



Factors behind American Economic Growth

- ▶ Abundant natural resources
- ▶ Growing population provided labor
- ▶ Free enterprise system—market economy: *laissez faire* capitalism encouraged individual initiative
- ▶ Legacy of First Industrial Revolution: use of new source of power (steam); mass production; factory system
- ▶ Role of government:
 - Patents encouraged new inventions.
 - Tariffs protected American manufactured goods.
 - Laws protected property and contracts.
 - Land grants encouraged railroad construction.
 - Government regulated currency and banks.
- ▶ Stimulus of the Civil War—tariffs, Banking Act, Pacific Railway Act, Homestead Act

America's Second Industrial Revolution

- ▶ Spread of railways
- ▶ Technological innovation
 - Bessemer Process
 - Telegraph
 - Telephone
 - Transatlantic cable
 - Elevator
 - Sewing machine
 - Electric light bulb
 - Internal combustion engine
- ▶ Emergence of national market
- ▶ Rise of corporations (limited liability; ability to raise more capital)
- ▶ Contributions of entrepreneurs

Spread of Railways

- ▶ Provided stimulus to iron, coal, and steel industries
- ▶ Provided cheaper transportation costs for carrying raw materials and finished goods
- ▶ Forged a national market
 - Henry Flagler—Florida East Coast Railroad

Key Industries

- ▶ Steel
 - **Bessemer process:** air blown into hot pig iron to remove impurities; reduces cost of making steel by 80%
 - Andrew Carnegie adopted Bessemer process; built large steelworks
- ▶ Communications
 - **Telegraph:** Samuel Morse/"Morse Code" (dots and dashes)
 - **Telephone:** Alexander Graham Bell
 - **Transatlantic Cable:** Cyrus Field
- ▶ Electricity
 - **Thomas Edison:** phonograph (1877); electric light bulb (1879); motion pictures (1896); improved battery; electric power station backed by J. P. Morgan.
 - **Nicola Tesla:** alternating current
- ▶ Oil
 - **Edwin Drake:** first oil well drilled in Pennsylvania (1859)
 - **John D. Rockefeller:** Standard Oil Company; kerosene and gasoline; railroad rebates; pipeline transport
- ▶ Transportation
 - **Internal combustion engine:** at end of 19th century: used controlled explosions to move piston in cylinder
 - **Henry Ford:** less expensive automobile
 - **Wilbur and Orville Wright:** airplane (1903)

African-American and Women Inventors

- ▶ **Elijah McCoy:** oil-drip cups for trains
- ▶ **Sarah Goode:** fold-away bed
- ▶ **Lewis Howard Latimer:** new process for making carbon filaments in lightbulbs
- ▶ **Jan Ernst Matzeliger:** machine for attaching soles to shoes
- ▶ **Garrett Morgan:** breathing apparatus for use by firemen; a patent for a traffic signal
- ▶ **Madam C. J. Walker:** hair-care products, especially for African-American women
- ▶ **Granville Wood:** multiplex telegraph

Other Women Inventors

- ▶ **Josephine Cochran:** first “automatic” dishwasher

“Captains of Industry” or “Robber Barons”?

- ▶ **Andrew Carnegie** (steel)
adopted Bessemer process; Homestead Strike; vertical integration; *Gospel of Wealth*
- ▶ **John D. Rockefeller** (oil refining)
secret rebates from railroads; Standard Oil; horizontal integration
- ▶ **John Pierpont Morgan** (financier)
financed Edison; formed General Electric; formed U.S. Steel in 1901.

Henry Flagler

Henry Flagler (1830–1913) made a fortune with John D. Rockefeller. He then moved to Florida where he built a series of luxury hotels and the **Florida East Coast Railway** to attract visitors to fill them.

New Business Practices

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| <ul style="list-style-type: none">▶ Advantages of large companies:<ul style="list-style-type: none">• Economies of scale• Cheaper sources of supply• More efficient management | <ul style="list-style-type: none">▶ Dangers of monopoly:<ul style="list-style-type: none">• Less incentive to improve products• Monopolists can overcharge consumers | <ul style="list-style-type: none">▶ Forms of business consolidation:<ul style="list-style-type: none">• Pooling agreement• Trust• Holding company |
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U.S. Supreme Court Cases

- ▶ ***Munn v. Illinois:*** State governments can regulate grain elevators
- ▶ ***Wabash v. Illinois:*** State governments cannot regulate interstate railroads

Federal Laws Regulating Business

- ▶ ***Interstate Commerce Act:*** Congress regulates interstate railroads; sets up enforcement agency
- ▶ ***Sherman Antitrust Act:*** Combinations “in restraint of trade” are prohibited