

# Cyrus McCormick's Reaper and the Industrialization of Farming

from *Forbes Greatest Business Stories of All Time* by Daniel Gross, et al.



In the summer of 1831 an audience of several dozen gentleman farmers, hired laborers, and slaves gathered in a wheat field on John Steele's farm in Rockbridge County, Virginia, to watch a horse-drawn wood-and-iron device mow down the golden crop in waves. The impresario behind this show was twenty-two-year-old Cyrus McCormick. Born in 1809, the same year as Abraham Lincoln, McCormick proved an emancipator of a different sort. The reaper, invented by his father, liberated hundreds of thousands of Americans from agrarian drudgery. The process of industrialization, which turned the nation's economy into the world's most productive force, could not have been complete without the mechanization of farming. And as the historian William Hutchinson noted, "Of all the inventions during the first half of the nineteenth century which revolutionized agriculture, the reaper was probably the most important."

The McCormicks weren't the only ones to devise a reaper. Many other companies and individuals had developed similar technology. But, as the historian Herbert Casson wrote, Cyrus "invented the business of making Reapers and selling them to the farmers of America and foreign countries." His genius was to gain and protect patents for the technology, and then turn his invention—one that skeptical farmers were prone to brand a "humbug"—into a commercial necessity. By traveling throughout farm country in the 1840s and staging theatrical demonstrations,

McCormick established the reaper as a commercially viable product. He also pioneered tactics that businessmen have used ever since: free trials, money-back guarantees, installment buying, and a fixed price for his machines. McCormick eventually moved his young enterprise from rural Virginia to Chicago, where he built a factory that grew into an industrial powerhouse and the company we know today as International Harvester.

## A Young Man Receives a Gift of Technology from his Father

Cyrus McCormick was the oldest of eight children born to Polly and Robert McCormick, a descendant of Scotch-Irish Calvinist immigrants who had arrived in the colonies in 1734. A prosperous farmer, Robert McCormick owned several hundred acres on a sprawling estate that included a grist and saw mill at Walnut Grove, Virginia. Walnut Grove lay in the fertile Virginia Valley between the Blue Ridge and Allegheny Mountains, a region untouched by the industrial revolution that was then gathering steam in England and the Northeastern United States. In rural areas, farmers harvested wheat in much the same way as their predecessors had done in the fourth century, that is, on foot, felling the shafts with a sickle and tying the cut grain in bundles.

Although he lacked formal schooling, Robert McCormick was a polymath and a gifted mechanic. "My father was both mechanical and inventive, and could and did at that time use the tools of his shops in making any piece of machinery he wanted," Cyrus McCormick later wrote. In the early nineteenth century Robert McCormick experimented with a variety of mechanical devices to make farming easier and less labor intensive. He developed a plow for hillside fields, a machine for breaking down hemp, and, most notably, a horse-drawn device

for reaping wheat. In a remarkably productive period from 1830 to 1831, he obtained several patents, even one for “an improvement in teaching the art of performing on the violin.”

But Robert McCormick’s inventive talents did not extend to financial matters and, as Cyrus noted, “most of his inventions dropped into disuse after the lapse of some years.” Fortunately, Cyrus McCormick supplemented his father’s technical genius with a penchant for and interest in making money. He later recalled a time when he was out horseback riding while still a teenager: “My reflections were upon the thought of the possibility of realizing a million . . . at the same time feeling that the thought was enormous, and that it seemed like a dream or like dwelling in the clouds, so remote, so unattainable, so exalting, but so visionary.” The dream became more attainable when Cyrus was given the means through which he would realize a million dollars and more. As the eldest son Cyrus stood to inherit the bulk of his father’s estate. In 1830, when Cyrus turned twenty-one, Robert McCormick essentially deeded the reaper to him and with it future ownership of the tool and the technology behind it.

## Gaining Publicity Through Public Demonstrations

In 1831, when an estimated 70 percent of America’s workforce, including 1.18 million slaves, tilled the soil, six people took an entire day to harvest two acres of wheat. McCormick’s reaper could bring in ten acres in that time with two people. The need was clear, and the product existed to fill the need. The challenge was to find a way to bring that product to its market in an era that lacked any form of mass medium through which to reach potential customers.

