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Conveying Genius

*Mantissa Corporation celebrates
40 years of manufacturing solutions*



Conveying Genius

If you've ever worn a pair of New Balance shoes, driven on a set of Bridgestone tires, or received a package via UPS, then you have benefited from Mantissa Corporation's ingenuity. Mantissa's solutions support material handling all over the world, from *Fortune* 500 companies in the U.S. to China.

While most of North Carolina's manufacturing has migrated overseas in the past few decades, Mantissa's commitment to its hometown has grown ever stronger. Its strength in product innovation and staying ahead of the curve to provide manufacturing solutions has recently helped propel it onto the international stage.

Mantissa manufactures high-speed sorting conveyor systems and helps companies engineer material handling solutions that can move, sort and distribute everything from clothing to luggage to newspapers.

A typical Mantissa solution consists of a combination of fast conveyor belts, trays and discharge chutes. As product is transported through a facility it all arrives at the Mantissa sorter trays, which are arranged in a train-like fashion and operate along a track. Then patented control systems automatically sort and distribute material into chutes for further processing. Basically, the equipment looks like an 800-foot racetrack inside a commercial building.

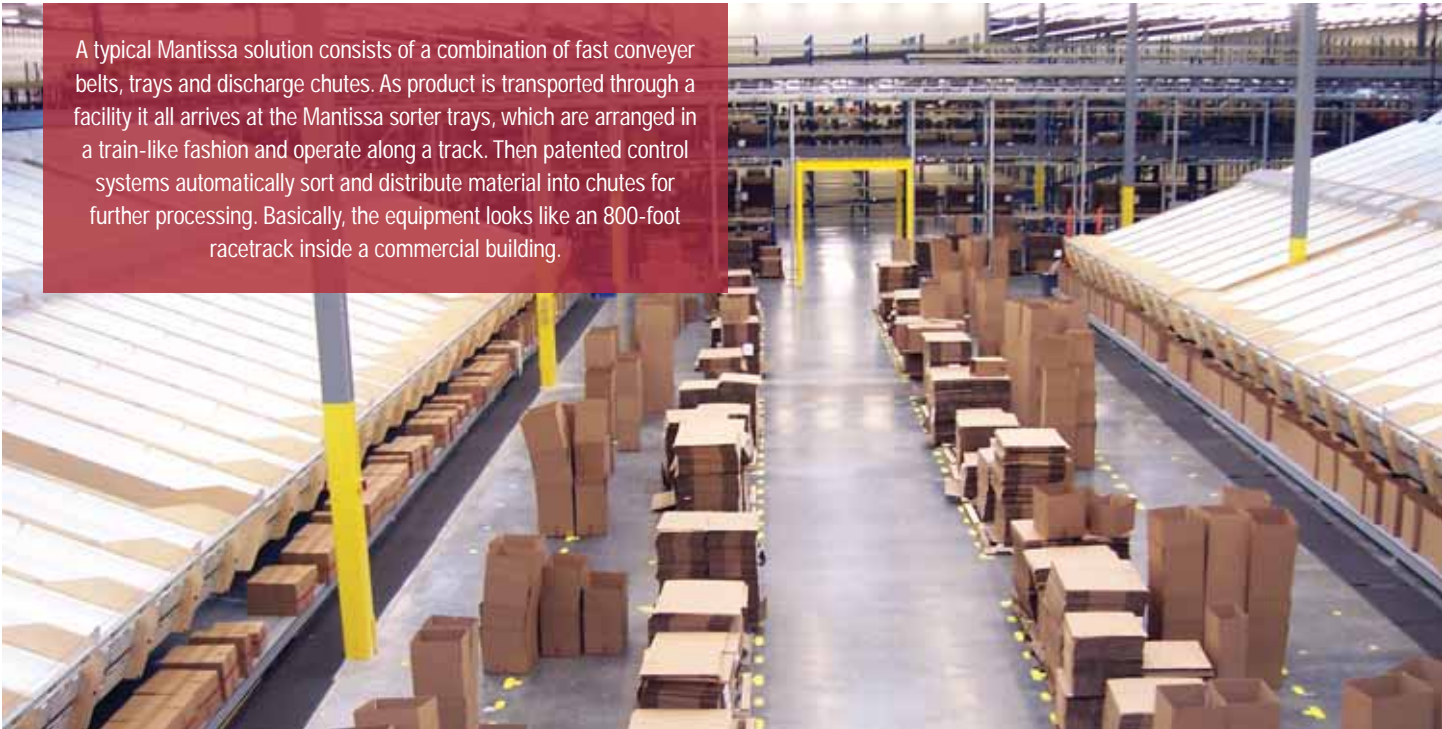
The company's signature high-speed tilt tray sorter, the Scorpion II, can carry loads up to 125 lbs. per tray and can handle a wide variety of materials in 20 available tray styles. The Scorpion II boasts the most energy efficient drive system in the world, low noise and extreme dependability, and represents one of over 30 patents Mantissa holds today.

