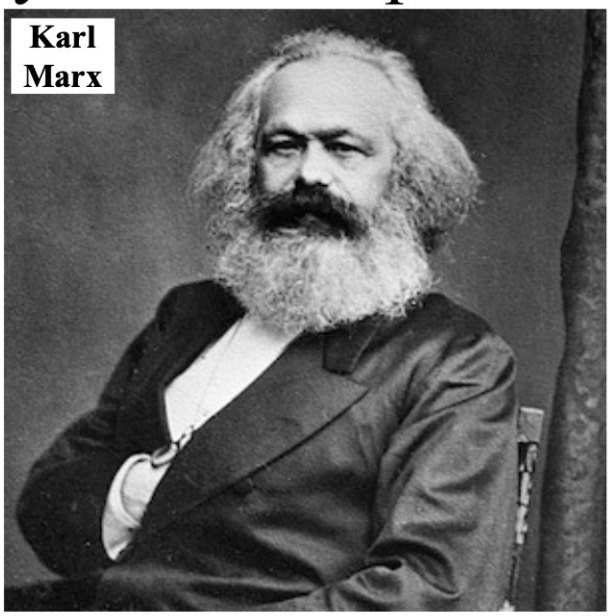
Section 3- New Ways of Thinking (cont.)

To end poverty, they introduced **socialism** (when farms and businesses belong to all the people and not to individuals). The goal of socialists was a society that worked for the good of all the people.

Section 3- New Ways of Thinking (cont.)

Karl Marx (a German philosopher) called for an international struggle to end capitalism (an economic system in a country where production and prices are controlled by buyers and sellers and ownership of businesses by citizens is possible).

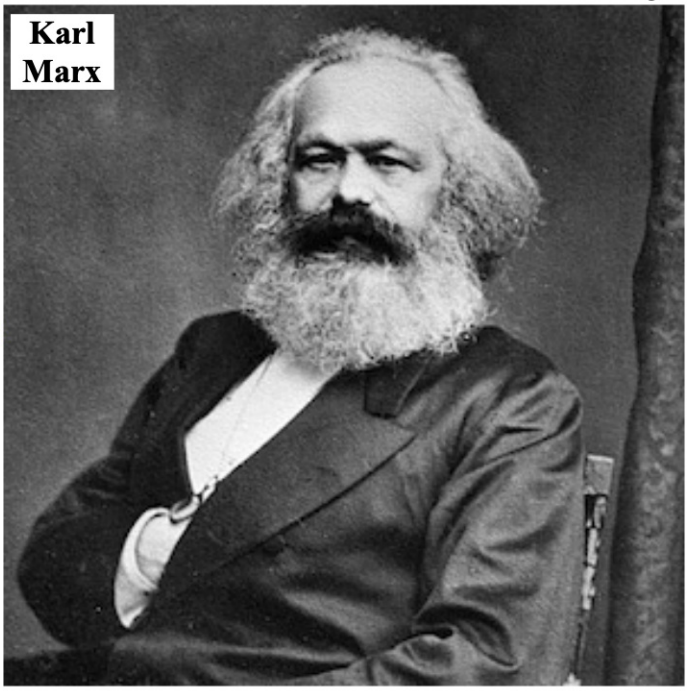
socialism + no diferent classes of people (no rich or poor; everyone is in the middle)= communism



Section 3- New Ways of Thinking (cont.)

He created **communism** (the idea that, in a country, the government owns everything for the good of its people and where classes of society do not exist).

socialism + no diferent classes of people (no rich or poor; everyone is in the middle)= communism



Section 4- The Industrial Revolution Spreads

From the mid-1800s, industrialism spread rapidly across Europe to North America and beyond. This second Industrial Revolution transformed the economies of the world and solidified patterns of life familiar to us today.

Section 4- The Industrial Rev. Spreads (cont.)

Britain, with its steam-powered factories, once stood alone as the leader of industry. However, by the mid-1800s, the Industrial Revolution had spread to other nations. Germany and the United States had more coal and iron than Britain. Both nations made use of British technology. By the late 1800s, they led the world in production.

Section 4- The Industrial Rev. Spreads (cont.)

