100th Anniversary of the Mergenthaler Linotype

Ottmar Mergenthaler, aged 25, in an 1879 photograph.

On the wall at Marlboro Mats in the village of Marlboro, N.Y., is a map of the U.S. that is covered with scores of map pins. These vari-colored pins represent customers for the company’s Linotype matrices, and there are pins in every one of the fifty states of the Union. If anyone doubts that the Linotype is still going strong 100 years after its introduction in July, 1886, a glance at that customer map ought to be convincing.

The Linotype is one of the most important inventions in the history of printing, and represents an American contribution to that history. Although Ottmar Mergenthaler was born in Hatchel, Germany in 1854, and received his early training as a watchmaker in Württemberg, his creative career started and flourished after he arrived in Washington, D.C. in 1872 at the age of eighteen. His first job could not have been more serendipitous: he started work in the scientific instrument shop of August Hahl, the son of his former master in Germany.

For the next four years Mergenthaler’s skill and ingenuity were applied to this work, and his special talents were soon recognized. When Hahl transferred his business to Baltimore in 1876, Mergenthaler accompanied him. One of his first projects there was to correct the defects of a machine intended to produce printing by a combination of typewriting and lithography. The idea for the invention came from James O. Clephane of Washington. Although the machine never yielded satisfactory results, it set Mergenthaler on the path that he was to follow with such revolutionary results in the future.

Clephane then suggested a machine that could punch indented characters into papier-maché, producing type through a stereotype casting. Mergenthaler, after a short examination of the idea, doubted its practicality, but on Clephane’s urging continued. Mergenthaler completed the machine in late 1878, but in spite of much effort Mergenthaler’s misgivings proved correct. Clephane and his associates worked without Mergenthaler until 1884, when they abandoned the project.

After abandoning the Clephane project, Mergenthaler proceeded entirely on his own, and began by rethinking the entire concept. Here we can see the value of the outsider's objective thinking; if Mergenthaler had training in printing it is quite likely he might have attempted another incremental improvement, instead of the revolutionary invention he produced. For at the time of his work, in the 1880s, there were scores of typesetting machines being invented and many were in daily use in this country and in Britain.

Mergenthaler's concept was to produce a machine that did not merely set previously cast type, as the other machines did, but to combine the casting of type with the composition of text in a single operation. With the backing of Clephane and L. G. Hine, a Washington lawyer, Mergenthaler produced a small experimental machine and then, in the fall of 1883, a full-sized machine. This machine continued the use of papier-mâché matrices, but soon a new idea came into Mergenthaler's mind: "Why have a separate matrix at all; why can I not stamp matrices onto my type bars and cast metal into them in the same machine?" By July, 1884 two new machines on this principle were completed. In his own words, "Smoothly and silently the matrices slid into their places, were clamped and aligned, the pump discharged its contents, a finished Linotype, shining like silver, dropped from the machine and the matrices returned to their normal positions." This was the first test of the direct casting band machine of 1884. His backers formed The National Typographic Company, and work proceeded.

A band machine with automatic wedges for line justification was completed in February, 1885, and was seen and complimented by President Chester Arthur. In a speech at the time, Mergenthaler said "I am convinced, gentlemen, that unless some method of printing can be devised which requires no type at all, the method embodied in our invention will be the one used in the future; not alone because it is cheaper, but mainly because it is destined to secure superior quality."

He next realized – somewhat to the dismay of his backers – that single brass matrices would produce superior results, and began work on the new machine. It was tested in the summer of 1885, and was a complete success. A new company called The Mergenthaler Printing Company was organized, and with strong financial backing, it was decided to build twelve of the new machines. The first machine completed was sent to the New York Tribune, where it was used to set part of the paper of July 3, 1886. Before the last of the twelve machines had been completed, Mergenthaler had added nine patented improvements.

Business control of the venture passed into the hands of a group of newspaper owners, who, seeing big profits in the offering, ordered that 100 more machines be built at all speed. Mergenthaler, who saw the possibility of further important improvements, pleaded for time but was overruled. He proceeded with the work, struggling with the problem of producing brass matrices on a commercial scale by means of steel punches, which were then engraved by hand. He was at work on a punch engraving machine when the Benton machine was completed, and Mergenthaler stopped work on his own.

