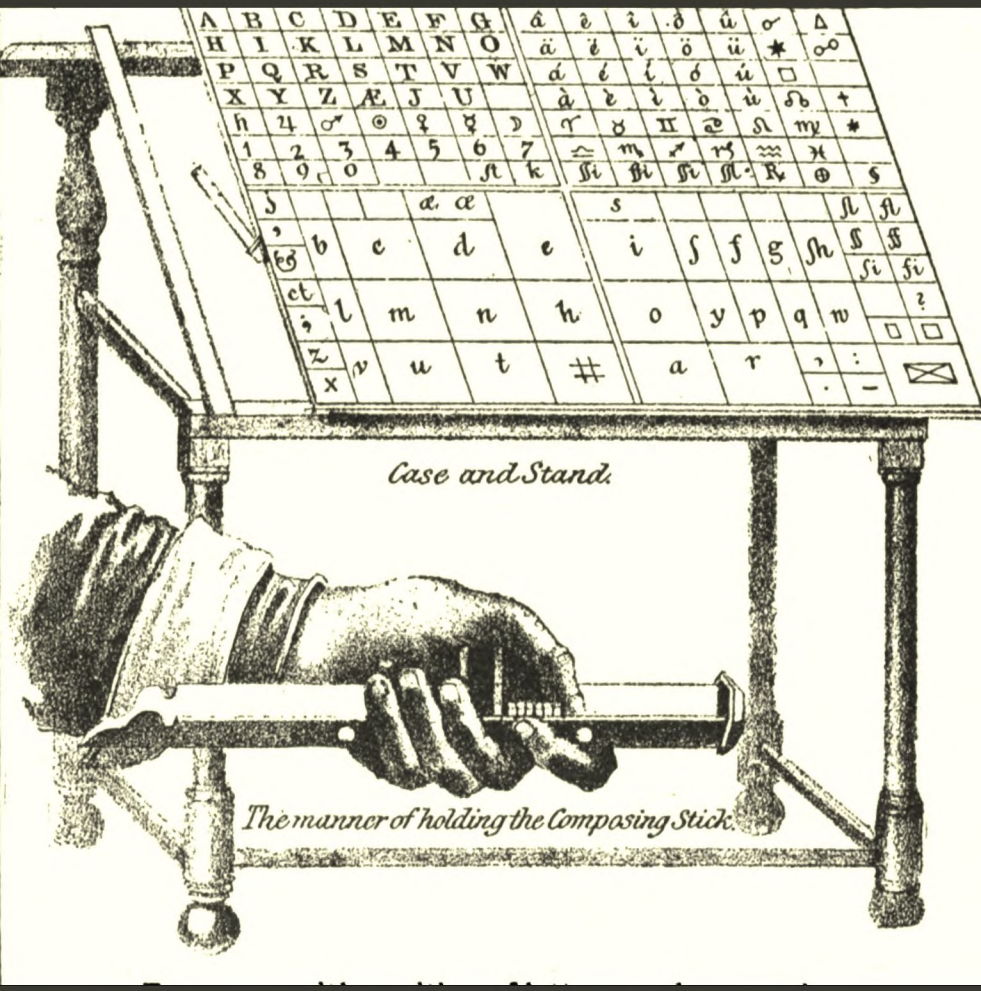

The American Handbook of Printing

Edmund Geiger Gress, Oswald Publishing Company

*1P!

The American Handbook of Printing

Colophon (title page) of Schœffer's Psalter, one of the first printed books (1457)
With wood-cut two-color initial

Handbook of Printing

containing

[illegible] and sam[illegible]

[illegible] every [illegible]

[illegible]

[illegible] Designs [illegible]

[illegible]

[illegible]

The American Handbook of Printing

containing
in brief and simple style
something about every department
of the
Art and Business of Printing

By
Edmund G. Gress
Co-Author "The American Manual of Typography"
Author "Type Designs in Color"

Second Edition

New York
Oswald Publishing Company
1909

"It is not what we read, but what we understand that makes us wise"

Foreword

THIS VOLUME was written because such a book is needed. In these days of specialism a printer must get his knowledge in other ways than by actual experience. The business of printing has grown to such proportions that those who have to do with it must have information on the subject that heretofore has not been available in book form.

This Handbook is a short-cut to a printing education; it is a reference book. Being in close touch with the practical side of the printing business, I know what information is needed and have tried to give it without waste of words.

I claim that there is more information about printing in this volume than has ever before been given in a book of its size. I have not tried to tell all there is to tell about every subject discussed, but just enough to give an understanding of the principles of each. In the matter of machines, for instance, the modern inventor is so prolific of ideas that it would be impossible to follow him in detail.

Believing that knowledge of the history of the several subjects will give a more intelligent understanding of the practical side, I have divided each chapter into "Historical" and "Practical" parts. Those who prefer so

Kennedy 16 Aug 1937

to do, may turn directly to the practical information, of course, but the historical portions will be found interesting.

This work has been made possible by many months of hard work and some sacrifice of pleasure, supplemented by encouragement given the author by John Clyde Oswald, editor of *The American Printer.*

All the leading authorities have been consulted, but my own personal judgment has decided every detail in the make-up of the book.

EDMUND G. GRESS.

New York, March 29, 1907.

Contents

[The information in this book is divided into eighteen chapters under proper headings, and each chapter subdivided into "Historical" and "Practical" portions, making it easy to find information wanted.]

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The American Handbook of Printing

CHAPTER ONE

Introduction

[Historical]

BEFORE the invention of separate printing types the methods of communication were the spoken word, the carved word, and the written word.

The first of these methods, the spoken word, used from the beginning of time, has transmitted to posterity many interesting traditions.

Carving on stone was, logically, the first material method adopted to perpetuate thought. The Ten Commandments were cut on two tables of stone. Lead was also used as a material upon which to engrave.

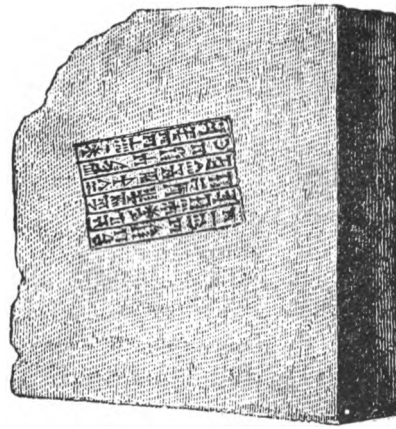
Subsequently writing-tables (or tablets) were used; made of wood, whitened, and written upon with a black fluid; or covered with wax and written upon with a metal pencil.

The Egyptians wrote upon papyrus, using a reed, sharpened and split at the end like the modern pen. Papyrus, a plant common in Egypt at the time, was cut into strips, soaked in water, pressed, dried, and polished, giving a smooth, hard surface.

The Babylonians and Assyrians scratched characters upon soft clay with instruments of metal or bone. It was also their custom to stamp characters and pictures upon

tablets and cylinders made of soft clay, which was afterward hardened by baking. This was the first resemblance to printing, in the methods of the ancients.

Pictures, as means of conveying thought, were valued by the people of old, much as modern illustrations are relied upon to assist the reader to a quicker understanding.



Brick of clay stamped by the Babylonians
The first resemblance to printing

The hieroglyphics (or picture writings) of the Egyptians, carved upon stone walls and monuments, are interesting in this regard.

The American Indian sent picture-messages, painted upon the bark of trees or burned upon skins of animals.

Parchment (the skin of the sheep or the calf) as a material upon which to inscribe important records, was used extensively by the Hebrews and other nations. It

was sometimes dyed a rich color and written upon with gold.

Scrolls, as a form for preserving manuscripts, were much used. Papyrus or parchment was fastened together into a long strip and rolled around a wooden rod at each end. While being read, the roll was unwound at one end and rewound at the other.

Paper was first made of papyrus, bamboo, or grass, beaten to a pulp, pressed into a sheet, and dried.

The artists of the monasteries, who were depended upon to write the books before printing was invented, used a fine quality of handmade paper. Some of the books are still preserved and are really wonderful because of the perfect lettering, the magnificent decorations, and the superb bindings.

Printing from raised surfaces, the forerunner of present methods, was known to the Chinese in the year 900. Playing cards and crude illustrations were made by them. Wooden blocks were engraved upon; all portions not to be printed being cut away from the surface.

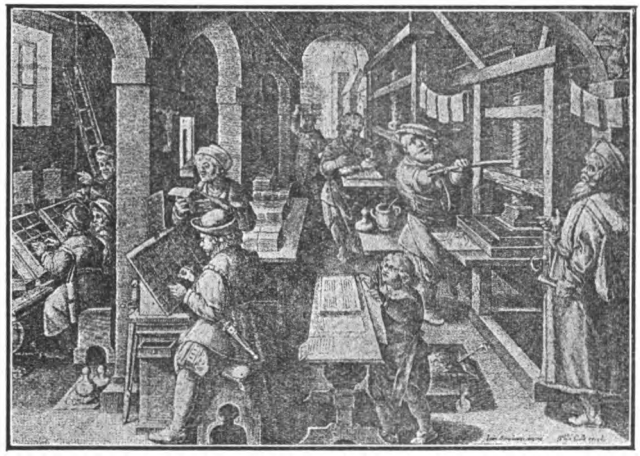
Stenciling (painting through cut-out portions of a thin piece of metal) was an important method of coloring block prints. A Roman emperor of the Sixth Century, who was unable to write, used a stencil in affixing his signature.

Invention of Movable Types

With every crisis or need history records the "Man of the Hour." When the condition of society demanded a quicker method of making books, John Gutenberg of

Mainz, Germany, was the man to show the way. Paper and ink were to be had, and all that was needed was a process whereby many words could be composed from an alphabet of separate letters.

Gutenberg, about 1450, discovered that separate letters, called type, could be cast in a mold from



A printing office of the Fifteenth Century

lead. It has been claimed that the first separate types were cut from wood, but this claim is seemingly disproved by the regularity and evenness of the letters of the first printed books.

Gutenberg was financially assisted in getting the necessary equipment by John Fust (or Faust). In 1455, Fust won a lawsuit brought by him against Gutenberg

and came into sole possession of the printing material.

During his few years of active work Gutenberg is supposed to have printed the first great book of the new process, the famous Latin Bible of Forty-two Lines, so-called because of the number of lines to the page; and also called the Mazarin Bible because a copy was once

Franklin in a London printing-office

discovered in the library of Cardinal Mazarin in Paris.

Peter Schoeffer, son-in-law of John Fust, after Gutenberg's retirement took practical charge of the print shop and did excellent work. Fust and Schoeffer produced a book of Psalms, commonly known as the Psalter, which is said to be the finest of early printed books. It was rubricated and decorated by hand.

In the year 1500 interest in the new invention of typography had so spread that presses were set up in more than a hundred towns and cities. Early books were on theology, law, and medicine.

Italy became the home of many printers who were destined to become famous in printing history, and Venetian typography of those days is now considered classic. Nicholas Jenson, who perfected the Roman face of type, and Aldus Manutius, who introduced the italic face, are two famous Fifteenth Century printers of Venice.

Anthony Koberger about this time went into the printing business on a large scale in Nuremberg, Germany. He is said to have had twenty-five presses in operation.

The house of Elzevir in Holland was famous in two centuries as printers and publishers.

Christopher Plantin, a printer and publisher of Antwerp, Belgium, is well known as the printer of the Polyglot Bible of 1570, and is also noted because of his custom of employing artists and scholars to assist in the production of books which were in many languages.

The first English printer was William Caxton, who in 1480 had a press in Westminster Abbey. On his death he was succeeded by Wynkyn de Worde, an associate.

Printing in America

The first printing press in what is now the United States was established under the charge of Stephen Daye in 1639 at Cambridge, Mass.

The first boke of Moses, called Genesis.

Fo.

The first dayes worke. The seconde dayes worke. The thirde dayes worke.

The fourth dayes worke. The fifth dayes worke. The sixte dayes worke.

The first Chapter.

IN the begynnynge God created heauen and earth: and the earth was voyde and empte, and darcknes was vpon the deepe, and the spirite of God moued vpon the water.

And God sayde: let there be a firmament betwene the waters, and let it deyde the waters a sunder. Then God made the firmament, and parted the waters vnder the firmament from the waters above the firmament: And so it came to passe. And God called the firmament, heauen. Then of the euenynge and morynge was made the seconde daye.

And God sayde: let the waters vnder heauen gather them selues vnto one place, that the drye lande may appeare. And so it came to passe. And God called the drye lande, Earth: and the gatherings together of waters called he, the Sea. And God sawe that it was good.

And God sayde: let the earth bringe forth grene grasse and herbe, that beareth sede:

Page from the first Bible printed in English (1535)
Showing the six days of creation

A famous early American printer was William Bradford, who established a press near Philadelphia about 1685. He was made public printer of New York in 1693 and removed to that city.

The first American publication was "Publick Occurrences" issued in Boston in 1690.

Among the Americans who have done much in the last two centuries in advancing the cause of printing, may be mentioned:

Benjamin Franklin, who in 1732 issued "Poor Richard's Almanack."

David Bruce, who in 1813 introduced stereotyping into America.

Richard M. Hoe, who about 1846 invented the first really rapid cylinder press.

Samuel Rust, who in 1829 invented the present style of hand press: the "Washington."

Isaac Adams, who in 1830 invented a platen press of large capacity.

David Bruce, Jr., who in 1838 invented the first typecasting machine.

George P. Gordon, who about 1858 invented the Gordon style of platen press.

William Bullock, who in 1861 constructed the first web perfecting press for newspapers.

Merritt Gally, who in 1869 invented the "Universal" style of platen press, and John Thomson, who in recent years improved it.

Otto Mergenthaler, who (1876-1886) invented the Linotype machine.

Talbert Lanston, who about 1888 invented the Monotype machine.

C. G. Harris, who in 1892 invented the "Automatic" job press.

Leander K. Bingham, who first made composition rollers on a large scale by the "gatling" process—a group of molds.

Henry Barth, who invented the first successful automatic type-casting machine.

Theodore L. DeVinne, who wrote several valuable books on printing.

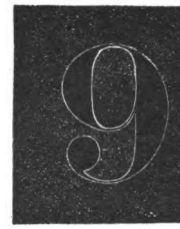
Will Bradley, who since 1896 has done much to increase interest in good commercial typography.

[Practical]

There are three methods of printing: (1) From *raised* letters, (2) from *sunken* letters, and (3) from *surface* letters.

Copperplate

Typography



Lithography

(1) Printing from *raised* letters, known as letter-press printing, and typography, is more familiar to the average person than are the other two methods.

The letters are cast upon the ends of pieces of lead, and are then known as types.

These types arranged and secured in a chase (an iron frame) are known as a form, which is placed on a press. Ink is automatically placed on the letter ends of the types by rolling with soft composition rollers, and the paper is printed by being pressed against the face of the form.

(2) Printing from *sunken* letters (intaglio) is known as steel-die and copperplate printing. The letters or design are cut into the smooth surface of steel or copper, the incisions filled with ink, and the surface wiped clean. The paper is then pressed against the steel or copper plate, which causes the ink from the cut-out portions to adhere to the paper.

(3) Printing from *surface* letters is known as lithography. The letters or design are sketched or transferred with a greasy ink on a special stone that absorbs moisture. After the design is dry the surface is dampened and inked with rollers. The dampened stone repels the ink, which adheres only to the greasy portions containing the letters or design. The paper is pressed against the stone and the design is printed on it.

The first method of printing (with raised letters) is the one to which the several chapters of this book are chiefly devoted. It is today recognized as one of the chief arts and industries.

There are printing offices equipped to do a general line of commercial printing; there are some devoted only to book publishing, some to newspaper publishing, some

chiefly to magazine publishing, and some almost exclusively to catalogs and booklets.

The offices for general commercial work are the most numerous. The smaller ones, doing their own display composition and small presswork, find it profitable to have undisplayed copy, known as straight matter, set on linotype machines in neighboring newspaper offices or book offices. Extensive forms of press work are also done outside, in the larger offices.

These larger offices are equipped with either Linotype machines, which cast solid lines of type, or Monotype machines, which cast single types. Automatic type-casting machines for making hand-set type are sometimes a part of the equipment of such offices. The metal display types, or jobbing letters, are in series of sizes, generally from six point body (one-twelfth of an inch) to seventy-two points (one inch).

Wood types are made in sizes from forty-eight point to a foot, and are used for display card and poster work.

The furnishings of printers' composing rooms are much neater than formerly. Hardwood cases, holding the types, are fitted in dust-proof cabinets of oak or mahogany finish.

Type is cast in sizes based on a series of points (about seventy-two to an inch) and the faces are made to align with each other.

Wood and metal furniture and quoins, used in placing and securing type forms in "chases" ready for the press are made more accurate and time-saving than ever before.

In pressrooms will be found platen presses for small

work such as business cards, bill heads, programs and circulars; and cylinder presses for large forms and halftone printing. In some offices a machine automatically feeds the large sheets of paper into the press.

Special presses for various purposes (color printing, embossing, numbering, steel-die printing, etc.) are found in many offices.

The printer has choice of a large variety of papers. Coated paper for halftone printing is made in finishes from the dull to the glossy superfines. Cover stocks come in many hues, shades and finishes; writing stocks in bond, linen and plain finishes.

The very large offices have within their walls departments equipped to produce in every detail the finest booklets and catalogs. A staff of artists to design, and photoengravers to make, the halftone and line plates; electrotypers to duplicate the pages; men to layout the work in detail, bookbinders to complete and ornament the finished product.

Proprietors and managers dictate business correspondence by means of the phonograph or graphophone; a system of time-tickets and job-records enables the manager to know at any time the status of an order in process of manufacture, and time-clocks record the coming and going of employees.

Years ago the printer "in business" was proud that his was the "art preservative of all arts"; now the printer cares chiefly to be a business man, to make a profit. If at the same time he may do something for art, well and good, but he must have the profit.

CHAPTER TWO

Type Making

[Historical]

A TYPE is usually a small piece of metal upon the end of which is cast a letter of the alphabet.

When the idea of movable types occurred to Gutenberg it is probable that his first experiments were with characters carved on wood. Finding wood impracticable for small faces, he thought out the process of making types by casting melted lead and tin in a mold, in a manner similar to the way bullets were made.

It is likely that Gutenberg and other early printers hired goldsmiths to cut the punches from which were made the molds for type casting.

It was with metal-cast types (in size equivalent to twenty points) that the first great work of printing, the Forty-Two Line Bible, was produced. Only large sizes of type were used during the first fifty years of the new process, the smaller sizes beginning to appear about the year 1500.

From the time of Gutenberg, (beginning about 1450) until the year 1625, printers cast their own types.

Type, which is now made at a uniform hight of .918 of an inch, in the early days varied from three-quarters of an inch to an inch and a half in hight.

In the year 1637 in England was enforced a decree limiting the number of typefounders to four.

William Caslon (1720) was the first successful type founder in England.

The first foundry in the United States was established near Philadelphia about 1735 by Christopher Sauer.

Making type in 1564

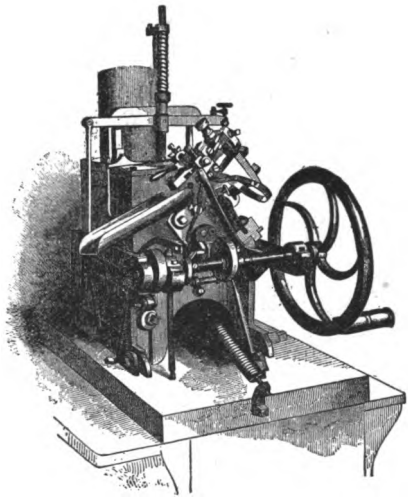
In 1775 Benjamin Franklin brought material for a foundry from Europe to Philadelphia, but made little use of it.

A Dutch founder, Adam Mappa, did business in New York about 1787.

In 1796 Archibald Binny and James Ronaldson commenced casting type in Philadelphia, having acquired

the tools of several existing foundries. Their success was such that the foundry is in existence to-day, as the Philadelphia branch of the American Type Founders Company, and recently known as MacKellar, Smiths & Jordan.

Types were cast exclusively by hand until 1828,



Bruce type-casting machine

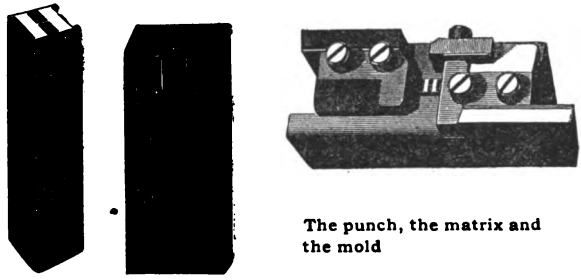
when an idea for a casting machine was patented by William M. Johnson; but the first successful type-casting machine was invented by David Bruce, Jr., of New York in 1838.

Henry Barth, lately of the Cincinnati Branch of the American Type Founders Company, in 1888 invented an

automatic type-casting machine which cast and finished the types at a rapid rate.

The old method of typemaking was to first design the letter on paper, and then sketch and cut it on soft steel. The steel model was then hardened and became the punch.

The face of the punch was then forced into a strip of copper, which when finished became the matrix. From



The punch, the matrix and the mold

this matrix, types were cast singly by hand or by machine.

Punches were exclusively used until about 1865 when an American invented the method of cutting an original in type metal and making a copper electrotype matrix therefrom.

Until recent years type was cast on bodies known as Nonpareil, Long Primer, etc., each foundry having a slightly different standard of size.

In 1878, Marder, Luse & Co., typefounders of Chicago, introduced the point system now used in America. Their

foundry was previously destroyed by fire and this condition enabled them to adopt a point system without loss. The system was based upon the pica body made by MacKellar, Smiths & Jordan, which as a basis was considered equivalent to twelve points.

In 1886 the United States Typefounders' Association investigated the system, and in 1887 adopted it.

As far back as 1737 Fournier, a Frenchman, suggested a system of points for type bodies, which called for twelve points to a pica, six picas to an inch.

In 1894, when the Inland Type Foundry was started, William Schraubstadter introduced a system of alignment for all type-faces called the Standard Line. This system is now used under various names by all American foundries.

Before 1880 but one or two sizes of each style of letter was made. Now all type is made in series from 6 to 72 point.

Type is now cast, in connection with the process of composition, on the machine known as the Monotype.

The Linotype, another "typesetting" machine, casts all the words of a line at one time. An attachment is sold in England by which the Linotype can be made to cast single types.

Some large printshops have type-casting machines in their composing rooms to supply sorts as needed.

Most of the large type foundries, and a number of the smaller ones, about twenty in all, were in 1892 merged into what is now the American Type Founders' Company.

Other type foundries in America to-day are:

The Inland Type Foundry, St. Louis, started in 1894 by William, Carl, and Oswald Schraubstadter, three sons of Carl Schraubstadter who had been one of the owners of the Central Type Foundry.

The Keystone Type Foundry, Philadelphia, started about 1885 by N. W. Ayer & Co. for the purpose of making type to exchange for advertising space.

Barnhart Bros. & Spindler, Chicago, started in 1868 as the Great Western Type Foundry, the Barnhart Brothers being newspaper publishers, and Mr. Spindler, a practical typefounder.

A. D. Farmer & Son, New York, which firm is the successor of the one time well-known Farmer, Little & Co. (1861). This foundry originated with Elihu White, who cast type in New York in 1810.

H. C. Hansen, Boston, started in 1872 by Mr. Hansen, who came from Norway.

Bruce Type Foundry, New York, started in 1813 by David and George Bruce, two Scottish printers.

[Practical]

Type, from which most printing is done, is composed chiefly of lead. Antimony, a brittle and more valuable metal, is added to harden the type metal, and tin, copper or nickel is also added in small quantities. The exact proportion used of these different metals is kept secret by the typefounders.

Less antimony is used in the metal from which are

made spaces, quads, leads, slugs and metal furniture. The metal used for the Linotype and Monotype machines need not be as hard as type metal, although really soft metal is never satisfactory for printing purposes.

How Type is Made

A letter is cut on the end of a piece of steel with the aid of a special engraving machine. This is known as the punch, which is forced into a piece of brass, making the matrix. From this matrix the face of the type is cast.

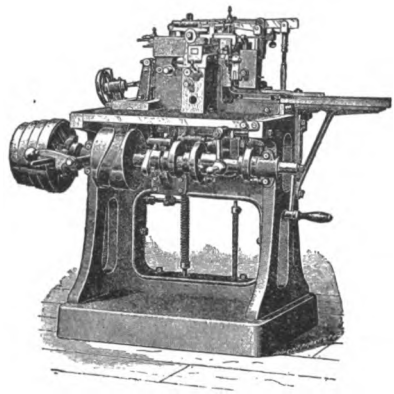
There is also the method of directly making the matrix by drilling the letter into a piece of copper or German silver.

The process in use at the Inland Foundry is more intricate, but superior results are claimed by its users. A drawing about six inches high is first made of each character, from which by the aid of a pantagraph a one-fourth reduction is traced in electrotyper's wax, with the result like that of an impression of a type.

As is done in electrotyping, this wax mold is placed in a depositing bath until a shell of copper is formed, and is then backed with lead. This electrotype serves as a pattern letter.

The letter is next cut on the polished end of a piece of lead, resembling a space or quad, by a finely adjusted routing machine with pantagraph attachment for tracing from the pattern letter. This gives a type which is called an original.

The original is then inserted in a mortised piece of brass and immersed in a nickel bath. A nickel coating



Barth automatic type-casting machine

forms and becomes the matrix from which the actual type is cast. It takes about nine days to form a coating for a six-point matrix, and about five weeks for seventy-two point.

The matrix thus made is only for the face of the type, a finely adjusted mold forming the body as the hot metal is forced in.

Type is now cast automatically upon machines. Hand

molds have been discarded except for large sizes for which more time is required for metal to set, and even the Bruce casting machines are superseded by those of more rapid and thorough mechanism.

Small types, as six and eight point, are made more rapidly than large ones, such as eighteen and thirty-six point, and harder metal is used for the smaller types.

In casting, one or more grooves, known as nicks, are made in the side of the body toward the foot of the type face. These nicks act as guides in placing the types in the composing stick, and also in distinguishing one font from another of the same size body.

A type is mostly solid metal, the letter on the type reaching to a depth of only one-sixteenth of an inch to the shoulder.

The Point System

Types are cast on a series of body sizes, which were but recently designated by names, but now by the number of points, and known as the "point system."

This system as used in America, is twelve points to a pica, six picas equaling approximately .996 of an inch. This is so near an inch that the printer is none the wiser.

The MacKellar pica was used as a standard and nearly every type body, excepting the nonpareil and pica of that foundry and such foundries as had used its standard, was changed.

Leads (filling the small spaces between lines) are either one point or two points in thickness.

"Quotation" metal furniture is cast to picas (12

Showing the sizes of type in the lower-case from six-point to seventy-two point

Six Point
Eight Point
Ten Point
Twelve Point
Fourteen Point
Eighteen Point
Twenty Point
Twenty-four Point
Thirty Point
Thirty-six Point
Forty-two Pt.
Fifty-four
Seven ty-two Point

points) and the sizes are 2x4, 2x5, 2x6, 3x4, 3x5, 3x6, 4x4, 4x5, 4x6, 5x5, 5x6, 6x6. Metal and wood furniture for filling blank space can be had in larger sizes.

New Names	Old Names
Four-Point	Brilliant
Four-and-a-half-Point	Diamond
Five-Point	Pearl
Five-and-a-half-Point	Agate
Six-Point	Nonpareil
Seven-Point	Minion
Eight-Point	Brevier
Nine-Point	Bourgeois
Ten-Point	Long Primer
Eleven-Point	Small Pica
Twelve-Point	Pica
Fourteen-Point	English
Sixteen-Point	Columbian
Eighteen-Point	Great Primer
Twenty-Point	Paragon
Twenty-four-Point	Double Pica
Thirty-Point	Double English (28) Double Columbian (32)
Thirty-six-Point	Double Great Primer
Forty-two-Point	Double Paragon (40) Double Meridian (44)
Forty-eight-Point	Canon

The point system and the old titles

Agate (5½ point) is a standard of measurement for advertisements in magazines and newspapers. Type on eight-point body is used by many newspapers, and eleven-

point body is required by law in some States on briefs and law books.

In job offices type on six, eight, ten, or twelve point bodies is useful in large fonts for setting the masses of reading matter. Since the extended use of the Linotype and Monotype, typefounders have devoted more attention than formerly to making job faces.

Fonts of Type

A font of type includes the letters of the alphabet, and points and figures, in proportion to the amount of each ordinarily used.

Job fonts are designated as 5A, 8a, etc., being the number of capital A's and lower-case a's to the font. In such fonts other letters are in this proportion:

Capitals: (5A)

Six E's.
Five each of I, N, O, R, S, T, period, comma.
Four each of C, L, 0 (cypher).
Three each of D, F, G, H, M, P, U, 1, apostrophe.
Two each of B, J, K, V, W, Y, &, $, 2, 3, 4, 5, 6, 7, 8, 9, hyphen.
One Q, X, Z, semi-colon, colon, exclamation and interrogation point.

Lower case: (8a)

Ten e's.
Eight each of i, n, o, r, s, t.
Five c, d, f, h, l, m, u, period, comma.
Three b, g, j, k, p, v, w. y.
Two q, x, z, hyphen, apostrophe.
One semi-colon, colon, exclamation point, and interrogation point.

Spaces and quads do not come with job fonts.

Body type, such as is used for the reading portions of newspapers, books, and magazines, comes in weight-fonts, of 25, 50, or 100 pounds.

Quads and spaces are included in and compose one-fifth of such fonts. If quads and spaces are not wanted the fonts will then consist of 20, 40, or 80 pounds, respectively.

A fifty-pound body-type font is made up in this proportion:

Capitals	5	pounds
Small Capitals	1½	"
Punctuation marks	2½	"
Figures	2	"
Lower-case	29	"
Spaces	5	"
Quads	5	"
	50	pounds

Of course, a 100-pound font would be double these amounts, and a 25-pound font one-half in each case.

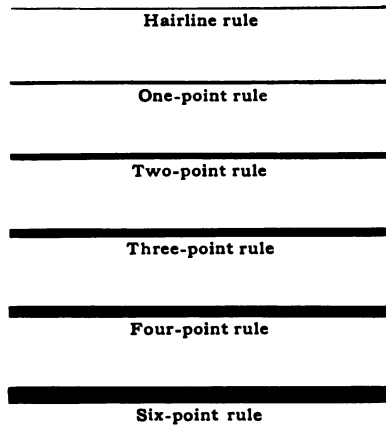
When sorts are needed they can be quickly furnished by the type-founder if ordered in these proportions. For example, if figures are needed an order for two pounds will bring them without delay. A miscellaneous quantity of sorts must be made to order.

Sometimes a few letters in a job font are required at once, and if requested the type-seller may take these sorts from fonts on his shelves, replacing them later from the foundry.

Some job faces can be had at body prices and it is wise to purchase eight, ten, twelve and fourteen point in that way.

Type made of hard maplewood, the letters being cut out by machinery, is used for sizes larger than seventy-two point.

Brass is used for making rules which contain on their faces lines of various widths, some of which are shown below. When one-point face is wanted on two-point body, it is well to have it flush to one side of the two-point rule. This allows of panels being easily made. Another time-saving scheme is to have rule mitered on both ends, by which method panels of any size are possible, with close joints at the corners.



CHAPTER THREE

Type Faces

[Historical]

THE face of the type is the really important element in the production of printing. The type-maker, compositor, pressman, ink-maker, and paper-maker, all give their share of attention to the details of the product, but what the reader actually sees is the print of the type-face.

An artistic type-face counts heavily in the designing of an artistic page, while a face without character will give commonplace results.

The best type-faces in use to-day are those dating back one hundred and fifty to four hundred and fifty years, and the best printing is done with a combination of not more than two such harmonizing faces.

When Gutenberg began to print with movable types (1450-1455) he used a type-face known as Black Letter, based upon the style of lettering then in vogue with copyists.

The essential qualities of this face are found in the type-face used in Old English printing by Wynken de Worde, and are present in the type-faces known to-day as Cloister Black and Caslon Text.

This letter is Gothic in character, its pointed strokes

Liber generationis ihesu xpi
filij dauid: filij abraham:
Abraham genuit ysaac:
ysaac autem genuit iacob.
Iacob autem genuit iudam et fratres eius:
iudas autem genuit phares et zara de
thamar. Phares autem genuit esrom:
esrom autem genuit aram. Aram autem
genuit aminadab: aminadab autem ge-
nuit naasson. Naason autem genuit salo-
mon: salomon autem genuit booz de raab.
Booz autem genuit obeth ex ruth: obeth
autem genuit iesse. Iesse autem genuit da-
uid regem: dauid autem rex genuit salo-
monem ex ea q̃ fuit urie. Salomon autem
genuit roboam: roboam autem genuit
abyam. Abyas autem genuit asa: asa
autem genuit iosaphat. Iosaphat autem
genuit ioram: ioram autem genuit ozi-
am. Ozias autem genuit ioathan: io-
than autem genuit achaz. Achaz autem
genuit ezechiam: ezechias autem genuit
manassen: manasses autem genuit am-
mon. Ammon autem genuit iosiam:

Portion of Gutenberg's Bible of 1455

rex iudeorum. Hunc ergo titulum multi legerunt
iudeorum quia prope ciuitatem erat locus ubi cru-
cifixus est iesus: et erat scriptum hebraice grece et la-
tine. Dicebant ergo pilato pontifices iudeorum.
Noli scribere rex iudeorum: sed quia ipse dixit. Rex
sum iudeorum. Respondit pilatus. Quod scripsi
scripsi. Milites ergo cum crucifixissent eum acceperunt
vestimenta eius et fecerunt quatuor partes vnicuique
militi partem vnicam. Erat autem tunica non
consutilis desuper contexta per totum. Dixerunt ergo
ad inuicem. Non scindamus eam sed sortiamur
de illa cuius sit: ut scriptura impleretur dicens.
Diuiserunt sibi vestimenta mea sibi et in veste mea
miserunt sortem. Et milites quidem hec fecerunt.
Stabat autem iuxta crucem iesu mater eius et so-
ror matris eius maria cleophe et maria mag-
dalene. Cum vidisset ergo iesus matrem et de-
cipulum stantem quem diligebat: dixit matri
sue. Mulier ecce filius tuus. Deinde dixit dis-
cipulo. Ecce mater tua. Et ex illa hora accepit
eam discipulus in sua. Postea sciens iesus
quia omnia consummata sunt: ut consummaretur
scriptura dixit. Sitio. Vas autem positum erat
aceto plenum. Illi autem spongiam plenam aceto

Manuscript missal written about 1455

suggesting the prominent features of Gothic architecture and is claimed to be an imperfect shaping of the old Roman letter from the fact that copyists wrote with a reed and rounded lines were naturally made with that tool.

