

The Second Industrial Revolution

America in the late 1800s

I. **The Steel Industry**

A. By the mid-1890s, the U. S. was the world's industrial leader

B. Steel is iron made stronger by heat and adding other metals

C. The Bessemer process: way to make steel more quickly & cheaply

1. blasted hot air through melted iron to remove impurities

2. Made it stronger

D. As steel dropped in price, so did cost of building railroads

E. Manufacturers, farmers sent products faster by rail, new tracks and passenger cars improved service.

F. Cities where lines crossed, like Chicago, grew and travel west was faster and safer.

G. Railroads and related industries hired more and more people



Railroads, 1880s



II. Use of Oil & Electricity

A. In 1850s, chemists converted crude oil to kerosene; used for cooking, heating and light.

B. 1859, oil was being pumped from ground. Oil prospectors began in Ohio, Pennsylvania, W. Virginia.

C. Oil became big business, producing millions of barrels per year.

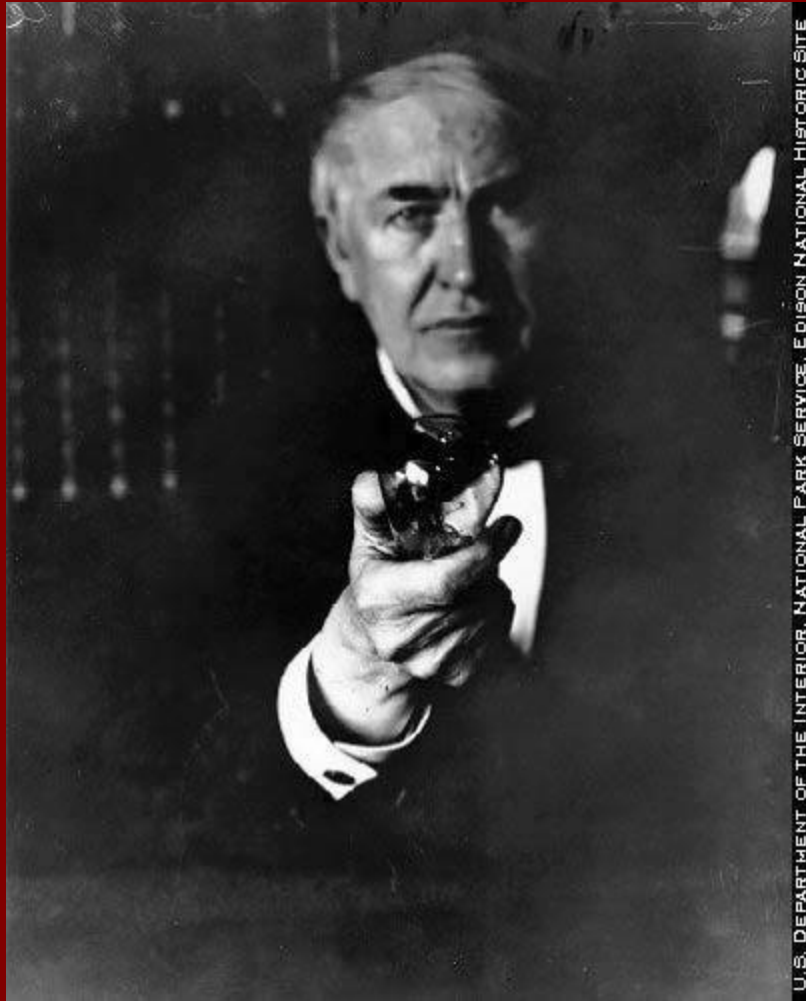
D. Electricity became important source of light and power

E. **Thomas Edison**, in Menlo Park, N.J., had a research center called “an invention factory”

1. **Edison** soon had over 1,000 patents (exclusive rights to manufacture inventions.)

2. In 1879, Edison created electric lightbulb. He had to build a power plant in 1882 to supply New York City.

Thomas A. Edison



F. Edison's company, Edison Electric, could not move electricity over long distances.

G. Late 1880s, George Westinghouse built power system that could; electricity use spread in cities. Homes, factories and street cars were powered by electricity.

