

WRITE AS A HISTORIAN: USING CONTRADICTIONARY INFORMATION

Part of writing a good history essay is to explain information that seems to be in conflict. If the contradiction simply reflects different points of view of two observers, explain each observer's perspective. If the contradiction reflects the behavior of an individual, explain the relationship between contradictory information. For example, perhaps the person changed positions over time.

Voltaire said, "Christians should tolerate each other." He also called Christianity "absurd." Which *THREE* of the following sentences best explains the relationship between Voltaire's comments about Christianity?

1. Voltaire held many different viewpoints. For example, he called for religious toleration and he was also critical of Christianity.
2. Voltaire had seen how Christians persecuted each other, which explains why he was both critical of Christianity and why he called for religious toleration.
3. Voltaire's comments on religion reflected his self-interest. He knew his views of Christianity were unpopular, so he urged others to be tolerant of diverse ideas.
4. Voltaire was consistently critical of Christianity, but sometimes he was gentle in his criticism and at times he was blunt.
5. It is hard to tell Voltaire's view of Christianity. Sometimes he was very critical of it. Other times, he was urging it to reform.

Industrial Revolution, 1750–1900

One man draws out the wire, another straightens it, a third cuts it, a fourth points it, a fifth grinds it at the top for receiving the head; . . . and the important business of making a pin is, in this manner, divided into about eighteen distinct operations.

—Adam Smith, *Wealth of Nations* (1776)

The quote above describes the rigid structure of early factory work, one of the most enduring images of the *Industrial Revolution*. The term *industrialization* refers not only to the increased mechanization of production, but also to the social changes that accompanied this shift. The Industrial Revolution began in Britain in the eighteenth century, and then it spread to other countries in northwest Europe and North America in the nineteenth century. Still later in the nineteenth century, it spread to Japan and Russia. In order to appreciate the impact of industrialization, it is important to understand its causes as well as what life was like prior to industrialization.

Preindustrial Societies

During the early eighteenth century, most families in Britain lived in rural areas, grew most of their own food, and made most of their own clothes. For centuries, wool and flax had been raised domestically, and people spun fabrics in their own homes.

However, one result of the East India Company's dealings with South Asia was that Indian cotton became available in Britain and before long it was in high demand. Wool and flax could not be produced as quickly or in as much quantity to compete with cotton imports. To compete with Indian cotton, investors in Britain began to build their nation's own cotton cloth industry. Using imported raw cotton produced by slave labor in the Americas, the British developed the *cottage industry* system, in which merchants provided raw cotton to women who spun it into finished cloth in their own homes.

Home spinning was hard work and did not pay well, but cottage industries gave women weavers a degree of independence. While working in their own homes, they were also within close proximity of their children. But this cottage industry, or *putting-out system* as it was called, was slow. Inventors demanded faster production, spurring the development of technologies that turned out cloth in more efficient ways.

Causes of Industrialization

The most obvious cause of industrialization was the development of technology. However, technological advances were not the only cause. Population growth and access to resources were other major contributors to Britain's industrialization. Yet analyzing historical causation is a complex process. Saying "A caused B" is often an oversimplification. Usually, historical causation is an expanding chain of causes and effects. For example, while the development of technology was one cause of industrialization, the growth of industrialization then spurred further advances in technology.

Growth of Technology By the mid-eighteenth century, the *spinning jenny* and the *water frame* reduced the time needed to spin yarn and weave cloth. The spinning jenny, invented by *James Hargreaves* in the 1760s, allowed a weaver to spin more than one thread at a time. The water frame, patented by *Richard Arkwright* in 1769, used waterpower to drive the spinning wheel. The water frame was more efficient than a single person's labor, and this mechanization doomed the household textile cottage industry, as textile production was moved to factories big enough to house these bulky machines. Arkwright was thus considered the father of the *factory system*.

