Mercantilism and the Agricultural and Industrial Revolutions

The Age of Exploration—besides leading to the discovery and conquest of new lands such as the Americas, and overseas expansion and new trade routes such as with Asia—brought about national economic changes. The fierce competition for trade and empire among European monarchs led to the widespread adoption of mercantilism, an economic policy under which nations sought to increase their wealth and power by obtaining large amounts of gold and silver and by exporting more goods than they imported. The increased gold and silver flowing into Europe from the Spanish colonies contributed to a price revolution known as inflation, which encouraged trade and businesses of all types. As prices of goods went up, businessmen were willing to take risks to invest money in the hope of making more money. This new attitude spurred the growth of early European capitalism. As trade routes shifted in the sixteenth century from the Mediterranean and the Baltic to the Atlantic, Venice and Genoa soon declined and Portugal and Spain became the dominant powers. In the seventeenth century, cities like London, Paris, and Amsterdam became the centers of commercial activity. These changes were part of the Commercial Revolution that influenced Europe.

The Agricultural and Industrial revolutions, like the Commercial Revolution, also impacted European society. The discovery of new machinery and advancements in farming had far-reaching effects. The use of new crops and techniques, and the introduction of better methods of soil rotation enabled Europe to grow more food. This helped to raise the standard of living. The Agricultural Revolution provided the food for the expanding city populations and directly led to a population explosion in Europe. The Industrial Revolution, which started in Great Britain, had a greater effect on society than the French Revolution. The transformation from an agrarian to an industrial society influenced the European political, economic, and social structure. The landed aristocracy, which had begun to lose influence because of the rise of the middle class, would be completely overshadowed by the birth of a new capitalist class of businessmen. The shift from a rural society to an urban society created new problems, such as how to deal with the conditions created by the factory system. New philosophies and economic ideas such as Romanticism, Socialism, Nationalism, and Communism arose to meet the problems created by industrialization. The Agricultural and Industrial revolutions not only transformed Europe in the nineteenth century but also had a major impact on the world in the twentieth century.

Mercantilism and Capitalism

From the sixteenth through the seventeenth centuries, European monarchs adopted a policy of mercantilism aimed at strengthening their national economies. Mercantilists supported several basic ideas:

- A nation’s wealth is measured by the gold and silver (bullion) it possesses.
- A nation must export more goods than it imports. In other words, there must be a favorable balance of trade in order for a nation to build up its supply of gold and silver.
- Colonies exist for the benefit of the mother country. Colonies supply raw materials not available in Europe for manufacture and trade, and also serve as a market for the mother country’s manufactured goods.
- Strict laws must regulate trade with the colonies. The regulation of trade strengthened the nation’s economy because, in addition to providing gold and silver, the colonies could not set up industries to manufacture goods nor buy goods from foreign countries. This strict regulation ensured that all revenue went to the government.
- The government must promote and protect local industries by taxing imported goods.
- Governments can increase revenue by imposing a single national currency and selling monopolies to large producers in certain industries as well as big overseas trading companies.
- Self-sufficiency must be promoted. A country had to use everything it needed within its own borders and not depend on other countries for goods.
The establishment of European colonies in the Americas, the direct trade with Asia and Africa, and the continued expansion of the Commercial Revolution led to some major changes in Europe:

- Large quantities of gold and silver from the New World during the 1500s affected the economy of Western Europe. Since consumers had more money to spend, it drove up prices and this led to inflation, which led to a decline in the value of money as the prices of goods and services increased. The purchasing power of the people declined.
- The traditional divisions of societal classes were affected. Because the growing demand for goods led to increased production, Western Europe’s guild system was impacted. The guild system originated in medieval times; it was an association of people who all worked at the same occupation, and the guild controlled membership, wages, and prices. The institution of the guild had to change to meet the growing production needs of a nation-centered economic system. A middle class of merchants, bankers, and capitalists thus emerged who were devoted to the goal of making profits. This new social class grew in number and began to resent the fact that it lacked political influence in the government. This discontent led to conditions that gave rise to the French Revolution, as was discussed in the preceding chapter.

Although farmers benefited from the changing market because they were able to sell surplus crops, they lacked political power. The nobility whose income still depended on a fixed asset suffered a decline in economic power; as a class, however, the nobility still ranked high on the social scale.

