

#6

Education

During the 1700s, few children received any formal education. Although some wealthy people sponsored Charity Schools for poor children, many working-class children still were not able to attend school. Often this was because they did not have enough clothing or were forced to work or beg on the streets during the day to help support their families. Those children who were fortunate enough to attend school tended to receive only minimal education.

Elementary schools were run by older women or men who were poor and could not find other employment. They would simply put a sign in their window saying "SKOOL." Wealthier schools could afford paper notebooks, while poorer schools made children practice the alphabet by forming letters with sticks in a pile of sand on the floor.

The nineteenth century led to changes and advances in education. The government became worried about the large number of children working in factories all day and began providing more financial support to schools. Laws enacted during the nineteenth century increasingly mandated (ordered) that children be educated for a certain number of hours per day, and insisted that all students learn the basic skills of reading, writing, and arithmetic. In 1833 children aged 9 to 13 had to receive two hours of education a day by law; by 1880 six hours of education were mandatory for all 5- to 10-year old children. However, even with these acts, the majority of workers could not read or write. The graphs below show the literacy rates around 1850:



Fraction of women who could not read or write



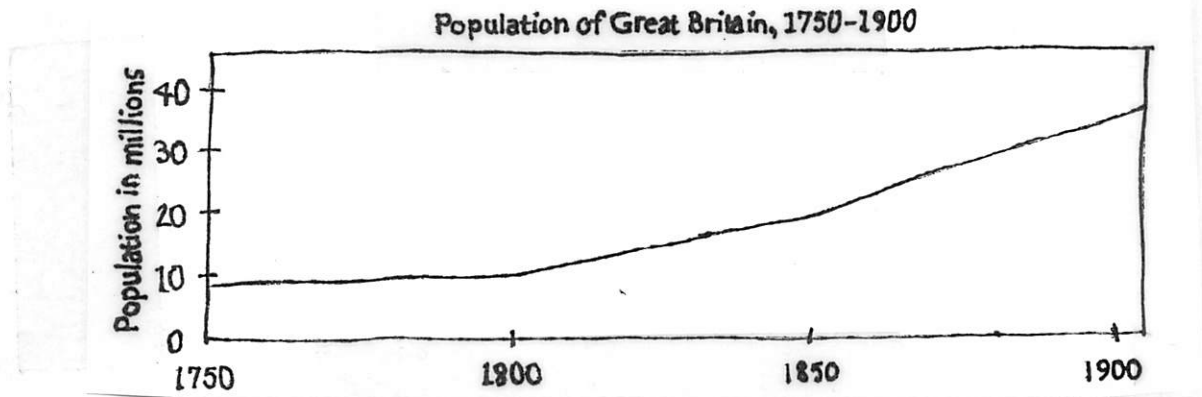
Fraction of men who could not read or write

In response to the new, competitive world of industry, technical schools began to develop. This new type of secondary school provided technical and industrial training for young people who had finished grammar school and were waiting to begin an apprenticeship a few years later. This effectively increased the ability of children to become skilled industrial workers in the new age of manufacturing and technology.

#7

Changing Class Structure

An enormous population boom accompanied the Industrial Revolution, as the following graph demonstrates:

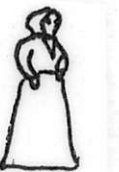


This in turn created a great demand for employment, and many people moved to cities to find work. Before the Industrial Revolution, class structure in England was formed primarily around occupational groups-artisans, merchants, and farmers. In farming villages, people were divided into the landowning elite and the peasantry, and the middle class included only a small number of people.

The age of industry brought with it changes in class structure. Ownership of land ceased to be the chief distinction between social classes. A new social class developed: the industrial capitalists (owners of wealth used in business who organized, oversaw, and ran the factories). These people came from a variety of backgrounds-some were born into wealthy families, others were inventors, farmers, or merchants. All managed to become rich and powerful through their adaptability to fast changes, leadership, and energy.

Related to the industrial capitalists was a growing urban middle class. This included people in long-established professions, such as doctors and lawyers, as well as the new merchants, shopkeepers, factory clerks, and managers who arose as a result of large-scale industrialization.

A less fortunate effect of the Industrial Revolution was the growth of the urban poor, a much larger group. These were poverty-stricken workers who congregated in the slums around factories and lived in appalling conditions. It was extremely difficult for children of working-class parents to move to a higher class. Upward mobility required education, which was often a luxury not available to children working in factories.