Dramatic public demonstrations were the only truly convincing marketing techniques. And the spectacle Cyrus McCormick staged on John Steele’s farm in 1831 was but the first of the reaper’s many public trials. The following year he put on a second production in the nearby town of Lexington. This time, the reaper fared poorly on the hilly land. But an audience member, William Taylor, offered to let McCormick try the machine in his adjacent, more level fields. After the reaper churned through six acres, McCormick dragged the device into the Lexington courthouse square, where a local teacher is said to have pronounced, “This machine is worth a hundred thousand dollars.”

Still, the McCormicks didn’t rush to make the reaper widely available. The family believed that another of Robert’s devices, the hemp break, had more immediate commercial potential. Cyrus assumed the role of chief promoter of this machine as well. But while he traveled to Kentucky to peddle and demonstrate the hemp break, the reaper was never far from his mind. He wrote home to propose building a few reaping machines in Kentucky. Robert McCormick proved reluctant to press ahead. “I think the building of a grain machine in that country might be attended with difficulty,” he responded, summoning Cyrus home, “as it will require a good deal of new modeling which when done at home is free from the watchful and jealous eye of strangers.”

Many farmers, having seen demonstrations or read articles about machines being developed in England and in the United States, were building their own reaping devices. Truth be told, no one person can really lay claim to having invented the first reaper. As Cyrus McCormick Jr. later said, “In the case of a simple farm tool of this kind, it might have been as well to have used the word ‘constructed’ instead of ‘invented.’” In fact, the Ohio-based inventor Obed Hussey demonstrated and patented his own reaper in 1833. It is likely that, after learning of Hussey’s machine, Cyrus McCormick applied for a patent on the machine he and his father had built in 1831. For a \$30 fee, the twenty-five-year-old in 1834 received a fourteen-year patent, signed by President Andrew Jackson.

At that time, a patent was more than a legal necessity. As a seal of approval and originality, it represented a potent marketing tool. In 1834 Cyrus McCormick wrote a letter to the editor of *Mechanics’ Magazine* charging that his competitor’s design “is a part of the principle of my machine, and was invented by me, and operated on wheat and oats in July, 1831. . . . I would warn all persons against the use of the aforesaid principle, as I regard and treat the use of it, in any way, as an infringement of my right.”

Writing letters to tiny newspapers was not, however, an efficient mode of spreading the word. In order to make the dispersed farming public aware of his father's invention, McCormick still had to show it to skeptical farmers. This challenge was especially difficult because McCormick had no reaper to sell. Like a producer unwilling to open his show until every last kink has been worked out, Cyrus was reluctant to press ahead. "Since the first experiment was made of the performance a few of my machine, I have, for the mutual interests of the public and myself, been laboring to bring it to as much perfection as the principle admitted of, before offering it to the public," he wrote in 1834.

The reaper's further development was inhibited by the family's involvement with other commercial ventures. In 1836, Robert and Cyrus McCormick set up an iron mining and smelting operation they called Cotopaxi. But the new business quickly faltered when iron prices collapsed, leaving the McCormicks to face a crowd of angry debtors. ". . . I have since felt [this] to be one of the best lessons of my business experience," Cyrus wrote in 1874. "If I had succeeded in the iron enterprise I would perhaps never have had sufficient determination and perseverance in the pursuit of my reaper enterprise to have brought it to the present stage of success."

As they gradually freed themselves from their Cotopaxi obligations, Robert and Cyrus McCormick, joined by his younger brothers Leander and William, began to refocus their creative and commercial efforts on the reaper. In the summer of 1839, Cyrus re-instituted his public demonstrations, and again the machine received rave notices. ". . . To say that we were pleased with its operation would but poorly express the gratification we experienced," exulted the Staunton (Virginia) *Spectator*. "It is certainly an admirable invention." In an effort to magnify the effect of such impartial opinions, Cyrus McCormick used the reviews as advertisements, buying space and running them in other newspapers.

Nonetheless, the reaper was slow to catch on. In 1840, when it still took thirty-seven hours of back-breaking labor to harvest an acre of wheat by hand, Cyrus McCormick sold two homemade machines for about \$110 each, but they both broke down. After correcting the flaws in the Walnut Grove shop, the family sold seven reapers in 1841. Cyrus recalled that "they all gave satisfaction, allowance being made for defects which I had afterward to correct." Unlike his father, Cyrus McCormick showed an ability to focus completely on a single product. "His whole soul was wrapped up in his Reaper," one neighbor said.

