



2 Industrialization

TERMS & NAMES

- urbanization
- middle class

PATTERNS OF CHANGE

CASE STUDY: Manchester

MAIN IDEA

The factory system changed the way people lived and worked, introducing a variety of problems.

WHY IT MATTERS NOW

The difficult process of industrialization is being repeated in many less-developed countries today.

SETTING THE STAGE The Industrial Revolution eventually led to a better quality of life for most people. Yet the change to machine production also caused immense human suffering. In Britain, the Industrial Revolution proved to be a mixed blessing.

Industrialization Changes Ways of Life

The pace of industrialization quickened in Britain. By the 1800s more people could afford to heat their homes with coal from Wales and to dine on Scottish beef. They wore better clothing, too, woven on power looms in England's industrial cities. These cities soon swelled with workers. However, other people suffered from industrialization.

Growth of Industrial Cities For centuries, most Europeans had lived in rural areas. After 1800, the balance shifted toward cities. The growth of the factory system—manufacturing goods in a central location—brought waves of jobseekers to cities and towns. Between 1800 and 1850, the number of European cities boasting more than 100,000 inhabitants rose from 22 to 47. Most of Europe's urban areas at least doubled in population. This period was one of **urbanization**—city building and the movement of people to cities. Some cities, such as Glasgow and Berlin, tripled or even quadrupled in size.

Factories developed in clusters because entrepreneurs built them near sources of energy. Major new industrial centers sprang up between the coal-rich area of southern Wales and the Clyde River valley in Scotland. The biggest of these centers developed in England.

Britain's capital, London, was the country's most important city. Containing twice as many people as its closest rival (Paris), London became Europe's largest city. It had a population of about 1 million people by 1800. During the 1800s London's population exploded, providing a vast labor pool and market for new industry.

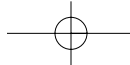
Newer cities challenged London's industrial leadership. Birmingham and Sheffield became iron-smelting centers. Leeds and Manchester dominated textile manufacturing. Along with the

port of Liverpool, Manchester formed the center of Britain's bustling cotton industry. During the 1800s, Manchester experienced rapid growth. In 1760, the population of this market town was around 45,000. By 1850, it had swelled to 300,000 people.

Living Conditions No plans, no sanitary codes, and no building codes controlled the growth of England's cities. They lacked adequate housing, education, and police protection for the people who poured in from the countryside seeking jobs. Most of the unpaved streets had no drains and collected heaps of garbage. Workers lived in dark, dirty shelters, whole families crowding into one bedroom.



As cities grew all over Europe, people crowded into tenements and row houses such as these in London.



Vocabulary

cholera: a deadly disease caused by bacteria that usually occur in contaminated drinking water.

Not surprisingly, sickness was widespread. Cholera epidemics regularly swept through the slums of Great Britain's industrial cities. In 1842, a British government study showed an average life span to be 17 years for working-class people in one large city, compared with 38 years in a nearby rural area.

Elizabeth Gaskell's *Mary Barton* (1848) is a work of fiction. Nonetheless, its realistic description of the dank cellar dwelling place of one family in a Manchester slum presents a startlingly accurate portrayal of urban life at the time:

A VOICE FROM THE PAST

You went down one step even from the foul area into the cellar in which a family of human beings lived. It was very dark inside. The window-panes many of them were broken and stuffed with rags . . . the smell was so fetid [foul] as almost to knock the two men down . . . they began to penetrate the thick darkness of the place, and to see three or four little children rolling on the damp, nay wet brick floor, through which the stagnant, filthy moisture of the street oozed up. . . .

ELIZABETH GASKELL, *Mary Barton*

Working Conditions Factory owners wanted to keep their machines running for as many hours a day as possible. As a result, the average worker spent 14 hours a day at the job, 6 days a week. Instead of changing with the seasons, the work was the same week after week, year after year. Workers had to keep up with the machines.

Industry also posed new dangers in work. Factories were seldom well-lit or clean. Machines injured workers in countless ways. A boiler might explode or a drive belt might catch the worker's arm. And there was no government program to provide aid in case of injury. The most dangerous conditions of all were found in the coal mines. Frequent accidents, damp conditions, and the constant breathing of coal dust made the average miner's life span ten years shorter than that of other workers.

Class Tensions Not everyone in the new cities lived miserably. Well-to-do merchants and factory owners built fancy homes in the suburbs. In addition, a new class began to emerge.

Though poverty gripped Britain's working classes, the Industrial Revolution created enormous amounts of money in the country. Most of this wealth lined the pockets of factory owners, shippers, and merchants. These wealthy people made up a growing **middle class**—a social class of skilled workers, professionals, businesspeople, and wealthy farmers.