The economic changes of the sixteenth and seventeenth centuries led to the rise of capitalism, or using money to make a profit, or more money. The Dutch, who controlled the major trade routes in the seventeenth century, were the first people to practice capitalism. The merchants of Amsterdam bought surplus grain and sold it at the highest prices when they heard about poor harvests in other parts of Europe. Since they controlled the trading routes, they were able to enforce a monopoly and control all the shipments to other parts of Europe. In the mid-1630s, the Dutch replaced the Italians as the bankers of Europe.

Expanded trade and the push for building overseas empires promoted capitalism’s growth. Entrepreneurs organized, managed, and assumed the risk of doing business by hiring craftsmen, supplying them with raw materials, and selling the finished goods. It was the beginning of the domestic system, in which weavers and craftsmers produced goods at home. When entrepreneurs were unable to raise money for a project or thought it was too risky, capitalists developed new ways to create wealth by forming joint stock (also known as trading) companies that allowed people to pool large amounts of capital needed for overseas ventures. The Dutch, British, and French founded trading companies, such as the Dutch East India Company and the British East India Company, in the 1600s. Capitalists also reduced the risk of liability from dangerous investments by forming joint stock (also known as trading) companies that allowed people to pool large amounts of capital needed for overseas ventures. The Dutch East India Company and the British East India Company, in the 1600s. Capitalists also reduced the risk of liability from dangerous investments during the seventeenth century by creating insurance companies such as Lloyd’s of London.

In the ways mentioned above, the European expansion of money and goods revolutionized Europe’s economy and transformed its society. These changes in trade, manufacturing, and investments laid the foundation for the Agricultural and Industrial revolutions.

The Agricultural Revolution

Up until the middle of the eighteenth century, farming remained very much as it had been under the manorial system of the Middle Ages. Although farmers labored hard and long, they produced scanty crops. Before the Agricultural Revolution, farmers did the following:

- Worked to raise food for themselves and their landlords instead of making a profit by selling produce on the markets
- Relied upon a few ancient tools such as the wooden plow, the hoe, the rake, and the shovel
- Continued the three-field system, which kept one-third of the land idle at any one time
- Knew very little about fertilizers, crop rotation, and animal breeding

The Dutch led the way in the Agricultural Revolution. In the 1600s, they built dikes or dams to reclaim land by draining it and thus making it useable. They also used fertilizers from livestock to renew the soil and combined fields into larger ones to make better use of the land.
During the eighteenth and nineteenth centuries, the British and Americans improved on the Dutch experiment by inventing new tools and processes that led to the mechanization of agriculture. The following is a table that lists some of the improvements in agriculture.

<table>
<thead>
<tr>
<th>Inventor</th>
<th>Invention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jethro Tull (English) 1674–1741</td>
<td>Seed drill (1701). This device planted seeds in rows, replacing planting the seed by hand. This method also permitted cultivation between rows, increasing the amount of food produced per acre.</td>
</tr>
<tr>
<td>Charles &quot;Turnip&quot; Townshend (English) 1675–1738</td>
<td>Crop rotation (1750). This helped to conserve soil fertility and made more land available for production. It alternated grain with soil-enriching plants such as turnips and clover.</td>
</tr>
<tr>
<td>Robert Bakewell (English) 1725–1795</td>
<td>Scientific breeding of animals.</td>
</tr>
<tr>
<td>Charles Newbold (American) 1764–1835</td>
<td>Cast-iron plow (1797). This turned soil deeper and more easily than the wooden plow.</td>
</tr>
<tr>
<td>John Deere (American) 1804–1886</td>
<td>Self-cleaning steel plow (1837). This improved upon the cast-iron plow.</td>
</tr>
</tbody>
</table>

The enclosure movement contributed to large-scale farming. Between 1760 and 1830, the English Parliament—the majority of whom were large landowners—passed a series of laws called the Enclosure Acts, in which they took over and fenced off land formerly shared by peasant farmers. In the 1500s, enclosed lands gained pasture for sheep and increased work output. By the 1700s, the land-owning aristocracy began to fence in the common lands of villages and replace the strip farms of medieval times with larger fields that could be cultivated more efficiently. The large landowners employed new farming techniques that led to increased production, but at a price. Machines displaced many farm laborers. Small farmers were forced off the land because they could not compete with the larger, more efficient farmers. They migrated to the towns and cities in large numbers to seek factory jobs.