III. Rush of Inventions

A. By 1861, telegraph wires connected East & West coasts

B. 1866, a cable on the floor of Atlantic Ocean connected U.S. and England

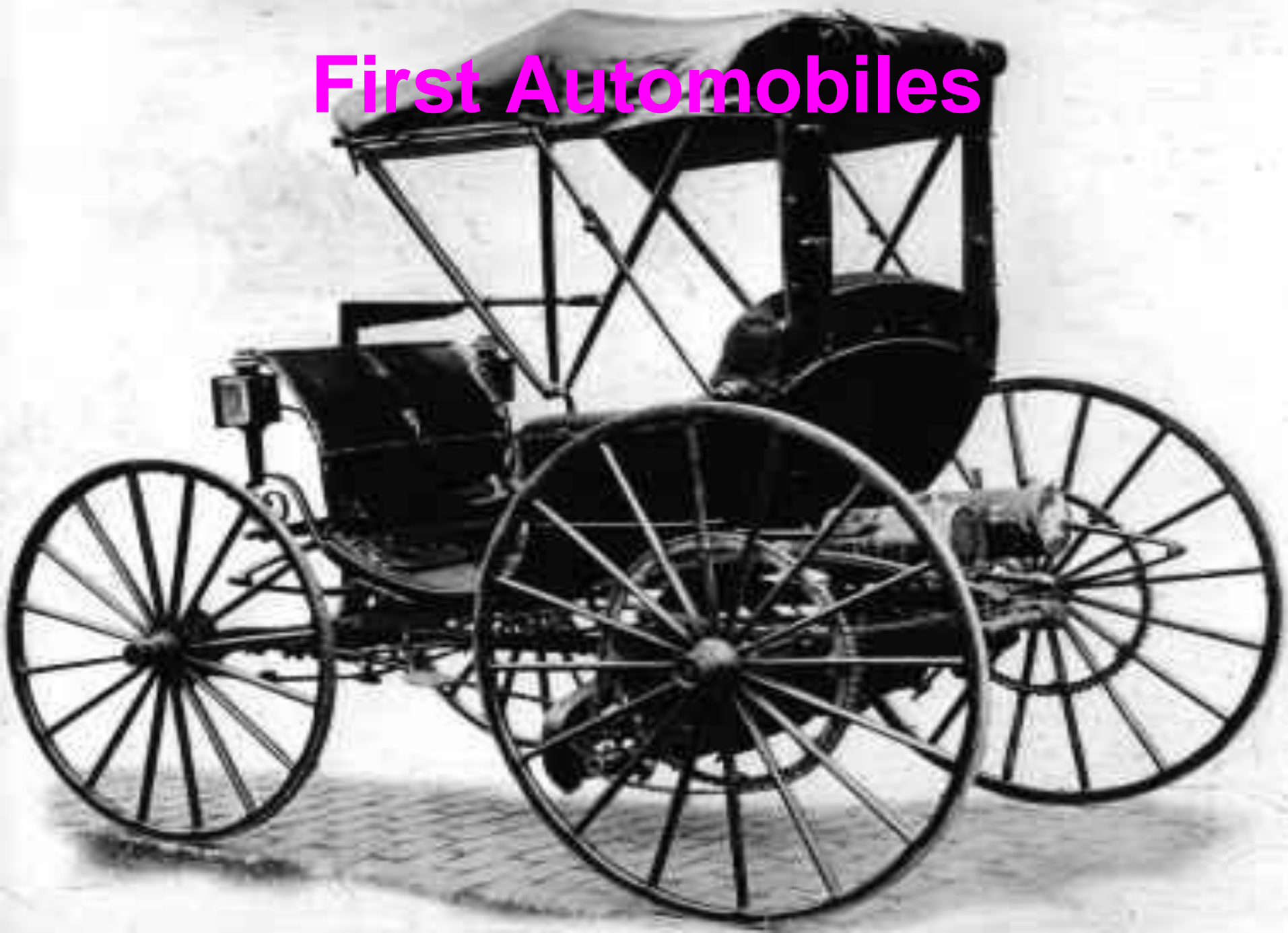
C. March of 1876, **Alexander Graham Bell** patented the telephone.

