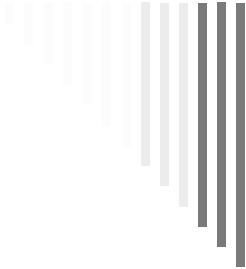


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# Industrialization

**Mr. McMurray**  
**HUSH**

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## Essential Question

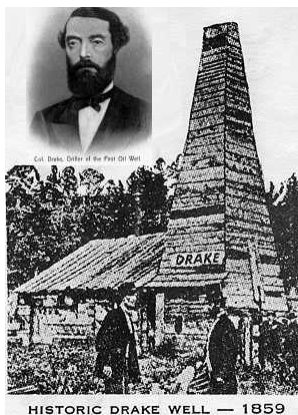
- Were industrialists of the Gilded Age best described as ***Robber Barons*** or ***Captains of Industry***?
- Robber Barons** – a business owner or executive who acquires wealth through ethically questionable tactics.
- Captains of Industry** – a business leader whose means of amassing a personal fortune contributes positively to the country in some way.

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## What is industrialization?

- A society's conversion from an agrarian economy to one based on industry...
  - Technological innovation
  - Social changes
  - Big businesses
  - Changes in labor

## Oil



- Edwin Drake uses a steam engine to procure oil
- Originally used for kerosene lamps and grease for machines
- Automobile popularity eventually leads to demand for gas
- Boom begins...
  - Texas becomes the nation's oil capital

## Steel



Henry Bessemer



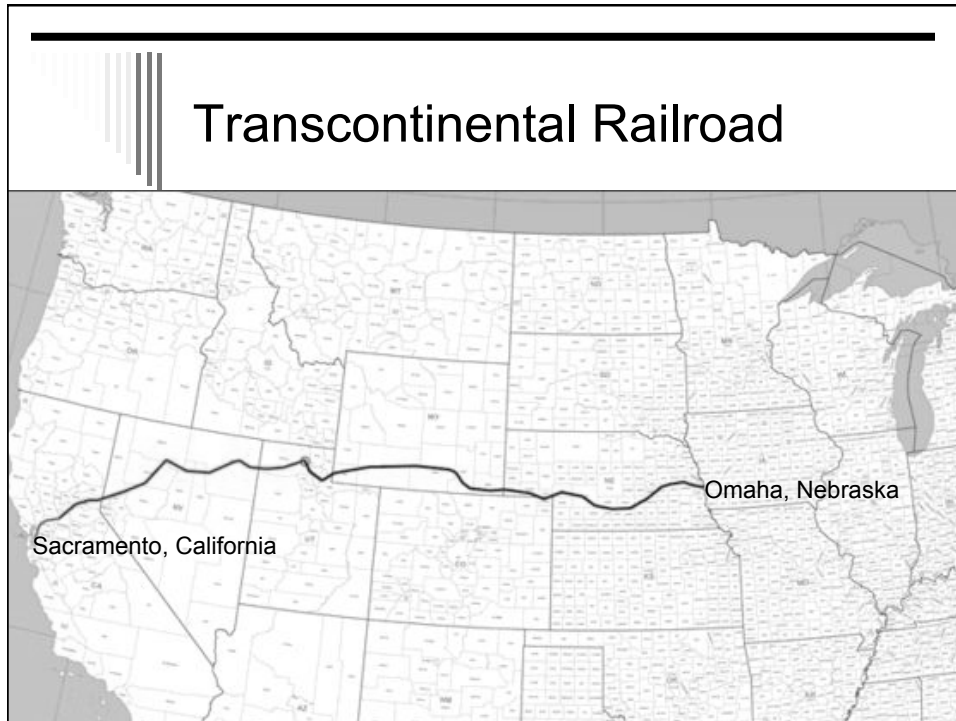
William Kelly

- Bessemer Process (1850)
  - Blow air through Iron to remove carbon = steel
  - Lighter, more flexible, rust resistant
- Infrastructure projects demanded steel
  - Bridges, skyscrapers
- Railroads demanded steel
  - Transcontinental rail system being built in the 1870' s
  - Business opportunity for entrepreneurs


## Railroads



- Given huge land grants by the government
  - 10-20 square miles per mile of track
- Central Pacific built east from Sacramento
- Union Pacific built west from Omaha
- They met at Promontory, Utah in 1869 and the company owners drove in a golden spike to unite the two...east and the west are now linked
- Growth of railroads grew six fold in 30 years



