

Chapter 6

The New Industrial Age

1877 -1900

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A New Industrial Age, 1877–1900

Natural resources and new ideas create a boom for industry and railroads. Government addresses corruption in business, and laborers organize for better working conditions.



Advertisement for Chicago & Alton Railroad.

Section 1

The Expansion of Industry

At the end of the 19th century, natural resources, creative ideas, and growing markets fuel an industrial boom.

Natural Resources Fuel Industrialization

The Growth of Industry

- By 1920s, U.S. is world's leading industrial power, due to:
 - wealth of natural resources
 - government support for business
 - growing urban population
 - **capitalism**

Black Gold

- Pre-European arrival, Native Americans make fuel, medicine from oil
- 1859, **Edwin L. Drake** successfully uses steam engine to drill for oil
- Petroleum-refining industry first makes kerosene, then gasoline

Natural Resources Fuel Industrialization

Bessemer Steel Process

- Abundant deposits of coal, iron spur industry *[Visual]*
- **Bessemer process** puts air into iron to remove carbon to make steel
- Later open-hearth process makes steel from scrap or raw materials

New Uses for Steel

- Steel used in railroads, barbed wire, farm machines
- Changes construction: Brooklyn Bridge; steel-framed skyscrapers

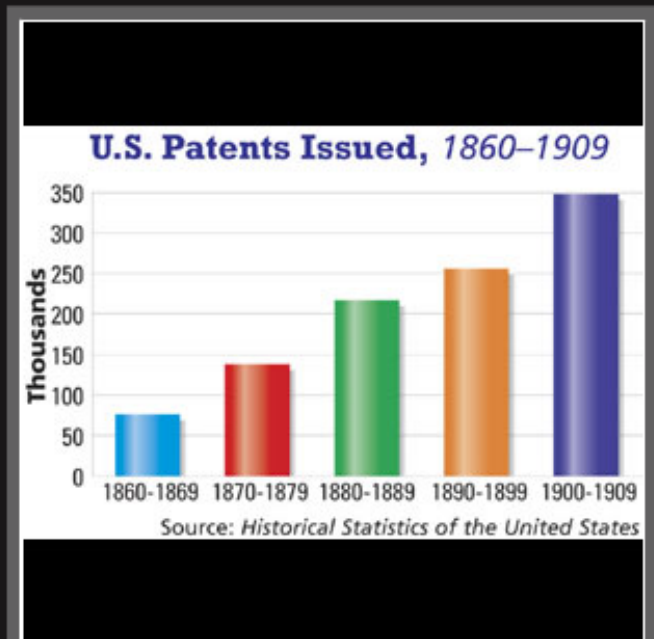


🔍 Mining and Industry in the United States, 1850-1900.

Inventions Promote Change

An Age of Inventions

- Numerous new inventions change the landscape, life, work *[Visual]*



U.S. Patents Issued, 1860–1909.

Inventions Promote Change

The Power of Electricity

- 1876, **Thomas Alva Edison** establishes first research laboratory
 - 1880, patents incandescent light bulb
 - creates system for electrical production, distribution
- Electricity changes business; by 1890, runs numerous machines
- Becomes available in homes; encourages invention of appliances
- Allows manufacturers to locate plants anyplace; industry grows

Inventions Promote Change

Inventions Change Lifestyles

- **Christopher Sholes** invents typewriter in 1867
- 1876, **Alexander Graham Bell**, Thomas Watson introduce telephone *[Visual]*
- Office work changes; by 1910, women are 40% of clerical workers



🔍 Telephone Long-Distance Lines, 1890, 1898.

Inventions Promote Change

Inventions Change Lifestyles

- Inventions impact factory work, lead to industrialization
 - clothing factories hire many women
- Industrialization makes jobs easier; improves standard of living
 - by 1890, average workweek 10 hours shorter
 - as consumers, workers regain power in market
- Some laborers think mechanization reduces value of human worker

Section 2

The Age of the Railroads

The growth and consolidation of railroads benefits the nation but also leads to corruption and required government regulation.