Trouble between the backers (headed by Whitelaw Reid of the Tribune) and Mergenthaler had been brewing for some time; now there came a split. After many bitter letters, he resigned in 1888 and although the syndicate continued to manufacture the Linotype machine, his own company, Ottmar Mergenthaler & Co., continued to make parts and to build the blower machines for the syndicate.

Meanwhile Mergenthaler devised such radical improvements that in 1891 the syndicate joined with him again to form The Mergenthaler Linotype Co., under the direction of Phillip T. Dodge. Bitter feelings persisted, however, and in 1895 Dodge sent a letter to Mergenthaler in which he requested that the inventor allow the company to drop his name from the company title, on the grounds that it was too long, too time-consuming to write out, and subject to misspelling. Mergenthaler refused in a scathing letter: "Hoping to be spared the intended humiliation, I am, Yours Truly, Ott. Mergenthaler." His name remained for the next 88 years (with no apparent detriment to sales) until the present company, in 1983, finally accomplished the action initiated in 1895 by Dodge.

Constantly driving himself to perfect his invention, Mergenthaler contracted tuberculosis in 1894 and began a desperate struggle against the disease. In 1897 he fled to the benign climate of New Mexico, but, sensing he had little time left, he and his children's tutor, Otto Schoenrich, began his biography. The book was published anonymously in 1899, a few weeks before Mergenthaler's death. It is a book full of bitterness at his betrayal by the syndicate, and quiet pride at his accomplishment.

Today, 100 years after its introduction, there is no doubt about the significance of the Linotype in the history of printing. The invention swept all the typesetting machines before it, sharing honors only with the Monotype machine of Toltbert Lanston. In the field of newspaper composition, it was supreme. In 1901 8,000 machines were in use, and by 1954, 70,000. Although the advent of phototypesetting has made the Linotype something of an endangered species, it is unlikely that it will ever by completely extinct. In any case, the company that Mergenthaler began continues into the age of the computer with the leading photocomposition systems. Indeed, it is the Linotype CRTronic desktop digital typesetter that is used to produce this Newsletter. The day has arrived that Mergenthaler alluded to in 1885, "a method of printing ... which requires no type at all," but in the intervening century his inventions made possible the information explosion whose effects are still being felt.

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Further Reading

DIRECTORY
of Members for the Year 1986

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Greenbrook, NJ 07026

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149 Manning Blvd
Albany, NY 12202

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812 1/2 Story Street
Buena, NJ 08310

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Athenaeum Publishers
115 Fifth Avenue
New York, NY 10003

Aikey, Michael
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Albany, NY 12208

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15 A Pratt St.
Providence, RI 02906

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42650 Ferntree Circle
Freeland, MI 48036

Allen, G.M.
21030 S.E. Bay Rd
Sandy, OR 97055

Allen, Helen M
Union Library
101 East 67th St.
New York, NY 10021

Allen, Richard G
Sleepy Hollow Books
14000 Center Street
Moraga, CA 94956

Allen, Sue
170 McKinley Ave
New Haven, CT 06515

Allen, Susan M
5201 Print Avenue
Claremont, CA 91711

Allentuck, Marcia
5 West 85th St. #129
New York, NY 10024

Alma College
Library
Alma, MI 48001

Altman, Benjamin
Married Press
29 Ridgeley Street
Mt. Holly, NJ 08060

Artschul, Charles
1000 Park Avenue
New York, NY 10028

American Antiquarian Society, 185 Salisbury St
Worcester, MA 01609

American Graphic Arts
Attn: John Jacobson
150 Broadway
Elizabethtown, NJ 07206

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1483 Bussard Court
Ardon Hills, MI 48121

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229 Mohawk Dr
Spartanburg, SC 29301

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Charlottesville, VA 22901

Anderson, John
23 East Woodcrest Ave
Mapleside, NJ 08052

Anderson, Anne
26 Rialto Street
Cambridge, MA 02138

Anton-Carwight, Hugh
Books, Maps & Prints
259 College Street
Toronto, M5T 1R4, Canada

Arter, Charles
50 E. 89th St.
New York, NY 10028

APHA Archives
C/O Terry Belanger
516 Butler Bib-Clav Univ Lib SC
New York, NY 10027

Arrall, Julius
102 Domincia Ct.
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Arizona State Univer.
Library Periodicals
Tempe, AZ 85287

