



# Making Money—Literally!

*The Crane family has been in the business of “making money” for centuries, producing currency papers for everyone from Paul Revere to the US Treasury Department.*

— BY PETER HOPKINS, HISTORIAN FOR CRANE & COMPANY

**W**hen your first customer is Paul Revere, maybe you're on to a good thing.

On Sept. 18, 1776, Captain Jonathan Brown arrived at Stephen Crane's Liberty Paper Mill in Milton, Mass., to secure a supply of money paper to help finance the American Revolution.

The 13 reams of paper were delivered to nearby Watertown, where the Massachusetts House of Representatives was meeting and where engraver Paul Revere had moved his printing operation after the British occupation of Boston.

Whether by accident or to make a political statement, Revere engraved an issue of Massachusetts Colonial Currency on the back of the copper plate he had used years earlier to depict the siege of Boston Harbor by the British in 1768.

Stephen's son, Zenas, had not yet been born, but as a young man, he would establish his own papermaking business 150 miles to the west in Dalton, Mass., on the banks of the Housatonic River and would carry on his father's tradition of producing currency papers — a tradition that continues to this day, in the hands of his descendants.

Zenas' first mill was a modest one—a two-vat mill capable of turning out 2,500 sheets of paper per day. Cotton and linen rags were collected from households all over Berkshire County and nearby New York. At the mill, women in the rag room would sort the raw materials by color and quality, then cut them down into small squares which were then fed into a hollander beater, powered by a small undershot water wheel. Zenas served as his own vat man, a skill he learned from his older

brother who had been taught by their father. Zenas honed his skills in the late 1790s at a mill in Worcester, Mass., built by the great patriot printer Isaiah Thomas, publisher of the radical revolutionary newspaper, *The Massachusetts Spy*.

Zenas, as was the case with all early papermakers, allied his business closely with nearby printers. In Zenas' case, there was Phineas Allen, publisher of the *Pittsfield Sun*, and Charles Van Benthuisen, an Albany, NY, printer who would become the official printer of the State of New York.

And although it is not known who the printer was, as early as 1805, currency printed on Zenas Crane's paper began to filter into local, then regional commerce. Business must have been brisk, because in 1806, another facility—The Old Red Mill—was built a few hundred yards downstream of the original mill, which had already become known as The Old Berkshire Mill.

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The Old Red Mill was considerably larger than the first mill, with two vats in operation, and with between 15 and 20 employees.

From the early 1800s until currency was nationalized in 1862, approximately 1,600 private banks were permitted to print and circulate their own paper currency under State Charters. Eventually, 7,000 varieties of these “State Bank Notes” were put in circulation, each carrying a different design.



Zenas Crane

The Crane mills supplied the needs of many of these banks, as did a number of Crane's competitors, through sales to more than a dozen banknote engraving houses, as well as through paper brokers. Due to the demand for banknotes, as well as for writing paper, books and newspapers, the days of the rag route came to an end, when local households were no longer able to fill the demand for raw materials. As early as 1811, Zenas began relying on large garment manufacturers from

the major metropolitan areas to furnish rags. In that year, Zenas contacted a dealer in New York who shipped rags up the Hudson River by packet boat.

Eventually, scraps from textile mills would come to Dalton all the way from Ireland and France. There was every bit as much competition for raw materials as there was for paper sales, and Zenas' ability to secure long-term supplies at advantageous prices served his business equally as well as the high-quality papers he was producing.

Zenas and the Old Red Mill entered the machine age in 1831, when a cylinder machine was installed by the firm of Howard & Lathrop of nearby South Hadley, Mass. The handmade paper operation was maintained for a full year as Zenas and his employees tuned up the machine so that its products would be acceptable.

As the machine and its markets matured in the 1830s, the mill was first churning out music paper, temperance paper, telegraph paper, wrapper paper, post office paper, tobacco paper, and various writing papers. Toward the mid-1830s, the mill began making the first versions of paper that would make it famous and for which it is widely known today: colored writing papers.

In 1842, Zenas left the active management of the company, having given partnerships to his sons Zenas Marshall and James Brewer in 1836. It was under their direction, but undoubtedly with Zenas paying close attention, that Crane's third mill—the Old Stone Mill—was built in 1844. Zenas died the next year, but lived long enough to see the installation of the next wonder of the machine age: the fourdrinier.



In the rag room, women sort and cut linen rags, which are then fed into a beater.

A series of intersecting events and trends led to a prolonged period of expansion of the family business. The arrival of the fourdrinier allowed Crane to produce more paper more efficiently to fulfill the expanding needs of the nation's banks, as well as to develop papers for stocks and bonds and other financial instruments. And it allowed for more creative responses to emerging needs.