Railroads Span Time and Space

Railroads Encourage Growth

- Rails make local transit reliable, westward expansion possible
- Government makes land grants, loans to railroads
 - to help settle West
 - to develop country

A National Network *[Visual]*

- 1859, railroads extend west of Missouri River
- 1869, first **transcontinental railroad** completed, spans the nation



Railroads Span Time and Space

Romance and Reality

- Railroads offer land, adventure, fresh start to many
- People of diverse backgrounds build railroad under harsh conditions:
 - Central Pacific hires Chinese immigrants
 - Union Pacific, Irish immigrants, Civil War vets
- Accidents, disease disable and kill thousands every year

Railroads Span Time and Space

Railroad Time

- 1869, C. F. Dowd proposes dividing earth's surface into 24 time zones
- 1883, U.S. railroads, towns adopt time zones *[Visual]*
- 1884, international conference sets world zones, uses railroad time
 - Congress adopts in 1918



🔍 Train schedule.

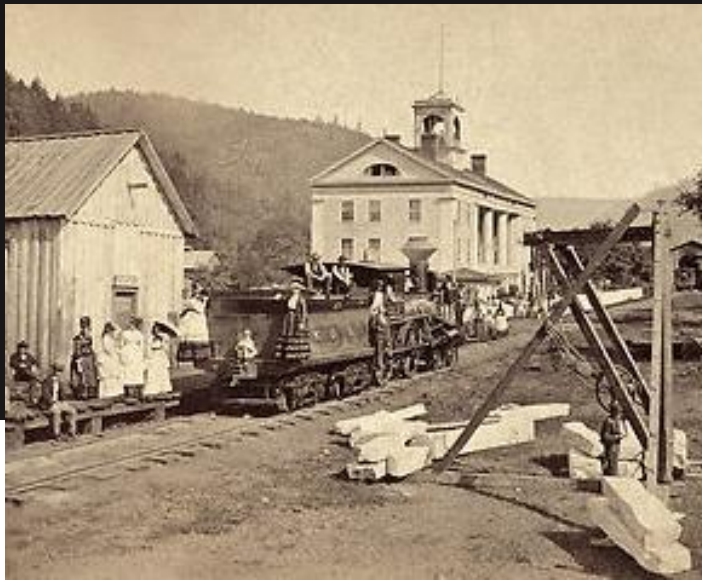
United States



Opportunities and Opportunists

New Towns and Markets

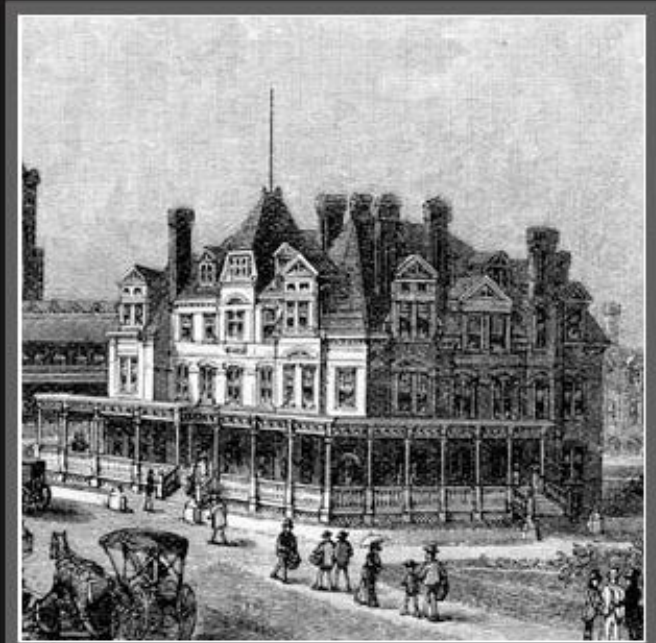
- Railroads require great supply of materials, parts
- Iron, coal, steel, lumber, glass industries grow to meet demand
- Railroads link isolated towns, promote trade, interdependence
- Nationwide network of suppliers, markets develops
- Towns specialize, sell large quantities of their product nationally
- New towns grow along railroad lines



Opportunities and Opportunists

Pullman

- 1880, **George M. Pullman** builds railcar factory on Illinois prairie
- Pullman provides for workers: housing, doctors, shops, sports field *[Visual]*
- Company tightly controls residents to ensure stable work force



🔍 The town of Pullman.

