

The WAYZGOOSE GAZETTE

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The Evolution of the Linotype

By the mid-19th century, the printing industry had seen the advancement of technology in almost all aspects of the trade except that of typesetting; type was still tediously set and distributed by hand, the same as it was done since the days of Gutenberg. The race was on to invent the machine that would solve the problem. Many entered this race with little success, including such well known figures like Mark Twain who invested his fortunes in the ill-fated Paige Compositor. The honors, however, went to a young German immigrant, Ottmar Mergenthaler, who in 1886 gave the world the Linotype machine, one of the greatest inventions since Gutenberg's perfection of movable metal type.

The process of invention is rarely the result of pure inspiration, but rather a progression of ideas, innovations and experiments that eventually culminate in a new invention or an advancement of a technology. It took Mergenthaler ten years of experimentation with various ideas to finally arrive at the Linotype in 1886. As a young boy in Germany, he had "very successfully handled the rather rebellious village clock," which led Mergenthaler to accept an apprenticeship as a watchmaker; he remained as such until his immigration to America at the age of 18 in 1872. The skills he had acquired working with clocks helped the young Mergenthaler to secure a position in the shop of an instrument maker in Washington, D.C., the city that was the center for all the great inventors and inventions of the world at that time. It was in this environment that the inventive talents of

Mergenthaler were nurtured and developed.

The shop Mergenthaler was associated with moved to Baltimore, and it was there, in August of 1876, that he was approached about the invention of a machine that would "produce by type-writing a print just like that produced from printer's type." The machine, finished in the summer of 1877, was a typewriter-transfer machine for use in the lithography process.

The machine itself functioned accurately and rapidly, but the problems occurred in attempting to transfer the image to the lithographic stone for printing. Apparently, more energy was spent in developing the machine rather than in researching the requirements for lithography, which were more exacting than anticipated. The machine had very limited success, and was eventually abandoned by the inventor in favor of another approach and another process beside lithography.

Mergenthaler's next attempt was in the area of

stereotyping, or "the construction of a writing machine which would impress its characters into papier-maché, and produce type from these matrices by the stereotypic process." The machine was completed by the latter part of 1878, but again, Mergenthaler encountered severe difficulties, this time in the process of stereotyping; the molten metal for casting would cool before filling the mould that contained the matrices. This problem compounded with others, resulting in Mergenthaler's subsequent abandonment of this machine as well.

In 1884, Mergenthaler again attacks the problem,



but this time from a different angle. The machine he invented was a casting machine with brass bars bearing female characters, known as the Band Machine. The machine was very satisfactory, but the matrix bands were not true enough and the operator was unable to see the result of his work until the process was completed, making corrections costly and time-consuming. Mergenthaler concluded that only a machine that conformed closely to the methods of hand-composition would succeed in overcoming the prejudices of the printing trade. He now devoted his time to developing a machine that would cast type from single matrices rather than using the bands, and one that allowed the operator greater control over the results. The machine he developed was the Blower Linotype of 1886, the direct predecessor of the Linotype that became the staple of the printing industry for the next eighty years.

In July of 1886, the first of these machines was completed and placed in the composing room of the New York Tribune, and used to help compose both the daily paper and the first book "printed without type, being the first product in book form of the Mergenthaler Machine which wholly supersedes the use of movable type" (colophon of book). The book,

"The Tribune Book of Open Air Sports," is now a much sought after collectors item. The use of the machine in production at the Tribune on these products exposed some of the weak points in the machine, leading Mergenthaler to introduce the improved Linotype Model 1 in 1890, which is the machine that revolutionized the world and became the standard for machine composition until the late 1960's.

Mergenthaler was a man endlessly devoted to the perfection of his machines, as seen in the persistency he exercised in attempting to solve the typesetting dilemma. The world has yet to give proper credit and recognition to this genius who gave the world an invention that was described by Thomas Edison as the "eighth wonder of the world." The Printing Museum has both a Model 1 Linotype, circa 1894, and a Model 5, circa 1910, in operation for visitors. Come spend an afternoon with us and walk away with a greater appreciation of Ottmar Mergenthaler and of the printing trade in general. And while you're here, make a stop in our gift shop and pick up a copy of the recently published "Biography of Ottmar Mergenthaler," the first reprinting of the book since 1898. The book is also available by mail-order for \$12.95 + shipping/handling and tax.