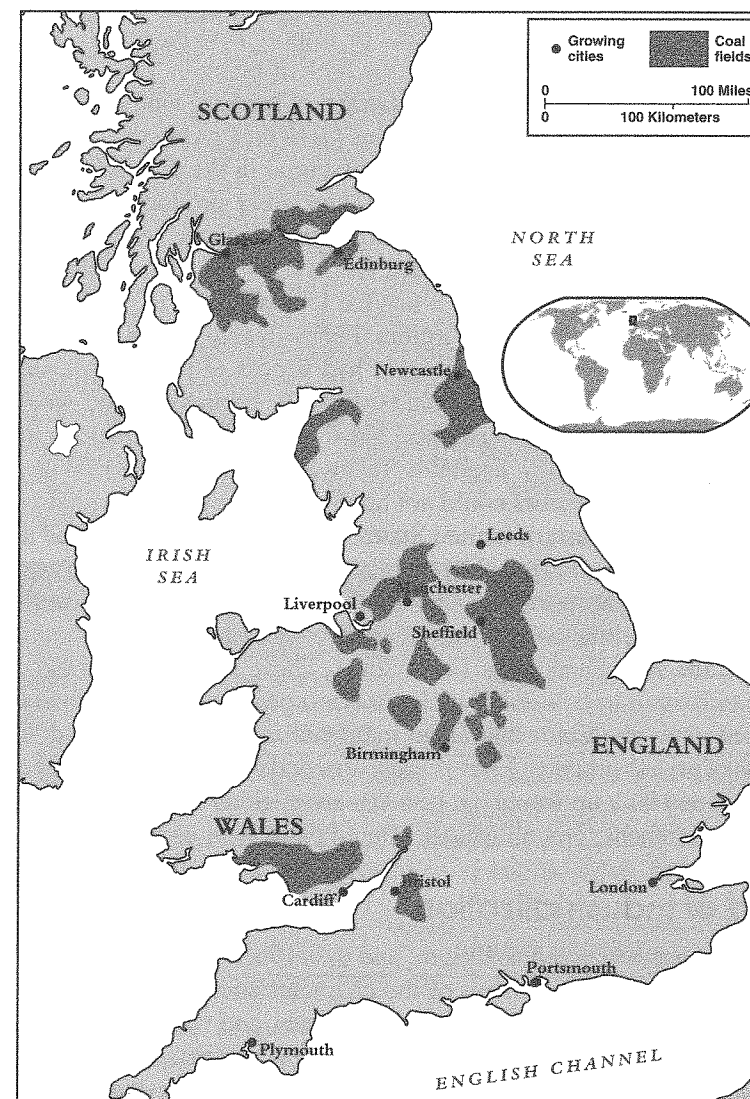
Interchangeable Parts In 1798, *Eli Whitney*, best known for developing the cotton gin, created a system of *interchangeable parts* for manufacturing firearms for the U.S. military. In Whitney's system, if a particular component of a machine were to break, the broken component could easily be replaced with a new, identical part. Entrepreneurs adapted this method of making firearms to the manufacture of other products. The system of interchangeable parts was a pivotal contribution to industrial technology. Instead of relying on skilled workers to craft every component of a product, Whitney's standardized tools allowed unskilled workers to attach a particular piece to a product. This led directly to a *division of labor* among workers. In this system, each worker specializes in a specific task. For example, one worker might cast a part. Once cast, the part is given to another worker, whose specific job it is to install the part on the finished product, and so on. In the early twentieth century, Henry Ford expanded the concept of the division of labor, developing the moving *assembly line* to manufacture his Model T automobiles.

Steam Engine The new machinery benefitted from a power source, one more mobile than rivers and streams. The *steam engine*, created by *James Watt* in 1765, harnessed coal power to create steam, which in turn generated energy for mechanical devices in textile factories. A steam-powered locomotive came almost 50 years later and produced power for railway trains.

Just as important was the development of the *steamship* in the late eighteenth century. Steam-powered ships were able to travel quickly upstream on rivers instead of having to sail up or be towed by people and animals along the shore. Steamships revolutionized transportation on lakes and the oceans as well, because ship captains were no longer dependent on winds for power. The need to travel long distances along ocean coasts led to the creation of coaling stations at critical points, such as in Cape Colony in South Africa and various islands in the Pacific.

Population Growth Slightly predating the Industrial Revolution during the early 1700s was an *agricultural revolution* resulting in increased productivity. *Crop rotation* (rotating different crops in and out of a field each year) and the *seed drill* (a device that efficiently places seeds in a designated spot in the ground) both increased food production. Additionally, the introduction of the potato from South America contributed more calories to people's diets. As nations industrialized, their populations grew because more food was available to more people. And because of improved medical care, infant mortality rates declined and people lived longer. With these demographic changes, more people were available to work in factories and to provide a market for manufactured goods.

THE GROWTH OF BRITISH CITIES, C. 1800



Urbanization However, the growing population would not remain in rural areas. Migration was sometimes the best of bad options. English towns had traditionally allowed farmers to cultivate land or tend sheep on government property known as “the commons.” However, this custom ended with the *enclosure movement* as the government fenced off the commons in order to give exclusive use of it to people who paid for the privilege or who purchased the land. Many farmers became landless and destitute. The enclosure movement was thus instrumental in another wave of demographic change—forcing small farmers to move from rural areas to urban areas such as *Manchester* and *Liverpool*, and become the new industrial workforce.

Britain’s Advantages Britain had many geographical advantages in the process of industrialization. Located on the Atlantic Ocean with its many *seaways*, the country was well placed to import *raw materials* and export finished goods. It also had the geographic luck of being located atop immense coal deposits. Coal was vital to industrialization because when burned it could power the steam engine. The burning of this *fossil fuel*, an energy source derived from plant and animal remains, was also essential in the process of separating iron from its ore. Iron production (and later steel production) allowed the building of larger bridges, taller buildings, and stronger ships. Coal mining became the major industry of northern and western Britain, including South Wales, Yorkshire, and Lancashire. When the United States industrialized, coal-mining areas developed in West Virginia, Pennsylvania, and Kentucky.

As a colonizing power, Britain also had access to resources available in its colonies, including timber for ships. Largely because of the wealth they accumulated during the trans-Atlantic slave trade, enough British capitalists had excess *capital* (money available to invest in businesses). Without this capital, private entrepreneurs could not have created new commercial ventures.