## **An Itinerant Salesman Signs up Far-flung Licensees**

Attention to detail was crucial because the McCormick reaper faced competition; Obed Hussey's machines had garnered favorable reviews as well. And as farmers proved willing to have the competitors plow their fields in demonstrations, the inventors squared off in public. Planters in Virginia staged a competition between the two rivals in 1843. As a board of judges watched, the McCormick machine mowed down seventeen acres, while Hussey's smaller reaper completed just two.

By the harvest of 1844, Cyrus and his family members had sold fifty machines for about \$100 each from their base in Walnut Grove. Forty-two were sold in Virginia. Since no farmer would purchase such an expensive product without first seeing it perform, the reaper's market was by definition local. And even if a farmer in central Pennsylvania wanted to acquire a McCormick reaper, he would have had great difficulty taking delivery. Since no railroad or major waterway served Walnut Grove, shipping the reapers was prohibitively expensive.

McCormick reasoned that this dilemma could be solved if reapers were manufactured closer to their far-flung customers. In October 1843 he placed an advertisement in the *Richmond Semi-Weekly Whig*: "As it is not at all probable that I can always manufacture the reaper to supply the wants of the country, I propose to form partnerships for their manufacture and also to sell patent rights." Several entrepreneurs jumped at the offer, but virtually all of them were in neighboring Virginia counties. The total production of reapers rose to seventy-five in 1844, with fifty made by the McCormicks at Walnut Grove and twenty-five by licensees.

After arranging to have a few machines sent by freight to distant cities like Cincinnati and St. Louis, McCormick lugged a reaper over the back roads west of the Alleghenies, where the land was more level, grain cultivation more prevalent, and labor more scarce than in Virginia. He demonstrated the reaper at agricultural fairs, on private farms, and in cities to manufacturers who might be interested in buying licenses.

Among the first licensees to sign on was Backus, Fitch & Company, of Brockport, in upstate New York, in 1845. On a lengthy swing through what was then called the West, he enlisted licensees in Missouri, Ohio, and Illinois. While each deal was different, most licensees paid McCormick \$20 for each reaper they made and sold. Others paid what was in effect a franchising fee in exchange for exclusive rights to a particular area. In an effort to expand the reach of the reaper, Cyrus enlisted a cousin, J. B. McCormick, as a traveling agent responsible for Tennessee and Missouri.

Despite its obvious labor-saving benefits, the reaper remained a hard sell, largely due to its \$100 price. In his pitches, Cyrus McCormick appealed to farmers on economic grounds, arguing that the machine could pay for itself with saved labor.

While Cyrus took the reaper on the road, his brothers and father worked to improve its performance. The main deficiency was that the reaper still required a person to walk alongside and rake the felled wheat off the platform. But in 1845 the McCormicks added a special seat on which the raker could sit. "I can now warrant the raking of the wheat from the machine to be accomplished with ease and completeness by a man comfortably seated upon it," he wrote in the Mount Morris (New York) *Spectator*. This design, which became known as "Old Reliable," would prove the Model T of reapers—and the company's main product for nearly two decades.

As demand grew steadily, McCormick encountered a quality control problem. His licensees were irksome and unreliable. Some simply couldn't produce machines quickly enough to meet the market's demand. Others balked at adding improvements such as the raker seat. "You will be surprised when you read that not the first motion was made by the growing Backus, Fitch and Co. to build a machine!" McCormick wrote home during one of his perpetual tours. "Without anything like a reasonable excuse . . . B.F. and Co. just neglected the business."

Meanwhile, increased demand overwhelmed the small Walnut Grove facility where the McCormicks drew on their own stock of timber, purchased finished steel from a local man, and employed a few laborers. But while they built seventy-five reapers in 1846, the output was nowhere near sufficient to fill all the orders that came in. With eager customers ranging from upstate New York to the far side of the Mississippi River, making reapers was no longer a cottage industry. The family realized that its business would suffer if it didn't relocate its manufacturing headquarters closer to the new customers in the burgeoning West. As William McCormick wrote in 1857: "Much as I love old Virginia, we should have starved in our business had we remained there." This bold move played a pivotal role in the firm's ensuing success.