Heritage Theatre Highlights

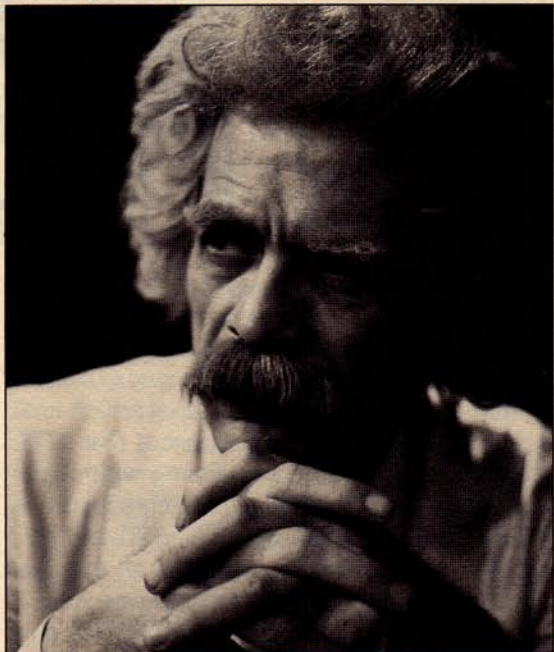
Staff member Sheldon Craig says he gets a regular paycheck to "play around." About three years ago, a friend informed him that there was an audition being held at a printing museum somewhere for a Mark Twain character. The rest is history. The audition was successful, and Craig has never left.

He has been performing since the fourth grade, and has won some awards for his efforts, among them a college acting honor that later became known as the Irene Ryan Award. He was in a production of "The Night Thoreau Spent in Jail," when he captured the notice of the award committee—as well as Broadway director Harold Prince's chief talent assistant. He was asked by Prince's office to audition for the touring company of the musical "Company," but opted instead to concentrate on raising his family.

Now that his oldest son is nearly 22 years old, he has returned to performing as a means towards earning some extra income. He has done numerous of voiceovers (announcements) since 1987, and has been in several local commercials. One was a series of Waterbed Gallery commercials. He was also seen briefly on the NBC show "Unsolved Mysteries."

But, his first love has been the Mark Twain character he portrays at the museum. He has read more

than 30 books, either by or about Twain. "I'm always discovering some-thing new," he said. Contrary to modern opinion, for example, Mark Twain was anything but a racist. Twain was asked by Booker T.



Washington to attend the 25th anniversary celebration of the Tuskegee Institute, in honor of the help he gave many Black Americans back in a time when it wasn't popular.

Sheldon comes by his research abilities through practice. His background is that of a magazine editor and newspaper reporter. He edited *Orange County Guide* and others, and was an employee of *Freedom Newspapers*. He won several local writing awards for his newspaper work, and for some freelance

articles he did for *Orange Coast* magazine.

As to his affinity for printing, he says he used to bother the in-house pressmen at the *Guide* incessantly when they were printing each month's issue. "Since I was the editor, they couldn't shoo me away," he added.

Sheldon's love of the printing and publishing trades is served very handsomely by his work at the Int'l Printing Museum. He has this odd feeling he's found a home.

Friends of the Printing Museum Sponsor Characters of History Exhibit

As a compliment to the character presentations in the museum's Heritage Theatre, a new exhibit has been developed to give a historical perspective on their lives. Sponsored by the Friends of the Printing Museum, the "Characters of Printing History" exhibit details the fascinating lives of Johann Gutenberg, Benjamin Franklin and Mark Twain.

Of the three men, only Gutenberg seems to be commonly identified by the general public with the printing industry, though incorrectly thought of as the inventor of printing. Yet Franklin and Twain both had strong ties with printing throughout their lives beginning with apprenticeships during their youth. Each of these men individually have contributed greatly to world history, with the effects of their life's works being felt even today.

Referred to as the "Father of Printing," Gutenberg is credited with the perfection of moveable metal type and the development of a functional printing press. Though the Chinese are to be credited with the invention of printing in the 5th century AD, Gutenberg can be credited with creating the modern printing industry in the West in the 15th century. His development of the type mold for casting letters accurately is considered the beginning of precision manufacturing since his tolerance for each letter was within one-hundredths of an inch. As a result of Gutenberg's work, printing spread across all of Europe by the beginning of the 16th century with over 12 million books having been produced. This brought an end to an era known as the "Dark Ages" and the beginning of the Reformation and the Renaissance.

Every school child can recall the story of Benjamin Franklin flying a kite in a thunderstorm and discovering or, as some of the children put it, inventing electricity. They might even remember some of his famous witticisms from *Poor Richard's Almanac*. But they are usually surprised to learn that his will began "I, Benjamin Franklin, Printer...." After the

title "Printer" he listed all of the other contributions he was so well known for, including his role as a founder of the country. Yet it was in printing that he took his greatest pride, having begun in the trade at the age of twelve when he worked for his brother James. Franklin was able to retire wealthy from printing at the age of 42, having become America's first millionaire. Printing and books shaped Franklin's life and his intellect, and through printing he in turn shaped the world.