Opportunities and Opportunists

Crédit Mobilier

- Wish for control, profit leads some railroad magnates to corruption
- Union Pacific stockholders form construction company, **Crédit Mobilier**
 - overpay for laying track, pocket profits
- Republican politicians implicated; reputation of party tarnished



 The town of Pullman.

The Grange and the Railroads

Railroad Abuses

- Farmers angry over perceived railroad corruption
 - railroads sell government lands to businesses, not settlers
 - fix prices, keep farmers in debt
 - charge different customers different rates

Granger Laws

- Grangers sponsor state, local political candidates
- Press for laws to protect farmers' interests
- *Munn v. Illinois*—Supreme Court upholds states' right to regulate RR
- Sets principle that federal government can regulate private industry

The Grange and the Railroads

Interstate Commerce Act

- 1886, Supreme Court: states cannot set rates on interstate commerce
- Public outrage leads to **Interstate Commerce Act** of 1887
 - federal government can supervise railroads
 - establishes Interstate Commerce Commission (ICC)
- Legal battle with railroads; difficult for ICC to take action

Panic and Consolidation

- Abuses, mismanagement, competition almost bankrupt many railroads
- Railroad problems contribute to panic of 1893, depression
- By mid-1894, 25% of railroads taken over by financial companies

Section 3

Big Business and Labor

The expansion of industry results in the growth of big business and prompts laborers to form unions to better their lives.

Carnegie's Innovations

Carnegie Makes a Fortune

- **Andrew Carnegie** one of first moguls to make own fortune

Carnegie's Innovations

New Business Strategies *[Visual 1]*

- Carnegie searches for ways to make better products more cheaply
- Hires talented staff; offers company stock; promotes competition
- Uses **vertical integration**—buys out suppliers to control materials
- Through **horizontal integration** merges with competing companies
- Carnegie controls almost entire steel industry *[Visual 2]*



Horizontal Consolidation and Vertical Integration.



View of a Carnegie steel furnace from across a river (1905).

Horizontal Consolidation and Vertical Integration

Horizontal Consolidation



Vertical Integration



Social Darwinism and Business

Principles of Social Darwinism

- Darwin's theory of biological evolution: the best-adapted survive
- **Social Darwinism**, or social evolution, based on Darwin's theory
- Economists use Social Darwinism to justify doctrine of laissez faire

A New Definition of Success

- Idea of survival, success of the most capable appeals to wealthy
- Notion of individual responsibility in line with Protestant ethic
- See riches as sign of God's favor; poor must be lazy, inferior

Fewer Control More

Growth and Consolidation

- Businesses try to control industry with mergers—buy out competitors
- Buy all others to form monopolies—control production, wages, prices
- Holding companies buy all the stock of other companies
- **John D. Rockefeller** founds Standard Oil Company, forms trust
 - trustees run separate companies as if one

Fewer Control More

Rockefeller and the “Robber Barons”

- Rockefeller profits by paying low wages, underselling others
 - when controls market, raises prices
- Critics call industrialists robber barons *[Visual]*
 - industrialists also become philanthropists

Sherman Antitrust Act

- Government thinks expanding corporations stifle free competition
- **Sherman Antitrust Act**: trust illegal if interferes with free trade
- Prosecuting companies difficult; government stops enforcing act



Political cartoon depicting robber barons (1889).



HISTORY REPEATS ITSELF.—THE ROBBER BARONS OF THE MIDDLE AGES, AND THE ROBBER BARONS OF TO-DAY.

Fewer Control More

Business Boom Bypasses the South

- South recovering from Civil War, hindered by lack of capital
- North owns 90% of stock in RR, most profitable Southern businesses
- Business problems: high transport cost, tariffs, few skilled workers

Labor Unions Emerge

Long Hours and Danger

- Northern wages generally higher than Southern
- Exploitation, unsafe conditions unite workers across regions
- Most workers have 12 hour days, 6 day workweeks
 - perform repetitive, mind-dulling tasks
 - no vacation, sick leave, injury compensation
- To survive, families need all member to work, including children
- Sweatshops, tenement workshops often only jobs for women, children
 - require few skills; pay lowest wages

Union Movements Diverge

Craft Unionism

- Craft unions include skilled workers from one or more trades
- **Samuel Gompers** helps found **American Federation of Labor (AFL)**
- AFL uses collective bargaining for better wages, hours, conditions
- AFL strikes successfully, wins higher pay, shorter workweek


SKILLED WORKERS are workers such as plumbers, carpenters, electricians. People with skills.
UNSKILLED WORKERS are common laborers such as farm workers or factory workers

Union Movements Diverge

Industrial Unionism

- Industrial unions include skilled, unskilled workers in an industry
- **Eugene V. Debs** forms American Railway Union; uses strikes *[Visual]*



 Eugene Debs (1855–1926), labor organizer, giving a speech.

