

## Chapter 24: Industry Comes of Age

### The Iron Colt Becomes an Iron Horse

- Railroads greatly increased in the late-1800s
  - In 1865 (end of Civil War) there were only 35,000 miles of railroad track, which increased to 192,556 by 1900, which was even more than all of Europe combined
- Transcontinental (longitudinally across the U.S.) railroad-building was dangerous and expensive
  - It required heavy government subsidies and land grants in order to thrive
    - Government needed the railroad for postal service and for military transportation
    - Private companies weren't willing to build railroads into unpopulated areas (as they needed to in order to cross the U.S.)
    - The U.S. ended up giving 155 million acres to railroad companies that lined the railroads, and Western states gave them 49 million (~200 million acres larger than area of Texas)
    - Sometimes railroads got even more area by creating checkerboard patterns of land owned by them and government land in order to cover double the area, and not allowing people to settle on the government-owned land
      - President Cleveland had to stop this by allowing people to settle on the government-owned land
    - Some people thought that this would make the rich railroad companies richer and was unfair and would open up the socioeconomic gap
      - Actually this would benefit the government in the long run by avoiding collecting taxes for a direct payment of the railroad building, instead letting the railroads generate long-term profits
  - Settlements by railroads often became prosperous

### Spanning the Continent with Rails

- When the South seceded the North was left with the task of building the first transcontinental railroad, which was named the Union Pacific Railroad
  - The track connected Nebraska to California
  - The war and the need to keep the Western free states closer to the Union to prevent them from seceding made the railroad more urgent
  - Railroad companies received 20 square miles of land for every mile of railroad, as well as \$16,000 to \$48,000 per mile
    - The Crédit Mobilier Construction company (part of the Crédit Mobilier scandal under President Grant) officials took \$73 million in profit from this mileage, and bribed many government officials to not give them away
  - Many of the workers were Irish

- Many people died in the construction of the railroad because it took so long, and because Native Americans who tried to reclaim their land that the railroads went through could easily be killed
- The Central Pacific Railroad began in California and moved through Nevada and towards the Union Pacific Railroad
  - It passed through Sacramento, California (the capital city of CA)
  - The “Big Four” were major investors in the railroads, including the ex-governor of CA and a lobbyist
    - They too had two construction companies similar to Crédit Mobilier, but did not bribe officials and therefore were not involved in a federal scandal
    - Many Chinese worked at the Central Pacific Railroad because they were cheap and expendable
    - Work on the Central Pacific was slower than the Union Pacific because it had to tunnel through mountains
- The two railroads met in Utah in 1869 with a grand ceremony
  - This was one of the most impressive technological undertakings of the 19th century for Americans

*Politics and Power:* The government traded off some of its wealth and power in exchange for necessary economic provisions that the railroads would provide. This meant giving very generous land grants to the railroads—as much as 20 square miles in land grants and \$48,000 in subsidies per mile of railroad—to build the first transcontinental railroad. This was already delayed from the planned southern transcontinental railroad that would pass through the land gained by the Gadsden Purchase, and the government needed the railroad badly in order to connect the Western U.S. more securely to the East. Later, their focus changed to a more economic goal, but it was still based in national unity. On the other hand, the large railroad corporations began to see railroading as a major profit-gaining industry, and companies such as the construction companies of the “Big Four” and the Crédit-Mobilier construction company used the government subsidies to their advantage, as well as employing tactics such as cheap immigrant labor and creating checkerboard patterns of land grants. Thus economics began to get tied in with politics as companies were essentially given power (through land and money) by the government, which foreshadowed the economic monopolies of the Gilded Age that had as much influence as the federal government.