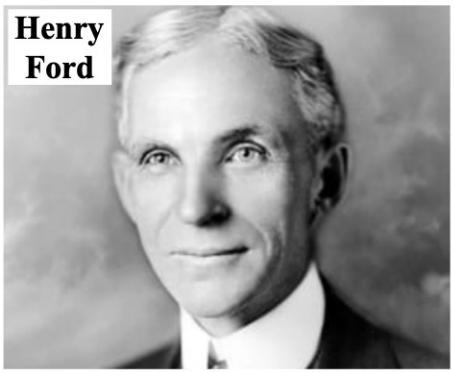
Political and social problems slowed the growth of industry in the South and East of Europe. In East Asia, Japan (island nation in the western Pacific Ocean east of China) industrialized rapidly after 1868.

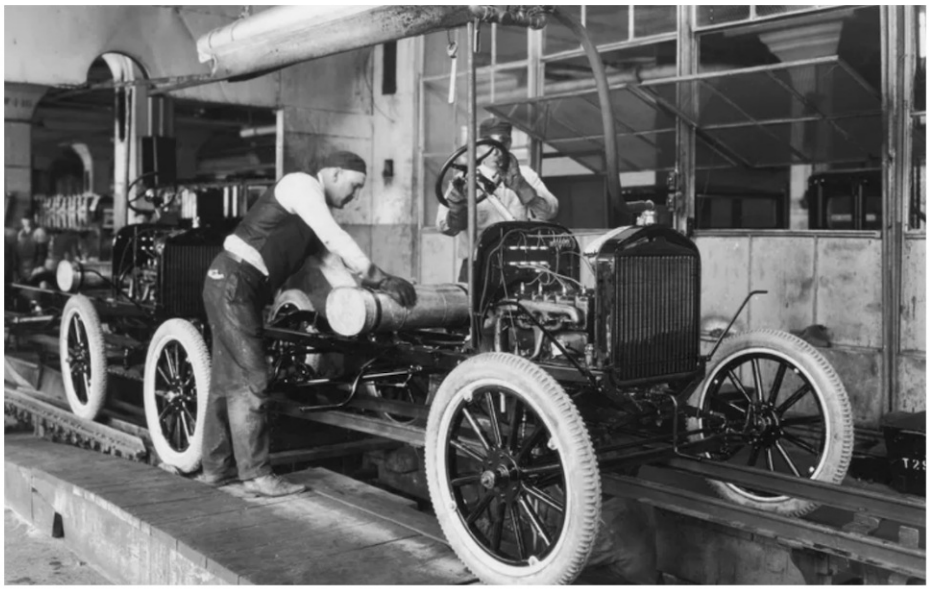
Section 4- The Industrial Rev. Spreads (cont.)

This was remarkable since it had few natural resources or capital (money to invest). By 1900, nations of the West had a great amount of economic power.

Section 4- The Industrial Rev. Spreads (cont.)

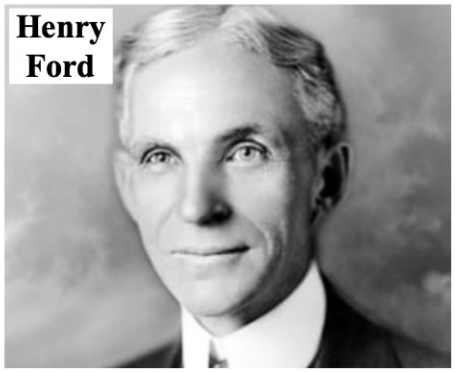
Factories used new ways to produce goods. The invention of the **assembly line** (the movement of products being built on a moving belt) greatly speeded up production.