Union Movements Diverge

Socialism and the IWW

- Some labor activists turn to socialism:
 - government control of business, property
 - equal distribution of wealth
- **Industrial Workers of the World (IWW)**, or Wobblies, forms 1905
- Organized by radical unionists, socialists; include African Americans
- Industrial unions give unskilled workers dignity, solidarity

Other Labor Activism in the West

- Japanese, Mexicans form Sugar Beet and Farm Laborers' Union in California
- Wyoming Federation of Labor supports Chinese, Japanese miners

CAPITALISM

Individual people own everything including companies and businesses

All property is private property

SOCIALISM

The government owns the big industries such as steel, oil, railroads and banks.

Small business are still owned by individuals.

Some property is government owned and some is privately owned

COMMUNISM

The government owns and controls all property.

There is no such thing as private property

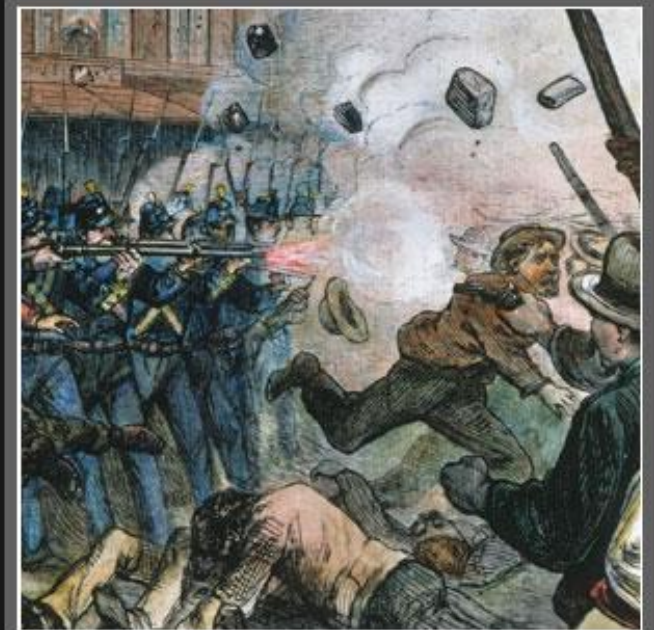
Strikes Turn Violent

The Great Strike of 1877

- Baltimore & Ohio Railroad strike spreads to other lines *[Visual]*
- Governors say impeding interstate commerce; federal troops intervene

The Haymarket Affair

- 3,000 gather at Chicago's Haymarket Square, protest police brutality
- Violence ensues; 8 charged with inciting riot, convicted
- Public opinion turns against labor movement



 The Baltimore-Ohio Strike.

Strikes Turn Violent

The Homestead Strike

- 1892, Carnegie Steel workers strike over pay cuts
- Win battle against Pinkertons; National Guard reopens plant
- Steelworkers do not remobilize for 45 years

The Pullman Company Strike

- Pullman lays off 3,000, cuts wages but not rents; workers strike
- Pullman refuses arbitration; violence ensues; federal troops sent
- Debs jailed, most workers fired, many blacklisted

Strikes Turn Violent

Women Organize

- Women barred from many unions; unite behind powerful leaders
- **Mary Harris Jones**—most prominent organizer in women's labor
 - works for United Mine Workers
 - leads children's march *[Visual]*
- Pauline Newman—organizer for International Ladies' Garment Workers
- 1911 Triangle Shirtwaist factory fire results in public outrage



🔍 Mother Jones (1830–1930), labor organizer, leading children's march.



Triangle Shirtwaist Fire

Strikes Turn Violent

Management and Government Pressure Unions

- Employers forbid unions; turn Sherman Antitrust Act against labor
- Legal limitations cripple unions, but membership rises

Thanks for your
attention!