

## Shirts and Shoes and Boxes, Oh My!

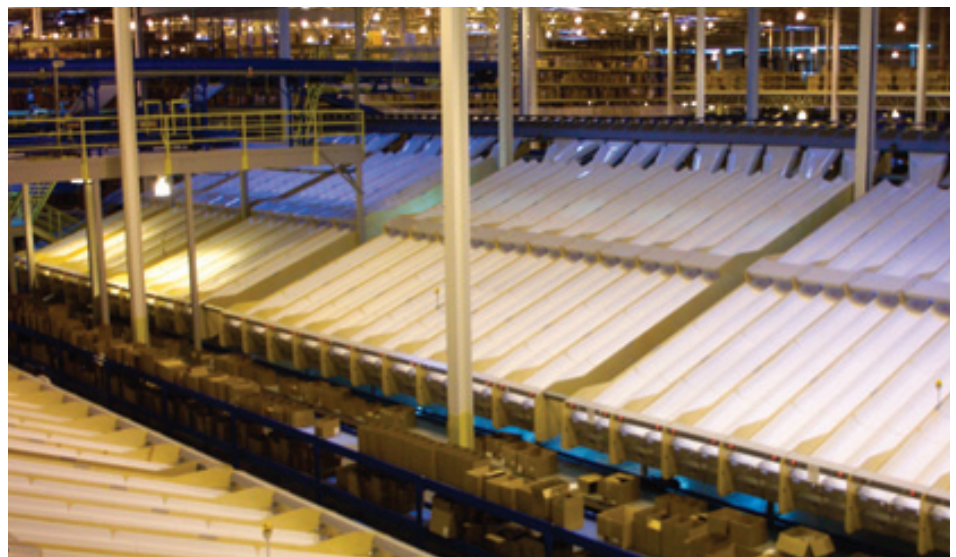
With the decline in the economy in recent years, the need to leverage the capital investment necessary for automating distribution has grown. One way to do it - reduce the amount of floor space required for automated systems.

Mergers, acquisitions, and consolidations are forcing businesses to grapple with an ever-changing product mix. So there is an increasing demand for flexible or dynamic distribution. But traditionally, products with different handling requirements have been segregated

 and handled in separate

chutes, separate material handling systems, and often in separate facilities - a luxury that few companies can afford today.

Enter the Aardvark, Mantissa's latest patented innovation. The Aardvark is a



One of Mantissa's newest installations features 128 Aardvarks handling shirts, shoes, and boxes. Oh my.

transitional device located at each discharge point on the tilt tray. It is configured as a flat surface migrating to a funnel, or "snout," which directs product to chutes as narrow as 18" wide while maintaining orientation. Better yet, the Aardvark can move vertically and horizontally, directing product to any of four sort destinations or specifically designed chutes. And the Aardvark does it all while accommodating the unique handling characteristics of diverse types of product.

These chutes use a half-pipe design, inspired, according to Dave Fortenbery, President of Mantissa, by watching the last

Winter Olympics.

The half-pipes are designed with a relatively steep angle that establishes and maintains end-to-end orientation of shoe pairs. Although this angle is not as steep as the norm for handling apparel, with a lower coefficient of friction, *poly bags can also be sorted within the same chute.*

With Aardvark Technology, distribution facilities can sort multiple types of product to multiple destinations, mix product type, diversify product mix, reassign chutes, and much more.

**The bottom line:** more sorts per square foot per dollar invested.



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# DISCOVERING OUR PLACE...

Discovery Place, a premier hands-on science museum, has long been an important and much loved part of Charlotte's cultural scene, located among the towering bank headquarters and other monoliths of uptown Charlotte. Recently, Mantissa was approached about playing an integral part of a new permanent exhibit that the museum had in the works – The Machine Shop. Right down our alley, this new learning area was being designed to explore the science behind simple machines in a hands-on, kid-friendly way.

While certainly not the largest, or most sophisticated, or most complex system in Mantissa's history, perhaps Discovery Place is one of the more important. Because it's all about community and it's all about kids.


Mantissa provided an overhead chain or rail conveyor system of over 300 feet. Powder coated bright yellow, the tri-planar conveyor reaches a height of almost 17 ft. while displaying and transporting a series of giant sized "tools" – wrenches, hammers, screw drivers – the real ones all of which might be found in an actual machine shop.

According to Dan Weckerle who managed the project for Mantissa, the

biggest challenge was actually laying out the conveyor – dipping, dodging, and snaking (all good engineering terms, don't you think?) around the fixed elements of the exhibit – a grain elevator and conveyor, a 1001 to 1 machine featuring an all terrain vehicle that a child can actually lift with the help of a lever, incline plane, wheels, and other simple machines. And all had to be absolutely kid –proof!

