management. Large corporations generally had specialized departments headed by expert managers—accounting, purchasing, processing, marketing, and research and development. They adopted the practice of **cost-accounting**—determining the exact cost of each step in the production and distribution process—to guide their decisions. They pioneered new methods for marketing their products, such as the use of **brand names**. Corporations could afford to hire engineers, chemists, and scientists to conduct continuous research to improve their existing products and develop new products.

The Great Entrepreneurs

The creation of the modern industrial economy would not have taken place without the guiding hand of the great entrepreneurs. **Entrepreneurs** are those who take risks by engaging in business to make a profit. The leading entrepreneurs considered themselves to be "captains of industry" who adopted new technologies and took advantage of new forms of corporate organization to make cheaper and better products. They had the vision to see the possibilities created by the latest advances in transportation, technology and corporate finance. They also had the drive to sacrifice the interests of others to their own ambitions. Critics called them "robber barons" who exploited workers, used dishonest tactics, and exercised their monopoly control over individual industries to overcharge the public. They amassed legendary personal fortunes and frequently turned to **philanthropy** in their old age.

A Portrait Gallery of the Great Entrepreneurs of the Gilded Age

Because of the displays of great wealth by leading industrialists, often obtained through unethical tactics and hiding serious social problems, historians sometimes refer to this period as the "**Gilded Age**." A *gilded* surface has a thin layer of gold on top concealing a less expensive metal beneath. The name is taken from the title of a novel by Mark Twain and Charles Dudley Warner, published in 1873, which humorously criticized greed and corruption in American society.

Leland Stanford (1824–1893) Born in New York, Stanford joined his brothers in Sacramento, California, at the time of the "Gold Rush." They owned a store and made a fortune selling goods and equipment to miners. In 1860, Stanford joined three other Sacramento merchants in supporting engineer Theodore Judah's plans for a railroad from California to the east. In 1862, Judah persuaded Congress to pass the Pacific Railway Act. This law gave substantial benefits to railroad builders for each mile of track they laid down, including large land grants and cheap federal loans. Stanford was elected Governor of California from 1862–1863 and used his influence to obtain state loans and land grants. Stanford and the other "Big Four" pushed Judah out of the project. They increased the size of their federal loans by falsely claiming that all the land west of Sacramento was mountainous. They also formed their own construction company and charged the railroad

higher fees, pocketing the difference. Stanford and his partners made millions on the construction of the railroad. Stanford became president of a life insurance company, of the Southern Pacific Railroad, and of the Occidental and Oriental Steamship Company. He owned the world's largest vineyard, raised horses, and lived a lavish lifestyle. But he also gave to philanthropy, founding Stanford University. Although their methods were unscrupulous, without the organization that Stanford and his fellow investors provided, the transcontinental railroad might not have been built for many more years.

Andrew Carnegie (1835–1919) was a penniless immigrant from Scotland as a child. He worked as a factory worker, messenger boy, and telegraph operator. He worked his way up to a managerial position in a railroad company and became friends with the owner, who helped him with his own investments. During the Civil War, Carnegie helped manage Union railroad lines.

Carnegie's birthplace

After the war, Carnegie left the railroad industry to start the Keystone Bridge Company. He hoped to build bridges of iron instead of wood. His company became the subcontractor that built much of the first bridge carrying trains across the Mississippi River. To span this long distance, he had to build a structure of steel. Carnegie became one of the first to adopt the Bessemer process for producing steel. He used the corporate form of enterprise to raise additional capital and bought out competing local steel companies in the 1870s.

Andrew Carnegie in 1878, age 33

He joined with Henry Clay Frick to gain access to Frick's coke operations, since coke (*carbon made by heating coal in a furnace without air*) was needed to make pig iron, an essential ingredient for making steel. Carnegie began producing steel girders for building construction, as well as steel rails for railroad tracks.