Armstrong, Robert D
2192 Denevi Dr.
San Francisco, CA 94110

Asaf, Allen
31-70 347th Street
Astoria, NY 11106

Ashby, Dr. Anna L
300 W. 106th St. #61
New York, NY 10025

Ashley Book Company
Box 304
Burlington, VT 05402

Bacon, Hans M.
82 Edmonds Road
Framingham, MA 01701

Bar, Helen
19972 Lochmoor Dr
Harper Woods, MI 48225

Baker, Helen M.
416 66th Terrace
Kansas City, MO 64131

Bal Fouque, Louis M.
2810 East-West Hwy
Chevy Chase, MD 20815

Ballinger, John
The Boschers
P.O. Box 96
Claremont, CA 91711

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259 Ilion Road
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New York, NY 10001

Bauer, Douglas F.
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New Hampshire Printing House
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Big Rapids, MI 49307

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Evanston, IL 60201

Bebee, Richard W
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New York, NY 10094

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Maribor, IL 05172

Berg, Bruce D.
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Bermuda, George
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Bey Chuy Jer Books
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New York, NY 10562

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360 Linden Walk
Los Angeles, CA 90036

Black, Sheppard
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Alhambra, CA 91801

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68 Mount Usher Street
Cambridge, MA 02138

Blinn, Carol J
Warwick Press
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Easthampton, MA 01027

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San Gabriel, CA 91775

Boles, Howard B
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Blumenthal, Barbara
The Caledonia Press
39 Chapel Street
Normanton, MA 01060

Blumenthal, Joseph
Box 86
West Cornwall, CT 06796

Bogus, Lowell
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Borcher, Gwendolyn
25 Norris Street
New Haven, CT 06511

Bosch, Thomas G
800 West Street
Brookline, MA 02146

Boston Athenaeum
1 1/2 Beacon St.
Boston, MA 02108

Boston Public Library
Serials Reference
P.O. Box 285
Boston, MA 02117

Bottari, Guy R
5052 Craig Ave.
Baltimore, MD 21212

Boutell, Cleva M
10 Millard Drive
Mill Valley, CA 94941

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Buckland, Lawrence F
Orange House
Dunstable, MA 01827

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20 Victoria Drive
S. Burlington, VT 05401

Buff, Jerome H
27 Wathrooke Road
Scarsdale, NY 10583

Buffalo-Berie Public Library
General Information Dept
Lafayette Square
Buffalo, NY 14203

Bullock, Dale
Box 9206
Saratoga, NE 85754

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4437 S. Twomey Avenue
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Bumstead, James
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EDITOR'S NOTES

Mark Hofmann, the Salt Lake City dealer in Mormon documents and discoverer of "The Oath of a Freeman" described in previous issues, was the subject of a hearing on May 22 in Salt Lake City. It was decided that he would be bound over for trial in the fall on two counts of first-degree murder, three homicide charges, and 25 counts of forgery and fraud involving historical documents.

Without going into the details—which are many and complex—as far as the Oath is concerned, this is what has come to light: according to testimony, on March 8, 1985 DeBouzeck Engraving made a printing plate for a "Mike Harris" who gave as his phone number Mark Hofmann's unlisted number. Although the plate was headed "The Oath of a Freeman," the image below it was 19th century sheet music. It has been alleged that from this plate was printed a piece which Hofmann planted at the Argosy bookshop, purchased for $25, and received a receipt dated March 13, 1985. On March 25th DeBouzeck Engraving made another letterpress engraving for "Mike Harris," which had a caption calling it a "Quaker catechism." The remainder of the image appears to be an exact duplicate of the Hofmann "Freeman's Oath." Because the DeBouzeck Engraving negative is in evidence, it has not been possible to make a direct comparison with the printed "Oath." The discovery of the letterpress plate puts new doubt on the authenticity of the "Oath." It may be that the letterpress is still the only method for some kinds of printing.

We thank Hugh Williamson, editor of the Printing Historical Society Bulletin, for his good wishes expressed in the current issue, Bulletin 18. We are also happy that one matter that jarred him (aesthetically speaking), the use of lining instead of old style figures with our Baskerville type, has been corrected. Newsletter 71 had the historically more appropriate old-style figures, which we do prefer.