The Agricultural Revolution contributed to a rapid growth of population in Europe. In Great Britain alone, the population soared from 8.6 million in 1700 to almost 15 million in 1800. Similarly, the population in Europe rose from 120 million to about 190 million by the beginning of the 1800s. Reasons for this population explosion included the following:

- The risk of famine was reduced because of the vast quantities of food being produced by the new agricultural methods.
- People ate a more balanced diet, contributing to overall better health.
- A better diet for women made them able to have stronger babies.
- Vaccines were developed against diseases such as smallpox. Improved medical care further reduced deaths from diseases.

The Industrial Revolution

The Agricultural Revolution helped to trigger the **Industrial Revolution**. The Industrial Revolution can be viewed in two ways:

1. A slow, gradual process that began during the Stone Age and continues to evolve to the present with changes in technology.
2. A shift that took place between 1750 and 1830 in the production of goods from handmade items to items made by more expensive and complicated machines. These changes also resulted in the transfer of work from home (the domestic system) to the factory system.

Although both views are valid, this book adopts the second view. The Industrial Revolution began in England in the second half of the eighteenth century for the following reasons:
England was rich in raw materials secured from the colonies and worldwide trade. It was also rich in natural resources such as coal, which was used to power steam engines and iron ore, which was used to build the machines.

Wealthy men had the capital to invest in machinery and factories.

The Agricultural Revolution provided a large pool of displaced workers needed to run the mines, build factories, and run machines.

A stable government encouraged science, inventions, and the application of new methods of industry. The **Royal Society of London** (1660), the world’s oldest scientific society, spurred scientific research.

As an island, England was cut off from the wars of continental Europe. The country was unharmed and free to develop its new industries.

The Industrial Revolution in England began with a series of technological developments in the textile industry, improvements in the sources of power (steam), and revolutions in transportation. The following table lists important inventions that improved production, provided sources of power, and instituted changes in transportation.

<table>
<thead>
<tr>
<th>Textile Industry</th>
<th>Inventions</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Kay</td>
<td>Flying shuttle (1733)</td>
<td>Sped up weaving and increased production power.</td>
</tr>
<tr>
<td>James Hargreaves</td>
<td>Spinning jenny (1764)</td>
<td>Made it possible to spin several threads at once. This mechanized the spinning wheel.</td>
</tr>
<tr>
<td>Sir Richard Arkwright</td>
<td>Water frame (1771)</td>
<td>This water-powered spinning machine increased the rapidity of spinning.</td>
</tr>
<tr>
<td>Samuel Crompton</td>
<td>Spinning mule (1779)</td>
<td>This combination of spinning jenny and water frame produced strong, fine thread. It spurred the invention of better weaving machines.</td>
</tr>
<tr>
<td>Edmund Cartwright</td>
<td>Power loom (1785)</td>
<td>This water-powered loom provided rapid and automatic weaving.</td>
</tr>
<tr>
<td>Eli Whitney</td>
<td>Cotton gin (1793)</td>
<td>This quick method of separating the seed from the cotton fiber increased the supply of cotton for factories.</td>
</tr>
</tbody>
</table>

The improvement of production in the textile industry opened up new markets, and the adoption of Watt’s steam engine meant that factories could now be built in any convenient location, not just near bodies of water. The development of the steam locomotive paved the way in England for the growth of the railroads (1830–1850), which meant lower transportation costs, larger markets, and cheaper goods. The railroads did not have to follow the course of a river. This meant that goods could go places rivers did not, allowing factory owners and merchants to ship goods over land. Building railroads also took workers from their rural life and made them more inclined to become urban dwellers.

<table>
<thead>
<tr>
<th>Steam Power</th>
<th>Inventions</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thomas Newcomen</td>
<td>Steam engine (1712)</td>
<td>Served chiefly to operate a pump to drain water from coal mines.</td>
</tr>
<tr>
<td>James Watt</td>
<td>Improved Newcomen's work (1769)</td>
<td>This opened up the age of steam. Watt’s engine was adapted for textile-mill use and for transportation.</td>
</tr>
<tr>
<td>Robert Fulton</td>
<td>Steamship (1807)</td>
<td>Sped up shipping and lowered costs.</td>
</tr>
<tr>
<td>George Stephenson</td>
<td>First steam engine locomotive (1814)</td>
<td>Paved the way for the railroad era.</td>
</tr>
</tbody>
</table>
Industrialization swept across Europe from west to east, from England in the eighteenth century to Holland, Belgium, France, and the United States by 1830. By the 1850s, Germany, Italy, and Austria became industrialized and by the end of the nineteenth century, industrialization had spread to Eastern Europe and Russia. In the twentieth century, it spread to Asia, Africa, and Latin America.