One of the company's most ingenious visions resides in an unassuming brick building just off South Tryon Street. It is a multi-million dollar state-of-the-art working model of an airport baggage handling system. Its sister system is installed near the Beijing Capital International Airport, and dignitaries from around the world visit both locations to have a look.

The model demonstrates a crucial element of Mantissa's value proposition: They're not just manufacturers—they're solutions providers. This vast baggage retrieval system is a wonder of not only engineering and manufacturing, but also the ingenuity to bring together conveyers, controls, and all the other pieces required to meet the exact needs and specifications of a particular customer. And Mantissa carries through to the installation and maintenance service to ensure every solution operates consistently at peak potential.



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The Birth of Mantissa

Supporting Mantissa's distinguished position in the manufacturing industry, are the "mad scientist" David Fortenbery, his sister Megan McCormick the "financial wizard and top negotiator," and David's passionate son Andrew, who all talk with their hands and tell stories about the Mighty Goddess of War and petty pilferage of prophylactics, yet can solder a circuit board, balance the books and program a computer as the need arises.

David founded the company by accident in 1972, with four ball bearings and a book on mathematics. But he says it never would have happened without his father John. John Fortenbery had been a pilot in WWII, and came home and earned a mechanical engineering degree on the GI Bill. After that, he designed conveyer systems for Logan Company, a major material handling company at the time.

In the 1950s, as David tells it, John "got a wild hair to go into sales" and moved his family to Charlotte to head up a new sales division for Logan covering the Carolinas. One might argue that wild hairs grow thick in the family, but regardless of his original motivation, the move allowed John to return to his first love—flying.

He purchased an airplane and used it to quickly cover—and insert himself into—his new sales territory. Thanks to his travels, he learned more about the material handling needs of his customers than anyone else.

David, who had been a teenager at the time of the move, majored in chemistry at UNC Chapel Hill and later joined the Air Force. He was stationed in Germany when Andrew was born, but ultimately came back to Charlotte to work with his father.

Mantissa has been propelled onto the international stage, where it operates as one of only a couple companies in the world that manufacture high-speed sortation equipment. Currently, the company has projects being installed in China, Korea and Qatar. Still, the culture inside the company retains the "mad scientist" air that originated with its eccentric leader.

Before long, David and John were working side by side providing sales, engineering, delivery, and installation of Logan products. Then, the big moment arrived.

It was a Friday night in 1972. David had just settled down to enjoy a relaxing book of mathematics, when the phone rang. A Logan customer in South Carolina desperately needed ball bearings in order to repair a conveyer that had shut down, leaving an entire weekend shift sitting idle. David knew that ordering the parts would take over a week, and the customer was desperate.

"Give me five minutes and I'll call you back," he said. It just happened that he had a pair of ball bearing samples in a briefcase that he carried with him on sales calls. And, as luck would have it, his father had a similar briefcase with a matching pair.

Back on the phone, the customer was

ecstatic. He told David he'd send him a check for \$500 on Monday morning and asked for the name of his company.

David recalls: "I panicked. There was no company. My eyes landed on the math book. It read, 'A logarithm consists of two components. To the left of the decimal is the characteristic, and to the right of the decimal is the mantissa.' I told him to make the check out to Mantissa Corporation."

From that point on, all installations were performed by Mantissa Corporation. With John's mechanical abilities and salesmanship, and David's work ethic and installation genius, the company was on its way.

Advent of Computers

Meanwhile, technology was changing rapidly and David got interested in the potential of computers. The company had already invested in CAD (Computer-Aided Design) software for planning systems, and although no one else was doing it, David became convinced that a computer could be programmed to run the controls for the entire system.

At that time, sortation control devices could cost hundreds of thousands of dollars—a large portion of a project's budget. If a computer could do the same job for \$5,000, it would be a game-changer.