Mantissa employees, family, friends, clients and vendors were invited by the museum to celebrate the opening of the exhibit by letting us have the entire run of Discovery Place one evening last spring. Besides the opening of The Machine Shop, there was a special traveling exhibit featuring a Tyrannosaurus

Rex named Sue, which many agreed had a certain resemblance to Dave Fortenbery when he's had too much caffeine. The biggest hit of the night and a real "team builder" was the museum's simulator, featuring virtual rides with very real thrills. The chills of the evening were provided by the ice cream made with liquid nitrogen in the science lab followed by a special showing in the Omnimax Theater.

Discovery Place, which is a tribute to man's innovative spirit, was, in fact, the perfect place for Mantissa to celebrate being a vital part of the Charlotte community for over thirty years while developing innovative systems that continue to move industry. 



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# SOAPBOX

You got something sticking in your craw? Are you filled with righteous indignation? From time to time we pull out the old soapbox and allow our dear readers to have at it!

## I'M A PROUD DINOSAUR

I just found out recently that I'm actually a dinosaur in the engineering industry. Not the type that is afraid of new ideas and technologies, but one that learned the basics of business from those who understood what service and project acumen actually meant. As we move ahead in so many ways, we have begun to ignore the customer. Knowing more about our products does not give us leeway to dictate without *listening*.

I am also the type that knows what we've built in the material handling industry is not the product of recent innovations, but of *constant* innovation. We are not a relatively new profession as some articles I've read insist, but actually one of the oldest. Think for a moment to what a definition of material handling might be. To quote Ralph Sims, Jr. in the Industrial Engineering Handbook:

*"Materials Handling is that portion of the business and economic system which affects the physical relationship of materials, products, and packaging to the product, process, facility, geography, or customer without adding usable worth or changing the nature of the product."*

Or simply, we move "stuff" – any and all stuff, anywhere,

anytime in a safe and efficient manner.

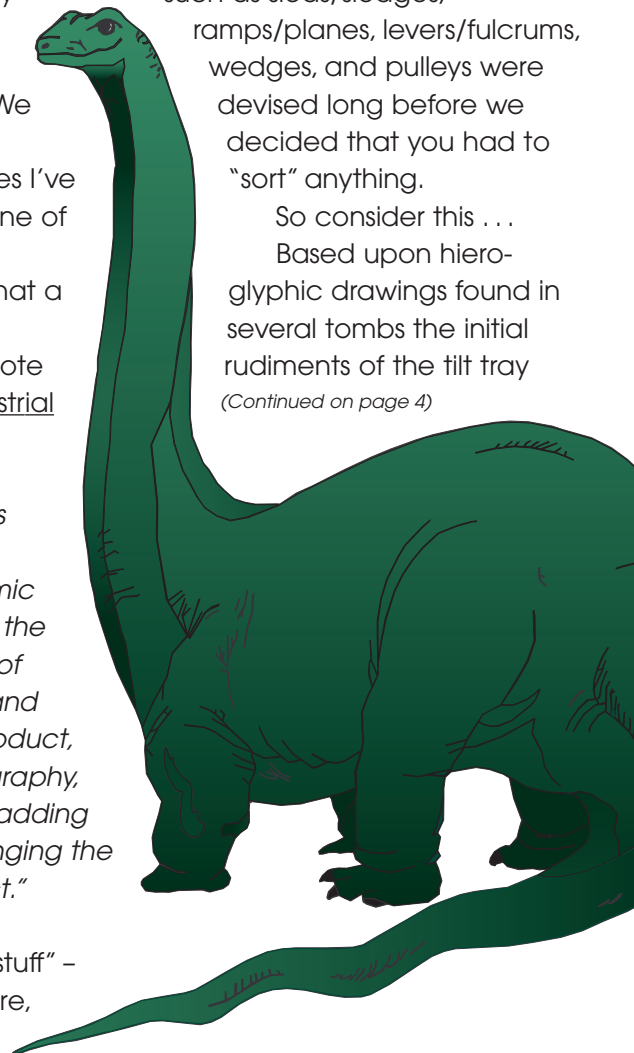
So when did all this start? Some recent articles have used dates like the 1800's and even as late as the 1920's. But as a matter of fact, man started moving stuff from that very first day he/she walked on Earth ("Adam, honey, could you bring me one of those apples?").

There has always been a need for getting equipment, household goods, food, and arms quickly and reliably from one place to another. Innovations such as sleds/sledges, ramps/planes, levers/fulcrums, wedges, and pulleys were devised long before we decided that you had to "sort" anything.

So consider this . . .