Britain, the northeastern United States, and other regions also had a natural network of rivers supplemented by publicly funded canals and harbors. These water routes made transport of raw materials and finished products inexpensive.

Britain also had the world’s strongest fleet of ships, including commercial ships for trade and naval ships for defense. These ships brought agricultural products to Britain to be used to make finished products for consumers.

A final and vital factor that aided industrialization in Britain was the legal protection of private property. Entrepreneurs needed the assurance that the business they created and built up would not be taken away, either by other businesspeople or by the government. Not all nations offered these legal guarantees.

Spread of Industrialization

After Britain industrialized, Belgium, and then France and Germany followed. These countries possessed many of the characteristics that allowed Britain to industrialize, including capital, natural resources, and water transportation.

One factor that was not in France’s favor was its sparsely populated urban centers, which limited the amount of labor available for factories. Another factor was the French Revolution (1789–1799) and subsequent wars involving

France and its neighbors, which consumed both the attention and the capital of France’s elites. These factors delayed the Industrial Revolution for France.

Germany was politically fragmented into numerous small states, which delayed its industrialization. However, once Germany unified in 1871, it quickly became a leading producer of steel and coal.

The United States began its industrial revolution in the nineteenth century. By 1900, the United States was a leading industrial force in the world. The construction of railroads, including the *Transcontinental Railroad* that connected the Atlantic and Pacific oceans when it was completed in 1869, facilitated U.S. industrial growth. Like the canals, the railroads were heavily subsidized by public funds. The nation’s vast natural resources, including timber, coal, and oil, contributed to its development as an industrial nation. *Human capital* (the workforce) was also a key factor in America’s success. Political upheaval and widespread poverty brought a large number of immigrants to the United States from Europe and East Asia. These immigrants, as well as migrants from rural areas in the United States, provided the labor force to work in the factories. (For more on industrialization in North America, see Chapter 24, “Imperialism Increases Global Links.”)

The United States, Great Britain, and Germany were key players in what is known as the *second industrial revolution*, which occurred in the late nineteenth and early twentieth centuries. The innovations of the first industrial revolution were in textiles, steam power, and iron; the developments of the second industrial revolution were in steel, chemicals, precision machinery, and electronics. The development of chemical techniques to extract kerosene from petroleum in 1847 led to other developments such as the internal combustion engine, which in turn led to automobile and airplane technologies. Similarly, the harnessing of electrical power led to electrification—street lighting and electric street trains in the 1890s. Other technologies followed as well, such as the telephone (1876) and wireless communication and radio (1901).

Agricultural Products for Trade in the Nineteenth Century		
Product	Producers	Users (Finished Products)
Wheat	Russia, Britain	Britain (food)
Rubber	Brazilian Amazon	Britain (tires, footwear, fabrics)
Palm Oil	West Africa, Indonesia	Britain (cooking oil, soap)
Sugar	Caribbean Islands, Brazil	Britain (refined sugar)
Cattle and Hogs	United States, Ireland, Argentina	Britain, United States (meat)
Cotton	United States	Britain (textiles)

By the end of the nineteenth century, Japan also began the process of industrialization. Under the *Meiji* (1868–1912), Japan ended its self-imposed isolation from the rest of the world. It had been alarmed by the advanced navy

and armaments produced by the industrial systems of the West—particularly those of Britain and the United States—and how they had humiliated China. Japan's leaders realized that their country needed to industrialize to protect itself. The leaders hired foreign experts to instruct their workers and business managers about modern industry. However, in replicating the "progress" made by Western countries, the Japanese also replicated some of industrial society's problems. For example, accounts of abuse and exploitation of female Japanese mill workers are similar to the experiences that British female mill workers had recorded decades earlier. (Test Prep: Write a brief paragraph comparing Japan's industrialization with developments in Europe and the United States. See pages 456–457.)

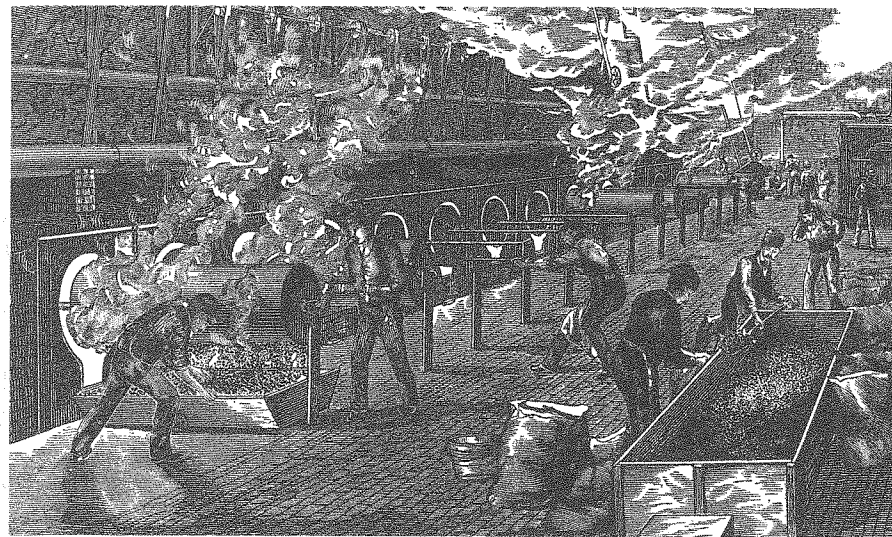
Russia also began to industrialize, focusing particularly on railroads and exports. By 1900, Russia had more than 36,000 miles of railroad, connecting its commercial and industrial areas. The *Trans-Siberian Railroad* stretched from Moscow to the Pacific Ocean, allowing Russia to trade more easily with countries in East Asia, such as China and Japan. The Russian coal, iron, and steel industries developed with the railroad, mostly in the 1890s. By 1900 Russia had become the fourth largest producer of steel in the world. However, the economy remained overwhelmingly agricultural until after the Communists came to power in a revolution in 1917.