## **Pulling up Stakes and Building a Factory in Chicago**

While Cyrus was away on business, Robert McCormick died on July 4, 1846. His death was traumatic, but it served as the impetus for his sons to leave Virginia and explore the new Western markets. By virtue of its victory in the Mexican-American War, the United States would gain vast tracts of land in the West. As the government opened up new areas to homesteading, immigrants and Easterners flooded into the great plains and prairies. Many of them sowed the freshly plowed fields with sturdy grain seeds.

Cyrus McCormick ultimately chose to relocate to Chicago in 1847, where he struck a manufacturing partnership with a prior licensee called Gray and Warner. The frontier town, then a far cry from Carl Sandburg's "city of big shoulders" had just 17,000 souls and few paved streets. But the growing city stood at the center of the nation's shifting center of gravity. Moreover, Chicago's location on the shores of Lake Michigan



afforded the company crucial access to rivers and canals. The new partnership built nearly 500 reapers for the 1848 harvest.

McCormick and Gray feuded over nuts-and-bolts financial details. To avoid litigation Gray sold his stake to William Ogden and William Jones, wealthy Chicago investors who were content to take a passive role in the business. The following year, for reasons that are still unclear, Ogden and Jones agreed to sell out to McCormick for \$65,000, making Cyrus McCormick the sole proprietor. That year—1849—the company’s 123 employees made 1,500 reapers.

Freed from his partners, McCormick engineered a rapid expansion of the plant on the banks of the Chicago River. By the time he was finished in the early 1850s, the factory covered 7,600 square feet on two stories. River frontage allowed workers to load the completed machines, weighing about a half ton each, directly onto barges and boats. After 1851, when the last of the early licensing agreements expired, all machines were made in the Chicago plant under the supervision of Leander McCormick, who had moved West to work with his brother. Stung by their early reliance on outside suppliers, the McCormicks sought to make their factory self-sufficient. For a time they continued to purchase sickles from a company in Massachusetts, and guard fingers, which held the grain in place to be cut, from a New Jersey firm. Soon, however, they dismissed all outside vendors and built an iron foundry to forge their own components.

As output rose dramatically, McCormick developed a rudimentary distribution system. The methods he devised to market the larger products resulted in several business innovations: The company hired sales agents who had responsibility for entire states or groups of states. In one of the first examples of such a system, agents set up shop, received sample machines, and took commissions on sales. In another innovation, farmers were allowed to buy the reaper on the installment plan, with payments stretched between harvests. “It is better that I should wait for the money than that you should wait for the machine that you need,” McCormick said. Finally, in an early example of the customer service that would come to characterize American business, he offered free trials and money-back guarantees.

Efficiently produced and widely distributed, the reaper came to be hailed as a revolutionary device. In August 1854 the *Pennsylvania Farm Journal* noted: “The age of scythe and cradles may now be said to have passed very much away, and to be among the things that were.” Just as the Ford Model T became an icon of American technological prowess in the early decades of the twentieth century, the McCormick reaper symbolized the country’s agricultural mechanization and self-determination. McCormick took his machine to the first world’s fair in London, in 1851, where the reaper was displayed in the famed Crystal Palace and churned through fields in exhibitions. Besting Hussey’s machine and the local competition in field trials, the reaper won a gold medal. “The Reaping machine is worth the whole cost of the exposition,” the *London Times* reported.

Having at last reached a wide consumer market with their reaper, the McCormicks’ production quadrupled between 1851 and 1859, from 1,004 to 4,119 reapers. Meanwhile, economies of scale combined with savings on materials reduced the manufacturing cost per machine, from \$56.92 in 1853 to \$46.58 in 1859. Since McCormick kept the price relatively stable, the reaper soon became affordable for most potential customers. By 1860, Western farmers brought in about 70 percent of the nation’s wheat harvest with the reaper. With the help of this machine, U.S. wheat production soared from 100 million bushels in 1849 to 173 million bushels in 1859. True to its promise, the reaper allowed fewer farmers to do more work, and in 1860, 59 percent of the active workforce labored in agriculture, down from 70 percent in 1830.