## Electricity



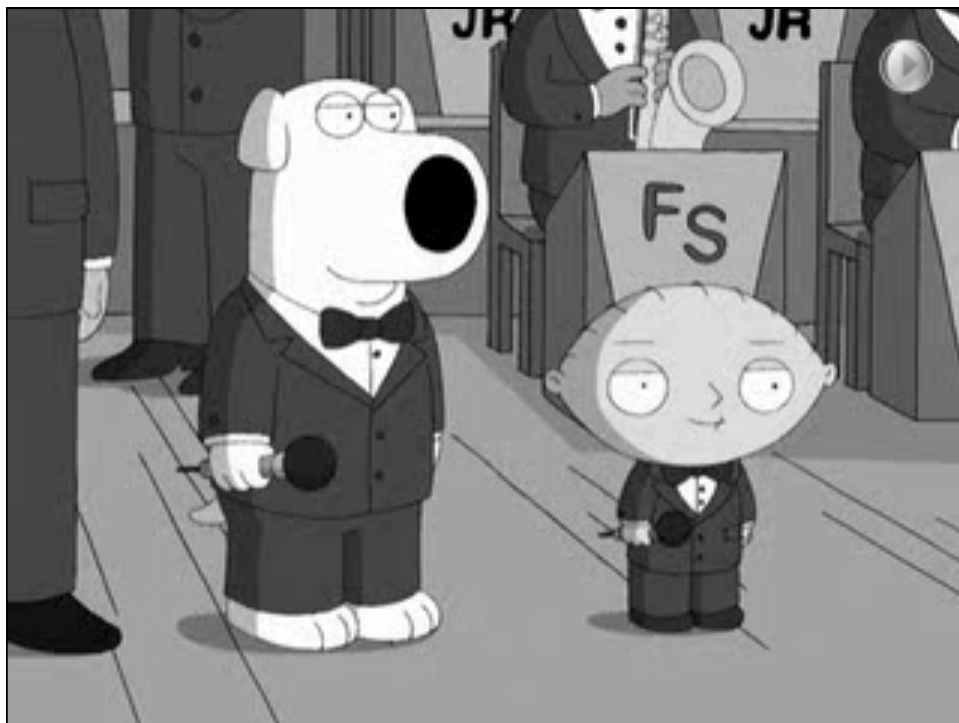
- Thomas Edison
- Worked out of the Menlo Park complex
  - Invented the phonograph (1877)
  - Invented light bulb (1880)
  - Much of the science behind this advent was purportedly stolen from Nicola Tesla
  - Difficulty finding a filament that will last
  - Genius is... “One percent inspiration and 99 percent perspiration”
- Partnered with George Westinghouse he developed a safe and affordable system for distributing electricity...this changed the game!


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## Discussion Question


- How could the advent of electricity change the industrial sector, companies operations, etc.?
- 





## Telephone

- Invented in 1876 by Alexander Graham Bell & Thomas Watson
- Communications across country and eventually worldwide becomes a possibility



**What's in your telephone**

This picture, taken "behind the scenes", gives some idea of the complexity of your telephone. To select the raw materials and refine them, to produce from them the finely-wrought coils and contacts and diaphragms, to assemble the many parts into a smooth-working and long-lasting telephone—all this calls for a manufacturing skill of high order. Western Electric telephones are the product of fifty-four years' man.

**Wes**  
Sheriff

**ALUMI**  
Diaphragm transmitter

**SILI**  
In cover receiver extension

**IRONI**  
Magnet base. Ten and base clamp screws.

**COPP**  
Cui wire (As. bus cover to male, to handle)

**KUZE**  
Receiver diaphragm

**WOOL**  
Felt pad at base of telephone.

**FLAX**  
In linen paper in stationer button.

**NICKEL**  
Contact springs for plating transmitter parts.

**MICA**  
Diaphragm in transmitter button.

**COAL**  
Carbon granules in transmitter button.

**SHELLAC**  
Used in mouth-piece component.

**GOLD**  
**ATINUM**  
**BIYER**  
Exact metal of contact wire in springs.

**DOTTON**  
Covering on transmitter diaphragm.


**ZINC**  
In contact rings and all sea parts.

**SPHALT**  
In all contact rings.

**LEAD**  
Combination in tin in wire.


**TIN**  
In all contact joints. (See Lead.)


We've come a long way since then...