Bulletin 18, by the way, leads off with a reprint On learning the printer's trade from an English publication, Family Economist, of 1855. It is recommended reading. Also recommended is membership in the Printing Historical Society. For information about membership, in the U.S. write to David Pankow, School of Printing, Rochester Institute of Technology, One Lomb Memorial Drive, Rochester, NY. 14623.

We want to congratulate Rollo G. Silver, who was awarded an honorary Doctor of Letters by Brown University on May 26th. The citation read, in part, "for pioneering work in the field of bibliography and the history of the American printing and book trade industries." The degree of Doctor of Letters seems especially appropriate in this case.

Although the U.S. has yet to honor Ottmar Mergenthaler with a stamp commemorating the 100th anniversary of the Linotype, Germany has done so. We reproduce here the stamp with his likeness and that of his invention. APHA has written the USPS urging a stamp be issued, but there seems little chance that it will happen in 1986.

The APHA Newsletter is published six times yearly by the American Printing History Association. All letters, news items and other material for the Newsletter should be sent directly to the Editor: Stephen O. Saxe, 1100 Madison Avenue, New York, NY 10028. Subscriptions are through membership in APHA, and include all publications. Personal memberships for the calendar year are $15; $20 for U.S. institutions. Membership and other correspondence should be sent to APHA, P.O. Box 4922, Grand Central Station, New York, NY 10016. Copyright © 1986 by the American Printing History Association. All rights reserved.

APHANews

Nominations are being sought for the APHA Individual and Institutional Awards, to be presented in January, 1987. An award will be made to an individual "for a distinguished contribution to the study, recording, preservation or dissemination of printing history, in any special area or in general terms." The institutional award is "for institutions which have sponsored, supported, or themselves made distinguished contributions to the study, recording, preservation or dissemination of printing history." Institutions, whether for profit or not, may submit nominations on their own behalf, or they may be nominated by others. Deadline for nominations is Sept. 19. For further information, or to make nominations, write APHA, Committee on Awards, P.O. Box 4922, Grand Central Station, New York, NY 10016.

The APHA Conference, Sept. 27, has announced its fifth speaker. Edward Edgerton-Williams, the printer of Alecto Editions, will talk about printing from copperplates. He is in charge of printing of a new edition of Audubon's Birds of America from the original copper plates.

Mills College (5000 MacArthur Blvd., Oakland, Calif. 94613) has announced the details of APHA's first annual Lieberman Lecture in typography. The event will take place Thursday, Nov. 6 at the Mills campus in Oakland. Mills offers many master's and undergraduate courses on book arts and history. The speaker will be Claire Van Vliet, the well-known printer and proprietor of the Janus Press in Vermont. She will speak on developments in American fine press printing over the past decade. She will also conduct several workshops for Mills students, and for the public on November 8th. An exhibition of Van Vliet work will also be on view at Mills through the end of December.

NOTES & QUERIES

Janet Butler Munch (Special Collections Librarian, Lehman College, City University of NY, Bedford Park Blvd. West, Bronx, NY 10468) seeks biographical information on A.A. Turner, a photo-lithographer who prepared views and plans in the Hudson River Views series published by Appleton in 1860.

Andrea Swanson (5721 S. Kimbark Ave., Chicago, IL 60637) would like information, sources, and any other material relating to pre-World War I lithographed cigar bands.
Four tons of foundry type is offered for sale at $4.50/lb. by Sylvan Kamm, (3503 Rodman St., Washington, DC 20008, tel. 202-344-4276.) The type, in original wrappers, is from European foundries such as Stephenson Blake, Stempel, Bauer, Haas, Nebiolo, and others. Send $1 and SASE to Mr. Kamm for a copy of the inventory and ordering information.

American Type Founders is offering many of their faces now in stock at a more than 50% reduction from list price, in an effort to reduce overruns. Some of the available faces are Americana, P.T. Barnum, Caslon 540, Cloister, Century, Goudy Oldstyle, and Souvenir. For a complete listing, write to Kingsley/ATF Corp., 200 Elmore Ave., Elizabeth, NJ 07207, tel. 201-353-1000. The company will also accept group orders of 25 of the same font at a 30% discount.

Mr. C.J. Stotts is selling as a unit the Brass Finial Press, which includes a Wesel Washington hand press, Pearl 7\times11, C&P 12\times18, proof press, cutter, saw, and 335 fonts of type in cabinets and 70 fonts of wood type. Inquiries regarding purchase of the shop should be sent to Mr. Stotts, 115 N. Raines St., Plainfield, Indiana 46168, tel. 317-839-7415.