Based upon hieroglyphic drawings found in several tombs the initial rudiments of the tilt tray

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## Out of Her Mind



Over the years I've been asked a number of times if David Fortenbery, who as a mere accident of birth happens to be my sibling, has always been an inventive type. My



**Meg McCormick**  
Vice President  
Mantissa

answer is always an unequivocal yes, since as a child I was the unfortunate victim of some of his inventions.

But there was one time when Dave, himself, suffered at the hands of his creative forces. He was in eighth grade and

announced one day that he was supposed to invent something for shop class. For the next few weeks all discussion at our dinner table was commandeered by Dad and Dave's parleying back and forth over this project – since needs and problems seem to drive innovation, that was, of course, the first question. No debate there. My brother's biggest struggle in life was getting out of bed in the morning. It didn't matter how many times the alarm went off or Dad bellowed "feet on the floor!!" Sleeping Beauty wouldn't budge.

Thus the "Automatic Bed Cover Snatcher Off-er" was conceived. A 3ft. square box supported by legs about 2 1/2 ft. high. Mounted on the box would be a pivoting arm with a clothespin attached to the other end. A spring then extended from the box to the same end of the arm as the clothespin. This gizmo would then somehow be wired into Dave's alarm clock. According to the plan, the alarm would go off, releasing the spring, activating the arm, which would then snatch the covers off.

Endless discussions followed. Plywood vs. particleboard? How big a spring? What kind of arm?

For days, Dave came home from school and went straight to the basement to work on his creation in Dad's shop. Banging, sawing, hammering – the delicate genius was obviously at work.

Finally, as with all effective R&D, the time

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came to test the prototype.

The very first Automatic Bed Cover Snatcher Off-er was carefully placed by Dave's bed. The arm was cocked back. The clothespin on the arm was clipped to the upper edge of the bed sheets and covers. The alarm clock set. Big Brother carefully slid between the covers already anticipating, I'm sure, how good his name was going to look on the patent.

In those last moments of darkness the following morning, I was dead asleep in my room across the hall when suddenly the sound of Dave's alarm pierced the silence – Bzzzzzzzzzzzzzzzzzz!

Then a strange grinding noise, and WHHAAAMMMMM!!!! Then a blood-curdling scream Aaarrrrggggghhhhhhh!!!! At that moment, future prospects for any progeny from my sibling were certainly in question.

Technology had just made a giant leap forward. The Automatic Bed Cover Snatcher Off-er had done its job. And then some.

*Meg*

# Mantissa Corporation



Mantissa Corporation, headquartered in Charlotte, North Carolina, was started in 1973. Specializing in high-speed tilt-tray sortation, Mantissa is recognized as one of the leading providers of tilt-tray innovation and technology in the market today. Quality and an attention to detail permeate every project to insure that at Mantissa we truly are developing systems that move industry.

(SOAPBOX...Continued From Previous Page)

sorter were found to be in use during the later stages of pyramid construction on the Plateau of Giza. While the ebony trays worked well the woven papyrus belting caused significant downtime.

While WMDs have been a bit difficult to locate, the Hanging Gardens of Babylon presented its own set of problems to the Royal Engineers of King Senaherib as they needed to bring in water and supplies to take care of those "wonders" suspended on columns. A simple clay bucket conveyor handled this bulk handling requirement by feeding sloping channels.

Or does anyone doubt that the real feat during the Loaves and Fishes Miracle at the Sea of Galilee was the distribution of the fare, not just the "divine" manufacturing? Could this really have been done without the use of automatic induction and discharge chutes?

But seriously in these uncertain times, what about the "art" of war? I'm not talking about the fighting itself, but how to supply and resupply troops and other combatants. While an overwhelming force is still an asset, it has also been proven time after time that a smaller, more mobile and better supplied army can defeat most any enemy. Without food, fuel and ammunition that large militia just becomes a target.

You have to look no further than an old battleship like the Constitution to see the concern given to ensure that the sailors got what they needed in the fastest amount of time. The need has only increased, but the innovations required were always "cutting edge".

Think about the Pyramids, the castles of Europe, the Hoover Dam, and other real examples from history. We work in a world of change and of grand ideas. It's nice to be proud of what we've accomplished during our time, but it is unwise to ignore the advances that have come before us. Without them – there is nothing to build upon.

Sometimes it's nice to be a dinosaur. 

— Jay Kaye

*Okay, so perhaps now you feel inclined to do a little ranting and raving yourself. Sorting Matters invites you to climb up on our soapbox and commence! Submissions will be treated confidentially, but may have to be edited for length and, of course, any potentially libelous situations. For more information contact [jalden@mantissacorporation.com](mailto:jalden@mantissacorporation.com).*



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