**Results of the Industrial Revolution**

The Industrial Revolution brought about many economic and social changes, of which the most dramatic were increased production and availability of goods. Mass-produced goods were cheaper than those in pre-industrial Europe, and therefore more people were able to purchase them. The increased purchase of goods brought great riches to the entrepreneurs and also led to the growth of more jobs. Families migrated to the cities as the demand for workers increased, and entrepreneurs built factories around small market towns. In 1750 the population of Manchester, England, was 17,000 people, and by 1800 there were over 70,000 inhabitants. By the middle of the nineteenth century, England had more people living in cities or urban areas than in the countryside.

Unfortunately, the rapid and unplanned growth of the cities contributed to deplorable living conditions. The working class, or poor, lived in crowded and unhealthy conditions with no running water, no sewage or sanitation system, and garbage rotting in the streets. Cholera and other diseases spread rapidly. Although life in rural areas had always been difficult for the poor, the new concentration of so many people in one spot made it even worse. The lack of transportation within the cities and the slowness of the government to address the need for new sanitary codes contributed to the problems.

Industrialization also affected the family structure. Before, entire families had worked together as a unit under the domestic system. Under the factory system, family members held different jobs and did not work together; moreover, women and children frequently worked under horrible conditions—often 12 to 14 hours per day. In 1821, Michael Sadler, a British legislator, began Parliamentary investigations into the textile industry. The Sadler Committee discovered that children were regularly beaten and abused by factory owners. These investigations led to the passage of legislation regulating the employment of children in factories as well as in mines. In 1833, the first Factory Act restricted the number of hours that children under nine could work. Perhaps the most influential reform was the Ten Hours Act of 1847, which limited women and children to ten-hour shifts. Unfortunately, many parents did not support these laws because they needed the earnings of their children since their own wages were so low.

The Industrial Revolution was a mixed blessing for women. It opened up new economic opportunities for them while creating other problems. Women earned less than one-half of what men earned. Poorer than men, women were also forced, after twelve-hour shifts in the factory, to return to their homes to deal with the daily tasks of feeding and clothing their families and coping with sickness and other problems.

Family life was hard in rural England, but became even more difficult during this era of industrialization. The pre-industrial pattern of women working with their husbands disappeared except for poor women. In earlier times, middle class women often helped with the family business out of the home. By the mid-1800s, women became full-time mothers and not wage earners. Middle-class husbands went to work in an office or shop, and the successful husband was one whose wife did not need to work outside the home.

A woman’s new main responsibility was to rear the children, make all major domestic decisions, and do some religious or charity service. This ideal that women were supposed to sacrifice everything for the welfare of the husband and family led to the rise of what became known as the “cult of domesticity” during the Victorian period, which spanned from 1837 to 1901—the years in which Queen Victoria ruled England. The glorification of the domestic life became popularized in books, songs, and sayings such as “A Man’s Home Is His Castle.” Unfortunately, as was previously mentioned, the ideal of domesticity rarely applied to poor working-class women.

Many individuals saw industrialization as a threat to their way of life. Hand-loom weavers, for instance, lost their jobs and were replaced by machines. A group of anti-industrialists known as the Luddites opposed the new
technology. They smashed machines to preserve their jobs and burned factories. Luddites were named after a
mythical figure, Ned Lud, who destroyed machines in the 1780s. Luddites were treated harshly and were hanged
or sent to penal colonies in Australia.

Another group that opposed industrialization was known as the **Romantics.** The Romantics were composed of
artists, writers, and composers who rebelled against the Enlightenment’s emphasis on reason and stressed emotion.
Some important Romantic writers were **Samuel Coleridge** (1772–1834), **Sir Walter Scott** (1771–1832), and **Victor
Hugo** (1802–1885). Hugo expressed the French revolutionary spirit and fascination with history in his novel *The
Three Musketeers* and the struggle of the individual against a historical backdrop in works such as *Les
Misérables* and *The Hunchback of Notre Dame*. The French novelist, **Amandine Aurore Dupin** (1804–1876), who
wrote under the pen name **George Sand**, was the most successful woman writer of the nineteenth century. She
eraned much notoriety for her Bohemian lifestyle and smoked cigars, dressed like a man, and had affairs with
married men and famous artists like Frédéric Chopin. Her first independent novel, *Indiana*, describes the story of
an unhappy wife whose struggle to free herself from the imprisonment of marriage, which Sand called a form of
slavery, made her an overnight celebrity.