This is a ROMAN LETTER

Roman letters had been employed in manuscript books from the Fifth to about the close of the Twelfth Century, after which Black Letter came gradually into use.

Roman capitals, excepting J, U, and W, are imitations of letters carved in stone by the early Romans. J, U, and W, were added as their use became necessary. The small or "lower case" letters are after characters made by Italian and French copyists.

About 1470, fifteen years after the invention of printing, Roman letters again came to be used principally through the influence of Jenson, a printer of Venice, Italy. In 1580 there were more Roman type-faces used than any other.

The Roman type-face used by English printers in the Sixteenth and Seventeenth Centuries (see page 60) had some of the characteristics of the present-day Cheltenham and French Old Style.

Italic, a slanting style of letter, the companion face to Roman, fashioned after the handwriting of Petrarch, an Italian poet, was first cast about 1500, and named italic in honor of Italy. Only lower-case letters were made, Roman capitals being used with it. When italic capitals were made flourishes were added to some of the letters, which became known as "Swash capitals."

Italic types were used by Aldus and others for text pages of books.

The type-face used in the first book printed in English, by Caxton about 1474, was of Flemish origin. It was not as black a letter as that used by Gutenberg, yet possessed character and was legible. Caxton Black was made a few years ago but for some reason is not now in use. It is a worthy face and should be again revived.

William Caslon, an English type-founder, about 1734 made himself famous by cutting a Roman letter which is to-day the most popular type-face in existence. It is now made by all type foundries and in several strengths of line.

This is CASLON OLD STYLE

The Caslon face fell into disuse about 1810, when the modern Romans were introduced. It was revived in 1843, and continued in use only by the best printers until 1894, when the revival of colonial typography popularized it.

The beginning of the Nineteenth Century saw the introduction of the type-face known as the modern Roman. Its peculiarities are the contrasting hair-lines and heavy down strokes, designed after a letter used by an early Italian printer, Bodoni.

This is MODERN ROMAN

This style of type-face has been used continually for a hundred years on books and newspapers.

During the last century a taste for ornamental type-

GUTENBERG, WEIN, 1855.

Hans Holbein's Dance of Death,

ON STENOGRAPHY

1ST. CIRCULATING LIBRARY 172[illegible]

A Memoir on the Origin of Printing; Addressed to

Manuale Tipografico,

NATIONAL LIBRARY, PARIS, 1550-1803, BY

DEROME, BOOK-BINDER, PARIS, 1550

Ueber die Geschichte der Erfindung der

Le Champ Fleuri, Paris

Connecticut Journal & New Haven Post-Boy

Quousque tandem abutere, Catili-

[illegible]

GUIDE PRATIQUE DE COMPOSITEUR

Fancy type-faces found in the specimen books of 1880

faces developed, and in a type foundry specimen book of 1880 is found hundreds of fancy faces such as are shown on the page facing this one. No types of this kind are now found in specimen books.

The trend of present-day type-faces has been toward simplicity and legibility. In 1892, seven hundred and fifty distinct type-faces were contained in the specimen books of the foundries that were merged into the American Type Founders Company. In 1906 this company's specimen book contained but two hundred and twenty-five distinct faces.

William Morris, at the Kelmscott Press, in 1890, used but two faces of type, and Will Bradley, at the Wayside Press, in 1896, had but Caslon, Caslon italic and Old English, showing that many faces are not needed to do good printing.

When type-faces were made in series of fifteen sizes, it was a decided innovation. Now type-faces are made in families: Cheltenham, for instance, is cast in eight different series: Cheltenham, Cheltenham Italic, Cheltenham wide, Cheltenham bold, Cheltenham bold italic, Cheltenham bold condensed, Cheltenham bold condensed italic, and Cheltenham outline.

[Practical]

Type-faces, as used in America, are of four kinds: Text, Roman, Block (called Gothic), and Italic.

About a hundred standard faces, from the various type foundries, are here displayed, set in twelve point.

Each line contains all but six letters of the alphabet, and also shows the style of punctuation marks and figures. Beneath each line of type on the left is the trade name of the face; the two letters on the right indicate the foundry which makes it.

Text Faces

Text letters are so called because, first, such letters were used by early printers for the text (or solid reading) portions of the printed page, and, second, because they are at present used for such purpose in Germany.

CLOISTER BLACK: Patterned after the type-face used by Gutenberg. It was called "Black Letter" to distinguish it from the Roman letter, which was of lighter tone; and called "Old English" because it was much used by early English printers. Used on books of devotion by copyists and printers. Is of the pointed Gothic style.

FLEMISH BLACK: Lower-case letters are same as Cloister; capitals are of Flemish origin.

TUDOR BLACK: A round form of Black Letter, used in early days on printing less formal in character than the books of devotion.

CHURCH TEXT: A less conventional design of the early Black Letter. Perhaps based upon some old manuscript book, as each copyist had his own style of lettering to more or less extent.

SCHWABACHER: A style of text-letter much used in German printing for the display.

FRACTUR: Commonly used for the reading portions of

Mixed Typografic Alphabet 1907
Cloister Black am

Mixed Typografic Alphabet 1907
Flemish Black am

Mixed Typografic Alphabet 1907
Tudor Black ke

Mixed Typografic Alphabet 1907
Church Text am

Mixed Typografic Alphabet 1907
Schwabacher ke

Mixed Typografic Alphabet 1907
Fractur ke

Mixed Typografic Alphabet 1907
Washington Text ke

Mixed Typografic Alphabet 1907
Tell Text ba

Mixed Typografic Alphabet 1907
Abbey Text fa

Mixed Typografic Alphabet 1906
Becker in

Mixed Typografic Alphabet . . 1907
Cathedral Text am

Mixed Typografic Alphabet 1907
Chaucer Text am

Mixed Typografic Alphabet 1907
Tudor Black Outline ke

books and newspapers by the Germans. Originated in the Fifteenth Century.

WASHINGTON TEXT: A graceful modification of Old English. The round letters are smaller in proportion to the capitals, than are those of Cloister Black.

TELL TEXT: Also called Satanic. Introduced by William Morris; copied from a round Gothic letter used by German printers of the Fifteenth Century. Called by Morris "Troy" type.

ABBEY TEXT: Originally designed by Will Bradley. A distinctive, densely black text type, now little used.

BECKER: A round modification of Bradley's text.

CATHEDRAL TEXT: A fat-face black letter, of contrasting heavy and light strokes. Looks well with the chap-book style of typography. Originally cut by Bruce.

CHAUCER TEXT: A condensed text letter with the easy lines familiar in hand-lettering.

TUDOR BLACK OUTLINE: Used with Tudor, for two-color printing, or alone when a light gray tone is desired.

Roman Faces

The Roman letter is used in America for books, newspapers, and for all kinds of commercial printing.

CASLON: The best and most popular jobbing and book letter ever made. Cut by William Caslon about 1734 and much used during Colonial days. It harmonizes well with Old English and with old-style ornaments and decoration.

OLD STYLE: Based on the Caslon, but more delicate,

Mixed Typografic Alphabet 1907
Caslon O. S. with modern figures in

Mixed Typografic Alphabet 1907
Old Style No. 59 ba

Mixed Typografic Alphabet 1907
Lining Ronaldson O. S. No. 551 am

Mixed Typografic Alphabet 1907
Lining Caxton O. S. No. 2 am

Mixed Typografic Alphabet. 1907
French O. S. ke

Mixed Typografic Alphabet 1907
Cheltenham O. S. am

Mixed Typografic Alphabet 1907
Kenilworth in

Mixed Typografic Alphabet 1907
Avil in

Mixed Typografic Alphabet 1907
Wayside Roman am

Mixed Typografic Alphabet 1907
Scotch Roman fa

Mixed Typografic Alphabet 1907
Modern Roman No. 510 am

Mixed Typografic Alphabet 1907
Condensed No. 2 in

Mixed Typografic Alphabet 1907
Aldine ba

Mixed Typografic Alphabet 1907
Boldface ba

and of lighter tone. A modernized Old Style such as this was first made in 1851 in Scotland. The figures are of the kind that once accompanied all old style faces, but are not now made, because of their irregularity.

RONALDSON: A slightly modified Old Style. Note the added angles at top of the "T."

CAXTON OLD STYLE: A recently cut type face, handsome in appearance, and slightly decorative, containing some of the characteristics of both the old style and modern Romans.

FRENCH OLD STYLE: Fashioned after a face used by Dutch printers, the Elzevirs, in 1634, one hundred years before the Caslon face was cut. Its capitals are said to be closely copied from the carved letters of the Romans. This type-face was becoming popular in America, about 1880-1890, when Caslon was revived, and supplanted it.

CHELTENHAM: Drawn by Bertram Goodhue, an artist, for Ingalls Kimball of the Cheltenham Press. It is a monotone face; the round letters are small and the ascenders long. Cheltenham much resembles the Roman lettering in the music portion of Schoeffer's Psalter of 1459, and the Roman type-face used by English printers before the advent of Caslon.

KENILWORTH: A letter similar to Cheltenham, but not as strong in tone.

AVIL: A graceful old style Roman letter similar to Pabst.

WAYSIDE ROMAN.

SCOTCH ROMAN: Modern Roman letters, of Black

Mixed Typografic Alphabet 1907
Century Expanded am

Mixed Typografic Alphabet 1907
Extra Condensed No. 2 fa

Mixed Typografic Alphabet 1907
French Clarendon ba

Mixed Typografic Alphabet 1907
Lining Jenson O. S. No. 2 am

Mixed Typografic Alphabet 1907
Antique O. S. ke

Mixed Typografic Alphabet . . . 1907
Dorsey in

Mixed Typografic Alphabet . . 1907
Caledonian ba

Mixed Typografic Alphabet 1907
Clarendon ba

Mixed Typografic Alphabet 1907
Cheltenham Bold am

Mixed Typografic Alphabet 1907
Lining Cushing O. S. No. 2 am

Mixed Typografic Alphabet 1907
Richelieu ke

Mixed Typografic Alphabet 1907
Laureate ke

Mixed Typografic Alphabet 1907
Caslon Old Roman ba

Mixed Typografic Alphabet 1907
John Alden ke

tone, originated in Edinburgh. They have some of the characteristics of the Caslon, and are the most popular of modern Romans. D. B. Updike, of the Merrymount Press, Boston, imported the first font of Scotch Roman face into America, and says it is the "best example of a face cut upon modern lines."

MODERN ROMAN: A Roman of modern design, light in tone with thin hair lines and heavy down strokes. This face is representative of the class of modern Romans, as distinguished from Old Style Romans. Modern Romans are used on newspapers, and to a certain extent on books and catalogues.

CONDENSED: A modern Roman letter used on title pages by DeVinne and other conservative printers.

ALDINE: A prominent representative of the modern family of Roman title letters. Note the contrast in thickness of the strokes.

BOLD FACE: A fat-face of the Aldine style.

CENTURY EXPANDED: Originally designed in more condensed form by Theo. L. DeVinne for the *Century Magazine*. A monotone letter, supposed to be more easily read than the conventional modern or old Romans.

EXTRA CONDENSED: Showing the old-time method of "squeezing" many words in a line.

FRENCH CLARENDON: A face popular twenty years ago. DeVinne says it is of Italian origin, and calls it Italian Antique. "Clarendon" as a name was also applied to various Antique letters, and goes to prove that names are often misleading.

Mixed Typografic Alphabet 1907
Runic Condensed fa

Mixed Typografic Alphabet 1907
McFarland in

Mixed Typografic Alphabet 1907
Caslon Bold ke

Mixed Typografic Alphabet 1907
Della Robbia am

Mixed Typografic Alphabet 1907
Grasset am

Mixed Typografic Alphabet . . . 1907
DeVinne ha

Mixed Typografic Alphabet . . 1907
Post O. S. No. 1 am

Mixed Typografic Alphabet . . 1907
Hearst in

Mixed Typografic Alphabet 1907
Pabst O. S. am

Mixed Typografic Alphabet 1907
Powell ke

Mixed Typografic Alphabet . . 1907
Talisman ba

Mixed Typografic Alphabet 1907
Roycroft am

Mixed Typografic Alpha 1907
Plymouth Bold ba

Mixed Typografic Alpha 1907
Doric ba

JENSON OLD STYLE: Adapted from the "Golden" type of William Morris (1891), which in turn was copied from the type-face used by Jenson in 1470; one of the first Roman type-faces.

OLD STYLE ANTIQUE: An Old-Style modification of a Roman face called "Antique." A standard letter for artistic printing; also called Bookman, Stratford, etc.

DORSEY: Similar to Old Style Antique.

CALEDONIAN: An old member of the family of Antiques.

CLARENDON: So called because made for the Clarendon Press, Oxford.

CHELTENHAM BOLD: Cheltenham strengthened in tone.

CUSHING: A recent design of a condensed Antique.

RICHELIEU: The same.

LAUREATE,

CASLON OLD ROMAN,

JOHN ALDEN: Jobbing letters of designs just a trifle different from other Romans.

RUNIC: A face much used twenty-five years ago.

MCFARLAND: French Old Style with strengthened lines.

CASLON BOLD: A heavy cut of the Caslon face, recently introduced by all founders. Supposed to give the effect obtained in olden days when printing was done with well-inked type on dampened paper by means of the hand press. The great popularity of this face proves the merit of the Caslon letter.

DELLA ROBBIA: Suggested by letters cut in stone by

Luca Della Robbia, an Italian sculptor of the Fifteenth Century. The capitals look well when used alone for display.

GRASSET: A decorative letter of French design.

DEVINNE: A graceful, strong Roman, based upon the Caslon, but with characteristics of its own. Notice the resemblance to Caslon Bold. Also made in condensed and extended faces.

POST OLD STYLE: Originated by an artist of the *Saturday Evening Post,* and used for headings. A free-hand lettered effect, neither an Antique nor a Gothic, but Old Style in effect.

HEARST: Suggested by Post Old Style.

PABST: Designed by F. W. Goudy. A handsome decorative letter in the lower-case. This letter was the first type-face of recent years to contain the idea of long ascenders, the small round letters being but half the hight of the capitals.

POWELL,

TALISMAN: Similar to the Hearst, and also based on Post.

ROYCROFT,

PLYMOUTH BOLD: Heavy faced modifications of the Post.

DORIC: A heavy-faced Antique. Notice the precision of lines and serifs, as compared with the modern preference for free-hand lettered effects.

FOSTER: A recent cut of the Antique family. Companion to the Webb for color printing.

WINCHELL: In design, half Antique and half Bold

Modern Roman. The double-dotted lower-case "i" originally made with this letter did not prove popular, and is no longer furnished.

JOHN HANCOCK: Similar to the Winchell, with heavier strokes and larger round letters.

BEWICK ROMAN: Similar to the condensed Winchell, but with peculiarities of its own. Note the direction of the cross stroke, or serif, at top of the "h" and "b."

CELTIC: A rather neat member of the Antique family, of pleasing gray tone, much used by the *New York Herald,* but little used elsewhere.

Gothic Faces

Gothic, really misnamed, is a type-face of even strokes without serifs (or crossed stems), also called "Block letter." It is a rude imitation of early Roman letters, but is a neat jobbing letter when used in capitals only.

SKELETON GOTHIC: A light-face Gothic.

STANDARD GOTHIC: A heavy-face Gothic.

MATTHEWS,

CORBITT,

FRANCIS,

GLOBE GOTHIC,

STUDLEY: These faces have the characteristics of the Gothic, but also have the heavy down strokes of the Roman letter.

BOLD PASTEL: A slightly decorative Gothic.

COMSTOCK: A rimmed Gothic, suggesting the imitation lithographer's letters in vogue about 1875, but better and more simple.

Mixed Typografic Alphabet 1907
Foster in

Mixed Typografic Alphabet . . . 1907
Winchell in

Mixed Typografic Alphabet . . . 1907
John Hancock ke

Mixed Typografic Alphabet 1907
Bewick Roman am

Mixed Typografic Alphabet . 1907
Light-face Celtic fa

Mixed Typografic Alphabet . 1907
Skeleton Gothic No. 19 ke

Mixed Typografio Alphabet . . 1907
Standard Gothic ke

Mixed Typografic Alphabet . . 1907
Matthews in

Mixed Typografic Alphabet . . . 1907
Corbitt in

Mixed Typografic Alphabet . . . 1907
Francis in

Mixed Typografic Alphabet 1907
Globe Gothic am

Mixed Typografic Alphabet . . . 1907
Bold Pastel ba

Mixed Typografic Alphabet 1907
Studley in

Mixed Typografio Alphabet . . . 1907
Comstock in

LATIN ANTIQUE: An Antique very close in style to the Gothic; popular twenty-five years ago.

Miscellaneous Faces

15TH CENTURY: An imitation of the crude Roman lettering of five hundred years ago. Suitable for "old style" printing.

TABARD: A modification of a type-face known as Schoeffer; contains the new feature of long ascenders, and is a legible face, with pleasing individuality.

BULLETIN: A face derived from modern brush lettering.

CAMELOT: A delicate and pretty Roman letter, of even strokes, suitable for printing in which daintiness is required. Capitals are similar to the face known a few years ago as Mural.

WEBB: The outline and companion letter to the Foster. Used for color printing.

DE VINNE OUTLINE: The outline and companion letter to DeVinne. Much used by city newspapers because of its gray tone.

SIX-POINT TYPEWRITER: For use in printing miniature facsimile typewriter letters.

REMINGTON TYPEWRITER: Used in imitation typewriter printing. By using a piece of China silk stretched from grippers, the effect of the machine typewriter is obtained.

RIBBON-FACE TYPEWRITER: By ordinary printing methods an impression direct from this type resembles the work of a poor typewriter.

Mixed Typografic Alphabet . 1907
Latin Antique fa

Mixed Typografic Alphabet 1907
Fifteenth Century ba

Mixed Typografic Alphabet 1907
Tabard am

Mixed Typografic Alphabet 1907
Bulletin ke

Mixed Typografic Alphabet 1907
Camelot am

Mixed Typografic Alphabet 1907
Webb in

Mixed Typografic Alphabet 1907
DeVinne Outline ke

Mixed Typografic Alphabet.....1907
Six Point Typewriter No. 1 in

Mixed Typografic Alphabet....1907
Remington Typewriter in

Mixed Typografic Alphabet . 1907
Ribbon-face Typewriter am

MIXED TYPOGRAFIC ALPH
Missal Initials am

A B C D E F H L M O I R S T W
Hearst Initials in

MIXED
Ad-Style Border ba

Missal Initials: Based upon the initials which copyists used preceding important words in the old written books. Are very effective, used in place of the regular initials of either Old English or Antique Old Style. Similar initials known as Caxton and Sylph are even better because of their darker tone.

Hearst Initials: Representing the many excellent initials, which are now available to the printer. Based on the Hearst type-face.

Italic Faces

Italic, a slanting Roman, is called script by the layman. It differs from script as the printer knows it, in that its letters are not joined. It is copied after handwriting, however—the handwriting of Petrarch, an Italian poet of the Fourteenth Century.

Italic is not as legible as Roman, but because of its decorative character is an artistic letter for certain work. DeVinne and other book printers use it for the preface of a book.

Italic was used by the colonial printer for side notes, and to give variety to the typography of his Caslon pages.

Until the introduction of the Linotype, Italic was generally used for emphasis, for foreign words, and names of publications.

All Roman body letters are provided with their Italics, and many of the jobbing faces also have companion Italics.

In these days, when the compositor is taught to use

Mixed Typografic Alphabet *1907*
Caslon O. S. Italic in

Mixed Typografic Alphabet *1907*
O. S. Italic No. 59 ba

Mixed Typografic Alphabet *1907*
Lining Ronaldson Italic No. 2 am

Mixed Typografic Alphabet *1907*
Modern Roman Italic No. 510 am

Mixed Typografic Alphabet *1907*
French O. S. Italic ke

Mixed Typografic Alphabet *1907*
Lining Cushing Italic No. 2 am

Mixed Typografic Alphabet *1907*
Wayside Italic am

Mixed Typografic Alphabet *1907*
Century Expanded Italic am

Mixed Typografic Alphabet *1907*
Lining Law Italic No. 522 am

Mixed Typografic Alphabet *1907*
Lining Law Italic No. 520 am

Mixed Typografic Alphabet *1907*
Lining Caxton O. S. Italic No. 2 am

Mixed Typografic Alphabet *1907*
Cheltenham Italic am

Mixed Typografic Alphabet *1907*
Kenilworth Italic in

Mixed Typografic Alphabet *1907*
Pabst O. S. Italic am

one series of type faces, Italics afford a happy medium for introducing variety into the composition.

The Italic faces shown have the characteristics of their Roman mates, with a touch of decorative effect due to the slanting of the letters.

The two Law Italics are familiar to printers of law blanks and such work. Law Italic No. 522 is really the Italic mate of the old Runic, and is similar to the Italic of the Century Expanded.

Engravers' Faces

These type-faces are imitations of lettering used by steel and copperplate engravers. They are useful in stationery printing in approximating the results of engraved stationery, but should not be used in general job printing.

English Script: Used for cards and invitations. The cheapest style of lettering of the copperplate engraver, and because of its delicate lines the most expensive for the printer to use.

French Script: Introduced into America by Tiffany. A handsome letter for invitations. Made also in slanting design.

Inland Copperplate: Also called Tiffany Text. An imitation of a text letter introduced by copperplate engravers; for use on calling cards and wedding invitations, and not appropriate for commercial printing.

Plate Text: Another imitation of copperplate engraving. Somewhat like the text faces used shortly after modern Roman was first introduced.

Mixed Typografic Alphabet . . . 1907
Caslon Bold Italic ke

Mixed Typografic Alphabet . . 1907
Talisman Italic ba

Mixed Typografic Alphabet 1907
English Script in

Mixed Typografic Alphabet 1907
French Script in

Mixed Typografic Alphabet 1907
Inland Copperplate in

Mixed Typografic Alphabet 1907
Plate Text ba

Mixed Typografic Alphabet 1907
Engravers' Old English am

MIXED TYPOGRAFIC ALPHABET..1097
Blair in

MIXED TYPOGRAFIC ALPH . 1907
Copperplate Roman am

MIXED TYPOGRAFIC . . . 1907
Tiffany Gothic am

MIXED TYPOGRAFIC ALPHA 1907
Brandon in

MIXED TYPOGRAFIC 1907
Engravers Bold am

MIXED TYPOGRAFIC 1907
Plate Gothic ba

Caslon Bold
Cloister Text

Old Style Antique
Caslon Bold

Caslon
Colonial style

For
Religious
printing

Pabst Old Style
Old Style Antique

Cloister Text

Post Old Style
etc.

Post Old Style, etc.

Type-faces most appropriate for certain kinds of ornamentation

ENGRAVERS' OLD ENGLISH: A handsome face for stationery printing, but often misused on commercial printing.

BLAIR: A neat, light Gothic, for cards and dainty stationery work.

COPPERPLATE ROMAN: A close imitation of the lettering of the copperplate engraver, with frail hair lines.

TIFFANY GOTHIC: An engravers' Gothic, with slight suggestions of the Roman character.

BRANDON,

ENGRAVERS' BOLD: Copied after the Roman of the engravers.

PLATE GOTHIC: A strong, pleasing engravers' Gothic, that will wear well.

CHAPTER FOUR

Type Composition

[Historical]

Book Composition

THE first type composition was done in imitation of the arrangement and style of the manuscript books. The copyists' style of lettering was closely imitated also, as will be seen by comparison of the Gutenberg and manuscript pages reproduced in the chapter on Type Faces.

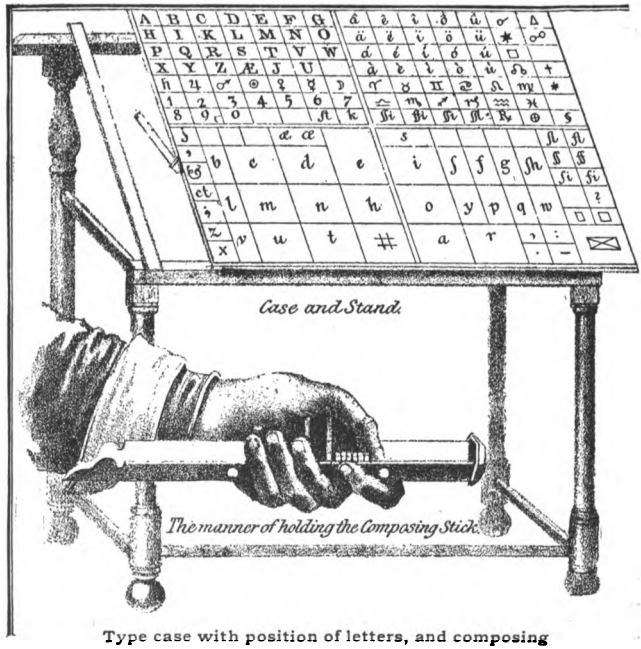
Manuscript books were usually written in two columns, the pages being previously marked off in faint lines that served as guides to the copyist. These lines were afterward imitated in printed books, and even today are to be found on book pages which are designed in imitation of early typography.

Gutenberg, in the first Bible printed by him, left blank spaces for initials and other decoration. The printed sheets were then illuminated and bound according to the taste and purse of the purchaser.

Other printers sometimes printed a small Roman letter in the space left blank for the initial, to prevent the wrong initial being placed there by the illuminator. This custom probably originated the square wood-cut initial with the small letter in the center.

The dark-gray tone of the parallel columns of Black Letter, in contrast with surrounding liberal white margins, produces a pleasing effect, as is demonstrated by the reproduction of the page printed at Haarlem, in Holland (1484).

Instead of separating the different thoughts into paragraphs as is done to-day, a dab of red was put on the letter beginning such new thought, a custom copied from the rubricators of manuscript books.

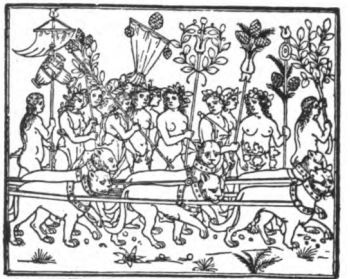


Type case with position of letters, and composing stick, of the year 1683

Ende mael veel goets
heeft v minnēde sie
le mijn gheselle dē
sesten oudē geleert
voer mi hoe ghi vā
buten leuen selt vo
re den mēschen tot
enen goeden exempel te geuen Ech
ter ick leuende oude wil v minnende
siel leren die const die v inwendich esi
wtwēdich nut esi noottuftich is daer
ghi mede ghestoert moecht werden
dat v leuen den gulden throen mach
ōdienen des ewighen leuens Want
nu te mael veel goets esi veel quaets
ontspringhet ende gegeuen wert vā
quaden ghedachten esi woerden. esi
dat daer toe horet dat seer veel is soe
xviij

is minnende siel seer noottuftich dz
ghi ghersteliike diergē daer in wel be
siet daer om dat ghi toecomende sca
de des te bet ontlopen ende ontuliē
moghet Dat sept hieronimus totter
ionctrouwen demetriades Illo wat
ghi v schamet te seggē dat selti v oeck
schamen te dencken esi een seker esi eē
volcomen ghewoentheit houdē dat
uwe moet vitrich siel esi wakende esi be
hoedich hoe ghi wel bekennen mo
ghet alsulcke ghedachten. welc men
behouden sel. of welck men verwer
pen sel Ook echter dat ghi quade ghe
dachten verdrinet esi goede gedach
ten paste behout want de ieckten is eē
oersprōc ende beginsel alre daden
ende oet boser sonden. Esi wat goets
of quader werchen ymmermeer ghe
daen werden dat wert voer ontfan
ghen into becoringhen der ghedach
ten. Daer om raet ons cesarius wa
ringhe esi spreect Di sellen aenmaen
goede gedachten te hebben esi te mi
nen soe werden wi verledicht vandē
boesen ghedachten die ons aen woer
den ende aen werchen aen siel esi aen
sōt ghescaden mogheu want wy dyc
ghedachten sijn een oersprongh ende
een saeck van vele goets esi quaets.
esi hoer nyemāt in deser tōt can noch
en mach ledich staen Hoe leer ic seuē
de oude v minnēde siel hoe ghi in al
len ghedachten houdē selt esi welc v
goet sijn of scadelic sijn wāt tē is ghe
ne dinc soe goet ghi en moecht daer
quaet wt dencken esi sondelike ghe
dachten daer wt trecke esi maken en
de die wise comen vā des mēschen ō
c ij

Page in Dutch, printed at Haarlem, in 1484



LA MVLTITVDINE DEGLI AMANTI GIOVENI, ET DILLE DIVE AMOROSE PVELLE LA NYMPHA APOLI PHILO FACVNDAMENTE DECHIARA, CHI FVRO NO ET COME DAGLI DII AMATE. ET GLI CHORI DE GLI DIVI VATICANTANTI, VIDE.

SALCVNO MAI DI TANTO INDEFESSO ELO quio aptamente se accommodarebbe, che gli diuini ar chani disertando copioso & pienamente potesse euade re & uscire. Et expressamente narrare, & cum quanto di ua pompa, indestinenti Triumphi, perenne gloria, festi ua lætitia, & fœlice tripudio, circa a queste quatro iuisi tate seiuge de memorando spectamine cum parole sufficientemente exprimere ualesse. Oltragli inclyti adolescentuli & stipante agmine di innumere & periucunde Nymphe, piu che la tenerecia degli anni sui elle prudente & graue & astutule cum gli acceptissimi amanti de pubescente & depile gene. Ad alcuni la primula lanugine splendescēte le male inserpiua delitiose alacremente festigiauano. Molte hauendo le facole sue accense & ardente. Alcune uidi Pastophore. Altre cum drite hastie adornate de prische spolie. Et tali di uarii Trophei optimamente ordinate

Page printed by Aldus at Venice in 1495

in duo, à summo usq; deorsum. Videns autem centurio qui ex aduerso stabat, quia sic clamans expirasset: ait. Verè hic homo, filius dei erat. Erant autem & mulieres de longe aspiciēte: inter quas erat Maria Magdalene, & Maria Iacobi minoris & Ioseph mater, & Salome, & cum esset in Galilæa sequebantur eum, & ministrabant ei, & aliæ multæ quæ simul cum eo ascenderant Hierosolymam. Euangelium.

ET cum iam sero esset factum (quia erat parasceue quod est ante sabbatum) vēnit Ioseph ab Arimathæa nobilis decurio, qui & ipse erat expectās regnum dei. Et ausus est introiuit ad Pilatum, & petijt corpus Iesu. Pilatus autem mirabatur si iam obijsset. Et accersito centurione, interrogauit eum si iam mortuus esset. Et cum cognouisset à centurione: donauit corpus, Ioseph. Ioseph autem mercatus sindonem, & deponens eum inuoluit sindone, & posuit eum in monumento quod erat excisum de petra, & aduoluit lapidem ad ostium monumenti. Die mercurij.

ℭ Passio Domini nostri Iesu Christi secundum Lucam. 22. Cap.

IN illo tempore, Appropinquabat dies festus azymorum, qui dicitur pascha: & quærebant principes sacerdotum & scribę quomodo eum interficerent, timebāt vero plebem. Intrauit autem satanas in Iudam qui cognomi nabatur Iscariotes, vnum de duodecim: & abijt & locutus est cum principibus sacerdotū & magistratibus quemadmodum illum traderet eis. Et gauisi sunt: & pacti sunt pecuniam illi dare.

Page printed by Geofroy Tory in 1521

Later, paragraph marks were used for the purpose by Jenson and others.

Venice, Italy, is renowned for the excellent books printed during the hundred years following the invention of movable types. The page printed by Aldus (1495) is a good example of Venetian printing, and shows the Roman type-face of that time.

The Renaissance period of wood-engraving effected book pages to the extent shown by the Tory specimen (1521). Like the special "uncut" editions of today, these books were valued for their appearance more than for their contents.

Although many books were printed by the early printers, it was almost a hundred years after Gutenberg's invention before the mass of the people was benefited by them. It is said that Martin Luther was twenty-one years old, and an ordained priest, before he saw a copy of the Bible, and then it was chained to the walls of a monastery.

Luther translated the Bible into German and it was printed at Wittenberg (1541). The reproduction is a page describing the death of Saul, and shows the style of indented paragraphs.

William Morris (England, 1891) was the first of the modern printers to print in the style of the early typographers. He adopted a text face known as "Troy," and a roman face known as "Golden," the former having been used by German printers of the Fifteenth Century, and the latter having been cut by Jenson (1470).

Saul kompt Das Erste Buch.