CHAPTER 10: THE HISTORY OF THE UNITED STATES

The history of the United States is a complex and multifaceted story that spans centuries. It is a story of exploration, discovery, and the struggle for freedom and equality. The early years of the nation were marked by the search for a new home, a place where the people could live in peace and harmony. The American Revolution was a pivotal moment in the nation's history, as the colonies fought for their independence from British rule. The resulting Constitution established a new form of government, one that was based on the principles of democracy and the rule of law. The years following the Revolution were a time of rapid growth and expansion, as the United States spread across the continent. The Civil War was a defining moment in the nation's history, as it fought to resolve the issue of slavery and to preserve the Union. The Reconstruction era that followed was a time of great challenge and opportunity, as the nation sought to rebuild and to create a more just and equitable society. The American West was a land of great promise and danger, a place where the dream of a better life was often realized through hard work and sacrifice. The late 19th and early 20th centuries were a time of great change and progress, as the United States emerged as a world power. The American people fought for the rights of women, for the rights of workers, and for a more just and equitable society. The American Revolution was a defining moment in the nation's history, as it fought to resolve the issue of slavery and to preserve the Union. The Reconstruction era that followed was a time of great challenge and opportunity, as the nation sought to rebuild and to create a more just and equitable society. The American West was a land of great promise and danger, a place where the dream of a better life was often realized through hard work and sacrifice. The late 19th and early 20th centuries were a time of great change and progress, as the United States emerged as a world power. The American people fought for the rights of women, for the rights of workers, and for a more just and equitable society.

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#8

Industrial Production

As the first industrialized country, Britain had an important head start that helped it become the world's industrial leader. In the beginning, technology and new machinery were relatively inexpensive, and the British economy was prosperous enough to support investments in them. Later, the young British industries had a monopoly (complete control in the market) on their products and reaped great profits, thus allowing them to finance further growth and development. Britain dominated world industry in the nineteenth century. By the time other European nations tried to catch up, British industries were very strong, and it was expensive to buy the new machinery and technology all at once.



Cotton was Britain's greatest industry, and merchants all over the world purchased British cotton cloth.



Inventions like the steam engine pushed ahead the coal industry, and innovations in iron smelting and a new demand for iron tools in factories fueled the growth of the British iron industry. Soon England was the world's greatest iron and coal manufacturer.

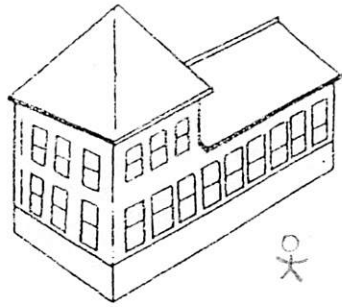


Railways were developing alongside industry. Henry Bessemer's discovery of a new process by which iron could be relatively easily converted into steel resulted in tremendous growth for the British steel industry. While in 1830 only 70 miles of steel railway tracks existed in Britain, by 1870 15,000 miles had been built. This improved communication between areas of the country tremendously.

#9

Modern Buildings

Architecture became modernized due to the Industrial era. In response to overcrowded populations in industrial towns, developers built row houses and multi-story tenements (apartment buildings). The urban middle class, which arose as a result of industrialization, lived in homes reflective of newfound wealth and security. In London, they built sturdy five- or six-story townhouses and spacious apartments. The upper class separated itself from the industrial slums. They built their homes to the west of factories so that the smog from the factory smokestacks would blow away from them.



The best areas of these new industrial cities benefited from innovations in architecture. Instead of churches, buildings such as city halls, stock exchanges, and opera houses were erected to usher in the modern era. Perhaps the most grandiose architectural triumph was the construction of the Crystal Palace in London. This enormous building made of glass and iron housed international contributions to the "Exhibition of the Works of Industry of All Nations" held in 1851. The Great Exhibition, whose purpose was to celebrate the age of industrialization, attracted six million visitors to London.

#10

Modern Inventions

Great advancements in medicine and technology accompanied the Industrial Revolution in England. Industrialization competition between nations motivated new scientific inventions, which improved factory efficiency and increased productivity. Industrialization and innovation in England spurred the growth of industry in other European countries, as well as the United States, leading to further discoveries. Some major discoveries are listed below.



In 1796 Edward Jenner discovered that by injecting someone with a small dose of a disease such as cowpox, it was possible to prevent that person from contracting the full-blown disease in the future. Through developing vaccination, Jenner saved more lives than any other person had in history.



In 1876 Alexander Graham Bell created a revolution in communications with his invention of the telephone.



In 1879 Thomas Edison discovered the light bulb, which resulted in great domestic demand for light bulbs in homes. Electricity began to be used to power motors, which in turn powered railways and machinery.



In 1895, the German Wilhelm Rontgen developed the first x-rays, which enabled doctors to see what procedures needed to be done before surgery. Medical schools came to realize the value of using corpses to train medical students to perform surgery, resulting in far better surgeons.

In the next century, the revolutionary age in inventions would continue with such developments are the radio, the car, and later, the television.