Effects of the Industrial Revolution

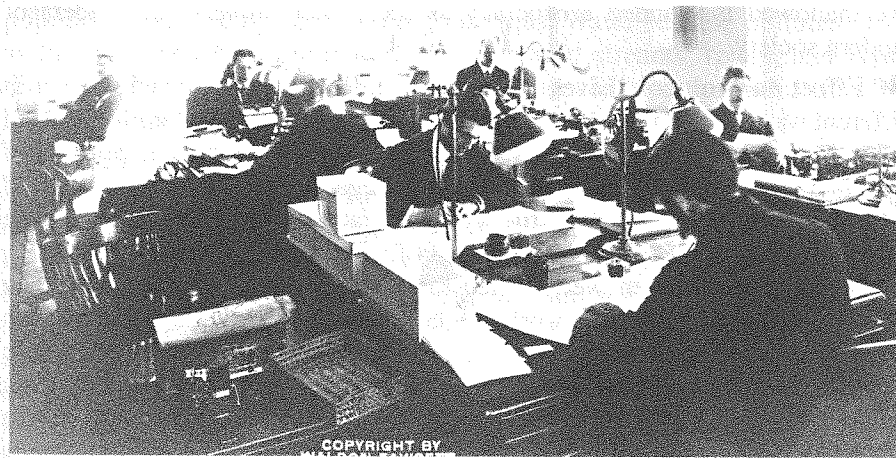
The Industrial Revolution affected every aspect of society, transforming not only the way products were manufactured, but also the nature of work itself. Because of industrialization, people began to move from rural to urban areas, a trend that continued through the twentieth century. By the beginning of the 1900s, British society was more urban than rural. The new workplace and the growth of business created an entirely new class hierarchy. Women and children at every rung of society saw their roles in the family change dramatically.

Effects on Families Prior to industrialization, family members worked in close proximity to one another. Whether women spun fabric in their own homes or landless workers farmed the fields of a landlord, parents and children usually spent their working hours together. Industrialization disrupted this pattern. The machinery of industry needed to be operated in large factories, making it impossible to work from home. Thus, family members had to leave their homes and neighborhoods for a long workday in order to earn enough money to survive. Once at work, their schedules were nothing like those found on a farm or working at home in the cottage industry system. The shrill sounds of the factory whistle told workers when they could take a break, obviously a culture shock to ex-farmers who had previously completed tasks according to their own needs and schedules. Considering that workers commonly spent 14 hours a day, six days a week in a factory, exhaustion was common. Some of these exhausted workers operated dangerous heavy machinery, which regularly resulted in injury and death.

The low wages of factory workers forced them to send their children to work in the industries also. In the early decades of industrialization, children as young as five worked in textile mills. Because of their small size and nimble fingers, children could climb into equipment to make repairs or into tight spots in mines more easily than could adults. However, the dust from the textile machinery damaged their lungs just as much. Children who worked in coal mines faced even more dangerous conditions, working in oppressive heat and carting heavy loads of coal. Coal dust was even more unhealthy than factory dust, and mine collapses and floods loomed as constant threats to safety.



Source: Thinkstock



Source: Thinkstock

Industrialization created new jobs in factories (upper) and offices (lower) that pulled people from rural areas into urban areas, a process that continues around the world today.

Effects on Urban Areas Industrialization increased *urbanization* (the growth of cities). For the first half of the nineteenth century, urban areas grew rapidly and with little planning by governments. This left a damaging ecological footprint and created inhumane living conditions for the cities' poorest residents. Working families crowded into shoddily constructed *tenement* apartment buildings, often owned by factory owners themselves. Tenements were often located in urban *slums* (areas of cities where low-income families were forced to live), where industrial by-products such as polluted water supplies and open sewers were common. These unsanitary conditions were breeding grounds for diseases such as cholera, dysentery, and tuberculosis.

Effects on Class Structure As industrialization spread, new classes of society emerged in Britain. At the bottom rungs of the social hierarchy were those who labored in factories and coal mines. These slum dwellers were known as the *working class*. Though they helped construct goods more rapidly, the technology of interchangeable parts and the factory system's division of labor had deprived workers of the experience of crafting a complete product. In comparison to the craft workers and artisans of earlier generations, workers were low skilled and therefore easily replaceable, at least in the eyes of their managers, who were thus able to pay them lower wages.

