



COLONEL ALBERT Pope



Colonel Albert Pope. (Photo courtesy of University of California)

Stop and think about downtown Boston or any other major city. What do you see? No doubt your answer would include sidewalks crowded with people, busy streets, and lots of traffic. Now, try to imagine a time when horse-drawn carriages rolled down city streets, and a network of paved roads did not exist. This was the world of Colonel Albert A. Pope — at one time, the world's largest producer of bicycles and a pioneer in the manufacture of automobiles.

Albert Pope, industrialist, businessman, and philanthropist, was born in Boston, Massachusetts, in 1843. He was the fourth child in a large family. His father, Charles Pope, earned and lost a fortune in real estate speculation in the 1850s; and his financial struggles made a lasting impression on Albert.¹ At age nine, realizing the family financial situation, Albert began working at a nearby farm after school. By 16, he was working full-time, first in Boston's markets and later as a store clerk.²

Civil War First, Then Shoe Business

In 1862, at age 19, Pope entered the Union army as a second lieutenant in the 35th Massachusetts Volunteer Regiment. Pope fought at such key battles as Antietam, Fredericksburg, and Vicksburg. He saw many troops suffer from hunger, wounds, diseases, and poor sanitation. Years later, in 1898, Pope had a monument erected at Antietam Creek to memorialize those in the 35th who had died in that battle.³

*This summary draws heavily on three sources: Bruce Epperson, "The American Bicycle Industry 1868-1900"; Stephen B. Goddard, *Colonel Albert Pope and His American Dream Machines*; and Glen Norcliffe, "Popeism and Fordism: Examining the Roots of Mass Production."*

Towards the end of the war, Pope was rewarded for his distinguished service in battle with the honorary rank of lieutenant colonel. Pope used the title "Colonel" for the rest of his life. Pope's cousin and later business associate, George Pope, also served in the Civil War, becoming a lieutenant colonel in the 54th Massachusetts, a regiment of black enlisted men.

Pope had saved \$900 from his Civil War earnings. He decided to invest this money in making decorations, supplies, and tools for the shoe industry, one of the largest employers in Massachusetts at that time. His investment paid off. After one year, his initial \$900 had increased tenfold.⁴ Pope went on to build a successful business in shoe decorations and supplies. His success enabled him to contribute to the support of his family and to send his younger twin sisters to medical school.

In 1871, Pope married. His wife, Abby, was a believer in women's rights, a member of the Women's Industrial Union, and a supporter of the Boston Symphony. Albert and Abby seem to have had a rich and full life. They had six children, one of whom died in infancy. In later years, friends and family were entertained at their Boston home on Commonwealth Avenue and at their 50-acre seaside estate in Cohasset.

Pope Is Drawn to Bicycles

In 1876, as a member of the City Council of Newton, Pope attended the Centennial Exposition in Philadelphia. Here, he saw a high front-wheeler bicycle from Britain. Although the artist Winslow Homer had introduced Americans to the bicycle in 1869, Pope found himself fascinated by this ". . . outlandish steel skeleton with its front wheel nearly as tall as the man . . ."⁵



Reproduction of Pope Manufacturing poster from the collection of Zip and Carol Zamarchi.

Sometime in 1877, Englishman John Harrington visited Albert Pope. Pope requested his assistance in developing an experimental model of the high-wheeler.⁶ Pope was so thrilled with Harrington's model that he immediately ordered eight *Duplex Excelsiors* from an English factory. Pope was not satisfied with being an importer of bicycles, however. He wanted to manufacture the high-wheeler in America himself. But to do this, he needed to obtain a key patent.

Pope Acquires Bicycle Patent

Pierre Lallement, a French mechanic, developed the original model of the velocipede, the precursor of the high-wheel bicycle, in Paris in 1863. Lallement subsequently moved to Connecticut, where he completed work on an improved version. By the spring of 1866, he had formed a partnership with James Carroll, an American businessman who lent him the money he needed to file for a patent. Lallement received the patent that fall, but he was unsuccessful in selling velocipedes and returned to France in 1868. The patent was purchased by Calvin Witty, a carriage maker who also produced velocipedes. The high royalty fee that Witty charged other producers is thought to have helped stifle the growth of the industry in the United States.