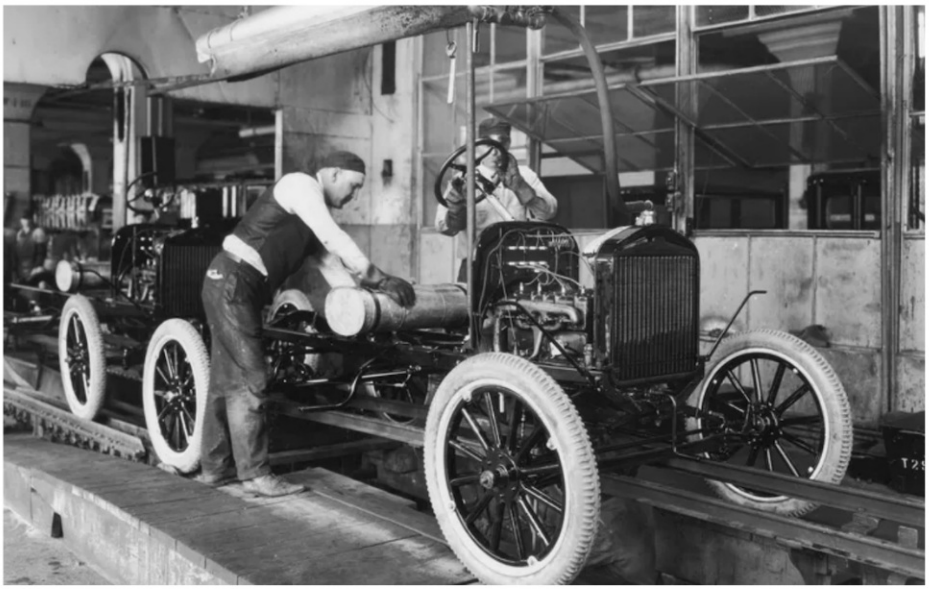

Henry Ford



Section 4- The Industrial Rev. Spreads (cont.)

Henry Ford (an American inventor) perfected and used to increase the speed of his car factories. The creation of **interchangeable parts** (identical parts that can be used in place of another) also increased factory speed and production numbers.



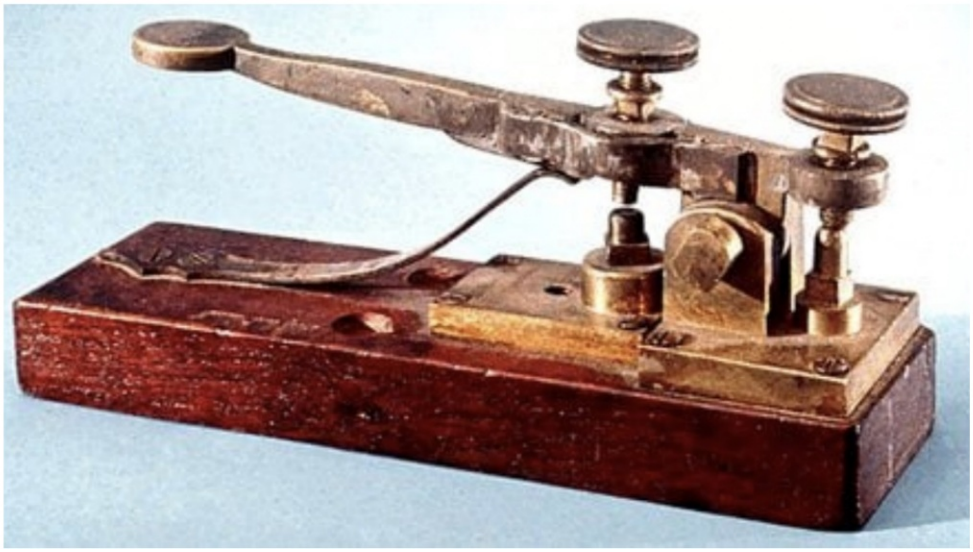


Section 4- The Industrial Rev. Spreads (cont.)

Steel (a very hard type of iron used for building), **electricity** (a form of energy created from the existence of charged particles), and advances in communications and transportation marked the second Industrial Revolution. In the mid-1800s, companies hired scientists to improve technology. A new form of power, electricity, changed industry significantly.

Section 4- The Industrial Rev. Spreads (cont.)

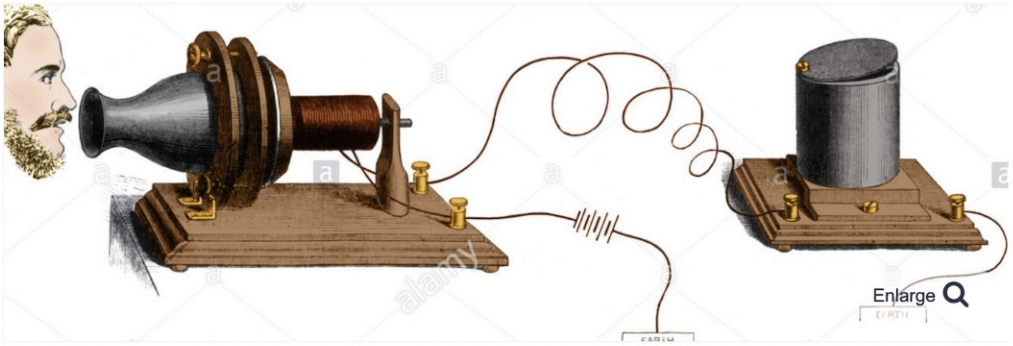
Inventions were also a big part of the Industrial Revolution. **Samuel Morse** (an American inventor) invented the **telegraph** (a system for transmitting messages along a wire by making and breaking an electrical connection) in the early 1840s.



