

The Industrial Revolution, 1700–1900

The Industrial Revolution begins in Britain, spreads to other countries, and has a strong impact on economics, politics, and society.



Rail locomotives began connecting U.S. cities in the 1840s, enabling transport of goods between factories, cities, and ports.

Section 1 The Beginnings of Industrialization

The Industrial Revolution starts in England and soon spreads to other countries.

SECTION 1 The Beginnings of Industrialization

Industrial Revolution Begins in Britain

New Ways of Working

- **Industrial Revolution**—greatly increases output of machine-made goods
- Revolution begins in England in the middle 1700s

The Agricultural Revolution Paves the Way

- **Enclosures**—large farm fields enclosed by fences or hedges
- Wealthy landowners buy, enclose land once owned by village farmers
- Enclosures allow experimentation with new agricultural methods

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SECTION 1

continued Industrialization Begins in Britain

Rotating Crops

- **Crop rotation**—switching crops each year to avoid depleting the soil
- Livestock breeders allow only the best to breed, improve food supply

Why the Industrial Revolution Began in England

- **Industrialization**—move to machine production of goods
- Britain has natural resources—coal, iron, rivers, harbors
- Expanding economy in Britain encourages investment
- Britain has all needed **factors of production**—land, labor, capital

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Inventions Spur Industrialization

Changes in the Textile Industry

- Weavers work faster with flying shuttles and spinning jennies
- Water frame uses water power to drive spinning wheels
- Power loom, spinning mule speed up production, improve quality
- **Factories**—buildings that contain machinery for manufacturing
- Cotton gin boosts American cotton production to meet British demand

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Improvements in Transportation

Watt's Steam Engine

- Need for cheap, convenient power spurs development of steam engine
- James Watt improves steam engine, financed by Matthew Boulton
- Boulton an **entrepreneur**—organizes, manages, takes business risks

Water Transportation

- Robert Fulton builds first steamboat, the *Clermont*, in 1807
- England's water transport improved by system of canals

Road Transportation

- British roads are improved; companies operate them as toll roads

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The Railway Age Begins

Steam-Driven Locomotives

- In 1804, Richard Trevithick builds first steam-driven locomotive
- In 1825, George Stephenson builds world's first railroad line

The Liverpool-Manchester Railroad

- Entrepreneurs build railroad from Liverpool to Manchester
- Stephenson's *Rocket* acknowledged as best locomotive (1829)

Railroads Revolutionize Life in Britain

- Railroads spur industrial growth, create jobs
- Cheaper transportation boosts many industries; people move to cities

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Section 2 Industrialization

CASE STUDY: Manchester

The factory system changes the way people live and work, introducing a variety of problems.

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2 **Industrialization**
CASE STUDY: Manchester

Industrialization Changes Life

Factory Work

- Factories pay more than farms, spur demand for more expensive goods

Industrial Cities Rise

- **Urbanization**—city-building and movement of people to cities
- Growing population provides work force, market for factory goods
- British industrial cities: London, Birmingham, Manchester, Liverpool

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continued **Industrialization Changes Life**

Living Conditions

- Sickness widespread; epidemics, like cholera, sweep urban slums
- Life span in one large city is only 17 years
- Wealthy merchants, factory owners live in luxurious suburban homes
- Rapidly growing cities lack sanitary codes, building codes
- Cities also without adequate housing, education, police protection

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continued **Industrialization Changes Life**

Working Conditions

- Average working day 14 hours for 6 days a week, year round
- Dirty, poorly lit factories injure workers
- Many coal miners killed by coal dust

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Class Tensions Grow

The Middle Class

- **Middle class**—skilled workers, merchants, rich farmers, professionals
- Emerging middle class looked down on by landowners, aristocrats
- Middle class has comfortable standard of living

The Working Class

- Laborers' lives not improved; some laborers replaced by machines
- Luddites, other groups destroy machinery that puts them out of work
- Unemployment a serious problem; unemployed workers riot

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Positive Effects of the Industrial Revolution

Immediate Benefits

- Creates jobs, enriches nation, encourages technological progress
- Education expands, clothing cheaper, diet and housing improve
- Workers eventually win shorter hours, better wages and conditions

Long-Term Effects

- Improved living and working conditions still evident today
- Governments use increased tax revenues for urban improvements

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The Mills of Manchester

Manchester and the Industrial Revolution

- Manchester has labor, water power, nearby port at Liverpool
- Poor live and work in unhealthy, even dangerous, environment
- Business owners make profits by risking their own money on factories
- Eventually, working class sees its standard of living rise some

Image

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continued **The Mills of Manchester**

Children in Manchester Factories

- Children as young as 6 work in factories; many are injured
- 1819 Factory Act restricts working age, hours
- Factory pollution fouls air, poisons river
- Nonetheless, Manchester produces consumer goods and creates wealth

Image

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Section 3 Industrialization Spreads

The industrialization that begins in Great Britain spreads to other parts of the world.