In the mid 1870s, the patent changed hands again. Half of the patent rights were acquired by Richardson and McKee Company of Boston and the other half, by a Vermont carriage maker, although Richardson and McKee managed the entire patent.⁷ Pope had a license from Richardson and McKee, but he found the royalty fee burdensome. He offered Richardson and McKee a substantial sum for half of their interest. With this one-quarter share in the patent, Pope quickly took a train to Vermont and bought the half interest of the Montpelier Manufacturing Company—just before a letter from Richardson and McKee arrived also offering to buy their half interest.⁸

Throughout his life, Pope recognized the importance and usefulness of patents. He used patents to protect his own innovations from imitators, and he purchased others' patents in order to gain access to their technologies without fear of being sued or charged costly royalties. Patent licenses were themselves a source of revenues. Patents were also a tool for limiting competition and propping up prices. An example of this can be seen in Pope's litigation against the Overman Wheel Company. During the 1880s, Overman came out with first a tricycle and then a bicycle that were of high quality and lower cost than Pope's products. Pope responding by suing Overman, claiming violation of various Pope patents. Litigation continued for several years at considerable expense to both firms.⁹ Eventually, an agreement was reached. The "treaty of Springfield" called for Pope

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and Overman to cross-license each other's patents and made Pope responsible for enforcing Overman's patents as well as his own.¹⁰

Pope Makes His Bicycle in Manufacturing Mecca

To manufacture his bicycle, Pope turned to the Weed Sewing Machine Company of Hartford, Connecticut. Hartford and neighboring Springfield were on the forefront of metal manufacturing technology at the time. The Springfield Armory, a major weapons facility of the U.S. government, had actively promoted the use of highly specialized machines to make changeable parts for firearms. Machine-made parts were more uniform than hand-made; a broken gun, for example, could easily be fixed with a replacement part. Machine production also allowed for large production runs and lower costs. The Armory encouraged firearms makers to share their advances, with the result that the new production techniques spread to neighboring facilities and were adopted for a host of complex metal products.

The Weed Sewing Machine Company was well known for its use of interchangeable parts and for its high-quality machinists. It was already a contract manufacturer making components and machines for others.¹¹ In 1878, Pope contracted with Weed to produce 50 high-wheelers, now called by the brand name *Columbia*.¹²

Pope priced the new *Columbia* at \$95, undercutting the imported *Duplex Excelsior*, which was priced at \$112.50.¹³ The *Columbia* sold well, and Pope ordered more. Over time, the Weed Sewing Machine Company produced more and more bicycles and fewer sewing machines. In 1881, Pope purchased control a minority share of the Weed Sewing Machine Company. He acquired complete ownership about ten years later.

Better Roads, No Bike Bans

Pope actively promoted the use of bicycles. He pushed aggressively to improve the conditions in which people could ride their bicycles and to forestall restrictions on the use of bicycles. American roadways in the 1880s were much different from the roads of today. They were unpaved and often filled with potholes, loose stones, and mud. Horses were everywhere. Add to this mix a high front-wheeler with a cyclist perched precariously atop. Men and women feared being run over. Horses spooked when the bicycle went by, and dogs chased it. Public officials responded with proposals to ban the bicycle from public parks and streets.

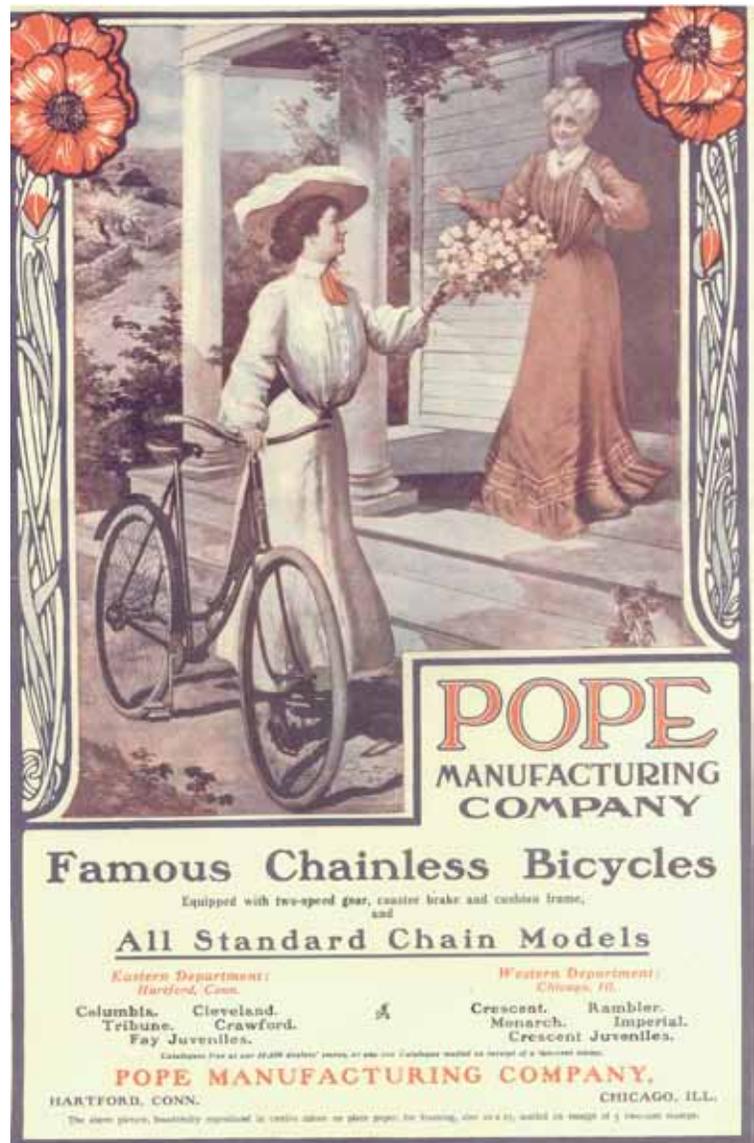
Pope came to the bicycle's defense. He challenged restrictive ordinances and formed bicycle clubs that would create a positive image of bicycles and cyclists. Although the elite initially dominated membership, as they were the only individuals who could comfortably afford bicycles, the clubs pressed for legislation to improve roadways, fought tolls on bicycles, and generally defended the freedom of American roads.