Some Romantic composers included **Frédéric Chopin** (1810–1849), **Franz Liszt** (1811–1886), and **Hector Berlioz**
(1803–1869). One of the most famous was **Ludwig van Beethoven** (1770–1827). This German composer combined
classical forms with a stirring range of sound. At first, Beethoven wrote in the style of the music popular during
the Enlightenment, then progressed to his *Ninth Symphony*, which celebrates freedom, dignity, and triumph. In
all, Beethoven produced nine symphonies, five piano concertos, a violin concerto, an opera, and two masses. His
expanded use of the orchestra was a revolutionary movement from the controlled and formal compositions of
the Enlightenment.

Romantic artists included **J. M. Turner** (1775–1851) and **Eugène Delacroix** (1798–1863). Delacroix, in *Liberty
Leading the People*, dramatically depicts the revolutionary tricolore flag as French citizens rally to the cause of
freedom after the overthrow of Charles X in 1830. Poets such as **William Blake** (1757–1827) and **William
Wordsworth** (1770–1850) wrote about the horrors of the Industrial Revolution. They viewed modern industry as
ugly and as a brutal attack on nature and humanity. By emphasizing feelings, the Romantics helped create
humanitarian movements to fight poverty and industrial evils.

The hardships and changes brought about by the Industrial Revolution gave rise to various solutions that led to
new theories of economics. One of them was the **Classical School of Economics**, which rejected the government
restriction of mercantilism in favor of free trade. Classical economics appealed to the new middle class since they
looked upon tariffs and other government restrictions as obstacles to progress. Some important leaders in this
movement are listed in the following table.

<table>
<thead>
<tr>
<th>Leader</th>
<th>Writings</th>
<th>Main Ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adam Smith</strong></td>
<td><em>The Wealth of Nations</em> (1776)</td>
<td><em>Laissez-faire</em>: The government should not get involved with the national economy. It should act as an agency to ensure that everyone is following the laws of society. The “invisible hand” of supply and demand will promote the best interest of society. Smith’s ideas became the basis of the economic system of capitalism during the Industrial Revolution.</td>
</tr>
<tr>
<td>(Scottish) 1723–1790</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Thomas Malthus</strong></td>
<td><em>An Essay on the Principle of Population</em> (1798)</td>
<td>Poverty and misery were unavoidable because population growth was increasing faster than food supply. War, disease, and famine were checks on population growth. Smaller families could stop the population growth.</td>
</tr>
<tr>
<td>(English) 1776–1834</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>David Ricardo</strong></td>
<td><em>On the Principles of Political Economy and Taxation</em> (1817)</td>
<td>Iron Law of Wages: Human wages must be sufficient to buy food. When wages are high, families have more children, but that increases the supply of labor, which leads to lower wages and higher unemployment. Like Malthus, Ricardo believed in limiting the size of the family and opposed governmental help for the poor for fear it would lead to greater suffering.</td>
</tr>
<tr>
<td>(English) 1772–1823</td>
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</tbody>
</table>
Many nineteenth-century thinkers condemned the evils of industrialization and capitalism and offered socialism as a means to end the poverty and injustices in society. Socialism can be defined as state (rather than private) ownership of the means of production (farms, factories, and railroads) and other large businesses that produce and distribute goods. The goal of the socialists was a society that operated for the welfare of all the people, and they felt that state ownership was a means to that end.

Socialism began in France and England in the early 1800s. The early socialists were called Utopian socialists because they offered no practical plan for achieving their ideal society. They thought that industrialists would support socialism as soon as they realized how effective it could be. The most outstanding Utopian socialists were the following:

- **Henri Comte de Saint-Simon** (1760–1825) was a French socialist who advocated the end of private property. He believed that a cadre of skilled businessmen and scientists should run the state for the betterment of the lower classes.

- **Robert Owen** (1771–1858) was a successful English industrialist who created a model industrial community in Scotland at New Lanark, the site of cotton mills. Contrary to the prevailing practices, he paid high wages, reduced working hours, ended child labor, built decent homes, provided education for the workers, and permitted the workers to share in management and profits. His New Lanark community prospered, but he was disappointed that others did not follow his example.

- **Louis Blanc** (1811–1882) believed that every person had a right to a job and that the state should provide work for the unemployed in government-sponsored or national workshops. His ideas were successful for a short time in France during the Revolution of 1848.