With the boom in the wheat market, McCormick’s company had become a major enterprise, and by 1860 Cyrus was the millionaire he had dreamed of becoming. He started to play an active role in the Democratic Party and in the affairs of the Presbyterian Church. And it was at church one Sunday that he met Nancy Fowler, the daughter of a storekeeper from upstate New York, who was visiting friends in Chicago. McCormick proposed to her by mail, and the two were married on January 26, 1858. Over the next seventeen years they had five children. Cyrus Jr., the eldest, born in 1859, would later fill his namesake’s position at the firm.

## The Reaper Creates an Industrial Powerhouse

By providing an effective way to harvest wheat rapidly, the reaper had already helped affect the flow of economic history. But in the 1860s it would influence the outcome of the most pivotal event in the nation's history. Although devised by a slave owner from Virginia, the reaper proved to be a key asset for the Union cause in the Civil War. When the war started in 1861, there were enough harvesting machines in the Northern wheat fields to do the work of a million slaves. "The reaper is to the North what slavery is to the South," War Secretary Edwin Stanton wrote to McCormick. "By taking the place of regiments of young men in the western harvest fields, it released them to do battle for the Union at the front and at the same time keeps up the supply of bread for the nation and the Nation's armies."

Even as the guns sounded at Fort Sumter, McCormick and his agents were peddling a new, improved reaper. The self-rake machine featured a mechanism that automatically swept the grain off the platform onto the ground in neat piles, thus eliminating the need for a raker to ride on board. By 1864, two-thirds of the reapers made by McCormick had this feature.

As the war continued to devastate the nation, McCormick realized there would be little domestic business. So, in 1862, he went to England and spent the next two years abroad with his family, taking the self-raking mower on a grand tour of Europe. The machine won prizes in Germany and performed well in tests in Belgium, Russia, and Italy. In the winter of 1863-64, McCormick wrote home to a colleague: "I've been *working hard* & hope to accomplish something but time is required to effect the general & extensive introduction of a new implement in Europe." In spite of the successful trials and positive publicity it generated, the reaper didn't find a market on the Continent because local manufacturers were scarce and transoceanic transport was difficult to arrange. And in many areas of Europe, landowners weren't interested in investing in machinery that would ease the labors of their tenants.

When the Civil War ended, the company resumed its U.S. growth and continued to build more efficient machines—until disaster struck. The Great Fire of Chicago on October 8 and 9, 1871, laid waste to 3.5 square miles of the city and left nearly 100,000 people homeless. Among the \$188 million worth of property destroyed was McCormick's factory, in which he had invested some \$2 million over the years and which had produced a staggering 10,000 reapers during the previous year. "I at once determined to proceed with the work of rebuilding," McCormick wrote. Abandoning the old factory site, he purchased 160 acres along a branch of the Chicago River and spent \$619,000, to build a massive factory with a main plant measuring 200 by 360 feet (ten times the size of the 1848 original), a 440,000-square-foot warehouse, and a foundry and blacksmith shop along 1,300 feet of river frontage. It opened in February 1873 and quickly began to produce reapers. In 1875, the rebuilt company had sold 13,031 machines.

## Staying Ahead of Competition by Acquiring New Technology

In the post-Civil War years, McCormick & Co. took a different approach to toward developing new products. With the clout of a big industrial plant, an internationally recognized brand name, and a dominant domestic sales network, McCormick no longer had to develop his own technology. Rather, the company was content to let hungry entrepreneurs develop new inventions and prove their field-worthiness. After watching successful, small-scale debuts, the company would then acquire the patents and incorporate them into their new products. As William Hutchinson wrote of the firm in the 1870s: "Invention became the tool, and the inventor the employee of the manufacturer."

In 1860, for example, Charles and William Marsh developed the harvester, which conveyed the grain from the reaper's platform into a bin for binding. Farmers could bind the grain while riding the machine, thus doing as much in a day as three or four binders could before. In 1873, McCormick bought the Marsh patents. To observers, the new wrinkle represented yet another step forward in the march of human progress. "Of the ten or twelve

sweating drudges who toiled in the harvest-field, all were now to be set free—the sickles, the cradlers, rakers, binders—every one except the driver, and he (or she) was to have the glory of riding on the triumphal chariot of a machine that did all the work itself,” wrote the historian Herbert Casson.