Pope also encouraged building better roads. He financed courses to train road engineers at MIT, and he persuaded the Commonwealth of Massachusetts to set up a highway commission for the improvement of roads. He sponsored the publication of *Good Roads*,¹⁴ a magazine that provided information and lobbied state legislatures and Congress for better roads. Over time Pope's efforts paid off. By 1890, several states and the federal government had created experimental road-building programs.

Safer, Lighter Bicycles

The high-wheel bicycle presented other problems that limited its popularity. Women and children complained that, at 70 pounds, the bicycle was too heavy. Smaller cyclists also complained about the difficulty of pushing the pedals hard enough to turn the big wheel fast enough and gain momentum.

During the 1880s and early 1890s, a number of innovations made the bicycle easier to use and greatly expanded the market. Of particular importance was the development of the "safety bicycle," so called because it was safer than the high wheelers it displaced. The safety bicycle had equal-sized wheels. Power came from the rear wheel, which was connected to the pedals by a chain. The first fully successful safety, *the Rover*, was developed in England in 1885-86. Pope produced his first safety in 1888.



Reproduction of Pope Manufacturing poster from the collection of Zip and Carol Zamarchi.

The use of hollow, durable-steel tubes for the bicycle frame made it possible to substantially reduce the weight of the bicycle. Pneumatic tires, inflated tires filled with compressed air, absorbed road vibrations.

Such changes made the bicycle more attractive, especially to women. Women's clothes in the late 19th century were at odds with cycling. Long skirts and voluminous petticoats made riding high wheelers impractical. Even the safety bicycle posed problems, as clothing could catch in the chain. Cyclists began to dress in less formal clothing such as knickerbockers, knee length stockings, and divided skirts. Susan B. Anthony remarked that "the bicycle has done more for the emancipation of women than anything else in the world," encouraging women to exchange their cumbersome and confining clothes in favor of "common sense dressing."¹⁵

Boom and Bust in Bicycles

With the introduction of the safety bicycle demand grew rapidly, and Pope and other bicycle manufacturers invested heavily in additional production capacity. Pope bought all of Weed and placed it under his control. Pope Manufacturing expanded substantially and sought to control all aspects of bicycle production. Pope bought the company that supplied his bicycle tires. He also set up a company to produce hollow steel tubing. By buying up his suppliers, Pope could ensure a reliable supply of materials and components and control quality.

For a time, business was good, for both Pope and his competitors. *Columbia* bicycles were sold in every major market of the world, and Pope was a household name. More and more firms entered the market, with entry made easier by firms that specialized in producing bicycle parts and specialized bicycle machinery.

The good times did not last. By 1897, the bicycle market was saturated. Bicycle prices fell sharply, and many firms went bankrupt, including Pope's rival, Overman. Over the next two years, A.G. Spalding, the founder of a chain of sporting goods stores and factories, led an effort to consolidate the industry. It was hoped that reduced competition would restore profitability. Pope's bicycle operations and a number of others were combined to form the American Bicycle Manufacturing Co. (ABC). By 1902, however, ABC itself had failed and was in receivership.

Pope Produces Automobiles

At the same time that the bicycle industry was falling on hard times, the automobile era was beginning. Many innovations that were used in the bicycle industry, such as pneumatic tires, wire wheels, ball and roller bearings, differential axles,

and spring suspension had direct applicability to the early automobile. Pope himself had established an automotive division at his Hartford facilities in 1895.