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Industrialization Spreads

Industrial Development in the United States

Industrialization in the United States

- U.S. has natural and labor resources needed to industrialize
- Samuel Slater, English textile worker, builds textile mill in U.S.
- Lowell, Massachusetts a mechanized textile center by 1820
- Manufacturing towns spring up around factories across the country
- Young single women flock to factory towns, work in textile mills
- Clothing, shoemaking industries soon mechanize

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continued Industrial Development in the United States

Later Expansion of U.S. Industry

- Industrialization picks up during post-Civil War technology boom
- Cities like Chicago expand rapidly due to location on railroad lines
- Small companies merge to form larger, powerful companies

The Rise of Corporations

- **Stock**—limited ownership rights for company, sold to raise money
- **Corporation**—company owned by stockholders, share profits not debts
- Large corporations attempt to control as much business as they can

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Continental Europe Industrializes

Troubles in Continental Europe

- Revolution and Napoleonic wars disrupted early 19th-century economy

Beginnings in Belgium

- Belgium has iron ore, coal, water transportation
- British workers smuggle in machine plans, start companies (1799)

Germany Industrializes

- Political, economic barriers; but industry, railroads boom by mid-century

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continued Continental Europe Industrializes

Expansion Elsewhere in Europe

- Bohemia develops spinning; Northern Italy mechanizes silk textiles
- Industrialization in France more measured; agriculture remains strong

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The Impact of Industrialization

Rise of Global Inequality

- Wealth gap widens; non-industrialized countries fall further behind
- European nations, U.S., Japan exploit colonies for resources
- Imperialism spreads due to need for raw materials, markets

Transformation of Society

- Europe and U.S. gain economic power
- African and Asian economies lag, based on agriculture, crafts
- Rise of middle class strengthens democracy, calls for social reform

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Section 4 Reforming the Industrial World

The Industrial Revolution leads to economic, social, and political reforms.

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Reforming the Industrial World

The Philosophers of Industrialization

Laissez-faire Economics

- **Laissez faire** — economic policy of not interfering with businesses
- Originates with Enlightenment economic philosophers
- **Adam Smith** — defender of free markets, author of *The Wealth of Nations*
- Believes economic liberty guarantees economic progress
- Economic natural laws—self-interest, competition, supply and demand

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continued The Philosophers of Industrialization

The Economists of Capitalism

- Thomas Malthus, David Ricardo boost laissez-faire capitalism
- **Capitalism** — system of privately owned businesses seeking profits
- Malthus thinks populations grow faster than food supply
- Wars, epidemics kill off extra people or misery and poverty result
- Ricardo envisions a permanent, poor underclass providing cheap labor

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The Rise of Socialism

Utilitarianism

- Jeremy Bentham's **utilitarianism**—judge things by their usefulness
- John Stuart Mill favors regulation to help workers, spread wealth

Utopian Ideas

- Robert Owen improves workers' conditions, rents cheap housing
- In 1824, Owen founds utopian community, New Harmony, Indiana

Socialism

- **Socialism**—factors of production owned by, operated for the people
- Socialists think government control can end poverty, bring equality

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Marxism: Radical Socialism

Marxism's Prophets

- **Karl Marx** — German journalist proposes a radical socialism, Marxism
- Friedrich Engels—German whose father owns a Manchester textile mill

The Communist Manifesto

- Marx and Engels believe society is divided into warring classes
- Capitalism helps "haves," the employers known as the bourgeoisie
- Hurts "have-nots," the workers known as the proletariat
- Marx, Engels predict the workers will overthrow the owners

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continued Marxism: Radical Socialism

The Future According to Marx

- Marx believes that capitalism will eventually destroy itself
- Inequality would cause workers to revolt, seize factories and mills
- **Communism**—society where people own, share the means of production
- Marx's ideas later take root in Russia, China, Cuba
- Time has shown that society not controlled by economic forces alone

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Labor Unions and Reform Laws

Unionization

- **Unions**—associations formed by laborers to work for change
- Unions negotiate for better pay, conditions with employers
- Sometimes they **strike**—call a work stoppage—to pressure owners
- Skilled workers are first to form unions
- Movement in Britain, U.S. must fight for right to form unions
- Union goals were higher wages, shorter hours, improved conditions

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continued Labor Unions and Reform Laws

Reform Laws

- British, U.S. laws passed to stop worst abuses of industrialization
- 1842 Mines Act in Britain stops women, children working underground
- In 1847, workday for women, children limited to 10 hours in Britain
- U.S. ends child labor, sets maximum hours in 1904

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The Reform Movement Spreads

The Abolition of Slavery

- In 1833, reformers help end slavery in British empire
- Slavery ends in U.S. in 1865; ends by 1888 in rest of Americas

The Fight for Women's Rights

- Women pursue economic and social rights as early as 1848
- International Council for Women founded 1888; worldwide membership

Reforms Spread to Many Areas of Life

- Reformers establish free public schools in Europe in late 1800s
- Public schools common in U.S. by 1850s; prison reform also sought

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