The new middle class transformed the social structure of Great Britain. In the past, landowners and aristocrats occupied the top position in British society. With most of the wealth, they wielded the power. Now some factory owners, merchants, and investment bankers grew wealthier than the landowners and aristocrats.

Yet important social distinctions divided the two wealthy classes. Landowners looked down on those who had made their fortunes in the "vulgar" business world. Not until late in the 1800s were rich entrepreneurs considered the social equals of the lords of the countryside.

Gradually, a larger middle class—neither rich nor poor—emerged. This group included an upper middle class of government employees, doctors, lawyers, and managers of factories, mines, and shops. A lower middle class consisted of factory overseers and such skilled workers as toolmakers, mechanical drafters, and printers. These people enjoyed a comfortable standard of living.

During the years 1800 to 1850, however, poor workers saw little improvement in their own living and working conditions. Frustrated workers watched their livelihoods disappear as machines replaced them. In response, they smashed the machines they thought were putting them out of work. One group of such workers was called the Luddites. They were named after Ned Ludd, Ludd, probably a mythical English



Elizabeth Gaskell (1810–1865) was a British writer whose novels such as *Mary Barton* (1848) and *North and South* (1855) show a sympathy for the working class. *Cranford* (1853) deals with the life of a peaceful English village.

THINK THROUGH HISTORY

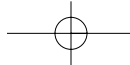
A. Drawing

Conclusions What was the impact of living and working conditions on workers?

THINK THROUGH HISTORY

B. Summarizing

Describe the social classes in Britain.



laborer, was said to have destroyed weaving machinery around 1779. The Luddites attacked whole factories in northern England beginning in 1811, destroying labor-saving machinery. Outside the factories, mob disorder took the form of riots, mainly because of the poor living and working conditions of the workers.

Positive Effects of the Industrial Revolution Despite the problems that followed industrialization, the Industrial Revolution eventually had a number of positive effects. It created jobs for workers. It contributed to the wealth of the nation. It fostered technological progress and invention. It greatly increased the production of goods and raised the standard of living. Perhaps most important, it provided the hope of improvement in people's lives.

The Industrial Revolution produced a number of other benefits as well. These included healthier diets; better housing; and cheaper, mass-produced clothing. Because the Industrial Revolution created a demand for engineers as well as clerical and professional workers, it expanded educational opportunities.

The middle and upper classes prospered immediately from the Industrial Revolution. For the workers it took longer, but their lives gradually improved during the 1800s. Labor eventually won higher wages, shorter hours, and better working conditions.

PATTERNS OF CHANGE: Industrialization

Effects of Industrialization

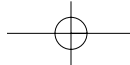
Size of Cities	<ul style="list-style-type: none"> • Growth of factories, bringing job seekers to cities • Urban areas doubling, tripling, or quadrupling in size • Factories developing near sources of energy • Many new industrial cities specializing in certain industries
Living Conditions	<ul style="list-style-type: none"> • No sanitary codes or building controls • Lack of adequate housing, education, and police protection • Lack of running water and indoor plumbing • Frequent epidemics sweeping through slums • Eventually, better housing, healthier diets, and cheaper clothing
Working Conditions	<ul style="list-style-type: none"> • Industrialization creating new jobs for workers • Workers trying to keep pace with machines • Factories dirty and unsanitary • Workers running dangerous machines for long hours in unsafe conditions • Harsh and severe factory discipline • Eventually, higher wages, shorter hours, and better working conditions
Emerging Social Classes	<ul style="list-style-type: none"> • Growing middle class of factory owners, shippers, and merchants • Upper class of landowners and aristocrats resentful of rich middle class • Lower middle class of factory overseers and skilled workers • Workers overworked and underpaid • In general, a rising standard of living, with some groups excluded

SKILLBUILDER: Interpreting Charts

1. Which social class benefited most and which suffered most from industrialization?
2. What were some of the advantages and disadvantages of industrialization?

The long-term effects of the Industrial Revolution are still evident. Most people today in the industrialized countries can afford consumer goods that would have been considered luxuries fifty or a hundred years ago. Further, their living and working conditions are much improved over those of workers in the 19th century.

As the Industrial Revolution in Manchester demonstrated, economic success can unleash a variety of problems. Even today, the economic pressures of industrialization frequently lead to the overuse of natural resources and the abuse of the environment. The profits derived from industrialization, however, permit thoughtful governments to invest in urban improvements.



CASE STUDY: Manchester

The Mills of Manchester

Manchester's unique advantages made it a leading example of the new industrial city. This northern English town had ready access to water power. It also had available labor from the nearby countryside and an outlet to the sea at Liverpool.