Section 4- The Industrial Rev. Spreads (cont.)

Alexander Graham Bell (an American inventor) invented the **telephone** (a system for transmitting voices over a distance) in 1876. The airplane was perfected by the Wright brothers in 1903.

Thomas Edison (an American inventor) invented the record player in 1878 and the light bulb in 1880.



Section 4- The Industrial Rev. Spreads (cont.)

New ways to send messages and move goods linked cities and nations. New equipment was costly. To get enough capital, owners began selling **stock** (share/ownership of a company) in their companies. The late 1800s brought the rise of "big business."

Section 4- The Industrial Rev. Spreads (cont.)

Huge **corporations** (businesses that are owned by many investors who own stock in the company) soon ruled industry. Then, some corporations became even more powerful by combining with other corporations. They were called **trusts**.

Section 4- The Industrial Rev. Spreads (cont.)

Companies that controlled markets or areas of the economy were **cartels** (companies that control through illegal means) and **monopolies** (companies that control by controlling most or all of the economic area).

Section 4- The Industrial Rev. Spreads (cont.)

Workers often suffered from business owners more concerned about profits. In politics, groups were created to control entire areas of towns and cities and even states. These **political machines** gave power to only a few.

Section 4- The Industrial Rev. Spreads (cont.)

To lessen the power of "big business" and political machines in America during the late 1800s, the **Populist Party** rose up. The political group wanted higher taxes for those who made more money, the direct election of senators, more say in what ideas became laws, and the ability to recall (vote out of office) any politician, if necessary.

Section 4- The Industrial Rev. Spreads (cont.)

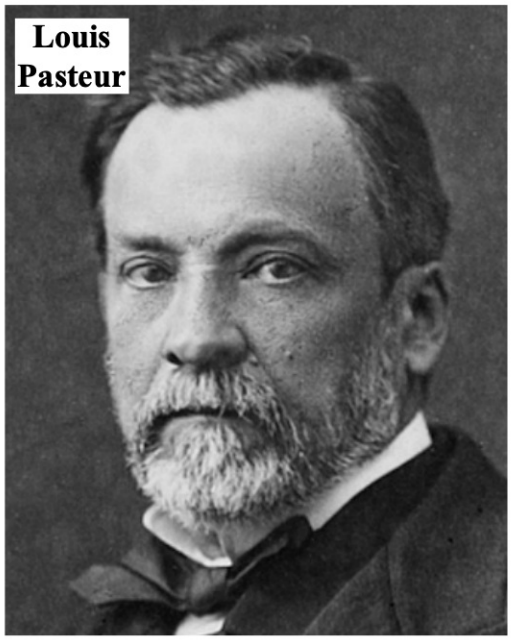
Over time, laws were created to decrease the power of "big business." The **Interstate Commerce Act** of 1887 set rules for products that were sold between states and the **Sherman Antitrust Act** of 1890 outlawed monopolies and trusts and began to take away power from corrupt businesses.

Section 5- The World of Cities

The spread of the Industrial Revolution brought change, especially to the cities of the world. Populations grew rapidly in the 1800s. The boom came because people were living longer and because more babies were being born.

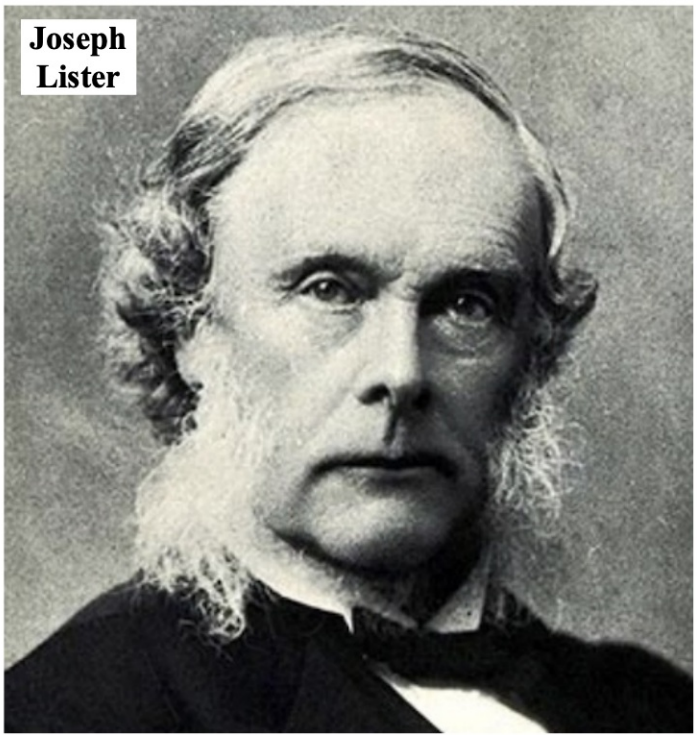
Section 5- The World of Cities (cont.)