D. By 1880, there were 55,000 phones in U.S. By 1900, almost 1,500,000.

IV. Automobile

A. In 1876, German engineer developed engine that used fuel made of oil.

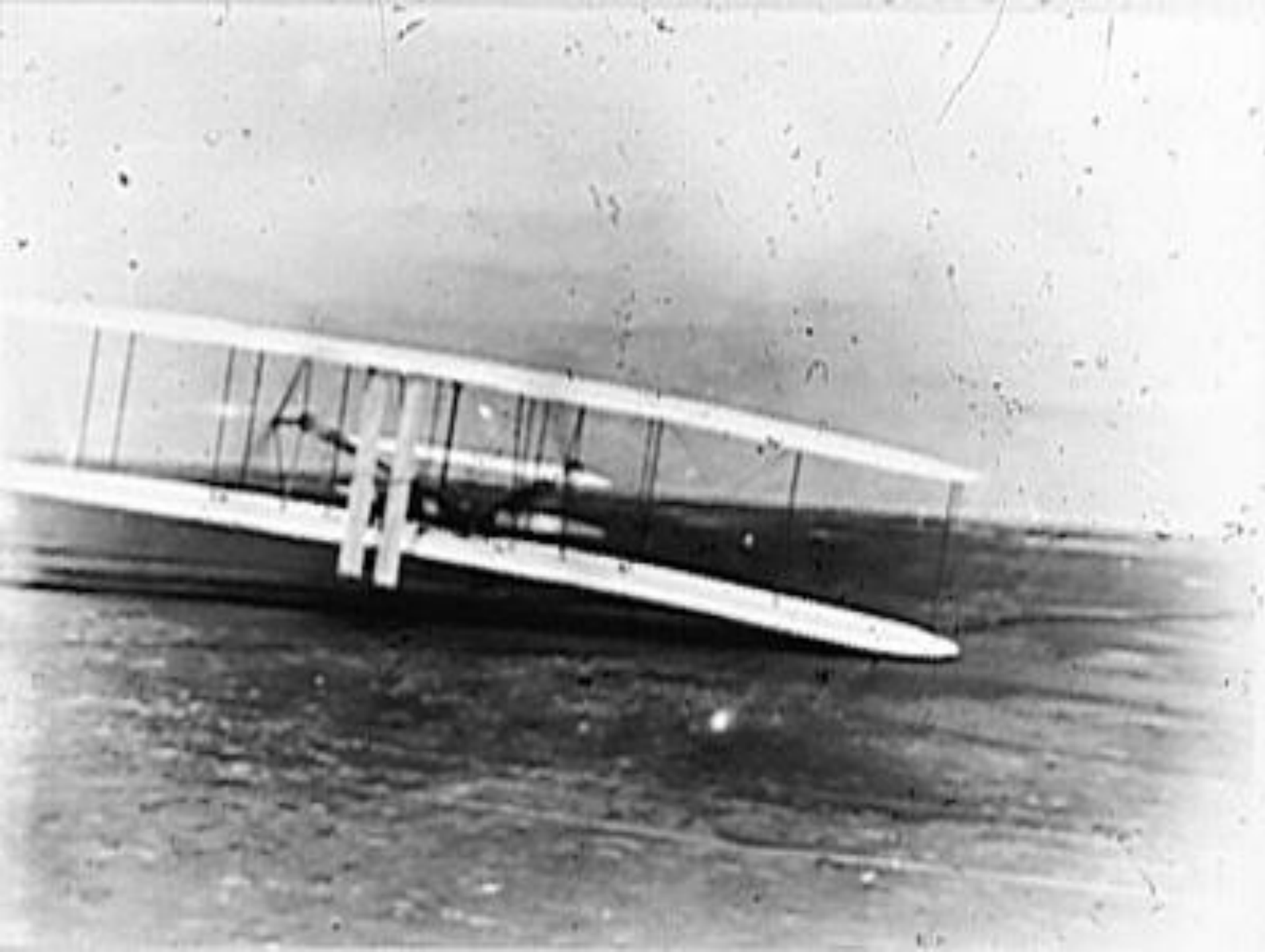
First Automobiles



B. At first, only rich could buy them.
Henry Ford introduced “Model T” in **1908**.
He used moving assembly line, made cars much cheaper

C. New engine technology allowed
Wilbur & Orville Wright to build airplane with gas-powered motor and made 1st piloted flight at Kitty Hawk, North Carolina on **12/17/1903**.

D. Changed how people traveled, increased demand for oil.



V. **Big Business**

A. In late 1800s, corporations began to form; businesses that sell portions of ownership called “stock shares.”

Politicians praised successful businessmen as examples for other to follow.