#### Binding the Country with Railroad Ties

- Four more transcontinental railroad lines were completed before 1900
  - None of them had federal subsidies like the Union and Central Pacific Railroads
  - Included the Northern Pacific, the “Atchison, Topeka, and Santa Fe,” the Southern Pacific, and the Great Northern Railroads
    - The latter created by the greatest railroad builder, a Canadian American, James J. Hill
  - Many of the railroad builders built useless railroads (didn’t lead to very prosperous places or failed to gain business) and many railroad builders went bankrupt

#### Railroad Consolidation and Mechanization

- There was an expansion and greater interconnectedness of the older, eastern railroads
  - Cornelius Vanderbilt built his fortune creating a cheap railway service in New York with the New York Central railway line
    - He had a personal fortune of \$100 million
    - He created Vanderbilt University with a \$1 million grant
    - He helped popularize the steel rail, which was stronger and therefore safer and could bear heavier loads
  - A standard gauge of track (distance between rails) was created in order to make transitions between railway lines easier
  - The Westinghouse air brake was invented and was efficient and safe
  - The Pullman Palace Cars were luxurious train cars
  - The telegraph, double-tracking, and the block signal were new safety inventions for railroads

### Revolution by Railways

- Railroads became America's biggest business with the greatest employment and 20% of domestic and foreign investments
  - Railroads were the primary cause of the post-Civil War economic boom
  - It opened up a new market and source of resources in the Western U.S. to the Eastern U.S.
    - This allowed raw materials from the West to go to the East for manufacturing, which created the largest national economic market
  - The steel industry benefitted most from railroads because of the large amount of steel going into the rails
  - It allowed farmers to lead better lives, selling produce to the East and buying manufactured products from the East more easily
  - Railroads increased migration to cities because they could bring large amounts of food to the cities and give a large market to the factories
  - Immigration also increased as railroads offered to sell federal land grants to the immigrants for low prices
- The environment was greatly changed by railroads
  - Buffalo almost went extinct by hunting in the Midwest, and cattle replaced it with the multitude of farmers that were introduced
  - Many cornfields were planted in the Midwest
  - Many forests in the Old Northwest were cut down for lumber
- The different time zones were adopted because railroad operators were worried about keeping trains on time and avoiding crashes
  - Prior to this, people had local times, which were not coordinated
  - The U.S. was divided into four time zones, which became the standard
- Railroads created many millionaires
  - Railroad builders, wreckers, and stock speculators became rich

*Work, Exchange, and Technology:* The building of railroads spawned a new group of jobs and lifestyles. Not only did it create the millionaire class of railroad officials such as Vanderbilt and the worker class of railroad workers, but it also helped both the industrial and agricultural economies. This was due to the fact that both of these fields of work are highly dependent on trade: the agrarian societies need imported manufactured goods as farm tools and they export their harvests, and the factories need raw materials and spew out manufactured goods. The railroads facilitated this new system of exchange, bringing along with it new jobs and higher salaries for the average American. This was also accompanied by a surge of new technologies, especially in railroading, such as standard gauge, steel rail, and luxury train cars; these improvements augmented even further the revolutionary effects of railroads to American politics.

### Wrongdoing in Railroading

- Because people could get rich very quickly in railroading, corruption in railroad finances began to appear
  - Jay Gould played many railroad stocks (bringing their price up with high bids and then crashing them)
  - “Stock watering” became a common tactic of railroad builders: they excessively sugarcoated the profitability of a railroad line to sell high-price stocks to people that were worth much more than the railroads
  - Vanderbilt and his son were very rude to the public and disrespectful of the law because they had a lot of money
  - Rich millionaires openly bribed officials and employed lobbyists
- There was very strong competition between railroad companies, tried to increase profits however possible
  - Sometimes railroad companies “pooled” their money, dividing business and profits in a certain area
  - Sometimes railroad companies had customers pay more for short hauls than long hauls, making farmers the poorest and rich, larger customers pay least (so that they could continue paying for large hauls in the future)

### Government Bridles the Iron Horse

- American society was slow to react to the economic corruption of the railroad companies
  - People wanted less government interaction in economics (more laissez-faire approach)
  - People wanted the American Dream (that anyone could become a millionaire)
- The economic depression of the 1870s pushed people to the limit
  - Farmers in groups such as the Patrons of Husbandry (also known as the “Grange”) advocated for stricter railroad regulations
  - Wabash, St. Louis & Pacific Railroad Company v. Illinois, a Supreme Court case, ruled that states did not have the right to regulate interstate commerce
  - Congress passed the Interstate Commerce Act (1887) that mandated railroad companies to openly publish their rates, and it prohibited rebates, pools, unfair discrimination against certain shippers, charging more for short hauls than long hauls, and it created the Interstate Commerce Commission (IDC) to enforce the new laws