In 1985, David convinced Mr. Alvin Levine of the Pic N Pay Shoe Company it could be done, and sold him the world's first computer-controlled high-speed sortation device for its distribution center in Matthews, N.C.

As it turned out, that was not a simple proposition. First, Logan Company wouldn't sell the system; they said it couldn't be done, and they wouldn't stand behind it. So David ordered ►

the million dollars' worth of parts from the spare parts catalog and so Mantissa could install the system themselves.

When the parts arrived, David assembled part of it in his garage, programmed the "superfast" IBM 286 XT computer, hooked it up, whereupon the computer promptly crashed. Again and again, it refused to run the software. It was simply not up to the task.

Knowing persistence pays, David was reading a trade magazine when an ad for the next generation of IBM computers, the IBM 386, caught his attention. He lost no time making the \$5,000 investment. The moment the 386 arrived, he set it up, loaded the software, and held his breath. It worked!

It wasn't long before the media got ahold of the story. *Modern Materials Handling*, at that time the foremost industry magazine, put it on the front cover. The day after it came out, Mantissa's phone started ringing. In a single day, they received 30 inquiries, and before long their computer-controlled systems were popping up all over the country.

Becoming Manufacturers

In the early 1990s, Mantissa was still designing and installing material handling solutions built primarily from products manufactured by Logan Company. In 1994, David decided that the best way for Mantissa to compete nationally would be to engineer and manufacture their own high-quality sortation equipment to compete with European models being sold in the United States.

So Mantissa began to engineer and develop their own tilt tray system. Over the next 12 months, Mantissa invested over a million dollars to engineer the Scorpion, the predecessor to today's Scorpion II.

"Any company can spend money and develop something," says Andy. "Developing a good product is a bit harder...developing one that's engineered to last a long time is even harder. But the most important part of developing a new product is making the first sale. If a company can't sell a new product in the first six months, the chances of that first sale begin to decline quickly."

They knew it would be a hard sale. Very few companies like to be the first to buy an untried and untested product. So when both New Balance Shoes and Nike Shoes requested information, Mantissa did everything it could to gain favor.

David, Megan and the team went over the top to impress both companies. They courted them with enthusiasm; they even purchased New Balance and Nike shoes for employees and coached them on how to show them off when the companies visited.



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The New Balance meeting took place first. Eventually the top executive asked the question Mantissa had been preparing for and dreading: "Who else is using the Scorpion?" David leveled with him: "No one."

To his surprise, the New Balance top executive lit up with interest. "Really? What if we get started on the system today? Will we be number one off the line?" they asked. They knew of Nike's interest and were determined not to let their biggest rival be first to the punch!

And that's how New Balance became the first company to own the world's most advanced Tilt Tray Sorter system. A few weeks later, Nike purchased the second system.


The Scorpion had only been out a month, and already they had sold to two of the world's largest shoe manufacturers. Suddenly, everybody was interested in the innovative product, leaving Mantissa the new challenge of keeping up with demand.

Looking Forward

David Fortenbery still owns the company, but leaves the daily operations and future strategic oversight to Andrew. Megan and Andy have propelled Mantissa onto the international stage, where it operates as one of only a couple companies in the world that manufacture high-speed sortation equipment. Currently, the company has projects being installed in China, Korea and Qatar.

At the same time, the company continues to manufacture systems and look for opportunities for repeat business. As much as the Fortenberys enjoy inventing and creating new things, Andy recognizes that to compete on the global scene, they also need to develop scalable systems for delivering the things they've already invented.

Still, the culture inside the company retains the "mad scientist" air that originated with its eccentric leader. Anyone, from engineer to receptionist, might at any moment be called upon to re-wire a circuit board or brainstorm a new way to solve a problem.

Andy, following in David's and Megan's footsteps, conveys a strong work ethic and resourceful attitude among the employees, as well as simple design and leading edge technology for Mantissa's customers—conveying genius for the next 40 years. 

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Principals: J. David Fortenbery, Founder;
Megan F. McCormick, Vice President;
Andrew B. Fortenbery Sr., General Manager
Employees: 40

In Business: 40 years

Business: Leading provider of automated sortation systems, holding more than 30 patents and delivering complete sortation solutions from inception to on-site installation, as well as maintenance, training and support.



www.mantissacorporation.com

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