"From this filthy sewer pure gold flows," wrote Alexis de Tocqueville (ah-lehk-SEE duh TOHK-vihl), the French writer, after he visited Manchester in 1835. Indeed, the industrial giant showed the best and worst of the Industrial Revolution. Manchester's rapid, unplanned growth made it a filthy sewer for the poor people who worked there. But gold certainly flowed toward the mill owners and the new middle class. Eventually, although not immediately, the working class saw their standard of living rise as well.

Manchester's businesspeople took pride in mastering each detail of the manufacturing process, working many hours and risking their own money. For their efforts, they pocketed high profits and erected gracious homes on the outskirts of town.

To provide the mill owners with their high profits, workers labored under terrible conditions. Children as young as six joined their parents in the factories. There, for six days a week, they toiled from 6 A.M. to 7 or 8 P.M., with only a half an hour for lunch and an hour for dinner. To keep the children awake, mill supervisors beat them. Tiny hands repaired broken threads in Manchester's spinning machines, replaced thread in the bobbins, or swept up cotton fluff. The dangerous machinery injured many children. The fluff filled their lungs and made them cough.

Until the first Factory Act passed in 1819, the British government exerted little control over child labor in Manchester and other factory cities. The act restricted working age and hours. For years after the act passed, young children still did heavy, dangerous work in Manchester's factories.

Putting so much industry into one place polluted the natural environment. The coal that powered factories and warmed houses blackened the air. Textile dyes and

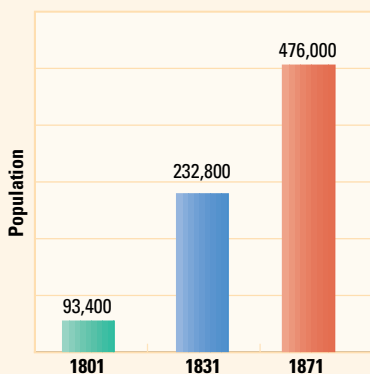
THINK THROUGH HISTORY

C. Drawing Conclusions

Whose interests did child labor serve?

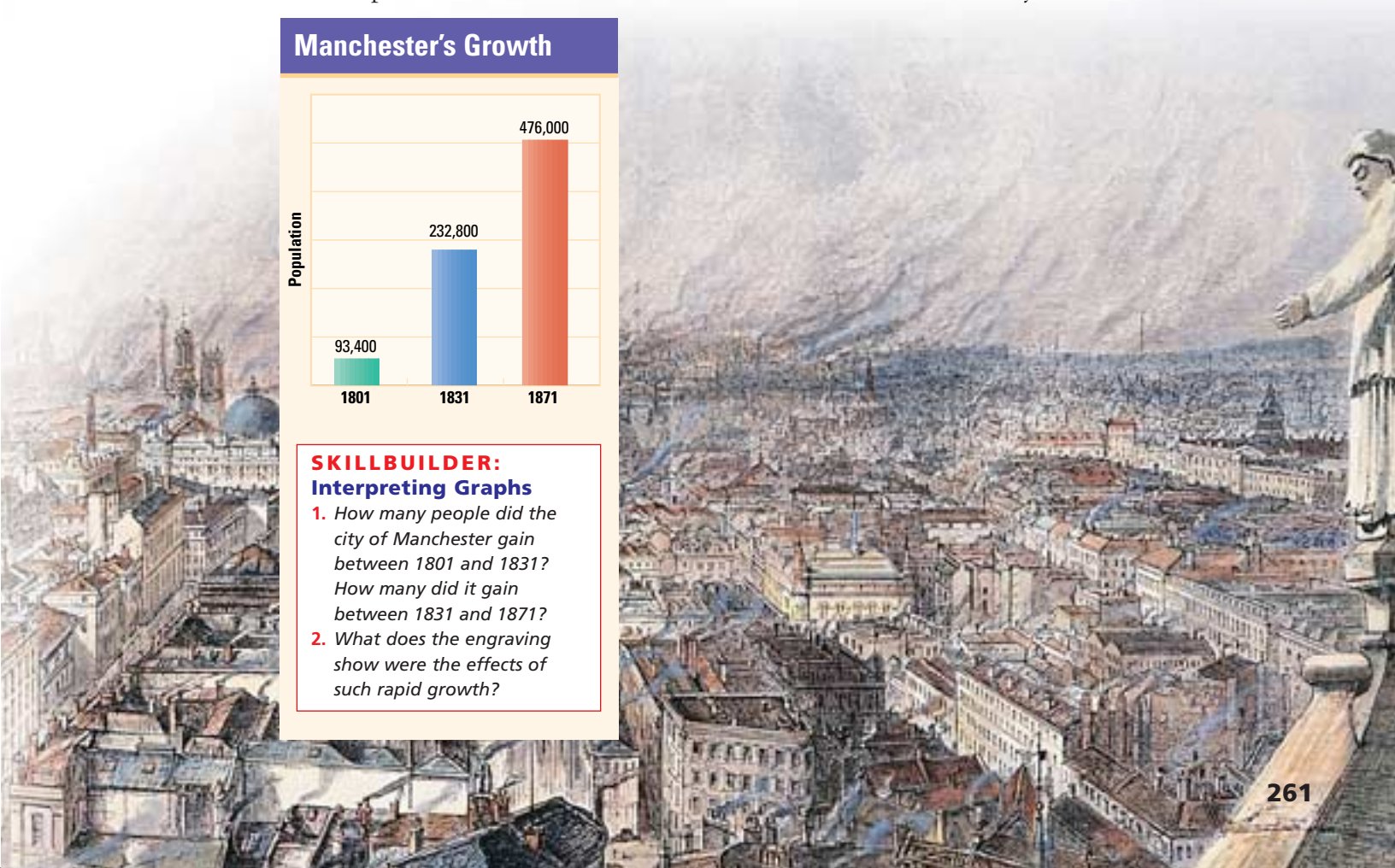
An English engraving of 1876 shows a bird's-eye view of the city of Manchester during the Industrial Revolution.