- This act actually stabilized shipping by not putting extremely harsh conditions on railroad companies, while providing standards and regulations to abide by that would standardize railroad shipping and resolve conflicts
- This was the first large-scale act by the federal government to try to regulate economics and was the beginning of the end of openly corrupt economics and easy millionaires

*Politics and Power:* Like the political corruption of the Gilded Age, economic corruption amongst the wealthy barons of the same era dominated economics. Stocks were being manipulated by speculators like Gould; the railroads were controlled by Vanderbilt, the steel by Carnegie, the oil by Rockefeller, and the banks by Morgan. These people and their respective companies were ruthless in their strategies to try and attain wealth, especially with Rockefeller, who believed so strongly in taking out all other possible competition. The government had mixed results to this, but it mostly worked out to the favor of the businesses. The *Wabash, St. Louis & Pacific Railroad Company v. Illinois* Supreme Court case ruled in favor of the businesses' rights over the states, and this served as a precedent that supported the businesses in many other court cases. This essentially gave businesses power over all politics except for that which is issued directly by the national government, giving them immense power. Likewise, the Interstate Commerce Commission, designed to regulate these big businesses, only managed to strengthen the businesses by enacting a mild standardization and resolution of industrial disputes with regulations; thus it did not restrict businesses as it was intended to.

#### Miracles of Mechanization

- By 1894 the U.S. was the largest manufacturing country in the world
- During the Civil War, there began to be a wealthy class, especially by profiteers (e.g., blockade-runners in the South)
- The wealthy could then borrow from foreign countries to increase their money
  - Investors often owned a large part of or the entirety of an American business
  - There were many investing businesses in Europe that sprung up from this demand of loans
  - Usually the investors were content with having little say in the American businesses
- Increase in transportation (i.e., railroads) helped bring more natural resources to factories
- Mass production and interchangeable parts were inventions of the late 1800s that helped American manufacturing
- Manufacturing was largely powered by a supply of cheap immigrants
- There were more than 440,000 patents in the three decades after the start of the Civil War
  - Alexander Graham Bell invented the telephone, which not only revolutionized communications but also created the job of telephone maintainers and receivers
  - Thomas Alva Edison was a versatile inventor, who, among many other inventions, invented the lightbulb which allowed people to stay awake longer into the night and therefore be more productive

*American and National Identity:* The resourcefulness of the average American is stunning and is exemplified here, especially in the case of the inventors. America is so well-known for its industrial prowess, much of which is due to the creativity of its people and the multitude of new inventions that

result from it; Bell's telephone and Edison's lightbulb totally revolutionized American society by giving people a new "social media" and a safer, more reliable method of being productive through the night. This inventiveness is an integral part of American identity. Similarly, the use of foreign investments to bolster wealth and to support companies is also a core part of American identity: the Virginia charter was a joint-stock company of investors, and companies with stocks have played a large role in American politics, even up until today. Foreign investments also remain a critical part of these investments, even to the point of extreme debt nowadays; this only shows our unwavering, fundamental devotion to financial loans.

### The Trust Titan Emerges

- Millionaires sprung up in different industries, even outside of railroading
  - Andrew Carnegie was wealthy from the steel industry
    - He streamlined the work of his company with vertical integration, in which every process of steel refinery (from mining to refining) was controlled by his business for increased efficiency and the lack of a middleman and its fee
  - John Rockefeller was wealthy from the oil industry
    - He popularized horizontal integration, in which he worked together with competitors to monopolize an industry
    - He created the idea of a trust, which was like a larger stock for all of the competing oil companies
      - Standard Oil Company was the trust he created; it monopolized the oil industry of the entire world; it forced weaker, smaller competitors to run out of business
  - J. P. Morgan was wealthy from the banking industry
    - He created the system of interlocking directorates, in which his officials would become on boards of other companies to influence other companies to work together in his favor