- **Karl Marx** (1818–1883) was a German writer and economist who, in the 1840s, advocated a more militant form of socialism called Communism. He used this term to distinguish his views from those of the Utopian socialists, whom he condemned as unrealistic dreamers. His basic ideas are contained in *The Communist Manifesto*, a pamphlet he wrote in collaboration with Friedrich Engels (1820–1895) in which he called for a worldwide revolution to end the abuses of capitalism. *Das Kapital* is a three-volume work, with the first volume published in 1867, the second in 1885, and the third in 1895.

The basic theories of Marxism are as follows:

- **Economic View of History.** Marx argued that economics determines the course of history. Economic conditions shape the institutions of society such as religion and government.

- **Class Struggle.** History is a continuous class struggle between the “haves” and the “have nots.” Marx’s theory of historical evolution was built on ideas of the German philosopher Georg Hegel (1770–1831). Hegel believed that history was ideas in constant motion between the thesis and the antithesis. Marx accepted Hegel’s view of history as the dialectic of the process of change but substituted economics as the driving force in history. Thus, in ancient times the struggle between the patricians and the plebeians; in the Middle Ages between the lords and the serfs; in industrial society between the capitalists and the workers (proletariat). Capitalists exploit the workers by paying them just enough wages to keep them alive. Marx predicted that the future would bring a violent revolution by the workers to overthrow the capitalists.
Inevitability of Revolution. Marx predicted that the hostility between the classes would be aggravated as the rich get richer and the poor get poorer. As conditions worsen, especially during depression or war, the working class will inevitably revolt and establish a “dictatorship of the proletariat.” This dictatorship will create a collective, classless society. Marx also believed that the revolution would first come to industrial nations such as the United States and England, not an agricultural country such as Russia.

Surplus Value. Capitalists take advantage of workers by not paying them the true value of their labor. The workers receive only a small portion of their just price or just enough to keep them alive. The difference between the worker’s wage and the price of the goods produced is the surplus value. This surplus value is the profits for the capitalist and contributes to the class struggle that inevitably leads to revolution.

Communist Society. Once the proletariats establish a classless society, the “state will wither away” as it will no longer be needed as a result of the elimination of all other classes besides the proletariat. Private property will be abolished and the production of goods and availability of services would make the Marxist principle, “from each according to his ability to each according to his needs,” a reality.

Marx brought a revolutionary zeal to the class struggle because he wanted to unite the workers of the world by organizing socialist parties. In 1864, a socialist organization was founded in London, which became known as the First International. However, internal struggles led to its dissolution in 1876. In 1889, socialist parties of many countries organized the Second International, and these parties became powerful across Europe.
## Chronology of the Agricultural and Industrial Revolutions

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1705</td>
<td>Thomas Newcomen builds the steam engine to pump water out of coal mines.</td>
</tr>
<tr>
<td>1733</td>
<td>John Kay invents the flying shuttle.</td>
</tr>
<tr>
<td>1764</td>
<td>James Hargreaves invents the spinning jenny.</td>
</tr>
<tr>
<td>1768</td>
<td>Richard Arkwright invents the water frame.</td>
</tr>
<tr>
<td>1769</td>
<td>James Watt patents the steam engine, allowing, for the first time in history, a steady and unlimited source of power.</td>
</tr>
<tr>
<td>1771</td>
<td>Robert Owen, one of the early Utopian socialists, is born.</td>
</tr>
<tr>
<td>1776</td>
<td>Adam Smith publishes <em>The Wealth of Nations</em>, which develops the theory of laissez-faire capitalism.</td>
</tr>
<tr>
<td>1779</td>
<td>Edmund Cartwright invents the power loom for machines.</td>
</tr>
<tr>
<td>1785</td>
<td>Eli Whitney invents the cotton gin.</td>
</tr>
<tr>
<td>1803</td>
<td>The first steam wagon appears on the streets of London.</td>
</tr>
<tr>
<td>1807</td>
<td>Robert Fulton drives the steamboat <em>Clermont</em> up the Hudson from New York to Albany.</td>
</tr>
<tr>
<td>1832</td>
<td>The Great Reform bill is passed by British Parliament; rotten boroughs were eliminated and there was an increase of voters in industrial areas because property qualifications for voting were reduced.</td>
</tr>
<tr>
<td>1833</td>
<td>The Factory Act passes in England, limiting the number of hours that children can work.</td>
</tr>
<tr>
<td>1837</td>
<td>The telegraph is developed; the Chartist Movement is born.</td>
</tr>
<tr>
<td>1847</td>
<td>The Ten Hours Act is passed in England, permitting children and women to work only ten-hour shifts.</td>
</tr>
<tr>
<td>1848</td>
<td><em>The Communist Manifesto</em> by Karl Marx and Friedrich Engels is published.</td>
</tr>
<tr>
<td>1849</td>
<td>The last of the Navigation Acts are repealed.</td>
</tr>
<tr>
<td>1851</td>
<td>England is connected to the European continent by telegraph wire.</td>
</tr>
<tr>
<td>1867</td>
<td>The Reform Bill of 1867 is passed in England and the franchise is increased by 124 percent.</td>
</tr>
<tr>
<td>1872</td>
<td>The secret ballot becomes a law in England.</td>
</tr>
<tr>
<td>1891</td>
<td>Pope Leo XII issues <em>Rerum Novarum</em>, which addresses the struggle between capitalists and workers.</td>
</tr>
</tbody>
</table>
Sample Multiple-Choice Questions

