

# Part 4: Inventions Elsewhere Spark Innovations In Connecticut For The Masses



An advertisement for Columbia bicycles, the pay station – an early version of the pay phone – and Underwood typewriters. (Connecticut Historical Society)



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Innovation in late 19th century Connecticut was alive and well. Invention, not so much.  
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**T**hree new inventions had a big debut at the Philadelphia Centennial Exposition in 1876. None was sparked in Connecticut, but all three would drive innovation in the state, and the rise of mighty corporations, for years to come.

And all three would change the daily lives of thousands of people in the era when technology and democracy finally came together.

The bicycle. The telephone. The typewriter.

Albert Pope, a decorated veteran from Boston who had gained the honorific title of Colonel at the end of the Civil War, was smitten by the bicycle in Philadelphia, so much so that he determined to make them. He imported the high-wheeled velocipedes from England at first, then set his sights on a factory location.

Hartford was perfect, with excess capacity at the Weed sewing machine plant on Capitol Avenue, and no shortage of skilled metalworkers, machinists and suppliers. So in 1878, Pope – no less an industrial showman than Eli Whitney and Sam Colt before him – rode one of the contraptions from Union Station to the Weed plant, where he set up shop.

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As with so many other products in Connecticut before and since, the innovation in Pope's Columbia brand would not be in the original spark of invention, but rather in figuring out how to make it better and faster than anyone else. The two-wheeler was still very expensive; for example, Mark Twain had to spend \$142.50 for an "Expert" model along with lessons, as recounted by Stephen B. Goddard in "Colonel Albert Pope and His American Dream Machines" (2000).

This was the dawn of the age when some of the great modern companies of America would emerge — Standard Oil, AT&T, General Electric, General Motors — driven not only by engineering and marketing but also by the new science of industrial management. Pope saw this, and eventually bought out suppliers such as the Hartford Rubber Co., as well as consolidating competitors. From his bicycle empire, he turned toward cars and briefly made Hartford the auto capital of the nation at the turn of the century — pioneering the electric vehicle.

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Electricity and the telegraph system also drove the telephone. In 1878, the same year that Pope arrived in Hartford, Connecticut made history with Alexander Graham Bell's invention from Boston.

There's no evidence that George Coy, a New Haven telegraph manager, saw Bell's exhibit in Philadelphia. But Coy did assist Bell in a demonstration of the technology in 1877, when Bell spoke from a hall in New Haven and an orchestra played in Hartford. Through a station

manned by Thomas Watson in Middletown, Bell transmitted sound from each event to the other hall.

Coy quit his job managing the local telegraph office and signed on as Bell's local agent.

With 21 customers, he and two partners built the nation's first commercial telephone exchange, founding what would become Southern New England Telephone Co., now part of Frontier Communications, whose building stands exactly at the spot where Coy's first customer lived.

What's most remarkable about Connecticut's role in the phone innovation is not just that Coy set up the first commercial exchange, famously on Jan. 28, 1878. Less well known is that three days later, a group in Meriden set up the world's second exchange, almost identical to Coy's — a board where telegraph wires came together and were connected by hand.

And earlier that same month, a druggist in Hartford, Isaac Smith, had used his private telephone exchange — which connected his store on Capitol Avenue and Main Street to 21 doctors — to summon the physicians to a train wreck in Tariffville. Seventeen of the 21 responded in the middle of the night, and boarded an emergency express carriage to the disaster site, according to an account in "Connecticut Pioneers in Telephony" (1950).

The Connecticut telephone firsts included a phone directory, which listed a firm, manufacturer C. Cowles & Co., that is still in business and recently moved to the old Marlin Firearms building in North Haven; and the pay phone.

Electricity was the juice that nourished the popularization of technology. The Hartford Electric Light Co. formed in 1883 and, using a steam-powered generator on Pearl Street, within five years converted more than 1,000 gas streetlights to electric in the capital city. Edward Clinton Terry, grandson of Eli Terry, built hydroelectric plants on the Farmington River and sold the power to HELCO.

#### Royal Battles

It was also the era of a new office culture with a need to establish order for a growing population of immigrants. And that meant the written word had to evolve — with the typewriter.

A modern version of it with a rolling carriage had been patented in the 1840s by a Massachusetts gun-maker named Charles Thurber, who had set up shop in Norwich. But he never sold the device.

The big splash came in 1873 when Remington, of Ilion, N.Y., rolled out its Sholes & Glidden model, the first QWERTY keyboard. That machine, which had the trade name "typewriter," was a big hit at the Philadelphia Centennial.



One of Remington's agents, who had a stake in the company, grew tired of Remington's slowness to address complaints. The agent, George Washington Newton Yost, decided to compete against his employer, even as he held a stake in Sholes & Glidden. He set up in New York, but by 1883 or 1884, was looking for a place to expand. Where else but Capitol Avenue?

"There was a lot of innovation there and there was a lot of money in Hartford," said Greg Fudacz, a Wethersfield collector, dealer and historian of vintage typewriters whose collection was recently on view at the [New Britain Museum of American Art](#).