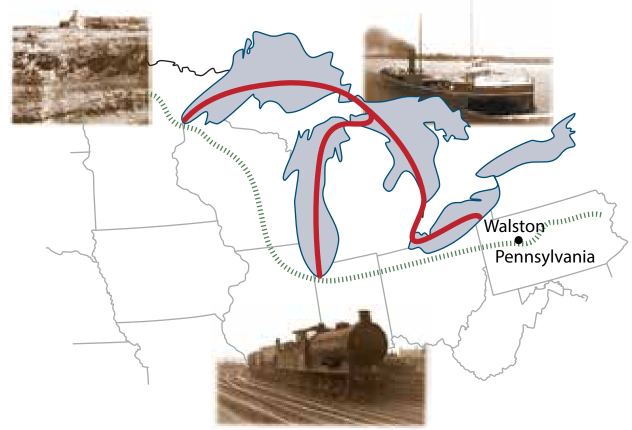
Carnegie hired chemists to improve his production. He also introduced cost-accounting. He eliminated middlemen and made use of immigrant labor at low wages. Carnegie's workers worked 12-hour shifts, and his mills operated all day and all night.

Carnegie pretended to be a friend to labor, and so he hid in Scotland while Frick broke the back of the steelworkers' unions during the Homestead Strike. Carnegie opposed all attempts at worker organization during the strike.

Meanwhile, he bought iron ore mines, a coke works, a limestone company, railroads, and a fleet of ore boats in the Great Lakes. This gave him complete control over all stages of the production and distribution process, known as **vertical integration.**

Iron ore mines in Minnesota

Transport by boat across Great Lakes to steel mills in Pennsylvania



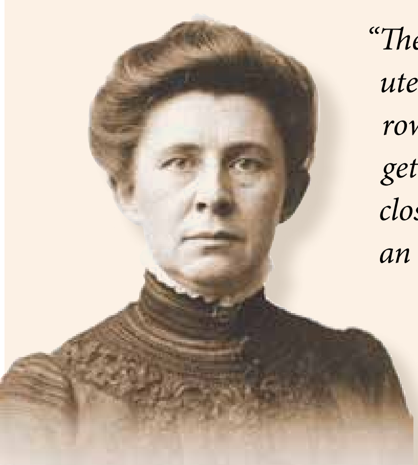
Transport by train to steel mills in Pennsylvania

The Muckrakers: Critics of Unfair Business Practices

Journalists, writers and social scientists who exposed the abuses and unfair practices of "Big Business" became known as "**muckrakers**" because they "raked" through the **muck** (moist dirt or filth) of American life, exposing some of the most ugly problems of the new industrial society. They showed the benefits of a free press.

The muckrakers wrote for magazines like *McClure's* and *American Magazine*. These magazines put money and research assistance at the disposal of muckraking journalists, enabling them to uncover the "inside story." The muckrakers examined the rise of industry and the abuses and corruption that had led to the accumulation of large fortunes. They also examined business practices affecting consumers, and the lives of the very poor and wretched, eliciting sympathy in their readers. They wrote in a graphic style that appealed to a wide readership. The muckrakers exposed many evils and stimulated a public outcry for reform. In so doing, they set a model for investigative journalism that is still at work today. Newspaper, magazine, television, and online journalists now act as watchdogs over government. They expose problems, inform the public, and stimulate debate.

Ida Tarbell was one of the most prominent muckrakers. She studied public documents from court cases and interviewed many of Rockefeller's associates to piece together an accurate history of John D. Rockefeller and his company. She then published a series of 19 articles in *McClure's Magazine*, which were eagerly read by a large audience. These articles later became the basis for her book, *History of the Standard Oil Company*.



"*The strides* (steps forward) *the firm of Rockefeller and Andrews made . . . were attributed for three or four years mainly to his extraordinary capacity for bargaining and borrowing. Then its chief competitors began to suspect something. John Rockefeller might get his oil cheaper now and then, they said, but he could not do it often. He might make close contracts for which they had neither the patience nor the stomach. He might have an unusual mechanical and practical genius in his partner. But these things could not explain all. They believed they bought, on the whole, almost as cheaply as he, and they knew they made as good oil and with as great, or nearly as great, economy. He could sell at no better price than they. Where was his advantage? There was but one place where it could be, and that was in transportation. He must be getting better rates from the railroads than they were.*

—Ida Tarbell (1904)