*Politics and Power:* (see above, under "Government Bridles the Iron Horse")

### The Supremacy of Steel

- Steel manufacture was a very profitable industry
  - It focused on the production of "capital industry," which consisted of large and profitable projects such as the creation of railroads, as opposed to "consumer industry," which created smaller and more commonplace goods
- It was expensive because it was relatively rare
  - Iron was the more common before steel, and steel was first imported from Britain for railroads because of its relative scarcity
  - However, this turned around and by 1900 the U.S. produced  $\frac{1}{3}$  of the world's steel (as much as Britain and Germany together)
    - This was largely caused by the invention of the Bessemer process, which was a cheap process to purify steel

### Carnegie and Other Sultans of Steel

- Carnegie quickly rose the ranks from a poor immigrant family to a head businessman
  - He chose officials wisely and eliminated middlemen
  - Together, he and his associates had \$40 million in profits a year
- J. P. Morgan was a banker that was considered trustworthy, with a high reputation for integrity
  - Carnegie was ready to sell his company
  - When Morgan was about to invest in the steel business, Carnegie threatened to run him bankrupt if he didn't buy Carnegie's steel for Carnegie's price
  - Carnegie ended up having his company bought for \$400 million
    - He spent the rest of his life as a philanthropist so that people would not look at him in shame for amassing so much money
  - Morgan's steel industry, later the United States Steel Corporation, was valued at \$1.4 billion dollars, the first company to reach over a billion dollars

#### Rockefeller Grows an American Beauty Rose

- The oil industry had a quick rise in the days after the Civil War
  - Abundant petroleum was discovered in Pennsylvania as "Drake's Folly"
  - Kerosene was a major petroleum product that burned brightly for lamps
    - It outcompeted whale oil as a lamp-burning fuel
    - It in turn was outcompeted by Edison's lightbulbs in the late 1800s
  - It was very profitable from the invention of the automobile
- Rockefeller also had modest beginnings like Carnegie, but he organized the Standard Oil Company in 1870, which became a trust in 1882
  - He came into an industry in which the oil competition was free and not dominated by a single company, but he came to dominate 95% of the oil sold in 1877
  - He was very aggressive with his economic will to dominate other companies, and even used illegal measures such as getting rebates from railroads (illegal as of the Interstate Commerce Act)
  - His oil was better-quality and very cheap compared to competitors because of efficiency of a large corporation and the ability to buy better equipment
- Other trusts developed, following the lead of the Standard Oil Company
  - There was the tobacco trust, the leather trust, and the harvester trust
  - There was a new class of arrogant wealthy people coming from the people who worked in the companies of these trusts
    - As a result, there was an increasing conservative reaction to this that aimed to stop this new class from proliferating, who were raised in a time of moderately-successful, less corrupt wealth

*Culture and Society:* The millionaire class was not something unheard of and strange; these three men—Carnegie, Rockefeller, and Morgan—were self-made men with similar stories. They all were from poorer immigrant families and worked their way up the social ladder. They all became extremely wealthy, the wealthiest in all of America; however, this was not totally exclusive, as they had many successful associates supporting them as well. They all had different personalities—indicative of the democratic diversity of American thought—but inventive financial workarounds to solutions, such as

Rockefeller's creation of a trust and Carnegie's threat of dominating the steel market to J. P. Morgan. These were the people that began to normalize the idea of an extremely wealthy class, which enforced some distinctly American ideas: the American Dream, that anyone could become anything (and just as rich) as anyone else; Social Darwinism, which split fellow Americans amongst one another along a socioeconomic divider; and also the idea of philanthropy, as Carnegie carried out when he retired with over \$400 million in his possession, leading to current-day philanthropists in a similar situation of wealth such as Bill Gates. In other words, these three men were the primary force in molding society towards the rich by exemplifying the ideals of the Gilded Age barons.