Jtzach/denen zu Hebron/vnd allen Orten da David gewonet hatte mit seinen Mennern.

XXXI.

DJe Philister aber stritten wider Jsrael/ Vnd die Menner Jsrael flohen fur den Philistern/ vnd fielen erschlagen auff dem gebirge Gilboa. Vnd die Philister hiengen sich an Saul vnd seine Söne/ vnd schlugen Jonathan/ vnd Abinadab vnd Melchisua/ die Söne Saula. Vnd der streit ward hart wider Saul/ vnd die Schützen troffen auff jn mit Bogen/ vnd ward sere verwund von den Schützen.

Da sprach Saul zu seinem Waffentreger/ Zeuch dein Schwert aus vnd erstich mich damit/ das nicht diese Vnbeschnittene komen vnd mich erstechen/ vnd treiben ein spot aus mir. Aber sein Waffentreger wolt nicht/ denn er fürchtet sich sere. Da nam Saul das Schwert vnd fiel drein. Da nu sein Waffentreger sahe/ das Saul tod war/ Fiel er auch in sein Schwert/ vnd starb mit jm. Also starb Saul/ vnd seine drey Söne vnd sein Waffentreger/ vnd alle seine Menner zu gleich auff diesen tag. Da aber die Menner Jsrael/ die jenseit dem grunde vnd jenseit dem Jordan waren/ sahen/ das die Menner Jsrael geflohen waren/ vnd das Saul vnd seine Söne tod waren/ verliessen sie die Stedte vnd flohen auch. So kamen die Philister vnd woneten drinnen.

Des andern tags kamen die Philister die Erschlagene aus zuziehen/ vnd funden Saul vnd seine drey Söne ligen auff dem gebirge Gilboa. Vnd hieben jm sein Hendt abe/ vnd zogen jm seine Waffen ab/ vnd sandten sie in der Philisterlande vmb her/ zu verkündigen im hause jrer Götzen/ vnd vnter dem volck. Vnd legten seinen Harnisch in das haus Astaroth/ Aber seinen Leichnam hingen sie auff die maur zu Bethsan.

Da die zu Jabes in Gilead hörten/ was die Philister Saul gethan hatten machten sie sich auff was streitbar Menner waren/ vnd giengen die gantze nacht/ vnd namen die Leichnam Saul vnd seiner Söne von der maur zu Bethsan/ vnd brachten sie gen Jabes/ vnd verbrencketen sie dasselbs. Vnd namen jre Gebeine vnd begruben sie vnter den bawm zu Jabes/ Vnd fasteten sieben tage.

Ende des Ersten Buchs Samuel.

Page from Luther's German translation of the Bible, printed at Wittenberg in 1541

Hyer begynneth the hystorye of Reynard the Foxe.

IN thys hystorye ben wreton the parables, goode leryngs, and dyuerse poynies to be merkyd, by whiche poynies men maye lerne to come to the subtylle knowleche of ouche thynges as dayly ben vsed and had in the counseylys of lordes and prelates, goostly and worldly, and also emonge marchantes & other comone peple. And this booke is maad for nede and prouffyte of alle god folke, as fer as they in redynge or heerynge of it shall mowe vnderstand and fele the forsaid subtil decyytes that dayly ben vsed in the worlde, not to thentente that men shold vse them, but that every man shodde eschewe and kepe hym from the subtyl false shrewys, that they be not decyuyd. Thenne who that will haue the very vnderstandyng of thys matter, he muste ofte and many tymes rede in thys booke, and ernestly and diligently marke well that he redeth, for it is oette subtyly, lyke as ye shal see in redyng of it; and not ones to rede it; for a man shall not wyth ones ouer redyng fynde the right vnderstandyng, ne comprise it wel, but oftymes to rede it shal cause it wel to be vnderstande: and for them that vnderstandeth it, it shall be ryght joyous, playsant, and prouffitable.

A page by William Morris printed about 1892

Universis Cristifidelibus pnsentes lras inspecturis Paulinus Chappe Cosiliarius Ambasiator et procurator generalis Serenissimi Regis Cypri in hac parte Salutem in dno Cui Sacrissimus in xpo pr et dns nr dns Nicolaus diuina prouidencia ppetuus Pontifex Romanus Ad ...stitutis miserciorditer compatiens contra ffidissimos crucis xpi hostes Theucros et Saracenos gratio cocessit omnibus xpifidelibus ... ipos p aspersione sanguis dni nri ihu xpi pie exhortando qui infra triennium a primo die Maii Anni dni Millesimi quingentesimi p defensione catholice fidei et regni pdicti de facultatibus suis magis uel minus put ipsos videbitur ... pecuniis uel nunciis substinentis pie erogauerint ut ...fessores pdones seculares uel regulares p ipsos eligenda ...fessionibus eorum audiendis p commissis etiam sedi aplice reseruatis excessibus criminibus atque delictis quatucumque grauibus p una vice eatenus debitam absolutionem impendere et penitentiam salutarem iniungere Necnon si id humiliter petierint ipsos a quibuscumque excomicationum suspensionum et interdicti aliisque sentencis censuris et penis ecclesiasticis a iure uel ab hoine promulgatis quibus forsan innodati existunt absoluere. Iniuncta p modo culpe penitentia salutari uel alias g de iure fuerit iniungenda ac eis vere penitentibus et ...fessis uel si forsan propter amissionem loqle ...fiteri non poterit signa contricionis ostendendo plenissimam omnium peccatorum suorum de quibus ore ...fessi et corde contriti fuerint Indulgentiam ac plenariam remissionem semel in vita et semel in mortis articulo ipsis auctoritate aplica concedere valeat. Satisfactione p eos facta si supuixerint aut p eorum heredes si tunc transierint Dicentes quod post indultum ...fessionis p unum annum singulis sextis feriis uel quoda alia die ieiunent. legitimo impedimento ecclesie preepto regulari obseruantia pnia iniuncta voto uel alias non obstantibus. Et ipsis impeditis in dicto anno uel eius parte. anno sequenti uel alias quam primum poterint ieiunabunt Et si in aliquo annorum uel eorum parte dictum ieiunium commode adimplere nequiuerint Confessor ad id electus in alia commutare poterit caritatis opa q ipsi facere etiam tenentur Dummodo tu ex ffidentia remissionis hmoi quod absit peccata non psumant Aliquid dicta ...fessio quo ad plenariam remissionem in mortis articulo et remissio quo ad pcta ex ffidentia ut pmittitur commissa nullius sint roboris uel momenti Et quia deuoti dis similibus ... fuerint Gemma Luse nu fuerit ... Guda Karysen et bela filius eius filia Juxta dictum indulgentiarum de facultatibus suis pie erogauerint merito huiusmodi indulgentiis gaudere debent. In veritatis testimonium sigillum ad hoc ordinatum pntibus lris testimonialibus est apensum Datum in Opido Nussiensi Anno dni Millesimo quadringentesimo quinquagesimo die vero ... mensis Aprilis

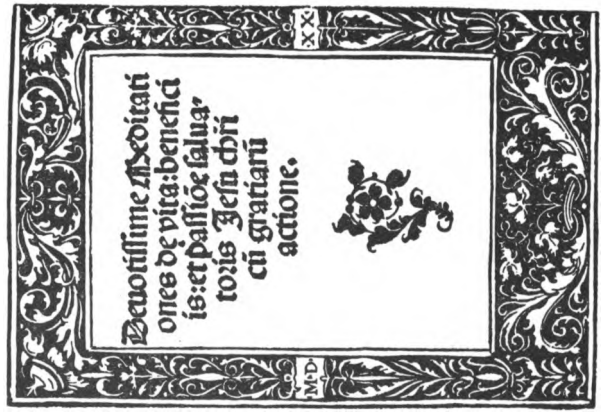
Forma plenissime absolutionis et remissionis in vita

Misereatur tui Al Dns noster ihesus xpus p sua sanctissima et pissima miam te absoluat Et auctoritate ipsius beatorumque petri et pauli aplorum eius ac auctoritate aplica michi commissa et tibi concessa Ego te absoluo ab omnibus pcis tuis contritis ...fessis et oblitis Etiam ab omnibus casibus excessibus criminibus atque delictis quatucumque grauibus sedi aplice reseruatis Necnon a quibuscumque excomicationum suspensionum et interdicti aliisque sentencis censuris et penis ecclesiasticis a iure uel ab hoie promulgatis si quas incurristi dando tibi plenissimam omnium peccatorum tuorum indulgentiam et remissionem Inquantum clauso sancte matris ecclie in hac parte se extendunt. In nomine patris et filii et spiritus sancti amen.

Forma plenarie remissionis in mortis articulo

Misereatur tui Al Dns noster ut supra Ego te absoluo ab omnibus pcis tuis cum contritio ...fessio et oblitis restituendo te vnitati fidelium et sacramentis ecclesie Remittendo tibi penas purgatorii quas propter culpas et offensas incurristi dando tibi plenariam omnium peccatorum tuorum remissionem. Inquantum clauso sancte matris ecclie in hac parte se extendunt. In nomine patris et filii et spiritus sancti amen.

The first specimen of "job" printing
"Letter of Indulgence" possibly printed by Gutenberg before 1454



Devotissime Modoitari
ones de vita: benefici
is: et passione salua-
tonis Iesu chri
cu gratiarū
actione.

MDXX

Display page of black tone, supposed to have been printed by Sigismund Brith, 1520

MAMILLIA.

The second part

of the triumph of Pallas:

WHEREIN WITH PERPETVAL fame the constancie of Gentlewomen is canonized, and the vnmatt blasphemies of womens supposed fickleneſſe (breathed out by diuerſe iniurious perſons) by manifeſt examples clearely vnfinged.

BY ROBERT GREENE MAIſter of Arts, in Cambridge.

LONDON
Printed by Th. C. for William
Ponſonbie. 1593.

Display page of gray tone, showing early English Roman type-face

Morris affected a bold, masculine style, with black print and heavy wood-cut borders.

Bruce Rogers, at the Riverside Press, Cambridge, Mass., and D. B. Updike, at the Merrymount Press, Boston, Mass., are two American printers doing special editions after the manner of the old masters of typography. Some of the finest book specimens published come from the presses of these two printers.

Display Composition

Probably the first small job of printing done with movable types is a Letter of Indulgence printed by Gutenberg in Mainz, Germany (1454). These letters, which were supposed to absolve the holder from punishment for sin, were sold by Church authorities to raise money, and are one of the causes that brought on the Reformation.

Modern display composition is evolved from the arrangement of title-pages, which, in turn are an outgrowth of the colophon as found in the rear of early printed books. The colophon told of the book, its printer and illuminator. The colophon of Schoeffer's famous Psalter will be found at the beginning of this book, as a frontispiece.

The first step toward displayed title-pages was made by Jenson, who in 1471 set a colophon all in Roman capitals and spread the lines apart.

Another advance toward display is found in the title-page of Sigismund Brith (1520), which is remarkable

Breviarium Chronologicum:

OR, A Christ 1753.

TREATISE

Describing the

TERMS and most celebrated CHARACTERS, PERIODS, and EPOCHA's used in

CHRONOLOGY.

Originally written by *Giles Strauchius*, D. D. and publick Professor in the University of *Wittebergh*.

First done into *English* from the THIRD Edition in *Latin*,

By *RICHARD SAULT*, F.R.S.

And by him enlarg'd with all the most useful Things (omitted by the Author) taken from Bishop *Beveridge* his *Institutiones Chronologicæ*, and from Dr *Holder* his *Account of Time:* As also with the Epocha's of the Principal Kingdoms, and States of *Europe*, with TABLES calculated to the Author's Method.

The same published afterward in a SECOND Edition corrected.

Now again published in a THIRD *Edition:* Wherein the *Translation* hath been faithfully compar'd with the *Original*, by another Hand; and every thing material in the *Original*, but omitted in the two former *Editions* of the *Translation*, is supplied in this. And many useful Notes and References, and the Years before, and after *Christ* corresponding to the *Julian* Years made use of by the *Author*, are inserted. Also the respective *Chronologies* in the *Appendix* brought down in the second *Edition* to the Publication thereof, are in this continued. And lastly, an useful *Index* is added to the whole.

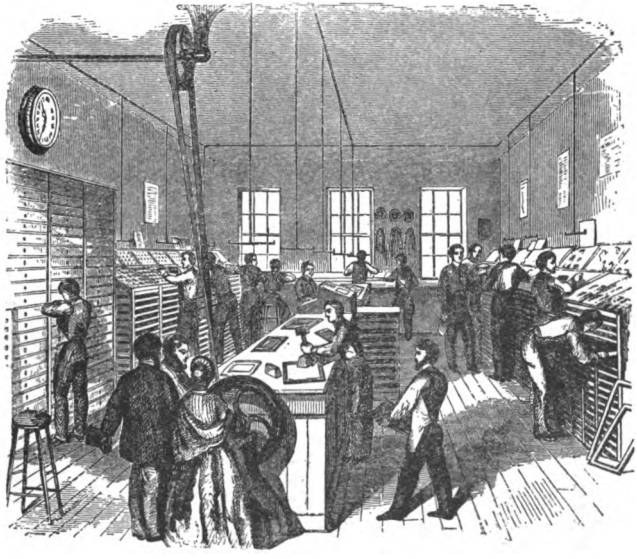
London, Printed for J. and P. KNAPTON, at the *Crown*, in *Ludgate-street*; and W. PARKER, at the *King's-Head* in *St Paul's Church-Yard*. 1745.

Display page of the Colonial period (1745)

for the consistent black tone maintained by border, type and ornament.

The displayed title, fully born, is found in the English specimen of 1593, which also shows a page of gray tone, produced by combining a border of twining branches with the Roman type-face which preceded the Caslon in English printing.

A distinctive style of typography is found in the Colonial title-page, the one here reproduced having been printed in England in 1745. A peculiarity about Colonial title-pages is their verbosity, the table of contents being seemingly incorporated with the title.



Job Composing Room of the year 1865

HISTORY OF ORANGE COUNTY,

WITH AN

ENUMERATION OF THE NAMES

OF ITS

TOWNS, VILLAGES, RIVERS, CREEKS,

LAKES, PONDS, MOUNTAINS, HILLS AND

OTHER KNOWN LOCALITIES,

AND THEIR

ETYMOLOGIES OR HISTORICAL REASONS THEREFOR;

TOGETHER WITH

LOCAL TRADITIONS

AND SHORT

BIOGRAPHICAL SKETCHES

OF

EARLY SETTLERS, ETC.

BY SAM'L W. EAGER, ESQ.,

MEMBER OF THE HISTORICAL ASSOCIATION OF NEWBURGH, AND CORRESPONDING MEMBER OF THE HISTORICAL SOCIETY OF THE STATE OF NEW YORK.

NEWBURGH:
S. T. CALLAHAN,
1846-7.

A display page of 1846

AN OUTLINE HISTORY

OF

ORANGE COUNTY

WITH

AN ENUMERATION OF THE NAMES OF ITS TOWNS, VILLAGES, RIVERS, CREEKS, LAKES, PONDS, HILLS OR MOUNTAINS, AND OTHER KNOWN LOCALITIES AND THEIR ETYMOLOGIES OR THE HISTORICAL REASONS THEREFOR

TOGETHER WITH

LOCAL TRADITIONS AND
SHORT BIOGRAPHICAL SKETCHES
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NEWBURGH
S. T. CALLAHAN
1846-7

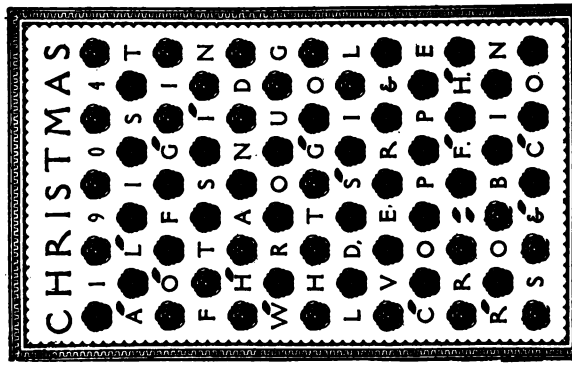
As reset by DeVinne (1902)

From the interesting Colonial style, typography drifted to over-display; printers attempting to emphasize almost every line (see the Callahan specimen, of the year 1846). With such results, display composition was at its worst. DeVinne in 1902 had this page reset in his conservative style, with results vastly superior to the original.

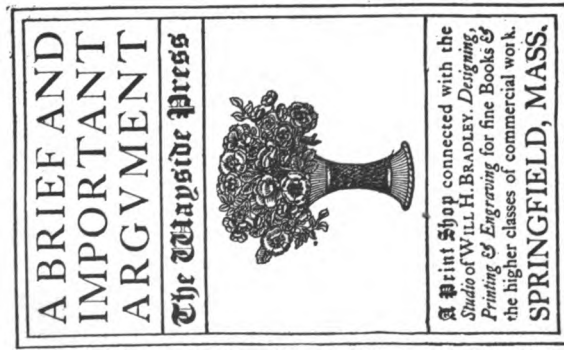
The use by lithographers and copperplate engravers of fancy shaded lettering influenced typography during the last half of the Nineteenth Century. The billhead of James Smith is a representative Boston stationery specimen of 1868.

How a billhead was set in 1868

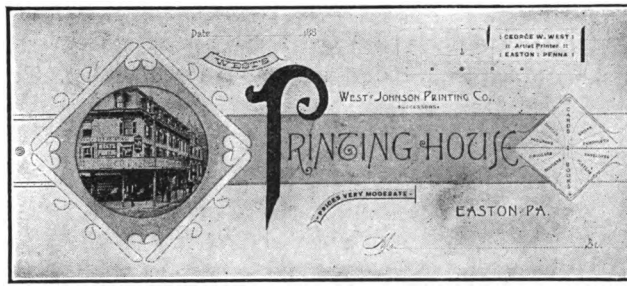
Another period of distinctive style in display composition was that which saw the printer twisting rule into pleasing curves and combining them with tints of various hues. The West billhead is a remarkable specimen of the skill shown by printers while practising this style of typography.



Bradley's "newer" typography of 1905



Bradley's Colonial style of 1896



A good specimen of curved-rule and tint-block printing (1883)

To Will Bradley (1896), the printer-artist, is due great credit for converting printers of the United States to a style which is at once sane, pleasing and artistic. Bradley based his new typography upon the work of the colonial printers, and designed ornaments and borders to be used with the Caslon type-face.

In 1905 Bradley introduced radical innovations in the construction of type composition, based to an extent, upon the slovenly chapbook printing practised in England during the Seventeenth and Eighteenth Centuries. While many excellent suggestions were obtained by printers from the "newer typography," as a whole it was impracticable for commercial use.

[Practical]

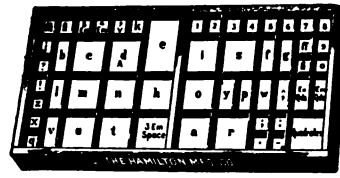
Types are composed by hand, and by machine. Machine composition is explained in another chapter. For hand composition the types are contained, according to the characters, in two cases, known respectively as upper case and lower case.

In the upper case the capitals and small capitals are arranged in alphabetical order excepting the letters J and U, which were the last added to the alphabet. The

Upper case

top part of the case is devoted to special characters, the arrangement differing in each office. The compartments or "boxes" are all of one size.

In the lower case the small characters, commonly known as "lower-case letters," are arranged so that the types most frequently used are directly in front of the



Lower case

compositor. The boxes are large or small, according to the proportion generally needed of each type. The box containing the character "e" is the largest, this letter being the one most frequently used.

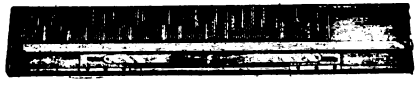
The compositor takes the types from the case, one at

a time, and puts them into a metal tool known as a "composing stick."

Composing stick

The types, when in the stick, are "upside down" to the novice, but the printer easily learns to read them in such position. When a line of type is completed, it is justified with various thicknesses of spaces put between words. The lines of type are generally set against each other, which is the process known as "setting solid." When space is wanted between lines a flat piece of metal (sometimes brass, usually lead) is used. This process is known as "setting leaded."

When the composing stick is filled it is emptied on a large flat sheet of brass with raised sides, called a galley.



Type locked on a galley

A proof is taken of the type-matter on the galley by means of a machine known as a proof press, after which it is read, any errors corrected, and made into pages.

There are different practises in regard to the spacing of a page of type. Followers of Morris prefer the page

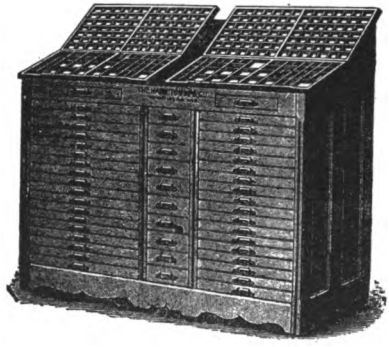
EUROPE has a wonderful attraction for every person of culture and refinement by reason of all it offers in art, music, scenery, historical associations, interesting people, their customs and their languages; but in order to visit Europe for the first time with comfort and with reasonable regard for economy, the guidance is needed of one who is thoroughly familiar with the countries to be visited. Mrs. Ellen Gilman Vadas, now senior in the University at Rochester, New York, as the result of several years of residence and study as well as travel in various countries of Europe, has acquired such familiarity, and in the following vacation tour offers to those who are unfamiliar with foreign travel, the guidance which they need. But not guidance alone is to be thought of. To get the best results of European travel the party should not be too large, and

Page of gray tone

EUROPE has a wonderful attraction for every person of culture and refinement by reason of all it offers in art, music, scenery, historical associations, interesting people, their customs and languages; but in order to visit Europe for the first time with comfort and with reasonable regard for economy, the guidance is needed of one who is thoroughly familiar with the countries to be visited. Mrs. Ellen Gilman Vadas, now senior in the University at Rochester, New York, as the result of several years of residence and study as well as travel in various countries of Europe, has acquired such familiarity, and in the following vacation tour offers to those who are unfamiliar with foreign travel, the guidance which they need. But not mere guidance alone is to be thought of. To get the best results of European travel, the party should not be too large, and Mrs. Vadas proposes to limit the number to nine, taking the utmost pains to secure those of kindred spirits who have the same objects in view in going abroad. The pleasure of touring is greatly enhanced if the chaperon is familiar with points of interest and can describe the scenery en route to her company. This Mrs. Vadas can do with a marked degrees of intelligence. She is well informed on continental subjects and en-

Page of black tone

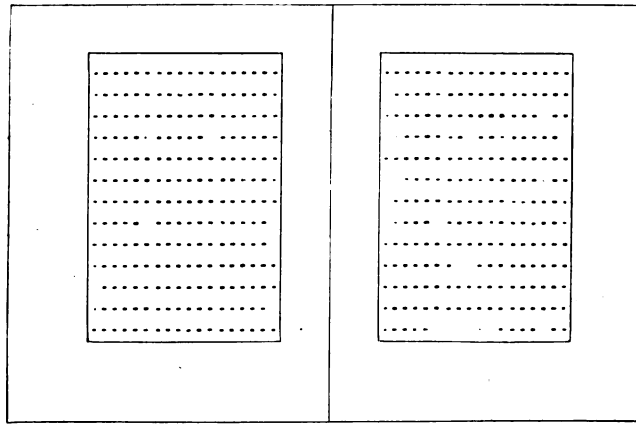
of black tone, which is obtained by using a type-face such as the Jenson, or old style Antique, and setting the page solid, with little spacing between words and sentences. The page of gray tone is in more general use. DeVinne uses it in his books, as do most of the large publishing houses. The gray page is obtained by using type-faces such as old style Roman and modern Roman, and setting the page leaded, with ample spacing between words and an extra amount of space between sentences.



Upper and lower cases in position on cabinet

The proportion of the type-page, and its position on the paper, are two important points in bookbuilding. In many booklets the pages are out of proportion and poorly placed.

The position on the page that meets with most approval by those who know is one allowing about equal space at top and at the side toward the binding; half again as much at the other side, and twice as much at

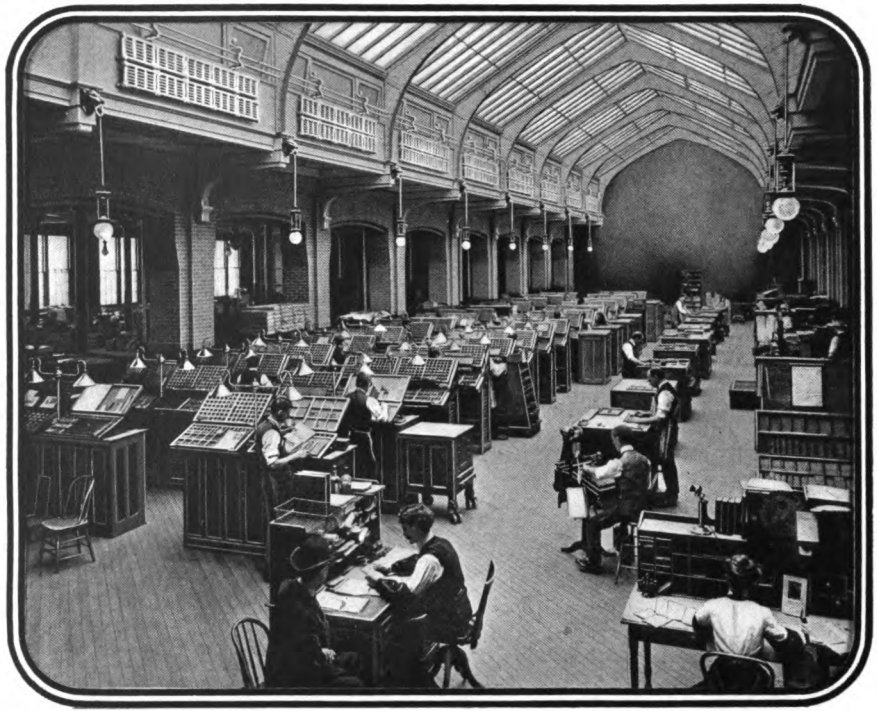


The best printers place the pages in this position on the sheet

the bottom. This is true when margin is plentiful, but when there is a limited amount of margin the page should have only about an eighth of an inch more at the outer side than at the inner side, and about a quarter of an inch more at the bottom than at the top, which top margin should be about the same as that of the inner binding side.

Display Composition

Display composition is more difficult than "straight" or plain composition. Business stationery, circulars, announcements, folders, booklets, etc., are of a variety of shapes and sizes and demand such different treatment that the printer who would succeed in this branch must study and practise many months and many years.

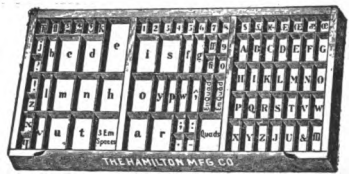


A modern composing-room, showing Monotype keyboard in foreground

The principles that govern this work—those of balance, proportion, harmony of tone and color, appropriateness and attractiveness—are the same as govern painting or designing with pen and pencil. The display compositor is a designer with type and rule.

The tools are about the same as for plain composition. Display types are kept in many cases or drawers, which slide in and out of a cabinet.

For display composition the capitals and lower-case letters are all in one case, instead of two, the capitals being in a division at the right.



A "California" job case

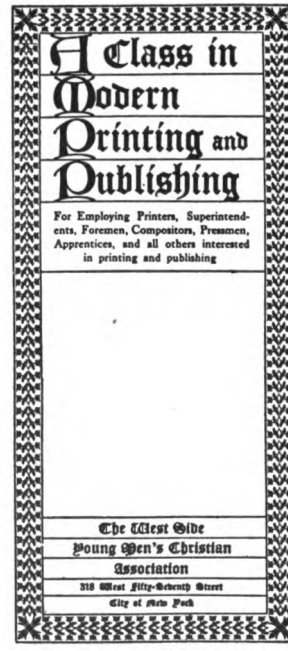
The display compositor sets his type in a stick that can be easily adjusted to the various measures to which he has to set his lines during the course of a day's work.

A graduated composing stick

Before setting a job of display composition, it should first be laid out with pencil or crayon, and a definite idea of what he intends doing should be possessed by the compositor before a line of type is set.

It will be seen how closely the effect and tone of the finished page is indicated by the rough sketch at the left.

The preliminary sketch

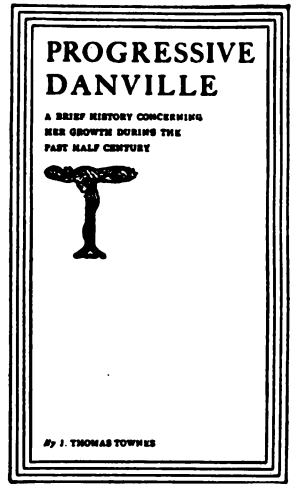


The job as set in type

Preliminary sketches such as these are invaluable when the man who plans the job does not do the typesetting, and also save the cost of resetting, in that they make resetting unlikely.

Balance is most easily secured by centering all lines in the width of the page. The balance-point is in the upper part of the page about the position of the oval picture in the Fulton specimen.

Showing centered lines and point of balance



Showing lines out of center

Arrangements out of center (see Danville specimen) are not easily made without effecting the balance, but when well done they are interesting. The principle of such arrangement is to have the type-lines close to the border, thus connecting and unifying the design.

The two principal arrangements now in vogue in display pages are (1) to emphasize the chief line, dis-

FIRST ANNUAL
Founders' Day Banquet
of the
Phi Delta Theta
Alumni Club
of Madison, Indiana

MADISON HOTEL
March Fifteenth, Nineteen-Six

A good style to cultivate

YEAR BOOK
of the PARISH of
ALL SAINTS CHURCH

IN THE CITY OF WORCESTER
DIOCESE OF WESTERN MASSACHUSETTS

FOR THE YEAR OF OUR LORD
NINETEEN HUNDRED FOUR AND FIVE

VOLUME XXVIII

The Colonial variation is always pleasing

playing the remainder of the copy somewhat in the manner shown by the Founders' Day specimen; and (2) to set the lines square, after the colonial style, the groups divided by cross rules, as in the Year Book specimen.

But one type-face, and that all capitals or all lower-case, makes neat typography, and is recommended where the job consists of only a few lines, but the combination of Caslon, Italic and Old English when properly composed gives more satisfactory results.

THE KEYSTONE PRESS

SHOE BOX LABELS
PRICE CARDS
& SHOE TAGS

SILK TOP FACINGS
SHANK STRAPS
A SPECIALTY

PORTSMOUTH, OHIO

One face and all capitals

Henry M. Salers

HAMILTON BUILDING *Advertect* SAINT JOE MISSOURI

Presented by JAMES R. MIDDLETON

Combination of three harmonizing faces

TWENTY-FOURTH BIENNIAL
OF THE
LIBRARIAN
OF THE
TENNESSEE STATE LIBRARY

FOR THE YEARS 1901-1902,
INCLUDING A HISTORY OF
THE INSTITUTION AND
THE LAWS GOVERNING IT.

FEBRUARY 1, 1903

MRS. LULU BRINGHURST EFFERSON,
STATE LIBRARIAN.

Title-page defective in arrangement

TWENTY-FOURTH BIENNIAL
Report of the Librarian
of the
TENNESSEE
STATE LIBRARY
FOR THE YEARS
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February 1, 1903

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STATE LIBRARIAN

A resetting in which the defects are corrected

Type-face and decoration should be similar in tone, causing a blend of design that adds value to the result.

A pamphlet title or cover page should have the type lines well selected and grouped; with white space liberally distributed properly over the page. Care should be taken that the story is told as simply as possible.

Illustration and decoration when properly selected and used are valuable features of typography. They should be necessary parts of the design, and not used merely to fill space.

Punctuation is unnecessary at the ends of display lines, if the sense is clearly conveyed by the arrangement. Punctuation is used to make the meaning plain and for no other reason.

The necessary thing in job printing is to please the customer. Please him with artistic work, if possible; he may not like the compositor's way of getting up the job, but that need not imply that he does not want artistic work. A customer often gives valuable suggestions.

"Fancy" job printing is not necessarily *artistic* printing. Neither is elaborate panel designing *artistic* printing.

Art may sometimes be expressed by the use of a single line of the right type-face, printed in the right color, on the right stock.

Simplicity is art; but plainness is not necessarily art.

Contrast should be obtained, not by using inharmonious faces of type, but by using harmonious faces.

A straight reading announcement set in two contrast-

ing sizes of Caslon, is sometimes more effective than displayed lines.

An antique, or laid, book stock is better for use on a program than flat writing stock.

An ink blended in color with the stock, is more pleasing than strong contrasting colors.

The design of the cover and the design of the title-page of a booklet should be in keeping with the typography of the inside pages.

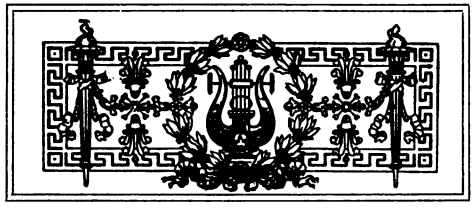
The style of typography of a billhead should be like that of the letterhead, envelope and business card used by the same business house.

Typography should be naturally, not artificially, constructed. Letter-spacing and arranging words without regard to their sense is artificial, and not good typography.

The entire surface should not be filled with printing, but should contain plenty of white space, well distributed.

It is not good typography to set important words small, and then place heavy rules under them to get prominence. Do not use many rules at any time.

Intricate panel composition, and labored ornamental designs, are in the same class with twisted-rule effects. Simple arrangements are the best, but, strange to say, are more difficult to the average printer.