1. Which was one of the basic principles of mercantilism?
   A. Countries must export more than they import.
   B. Tariff barriers should be avoided.
   C. Colonies are not essential for the mother country.
   D. Government should limit its involvement in the economy.
   E. A country has to maintain a favorable balance of trade to build up its supply of gold and silver.

2. The Industrial Revolution began in England for all of the following reasons, EXCEPT that
   A. England had an adequate supply of raw materials.
   B. considerable money was available for investments.
   C. there was a large supply of available workers.
   D. the government was stable.
   E. prices were high due to an inadequate food supply.

3. A direct result of the eighteenth-century Enclosure Acts in Great Britain was
   A. an increase in agricultural efficiency.
   B. an increase in rural population.
   C. exports of food and fiber to the continent.
   D. an increase in small farms.
   E. a de-emphasis on scientific farming.

4. Most of the technological advances of the early Industrial Revolution occurred in the following area:
   A. Textiles
   B. Chemicals
   C. Railways
   D. Ships
   E. Heavy machinery

5. The Luddites of the nineteenth century were
   A. political liberals.
   B. apprentices.
   C. workers who smashed the machinery that eliminated their jobs.
   D. communists.
   E. union laborers.

6. “In the natural advance of society, the wages of labour will have a tendency to fall, as far as they are regulated by supply and demand; for the supply of labourers will continue to increase at the same rate, while the demand for them will increase at a slower rate . . . I say that, under these circumstances, wages would fall if they were regulated only by the supply and demand of labourers; but we must not forget that wages are also regulated by the prices of the commodities on which they are expended.”

   This passage is best associated with the ideas of
   A. Robert Owen.
   B. Louis Blanc.
   C. David Ricardo.
   D. Karl Marx.
   E. Jeremy Bentham.

7. One of the goals of the Royal Society of London, founded in 1660, was to
   A. promote political democracy.
   B. foster social reforms.
   C. encourage scientific research.
   D. support the expansion of public education.
   E. develop programs for geographic exploration.

8. Which of the following is not associated with his contribution to the Agricultural Revolution?
   A. Jethro Tull—reaper
   B. Charles “Turnip” Townshend—crop rotation
   C. Robert Bakewell—scientific breeding of animals
   D. Charles Newbold—cast-iron plow
   E. John Deere—self-cleaning plow
9. Adam Smith would most likely have supported the belief that
   A. the government should regulate all businesses.
   B. the free market would benefit all members of society.
   C. monopolies would be good for a state.
   D. population would grow faster than production.
   E. the free market would benefit only the wealthy.

10. Which of the following is not associated with the ideas of Karl Marx?
   A. Inevitability of revolution
   B. Natural selection
   C. Class struggle
   D. Surplus value
   E. Economic view of history
Multiple-Choice Questions: Answers and Explanations

1. E. European monarchs adopted this economic policy from the sixteenth to the eighteenth centuries in their quest for colonies and trade. Under mercantilism, colonies existed for the benefit of the mother country. Colonies provided raw materials for the mother country, and in return the colonists were expected to serve as a market for manufactured goods. Mercantilism also required that a country achieve a favorable balance of trade by exporting more than it imported. European countries passed strict navigation laws to ensure that the colonies traded with the mother country and foreign goods were kept out of the country. Government was expected to closely regulate the economy so as to maximize exports.

2. E. High prices due to inadequate food supply was not one of the contributing factors that gave rise to the Industrial Revolution in England. The Agricultural Revolution in the first half of the eighteenth century had provided England with a surplus labor supply and the means to feed it, as well as surplus capital. These agricultural changes prepared England for what Professor W.W. Rostow in his study, *The Stages of Economic Growth* (1960), has termed “the industrial takeoff.”