The insurance industry soon became the largest customer base for typewriters. Morgan Bulkeley was the new president of the Aetna Life Insurance Co., following in his father's footsteps. Before he gained the top job at the family firm, Bulkeley had started the Hartford Dark Blues team in the National Association of Professional Base Ball Players, which formed the National League and elected Bulkeley as its first president in 1876.

Bulkeley would head Aetna for 43 years until his death in 1922. He expanded the company from \$26 million to \$207 million in assets and the workforce from 29 to 1,500, entering, and in some cases pioneering, multiple lines of insurance, including health. Along the way, he was mayor of Hartford, governor (a term that was extended due to ballot irregularities in Bridgeport) and U.S. senator.

Seeing growing customers such as Aetna, Yost and his partners, operating out of the Pratt & Whitney machine company factory, jostled with Remington in the newspapers. "That's when it really starts the innovation," Fudacz said.

Soon, other local competitors came along as the race was on to make typewriters lighter, better and cheaper, doing away with the "blind writing" limitation in which the type-writer — as a person doing the typing was known — could not see his or her words on the paper. There were hundreds of competitors.

"Every executive back then wanted to make typewriters," Fudacz said, because the cost was high — about \$125, which could be a few months' pay for a laborer — and the corporate market was growing even though average families still couldn't afford one.

Twain, that famous early adopter, bought one of the first 1,000 Sholes & Glidden models, Fudacz said, based on photos that show that it had a foot pump to turn the carriage — like sewing machines of the day.

In Stamford, George Blickensderfer made the first workable portable typewriter, using aluminum. Yost moved to Bridgeport.

Underwood, a company that made ink ribbons for Remington, lost that contract when Remington took the work in-house. Underwood then created the advanced Underwood 5 in New York, then looked for a place to open a factory and of course, picked Hartford.

"The Underwood was a game changer. It was the iPhone," Fudacz said. "They might have started elsewhere but it was here in Connecticut that they were perfected, for decades to come."

In the new century, Underwood battled Remington over patents, and Royal set up shop in Hartford with a fabulously wealthy owner who would spend lavishly to build lighter, portable machines for the average family.

### **The Pope Of Hartford**

By 1895, Pope consolidated his Boston operations to Hartford after years of commuting to Connecticut during the week. He was the city's largest employer, with 4,000 people in a sprawling complex next to Pratt & Whitney's vast factory campus on Capitol Avenue. He had hired a wunderkind engineer out of the Massachusetts Institute of Technology, Hiram P. Maxim, son of the machine gun and electric light pioneer, Hiram S. Maxim.

Pope dominated the bicycle business but that year, turned to motorized transport. The younger Maxim wanted to focus on his gas cylinder engine but Pope pushed for electric, saying it was cleaner. The company built both and by 1900, with bicycles on the wane, became the largest maker of cars in America.

Among the visitors to the factory was a young Henry Ford, who had an idea Pope never embraced: make cars not just for the rich, but for everyone.

Much of this advancement was possible because Pratt & Whitney took precision gauging to new heights. The company spent thousands of dollars replicating standard yards, meters and inches in bronze bars that were accurate to within millionths of an inch. From there, they made the Pratt & Whitney Standard Measuring Machine, enabling accurate measurements to 1/100,000th of an inch — a staple of industry for decades.

In the end, Pope's empire collapsed and the factories were taken over by Pratt & Whitney, but not before Pope donated land for a city park and ardently advocated for improved roads, in a "Good Roads" tour of the nation. From Hartford, he built a bikeway stretching all the way to New Britain as a demonstrator.

It was a time of backlash against the gilded-age rich; a federal income tax was shot down by the Supreme Court in 1895.

It was also the era of consolidation. The six Waterbury brass roller firms came together to form American Brass. In New Britain, Russell & Erwin and P&F Corbin, bitter rivals, united as American Hardware, at first with separate boards and operations in a new holding company structure. The business eventually employed 12,000 people, more than any company in the state.

Advancement was everywhere. Rogers Paperboard in Manchester, now Rogers Corp. in Killingly, turned to the electric economy, making insulation material — presaging its role as a Connecticut-based maker of space-age materials a century later.

A Hartford church organist named Hobart Spencer devised a way to move air to play the instrument, and his company, Spencer Turbine, still in business today, later sold vacuum systems for the Empire State and Chrysler buildings.

Colt's created the 1911 semiautomatic pistol, which would become the U.S. Army sidearm for almost a century, and is still made today in West Hartford. Maxim developed the muffler and invented the gun silencer using the same concepts.

And in the Great War, two men from opposite sides of the world advanced their love of aviation. Frederick Rentschler, wealthy son of an Ohio manufacturer and graduate of Princeton, was assigned as a lieutenant to inspect airplane engines. Igor Sikorsky, wealthy son of a professor and a physician in Russia, built the world's first multi-engine bomber.

Within a dozen years they would come together in a state that had made itself the go-to destination for mechanical innovation. And Connecticut would redefine itself once again.