Manchester's Growth



SKILLBUILDER: Interpreting Graphs

- How many people did the city of Manchester gain between 1801 and 1831? How many did it gain between 1831 and 1871?
- What does the engraving show were the effects of such rapid growth?





The Day of a Child Laborer, William Cooper

William Cooper began working in a textile factory at the age of ten. He had a sister who worked upstairs in the same factory. In 1832, Cooper was called to testify before a parliamentary committee about the conditions among child laborers in the textile industry. The following sketch of his day is based upon his testimony.



11 P.M.—Cooper's sister worked another two hours even though she had to be back at work at 5:00 the next morning.

5 A.M.—The workday began. Cooper and his sister rose as early as 4:00 or 4:30 in the morning in order to get to the factory for the start of their workday at 5:00. Children usually grabbed their breakfast on the run.



12 noon—The children were given a 40-minute break for lunch. This was the only break they received during the whole course of the day.



3 P.M.—The children often became drowsy during the afternoon or evening hours. In order to keep them awake, adult overseers sometimes whipped the children.



6 P.M.—There was no break allowed for an evening meal. Children ate on the run. From 12:40 until 9:00 at night, the children worked without a break.



9 P.M.—William Cooper's day ended after an exhausting 16-hour shift at work.

Unresolved Problems

Dangers to the Global Environment

After London experienced major cholera and typhus epidemics early in the 19th century, a sewer system was built to empty sewage into the Thames River. However, in the middle of the century, an environmental disaster occurred.

During the summer of 1858, sewage in the Thames turned the water murky brown. It smelled so bad that life on the riverfront was unbearable. Carloads of decaying fish from the polluted river added to the stink. The odor was so bad that Parliament ordered the window drapes to be soaked in lime chloride to make working in the rooms possible.

Finally, Parliament agreed on a plan to create a modern sewer system. That system discharged the sewage into the Thames beyond the city limits so that the sewage ended up in the North Sea.

See Epilogue, p. 591.

other wastes poisoned Manchester's Irwell River. The following description of the river was written by an eyewitness observer in 1862:

A VOICE FROM THE PAST

Steam boilers discharge into it their seething contents, and drains and sewers their fetid impurities; till at length it rolls on—here between tall dingy walls, there under precipices of red sandstone—considerably less a river than a flood of liquid manure.

HUGH MILLER, "Old Red Sandstone"

Manchester produced consumer goods and created wealth on a grand scale. Yet this unplanned industrial city also stood as a reminder of industrialization's dark side. In the 1800s, the industrialization that began in Great Britain spread to the United States and to continental Europe, as you will learn in Section 3.

Section 2 Assessment

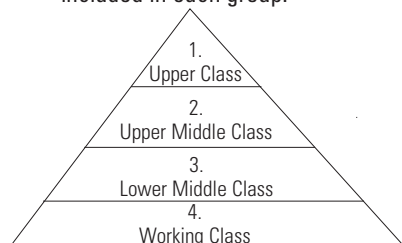
1. TERMS & NAMES

Identify

- urbanization
- middle class

2. TAKING NOTES

Create a pyramid like the one below listing the social classes in industrial England. List the types of laborers and professionals included in each group.



3. ANALYZING ISSUES

How did industrialization contribute to city growth?

THINK ABOUT

- growth of industry
- creation of jobs
- the economic advantages of centralization

4. ANALYZING THEMES

Economics How might a factory owner have justified the harsh conditions in his factory?

THINK ABOUT

- class distinctions
- the spread of factories
- financial gains