## Captains of Industry or... Robber Barons?

You be the judge...

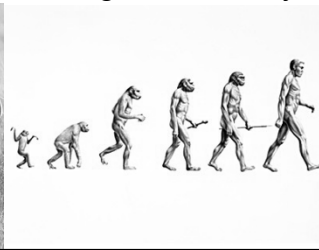






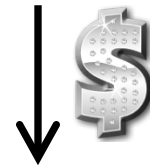
## Why do they deserve it?

- Social Darwinism – application of Darwin’s theory of evolution/survival of the fittest to human success
- “Natural Selection” – weed out the less-suited individuals and enabled the best-adapted to survive and flourish
- Passed down generationally...is this true???



## George Pullman

- Chicago-based company
- Built luxury railroad cars
- Famous for building a whole town just for his workers
  - Spacious residences (by comparison)
  - Social services available
  - Shopping available
  - Towns have laws though...



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## Discussion Question

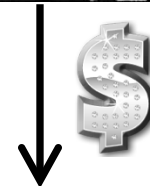
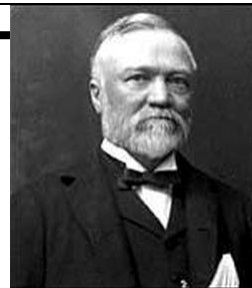
- What advantages and disadvantages arise from operating a workers village like Pullman?
- 

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## Andrew Carnegie

- Rose from “rags to riches”
- Started Carnegie Steel Co. in 1873
  - Remember Bessemer process...
- Owned majority of the steel made in US
- Sold his company to J.P. Morgan (1901)
- “Richest Man in the World”



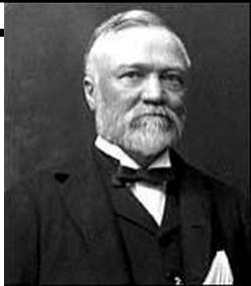
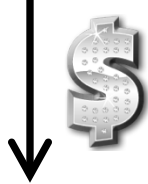



## Andrew Carnegie

- Philanthropy
  - Gave away 90% of his fortune before he died
    - Carnegie Mellon University
    - Carnegie Hall

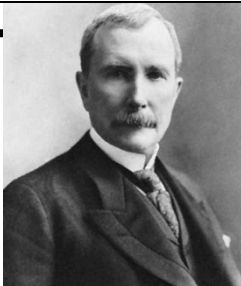


“It will be a great mistake for the community to shoot the millionaires...for they are the bees that make the most honey, and contribute most to the hive even after they have gorged themselves full.”  
~Andrew Carnegie

“A man who dies rich dies disgraced.”  
~Andrew Carnegie

## John D. Rockefeller



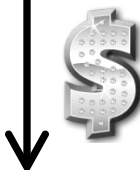
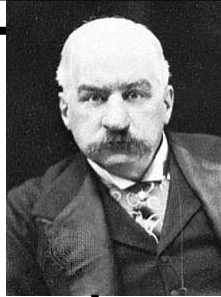
- Made his fortune in the oil industry
- Standard Oil Company
- Built trusts to dominate
  - Groups of competitors managed as one company by a group of “trustees”
  - Combined stock, split dividends
- Eventually controlled 90% of all the nation’s oil!
- Philanthropist as well
  - U of C, Rockefeller Foundation