In 1847, Crane introduced a new paper designed to thwart the growing threat of counterfeiting. This new paper featured silk or cotton threads embedded within the paper itself to combat one of the counterfeiters' favorite techniques, called "raising a note," by bleaching a \$1 and printing a \$10 on the real banknote paper. Crane's new banknotes featured one thread in a \$1 bill, two threads in a \$2, and so on. The papers became very popular with banks in the Northeast and beyond, and greatly enhanced the company's reputation in the marketplace. At the same time, the dozen or so small banknote engravers were consolidating into just a few major players, and all were looking to lock in advantageous supplies of high-quality paper. Crane was fortunate to forge strong bonds with major engravers such as the American

Banknote Company, which guaranteed that the machines in Dalton would be very busy.

In the 1850s, a banker in New York City wrote to the Cranes asking for some of that "bond" paper for his office correspondence. Within a very short time, the Crane mills were busy making business letterhead papers for major corporations and small businesses, a business that remains important to Crane to this day.

At about the same time, the shops in New York and Boston were featuring pretty colored papers and envelopes from the leading stationers in Europe. Sensing an opportunity, the Cranes purchased a former woolen mill in Dalton and began making high-quality papers for social correspondence. Today, Crane's 100 percent cotton stationery papers are sold throughout the world through more than 2,500 independent retailers, as well as 24 company-owned stores.

Crane papers also found their way into less-obvious applications. In the mid-1800s, paper was the medium of invention, long before plastic and other engineered materials. The family built a mill in the Connecticut River valley, and for decades made strong linen papers which were used to build the bodies of carriages, sailboats, umbrella stands, paper collars, even observatory domes.

In the middle of the Civil War, President Lincoln nationalized U.S. currency due to the growing threat of counterfeiting. It is unclear how much currency paper Crane was supplying the government over the next 15 or so years. But in 1879, the Treasury Department was unsatisfied with its incumbent supplier, and decided to put the contract for paper out to competitive bid.

Twenty-three year-old Winthrop Murray Crane was dispatched to Washington in a prolonged effort to win that first contract. As the story goes, every company in the running had submitted a bid as the deadline approached. But after word sifted out that the young Crane intended to submit a second bid, competitors locked him in his hotel room. But Murray, being a tall, slender New Englander, managed to slip out through the transom and put in a last-minute bid that was a half-cent per pound lower than all the others. Crane has supplied paper to the Bureau of Engraving & Printing ever since,

having won every subsequent competitive bid.

To accommodate the needs of the government, the company purchased another mill in nearby Pittsfield and named it the Government Mill.

By the turn of the 20th century, Crane was operating five mills. The Pioneer Mill, built in the 1870s, would keep itself busy for more than 100 years producing a wide range of papers, but its specialty would be supplying most of the world's 100 percent cotton drafting vellums.

In 1928, the government decided to further standardize paper currency, and reduced its dimensions by one-third to the size we are accustomed to today. This reduction could have meant trouble for the company making the paper, but through its association with the American Banknote Company, Crane was making banknote paper for scores of countries around the world without their own manufacturing facilities.

Two years later, Crane took over the former Dalton Shoe Factory in Dalton, and consolidated all its stationery converting operations. In 1953, Crane acquired the Byron Weston Paper Co., which had operated as a friendly competitor in Dalton for more than a century. Weston had supplied the needs of local, state and national governments for fine ledger papers and for municipal records across the country.

And in 1970, Crane acquired the Excelsior Printing Co. and Excelsior Process & Engraving in nearby North Adams to bring in-house all the offset printing and engraving of Crane's correspondence papers.

***"...the most effective counterfeit detection feature is the unique feel of the paper."***

The demands for U.S. currency paper were straining the capacity at the Government Mill in the 1970s, so the Crane family undertook the most aggressive capital project in its history, building the new Wahconah Mill in 1975. This state-of-the-art facility continues to house the majority of Crane's currency manufacturing operations.

The first major change in currency paper since 1928 came about in the late 1980s, when Crane developed a new technique to thwart the growing counterfeiting threat posed by the advent of color copiers and scanners.



Sixth-generation Timothy Crane invented the modern security thread with metallic print which, when embedded in a bill, can be seen by transmitted light (by holding the note up to a light), but which is invisible with reflected light (that used by copiers and scanners). Each security thread is printed with the denomination of the bill, so that today — as was the case 150 years earlier — counterfeiters could not “raise” the denomination of the bill.

With the advent of the security thread and watermarks a few years later, Crane developed sophisticated computer process control technologies to monitor all aspects of manufacturing efficiency and quality. Today, there are more than a dozen anti-counterfeit features within U.S. currency papers—some public and some secret—but the most effective counterfeit detection feature is the unique feel of the paper. Currency paper is made from 75 percent cotton and 25 percent linen. This fiber combination, the process by which the paper is made, and the addition of intaglio printing by the Bureau of Engraving & Printing, give currency paper a distinctive feel that is noticeably different from those used for counterfeits.

As Crane entered its third century of business in Dalton, attention was turned to Europe. In 2002, Crane purchased the Tumba Bruk paper mill and printing works in Sweden, and now produces paper for the Swedish Krona and the Euro.

Today, Crane remains firmly ensconced in Dalton. The company employs more than 1,200 people and continues to be owned and managed by members of the sixth and seventh generation descendants of Zenas Crane. ■