3. A. Enclosure, or fencing in of land, was a widespread practice in Great Britain after 1760. The Enclosure Acts allowed powerful landlords to use open fields, strips, and village commons, and evicted tenant farmers from leased lands. As millions of acres were enclosed, farm output increased. Profits also rose because large fields needed few people to work them. The improvement of agricultural efficiency had a human cost, however. Villages shrank as small farmers, who were forced off their land because they could not compete with large landholders, left in search of work. England did not export food to the continent, but instead used its improved food production to supply its growing population. The Enclosure Act contributed to the growth of scientific farming as the British continued to improve farm production. Charles Townshend’s use of crop rotation and Robert Bakewell’s experiments in scientific breeding highlighted the importance of science in agriculture.

4. A. The Industrial Revolution first took off in the textile industry. In the 1700s, as the demand for cotton goods grew, inventors came up with a string of devices that revolutionized the British textile industry. In 1733, John Kay’s flying shuttle sped up weaving by the loom and created a demand for more thread. One invention led to another, such as the spinning jenny, the water frame, the power loom, and the cotton gin. The innovations in the textile industry improved productivity. Improvements in chemicals, railways, ships, and heavy machinery would occur in the nineteenth century as the need for markets led to the development of different sectors of the economy.

5. C. The Luddites were skilled artisans who resisted the new labor-saving machines that were costing them their jobs. They were conservatives and not political liberals. These men were reacting to industrialization by using violent methods and did not turn to communism or unions as a way to meet their demands.

6. C. These words are derived from David Ricardo’s writings from *Principles of Political Economy and Taxation*. These ideas became known as the so-called Iron Law of Wages, which states that increased supply of labor leads to lower wages and higher unemployment. Robert Owen was an English Utopian socialist. Louis Blanc was a French socialist who believed that the state should provide national workshops for the unemployed. Karl Marx was the founder of communism. Jeremy Bentham was the founder of a utilitarian school of social philosophy.

7. C. The Royal Society of London had its beginnings in the English Civil War which engulfed much of Great Britain in the mid-1600s. In 1660, they obtained a charter from King Charles II and their goal was to discuss scientific topics. Their purpose was to promote mathematical and experimental learning. Early members included Sir Isaac Newton and Edmund Halley. The society has provided an impetus for scientific thoughts and research. Its publication, *Philosophical Transactions*, is the oldest scientific periodical in continuous publication. The Society has not been involved in promoting political democracy, social reform, education, or programs for geographical exploration.

8. A. Jethro Tull (1674–1741) invented the seed drill (1701). Tull’s seed drill planted seeds in straight lines rather than by hand. The drill distributed seeds in an even manner and at the proper depth. This method also permitted cultivation between rows, increasing the amount of food produced per acre. Cyrus McCormick invented the reaper in 1834.
9. B. Adam Smith believed that the free market would benefit all members of society. In 1776, Smith wrote *The Wealth of Nations*. Smith argued that the free market, through the natural laws of supply and demand, should be allowed to operate and regulate all businesses. He tried to show how manufacturing, trade, wages, profits, and economic growth were all linked to the forces of supply and demand. The free market would produce more goods at lower prices, making them affordable to everyone. A growing economy would also encourage capitalists to reinvest and spur continued economic growth. Smith believed in *laissez-faire* (leave business alone) and that the marketplace was better off without any government regulation. Smith rejected monopolies and encouraged competition. Thomas Malthus discussed the relationship between population growth and production. Smith believed that a growing economy would benefit more members of society than the wealthy.

10. B. Charles Darwin’s *Origins of the Species* is associated with natural selection and the theory of evolution. In 1848, Karl Marx outlined his ideas of history in *The Communist Manifesto*. He proposed a scientific theory of history in which economic conditions determine history. He wrote that history is a struggle between the *haves* and *have-nots*. In ancient times, the struggle was between plebeians and patricians. During the Middle Ages, the struggle was between lords and serfs. In industrial societies, the final struggle is between the factory owners, who are the *haves*, and the workers, who are the *have-nots*. Marx predicted that there will be a worldwide revolution in which the workers will rise up against the owners and form a classless society. He felt that the conflict was inevitable because workers worldwide are being oppressed by capitalist owners. The difference between the workers’ wages and the prices of the goods produced is the surplus value (profits). The surplus value contributes to the class struggle and inevitably leads to revolution.