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**J.P. Morgan**

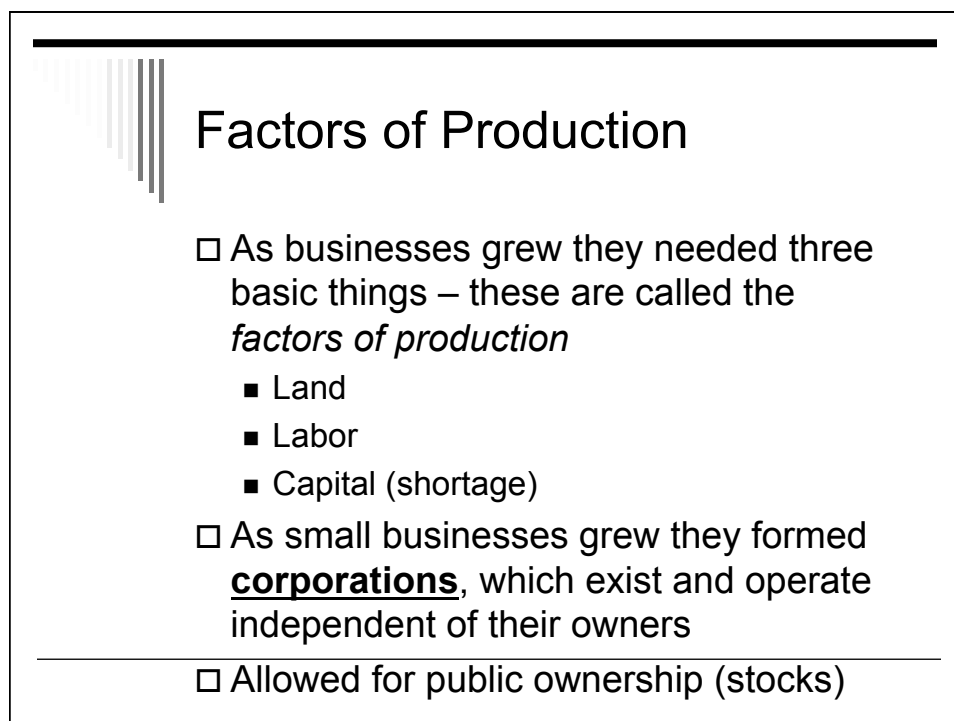
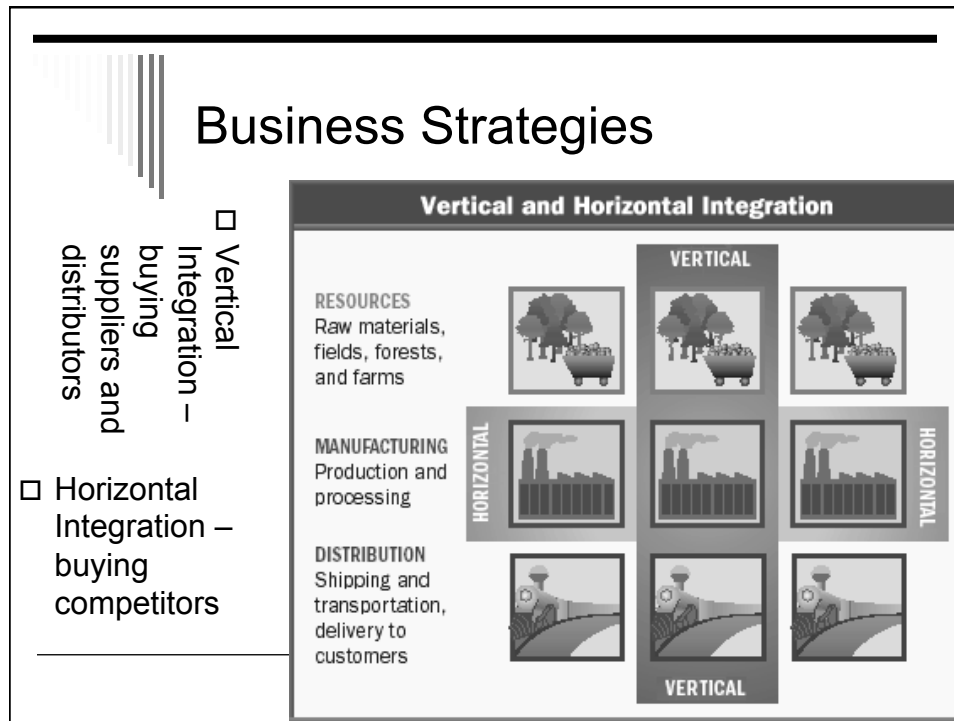
- Banker, Financier
- Used holding companies to dominate
  - A corporation solely constructed to buy the stock of other competing companies
- Purchased Carnegie Steel and made US Steel in 1901
  - World's largest corporation



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**History Fun Fact:**  
Morgan suffered from Rosacea which resulted in a bulbous nose





## Business Strategies/Terms

- Monopoly is the name of the game
  - Acquire an unfair advantage over your competition to dominate the market
- Trusts were a group of companies run by a small group of trustees
- Laissez-Faire was a “hands off” approach by gov’t



## Wrap-up Questions

- What types of things led to an increase in the demand for steel?
- What were two of Thomas Edison’s inventions?
- Explain the difference between vertical and horizontal integration?