Just as industrialization had created low-skilled jobs, it also required people with education and sophisticated skills to manage production of goods. A new middle class emerged, consisting of factory and office managers, small business owners, and professionals. *White-collar* jobs (those held by office workers) were also created during this time period. Unlike most factory workers, white-collar workers were literate and many could be considered middle class.

At the top of the new class hierarchy were the newly wealthy industrialists and owners of large corporations. These so-called *captains of industry* soon overshadowed the landed aristocracy as the power brokers and leaders of modern society.

Effect on Women's Lives The Industrial Revolution affected women in different ways, depending on their class position. Because their families needed the money, working-class women worked in coal mines (until the practice of hiring women for coal mining was declared illegal in Britain in the 1840s) and were the primary laborers in textile factories. Factory owners preferred to hire women because they could pay them half of what they paid men.

Middle-class women were spared factory work, yet in many ways they lived more limited lives than working-class women. Middle-class men had to leave the house and work at an office to provide for their families. If a wife stayed at home, it was an indication that her husband was capable of being the family's sole provider. Being a housewife thus became a status symbol. By the late 1800s, advertising and consumer culture contributed to a *cult of domesticity* that idealized the female homemaker. Advertising encouraged women to buy household products that would supposedly make the home a husband's place of

respite from a harsh modern world. Pamphlets instructed middle-class women on how to care for the home, raise children, and behave in polite society and urged them to be pious, submissive, pure, and domestic. For working-class women the cult of domesticity was even more taxing, as they had to manage the household, care for their children, and work full time.

Industrialization also spurred an early feminism. For example, about 300 people met at Seneca Falls, New York, in 1848 to call for equality for women.

Effect on Mass Culture A culture of *consumerism* as well as of leisure developed among the working and middle classes of society in Great Britain. Consumption needed to keep up with production, so began to advertise heavily, particularly to the middle class whose members had some disposable income, or money that can be spent on nonessential goods.

Leisure activities such as biking and boating became popular during the late 1800s. Companies encouraged their workers to participate in athletics, because they believed that sports rewarded virtues such as self-discipline and playing by the rules. The sales of athletic equipment also generated business for rubber factories, and the burgeoning steel industry profited from the construction of sports stadiums.

Perhaps because workers spent the majority of their waking hours in a bleak industrial environment, material goods and leisure entertainment became important escapes. In England and France, soccer (or football, as it is known there) became popular, while in the United States the new sport of baseball grabbed many people's attention.

Effects on the Environment The Industrial Revolution was powered by energy, specifically, the burning of fossil fuels such as coal, petroleum, and natural gas. Although burning coal, for example, produced more energy than burning wood, the effects on the environment were extremely harmful. Industrial towns during the late nineteenth century were choked by toxic air pollution produced by coal-burning factories. Water became polluted, also, as the new industries dumped their waste into streams, rivers, and lakes. (For more about the environmental consequences of industrialization, see pages 605 and 610–611.)

Effects on Business Organization New ways of organizing businesses arose during the Industrial Revolution. Some manufacturers formed giant *corporations* in order to minimize risk. A corporation is a business chartered by a government as a legal entity owned by *stockholders* (individuals who buy partial ownership directly from the company when it is formed or later through a *stock market*). Stockholders might receive sums of money, known as dividends, from a corporation when it makes a profit. If a corporation experiences a loss or goes bankrupt, the stockholders are not liable for the losses. The most that stockholders can lose is what they paid for the stock in the first place.

Some corporations became so powerful that they could form a *monopoly*, meaning that they controlled all aspects of a specific business and eliminated all competition. For example, Alfred Krupp of Essen, Germany, ran a gigantic

company that used the *Bessemer process*, a more efficient way to produce steel, gaining a monopoly in the German steel industry. (In the twentieth century, Krupp's firm produced armaments that helped militarize Germany.)

Responses to the Industrial Revolution

The harsh conditions of urban industrial life provoked resistance. Some workers formed trade unions to advocate for higher pay and safer conditions. Social reformers campaigned for more humane living conditions in cities and working conditions in factories. Some activists went beyond demanding specific improvements; they instead rejected the norms of society produced by capitalism and called for an entirely new social and economic order.

Growth of Unions Dangerous and unsanitary working conditions, low wages, and long hours spurred workers to form *labor unions* (organizations of workers that advocate for the right to bargain over these matters with employers and put the resulting agreements in a contract). For most of the nineteenth century, unions in Great Britain had to organize in secret because the government treated them as enemies of trade. However, by the early twentieth century, unions became more acceptable and membership increased. Unions improved workers' lives by winning minimum wage laws, limits on the number of hours worked, overtime pay, and the establishment of a five-day work week.

Unions sparked a larger movement for empowerment among the working class. In 1832, 1867, and 1884, the British parliament passed reform bills to expand the number of men who could vote and give more representation to British cities. The acts reduced property ownership qualifications as a requirement for voting. These reforms laid the foundation for expansion of the franchise (right to vote) to all men in 1918. British women would not gain equal voting rights until 1928.