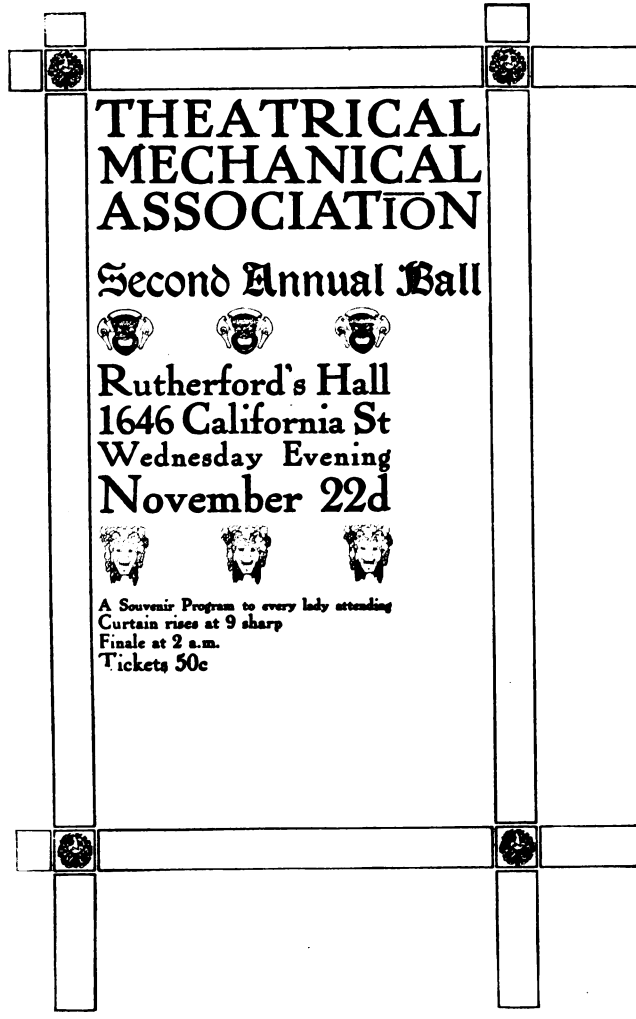


EVERY normal human being that ever lived has felt the mystic and delightful appeal of Music. The desire for it, the need of it, is universal. Music inspires, consoles, rests, stimulates, educates and refines. It is the universal language that needs no interpreter. It echoes every human emotion—love, hatred, joy, sorrow, victory, defeat, want, discouragement, sympathy—in words that are known to every soul that lives, whatever his native tongue may be. And, as Addison has said, "Music is the only sensual gratification in which mankind may indulge to excess without injury to their moral or religious feelings."

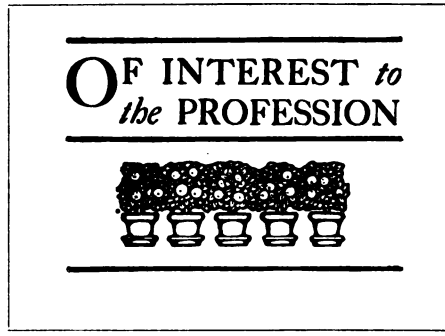
Love of Music universal

Music ennobles those who study it, as well as those who hear. It entertains and fascinates both young and old. Mankind craves it, needs it, admires, even worships those who produce it. Food, raiment, shelter—then music. Who can contest Music's right to fourth place as a human necessity?

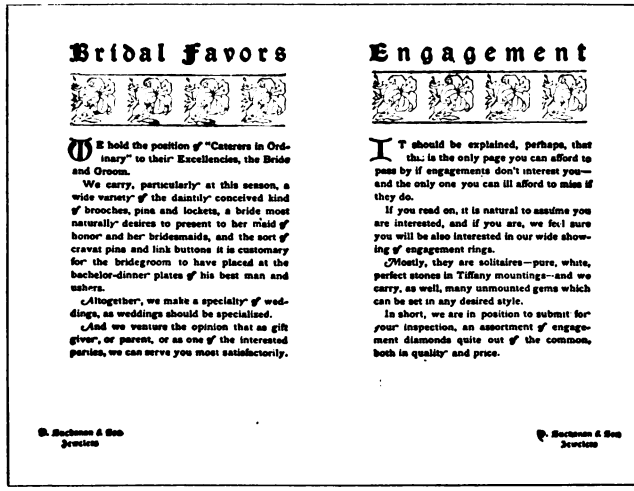
Handsome page from a music catalog



Attractitve arrangement for a poster



A cover design



Bridal Favors

WE hold the position of "Caterers in Ordinary" to their Excellencies, the Bride and Groom.

We carry, particularly at this season, a wide variety of the daintily conceived kind of brooches, pins and lockets, a bride most naturally desires to present to her maid of honor and her bridesmaids, and the sort of cravat pins and link buttons it is customary for the bridegroom to have placed at the bachelor-dinner plates of his best man and ushers.

Altogether, we make a specialty of weddings, as weddings should be specialized.

And we venture the opinion that as gift giver, or parent, or as one of the interested parties, we can serve you most satisfactorily.

D. Sackman & Son
Jewelers

Engagement

IT should be explained, perhaps, that this is the only page you can afford to pass by if engagements don't interest you—and the only one you can ill afford to miss if they do.

If you read on, it is natural to assume you are interested, and if you are, we feel sure you will be also interested in our wide showing of engagement rings.

Mostly, they are solitaires—pure, white, perfect stones in Tiffany mountings—and we carry, as well, many unmounted gems which can be set in any desired style.

In short, we are in position to submit for your inspection, an assortment of engagement diamonds quite out of the common, both in quality and price.

D. Sackman & Son
Jewelers

Pages of a jeweler's booklet

Type Composition

Illustrated Trade Catalogue
of Silverware, Jewelry
and Fine Metal Goods,
including a Special Selection
of Bronzes and Library Novelties
in Ink Stands and Desk S
for the Season of 1905
Brown & Jenkins,
480 Pennsylvania Ave
Washington, D. C.

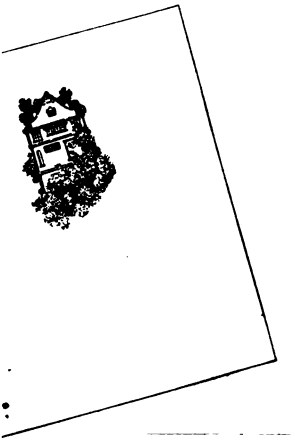
BAR DOCKET
of the Common Ple
as Court *of* Ottawa
County Ohio *Term*
beginning Novemb
er 16th A° D[i] 1903
at Port Clinton Ohio

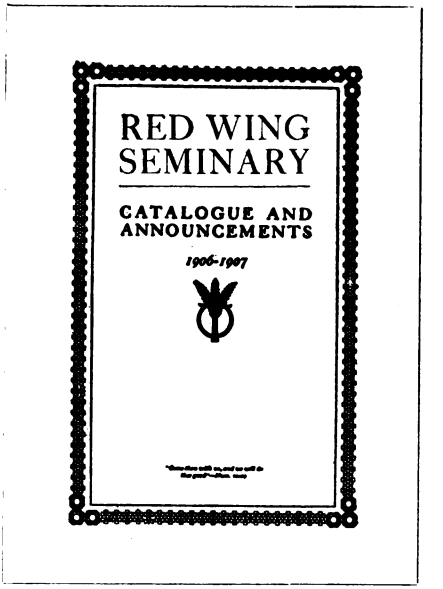
Christ. Gates
Carpenter, Contractor and Build
Port Clinton, O.

The pleasure of your
presence and the pres-
ence of your friends
is requested at an
End of the Old Year
Masquerade Ball
to be given at the
ROCKYRIDGE
TOWN HALL
on Thursday evening
December thirty-first
ninteen hundred three

Music by
Italian
Harpists

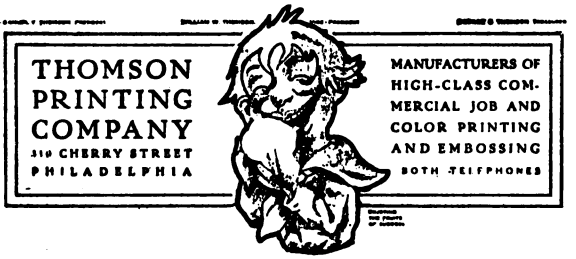
Four unusual
arrangements



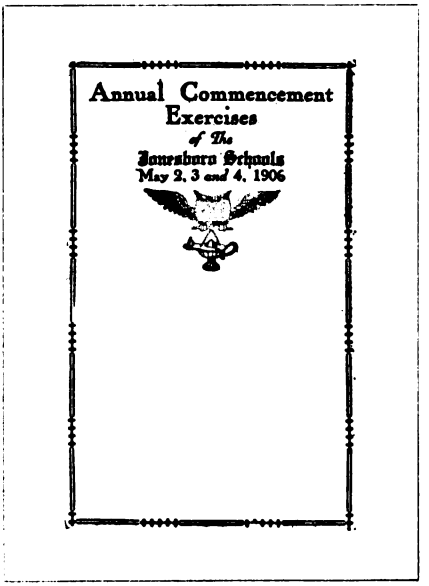


Typography of gray tone and square arrangement

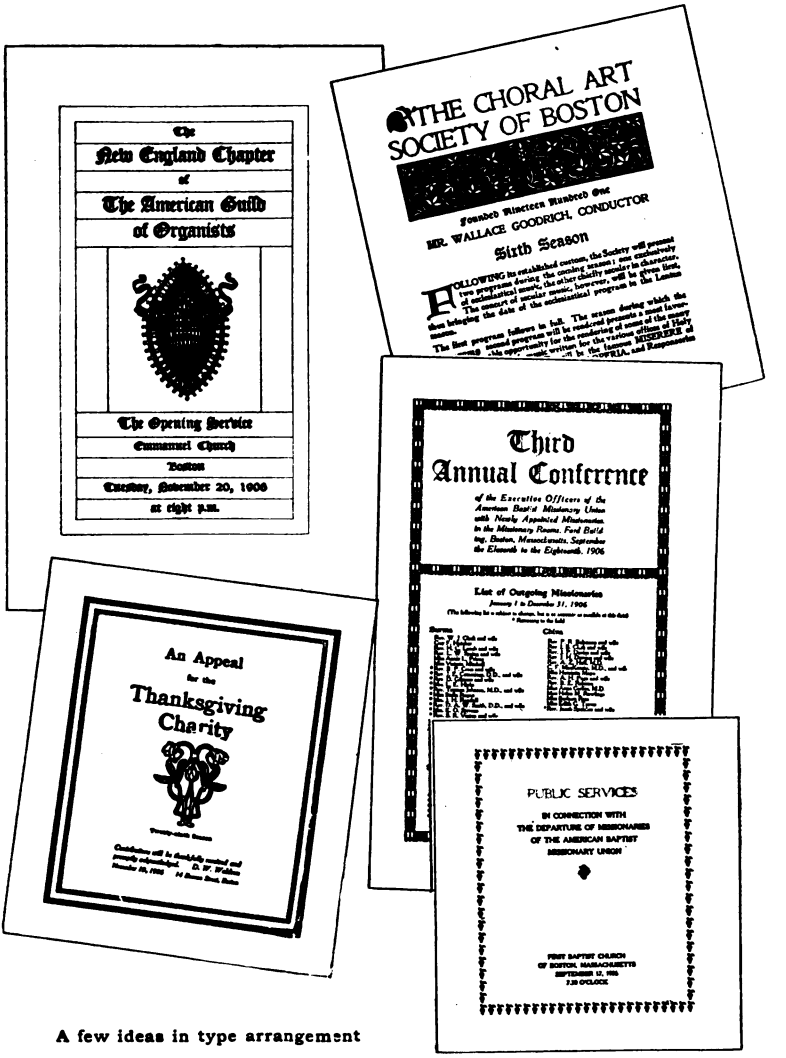
A letterhead set in Pabst



Humor adapted to a letterhead



Grouped at top of page



A few ideas in type arrangement

STATUARY, PICTURES *and* PICTURE FRAMES

DEVELOPING, PRINTING AND ENLARGING FOR AMATEUR PHOTOGRAPHERS
STAMPS FOR COLLECTORS 182 BOYLSTON STREET

Washburn & Co. *Boston, Mass.* _____ *190*

Sold to _____

Clever arrangement for a billhead

The Commonwealth Trust Company

The branch office, at 105 Causeway Street, is opposite the NORTH STATION.

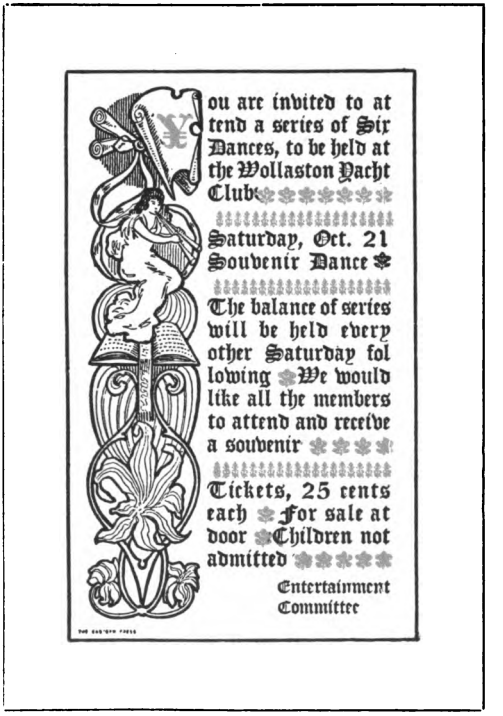
At the office is a writing and reception room for the exclusive use of ladies, and special attention is given to their accounts. The branch was established a short time ago, and has proved a wise investment. It fills a long-felt need in that section of the city, and we trust that those who have not yet availed themselves of the opportunity of banking there will realize its convenience and open an account.

Don't forget that you can open an account, make deposits, and get your checks cashed at either office, 88 Summer or 105 Causeway Street. Office hours are from 9 a.m. to 3 p.m., and small accounts receive the same attention as large ones.

North Station Branch

Accounts Received at Either Office

A decorative booklet page


You are invited to at
tend a series of Six
Dances, to be held at
the Wollaston Yacht
Club

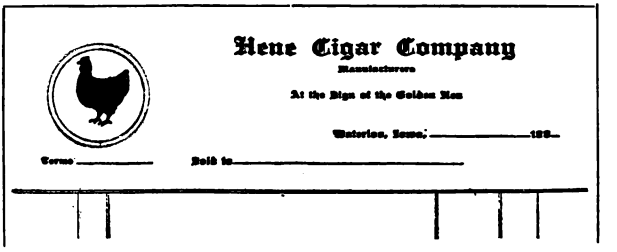
Saturday, Oct. 21
Souvenir Dance

The balance of series
will be held every
other Saturday fol
lowing We would
like all the members
to attend and receive
a souvenir

Tickets, 25 cents
each For sale at
door Children not
admitted

Entertainment
Committee

An artistic invitation


Hene Cigar Company
Manufacturers
At the Sign of the Golden Hen
Waterloo, Iowa, _____ 189_
Terms _____ Sold to _____

A neat billhead arrangement

Adaptation of the Chap-book style

Northeastern Dental Association

Officers
THOMAS J. BARRETT, D.D.S.
President
Worcester, Mass.
EDGAR O. KINSMAN, D.M.D
Secretary
15 Brattle Sq., Cambridge, Mass.
Exhibit Committee
FREDERIC FREEMAN

Twelfth Annual Meeting
BOSTON, October 17, 18, 19, 1906

STAMPS FOR COLLECTORS
Washburn & Co.
182 Boylston Street
Statuary
PICTURES
PICTURE FRAMES
STATEMENT OF YOUR ACCOUNT
Boston
· 190

Post Card from Boston
[5 P.I.C] 28 FRANKLIN STREET

An Evening of Music
by Pupils of
Mme. Maud Paradis-Lane
assisted by
Miss Edna Castle
Contralto
and
Miss Lillian Chandler
Violoncel
Wednesday
June 13, 1906
at eight o'clock

William L. Whitney
International
School of Music
[illegible] Huntington Avenue

Gläser	Carnival Dance Miss Helen A.
Liszt	Hark! Hark! the Lar Miss Margaret
Godard	Second Mazurka Miss Geneva At
Newland	Valse Caprice Mrs. Lucy Blake
Wieniawski Drdla	Romance Serenade Miss Lillian Ch
Weber	Invitation to Dance Miss Stella Car
Wachs Sinding	The Kangaroo The Rustling of Spring Miss Henrietta C
Mendelssohn Schumann Grieg Godard	Dance of the Gnomes Warum The Birdling Berceuse Miss Zelia Hall
Reichardt C. Leighter Gounod	"When the roses bloom" Norwegian Love Song An Open Secret Miss Keith Castle
Chopin Wieniawski	Prelude, No. 15 Prelude, No. 16 Valse de Concert Mrs. H. Taylor Law
Herula Hauchs	Nocturne Eloi Hungarian Dance Miss Chandler
Liszt	Rigoletto Fantasia Miss Inez L. Story

Oriental Series
JAPAN [Fujiyama Edition Limited to ONE HUNDRED NUMBERED COPIES] CHINA

THE FUJIYAMA EDITION of the Oriental Series comprises twelve Crown Octavo Volumes by Capt. F. Brinkley of Tokyo, Japan. These volumes are to be bound in three-quarter crushed French levant morocco hand-tooled. They will contain over One Hundred and Seventy-five illustrations, among which will be water-colors on silk, xylographs, collotypes, color prints and many attractive decorative features prepared in Japan and China especially for this work.

J. B. MILLET COMPANY, Publishers, Boston, Mass.

I hereby subscribe for One Set of the Ori[illegible] Fujiyama Edition, in 12 volumes at $[illegible] [illegible] be delivered at the address hereunder [illegible] understood that no subscription will be [illegible] and that no qualification of the terms [illegible] the publishers.

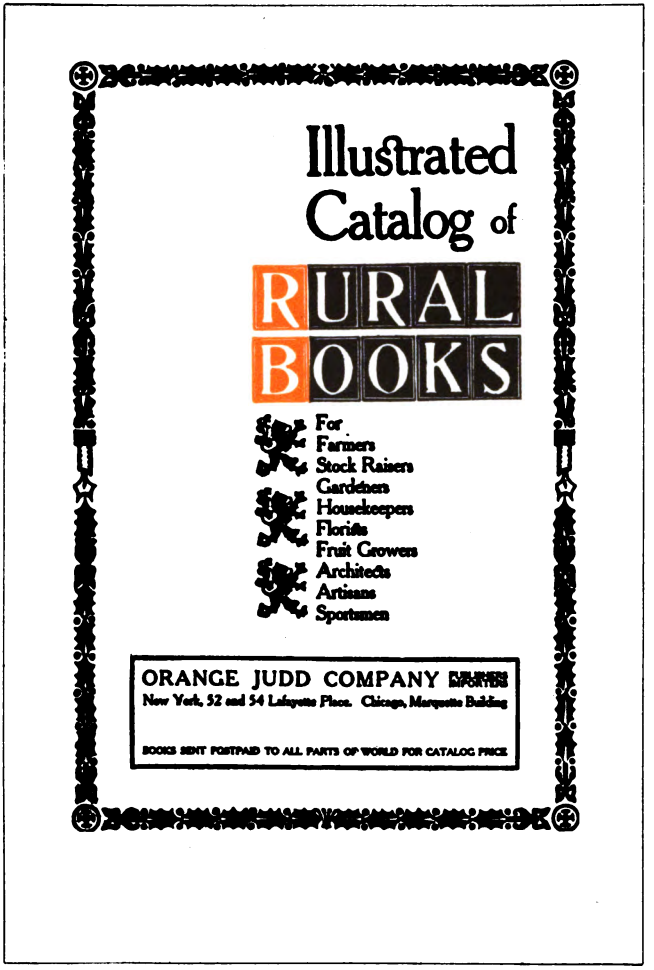
Date _____ 190 _____

THE PUBLISHERS RESERVE THE RIGHT TO ADVANCE THE PRICE TO NEW SUBSCRIBERS WITHOUT NOTICE

SENIOR MUSICALE
ON WEDNESDAY, MAY SIXTEENTH, AT HALF AFTER FOUR O'CLOCK IN ASSEMBLY HALL SIMMONS COLLEGE
MISS CHRISTINE LABARRAGUE, Soprano
MR. GEORGE YATES KELLA, Baritone

Semi-Colonial style of typography

Several styles of typography



An odd arrangement for a catalog cover

Telephone No. 10563 Central.

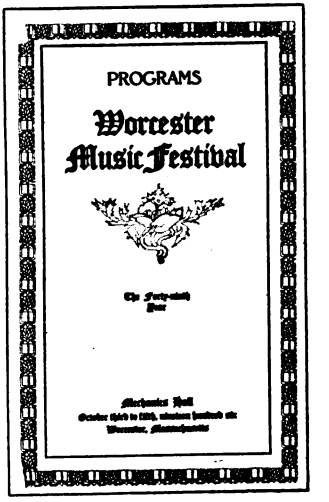
ARTHUR CHILVER,

Art and . .
Mercantile *Printer*,

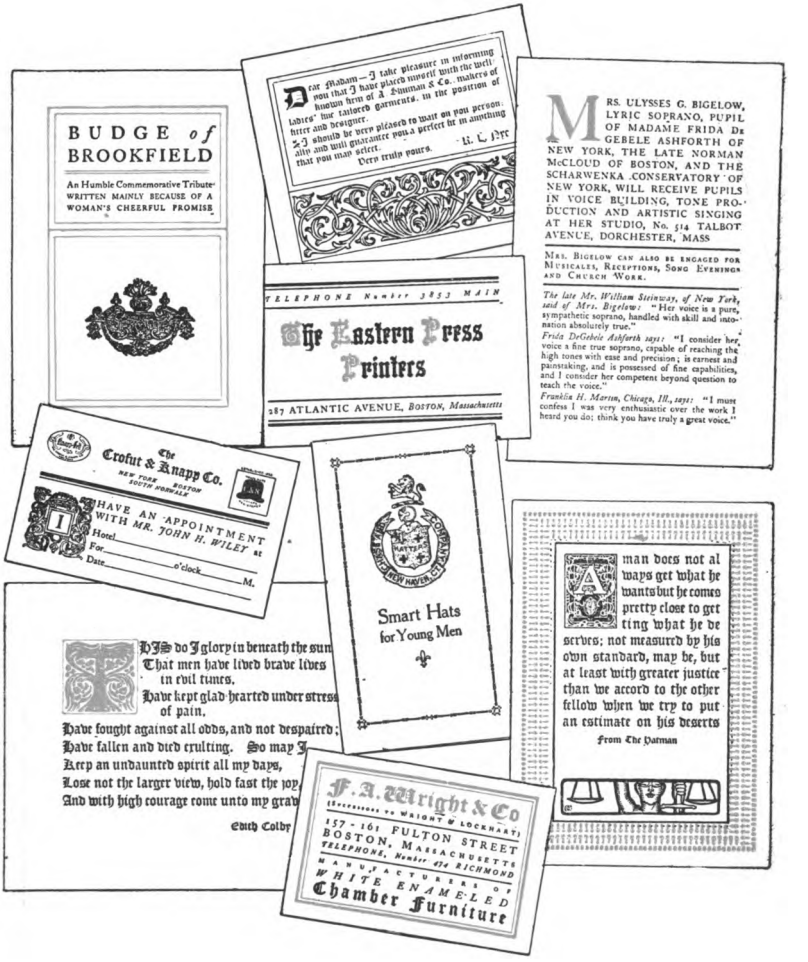
69 & 70, Aldersgate Street, E.C.

Telegrams - "Chilver, London."

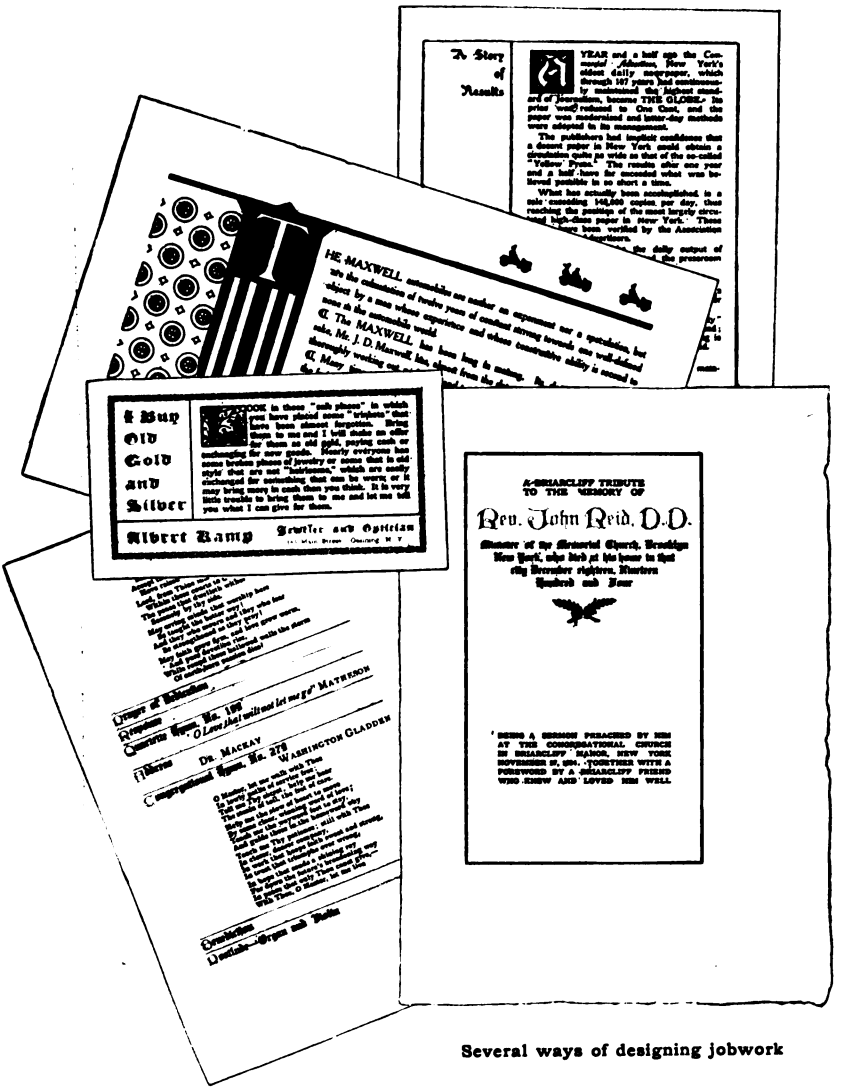
A pleasingly neat letterhead, done in England



A good way to set a cover-page



A group of jobs with a Colonial motive



Several ways of designing jobwork

CHAPTER FIVE

Typesetting Machines

[Historical]

WITH the introduction of fast presses in the early part of the Nineteenth Century came a demand for rapid composition. Suggestions and devices of various kinds were tried without increasing speed to the extent desired.

The compartments of type-cases were arranged to expedite composition; the posture of the compositor and his grasp of the type, the position of the composing-stick, all were studied with the object of increasing speed.

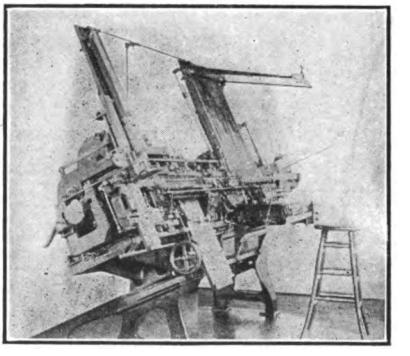
Logotypes (several letters cast together in combinations frequently used) were also tried without success.

Dr. William Church in 1822 had ideas for a type-setting machine which advanced no further than the construction of a model.

From 1840 until 1870 type-setting machines of various kinds were made, but none ever achieved success because distribution had to be done by hand.

James W. Paige perfected a type-setting machine that is the most wonderful ever built. But two of these machines were ever completed and are now in the possession of Cornell and Columbia Universities. Each machine has fifteen thousand parts, and is entirely auto-

matic. With the exception of operating the keyboard, every motion of setting, justifying and distributing the type is purely mechanical. The extreme delicacy of the mechanism and the immense cost of construction were



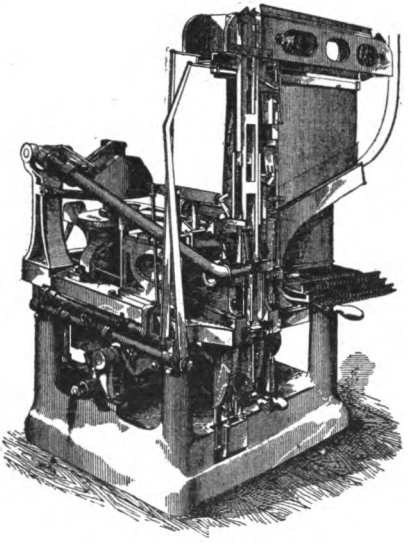
The wonderful Paige typesetting machine

against its success commercially, and the patents were sold to the Mergenthaler Company by Mr. Paige for almost nothing.

The Thorne typesetting machine was invented about 1880. This machine, improved by the addition of distributing apparatus, and known as the Simplex, is now successfully used by many country newspapers.

In 1886 Otto Mergenthaler introduced a machine invented by him which caused a complete revolution in the methods of type composition. It did not set type, but it did set matrices, and from these matrices the type was cast. The new machine was named the

Linotype, because at each complete operation it cast a line of type. The machine has been perfected mainly through the efforts of Philip T. Dodge, and to-day twelve thousand are in use throughout the world in newspaper and book offices.



Mergenthaler's Linotype of 1886

The machine invented by Talbert Lanston, commercially known as the Monotype, was introduced about 1899. Like the Linotype, it is a type-casting machine, but casts single letters instead of lines. It caters to a different field than does the Linotype, and is used in many book and job offices.

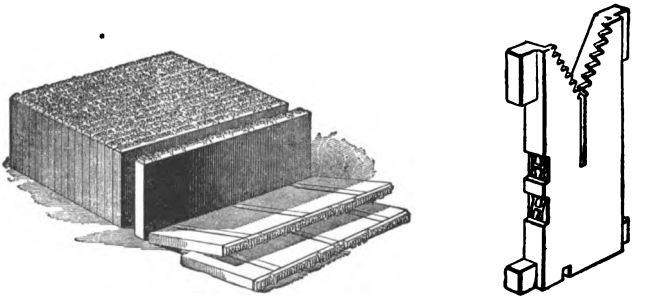
The casting portion of the Monotype is also used by large printing offices for casting display types for use in their composing rooms.

The Linotype machine, as first invented by Mergenthaler, was what is known as a "one-letter" machine and cast but a single face of type, usually a modern Roman used by newspapers. Headings had to be set by hand, and italic was omitted altogether. "Two-letter" machines were later introduced, and recently a double-magazine Linotype was put on the market, which makes it possible to compose copy which calls for four faces of type without changing the machine.

[Practical]

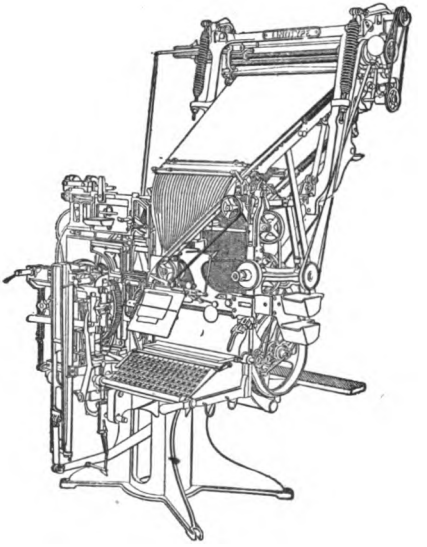
The Linotype

The Linotype is operated in this manner: The operator plays on the keyboard very much as a stenographer does on a typewriter. As he touches the keys, matrices



Linotype slugs and two-letter matrix

are released from the magazine above, and fall one after the other in line on a bar between two jaws. After a line is completed, and justified with wedge spaces, the matrices are carried to a mold where hot metal is pressed into them, forming the letters.



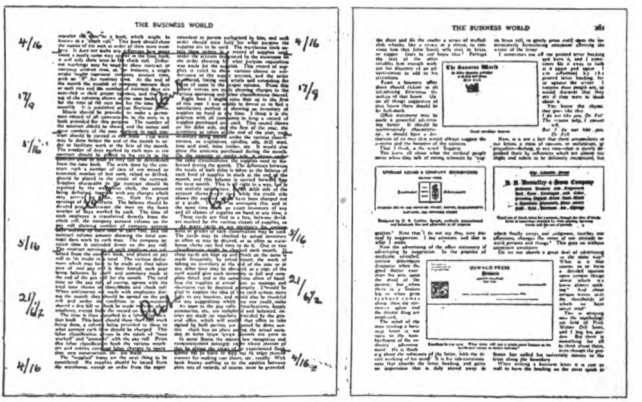
The Linotype

The matrices are then lifted by an arm to the magazine and automatically distributed.

The hot metal is now formed into a slug, resembling a solid line of type; it is shaved smooth at the bottom and assembled with other finished slugs at the left of the operator.

By casting a smaller face on a larger body the effect of space between lines, known as leading, is produced. Two-and three-line initials can be used by blanking the slugs where the initial is to go, and afterward cutting off the blank portion. When Linotype composition is used, running of text-matter around illustrations should be avoided. When runarounds are necessary they can be arranged for in this manner:

Pencil the size of the type-page on paper and paste proofs of the illustrations in position thereon. Draw lines around each illustration to determine how near to it the text matter is to go. Then with a type-gage find how many lines of the different widths are required.



Running around illustrations

Here there are 4 lines 16 picas wide; 17 lines 9 picas wide, etc., which instructions should be attached to the

copy. After being set the slugs are cut and placed in position around the illustrations.