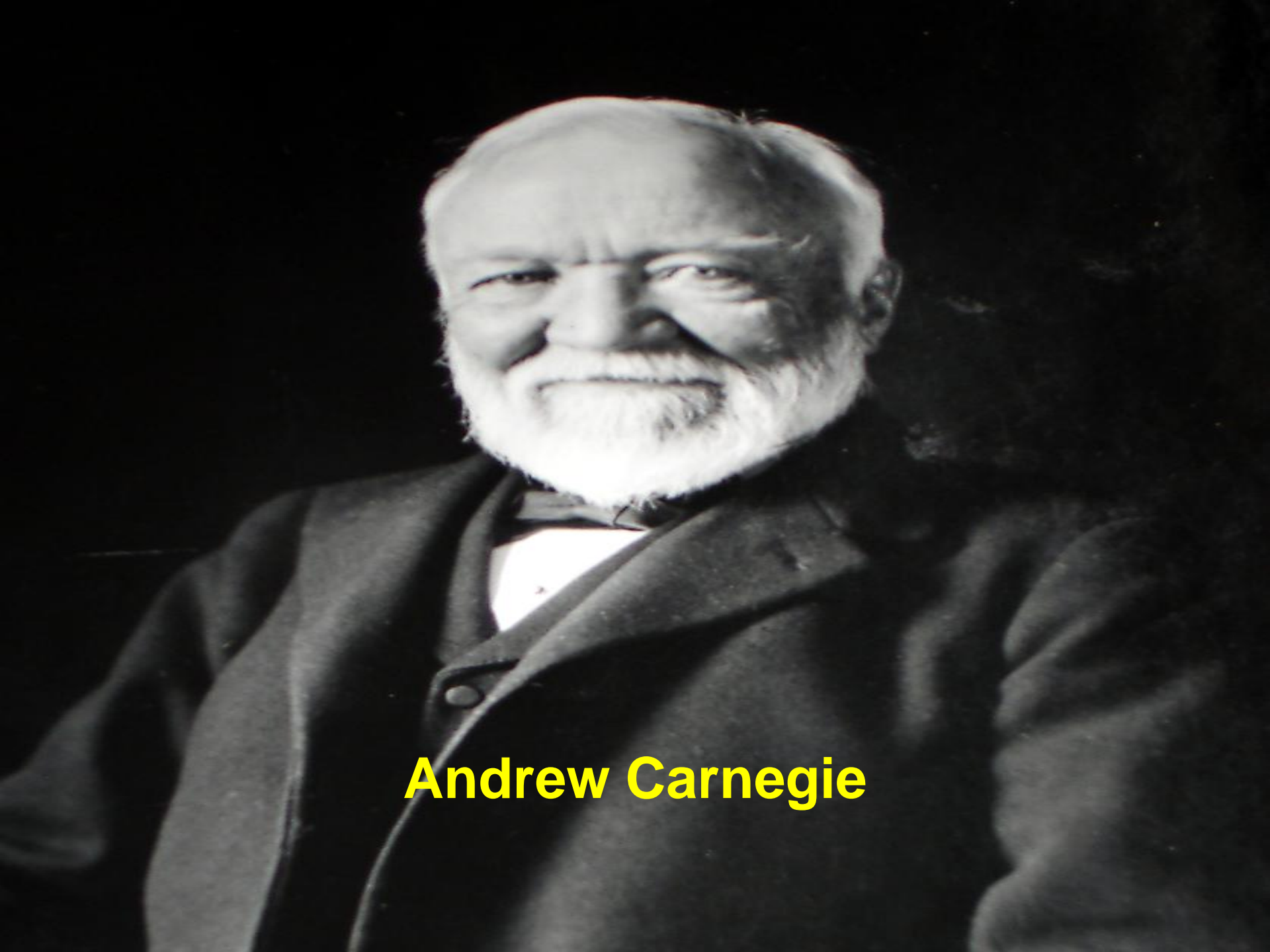
B. Investors, or stock holders could grow wealthy if corporations did well.

1. If corporation fails, stock holders only lose their investment.

2. Stockholders are free to sell their shares; by 1900, over 100,000,000 shares per year traded on New York Stock Exchange.

C. Many became extremely wealthy. **Andrew Carnegie** focused on steel industry by buying competitors. By 1901, Carnegie's companies produced more steel than all of Great Britain.

D. Succeeded by “**Vertical Integration**,” owning mines, coalfields, railroads to supply his mills.



Andrew Carnegie

E. **John D. Rockefeller** started an oil refining business at age 21. In 10 years, his **Standard Oil Company** was largest oil refinery in the world.