Social Reform Along with unions, social activists and reformers hoped to improve the living conditions of the least powerful in society. Reformers' achievements especially benefited children. A law in 1843 declared that children under the age of 10 were banned from working in the coal mines. In 1881, education became mandatory for British children between the ages of 5 and 10. This focus on education, as opposed to work for monetary gain, permanently redefined the role of children in urban society.

All industrializing nations grappled with the new challenges that factory life introduced. Among these nations, Germany implemented the most comprehensive set of social reforms to protect industrial workers. Under the leadership of Chancellor *Otto von Bismarck*, Germany started workers' accident compensation insurance, unemployment insurance, and old age pensions for employees. Bismarck was only somewhat interested in the health and security concerns. He was far more concerned that if his government did not address these problems, socialists and other more radical citizens would demand stronger government action, which would lead to social unrest.

Uniting the World One result of industrialization was to increase interdependence among people around the world. For example, British factories imported minerals from around the world to make into products. They purchased cotton from the United States, Egypt, and India to make textiles that they sold throughout Europe and other parts of the world. Similarly, the responses to industrialization built greater connections among people. Labor leaders advocated formation of international unions so that workers in various countries could unite to demand higher wages. Reforms that began in one country often spread. For example, Bismarck's social reforms spread throughout Europe, and eventually influenced much of the world.

Minerals for Trade		
Product	Important Producers	Important Users
Copper	Cuba, Mexico, Columbia, Peru, Chile, Australia, New Zealand	Europe, especially Britain
Gold	North America, South America, Africa, especially South Africa	Europe, especially Britain
Diamonds	Africa, especially South Africa	Europe, especially Britain
Guano	Mainly Peru, also Africa, and Caribbean and Pacific Islands	Europe, North America

The Intellectual Reaction

The rise of capitalism and industrialization caused people to think about society in new ways. Fresh ideas would shape all later economics and politics.

Adam Smith *The Wealth of Nations* by Adam Smith, first published in 1776, is considered a foundational text in support of *capitalism* and the establishment of private entrepreneurship. In this work, Smith describes his theory of the "invisible hand" of the market; if businesses were allowed to operate in their own interests, society in general would benefit. Though Smith recognized the need for some government regulations, his ideas were a precursor to the *laissez-faire* philosophy popular in the late nineteenth century, which opposed nearly all government regulations that limited business.

John Stuart Mill Others found that *laissez-faire* capitalism could be inhumane to workers, and they called for reform. The philosopher *John Stuart Mill* was a champion of social reforms of the industrial age, including labor unions, child labor laws, and laws ensuring safe working conditions in factories. Mill advocated a philosophy called *utilitarianism*, which sought "the greatest good for the greatest number of people." Utilitarians did not want to end capitalism; they wanted to address growing problems.

Utopian Socialism Unlike Mill, other reformers argued that capitalism was fundamentally flawed. Though it created tremendous wealth it also created tremendous suffering. They argued for *socialism*, a system in which major resources and industries would be owned by the workers or the government on behalf of all people. Some bought large tracks of land where they tried to establish new, ideal communities. (For more on utopian socialists, see page 409.)

Karl Marx The most influential advocate of socialism was *Karl Marx*, a German scholar and writer. In 1848, Karl Marx and *Friedrich Engels* published a pamphlet (now known as *The Communist Manifesto*) that summarized their critique of capitalism. According to Marx, capitalism divided society into two basic classes: the *proletariat* and the *bourgeoisie*. The proletariat was essentially the working class, working in factories and mines, often for little compensation. The bourgeoisie was the middle class and included the capitalists who owned the machinery and factories where the working class produced goods. Marx argued that in the capitalist system the bourgeoisie exploited the proletariat endlessly for the sake of profit. Because the bourgeoisie owned the *means of production*, such as machines, factories, mines, and land, they received most of the profits. The proletariat, who did the physical and dangerous work, received very little of the wealth they produced. Marx exhorted workers to take control of the means of production and share the wealth they created fairly. The end of capitalism, according to Marx, would usher in an era of equality and justice. Marxist socialism also became known as *communism*.

Anarchism Another response to capitalism was to see government itself as the problem. Anarchists argued for abolishing nearly all national government and allowing local communities to rule themselves. While several intellectuals supported this view, the movement became best known for assassinations of several European politicians in the late 1800s.

Industrial Revolution's Legacy

It is difficult to overstate the importance of the Industrial Revolution. Mass production made goods cheaper, more abundant, and more easily accessible to a greater number of people than ever before. Growth of factories was a primary factor driving people to move, both from rural areas to cities and from agrarian countries to industrial ones. Both low-skilled workers and high-skilled professionals moved to take advantage of new opportunities provided by industrialization. However, the natural by-products of industrial production polluted air and water supplies. Industry forever changed the nature of work and the lives of workers. Working populations became concentrated in urban centers, as opposed to being spread among rural areas. The workplace shifted from homes to factories, dramatically altering family life. The Industrial Revolution created a new—and many said unequal—working relationship between workers and owners.

Global inequalities also increased because of industrialization. Nations that industrialized early found that they needed more materials to power their production. They looked beyond their borders for raw materials, such as cotton and rubber. By exploiting overseas natural resources, they not only destroyed early industrialization in Egypt, China, and India, but they also ushered in a second wave of colonization. (For more on this second wave of colonization, see pages 493.)