### The Gospels of Wealth

- Social Darwinism was the idea that “individuals won their stations in life by competing on the basis of their natural talents”; the term “survival of the fittest” came from this era
  - This was the forefront of the religious justifications of the wealthy for their own riches
  - This justified the rich people's contempt for the poor; they believed that the poor were simply lazy and did not have the perseverance to rise as they did
- Social and economical reform was delayed by the rich people's beliefs
  - Social Darwinism caused the rich to patronize the poor
  - The wealthy used the ruling that prohibited state governments from interfering with interstate business to protect themselves in many court cases
  - The wealthy even manipulated the idea of the 14th Amendment to apply the idea of “citizenship” and therefore its rights of freedom and equality to corporations
  - The wealthy had their corporations in states with more lenient business regulation laws such as New Jersey

### Government Tackles the Trust Evil

- The Sherman Anti-Trust Act (1890) was passed to try to limit big corporations' power
  - It forbade the creation of any trust
  - It was not very effective, but it did end up limiting labor unions, which were thought to limit trade
    - However, it and the Interstate Commerce Act were amongst the first government regulations on business that would be strengthened in the future

### The South in the Age of Industry

- The South was still less prosperous (smaller percentage of nation's wealth) than the North in 1900
  - It had less of a technological and industrial boom like the North
  - Society was mostly stagnant, and remained agriculturally-based
- In the 1880s, tobacco became mass-produced with a machine-rolled variety under James Buchanan Duke
  - He formed a tobacco trust in 1890 with the American Tobacco Company
  - Trinity College was renamed Duke University because he donated money to them
- Northern railroads made it difficult for the Southern economy to develop



- It took raw goods (cotton) from the South and created a dependency on Northern manufactured goods for the South, so they could not really become economically independent and forge their own economy.
- The “Pittsburgh plus” was an unfair system by a steel company based in Pittsburgh with a factory in Alabama; when the Alabama steel was shipped elsewhere in the South, there was a shipping fee added as if it was being shipped from Pittsburgh, which was unfair
- The Southern textile industry prospered
  - More cotton mills were built in the 1880s
  - Cheap labor from poor whites and former slaves fueled this industry
  - The textile industry, related to the cotton industry that had once dominated the South, now dominated the South

*Geography and the Environment:* The South did not profit as much from the Industrial Revolution and the railroads as the North because of its geographical situation. It is far South, and its agriculture remains its primary occupation. More than any political or business-based decision, a continued agrarian life probably seemed the best option to many Southerners in this post-War era. Even the two main “industrial” advances to the South—mechanized tobacco rolling and the textile mills—were based off of agricultural products—tobacco and cotton, respectively. In addition to this, their relative remoteness from the North led to simply logistical difficulties such as shipping fees, which led to the unfair shipping fees known as the “Pittsburgh plus” that were far overpriced. This was the opposite in the northeast, the hub of industrial activity, in which cities were proliferating and there was still little arable land. It was the geographical situation that, even from the onset of the nation, decided basic economic opportunities for the North and the South.

#### The Impact of the New Industrial Revolution on America

- Standard of living in America greatly increased with increasing wages
- People began to move to the cities because they were the hub of industrial work, which boomed during this time period
  - This went against the idea of Jefferson’s ideal agrarian American with industry abroad; his vision was switched and closer to Hamilton’s view
  - People in factories began to live on strict work schedules
- Women’s role in society changed
  - They often worked in factories, especially on the typewriter and the telephone
  - For poor women, work was as long and as hard as it was for men
  - The Gibson girl was the new ideal for American women: “healthy, athletic, and confident”
  - The ideal of a regular American family meant later marriages and a smaller family
  - They earned lower wages than those of men for similar jobs
- There was an increasing economic class division
  - 10% of the nation’s population held 90% of the wealth in 1900
  - Most Americans (2/3) were dependent on wages by 1900
    - Wages were somewhat low, people had to struggle to work and survive

- International trade increased with better transportation and more manufactured goods in America
  - This was aided by the transatlantic telegraph and the Suez Canal that quickened international communication and transportation, respectively