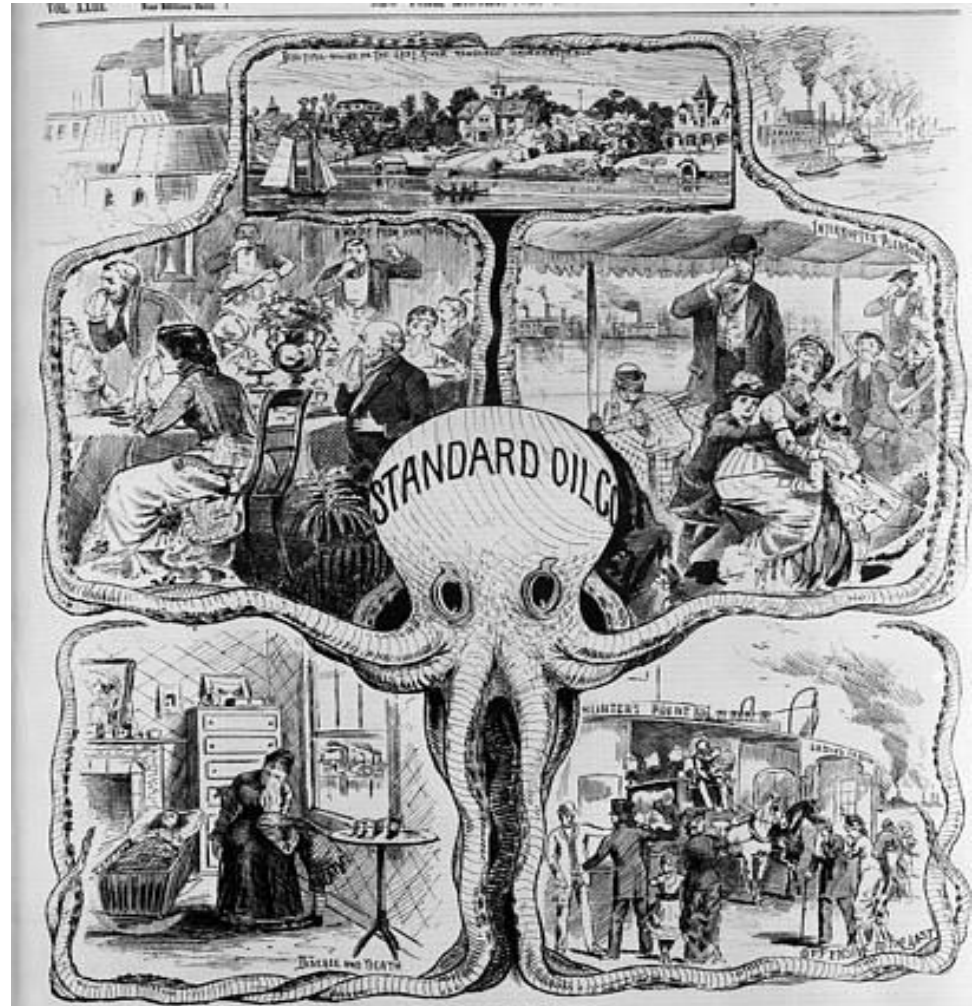
F. Rockefeller developed “**Horizontal Integration**”, owning all the businesses in a certain field. By 1880. he owned 90% of business in oil.

G. He created a “trust”, legal arrangement grouping a number of companies under one board of directors.

Rockefeller



Standard Oil



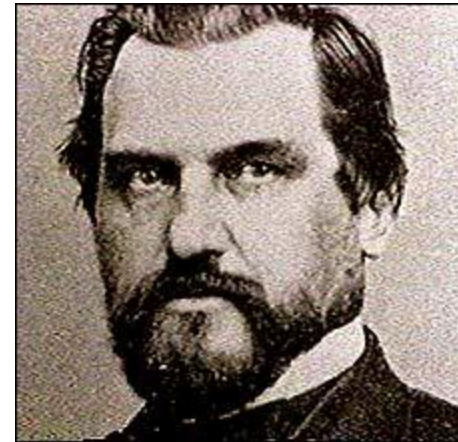
H. Leland Stanford sold equipment to miners, grew rich and became governor of California. He became one of the founders of **Central Pacific** railroad and founded **Stanford University**.