HISTORICAL PERSPECTIVES: WHAT DEFINES INDUSTRIAL SOCIETY?

The social and economic upheavals caused by the Industrial Revolution prompted scholars starting in the mid-nineteenth century to suggest new perspectives for explaining the structure of modern society. British philosopher John Stuart Mill was one of a few thinkers who highlighted gender. He accepted the Enlightenment perspective of “man” as a rational being, but he included females as well as males in his definition of man. In his essay titled *The Subjection of Women* (1869), Mill argued that society would benefit from the inclusion of women in public life: “That the principle which regulates the existing social relations between the two sexes—the legal subordination of one sex to the other—is wrong itself, and now one of the chief hindrances to human improvement; and that it ought to be replaced by a principle of perfect equality, admitting no power or privilege on the one side, nor disability on the other.”

As early as 1848, German philosopher and economist Karl Marx had also argued on behalf of equality for women. However, Marx focused more on class than gender. He saw the industrial world as divided into “two great hostile camps—bourgeoisie and proletariat.” Since the bourgeoisie controlled the means of production and the proletariat did the work, Marx insisted that conflict was inevitable. His solution to the problems of modern industrialized society came from what he termed “scientific socialism” (as opposed to utopian socialism). Marx believed that communism was the only long-term answer for society.

Like Marx, German sociologist Max Weber analyzed the class system of the modern world, but considered more than economics. Rather, he included tradition, amount of power, and, most famously, religion. In *The Protestant Work Ethic and the Spirit of Capitalism* (1905), Weber suggested that in countries influenced by Reformation leader John Calvin, people worked hard because prosperity was a sign of God’s favor, and this gave them assurance for salvation. In addition, people looked down upon showy displays of wealth so they saved their money. The combination of hard workers and ample capital for new investments provided ideal conditions for capitalism.

KEY TERMS BY THEME

ENVIRONMENT

spinning jenny
water frame
James Hargreaves
Richard Arkwright
Eli Whitney
interchangeable parts
steam engine
James Watt
steamship
crop rotation
seed drill
seaways
raw materials
fossil fuel
Transcontinental Railroad
second industrial revolution
Trans-Siberian Railroad
Bessemer process

CULTURE

urbanization
Protestant work ethic

STATE-BUILDING

Meiji
Otto von Bismarck

ECONOMICS

Industrial Revolution
industrialization
cottage industry
putting-out system
factory system
division of labor
assembly line
agricultural revolution
enclosure movement
Manchester
Liverpool
capital
human capital
consumerism
corporations
stockholders
stock market
monopoly

The Wealth of Nations

Adam Smith
capitalism
laissez-faire
John Stuart Mill
utilitarianism
socialism
utopia
Karl Marx
Friedrich Engels
The Communist Manifesto
means of production
communism

SOCIAL STRUCTURES

tenement
slums
working class
white-collar
captains of industry
cult of domesticity
labor unions
proletariat
bourgeoisie

MULTIPLE-CHOICE QUESTIONS

Question 1 refers to the photograph below.



Source: Library of Congress

- Which statement provides the best context for interpreting this photo showing a textile factory in the Industrial Revolution?
 - The machines used in factories were very similar to the ones used in homes.
 - Textiles were among the last products to be made in factories.
 - Middle-class females preferred working in factories to working at home.
 - Children provided a source of low-cost labor for factories.
- One important reason rural residents in Britain migrated to cities during the eighteenth and nineteenth centuries was that they
 - lost the use of land through the enclosure movement
 - were part of the cottage industry system
 - wanted to live in urban tenements
 - preferred the factory work schedule over the farm one

3. Which of the following was an import that caused British entrepreneurs of the 1700s to search for faster and larger-scale methods of production?
- (A) machines from France and Germany
 - (B) coal from the United States
 - (C) cotton cloth from India
 - (D) cotton cloth from Belgium

Question 4 refers to the quotation below.

The real grievance of the worker is the insecurity of his existence; he is not sure that he will always have work, he is not sure that he will always be healthy, and he foresees that he will one day be old and unfit to work. If he falls into poverty, even if only through a prolonged illness, he is then completely helpless, left to his own devices, and society does not currently recognize any real obligation towards him beyond the usual help for the poor, even if he has been working all the time ever so faithfully and diligently. The usual help for the poor, however, leaves a lot to be desired, especially in large cities, where it is very much worse than in the country.

