

# Top 10 Forgotten Technologies

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We usually acknowledge the importance of some older inventions. The printing press, Industrial Revolution, telephone, electricity—these are hard to ignore. But our technological environment is built from *many* older technologies, much more than the veneer of today's new products and inventions. We focus on the latest entertainment product or laboratory breakthrough, and yet we ignore the fundamental technologies on which society is built. Here are a few of the most important.

## ► **Telegraph.**

The telegraph quickly went from a demonstration in 1844 to a web interconnecting most cities and bridging the Atlantic. By 1860, the world had over 100,000 miles of telegraph line. Information was no longer simply cargo and could now travel near the speed of light. About this time, people read in their morning papers news from around the world from the previous day, just like we do today. Unlike the Internet (built upon telephone technology) and the telephone (built upon telegraph technology), the telegraph had no predecessor and was built on new, raw science. Telegraph pioneers had to invent it as they went along.

## ► **Reaper.**

Agriculture had been a manual industry, with scythes, plows, and barns as the apex of technological achievement. But the reaper, used to harvest grain, took agriculture a giant step into the Industrial Age. More than 100,000 were built per year by 1870. And this was just the beginning. Like the machine loom, which spread the idea of mechanization throughout the textile industry, the reaper helped trigger the agricultural innovations that followed: threshing machines, irrigation, chemical fertilizer, tractors, canning, and so on.

## ► **Interchangeable parts.**

Early mechanical devices were custom made, and a serviceable screw from one clock or gun wasn't guaranteed to fit into the same hole on another of the same model. The dream of making interchangeable parts was attained in the early 1800s. Machine manufacture made rifles and revolvers economical. Clocks also became both cheap and popular—more than half a million were sold per year by 1860. Pocket watches became popular soon after, spreading accurate time throughout society.

## ► **Steamships.**

Robert Fulton began his steamship service in 1807, driving his boat with a 24-horsepower engine. The *Great Eastern* was launched barely 50 years later. Designed to carry 4000 passengers, this ship was 693 feet long, twice the length of the previous record holder, and two-thirds the length of today's largest cruise ships. By this time, steamships had revolutionized ocean travel and put the glamorous but uncompetitive clipper ships out of business.

## ► **Reinforced concrete.**

Concrete supports buildings, bridges, and dams behind the scenes and without fanfare. Though cement was known in antiquity, Portland cement and reinforcing bar, both invented in the 1800s, are what give modern concrete its strength. A ton of concrete is made per year for every person on earth.

► **Catalogs.**

Start with the Internet (1969) and the personal computer. Add a good idea to connect them (the World Wide Web, 1991), and you have a revolutionary new innovation.

Now start with commerce, the postal service, and the railroad. Add a good idea to connect them (the Montgomery Ward catalog, 1872), and you have another revolutionary innovation. For rural families without convenient access to stores, the mail order catalog was a blessing. E-commerce is just one of many ways we have to buy goods today, but the catalog allowed many people to buy goods that were unavailable before.

► **Plumbing.**

Today we think nothing of the plumbing and infrastructure that brings us clean water and takes away our waste. But just a few centuries ago, water quality was doubtful and people were often obliged to drink weak beer as a clean alternative. Only in 1829 was the first public water purification system built, and the struggle to understand the origins of illness was only beginning.

► **Canals.**

The 363-mile Erie Canal was America's first manmade waterway. Completed in 1825, the canal used 82 locks to raise the waterway almost 700 feet over the Allegheny Mountains. More than 3,000 miles of canals were built in the U.S. in the next 15 years, a fundamental transportation network for the new country. The Suez Canal (1869) and the Panama Canal (1914) were two breakthrough projects that each lopped off the circumnavigation of a continent from major ocean routes.

► **Skyscrapers.**

In the 40 years culminating in 1931 with the Empire State Building, record building heights increased four-fold. In the next 40 years, record building heights didn't increase *at all*. The current record holder is just a third taller than the Empire State Building. We find other groundbreaking projects during this golden age of civil engineering such as the Hoover Dam (1936) and the Golden Gate Bridge (1937).

► **Rotary press.**

The manual printing press had improved little since Gutenberg's day, but that changed in the early 1800s with the steam-driven press and later the rotary press. Volume from these machines quickly increased over one hundred times to 20,000 sheets per hour, driving down the cost of newspapers. This brought the penny newspaper, an explosion in the number of newspapers, and the first news-gathering services such as the Associated Press.