VI. Antitrust Movement

I. Many business leaders believed in “**Social Darwinism**” or survival of the fittest in business & life.



Leland Stanford



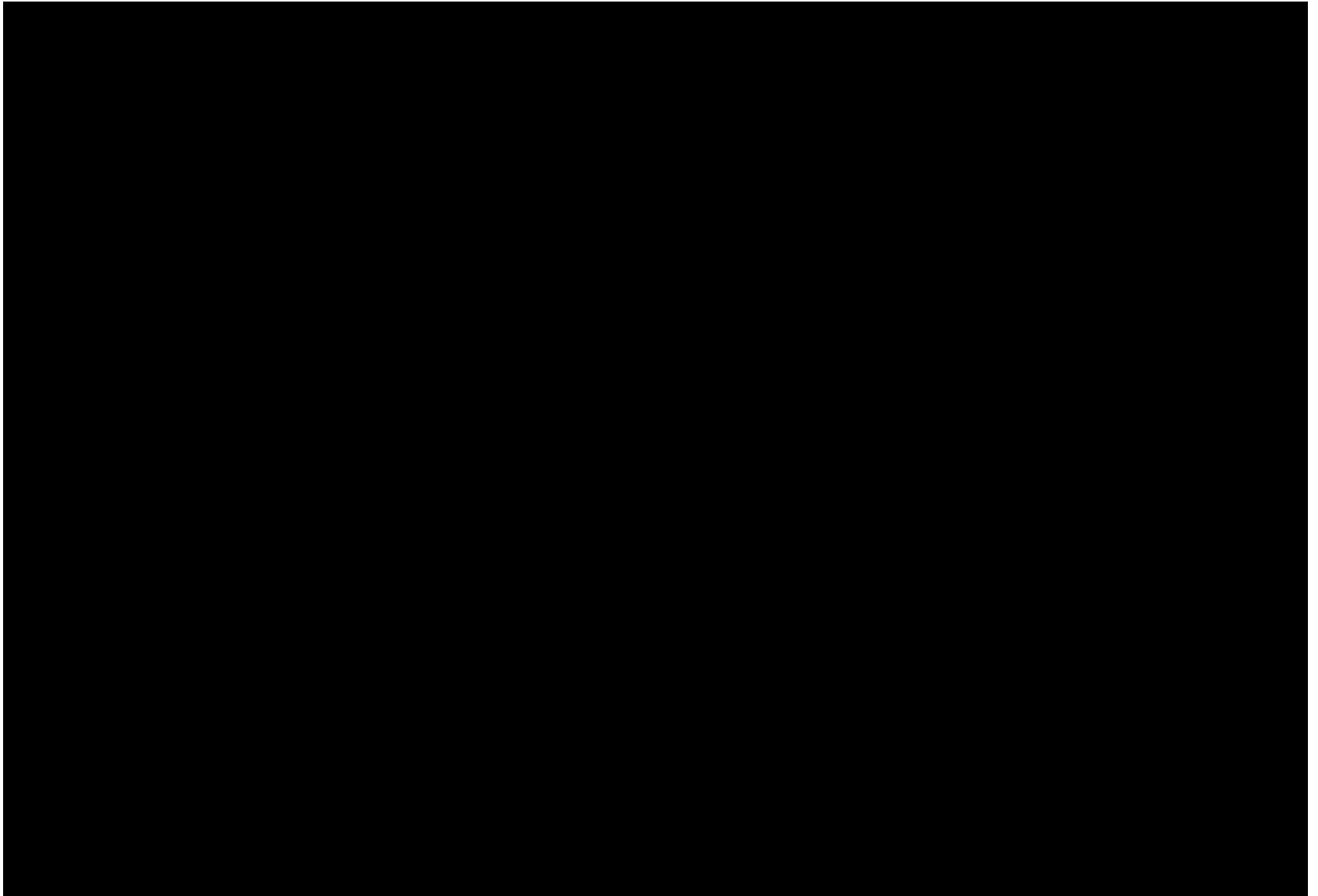
B. Others, like **Carnegie, Rockefeller & Stanford**, gave away hundreds of millions to charities and the poor.

Carnegie gave \$60,000,000 to fund libraries across the country.

C. Critics of big business said “trusts” were unfair, used to drive smaller companies out of business.

D. When a trust had total ownership of an industry or a “**monopoly**,” they would raise prices.

Progressives



- E. Some called trusts the “enemy of society” and wanted government to control them.
- F. In 1890, Congress passed the **“Sherman Antitrust Act,”** a law that made trusts illegal if they restrained trade.
- G. This was hard to prove and hard to enforce. Corporations and trusts continued to grow.

John D. Rockefeller