—Otto von Bismarck, speech, 1884

4. The reforms that Bismarck passed based on the ideas expressed in his quote above are examples of
- (A) the “invisible hand” of the market and the *laissez-faire* economy
 - (B) Marx’s rejection of capitalism and free enterprise
 - (C) reasons why Germany was slower than Britain to industrialize
 - (D) social reforms to gain security for workers and prevent radical unrest

5. Which statement best reflects basic changes in life from 1750 to 1900 as a result of the Industrial Revolution?
- (A) As the demand for food increased, the percentage of people who were peasants increased.
 - (B) As people switched from agricultural to factory work, families had less time to spend together.
 - (C) As industrialization increased production, people had to work fewer hours.
 - (D) As the demand for goods increased, the cottage industry system expanded.
6. The factor that most hindered French industrialization from about 1750 to 1815 was
- (A) an autocratic system of government
 - (B) a series of wars, including the French Revolution
 - (C) a lack of natural resources
 - (D) an uneducated aristocracy
7. In England, harsh labor conditions and low wages during the Industrial Revolution were most responsible for which of the following developments?
- (A) the enclosure movement
 - (B) worker unionization
 - (C) anti-labor laws
 - (D) specialization of labor
8. Which of the following developments during the Industrial Revolution best argues against Karl Marx’s ideas that capitalism divided society into the proletariat and the bourgeoisie?
- (A) the development of inventions to speed up work, such as the spinning jenny and water frame
 - (B) the decline of the cottage system and the movement of textile production to factories
 - (C) the rise of a new middle class of managers, office workers, and small business owners
 - (D) the legal protection of private property, minimizing risk for entrepreneurs and investors

9. Which of the following statements is true about the Industrial Revolution in both Britain and the United States?
- (A) Both gained a large urban workforce as a result of the enclosure movement.
 - (B) In both nations, the federal government was in charge of industrial development.
 - (C) Both relied on coal to fuel factories and both had their own rich coal deposits.
 - (D) Both found early solutions to problems of air and water pollution from industries.
10. In what important way did the Atlantic slave trade help British capitalists invest in early industrialization?
- (A) They used enslaved Africans as labor in some early factories.
 - (B) They accumulated the capital they needed for industrialization from the slave trade.
 - (C) By ending the slave trade, they were better able to focus on industry instead.
 - (D) Participating in the slave trade gave them connections on the global trade market.

CONTINUITY AND CHANGE-OVER-TIME ESSAY QUESTIONS

Directions: You are to answer the following question. You should spend 5 minutes organizing or outlining your essay. Write an essay that:

- Has a relevant thesis and supports that thesis with appropriate historical evidence.
 - Addresses all parts of the question.
 - Uses world historical context to show continuities and changes over time.
 - Analyzes the process of continuity and change over time.
1. Analyze the continuities and changes in the social developments of the Industrial Revolution in Britain between 1750 and 1900, including ways in which workers, activists, and writers responded to these developments.

Questions for Additional Practice

2. Analyze the continuities and changes in industrial and technological development in Britain and the United States from the beginnings of the Industrial Revolution to 1900.

3. Analyze the continuities and changes in family dynamics and the role of women from 1750 to 1900 in countries that experienced the Industrial Revolution.

COMPARATIVE ESSAY QUESTIONS

Directions: You are to answer the following question. You should spend 5 minutes organizing or outlining your essay. Write an essay that:

- Has a relevant thesis and supports that thesis with appropriate historical evidence.
 - Addresses all parts of the question.
 - Makes direct, relevant comparisons.
 - Analyzes relevant reasons for similarities and differences.
1. Analyze the similarities and differences in the political developments resulting from the Industrial Revolution in Great Britain and ONE of the following countries:
- France
 - Germany
 - United States
 - Russia
 - Japan

Questions for Additional Practice

2. Analyze the similarities and differences between two of the following thinkers who responded to the Industrial Revolution and the development of capitalism:
- Adam Smith
 - Karl Marx
 - John Stuart Mill
 - Max Weber
3. Analyze the similarities and differences between the urbanization of England during the Industrial Revolution with the formation of cities in one of the following periods:
- Europe between 1000 and 1450
 - feudal Japan

THINK AS A HISTORIAN: APPLY THE USE OF COMPARISON

The examples below are first sentences of paragraphs, followed by possible second sentences. *Choose the second sentence that would best apply the use of comparison.*

1. Two inventions sped the process of weaving in the eighteenth century.
 - a. The spinning jenny made it possible for one person to spin multiple spindles; the water frame increased the speed of the spinning jenny.
 - b. James Hargreaves invented the spinning jenny and Richard Arkwright invented the water frame.
2. Steam power was an important development of the late eighteenth century.
 - a. It triggered the creation of coaling stations at crucial points.
 - b. On rivers, steam-powered ships could travel quickly upstream; on lakes and oceans, ships were no longer dependent on winds for power.
3. Japan and Russia had begun the process of industrialization by the end of the nineteenth century.
 - a. Japan felt the need to catch up to the industrialized West and Russia built railroads that promoted trade.
 - b. By 1900, Russia had become the largest producer of steel in the world.

WRITE AS A HISTORIAN: SUMMARIZE INFORMATION

In math, a sum is the total of two or more numbers. In writing, summarizing is adding up various pieces of information in order to present an accurate view overall. *Which THREE of the sentences below emphasize summary?*

1. During the early 1700s, most families in Britain lived in rural areas, grew their own food, and made their own clothes.
2. The burning of fossil fuel was essential in the process of separating iron from ore.
3. The Agricultural Revolution increased productivity as a result of crop rotation, the invention of the seed drill, and the introduction of the potato to people's diets.
4. Cottage industries gave women weavers a certain independence because they could work at home while minding their children.
5. Population growth, access to resources, and development of technology led to Britain's industrialization.