To correct errors in Linotype composition an entirely new line must be set.

Thirty picas (five inches) is the maximum width that a Linotype slug can be made.

Wider measures may be accommodated by using two slugs for each line.

The output of a Linotype machine approximates the product of four hand compositors.

The slugs after being used, are melted and used again.

Fourteen-point is the largest face that can be cast on a Linotype.

To facilitate ejection from the mold, Linotype slugs are made a trifle thicker at the top than at the bottom. Ordinarily this difference is not enough to cause trouble, but slugs should be examined in the form, and if they tilt, narrow strips of cardboard should be inserted between every dozen slugs at their base.

Linotype composition can be purchased at from twenty cents a thousand ems in the small cities to thirty-five to fifty cents in the large cities.

The printing quality of the slugs will vary with the quality and temperature of the metal and the condition of the matrices.

Unless a machine be equipped with sufficient extra magazines, when a change of face is wanted it is necessary to run one set of matrices out of the magazine and run another set in.

Large lots of composition are charged at the rate per thousand ems, small lots (less than ten thousand ems) at time rates, $1.00 to $1.50 per hour.

Where a large number of Linotypes are used a machinist is necessary whose entire time is devoted to the care of the machines.

Where but one or two machines are used a machinist-operator (one who can operate and who also has a mechanical knowledge of the machine) devotes his time to operating the keyboard and is available if anything goes wrong with the machine.

The Monotype

The Monotype is two separate machines, one the keyboard and the other the castor.

These machines may be placed in separate parts of a building, as the operation of the keyboard and the casting of the types is not continuous. Generally more keyboards than castors are in operation.

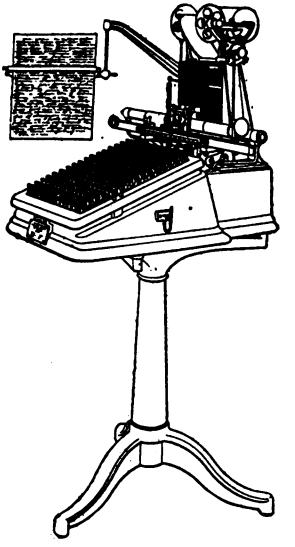
The keyboard is very much like a typewriter, and has more than two hundred keys. As the operator depresses the keys, each one punches a tiny hole at intervals in a strip of paper which unwinds and winds again automatically.

This perforated roll of paper is much like that used on self-playing pianos and organs.

The perforated roll of paper is transferred to the castor, and compressed air is forced through the perforations in the paper, which causes the proper matrices to assemble at the mold and individual types to be cast.

The rear end of the perforated paper is fed first into the castor. Thus the type matter is set backward.

When the copy is set on the keyboard the amount of space required between words is indicated at the end



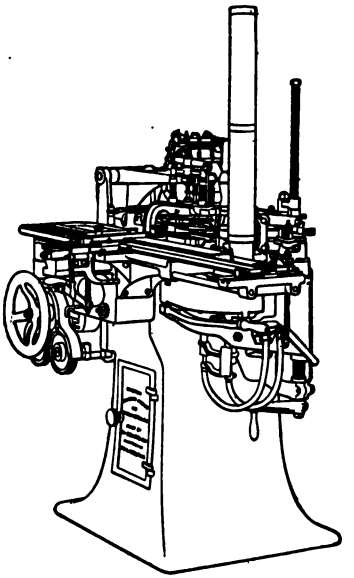
The Monotype keyboard

of each line, and being fed backward into the castor, the proper space is inserted as the type is cast.

After the alignment, body and width of measure have been adjusted by the operator, the casting-machine works automatically. One operator can take care of several casting machines.

The Monotype both sets and casts type, up to fourteen point, but it can cast, for hand composition, type up to thirty-six point.

Forty-eight picas (eight inches) is the maximum



The Monotype caster

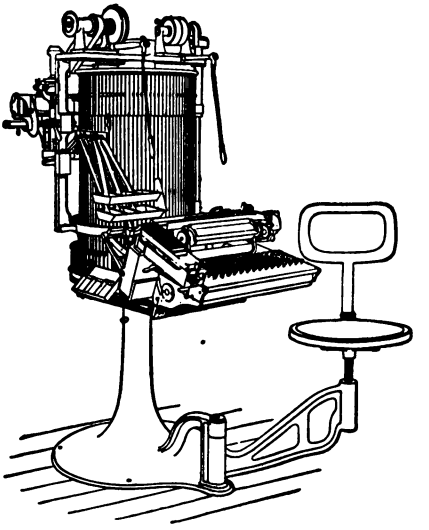
width that a line of type can be set on this machine.

Corrections are made as in hand composition, from sorts provided in type-cases.

Matrices on the casting-machine are arranged in a square matrix case. In making a change of face one

matrix case is slid out and another inserted, an operation taking but a few minutes.

The Monotype is fitted more to the needs of the job



The Simplex type-setting machine

office than the newspaper office. Like the Linotype, it does the work of about four hand compositors.

Runarounds, if they are few, can be rearranged by hand after the type is on the galley, or if many they can be made as the copy is first composed on the keyboard.

The Simplex

The Simplex is the only type-setting machine in extended use. It is operated by a keyboard, and sets and distributes foundry type.

The Simplex consists of two vertical cylinders, one above the other. The top cylinder revolves and distributes the types. The bottom cylinder is stationary, and contains the types in vertical grooves. Beneath the bottom cylinder is a small disc, or plate, which revolves and carries the types as they are released in setting, to an endless belt, which assembles them in line in front of the operator. From this line the types are moved to a gage and justified by hand.

The operator and the justifier together can on an average equal the product of four hand compositors.

The type required for this machine must be specially nicked and made harder with more than the usual amount of antimony in the metal.

The Simplex is adapted to the needs of the small newspaper office. The mechanism is simple, and does not need the care of a machinist.

CHAPTER SIX

Proofreading

[Historical]

IN the days of the early printers, (and also in England at the present time) proofreaders were known as "correctors of the press." These correctors not only corrected errors made in composition but also rectified mistakes made by careless copyists.

Copyists made many errors, for in manuscript books often more attention was paid to appearances than to accuracy, and words were abbreviated to such an extent that meaning was often destroyed.

A dispute over errors occurring in a book published in the Sixteenth Century, was settled, as such disputes are settled in these times, by Erasmus blaming it all on the compositors, who, he said, were in league with the devil.

The hyphen (-) period (.) and colon (:) were the first three punctuation marks used after the invention of printing. A small stroke (/), afterwards converted into the comma, (,) was next added.

It is probable that the seven Roman numerals (I, V, X, L, C, D, M) originated in this manner:

The Romans made a single stroke I for one. Additional strokes were added to express two, II; three,

III; and four, IIII. Two strokes were joined at the bottom to indicate five; V; to which other strokes were added to express six, VI; seven, VII; eight, VIII; and nine VIIII. To indicate ten the *five* numeral was doubled: X. The *ten* numeral was duplicated to make twenty, XX, until fifty was reached which was expressed by two strokes at angles L. This angle was doubled for one hundred, C; and for five hundred the *hundred* numeral was reversed and a stroke added, IↃ. One thousand was expressed by adding the *hundred* numeral to the five hundred, CIↃ.

I I,	V V,	X X,	L L,	C C,	IↃ D,	CIↃ M.

The system of Roman numerals is now modified by using IV instead of IIII, IX instead of VIIII, etc.

In the old Roman alphabet the letter I also answered for J, as this letter is now used; there was no letter U, the V being used therefor. The letter W is also an addition and is so called because it is a double V.

The long "ſ" was used in printing until the early part of the nineteenth century, when an Englishman named Bell innovated the custom of using only the small "s".

The origin of the dollar mark ($) is explained in three ways: First, it may be the combination of the letters U-S; Second, it may be a figure 8 over two down strokes, denoting the unit of a Spanish dollar, or *peso*; Third, it may be a combination of decimal signs as contained in a Federal arithmetic of 1797.

[Practical]

To avoid writing out instructions, a series of marks is used by proofreaders to indicate changes or corrections:

X	Defective letter	⊛	Colon	no ¶	No paragraph
⊥	Push down space	;/	Semi-colon	wf.	Wrong font letter
⅁	Turn over	⌄	Apostrophe	stet	Let it stand
⅁	Take out	⌄	Quotation	tr.	Transpose
^	Insert at this point	-/	Hyphen	Cap.	Capitals
✓	Space evenly	///	Straighten lines	s.c.	Small capitals
⋇	Insert space	⊏	Move over	l.c.	Lower-case letter
⌣	Less space	□	Em quad space	ital	Italic
⌒	Close up entirely	|—|	One-em dash	Rom.	Roman letter
⊙	Period	|—2—|	Two-em dash	(?)	Verify
⁄	Comma	¶	Make paragraph	○	Spell out

/x/caps The first issue of "The American Printer" appeared in the year 1885, under the name of "The American Bookmaker." When John Clyde Oswald took charge of the publication in 1897, the name was changed to "The Printer and Bookmaker." In 1900 the name was again changed, this time to "The American Printer," and under this title it has attained to its present high position. In 1900 "*The Western Printer*," a handsome periodical published on the Pacific Coast, was absorbed, and in 1906 "The International Printer," a strong competitor located in Phila. was purchased and consolidated with "The American Printer."

Proofreaders' marks and how they are used

After copy is set in type a rough proof is taken and read for typographical errors. After the corrections are made, a new proof is taken and compared with the

markings on the first proof and anything missed is again marked.

A proof is then sent to the customer or author, as the case may be, and changes in style or phraseology are marked by them. Such changes, known as "author's corrections," are charged for extra if an estimate has been given on the work.

After a page has been locked up for press or foundry, another reading is given, to catch any errors which might have been made since the last previous reading.

The proofreader is assisted by a person known as the copy-holder. It was the practice some years ago for the proofreader to read aloud from the proof to the copy-holder. This system is not as accurate as the one in which the *copy-holder* reads from the copy to the proofreader. Names should be spelled and figures called one at a time.

Proofreaders must not make changes from copy, but suggest such changes on the proof that goes to the customer or author. Before being sent to the customer, proofs of jobwork or title pages should be passed upon for style by some one in the office qualified to judge typography, and who is also familiar with the tastes of customers.

Punctuation

Punctuation marks were introduced into printing to make meaning clear, and when this is done the purpose of punctuation is fulfilled.

Strict rules governing punctuation have been formulated and slavishly followed, but it is well to use as few

punctuation points as is possible. A deliberate essay on a technical subject needs more punctuation points than a book of fiction or a newspaper article on familiar subjects.

Lengthy sentences should be avoided. It is better to use a period than a semicolon.

Points at the ends of display lines are unnecessary if the meaning is clear, and a word is not divided.

Frequent divisions, and divisions of words into syllables of less than three letters, should be avoided.

In degrees such as D.D., LL.D., and A.B., space should be omitted between the letters.

Periods should be used after abbreviations, but an abbreviation as common as per cent (per centum) need have no period.

Words should be divided by syllables according to sound, as enthu-si-ast, prac-tical. Where doubt exists, leave decision to a dictionary.

Capitalization should be avoided as much as possible in plain, text matter, but in display composition it is well to capitalize frequently.

Figures should be spelled out excepting where it is awkward to do so: "Five hundred," "643¾."

Roman numerals other than the few familiar numbers, should not be used, as the majority of readers are unable to understand them at a glance. Arabic figures are more familiar:

Roman	I	V	X	L	C	D	M
Arabic	1	5	10	50	100	500	1000

Italic letters were much used at one time for emphasis, names of ships, foreign words, etc., but are now comparatively little used in plain composition. In display composition it is used to get variety, acting as a contrast to Roman types.

CHAPTER SEVEN

Stonework

[Historical]

WHEN hand presses were exclusively used, and but two or four pages printed at one time, imposition of forms was one of the least of the printer's troubles.

With the introduction of cylinder presses schemes of imposition with the first page at the left end of the form toward the stoneman were introduced, which were used exclusively until folding machines were invented, when the imposition was made with the first page in the center instead of at the left end.

The outside imposition, however, is still used for hand-folding.

Folding machines are now made with special and unusual folds, and before a form is imposed, it is necessary to ascertain the imposition required by the folding machine which is to be used.

It is necessary when register is wanted, to use points in forms to be folded by machine.

The young printer taking up stonework for the first time is confused by the old names, such as duodecimos and sextodecimos, which the old stonemen delight to use. It is simpler and more sensible to call the forms sixteens, twenty-fours, etc.

[Practical]

In the study of imposition a comprehension of the principles governing the placing of four or eight pages will make easier the task of imposing sixteen or thirty-two pages.

All forms as they are laid on the stone consist of an outside and an inside section. Sometimes both sections are put on the press at one time; the form is backed up immediately after printing one side, and the stock cut in half before folding. On work of a good quality it is inadvisable to attempt to print this kind of a form unless one side can be finished in the evening and backed up the following morning. Printing the outside and inside sections each as a separate form is a safer way, especially if the job is to be slipsheeted.

The line dividing the pages of each form in the diagrams here shown defines the point of separation of outside and inside sections and also shows, when all the pages of the form are printed at one time, where the form is to be cut after being backed up.

Technical terms for the forms above mentioned are *sheet* and *half-sheet* imposition. The sheet is the scheme where the form is divided for printing into two sections, the section containing page 1 being the outside section, and that containing page 2 the inside section. The half-sheet is the scheme where all pages of the form are printed at one time, the sheet turned and backed up, and then cut in half.

Preliminary to the imposition of the forms is the plac-

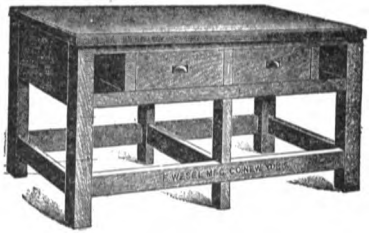
ing and making up of the pages. Very often the galleys of matter are furnished to the make-up man and he places folios on the pages in consecutive order and passes them to the stone-man for imposition. As no man is infallible this method is accompanied with a large percentage of risk. The pages should be pasted up from galley proofs and a schedule made therefrom.

A simple method used by stone-men in determining the outside and inside sections of a form is by cancelling every alternating pair of pages, beginning with the second page of the form. The pages composing the inside and outside sections are thus determined.

1 2 3 4 5 6 7 8 9 10 11 12

The dimensions of a page of type should be in proportion to that of the trimmed page, slightly shorter in length, if there is any variation. Except in special cases the printed page should *not* be placed in the center. A common method is to center the solid reading portion and allow the running head and folio to strike in the margin. This is not in accord with good taste in bookmaking. The type-page should set toward the upper corner of the leaf and toward the fold. A pleasing effect can be secured by making the top and back margins the same, the outer side margin half again as wide, and the foot margins twice as wide as the top or back margins.

The common scheme of imposition is that of starting with page 1 at the lower left corner. In these diagrams the position of the pages is just as they lie on the



An imposing stone

stone—the reverse of the printed sheet. A four-page form is first. This is known as the "folio," a form of two leaves.

It will be noticed that the first and last pages are together as a pair. These pages are found in this position no matter how many pages there are to the form.

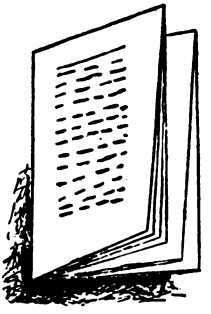
Another interesting point is that the page folios of each pair when added together make a total of one more than the number of pages to the form, viz: 1+4=5; 2+3=5. This rule is invariable.

Diagrams are shown for the imposition of an eight-page form, known as a "quarto," a sixteen-page form, known as "octavo," and a thirty-two page form, known as a "sextodecimo."

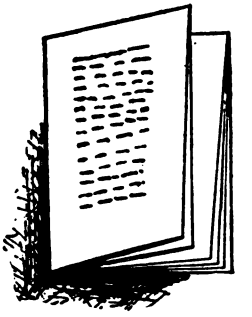
Forms imposed with the first-page at the lower left corner are to be folded by hand. For machine folding, the form is imposed with the first page near the center

instead of at the lower left corner. The difference is merely a transposition of sets of four pages in the eight and sixteen-page forms and of sets of eight pages in thirty-two page forms. The center scheme is also used to get "light" pages in the center of the form.

By the illustrations of the folded sheets it will be noticed that in the case of a form imposed from the center the first four leaves are closed at the side by the fold, while in the case of the form imposed from the left corner the first four leaves are open at the side.

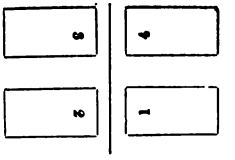


Fold of a sheet imposed from outside

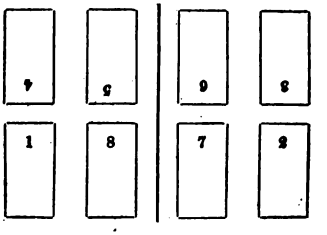


Fold of a sheet imposed from inside

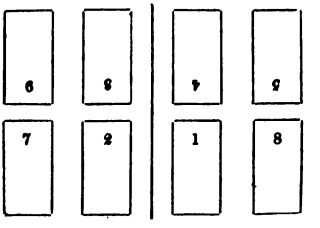
The printer should not impose a form as large as thirty-two pages unless the stock is of very light weight and the binding does not need to be of the best. It is not fair to send a form of this kind to the binder and expect him to do a first-class job. The many folds required will cause "buckling" or wrinkling of the sheet and make it impossible for the pages to lie straight and



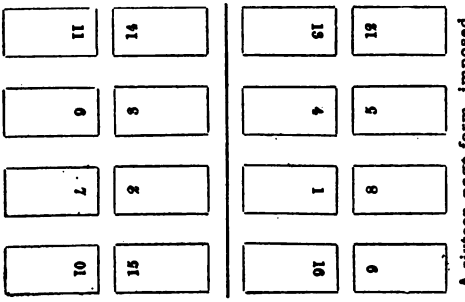
A four-page form



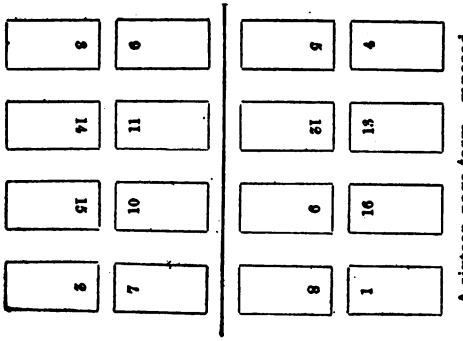
An eight-page form, imposed from the outside



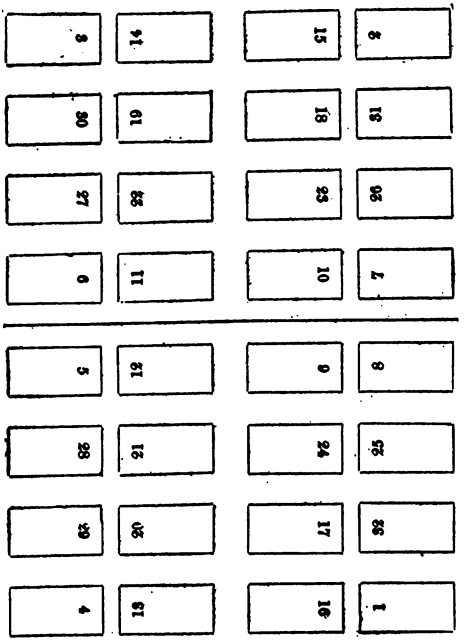
An eight-page from, imposed form the inside



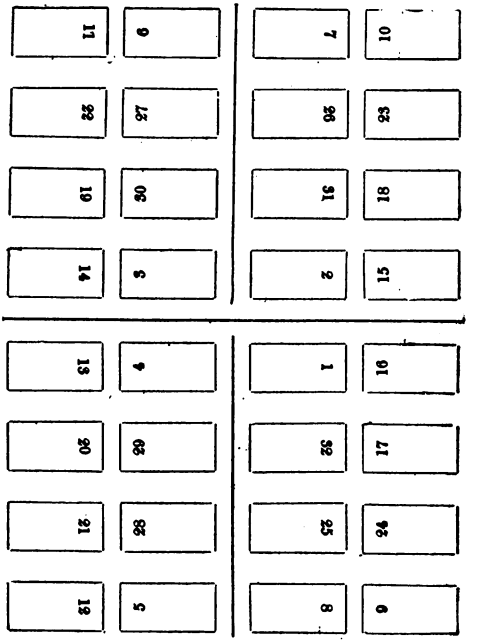
A sixteen-page form, imposed from the inside



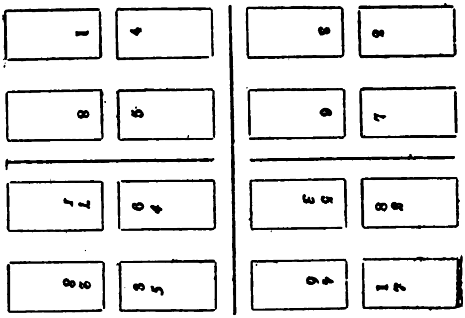
A sixteen-page form mposed from the outside



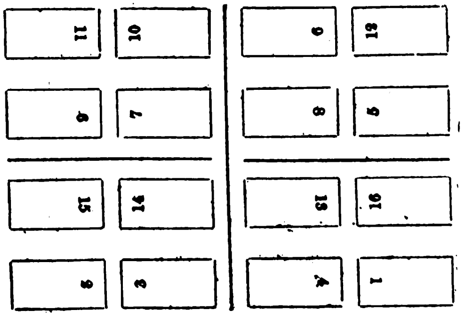
A thirty-two page form, imposed from outside



A thirty-two page form, imposed from inside



Duplicate eights, printed as a sixteen. Italic figures indicate new imposition



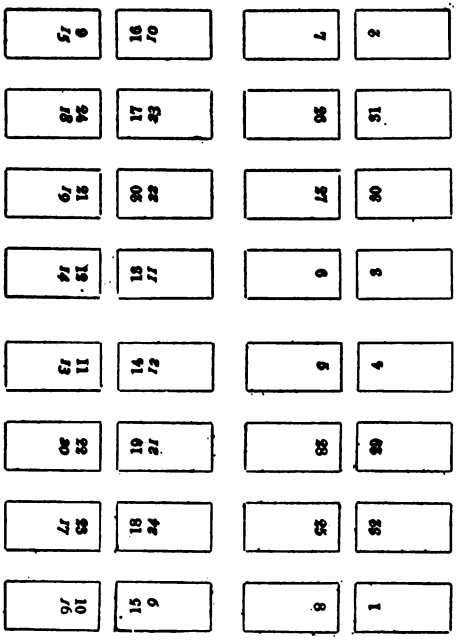
Sixteen pages, to be cut apart, folded as two eights and inset, to avoid buckling

in register. The binder sometimes prevents this wrinkling by cutting the sheet with a hand folder while in the process of folding, but this is expensive and unnecessary. The better way is to avoid the trouble by running smaller forms or by imposing the pages so that the sheets when completed will be made into two or more separate forms by cutting apart. Very small forms may be necessary when extra heavy stock is used. There are folders which perforate the paper at the fold, and thus prevent buckling.

A diagram is shown of two eights imposed as a sixteen. After printing, the form is cut as indicated by the lines, then folded and the inside eight inserted in the outside eight. This is for a saddle-stitched booklet or pamphlet. For a book composed of a number of separate sections the sixteen may be imposed by duplicating the schemes already suggested for the single eight, placing the eights side by side and having page 1 or its equivalent in each case to come at the end, as will be seen by consulting the diagram of this form.

There is indicated by italic figures on this diagram another style of imposition for this form. It will be noticed that the italic figures are a duplicate of the long eight to the left. This last scheme of imposition is preferred by some because it allows of page 1 being fed to the guide at each printing. It is not a changing about of single pages, but is merely a transposition or turning about of eight pages in the bulk.

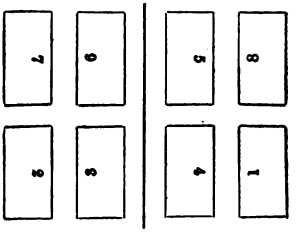
A diagram is given of two sixteens worked as a thirty-two, one section insetting the other after being folded.



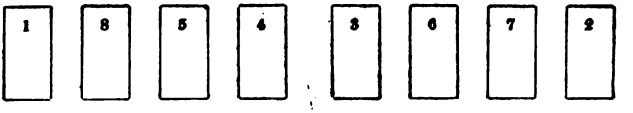
Thirty-two pages to be cut apart, folded as two sixteens and inset, to avoid buckling

The italic figures in the upper portion of this diagram denote another scheme of imposition that is to be commended because of the fact that atmospheric conditions sometimes cause paper to shrink so that it varies almost an inch in size and by this last imposition the first page of each form (1 and 9) is toward the guide end of the press and also toward the guide during the operation of cutting, thus guaranteeing more accurate work, whether folded by hand or by machine. This last scheme of imposition is but a transposition in bulk of the upper sixteen pages.

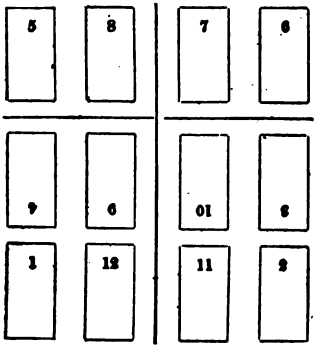
The flat or oblong page should be imposed as shown, for eight pages. Larger forms can be worked out from this.



Sometimes it is necessary to depart from set schemes of imposition in order that ends of stock may be used or because an economical cutting of the stock demands it. A scheme for a form of this kind is exhibited.



There is less likelihood of confusion if forms are made up in eights or multiples of eight, yet it is necessary for various reasons that twelve, twenty-four and other odd numbers of pages be imposed. It is possible sometimes to fold in the odd four pages, but for good work it is better to cut off the end and inset after folding. A diagram of a twelve-page form that can be treated by either method is shown.



Twelve pages
Four to be cut off after printing and inserted

When imposing a form in two sections the stone-man should acquire the habit of having the lowest folio toward him. Thus, in case of the sixteen-page (outside imposition) form, the outside section would have page 1 or its equivalent in the left corner of the side nearer him, and the inside section page 2 or its equivalent. The pressman should put the forms on the press so that the lowest folio is toward the gripper end. By working to-

gether in this manner better register will result than would be had were each workman to follow his own inclinations.

The tumble sheet (a sheet imposed so that after the printing of one side the sheet is reversed by turning over from bottom to top) should be avoided. When a sheet is reversed by turning from side to side, the same edge is again fed to the guides, insuring register. Especially is register secured if in each case the same end of sheet is fed to the side guide. This is easily done on a cylinder press and is possible on a platen press.

There is shown a schedule of forms that is excellent because of its adaptability to almost any circumstance and condition. The column of figures on the left denotes the outside pages of a form, while the figures on the right are the inside pages. The schedule is divided into forms by drawing a line across after the last folio of each form. Thus if the forms are sixteens to be bound in

Outside i iv	Page Proof	Stone Proof	Press Proof		*Inside* ii iii	Page Proof	Stone Proof	Press Proof	
1					2				
4					3				
5					6				
8					7				
9					10				
12					11				
13					14				
16					15				
17					18				
20					19				
21					22				
24					23				

A schedule for checking forms

sections the line is drawn under 16, 32, 48, etc.; or if they are sixteens inset and saddle stitched of say forty-eight pages, lines are drawn under 8, 16, 32, 40, and 48. In the last instance the first and second forms will each contain eight pages of the front and eight pages of the rear portions, and the third form will contain the sixteen pages of the center portion.

There are various other schemes of imposition than those shown in this chapter, and the printer should consult with his binder as to the imposition of any work that he may have. There are many makes of folding machines and all do not fold sheets in the same manner. For instance there is a machine that makes the "accordion" fold, by which the form is so folded that four sections are together ready for stitching, saving the cost of gathering the sections. In these days of printing factories the imposition and folding of forms present a bewildering study.

CHAPTER EIGHT

Paper

[Historical]

Ancient Writing Materials

THERE were four important writing materials used in ancient times.

Papyrus, made by the Egyptians from the pith, or marrow, of the papyrus plant. The pith was split into thin strips, which were then pasted together at the edges, and the ends trimmed. Over these strips at right angles another layer was placed, and the whole soaked in water, heavily pressed, dried, and smoothed by rubbing with shells. The sheets thus made were pasted together end to end, about twenty sheets to a roll, and wound around a wooden rod.

Paper (derived from the word "papyrus") is the invention of a chinese, Marquis Tsai, who several hundred years before the Christian era taught how to make paper from bamboo, hemp, rags, etc. The Chinese method is this: Bamboo stalks are soaked in water for about three months, after which they are beaten to separate the fibres from the bark. The fibres are then cooked, washed, and beaten to a pulp, which pulp is placed in a vat containing water. A sieve made of bamboo splints is dipped into the vat and a layer of the

pulp taken up. The fibres of the pulp are interlaced by a few shakes of the sieve. After slightly drying,

Japanese paper makers

the sheets of paper are placed in a pile and pressed, after which they are hung up to dry thoroughly.

Vellum, the dressed skins of very young kids and lambs, is thin and highly polished.

Parchment was made from the skins of sheep and goats. It is thicker and coarser in finish than vellum. Two sheets of parchment were obtained by splitting sheep skins.

Other Methods and Materials

The Hebrews wrote on tables of stone with a hard metal tool known as a stylus. Wood, earthenware, and animal skins, were also used.

The Babylonians and Assyrians wrote with a stylus on tablets of soft clay, which were afterward hardened by baking.

The Greeks and Romans used flat pieces of ivory and wood, covered with wax. Scribbling and drawing with chalk or charcoal on walls was common to these nations.

The Egyptians wrote with the reed (the end of which was split like the present-day pen) on wooden tablets.

The papyrus plant, from which the Egyptians prepared a writing material

In common with the Babylonians and Assyrians, they also engraved hieroglyphics on the stones of their walls, palaces, temples, monuments, and tombs.

The Indians and other primitive peoples wrote on skins of animals and on barks of trees.

Thin sheets of lead were used by some of the early nations as writing material.

Greek writings of the Second to Ninth centuries and papal documents of the Eighth to Eleventh centuries

Paper-Mill of the Sixteenth Century

were on papyrus. During the Middle Ages, vellum was stained purple, written upon with gold and silver, and in other ways beautifully decorated.

Cotton paper, made from the wool of the cotton plant, was used by the Arabs in the Eighth Century; and for Greek manuscripts in the Thirteenth Century.

Rag paper came into general use in Europe in the Fourteenth Century, gradually displacing vellum.

The paper used in the early printed books of Gutenberg and others was the ordinary writing paper of the period, made from linen rags and sized by dipping each sheet in a tub containing a thin solution of glue. Books were later printed on paper that was sized but little or not at all.

Modern Methods

The first great improvement in the manufacture of paper was the discovery in 1774 of chlorine as a bleaching agent, making possible the manufacture of white paper from rags not white.

Baskerville, an English printer, introduced the plan of giving gloss to paper by hot pressing.

The greatest advance in paper-making occurred about 1804 with the first operation of the Fourdinier paper-making machine. This machine was invented in 1798 by Louis Robert, a clerk, of France.

The first paper-mill in America was established in 1690 at Germantown near Philadelphia by William Rittinghuysen (now called Rittenhouse).

The first paper-making machine in America was set up in 1827 at Saratoga, N. Y.

About 1850 the introduction of wood-pulp and wood-fiber for making news, book, and the cheaper writing papers, decreased by one-half the cost of such papers. By boiling the wood in chemicals it is softened and the fibers are separated. The pulp is then put through

the machine in much the same manner as rag pulp, described on a following page.

Coated papers came into use with the introduction of the halftone plate, the latter part of the last century.

Before this time, and especially when the hand press was the principal printing machine, paper was wet or dampened before printing. This practise has been abolished in letterpress printing.

With dry paper a new annoyance, "static electricity" (which causes the sheets to stick together and ink to set off), has appeared.

There are now almost a thousand paper mills in the United States—more than in any other country.

A great variety of writing, book, and cover papers is now made, in colors more artistic than the old pinks, yellows, blues and greens of fifty years ago.

[Practical]

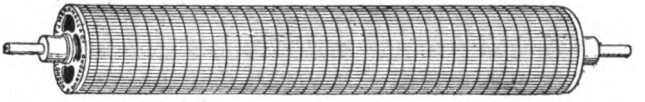
Book Papers

Book papers, the kinds used for books, catalogs, pamphlets, etc., are in the better grades made from fibers of wood separated by a chemical process, and cotton rags, and in the cheaper grades from plain wood-pulp, ground from the ends of logs.

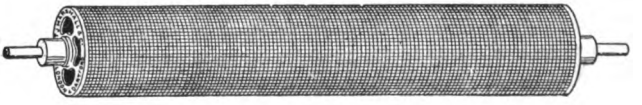
Wove finish is practically an unfinished paper, not being put through calendering rolls. It has an antique surface.

Laid finish is the same as wove except that wires have

A modern paper mill. The vat on the right contains the pulp



Dandy roll used for laid finish



Dandy roll used for wove finish

been pressed against it as it passed under the dandy roll, making depressed lines.

Machine finish (M. F.) is smoother than wove, the paper having gone once through the calendering rolls.

Sized and super-calendered (S. & S. C.) is a smooth, hard finish, obtained by mixing a sizing composed of glue and other ingredients with the pulp to fill up the pores of the paper, and then putting it through a series of rollers of various kinds to get a glossy surface.

Coated finish is a paper which has been surface-coated by means of brushes, and afterward calendered by being run through steel rollers. The coating material is clay or sulphate of lime mixed with casein (the product of skimmed milk) or glue.