For over 100 years, children and adults have been entertained and amused by the writing of one of America's greatest authors, Mark Twain. Disney has even just released a new movie based on one of his books, "Huck Finn." Though he was known as a writer, Twain was always associated with the printing industry, from his boyhood in Missouri until his passing after the turn of the century. Seldom do visitors know that all of the royalties Mark Twain received from his book *Huckleberry Finn*, published in 1885, were invested in a typesetting machine called the Paige Compositor. Only two of the machines were ever built and it was deemed a monumental failure in 1895, resulting in the loss of Twain's substantial fortunes. The Paige machine was recognized as one of the most complicated machines of the 19th century, incorporating over 20,000 parts.

These and other fascinating details of their lives are presented in window exhibits at the museum. They are designed to give a glimpse at the world in which these men lived and of their many contributions to society. The whole exhibit was made possible with the support of the Friends of the Printing Museum. The annual \$25 membership into the Friends helps to support exhibits such as this one, as well as in the acquisition of new pieces for the museum collection. For more information on the Friends or to become a member, just call the Printing Museum at 714/523-2070. Or visit the museum and take an active tour through history.

England Trip Planned by Museum & Gutenberg Travel

Join the Printing Museum's curator and others on a two-week excursion to England to visit many of the most historically significant sites in the world of printing history. Planned by Gutenberg Travel in conjunction with the Printing Museum, the trip will include three days at the printing industry's largest trade exposition for 1993, the IPEX Show in Birmingham, England.

The trip is scheduled from Wednesday, September 8th through Thursday, September 23rd. Highlights of the trip will include guided tours of London, Westminster Abbey, Tower of London, British Museum, and all the sights with English speaking guides. Other highlights will include Stratford-On-Avon, Warwick Castle, Chester, Bath, Oxford, and York. Additional side trips to give our group a taste of both Wales and Scotland will be included. Cities

now planned include Edinburgh, Scotland, and Caernavon, Wales, with many opportunities for free time and/or shopping.

With the exception of travel dates, we will have trade-related activities on a daily basis. These include visits to the trade show IPEX, manufacturing facilities, museums and historical sites, libraries, etc. Representatives from industry and various historical sites will participate in giving you a glimpse of Britain's contribution to printing history and to the industry's future.

Costs for the package program including airfare, hotels, daily breakfasts and many other meals, ground transportation, tours, and admission to IPEX, will be \$2495 per person based on double occupancy (single supplement \$475). Call Gutenberg Travel to reserve your space: (714) 521-2678.

Notes from the Curator

Research continues on the museum's recent acquisition, the Linotype Junior, circa 1908. Ray Ballash and myself have tinkered on it enough to know the general operation of the machine, though many things are still a mystery to us. Having one of only two machines known to exist can be somewhat difficult at times!

One positive step has been the discovery of a spaceband on the machine, found by Ray at the base of the machine during his cleaning of it. The spacing device consists of a wedge dovetailed to a long bar, though unfortunately they were frozen solid. So while I enjoyed a few days on Catalina Island in April celebrating my anniversary, the long bar soaked in a solution of lemon juice and vinegar at home. When I returned, the two pieces were unfrozen and the spaceband was working again! This is the only spaceband for the machine that we know of and is an important discovery.

A related acquisition was made this quarter when a former Linotype salesman from San Francisco donated a very rare Linotype spaceband, circa 1895. Known as a step-justification band, it was developed by Mergenthaler for use 1895 during patent litigations over the regular Linotype spaceband. Only 220 Model 1 Linotypes used this spaceband, of which we have machine number 180 at the museum on display. Only two of these spacebands are known to have survived. This one came to the museum as a gift of Edward Maggi.

We have two new tours under development at the Printing Museum, designed especially for the

many school children who visit the museum. The first is tentatively titled, "Pages of Adventure: The Reading Tour," emphasizing the exciting possibilities of reading and the ability of a book to take you on an adventure. Through reading and literacy, we can go anywhere in life but also go anywhere in history or the future by picking up a book. The tour will include the museum's theatrical sets and live readings in front of the children.

The second tour, "Pages of Freedom: The Constitution Tour," will be a re-creation of a day at the constitutional convention. Two characters, John Adams and Benjamin Franklin, will interact with each other after a day at the convention in Independence Hall. They will discuss the ideas that may or may not be included in the Constitution and interact with the students for their opinions. The "convention" will end with the students signing their own Constitution. Following the convention, the students will be guided through a display detailing the documents and events that have helped to establish our freedoms, such as the Magna Carta and others. Both tours are set to begin this upcoming fall.

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Mark Barbour, curator and editor
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