New farming methods meant better diets. Medical discoveries slowed death rates. French scientist **Louis Pasteur** (a French biologist) discovered **germ theory** (the belief that certain organisms cause specific diseases), which led to the control of diseases.



Section 5- The World of Cities (cont.)

In England, **Joseph Lister** (a British surgeon) found that antiseptics kill germs. Better health habits and cleaner hospitals brought a drop in disease, infections, and death.



Section 5- The World of Cities (cont.)

As workers moved from farms to factories, called **urbanization**, cities took on a new look. Department stores and offices lined streets and public squares. In the late 1800s, American builders put up very tall steel-framed buildings called **skyscrapers.**

Section 5- The World of Cities (cont.)

New sewers made cities healthier places. First gas and then electric streetlights made them safer. Trolley lines meant people could live miles from their jobs. The rich moved to fine homes on the edge of town.

Section 5- The World of Cities (cont.)

The poor crowded into slums near the city center. There they lived in run-down **tenement** buildings (rooms forming a separate residence) near the factories.

Section 5- The World of Cities (cont.)

In spite of crowds and high crime rates, people kept moving to cities. They came for the music halls, parks, libraries, and most of all for the jobs.

Section 5- The World of Cities (cont.)

Once those in charge saw the extent of the conditions in cities, **urban renewal** (rebuilding of poor areas) began. Although the poor endured harsh conditions, the overall standard of living (the quality of life in society) for workers improved.

Section 5- The World of Cities (cont.)

One of the reasons was due to **mutual-aid societies** (self-help groups to help workers). Another reason for the progress was the creation of **labor unions** (groups of workers that unite for a common goal).

Section 5- The World of Cities (cont.)

Many city factories were unsafe and unhealthy. Men, women, and children worked long hours for low pay. By the late 1800s, labor unions were legal in most western nations. They called for new laws to improve conditions, limit work hours, and end child labor.

Section 5- The World of Cities (cont.)

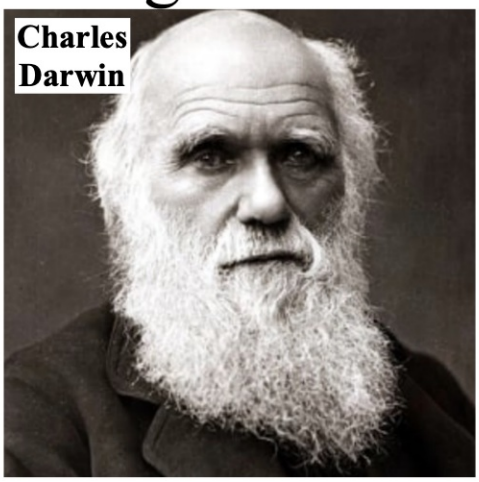
Some women called for new rights. They entered schools and professions that had banned them. By the late 1800s, some countries let married women control their own property. At the same time, women began asking for voting rights. In New Zealand, Australia, and some United States territories, women won the vote before 1900.

Section 5- The World of Cities (cont.)

In Europe and most of the United States, **suffrage** (the right to vote) came decades later after women's' suffrage associations (groups) became stronger in politics.

Section 5- The World of Cities (cont.)

Scientific theories of the 1800s challenged beliefs. In 1859, British naturalist **Charles Darwin** (a British biologist and naturalist) caused an uproar. He said that humans had developed to their present state over millions of years. This **theory of evolution**, as it was called, stirred conflicts between religion and science.



Section 5- The World of Cities (cont.)

Historians have debated whether the Industrial Revolution was a blessing or a curse. The Industrial Revolution created hardships for many people. Low pay, unemployment, and horrible living conditions caused social problems.

Section 5- The World of Cities (cont.)

Still, the Industrial Revolution had many positive effects. Factories created new jobs. More goods became available. Railroads made it possible to visit family members in other towns. The middle class, especially merchants and inventors, benefited financially. Most importantly, opportunities for all classes of people increased.