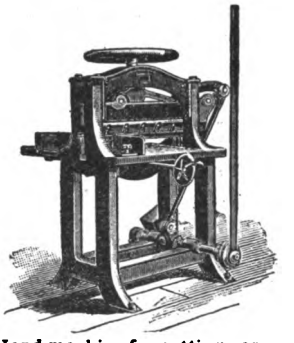
Enameled finish is a highly polished surface made with a metallic coating of white lead, whiting, etc., brushed on and hot rolled.

Dull finish coated is the same as coated, excepting that the calendering is omitted.

Hand made is a paper made with rag stock by hand

in the old way. A strong rough finish, with deckel edges on four sides. Drawing papers in the best qualities are made by hand.

Deckel Edges.—A frayed edge, originally caused by the frame of the mold in which the paper was formed. Now made on two edges of the paper by attaching bands of rubber to the sides of the wire cloth carrying



Hand machine for cutting paper

the pulp. Also made after printing by a deckling machine, and in a crude way in small lots by scraping with a knife the edges of a pile of paper.

Pebbling—The rough finish given to coated stock after printing by feeding it between two rollers one of which has a surface like sand paper.

Weights and Sizes: The most common size of book paper is 25x38 inches. All of the weights from 30 to 120 pounds to the ream (500 sheets) can be had in this size, the lighter weights being in machine finish and the heavier weights in coated stock.

Other common sizes are 26x42, 28x44, 33x46. Any size can be had if made to order in large quantities, especially in the widths: 25″, 26″, 28″, etc.

News-paper is a grade cheaper than book paper and is made from straw or grass (esparto) and from wood-pulp. It usually comes in rolls, of various widths.

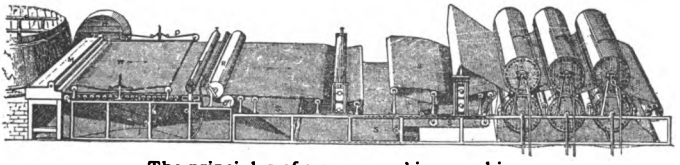
Wrapping-paper is a strong, cheap paper made from old ropes, straw, and jute (a fibrous plant similar to hemp from which rope is made).

Writing Papers

Writing papers are those kinds, known as bonds, linens and "flats," used for stationery and for printed blanks upon which writing is to be done. The materials used vary from wood in the cheaper grades to linen in the expensive grades. A sizing composed of glue, alum, starch, etc., is mixed with the pulp to prevent the writing ink from spreading. Sometimes the paper is sized only upon the surface, by giving it a bath in a tub.

Writing papers are made in this manner:

The rags are sorted and all pieces of metal removed. They are then cut into small pieces, cooked in caustic soda and lime, and bleached white in a bath of chlorate



The principles of a paper-making machine

The pulp is fed in at the left and is formed into paper as it moves to the right

of lime and sulphuric acid. The rags are next beaten to a pulp and the sizing added.

If the paper is to be colored, the color powder is mixed with the pulp, which is fed into the paper-making machine. It comes from the machine on a moving and vibrating belt of closely-woven wire. The paper is formed as the water drains off. A cylinder of woven-wire, known as the dandy-roll, presses the pulp which passes under it, and also gives it the watermark.

The paper now has a rough surface and is fed through steel rollers, which press it smoother. It is then cut into sheets and hung in a loft to dry and season. Cheaper grades are dried in a machine.

Flat writings are those papers sold for five to twelve cents a pound, having a calendered surface, and are generally used for ruled headings, such as bills, statements, etc.

Bond papers sell at eight to twenty-five cents a pound; have a slightly rough surface, and are used for the better class of stationery headings.

Linen papers are of the quality of bond papers and have a laid watermark (parallel lines running down the sheet, made by wires on the dandy roll).

Crash finish designates such bond papers as have been pressed between fabrics, or given a rough, woven appearance by being run between embossing rollers. The last mentioned is the most economical way.

Ledger papers are made chiefly from linen rags, are heavier in weight than bond papers, and are formed to give a fine writing surface. They are used in the

making of blank books, and for the ruled sheets of loose-leaf bookkeeping.

Watermarks are those devices or words which may be seen in paper by holding the sheet to the light. They are made by bending thin wire, much as the man at the county fair makes names with "gold" wire. The designs are then soldered to the "dandy roll" and pressed into the paper-pulp while it is forming. The paper is consequently thinner where the watermark is impressed. Engraved plates are also used for the purpose.

Sizes of writing paper, years ago, were designated by names, some of which still cling to certain sizes. The most common size 17x22 was called Folio Post, because it was originally folded once and contained a post horn as a watermark.

Other sizes usually to be had are 14x17 (Flat Cap), 16x21 (Demy), 18x23 (Medium), 19x24 (Royal).

Commercial headings are commonly of these standard sizes:

Letterheads	8½x11	which is one-fourth	17x22
Packet "	8x10½	which is one-fourth	16x21
Noteheads	5½x8½	which is one-eighth	17x22
Packet "	5¾x9	which is one-eighth	18x23
Billheads	6's—8½x4⅔	which is one-sixth	14x17
"	4's—8½x7	which is one-fourth	14x18
"	3's—8½x9⅓	which is one-sixth	17x28
"	2's—8½x14	which is one-half	14x17
Statements	5½x8½	which is one-eighth	17x22
"	5½x11	which is one-sixth	17x22
"	5½x4¼	which is one-sixteenth	17x22

Envelopes are made in regular sizes from wood and rag stock in wove, laid, bond, linen, and crash finishes. The white wove is the finish most likely to be found in stock.

The size known as 6¾ is the one most in commercial use, the popular sizes being:

No. 5	3½x5½
No. 6¼	3½x6
No. 6¾	3⅝x6½
No. 9	3 15/16x8⅞
No. 10	4⅛x9½
No. 11	4½x10⅜

The baronial sizes are:

No. 4	3⅝x4 11/16
No. 5	4 3/16x5 3/16

Bank book sizes are:

No. 6	4⅛x6¼
No. 7	4 5/16x7⅛

Various small envelopes known as coin, drug, and pay envelopes are made, some with flaps on the end and some on the side.

Large-size envelopes are also made in white wove and manila for various purposes.

Cardboard

Cardboard, customarily 22½x28½ inches in size, is made in various grades, some of which are: bristol, pasted bristol, blanks, railroad manilla, and strawboard.

Bristol board, such as fine wedding stock and best

quality index cards, is really a thick sheet of linen rag paper.

Pasted Bristol is several sheets of paper pasted together, known as two-ply, four-ply, etc. The quality of such bristols varies with the stock used for the layers.

Blanks, used for window cards and placards, are made of cheap pulp, coated on one or both sides.

Railroad boards are heavy tough cards, made with jute manila and colored on the surface in bright reds, blues, yellows, etc. They are used for checks and for placard purposes.

Manilla is a yellowish cardboard made, in the best grades, from the fibers of the jute plant. It is used for tags and purposes requiring wearing qualities.

Strawboard is a coarse cardboard made of straw pulp and roots. It is used in manufacturing cardboard boxes, for book covers, and for various packing purposes.

Miscellaneous

In matching the weight of paper, ascertain the number of square inches in the desired size, and multiply by the weight of the paper to be matched. The result is then to be divided by the square inches of the paper to be matched, which will give the weight of the paper desired.

All papers, except a few of the high-grade ledgers, are now packed in reams of five hundred sheets, and the weight that may be given (20 pounds, 50 pounds, etc.) is the weight of the ream. Under the old duo-decimo

system twenty-four sheets were folded in a quire, twenty quires (480 sheets) making a ream. All papers are now sold flat, or in rolls for web presses.

When cardboard and heavy cover papers are used for folders or covers they will not crease without breaking. This trouble is overcome by scoring, which is often done by impressing a sharp-faced brass or steel rule on the folding line, but a better method is to score with a string. Two rules are locked parallel in a chase with enough space between to admit the string. A linen cord is fastened to the tympan sheet with sealing wax in position so that when the press closes the cord will come between the parallel rules. The cardboard or cover stock being fed to guides, over the cord, is embossed at the folding line when the press closes. A light impression is sufficient.

CHAPTER NINE

Composition Rollers

[Historical]

GLUE and molasses as a composition was adapted to printing press rollers in 1810 by two Englishmen, named, respectively Forster and Harrild.

Prior to that time, and for fifty years after, to more or less extent, ink was put on the face of the printing form with balls of wool covered with leather, attached to a handle of wood, which tools were known as "ink-pelts."

When cylinder presses were first tried the inking rollers were made of the same materials as the ink-pelts —wool and leather.

When the glue and molasses composition was discovered it was immediately applied to cylinder uses as a covering for the leather rollers.

The composition was also used in making ink-pelts. The method of using the pelts was this; The printer took one in each hand, grasping the handles, and alternately beat them upon the ink until it was well distributed, after which the face of the type-form was beaten in a like manner until it was well inked.

Glue, molasses, and a small quantity of Paris white, were the only ingredients used in making rollers for

many years. The glue gave toughness and the molasses gave suction to the rollers.

Were only glue used the rollers would be too hard. In summertime more glue was added to the composi-

Using ink-balls in 1564
This was the manner of inking the form before composition rollers were invented

tion of rollers, to combat their proneness to get soft and sticky.

The first roller makers in the United States were Samuel Bingham, Daniel Fanshaw, and James Booth. Leander K., son of Samuel Bingham, invented the "gatling" process of making rollers in large quantities.

[Practical]

A formula for making composition rollers, published in 1859, gives these proportions:

Summer: 3 parts glue, 1 part molasses.
Winter: 3 parts glue, 4 parts molasses.
Spring and Fall: 3 parts glue, 2 parts molasses.

Crude glycerine, now added to the composition (reducing the amount of molasses used) gives longer service to the rollers and keeps them moist in winter.

Each roller maker has his own formula and guards it as a trade secret; although it is known that a chemical substitute is used for molasses. Following is a recipe for winter rollers recently published:

9 lbs. Cooper's best glue.
2 gals. best sugarhouse molasses.
1½ pts. crude glycerine.
2 oz. Venice turpentine.

Making the Roller

Makers supplying printers with rollers have equipment for making large quantities of rollers of all sizes quickly. One process is thus described:

There is included in a single circumference from six to forty molds. Such a cluster of molds is called a gatling gun, the simile being well carried out by the fact that the gun swings on pivots for oiling, and that the operator uses a swab on a pole to oil the moulds.

Ingredients of the mixture in use are placed in the cooking kettle, elevated over another kettle below it.

Steam that circulates between the inner and outer kettles of copper, cooks the compositon, while steam-stirring apparatus keeps the composition in motion.

While the composition cooks, the operator oils the molds, the gun being tilted to the angle handiest for these operations. Then stocks are inserted in the molds to be used. Simple plugs stop up all molds not to be used. The gun is swung back to the perpendicular and coupled to the water connections that heat the molds and stocks.

When the composition is cooked, the stirring apparatus is removed. Sieves are placed over the lower kettle, the cock is opened and the composition flows through. After this a hose is coupled to openings in the bottom of the kettle and in the gun. Another hose leading from an air-pressure pump is coupled to a cock and the composition is forced upward into the guns, a mode of pouring that expels all bubbles.

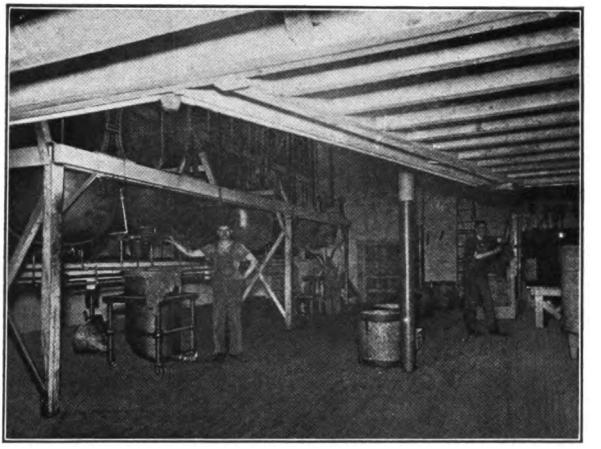
The actual casting takes less than a minute, no matter how large the roller.

As soon as the pouring is completed the hot water is turned off and cold turned on, the kettle being disconnected from the gun.

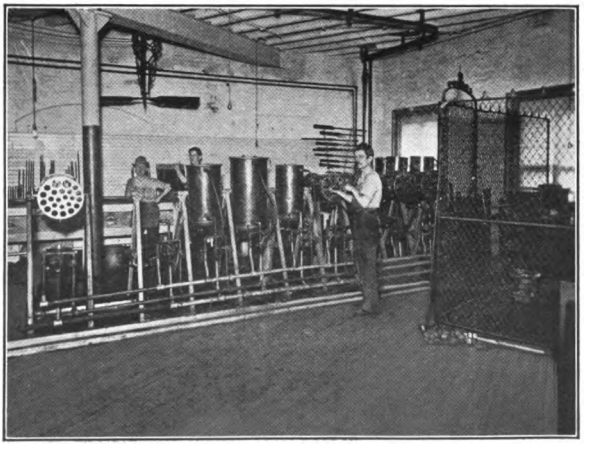
Within an hour the rollers are cooled, the bottom is removed and the rollers drop out of their own weight.

Trimming takes another ten minutes, and except for the period of seasoning, about ten days, the rollers are ready for the press.

No printer can hope to produce rollers as good as he can buy from a manufacturer, or as cheaply, so that in



Roller making. Mixing the composition



Roller making, showing the "gatling" molds

the case of most printers, the necessity for making rollers "at home" no longer exists. The following information is therefore offered for the benefit only of the reader in remotely-situated districts.

Home-made Rollers

A simple process for the printer who makes his own rollers is this:

A double kettle or pot (one inside the other) should be provided. The larger kettle is to contain water which will prevent the direct heat from reaching the roller composition while it is being melted.

The molds are tubes of iron or brass, ground smooth and oiled on the inside.

The glue is soaked a short time in water to facilitate melting, after which the water is drained off and it is placed in the kettle. After the glue is boiled slowly for some time the molasses is poured in and stirred until thoroughly mixed with it. The composition is allowed to boil slowly for an hour, it being stirred and skimmed occasionally, when the glycerine and turpentine are added. After being allowed to settle for ten minutes, the composition is ready for the mold.

The roller stock (or core) is wound near the ends or the full length with cord to give the composition a hold. It is then placed in the center of the mold, which stands upright. The composition is slowly poured in at the top until the mold is filled.

When the composition cools, the roller is pushed out and trimmed on the ends.

Care of Rollers

In summertime, during the humid days, a great trouble is the softening of the roller composition and the moisture that the roller absorbs, unfitting its surface for evenly taking on and laying off ink.

In case of extreme annoyance from the moist condition of the roller several things can be tried:

Wash the surface with benzine. The benzine will evaporate and take with it some of the moisture.

Powder the surface with cornstarch, rubbing it off carefully.

Coat the surface with powdered alum, and let stand for a half hour before wiping off. The alum will draw the moisture out of the roller.

Change the rollers frequently. Treat them as just mentioned when taking off so they will be in fair condition for next change.

Rollers need cool, dry air, and if there is any air stirring see that they get the benefit of it. The current from an electric or other kind of fan will help.

In winter-time roller troubles are of another kind. Roller composition, in spite of the extra amount of molasses or glycerine used, will shrink, become tough and lose all suction.

To keep composition moist, a cup of water should be put in the closet with the rollers, which should be rubbed with a damp sponge after washing and put away without oil or ink on them.

Should a roller lose suction while running, a damp

sponge rubbed over the face of the roller will help matters temporarily.

Rollers and presses should be washed and cleaned every day before quitting work. This is done with coal oil, machine oil, or a thin non-combustible oil made for the purpose, called "tarcolin."

If it is not possible to wash up at night, remove the form, disconnect the fountain and squirt a little machine oil on the rollers while the press is running, allowing it to mix well with the ink before stopping the press.

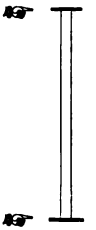
Not so many years ago lye, a solution of potash, was used for washing rollers. Unless it was quickly wiped off it blistered the rollers.

A rather quaint way of separating the ink from the roller, extracted from a book of fifty years ago, represents Yankee ingenuity at its best: "New rollers may be cleaned by running them back and forth, a few times, over a dusty part of the floor; the ink becoming absorbed by the dust both can be removed by using a sponge which has been slightly dampened."

The principle of this method can be applied to removing copying ink from rollers. Copying ink is usually washed off rollers with water. Do not do this. Clean the ink disc in the usual way (a special covering is sometimes used) and then feed stiff paper on the rollers until most of the ink is removed, after which distribute a black ink on the press and wash in the usual way. This will almost entirely remove the copying ink from the rollers.

Composition rollers are likely to be cut by vertical

rules contained in a form. This can be partially prevented by gluing strips of cardboard on the tracks over which the roller bearers travel, or by locking small pieces of rule at the ends of the longer rule; as is shown here:



CHAPTER TEN

Printing Inks

[Historical]

INK as first made was easily removed from the surface upon which it was written. It is recorded of a literary man of two thousand years ago, that he sent a sponge along with his manuscripts, that the writing could be erased if "not available."

"Indian ink" was made by the Chinese over four thousand years ago. It is likely that the early inks were composed of lampblack and gum.

That iron rust was used in the ink with which some of the old manuscripts were written, is proved by the fact that where the ink has faded there remains a faint, rusty, brown color. It is possible to renew the writings of such manuscripts by sponging with tannin, a method known in 1660.

Roman copyists rubricated church rituals with an ink made of red ocher (earth). *Rubrica* is Latin for "red earth."

Block-book printing made necessary the invention of ink different from that available, and shortly after the year 1400 linseed oil was introduced in the making of ink for printing purposes.

The early printer made his own inks, and it is only

during the last hundred years that the ink-maker has been depended upon to furnish them.

Much has been said about the superiority of the printed pages in the early books; but were they really superior to present-day printing? The type-faces were large, the paper was dampened, and a heavy impression was given. With ample ink spread on the face of the form a dense black print naturally resulted.

The Bibles of Gutenberg show the ink a strong black, without gloss. On the books of Jenson the ink is an intense, velvety, glossy black.

Others of the early books reveal careless presswork; the ink is not spread on regularly, and is gray in spots. Such defects were corrected by retouching with pen and brush.

The red and blue printing inks used by Schoeffer (who followed Gutenberg) were so dull and faded, compared with the colors used in the manuscript books, which he imitated, that the colors were painted over in brighter tones by hand.

Colored initials were printed by making two separate blocks: the initial letter trimmed closely and the decoration mortised for the insertion of the initial. Each was inked separately and the initial letter then placed within the mortise for printing at one impression.

Color register was secured in early printing by the use of points, such as are now used on paper-folding machines. The point is a pin which perforates the paper on the first impression. Succeeding impressions are taken with the points through these perforations.

These ingredients were used in 1481 by a printshop (Ripoli Press) in making inks: Linseed oil, turpentine, pitch, mascassite, vermillion, rosin, varnish, nutgalls, vitriol, shellac.

Moxon, an English authority, in 1683, complains of the ink of that time, for these reasons: the use of trane oil caused the ink to set off on the sheets; too much rosin made the ink turn yellow; the linseed oil was not sufficiently boiled; black pigment was spoiled by burning with linseed oil instead of grinding it into the oil afterward; the ink was gray because not enough black pigment was mixed with the varnish. Otherwise the ink seemed to give satisfaction.

The most important discovery in the making of inks, paints and dyes, was that of aniline colors about 1858. Almost every color can be obtained from these coal-tar dyes, which, however, are inclined to fade when exposed to sunlight.

Great progress has been made in ink-making during recent years. The introduction of halftone engraving about 1885 made necessary a softer and more finely-ground ink. The inkmaker supplied this, and also gave the printer fine colored and doubletone inks for the purpose.

[Practical]

Writing ink is of the nature of dye; printing ink, of paint.

Printing ink is generally composed of two substances: a varnish, and a coloring matter called the pigment.

The *varnish* is made of (1) linseed oil; (2) rosin; (3) soap.

(1) Linseed oil is the oil pressed from the lint of the flaxseed plant and boiled. It reduces the pigment to a condition that will allow of its being distributed on the press rollers, and also causes the ink to dry.

An oil extracted from rosin is substituted for linseed oil in making the cheaper grade of inks.

(2) Rosin is a frictional substance that remains after turpentine is purified. It assists in uniting the oil and pigment, prevents the oil from spreading on the paper, and causes the ink to adhere to the paper.

(3) Curd soap (a compound of curdled milk and soda) is used for light colors of ink, and a yellow soap for the darker colors and for black. Soap causes the ink to distribute evenly on the rollers; to leave the type and cling to the paper, and makes the ink easy to wash off. Soap is used with great care and in small proportions, as it is likely to change the shades of some colored inks.

The varnish and pigment are ground and mixed by machinery.

Black Ink

The chief *pigment* for black ink is a soot usually called "lampblack" obtained by burning tar oil in a lamp constructed for the purpose. Ink made from lampblack has a bluish tone.

Another pigment is carbon black, a soot, or carbon got from the burning of natural gas. Ink made from carbon black has a brownish tone.

Ivory black is sometimes used as a pigment and is made by burning ivory to a charcoal and then grinding it to a powder.

It is customary to add a little blue to black inks, to make them a deeper black. Black is proportionately cheaper than colored inks.

There are grades of black ink suited for various purposes. News ink, for printing newspapers at high rate of speed, is to be had for five, ten and fifteen cents a pound.

Book and cut ink, for printing forms containing line and halftone cuts, is to bé had for twenty-five cents to three dollars a pound.

The fifty-cent grade is used on cylinder presses for a good class of booklet and magazine work.

The three dollar grade is used by the best photo-engravers for pulling proofs of fine halftones.

For good halftone work on a platen press the one dollar grade should be used, as platen presses require better ink than do cylinders.

Job blacks do not contain as much varnish as halftone blacks, and are for use on flat writings, machine-finished book papers and the general run of stock in commercial printing.

For bond, linen and ledger papers, and kid finished bristol cards, a special ink is made, sometimes called "bond black." It gives a dense black print not possible with the book inks. A few drops of sodium silicate with a small amount of dryer will adapt ordinary job ink for this purpose.

In printing with black inks the pressman has two troubles: "Picking" of coated papers, and non-drying of printed sheets. The former is due either to the "pull" of the ink when leaving type and cuts, or to the poor coating of the paper.

"Picking" can be remedied by slightly reducing the ink. However, if reduced too much, the quality of the ink will be destroyed. Several reducing compounds are on the market, some of which are varnishes and others mixtures of fatty substances, such as vaseline and soap. Ink manufacturers will supply reducing varnishes to order.

A small quantity of vaseline or lard, or a varnish made of three parts of boiled linseed oil and one part of dammar varnish (a gum rosin oil) mixed into the ink will reduce it and prevent "picking."

Non-drying of ink is annoying, especially on hurry orders. Cool windy weather will cause ink to dry quickly, while warm weather will keep the ink moist in spite of drying varnishes. A recipe for a dryer follows: Three ounces each of boiled linseed oil and dammar varnish, one ounce of Japan varnish and copal varnish, one-half ounce creosote, one dram oil of cloves.

It was the practise years ago to sprinkle powdered magnesia over wet sheets to hurry the drying process, but as this method dulls the ink it is not to be recommended.

Inks vary in drying qualities. Flake white, umber, bronze blue, and chrome yellow dry quickly of themselves; while black, purple, scarlet and maroon lakes,

greens and zinc white, must be assisted in drying by a varnish.

White Ink

The chief pigment for making white ink is white lead, but because lead dulls the color when mixed with vermillion, ultramarine, and certain yellows, another pigment known as zinc white (made from oxygen and zinc) is used in such cases. White lead, however, is more dense and makes a better ink for printing on dark cover stocks.

A very transparent white pigment is manganese, commonly called magnesia. It is much used by pressmen for lightening inks and for making transparent tints. When printing two-color plates the black plate should be printed first. The use of magnesia in the mixing of the tint for the color plate will prevent the color from covering the black. Yellow, however, is somewhat opaque and will slightly cover the black.

Colored Inks

The theory of color tells us that red, yellow and blue represent all the colors of the rainbow, because from them all colors can be made; while white is the combination of all colors and black the absence of color.

In printing with inks a mixture of red, blue and yellow produces a black, and white is really the absence of color.

There are warm and cold colors, as the colors are related to light or to darkness, to warmth or to cold.

Yellow, orange, and the bright shades of red are warm

colors. Blue, green, purple, and the deep shades of red are cold colors.

Yellow, red and blue are the primary colors, and most colors can be made by combinations of the three, or two of the three colors. The primary colors cannot, however, be made from any other colors.

Orange (made of yellow and red), green (yellow and blue), and purple (red and blue), are the secondary colors, and are each made from two of the primaries.

Citrine (green and orange), russet (orange and purple), olive (purple and green), are the tertiary, or third series of colors, and are each made from two of the secondaries or all of the three primaries, in proper proportions.

Black added to red or orange will make brown, and to yellow or green will make olive.

The color chart further explains this.

A brilliant carmine pigment is obtained by killing and drying cochineal insects. Ink thus made is listed as high as twenty dollars a pound.

Another red pigment is made from the madder plant, grown in Asia. A dull Indian red is made from iron rust. Vermillion is made of cinnabar, a red clay.

Mercury is used in making vermillion inks, and when it comes in contact with the copper of the electrotype or halftone plates the result is a discoloration or dulling of the vermillion. To overcome this, electros are nickel-plated; or, if this is not convenient, the face is washed with a solution of cyanide of potassium and nitrate of silver.

A Practical Chart

for Mixing *of* Colors and Harmony *of* Colors

¶THIS CHART is intended merely to introduce the student to the study of color mixing and color harmony. Scientific terms have been purposely avoided so as not to confuse.

A little practice with a small amount of each of the several colors will so familiarize the printer with the principles of color mixing that he will be able to mix his colors without referring to rules or diagrams.

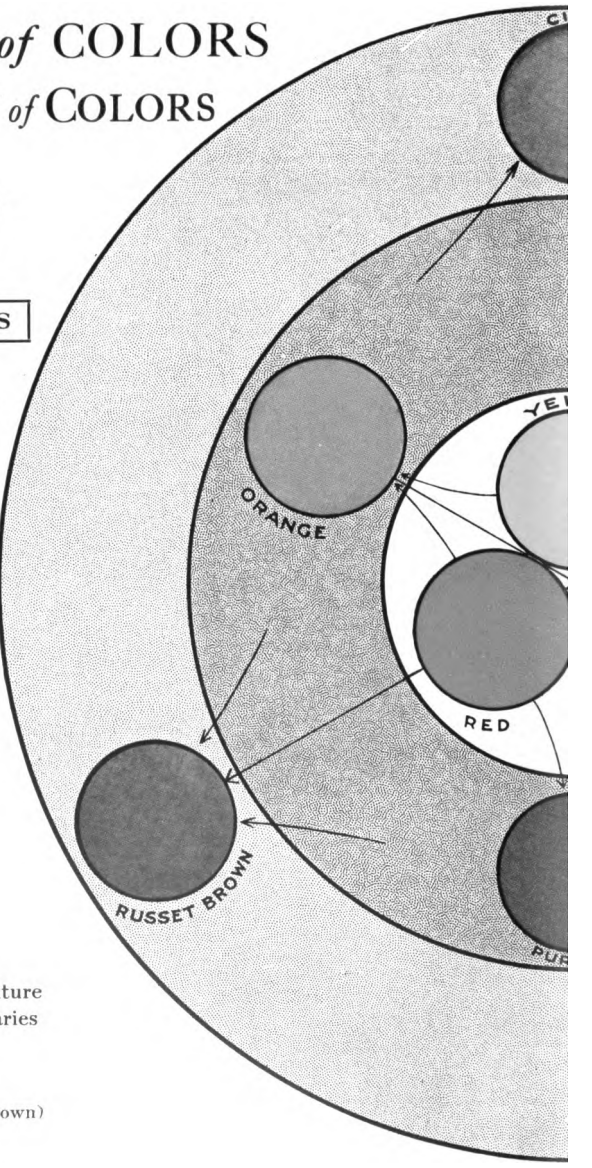
A Practical Chart

for MIXING *of* COLORS AND HARMONY *of* COLORS

By

EDMUND G. GRESS

Inner Circle..
Second Circle
Outer Circle.



HARMONY *of* COLORS

(See diagram)

The *Primaries* afford "violent" contrasts:

RED and YELLOW
YELLOW and BLUE
BLUE and RED

One *Primary* color and a mixture of the remaining two Primaries, afford strong contrasts:

RED and GREEN
YELLOW and PURPLE
BLUE and ORANGE

The *Secondaries* afford softer and more pleasing contrasts:

ORANGE and GREEN
GREEN and PURPLE
PURPLE and ORANGE

One *Secondary* color and a mixture of the remaining two Secondaries afford artistic contrasts:

GREEN and RUSSET BROWN
PURPLE and CITRON (Green Brown)
ORANGE and OLIVE GREEN

This last is really

GREEN, and a mixture of Red and Green
PURPLE, and a mixture of Yellow and Purple
ORANGE, and a mixture of Blue and Orange

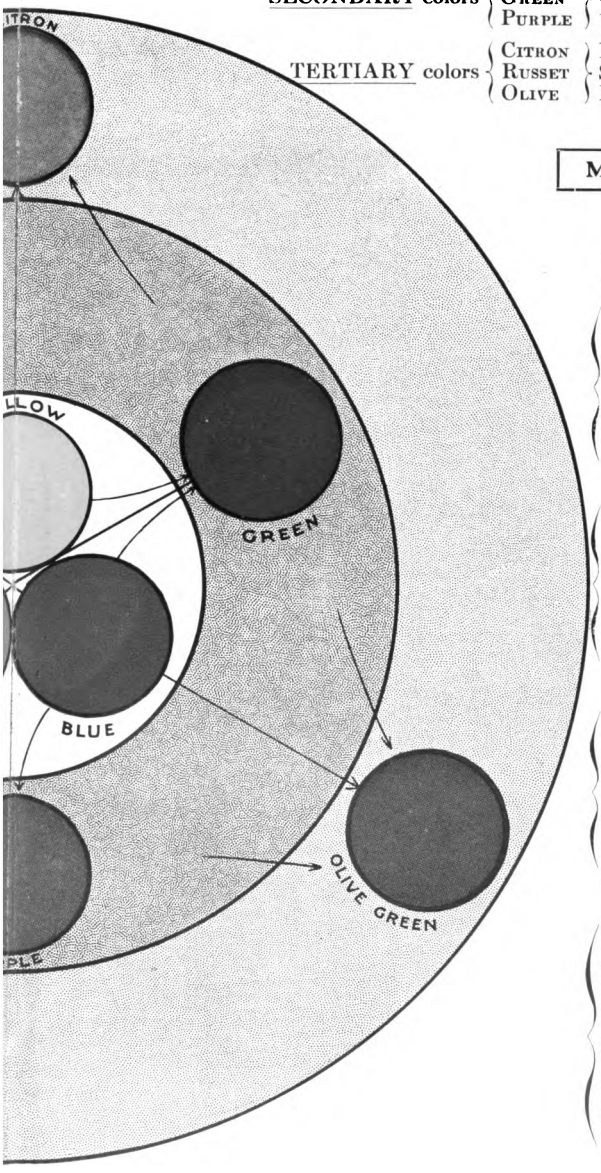
GOLD harmonizes with MAROON, PU
GREEN, and may be used with mo
dark colors. SILVER looks best w

....Primary Colors
le..Secondary Colors
e...Tertiary Colors

PRIMARY colors { YELLOW, RED, BLUE } can be made from no other colors

SECONDARY colors { ORANGE, GREEN, PURPLE } Each made from two of the Primaries

TERTIARY colors { CITRON, RUSSET, OLIVE } Each made from two of the Secondaries, or all of the three Primaries



MIXING *of* COLORS

(See diagram)

Use more of the color first named in each combination

YELLOW, RED } make Orange

YELLOW, BLUE } make Green

RED, BLUE } make Purple

ORANGE, PURPLE } make Russet Brown

ORANGE, GREEN } make Citron

GREEN, PURPLE } make Olive Green

Or,

RED, GREEN } make Russet Brown

YELLOW, PURPLE } make Citron

ORANGE, BLUE } make Olive Green

Or,

RED, YELLOW, BLUE } make Russet Brown

YELLOW, RED, BLUE } make Citron

YELLOW, BLUE, RED } make Olive Green

In mixing colors, always add the darker colors last:

ORANGE requires more yellow than red

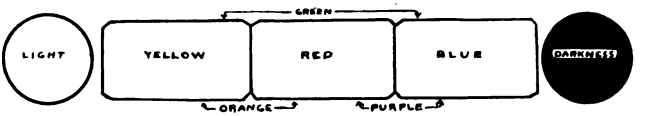
GREEN requires more yellow than blue

PURPLE requires more red than blue, etc.

PLE, and
st of the
th BLUE

[OVER

LIGHT and DARKNESS
as applied to color



As the colors are toward light they are warm.

As the colors are toward darkness they are cold.

Red becomes warmer as it takes on an orange hue, and colder as it takes on a purple hue.

A warm color should be contrasted with a cold color.

Taking the darkness to represent black ink, it will be found that in printing a job with black and a color, the farther in tone the color is from the black the better is the contrast.

For instance, orange and black is a more pleasing contrast than deep red and black.

If blue, purple, or green, is used in combination with black, the color must be lightened with white to get contrast.

White and black (black ink on white stock) is the most used of any of the combinations.

Where two colors are used in printing, the greater part of the type surface should be in the cold color; a small proportion in the warm color is generally sufficient.