#### In Union There Is Strength

- Industry became increasingly depersonalized and dreary
  - Sometimes machines replaced people's jobs
  - There was a great pool of poor and unemployed people, many of them immigrants, that allowed a corporation owner to choose for cheap labor
    - These people were very powerless against big corporations with a lot of money, who could hire better attorneys and get strikebreakers to end labor unions
      - The large corporations could also call upon the federal government to stop strikes, amongst other corrupt tactics
- In the end, society and economics favored big business
  - Ordinary people got tired of the repeated strikes
  - Big businesses were allowed to form trusts with little resistance

*American and National Identity:* The effect of industry on the norms of American society was profound. The national identity of American women became something of a factory worker, especially one on the fascinating new inventions of the typewriter or the telephone, but occasionally also as a hard laborer. This was the consolidation of the pre-Civil War surge of women factory workers such as the "Lowell girls," and now that this was established into American society it opened up the debate for equal pay and treatment because of the hard work that American women put into menial work just like their husbands. The stereotype of the factory worker was not only limited to women, however, and the great industrialization of companies and the replacement of jobs with machines have become patterns in the increasingly mechanized lives that we live in currently. Therefore, much of this Gilded Age industrialization has impressed similar connotations of the national identity of work between then and now.

#### Labor Limps Along

- Labor unions were bolstered by the Civil War
  - The war put an increasing importance on unifying people and on labor
- There were hundreds of thousands of workers and 32 national unions by 1872
- The National Labor Union (1866) was a major labor union for workers
  - Unified people across the U.S. and even between different industries
  - Had 600,000 members over six years
    - However, excluded Chinese and mostly excluded women and blacks
  - It tried to solve some industrial disputes and establish an eight-hour work day, but only to mild success
  - The depression in the 1870s made it lose power when uncontrollable strikes (not organized by the National Labor Union) broke out during the depression
- The Knights of Labor (1869) was another labor organization for the people

- Originally it was a form of secret society, but eventually broadened their scope
  - They wanted to be all-inclusive, including even foreigners, women, and blacks
  - Began with around 90,000 members, went up to around 750,000 by 1885
- They refused to act in politics but advocated social reform
- They had some successful strikes, such as some for the eight-hour day and against Jay Gould's Wabash Railroad

#### Unhorsing the Knights of Labor

- Haymarket Square (1886) had an incident between strikers and anarchists
  - A bomb caused multiple dozen casualties
  - Some anarchists were thrown into prison or given death sentences, even without strong evidence against them
    - Later the survivors were pardoned by the new governor who believed they were innocent; he was criticized by conservatives
  - This associated anarchists with the reformers such as the Knights of Labor in the public eye
- The Knights of Labor also became divided when workers from more skilled groups, especially higher-class craftsmen, decided to join more exclusive labor unions

#### The AF of L to the Fore

- The American Federation of Labor (1886) was a highly-organized system of independently-governing national labor unions with it as the overall governing structure
  - It was created and headed by Samuel Gompers, an immigrant
    - Gompers did not like socialism, but he did not like the injustice of capitalism either
    - He worked to authorize the closed shop idea, in which a company only employs labor union members
    - He was a strong supporter of the "walkout" and boycott as tools for the union
  - It was not very supportive of less-skilled workers because it was created by highly-skilled craftsmen
  - It had a membership of 500,000 by 1900
  - They had 23,000 strikes involving 6,610,000 workers that compromised \$450 million to employers and employees, with about a 50% chance of success

*Culture and Society:* The changes in the labor unions that people were a part of showed the changing needs of American society. At first, the National Labor Union was a generally inclusive labor union, but its downfalls were its lack of support for minority groups (especially blacks and women) and its lack of structure (which allowed the depression to rip it apart). Next, the Knights of Labor was held together a little more strongly from its beginnings as a secret society, and it advocated strong social, not political reform. Next, the American Federation of Labor had the greatest longevity and impact, and was less inclusive but better organized, with millions of involved workers and thousands of organized strikes. This shows the efficiency of a stronger and better-organized government against the monopoly of trusts, which was the general social trend—the government had begun to crack down on big business with acts

such as the Interstate Commerce Act and the Sherman Anti-Trust Act, and this trend would continue into the 20th century.