**BOOKS**

With this issue the Newsletter will begin noting and reviewing significant books dealing with the history of printing and its allied arts.

**Book Notes** The Encyclopaedia of Typefaces, 5th edition, is an invaluable reference showing, in large format, most of today's typefaces and a good many of historical importance. A limited reprint of the volume (by W.P. Jaspert, W. Turner Berry and A.F. Johnson) is available through Sterling Publishing Co., 2 Park Avenue, New York, NY 10016.

Other important books dealing with printing history and the book arts are available through The Ayer Company, Publishers, 382 Main St., P.O. Box 958, Salem, New Hampshire 03079. Some of the reprint editions available are: American Dictionary of Printing and Bookmaking (1894); E. Gordon Duff's The Printers, Stationers and Bookbinders of Westminster and London from 1476 to 1535 (1906); Douglas McMurtrie's A History of Printing in the United States (Middle Atlantic States - all issued) (1936); Munsell's Typographical Miscellany (1850); Henry Plomer's English Printers' Ornaments (1924) and William Savage's A Dictionary of the Art of Printing (1841). There are many more.

Robert Oldham, the energetic proprietor of the Mountain Lion Printing Preservation Society (344 White Oak Creek Road, Burnsville, NC 28714) has issued a useful directory of museums which include printing exhibits. There are 120 entries, giving names and address, hours, admission fees, etc. It is available for $3 postpaid from Mr. Oldham. Also available from him is information about the Society's efforts to preserve and protect the tradition of letterpress printing.


Paul Needham, curator of printed books and bindings at the Pierpont Morgan Library, created a stir a few years ago with his hypothesis that the Cathlicon (attributed to Gutenberg) was printed using slugs of type (i.e., stereotype castings of two full lines) rather than individual types. Now he has recorded his discovery of a hitherto unknown printing by Caxton. The account is fascinating, and, I may add, exciting for those of us who enjoy historical discoveries, the sudden opening of a window to the past.

In 1980 Mr. Needham was examining a volume in the Lessing Rosenwald Collection at the Library of Congress. It consisted of four books printed by Caxton, 1479-81, bound together. Mr. Needham noticed that there was printing on the quire guards (long strips of vellum in the center of each gathering, to prevent the sewing thread from pulling through the paper.) Examination of these strips in situ showed that they were sliced from a single, previously unrecorded broadside indulgence, printed in Caxton's type 4 (1480-84.) They were binder's scraps, probably from Caxton's bindery. The book was disassembled once again (it had been rebound in about 1530) and the quire guards were examined in more detail.

There were 12 strips in all, including some strips cut from additional copies. When they were assembled in the proper order, some were missing, probably lost during the 1530 rebinding. The indulgence had been issued before the end of 1481 by the Hospital of St. Mary Rownceval at Charing Cross. St. Mary Rownceval was notorious for fund-raising of this sort, and indeed Chaucer's Pardoner was from this hospital.

Mr. Needham has written not only about his discovery, but also about Caxton, indulgence printing in England, and St. Mary Rownceval, in lucid prose that is a pleasure to read. The descriptions are necessarily detailed and technical, but no reader with an interest in the subject need be deterred. It is a clear and fascinating account.

In addition to the account of the discovery, appendices give the complete text of the indulgence; a sample list of Caxton's books bound together in single volumes; and a complete, revised checklist of Caxton's printing at Cologne, Bruges, and Westminster. Among the numerous illustrations is a pullout sheet displaying the quire guards at actual size. Alas, from this illustration it is difficult to visualize the look of the original indulgence. The vellum has warped with time, so it is not possible simply to place the strips next to each other; but surely computer imaging could un-warp the vellum strips and could give us a good idea of the original broadside's appearance. I cannot say whether this has ever been tried in a similar instance, but I think it could yield interesting results.

The Printer & the Pardoner has been designed by Stephen Harvard using Monotype Bembo and printed by the Meriden-Stinehour Press. Both have done their work impeccably as always. In short, this is a book of scholarship and discovery. It adds to our knowledge of Caxton, the first printer of English, in a text that is a pleasure to read. This is a rare combination: savor it.

- S.O.S.