A key issue for Pope and many others was the power source. Would it be steam, electricity, or gasoline? Pope believed in the future of the electric car. He had seen an internal combustion car in Paris and deplored the noise and pollution caused by the automobile. "Who would willingly sit atop an explosion?" he asked.¹⁶ The electric car was cleaner and easier to use. Between 1897 and 1899, Pope's operations produced 500 electric cars and 40 gasoline-powered cars. No other American motor manufacturer at that time was producing as many.¹⁷ A British newspaper writer hailed Hartford as the center of the automobile industry.¹⁸

In 1899, Pope was approached by William Whitney, a Wall Street financier and former Secretary of the Navy, whose brother was Pope's next-door neighbor at Cohasset. Whitney intended to place electric taxicabs in major cities throughout the country, starting with Manhattan. Whitney wanted a company that could manufacture large numbers of electric vehicles. Pope was then the largest producer of motor vehicles, primarily electric; and with the bicycle business in a slump, he had excess capacity. Whitney and Pope combined forces to form the Columbia and Electric Vehicle Company. Although planning to produce electric cars, the company also acquired George Selden's patent for the internal combustion (gasoline) engine.

In 1900, after the Columbia and Electric Vehicle Company had been operating for only one year, Pope decided to let the Whitney group buy him out. The Columbia and Electric Vehicle Company was merged into Whitney's Electric Vehicle Company. Pope devoted himself to cattle ranching, mining operations, and other investments in the West and to working for legislation to pave the roads of America.

In 1903, however, Pope returned to automobile manufacturing. He repurchased the remains of the Pope Manufacturing Company from its receivers' committee in order to produce both cars and bicycles. Most of the cars were now gasoline-powered, but one plant produced electric vehicles. In addition to Hartford, the company had plants in Massachusetts, Maryland, Indiana, and Ohio.

Competition in the automobile industry was intense. Henry Ford, in particular, was successful in producing lower cost vehicles that undercut his rivals. In 1907, Pope Manufacturing was unable to refinance its debts and was forced into receivership

when it could not pay a debt of \$4306.30¹⁹ Colonel Pope's health was failing, and his son was appointed receiver. Whitney's Electric Vehicle Company went into receivership the same year; despite their virtues, electric vehicles were unable to overcome the inconvenience of requiring frequent recharging of the battery.

Conclusion

Pope was a pioneer in both the bicycle and the automobile industries. His contributions are many and varied. He introduced the American public to the concepts of personal and recreational transportation. He worked ceaselessly for good roads. He demonstrated the effectiveness of advertising and other mass marketing approaches. In aggressively reaching out to women, he encouraged them to free themselves from confining fashions and self-images.

In his manufacturing operations, Pope took key elements of the mass production process to very high levels. Although the moving assembly line was developed by Henry Ford, Pope's plants were distinguished by a very fine division of labor, a high degree of interchangeability of parts, and extremely precise machining. He placed very strong emphasis on quality control through inspections. Many learned from his operations.

Endnotes

¹ Glen Norcliffe, "Popeism and Fordism: Examining the Roots of Mass Production," *Regional Studies*, Vol. 31.3, p. 269.

² Stephen B. Goddard, *Colonel Albert Pope and His American Dream Machines*, p. 60.

³ 35th Massachusetts Infantry Monument at Antietam National Battlefield, http://www.nps.gov/anti/monuments/MA_35_Inf.htm.

⁴ Goddard, p. 60.

⁵ Goddard, pp. 5–6.

⁶ Albert A. Pope, unpublished speech, pp. 7–8.

⁷ Goddard, p. 69.

⁸ According to Bruce Epperson, although this story is in the Pope Company's 1907 biography, his own investigations in the patent ledgers at the National Archives suggest that Pope's father Charles may have been in Vermont for as long as a month negotiating with the Montpelier firm while Pope haggled with Richardson and McKee. The two contracts were, however, dated only a day apart.

⁹ Goddard, p. 87.

¹⁰ Bruce Epperson, "The American Bicycle Industry, 1868–1900."

- ¹¹ Epperson.
- ¹² Goddard, pp. 69–70.
- ¹³ Norcliff, p. 269. Goddard cites a price of \$90 for the Columbia, p. 76.
- ¹⁴ Goddard, p. 119.
- ¹⁵ Goddard, p. 7.
- ¹⁶ Goddard, p. 13.
- ¹⁷ John Bell Rae, *The American Automobile Industry*, p. 15.
- ¹⁸ Goddard, p. 136.
- ¹⁹ Goddard, p. 197.

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