How to get BROWNS and GREENS with the use of BLACK:

BROWNS:

A variety of shades from RUSSET to MAROON may be made by adding a touch of BLACK to a quantity of ORANGE or RED.

GREENS:

A variety of shades from CITRON to OLIVE may be made by adding a touch of BLACK to a quantity of YELLOW or GREEN.

SUBDUED COLORS

Colors are often more artistic when subdued with BLACK or WHITE

Subdue	Red	with	BLACK	and	get	Maroon
"	Red-orange	"	"	"	"	Brown
"	Orange-yellow	"	"	"	"	Russet
"	Yellow	"	"	"	"	Citron
"	Yellow-green	"	"	"	"	Olive
"	Green	"	"	"	"	Sage
"	Blue-green	"	"	"	"	Myrtle
"	Blue	"	"	"	"	Navy-blue
"	Violet	"	"	"	"	Slate
"	Purple	"	"	"	"	Plum

TINTS

Add a little	Red	to	WHITE	and	get	Pink
" "	Orange-red	"	"	"	"	Salmon
" "	Orange	"	"	"	"	Buff
" "	Orange-yellow	"	"	"	"	Cream
" "	Yellow	"	"	"	"	Straw
" "	Green	"	"	"	"	Pea-green
" "	Blue-green	"	"	"	"	Sea-green
" "	Blue	"	"	"	"	Azure
" "	Violet	"	"	"	"	Lavender
" "	Purple	"	"	"	"	Heliotrope
" "	Purple-red	"	"	"	"	Magenta
" "	Blue-black	"	"	"	"	Cold-gray
" "	Brown-black	"	"	"	"	Warm-gray

Chrome yellow, a mineral, and raw sienna, a natural earth found near Sienna, Italy, are two of the pigments used in making yellow ink.

Yellow ocher, an earthy mineral, and Cadmium, a metallic element rendered yellow by the action of sulphur, are also used as pigments for yellow ink.

Sepia, a rich yellow brown, is made with the inky fluid that the cuttle-fish, when attacked, discharges to render the water black.

Ultramarine blue is made in its pure form from a powdered mineral called "lapis lazuli." Printing inks of this color do not work clearly because the ultramarine pigment is generally made artificially of other substances than that mentioned above.

Prussian blue is much used for inks. It is made by a chemical process known technically as ferro-cyanide of iron. This color is also called Milori blue.

Green is a mixing of blue and yellow pigment. Copper and arsenic are combined to make a brilliant but poisonous pigment known as emerald green. This does not make a good working ink.

In the making of printing inks, almost every color of the rainbow is possible by the use of aniline dyes. A serious drawback to these colors is their liability to fade when exposed to light.

Aniline is derived from coal tar, a black pitch distilled from soft coal during the process of manufacturing coal gas. Aniline itself is a colorless, oily compound and serves as a base for the colors.

Lakes are obtained by adding a pure white powder Kaolin, zinc white, starch, etc., to aniline dyes.

Several pigments not mentioned above are obtained by chemical processes. Sulphides are the result of the action of sulphur upon metal. Oxides are mineral earths, colored by a mixture of oxygen and iron, and changed to desired shades by heating.

Opaque inks contain very little varnish. This class of inks should always be used when white or colors are to be printed on a dark background, such as cover stock. Most printing inks are transparent, but yellow, vermillion and ultramarine are opaque and should not be used for over-printing.

In three-color printing the yellow being slightly opaque is printed first; the blue and red used are both transparent. The yellow must be of a sulphur hue; the red a pink-like carmine suggesting a magenta tone, the blue a green tone, generally Prussian blue.

Special Inks

An ink that gives two tones of color when printed from halftones containing contrast in heavy and light portions, is much used. It consists of a secondary or tertiary color with a certain amount of black. The black gives a dark effect to the heavy portions of the halftones while the color is so treated that after exposure to air and heat it spreads on the stock from dot to dot in the lighter portions of the halftone, thus giving a double-tone to the print.

Dull-finished coated book paper is best for these inks,

as effects close to that of photogravure can be obtained. The finish of the paper so blends the print that the screen dots can barely be noticed.

Copying ink, such as will allow of a transfer copy of the print being made at some future time by pressing on a damp sheet of paper, is entirely different from other ink. It contains an extra quantity of pigment; a certain amount of adhesive substance which forms a coating on the surface of the ink to keep it from drying and to assist it in adhering to the copy sheet; and a small amount of glycerine, which prevents the gum from altogether drying. Aniline dyes give the desired colors.

Safety inks are used in printing backgrounds for checks, and are so composed that chemicals used in removing writing will also remove the background. This ink is made to order by ink makers, and is similar to copying ink in its working qualities. The printed sheet should not be exposed to light or air until it is dry, or the part exposed may fade.

Gold bronze is made from an alloy of copper and zinc; silver bronze from tin or aluminum; and copper bronze from copper. Various colors: green, red, etc., are artificially given in the process of manufacture.

Bronze powders are made by first melting the metal and forming it into long bars, which are hammered and rolled into thin sheets. The metal is then torn into shreds and ground into powder, which is sieved and separated into the several grades of coarse or fine particles.

Gold and aluminum inks are difficult to use. It is possible to get a gold ink that will give fairly good

results on certain dark label papers, and a gold ink can be had that will print well on antique papers, but the result is never as good as that obtained with bronze powders.

The foregoing information is about as accurate as can be obtained, so many different ingredients being used, and each ink-maker differing in his compounding of inks. An ink advertisement recently contained this confession:

"Any ink-maker can *adulterate* an ink *more* than his competitor has *already done,* and he knows that it is next to impossible for the printer to discover the difference between the two adulterated inks."

CHAPTER ELEVEN

Printing Presses

[Historical]

The Hand Press

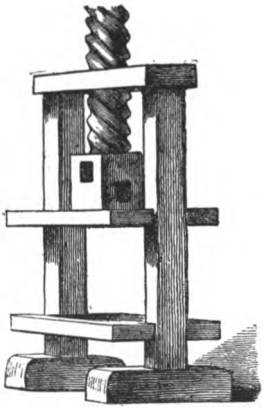
THE first printing presses were crude in principle. The bed, or table, which contained the type or engraved block was stationary. The flat part above it, now known as the platen, was moved down against the type form by means of a lever, or bar, inserted in a heavy block which turned a ponderous wooden screw.

The primitive Chinese method of printing from engraved blocks was to rub or tap with a stiff brush the back of the sheet of paper as it lay on the inked surface of the block.

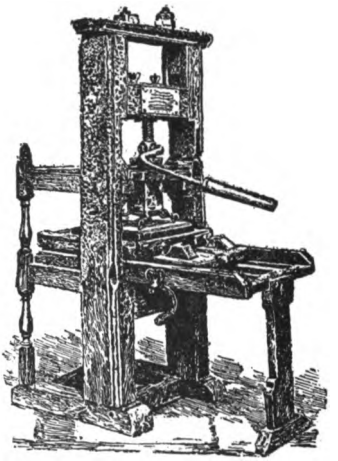
Gutenberg about 1450 made a press of wood, that allowed the bed containing the type to be pulled out from under the impression platen. After being inked with the inkballs of wool covered with leather, and the paper placed in position, the bed was pushed back under the platen and the impression pulled. The product of this press was about fifty printed sheets an hour.

This sort of press was used without improvement until about 1625, when William Blaeu, of Amsterdam, Holland, invented an attachment for moving the bed back and forth by means of a handle and spring.

The hand press, up to the year 1800 was made of wood and the platen would print but half the capacity of the bed at one impression. At this time Earl Stanhope, an Englishman, invented several improvements. He built the press of iron, provided for printing the



The old type of press with wooden screw



Old wooden hand press as used until 1800

entire form at one time, and introduced a system of leverage that simplified the process of pulling the impression.

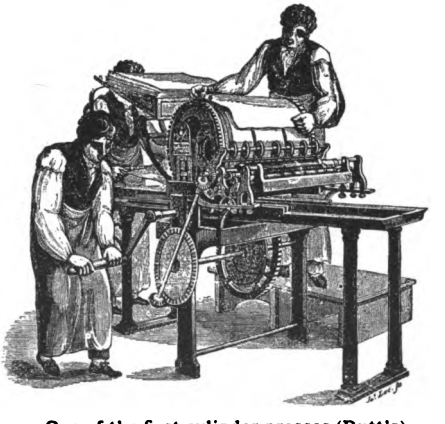
The "Washington" hand press, an improvement on the Stanhope press, was familiar to the printers in the small newspaper offices fifty years ago. It was invented in 1829 by Samuel Rust, an American, the distinctive feature of the press being the toggle joint, which lessens

the pull necessary to get a print. This type of press is now becoming popular in first-class printing offices, for pulling final proofs of jobs to be submitted to customers.

Photo-engravers use the Washington type of hand press for pulling proofs, and get results that cannot be equaled on the best cylinder presses.

The Cylinder Press

The hand press becoming insufficient for the developing needs of printing, a few inventive minds set to work to find a better way.



One of the first cylinder presses (Rutt's)

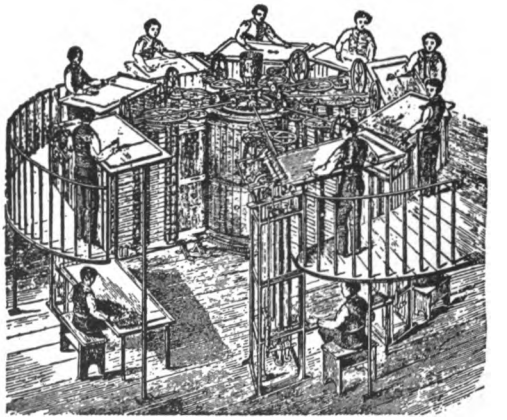
William Nicholson, an Englishman, was first to think of the cylinder as a solution of the problem. This was in 1790; he also provided for inking-rollers, made as were the ink balls—of wool and leather.

A model of a cylinder press was constructed shortly after this time by a Dr. Kinsley of Connecticut.

The first cylinder press was not built, however, until 1812. The cylinder had three tympans, and stopped three times in making a revolution to allow for the removal of sheets by hand, grippers not being provided.

The ink fountain was also invented about this time.

A further advance toward more output was the introduction of steam as a power to run the cylinder press, the innovation being introduced by the London *Times* in 1814, with much secrecy because of anticipated trouble with the workmen who manned the old hand presses. It was a similar antipathy to and prejudice against labor-saving machinery as was shown in later



Applegath's queer vertical cylinder type-revolving printing press

years when the linotype was introduced into the composing room.

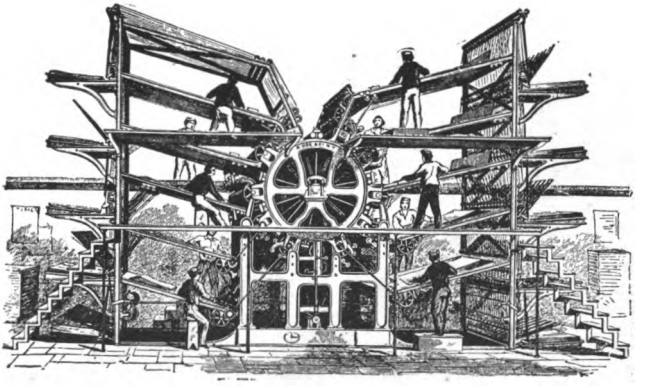
All inventions of cylinder presses were at this time, and for many years after, in the interests of newspapers.

The credit for the practical realization of the cylinder press is due to Frederick Koenig, a Saxon, who also invented presses with two cylinders.

The idea of printing with curved stereotype plates occurred to Edward Cowper, an Englishman, in 1816; but because really rapid speed was not required in those days, the scheme was not perfected until recent years.

A double-feeding press, built by August Applegath and Edward Cowper, was installed by the London *Times* in 1827.

Applegath later designed a queer press that had eight



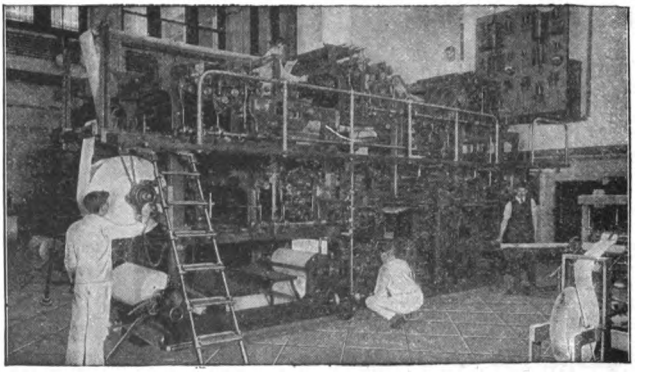
Hoe's ten-deck Mammoth printing press, which required twenty-five men to run it

vertical impression cylinders surrounding a vertical cylinder on which was fastened the types.

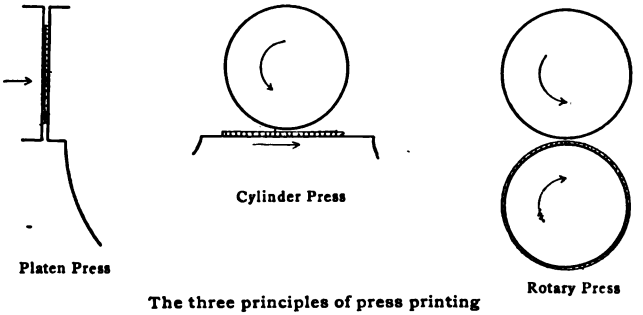
Type-revolving presses were experimented with for a number of years; the final success of the invention being due to Richard M. Hoe, of New York. Hoe's first machine, a four-feeder, was used by the Philadelphia *Ledger* in 1847. The four-feeder press was succeeded by machines requiring eight and ten feeders, the last mentioned being as large as an ordinary three-story dwelling, and besides the ten feeders, fifteen other men were needed to run it.

The Mammoth press of Hoe's was succeeded in 1863 by the web perfecting rotary press, designed by William Bullock, a New Yorker. On this press the paper was fed from a roll or web and was printed from curved stereotype plates.

These machines have been improved by modern manu-



A modern web perfecting rotary press



The three principles of press printing
Movement is as indicated by arrows

facturers until they are wonders of inventive genius. Newspapers and other periodicals are now printed in several colors, folded and pasted, at a speed as high as thirty thousand an hour from one machine.

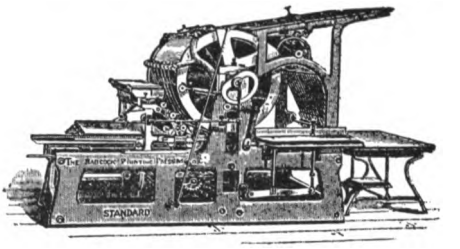
A web perfecting rotary press is one which (1) prints from a roll, or web of paper; (2) prints both sides of the paper, folds and pastes; (3) prints from a rotating cylinder. This style of press has been developed by R. Hoe & Company, Walter Scott & Company, the Goss Company, and the Duplex Press Company.

The introduction of the halftone plate, about 1885, with the use of hard packing on the cylinder, and the printing of paper dry, caused a demand for a cylinder press more accurate in register, more thorough in distribution, and more perfect in other details.

While the newspaper owner demanded speed, the job printer had to have quality. There are now many fine cylinder presses made for the printing of catalogs, periodicals, and other work of this class.

The Babcock, the Whitlock, the Cottrell, the Scott, the Miehle, the Huber-Hodgman, are the names of the principal American makes of this class of presses.

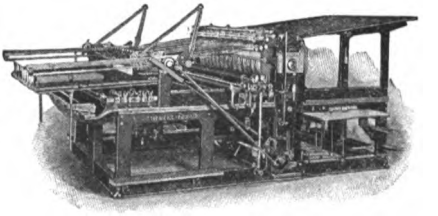
Cylinder job presses were formerly made with large



The "drum" cylinder press

cylinders (known as "drum" cylinders) it being understood that the large size was necessary to good work.

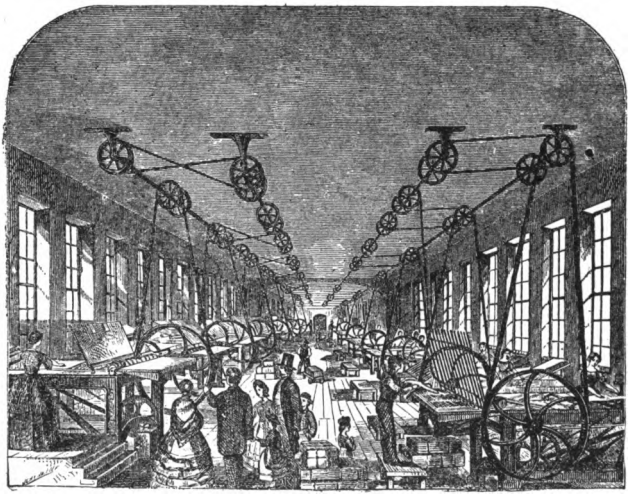
The best presses are now made with smaller cylin-



"Two revolution" cylinder press

ders that make two revolutions to each impression, hence the designation "two-revolution" presses.

A "stop cylinder" press is one on which after the impression is taken, the cylinder stops until the next im-



Pressroom of 1865, showing Adams presses in use

pression is ready to be made. It is now but little used.

The "pony" is a small-size cylinder press which because of its high speed and usefulness is popular with printers.

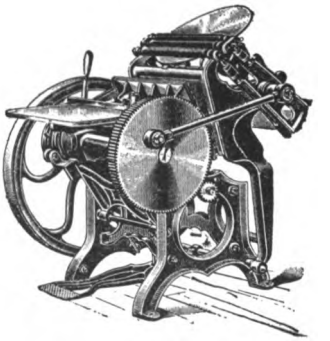
Automatic feeding attachments are now used on cylinders, replacing the man feeder. Fine register is obtained with these devices.

The Platen Press

The job printing machine known to-day as the "platen press" dates from the middle of the last century. Previous to that time (in 1830) Isaac Adams, a New England machinist, invented a machine that looked like a cylinder press, but operated on the platen prin-

ciple. Differing from the smaller job presses of to-day, the platen was stationary and the bed moved up against the platen when making an impression. After the print was made the bed dropped down to allow the inking rollers to pass over the face of the type. The capacity of the Adams press was as large as 28x40 inches, and in job and book offices the press was popular for fifty years. A few are still in use.

The most familiar type of platen press is the "Gordon," invented about 1858 by George P. Gordon, a printer of New York. He realized the needs of a press for

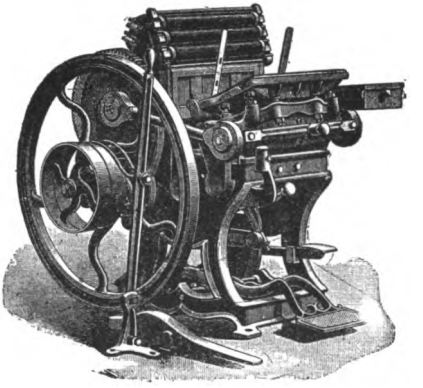


The Gordon type of press

small work, and invented a number of machines, finally developing the type of press known as the "Gordon." It is simply constructed, inexpensive, and suited for light commercial forms. A revolving disc over which the form rollers run is the sole means of ink distribution. There are more Gordons in use than any other type of platen

press, and it is made and sold in both Europe and America.

Merritt Gally, of New York, in 1869 invented a platen press which he called the "Universal." Later,



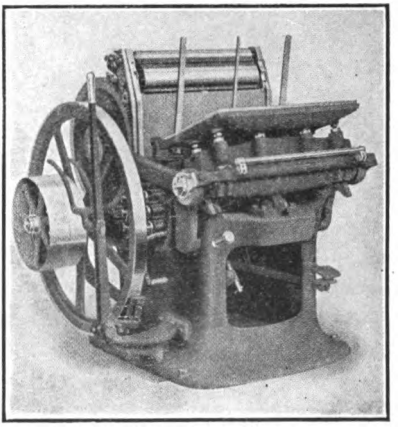
The Universal press as invented by Gally

from being manufactured by the Colt's Arms Company, it became known as the "Colts-Universal." In 1886 the machine was re-designed upon improved lines by John Thomson and named the "Colts Armory" Press. This type of press has great strength of impression, and does halftone printing as well as it can be done on a platen press. The form rollers get their ink supply from a revolving iron cylinder at the top of the press. This machine is most useful in the 14x22 size.

The platen press known as the Golding, invented about 1866 by W. H. Golding, of Boston, is gaining favor among printers who for years have favored the

Gordon type of press. The impression is regulated by a wedge arrangement, controlled by two screws. The form rollers get ink from a revolving disc at the top and also run on a curved ink plate at the bottom of the form. An automatic brayer carries the ink from the fountain to the disc. High speed is possible on this machine.

The Gordon and some other platen presses are equipped with treadles for operating the machines. Before



The Colts Armory press

electricity was so universally used as power it was customary for the feeder to "kick" the press with one of his feet.

The old method of indicating the sizes of platen presses by the names half-medium, half super-royal, etc., is handed down from the days when sizes of paper were known by names.

Special Presses

Presses are made specially for many kinds of printing. Besides the large perfecting presses, and the embossing presses of the Colt's Armory type, there is an interesting special printing machine called the "Harris," invented about 1892 by C. G. Harris, of Niles, Ohio. It automatically feeds loose sheets and prints them at the rate of five thousand an hour. For small jobs (up to 4½ x 8 inches) a special press for type forms is made, but the larger Harris presses require curved plates. One or more colors are printed at one impression, the output being the same in either case.

The Kidder press is a special platen press, invented about 1878 by Wellington P. Kidder, of Boston. Paper is fed from a roll, and is printed on both sides, numbered, perforated, punched, and, in fact, treated in almost any manner desired.

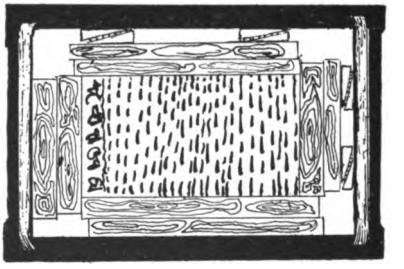
[Practical]

Making Ready on Platen Presses

The type form should be in perfect condition before going to the pressroom. Rules should be properly joined, the face of the form evenly planed, all types squarely upright, lines straight, pages square, margins properly apportioned, and everything ready for uninterrupted printing.

Forms should be slightly below the center of the chase for most platen presses. If locked up much out of center a slur, or blurred impression will result.

It is well to use roller supporters, or bearers, on platen presses. These bearers are made of metal, type high, and are locked up on the inner sides of the chase.



Showing roller bearers

They cause the rollers to turn, thus preventing them from sliding when they strike the edges of the form, and also bear the rollers up so that they will not sink too far into the form when inking it.

For type in a fairly good condition of wear a "hard" tympan consisting of a sheet of pressboard and two or three sheets of smooth heavy-weight manila, should be used. A "soft" tympan is resorted to only when the type is old or when makeready is omitted, as on very cheap printing. A blotter placed under the top sheet of the tympan when printing envelopes, will prevent injury to the type from pieces of gum, although this precaution is not as necessary now as formerly, the envelope makers doing better work.

The screws regulating the impression should be properly set by a press machinist or qualified pressman and after that should not be tampered with. Differences in

impression caused by irregular forms can be made even by underlaying and overlaying.

After a form is placed on press the first sheet printed should show no more impression than is needed to print most of it fairly well. Any decided differences such as hollows, or rules impressing too heavily, should be evened by cutting out and pasting paper on the rear of the form, a process known as underlaying.

When the impression is reasonably even, the slight imperfections remaining are corrected by overlaying. This is done by pulling an impression on a sheet of paper almost the full size of the tympan. On this sheet several layers of thin paper known as French folio are pasted where needed. The black tones of cuts may need, say, three layers; the dark gray portions two layers, and the light gray one layer of this thin paper.

When the pressman is not experienced in cutting intricate overlays it is better that he simply overlay with one thin sheet the heavy portions of the cut.

Vignetted halftones, however, must be less than type-high in the form, and the overlays, consequently, thicker.

Makeready is sometimes placed between the plate and the block. The plates are easily removed from the wood blocks by "slamming" them squarely on an imposing stone several times, which will cause the tacks to come out. The result gained by printing against the overlay with the cut for which it was made, is to give the heavy portions their proper black tones and the light portions their contrasting light tones.

Overlays must be placed in exact position or bad

results will be obtained. A thin paste, and not much of it, should be used in fastening on the patches of overlays.

This overlay sheet is then fastened to the second tympan sheet and registered with a print of the form that has previously been made on this second sheet.

In case of halftones the pressboard is placed over the makeready sheet.

Patent overlays are not as effective on platen presses as on cylinders.

Ordinary gage pins, against which is fed the sheet that is to be printed, are convenient on small runs of one or five hundred, but quads are safer on larger runs and on work that is to go through the press again in register. The quads are glued fast and when in proper position are "strapped" down with strips of gum paper.

There are several makes of patent gage pins which are reliable for register.

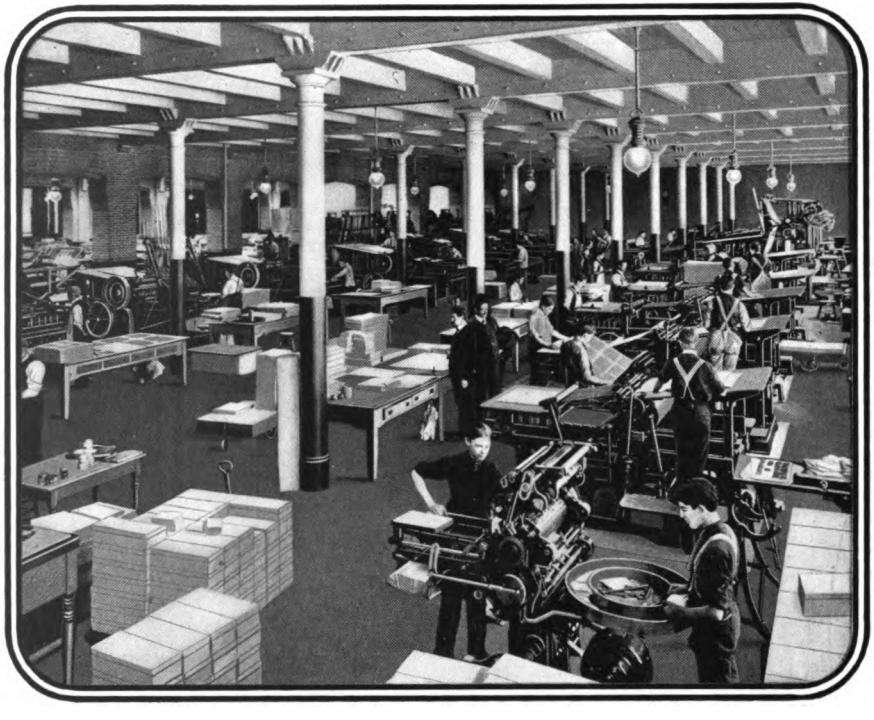
The flap of envelopes should be opened, for the best results in printing.

When feeding large sheets on platen presses the sheets are laid on the feedboard printing side down. The feeder takes the sheet at the corner and turns it about when feeding it into the press.

See chapters on "Composition Rollers" and "Printing Inks" for further information.

Making Ready on Cylinder Presses

The cylinder has raised portions on each end of the tympan known as bearers, which when the print is being



A modern press-room, showing Harris press in foreground

made, run on two type-high bearers built on each side of the form.

The tympan against which the type form prints, is composed of packing about one-twentieth of an inch thick, varying on different presses. A sheet of press-board is first put on, over which is stretched a sheet of manila or muslin. To this is added seven or eight sheets of book paper and a final sheet of manila drawn over the whole.

The proper amount of packing is ascertained by laying a straight-edge (a long strip of brass or steel) across the tympan from bearer to bearer, on each bearer being placed a strip of thin paper. If the straight-edge does not hold a sheet of tissue pulled between it and the tympan, more packing is needed. If the straight-edge does not touch the bearers on either side, some of the packing should be removed.

The packing is to be the thickness of a thin sheet of book paper higher than the cylinder bearers, and for this reason small strips of paper are laid on each bearer when testing with the straight edge.

It is important that there be no more packing than that just described, because more will so increase the circumference of the cylinder that the tympan will move slower than the type form. This difference in speed will cause slurring, wrinkling and other defects in the printing.

Before starting to make ready the pressman should examine his form to see if all cuts are of proper hight and the form properly planed down. A rough proof

should be turned off with the type form in position on the sheet, which should be approved for position and imposition.

Not until this is done should the makeready be proceeded with, although to save time the overlays for halftone plates can be prepared ahead.

The principle of makeready is the same as that described for platen presses on preceding pages: underlaying of low cuts and worn type, and remedying of all slight unevenness by graduated overlays on the tympan.

Very small square halftones really require no overlaying. Medium sized halftones should have overlays made of thin paper, and large halftones of a fair thickness of paper.

Solids should not be built too heavily, as they are not to stand out sharply as black masses from the remainder of the design or picture. Contrast may be needed, but at the same time the tones should blend.

A three-layer overlay for a halftone is made in this manner: Print three clear impressions on the proper calendered paper and cut out each sheet as follows:

For Bottom Layer: Cut out all white portions of the print and throw them away.

For Middle Layer: Cut out the solids and paste them on bottom layer.

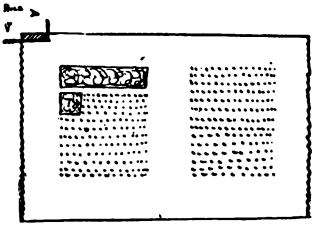
For Top Layer: Cut out the solids and medium grays and paste them over the middle layer.

In cutting, incline the knife so as to bevel the pieces of overlay.

There are two kinds of patent overlays in use. One, the Bierstadt-DeVinne overlay, is of a gum-like composition resembling gutta-percha, the other, the Gilbert-Harris overlay, is made by etching a thin sheet of zinc.

Miscellaneous

Close register with deckle-edged stock can be obtained in three ways: (1) If the job is a cover, printed on the first page only and containing no embossing, it may be printed by folding and feeding to the folded edge; (2) The sheet can be fed to a reglet or plain pin as a guide; (3) The safest way is to lock up two small pieces of steel cutting rule at right angles in such a way that on the first impression the rule will cut off a narrow oblong strip from the top left corner, on the second impression register is secured by feeding against the side of the cut-out portion. Of course the edge of the sheet containing the cut-out corner is to be trimmed after printing.



Getting register on deckel-edged stock

It is considered by some that the only thing necessary on a platen press, to have it produce printing equal in quality to that done on a cylinder press, is good ink dis-

tribution. This theory works out satisfactorily up to a certain point.

On a platen press the impression is on every part of the form at one time, and the sheet is pulled from almost every part of the form at one time.

On a cylinder press the impression is only on a narrow strip of the form at one time, and the pull of the sheet from the form is gradual.

It is therefore almost impossible, on a platen press, to print a plate containing heavy blacks on coated stock, without reducing the ink to a dead gray.

Embossing is done with two dies, called the "male" and the "female" respectively. The male die is used on the platen of the press and is made from sealing wax, layers of paper and mucilage, leather, or cardboard. It is in relief. The female die is engraved in brass or steel for long runs or when the die is to be subjected to much wear. For small runs and the simpler kinds of embossing the die is etched on zinc by a photo-engraver; an inexpensive method.

The female die is mounted on metal or hard wood and locked in the chase. The material for the male die is then placed on the tympan and the press closed until the die forms and hardens.

Embossing requires careful feeding, as the effect is spoiled if it is out of register with the printing.

CHAPTER TWELVE

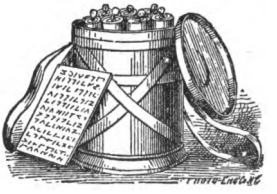
Bookbinding

[Historical]

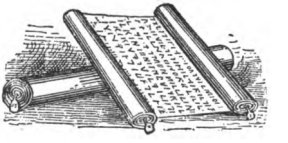
BOOKBINDING is the fastening together of written or printed leaves in protecting covers.

The Babylonians enclosed their clay tablets with an outer coating of clay containing a duplicate impression of the characters of the original tablet within.

The Egyptians glued their papyrus sheets together in



An early "binding"



The roll, with tags

a long strip and bound them at the ends with a wooden rod, around which the strip was rolled.

The Romans also used the roll, but protected it with covers of leather. The title was written on a piece of parchment and pasted on the cover.

For the lesser records the Greeks and Romans made use of tablets of several sheets of thin wood or metal covered with wax, and fastened together by rings.

Binding together of the leaves in a flat book displaced the scroll about the Fourth Century.

An early method of binding a manuscript book, was to wrap a sheet of leather around it, and tie it with a leather thong. Books were laid flat on the shelves, the titles being written on wooden tags hanging from them.

Plain wooden boards were next used for sides, and in the Sixth Century these boards (some of which were

Cover boards, decorated with precious stones, with medallion in center and clasps at side

two inches thick) were gilded, decorated with precious stones, and gold crucifixes were kept in hollows made in the covers.

The process of binding books in principle has always been very much the same. The folded sheets were originally sewed to leather bands, the ends of which

were fastened to wooden boards, the boards being then joined together and covered with leather.

Cords have been substituted for leather bands. Straw board has taken the place of wood for the sides, and cloth and paper to a certain extent has superseded leather for the covers.

In early books the sections consisted of four sheets folded to make eight leaves. The section mark or signa-

An old wooden binding, with mortise by which book was held while being read

THE Cycle of the Sun, is so called because it shews the Sunday Letter, being a Table, or Cycle of the Changes of the Dominical Letter.