That triumphal chariot rode proudly through the fields of the Northern and Western United States for decades. And in the late 1870s, in large part due to improved transoceanic shipping and greater production capacity, the world market that Cyrus McCormick had been seeking finally materialized after nearly two decades. Between 1875 and 1885, the McCormick company pushed into Canada, Australia, New Zealand, and Argentina. In July 1878 alone, the firm sent 550 machines to New Zealand. “By 1880 the sun never set upon McCormick machines,” Hutchinson wrote.

In his seventies, McCormick continued to accompany his machines on their world tours. In an age before television and video, seeing still preceded believing. “Dear Papa, who has fought so many battles of the reapers, looks at the coming struggle, and quite naturally is eager to be in the midst of it,” wrote Nancy McCormick to one of her sons in 1878. “He feels that this may be his last great international fight, and he wants a fair field and no favor. I sometimes think that success will depend on his presence.” That year, when the U.S. grain crop totaled 429 million bushels, McCormick traveled to France, where he received the rank of Officer of the Legion of Honor and an award from the French Academy of Sciences for having “done more than any other living man for the cause of agriculture in the world.”

### **The Formation of International Harvester**

Upon Cyrus McCormick’s death, his twenty-five-year-old son, Cyrus Jr., took over the business. By 1902 the Chicago plant—the company’s sole manufacturing facility—accounted for 35 percent of the country’s farm machinery. McCormick still faced competition from other implement makers and from the growing challenge of new companies making farm machines powered by gas and steam.

Concerned about potentially destructive competition, Cyrus McCormick Jr. did what so many other businessmen of the era did: he paid a call on the offices of J. P. Morgan in New York. With Morgan partner George Perkins, the McCormick executives concocted a plan to merge their company with three other leading companies. The plan was for the newly formed company to purchase the assets of the other companies for \$60 million. Augmented by \$50 million in accounts and receivables and \$10 million from Morgan, the International Harvester Company was capitalized at \$120 million. Morgan himself suggested adding the name International to the company. At its creation, the trust, with Cyrus McCormick Jr. as its president, held 85 percent of the country’s farm machinery market.

Like most other large enterprises, International Harvester came under antitrust scrutiny in the 1900s and 1910s. But the government didn’t break up the company. For despite its size the company faced robust competition, first, from veteran implement makers like John Deere and, later, from automobile companies like Ford, whose gas-powered tractors quickly gained market share in the 1910s.

Still, the firm remained very much a family business. In 1879, when it produced nearly 20,000 machines and earned \$722,000, the partnership was transformed into McCormick Harvesting Machine Company, with Cyrus controlling three-fourths and Leander owning the remaining quarter. Upon his graduation from Princeton, Cyrus Jr. was inducted into the family business. Much like his father, Cyrus Jr. was enterprising and ambitious. He set about modernizing and expanding the factory in the early 1880s, adding electric lights and boosting production: in 1884,

1,400 workers built 55,000 implements, compared with 20,000 in 1880, and they made virtually every part of the machinery at the Chicago factory. Cyrus McCormick Sr. remained involved well into his seventies. “If I had given up business, I would have been dead long ago,” he said in 1884. Indeed, he worked up until his death, just a few weeks later.

Cyrus McCormick left behind an American landscape visibly altered by his invention. Wheat sprung from the soil in Eastern mountain valleys, the great plains of the Midwest, and newly settled parts of California. With the help of tools like the reaper, U.S. wheat production had increased from four bushels per capita in 1847 to ten at the time of Cyrus McCormick’s death. The effect on the American workforce was nearly as dramatic. When McCormick first demonstrated the reaper, almost three-fourths of the population worked on farms. But over the next several decades, freed or displaced American farm workers moved to the cities and took up work in the growing fields of industry and infrastructure.

Of course, the industrialization of agriculture was not complete in 1884; not until the 1950s did the number of tractors in America's fields first surpass the number of horses. But the long-term trends McCormick helped set into motion in the mid-nineteenth century continued to alter the American economy. In 1961, when the vast, technologically obsolete McCormick Works in Chicago were finally leveled, fewer than 9 percent of all Americans worked in agriculture. And they grew enough food to feed the nation's population several times over. While the reaper was not single-handedly responsible for urbanization and the industrialization of agriculture, the history of these trends couldn't be written without mention of Cyrus McCormick and his reaper.

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