Instead of the ancient *Roman* Division of the Month into Nones, Ides, and Kalends; we reckon the Days of the Month in Order: And instead of the Accompting by their *Nundinæ (quasi Novendinæ)* their Mercates, or Fairs, for the Country People to come to Town every 9th Day, for Commerce and Trade; and to receive their Laws, (as the *Greeks* reckoned by Ten's, dividing their Month into 3 Parts): We, as do the *Hebrews*, number our Days by Weeks, and their Returns, after every 7 Days; which the *Jews* did in relation to their Sabbath, (and possibly the *Assyrians*, &c. in relation to the Quarters of the Moon, consisting each of about 7 Days) and we, as Christians, for our Lord's-Day.

We describe the Days of the Week by seven several Names, as Sunday, Monday, Tuesday, *&c.* And to distinguish them in the Kalendar, there are seven Letters appropriated, and set in Alphabetical Order before them, and so repeated throughout the whole Year; *viz.* A, B, C, D, E, F, G; and some one of these is the Dominical Letter, or the Letter for Sunday; and the Letters following for the other Days, as they follow.

But the Sunday Letter is not constantly the same, but is changed once in every Common Year, and in every Fourth, or Leap-year, twice. And the Reason is, first, because the Common Year does not consist of just Weeks, but of 52 Weeks and one Day. So that as the Year begins with A, set before New-Years-Day. So it ends with A, set before the last Day. And the

Showing the word at bottom to assist collating

ture was usually written at the foot of the last page. To assist in the collation the first word of a page was repeated under the last line of the preceding page.

Page numbers, or folios, came into use in the Fourteenth Century.

The sawed back (by which method the binding cords were sunk into the leaves of the book) was first used in the Sixteenth Century.

In the Sixteenth and Seventeenth centuries books were covered with velvet, silk and linen. Many of these were embroidered sumptuously. Gold tooling was introduced into Europe late in the Fifteenth Century.

Half-binding, of German origin, is a style of binding wherein leather is used only for the backs and corners—the parts receiving the most wear.

Carrying economy still further, paper alone was used for covering the sides and back of books, but proving unsubstantial cloth binding was introduced about 1822.

Paper labels, containing the titles of the books, were pasted on the cloth backs.

Cloth is often used for books because they are often rebound in the regulation style of each library. For instance, histories may be rebound in red, poetry in light blue, biographies in brown, etc.

Book Collectors and Libraries

Much interest has always been shown in books by enlightened people. Libraries in Egypt contained thousands of papyrus rolls.

Ancient Kings accumulated immense libraries of manuscript books, but the contents of such libraries were mostly destroyed through wars and revolutions.

The monks not only wrote, decorated, and bound their books, but they were the custodians of the valuable volumes that existed in their time.

Corvinus, King of Hungary, in 1480 had a library of fifty thousand volumes in costly bindings.

One of the most famous libraries of the Sixteenth Century was that of Cardinal Mazarin at Rome, containing five thousand volumes, one of which was the now famous Gutenberg Bible of Forty-two Lines.

Book collectors have always paid great attention to the bindings of books. Many present-day styles are due to the preference shown by such famous collectors as Tommaso Maioli, of Italy, and Jean Grolier, of France, in the early part of the Sixteenth Century.

Grolier introduced the style of lettering the backs of books and of placing the backs outward on the shelves. He was also the first to use morocco leather for binding.

Many of the old books of value are preserved in the British Museum, but rich American collectors, chief among whom is J. Pierpont Morgan, are buying up scarce volumes in Europe and bringing them to America.

[Practical]

Folding

Folding, the first stage in the binding of the book, is done both by hand and machine. When folding by hand the operator uses a small bone stick to crease the folds.

The sheet, or section, of say four, eight or sixteen pages as the case may be, are laid with the signature (or first page of the sheet) face down at the left. The right

end of the sheet is brought over to the left and the folios (page numbers) registered with the left hand. The right hand, using the bone, creases the sheet. The top of the sheet is next brought down, registered with the bottom, and creased. The right end is again brought over to the left, and the sheet creased. The section is now finished, the first page containing the signature. The signature is a small figure or letter placed at the bottom of the first page of each section.

A book is divided into sections of, say, sixteen pages each. After the sections are folded they are gathered together in the consecutive order of their signatures.

It is not well to have too many pages in a section. More pages of thin stock can be folded than of thick stock. When too many pages are folded the paper will wrinkle, or "buckle," at the top of the last fold. To prevent this the folder cuts the leaves with the bone more than half way before making the last fold.

When sheets are folded on machines, they are fed to "points" to secure register and accuracy in folding. Point holes about fifteen inches apart are punched in the sheets during the process of printing.

Gathering

The sections are next placed in piles along a table and are gathered one by one, according to their signatures, until a complete book is collected.

To expedite this process a moving circular table is sometimes used, the gatherer remaining in one position and taking the sections as they come before him.

Sewing by machinery **Collating the sections**

Rolling or Beating

The sections after being gathered are placed between two pieces of zinc and fed between iron rollers, thus pressing flat the creases made in folding, and making the book solid. This is also accomplished by beating the folded edges with a ten-pound hammer on a solid slab of iron or stone.

Collating

Collating, while often understood to be the gathering of sections, is really the examination of sections already gathered, and the placing of illustrated sheets and maps in position.

The order is verified by the signature on the front of each section.

The books are next placed under pressure in a standing press for a few hours.

Sawing or Marking the Backs

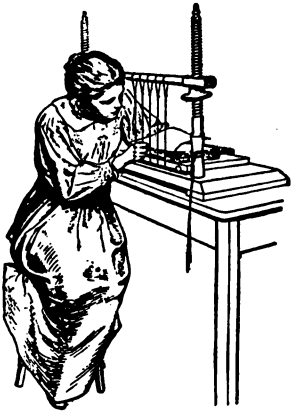
The books are next jogged at the top and back, and boards placed between them an eighth of an inch in from the backs. They are then held firmly under pressure while being marked or sawed for sewing.

The backs are sewed at equal distances to admit the cords or bands that are to hold the book together.

Sewing

The sewing press is a simple affair. The cords that are to act as bands are stretched from a horizontal bar down to the base of the machine and drawn taut.

The sections of the book are then laid down one by one, the cords fitting in the saw cuts. The threaded needle is inserted in the cut near the head, drawn through to the center fold of the section, and passed around the cords.

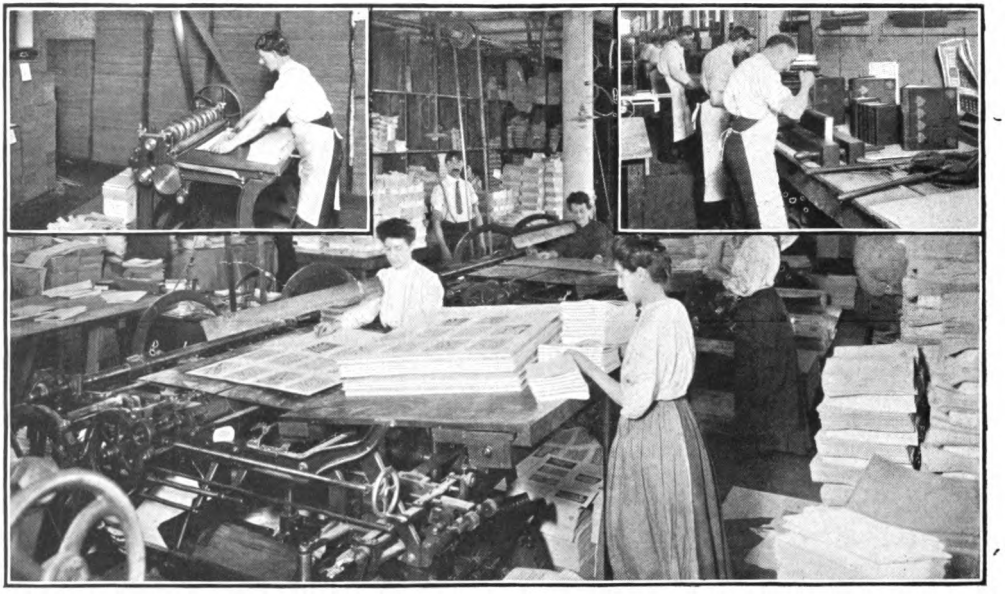


Sewing the sections of books

The thread is then brought out near the tail, and inserted in another section which has been laid in position.

For the style of binding known as flexible, the backs are not sawed, and the thread is looped around the cords in each instance instead of merely being passed around them.

In flexible binding the cloth or leather covering is glued to the back of the book. In ordinary binding, the covering is independent of the back of the book.



Cutting the boards **Folding sheets by machinery** **Finishing the books**

Machines which sew books automatically are used for large editions.

Forwarding

Forwarding is a term applied to the stage of bookmaking from the time the sewing is finished until the book is ready to be lettered or decorated.

End papers, the leaves at the front and back which are pasted to the inside of the cover, are next attached to the book, after which it is trimmed at the top or on three sides as may be desired.

The back is next glued and when dry is rounded by beating with a hammer, or this is done by machinery. In old-style binding the backs are left almost flat.

Mill boards, made from old rope, and boards made from straw, in various thicknesses, are used for covers. Two boards are often pasted together for large books.

Ordinarily the boards are covered after being put on the books, but when binding in large quantities, known as edition binding, the covers, or cases as they are called, are previously cut and covered, the thickness of the book having been ascertained. After the covering material has been glued to the boards, the cases are made smooth by being run through rubber rollers.

The cases are next stamped with heated dies in an embossing press. Dies can be made by electrotyping and are known as binder's stamps. The electrotype is allowed to remain in the battery until it accumulates a thick coating of copper, which is then backed up by a base of lead.

Finishing

There are various ways of finishing the edges of a book. Its leaves may be left uncut all around, the head only may be trimmed, or the leaves may be trimmed on all three sides.

Sometimes all edges are left white, or are colored red or blue by being painted with a brush. The edges of the leaves at the head are often gilded, done by moistening the edges with the white of an egg, laying on gold leaf, and burnishing it with a highly polished agate stone. Religious books are often colored red and afterward gilded.

The real finishing of a book is understood to be the tooling and lettering of the covers. Blind tooling is decoration pressed into the leather without the use of gold leaf. The tools used are: numerous handles upon the ends of which are center and corner designs; wheels containing border designs; and a tool for holding individual types.

Leathers for Binding

The several bindings are of value in the order following, beginning with the cheapest: Paper, cloth, roan, skiver (split sheepskin), calf-skin, russia, turkey morocco (goatskin), levant morocco.

Paper, the cheapest binding material, is usually a thin plated paper, coming in various designs, the one known as marble being most popular for blank and check books.

Cloth, a woven material pressed and embossed in several kinds of finishes, is the most used of any of the

binding materials. It is made in numerous colors and shades.

Russia Leather, of Russian origin, is made in brownish-red or black, from the hides of young cattle. It is also manufactured in America and Europe.

Imitation Russia Leather is treated with birch bark oil to give it the odor peculiar to genuine russia.

Sheep, chiefly used for binding law books, is the full thickness of sheepskin in the natural color received from tanning.

Roan is the inside of a split sheepskin, colored (generally reddish brown, hence the name roan). It is sometimes grained in imitation of other leathers.

Skiver, a sheepskin from which the heavy flesh side has been split.

Morocco Leather was originally the product of Turkey and the Levant districts along the Mediterranean. It was made from goatskins, finished in various colors, had a fine grain, was clear in color, and felt soft yet firm to the touch. This leather was much used in the artistic bindings of the Sixteenth Century.

As the peculiar grain of morocco leather can be closely imitated on any thin leather, it requires an expert to determine the genuine.

The natural leather grain is obtained by doubling the surface and rolling the folded edge with a flat board.

An artificial grain is given leather by embossing. The design, contained in reverse on a metal roller or plate, is pressed into the dampened leather.

Uncut Edges

Uncut edges are really an affectation. In the days before cutting machines were invented, the sheets were bound just as folded, with unfinished deckel-edges. The books were read in a leisurely manner, and the pages were cut as needed. In these busy days uncut leaves are an abomination if the book is intended to be read.

It is not considered good form by some owners of private libraries to possess books which have had their edges cut. Special editions, finely printed and bound, seem to be made for exhibition purposes only.

Magazines are left uncut for commercial reasons. A copy uncut is proof it has not been sold or read.

Sizes of Books

In olden times the sizes of books were known by the number of folds to a sheet of paper about 18x24 inches in size.

A book made from such sheets folded once into two leaves was known as a folio volume and measured about 12x18 inches.

Folded twice into four leaves, a quarto, measuring 9x12 inches.

Folded three times into eight leaves, an octavo, measuring 6x9 inches.

Folded four times into sixteen leaves, a 16-mo., measuring 4½x6 inches.

As the several sizes of paper were known by names such as Crown, Royal, etc., the exact sizes of books were known as Crown quartos, Royal octavos, etc.

Bibliophiles and librarians still indicate the sizes of books by the old method, but the general public not being familiar with these shop terms, is enlightened only when the sizes are given in inches.

Kinds of Binding

The common method of *sewing,* known as the kettle stitch, as before described, is for regular folded sections, and allows the book to open flat.

Center stitching, similar to the saddle wire stitch, is for pamphlets consisting of all inset folded sheets. The thread is worked through three places in the fold of the pamphlet. If the ends of the thread are to be on the outside, the sewing is begun and ended on the outside and vice versa.

Side stitching (now almost entirely done with the wire stitcher) in the old way was accomplished by sewing through three holes punched with an awl or stabbing machine.

Whip stitching: overhand and cross-lashed stitches on the edges of the leaves, allowing the book to open almost flat. This method is used for books consisting of many single leaves.

Check Binding: Books side stitched, with light strawboard sides covered with paper; cloth or leather back, covers cut flush.

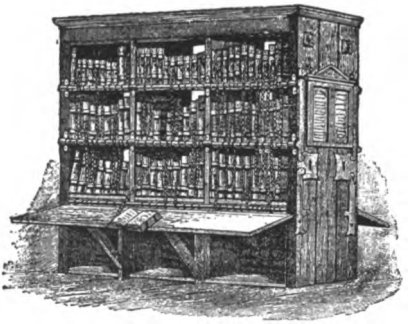
Quarter Binding: Books sewed, with kettle-stitch, strawboard sides covered with paper, leather back, paper turned over edges of cover.

Half Binding: Books sewed with kettle-stitch, or

whip-stitch, tarboard sides covered with cloth; smooth roan leather tight back; paper turned over edges; cover, with or without leather corners, extending over edges of book; lettered on back in gold.

Three-Quarter Binding: Same as half binding except russia leather rounded spring back with raised bands; leather corners.

Full Binding: Same as three-quarter, except that binding is full sheep with russia leather ends and bands; or with double raised bands, double russia side finishing, and lettering.



A library of the old days
Books chained to the shelves

CHAPTER THIRTEEN

Stereotyping and Electrotyping

[Historical]

Stereotyping

STEREOTYPING (the duplication in a sheet of metal of a type form) excepting in newspaper offices, is now superseded by the newer process of electrotyping.

Stereotyping and electrotyping afford some of the advantages possessed by the blocks of wood upon which pages were engraved before the invention of movable types: They make of the page a solid form which after printing can be stored away for future use.

The linotype and monotype casting machines also enable the printer to keep pages of books and jobs of printing for a length of time that would be impossible with expensive foundry type. It is better, however, to have the page solid in order that disarrangement of types may be avoided. It is recorded that in the first efforts to make a solid page, late in the Seventeenth Century, the bottoms of the individual types were soldered together.

William Ged, of Edinburgh, in 1725 began experiments in casting type in molds of plaster-of-paris.

M. Herlan, in France, then suggested matrix types, the idea being to set them as types are set and to make

a cast with type metal. This principle is now used on the linotype.

Alexander Tilloch, encouraged by Earl Stanhope, perfected Ged's invention about 1800.

David Bruce, one of the famous American type founders, went to England, in 1812, and obtained information which led him on his return to take up the study of stereotyping.

About 1860 stereotyping with the papier-mache process of making matrices was introduced. The London *Times* stereotyped only single columns, but Charles Craske introduced, on the New York *Tribune*, the method of stereotyping entire pages. The process has been so perfected that now plates are stereotyped curved to fit the cylinders of modern news presses.

Electrotyping

Electrotyping, a method of duplicating type pages, cuts, etc., by aid of electricity, is of recent development. The principle applied to other uses has been known for a hundred years.

About 1840 a few electrotypes were used in Europe and America, but the process was imperfect, wood-cuts being spoiled in making the plates.

In 1846 John W. Wilcox of Boston made electrotypes, using every essential principle known in later years when the process was developed.

In 1873 the dynamo was introduced and considerably lessened the time necessary for making a plate.

In 1907 Dr. E. Albert introduced into America his method of making the impression in soft lead instead of in wax or paraffin.

[Practical]

Stereotyping

The old method of making the matrix in stereotyping was to pour plaster-of-paris paste over the type form.

A more recent method is to obtain a matrix by beating with a brush a sheet of paper pulp, (papier-mache) laid on the face of the form. In large newspaper plants the matrix is pressed into the type by a powerful roller.

For flat-bed purposes the matrix is placed in a flat mold which is swung to a vertical position, the molten lead being then poured in.

For rotary presses the matrices are placed in curved molds and the hot metal poured in. When cooled the stereotype plates are ready to be fastened to the cylinders.

There are news associations which furnish stereotype plates to newspapers, the plates being in single column and so grooved as to fit on bases already supplied.

Electrotyping

Electrotyping is the method now universally used for book and jobbing purposes. The finish of electrotype plates is much finer and sharper than that of stereotypes. By careful manipulation electrotypes of fine-screen halftones can be made that will print almost as well as the originals.

High spaces and quads should be used for matter that is to be electrotyped, although good plates are made with ordinary spacing material.

Guards (strips about one third of an inch thick, made either of lead or wood) are placed around the page or job, which are locked up in chases in the usual way.

An impression of the type form is taken in ozokorite (paraffin) an inexpensive grade of wax, or in beeswax, with which has been mixed turpentine and graphite. The surface of the wax is first coated with graphite to prevent the type from adhering to the wax. The impression is usually made with a hydraulic press.

The projections of wax are trimmed off with a warmed knife, and low spots are built up with pieces of wax.

If the type form is to be broken up for colors, two wax molds are made, the parts to be omitted from the plates being filled with wax.

The wax mold is again coated with graphite, to make it a conductor for electricity, and washed with water, after which it is placed in a vat containing sulphuric acid and water through which passes a current of electricity from a dynamo The vat contains a bar of copper. As the current passes through the vat the copper is dissolved and deposited in a layer upon the wax mold. The longer the mold is left in the vat the thicker the shell of copper and consequently the stronger the printing surface of the electrotype.

Superior electrotypes can be obtained by the Albert process, in which soft lead is used instead of wax for making the mold. Tremendous pressure is required to

make the mold, and plates must be on metal bases to withstand the strain. The lead mold, being itself a conductor of electricity, attracts the dissolved copper to the extent that the entire surface of the mold is coated in less than a minute.

The next operation is "backing," or filling in the back of the copper shell with lead.

Copper and lead having no affinity for each other, the copper is given a thin coating of tinfoil, melted with muriatic acid.

The backing metal, composed almost entirely of lead, with a small quantity of antimony and tin, is then poured on the shell until it is about a quarter of an inch thick.

The plate is made even by being shaved by machinery, is trimmed all around and the open spaces cut or routed away, after which it is nailed to a block of wood to make it type high (.918 of an inch).

If electrotypes are to be clamped on the patent iron blocks now much used in printing, the plates are left unmounted with beveled edges.

Electrotypes are sometimes mounted on solid metal, especially when the plate is to be trimmed so close that no room is allowed for tacks.

Plates are sometimes fastened to wood bases by "slugging." Holes are bored into the wood and solder is poured into them and joined to the metal of the plate. This method is unsafe for long runs on presses as the plate is apt to pull off and smash a part of the form.

A nickel coating may be given an electrotype by the

electro-depositing process. Nickel adds strength to the printing surface and prevents chemical action when inks such as vermillion are used.

Electrotype plates cost more per square inch for small cuts than for large ones. For electros about 144 square inches in size the cost is 2½ cents per square inch; for electros measuring three square inches the rate is eleven cents per square inch.

Electrotypes of halftones cost about half again as much as line plates.

Book plates, used for stamping book covers, are given a thicker shell of copper, hence cost twice the price of regular electros.

By the process of electrotyping, cuts and type forms are reproduced in the size of the originals. If plates of different size are wanted they must be made from clear prints by the process of photo-engraving.

Curved electrotypes for rotary presses are made by means of plate-bending machines.

Eighteen by twenty-four inches is the maximum size of form that can be accommodated by most electrotypers.

CHAPTER FOURTEEN

Engraving

[Historical]

Wood Engraving

THE history of engraving can be traced back to the wooden stamps of the Egyptians or the engraved cylinders of the Assyrians; but as an art allied with printing it really dates from the year 1400, when wooden blocks were engraved from which were printed playing cards and religious pictures.

These pictures, representing scenes from the Scriptures and lives of the Saints, were usually printed by laying single sheets of paper on a wood block engraved in relief, and rubbing the back of the paper.

Illustrations were colored by the use of stencils.

The earliest known print bearing a date (1423) is that of St. Christopher crossing a river with the Infant Jesus on his shoulders. From the perspective, as found in this print, it would seem unnecessary for the old Saint to have wet his feet, as he could easily have stepped from shore to shore.

The lines of the early wood-cuts were coarse and heavy, and the pictures crude, but the product of the latter days of the art was notable for delicate shadings and excellent expression.

When printing by typography was being introduced, the wood-engravers and block-printers were strongly organized into guilds, and resented the new process.

The ornamental initials, used in Schoeffer's Psalter of 1457, copied from the designs of the early manu-

The earliest known print (1423)

script-illuminators, were engraved on wood. This was the first example of two-color printing by typography.

The text of later books was illustrated with wood-cuts of flowers and animals, not only inappropriate but suggesting meaning contrary to that conveyed by the reading matter.

The Italians, during the Fourteenth and Fifteenth centuries, made wood-engraving a fine art. By engraving

three or four plates they closely imitated the effect of water colors, thus presaging the present-day three- and four-color processes.

John Baptist Jackson, a printer of wall-paper, in 1754, had a method of getting ten positive tints with but four impressions from wood cuts.

The most famous wood-engraver was the German master, Albert Durer (1471-1528), who showed to the world that artistic expression was possible with engravings on wood.

One of Durer's wood-cuts, "The Gate of Triumph," measured about ten by nine feet, and was composed of ninety-two separate pieces.

The most remarkable series of wood-cuts ever made was "The Triumph of Maximilian," the Roman Emperor, consisting of one hundred and thirty-five large cuts extending a distance of one hundred and seventy-five feet. This series was designed on parchment by Hans Burgkmaier, of Augsburg, during the years from 1473 to 1531, but was not published until 1796. The engraving of this series was done by a number of different workmen.

Hans Holblein, at Basle, prior to 1538, designed a famous series of wood-engravings, "The Dance of Death," the subject of which was in keeping with the gruesome religious thought of that era. Holblein is known as a master of the art and ranks with Durer in the quality of his work.

The re-birth of interest in art, a period known as the Renaissance, effected wood-engraving to a great ex-

tent and many fine examples were executed throughout Europe.

As long as the possibilities of wood-engraving were understood all was well with the art, but attempts to equal the delicate effects of copperplate engraving. coupled with the crude and careless work of the "chap-

A "Chap-Book" engraving

book" block-makers, brought the art into disrepute and it gradually became extinct.

Wood-engraving, as an art, was revived about 1785, by Thomas Bewick, an Englishman. His method of working differed from that of the old-time engravers. Whereas the custom had been to cut away the wood, letting the lines remain that had been sketched on the block, Bewick sketched with his graver and gave expression and tone with the white lines cut upon the block.

Bewick also introduced boxwood, cut across the grain,

as an engraving surface. Soft woods, cut with the grain, had previously been used.

In the United States wood-engraving began to assume importance with the issuance in 1843 of an illustrated Bible, containing sixteen hundred wood-cuts, made under the direction of J. A. Adams.

The art advanced to a high position with its adoption by many illustrated magazines and its use by book publishers.

About 1880 cuts engraved with acids by the aid of photography, began to supplant the wood-cut, and today wood-engraving is comparatively a lost art. There are but few wood-engravers in America who treat the work as an art. Timothy Cole and M. Lamont Brown are two such.

The remaining wood-engravers are now connected with photo-engraving plants.

Copper and Steel Plate Engraving

Engraving on copper was invented about 1460 by one Finiguerra, an Italian goldsmith. Until about 1800 almost all engravings of merit were done on copper, because delicate lines, not possible on wood, were brought out distinctly.

Steel was then substituted for copper on many engravings, and during the last century, until the introduction of photo-engraving, steel-engravings were used for the frontispieces of books, and for illustrations to be framed. The process is still used for high-class stat-

ionery work and for the printing of bank notes and certificates.

Photo-Engraving

Photography, then known as heliography, was invented about 1830 by Joseph Niepce and Louis Daguerre. For some years each had pursued the same line of investigation independently, but formed a partnership in 1829.

The first successful photographs were known as daguerreotypes, the picture being taken upon silver-plated copper. The first photo-printing plates were made from a negative on gelatine, treated in such manner that the lights of the picture were dissolved and washed away. The gelatine was hardened and a plaster mold taken, after which a wax matrix was made for electrotyping.

Zinc line-etching by the aid of photography, was first successfully demonstrated in 1855 by M. Gillot, a Frenchman. Gillot's process was known as zincography and made possible accurate reproduction of such kind of work as had previously been done by the wood-cut method.

Reproductions of the gradations of tone as found in photographs and paintings, was yet impossible, but in 1882 Meisenbach, a German, patented the halftone process. The first halftones were on zinc.

A photographic plate presents a flat surface to the printing press, an impression from it leaving merely a solid black print. To overcome this difficulty the object

to be reproduced is photographed through a mesh of cross-lines which is afterwards etched away.

Thus a halftone print is composed of little dots, these dots being larger in the shadows and smaller in the lights where the plate has been etched deepest.

When the process was young, a screen was used with lines running but one way; the screen being turned about after half of the required exposure.

The development of photo-engraving in the United States is due to the study and work of numerous individuals. Prominent among these, in the early days of the commercial introduction of the process are F. E. Ives, of Philadelphia, and John Calvin Moss, of New York.

Mr. Moss in 1880 established the Moss Engraving Company, the first company to make a practical business success of photo-engraving.

Mr. Ives in 1881 was the first to produce photochromic pictures on a printing press.

Max Levy, of Philadelphia, is the inventor of the screen now used, which is the perfection of the early idea of photographing through silk gauze.

With the perfection of the halftone process came three-color printing, or the reproduction of many colors and shades by printing with but three plates.

The three-color process is based upon the theory that any color can be resolved into the three primary colors: red, yellow and blue.

The inks used in the printing must conform to the exact colors planned by the photographer in making his

negatives—usually a magenta-red, a greenish blue and a chrome yellow.

It being claimed that the combination of the three colors did not really produce a black, the four-color process has been developed. In this method a lighter blue ink is used and a fourth plate (black) is added. The "black" plate, however, is not always printed black, dark gray being used.

The common order of printing, in the four-color process, is: yellow, red, black, blue. Sometimes yellow is the final color.

It has been found that on long runs there is less danger of going wrong, and defective register is not so apparent, with the four-color process.

[Practical]

Wood Engraving

The wood used for this process was mahogany, maple, pine and boxwood, but the last mentioned was preferred for the best work.

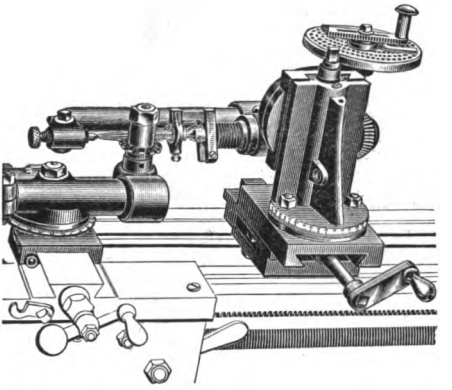
Large poster engravings were done on pine wood.

Maple is now used in the manufacture of wood types, which are engraved by machinery.

Boxwood has a fine grain and is very hard. For wood engraving it was sawed in round slices about type-high, smoothed and cut square. When large cuts were to be made the wood was carefully joined together.

The face of the wood was prepared for engraving by being smoothed and whitened. The drawing was

made upon it in reverse, or the picture photographed upon it; after which, with sharp steel tools called gravers the parts not to be printed were cut away.



A modern wood-cut of machinery

Copper and Steel-Plate Engraving

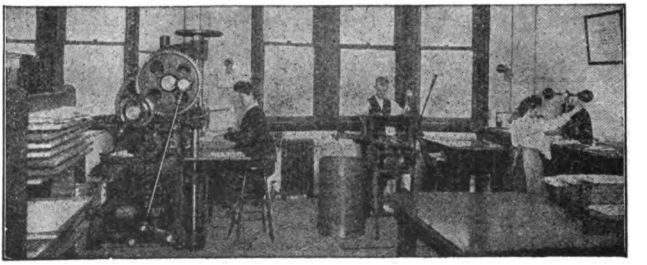
This process differs mostly from wood engraving in that the lettering or design is cut into the metal, and the hollows of the plate are printed instead of the elevations. Steel is engraved when soft, and afterwards hardened for printing. Although much of the engraving is done with gravers by hand, corrosive acids and machines are also used.

After being engraved the face of the plate is inked, and the ink rubbed from the surface, remaining only in the sunken parts.

The plate is printed with a heavy impression between

two rollers: one, covered with a woolen or rubber cloth, forcing the paper into the depressions of the plate.

The hand presses are operated by a half-dozen levers, arranged like the spokes of a pilot wheel. Power presses



Showing power press and hand presses doing copper plate printing

are now used for large work and do the inking and wiping automatically.

The best grade of plate-printing has an embossed effect, due to the quantity of ink used, the depth the design or letters is cut, and the heavy impression.

The chief cost of plate-printing is the engraving, the printing cost being very little more than that of letter-press printing.

Photo-gravures

Photo-gravures are copper-plates engraved by photography instead of by hand. In this process a photographic print is made indirectly from a negative on carbon tissue, which is transferred to a polished copper plate the surface of which has been grained with

asphaltum powder. The image, consisting partly of gelatine, is thickest in the lights and thinnest in the shadows. The plate is then etched, and the gelatine removed. The etching is deepest where the gelatine is the thinnest. In printing, the plate is inked and the surface wiped off as is done in the regular copperplate process. A dampened paper is then pressed on the plate by means of roller press. Because of the heavy pressure needed for this method of printing, the plates are given a coating of steel for large editions.

The process is slow, but the soft, artistic results obtained make it worth while.

Gelatine Plates

This method is known as the Albertype process, invented by Joseph Albert, of Munich, in 1869. A double gelatine film is printed upon, through a reversed photo negative. The portions of gelatine reached by the light have been rendered non-absorbent, and the portions protected by the blacks of the negative remain absorbent.

The printing is done in a manner similar to that of the lithographic method: The plate is moistened, which dampens the absorbent parts, so that when the plate is inked only the non-absorbent parts receive the ink.

Mezzotints

Mezzotints are primarily copperplate engravings the surface of which have been roughened. This name is also applied to halftones photographed through a grained screen instead of one of cross-lines.

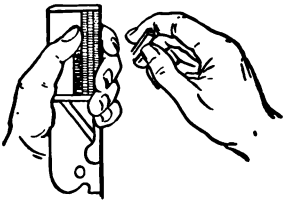
Wax Engraving

These are much used for maps, and are made by tracing lines or stamping types on a coating of wax, thus forming a matrix from which an electrotype is made.

Zinc Etchings

Most engravings are now made with the aid of photography and acids; a process known as photo-engraving.

"Zinc etching" is synonymous with "line-cut," as



A zinc line-cut

copy containing lines and dots in effect similar to wood engravings, is usually made into zinc plates.

The cheaper grade of halftones, such as used on newspapers, is made on zinc.

Line zinc-etchings are made in this manner:

The copy is photographed and a negative made on glass.

A piece of polished zinc, the face of which has been sensitized with chemicals in a dark room is placed in a printing frame under the glass negative and exposed to

the sun or artificial light. The light prints the photographed copy on the zinc, although the print is not yet visible.

The zinc plate is next inked and placed under running water. The ink adheres to the printed parts, the remainder being rubbed off.

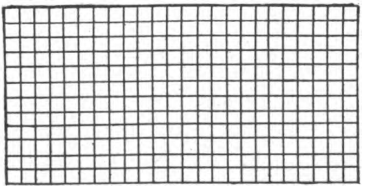
The plate is then covered with a red powder known as dragon's blood, placed over fire and burned until the print is dark brown. It is then etched by being immersed in a solution of nitric acid and water, which eats away all of the zinc but those parts covered with dragon's blood.

The design now stands in relief. The blank portions not to be printed are routed away, and the finished plate is proved on a hand press and tacked to a wooden base.

Halftones

Halftones are probably so called because the result is a print in which a soft gray tone, half way between the high lights and the dense blacks, predominates.

Halftone plates are a series of dots caused by the design being photographed through a screen or glass upon which is drawn a series of lines crossing each other



Halftones are photographed through cross-lines

at right angles. As these cross-lines are opaque the photograph is really made through the small square transparent spaces between them. A halftone is of a fine screen if these lines are numerous (say one hundred and fifty to an inch), or of a coarse screen if the lines are less frequent (say eighty to an inch).

A piece of polished copper coated with an enamel, is placed in a printing frame with the negative and printed as is a zinc etching; after which it is dipped in an eosine solution and placed under running water. After the image appears the plate is dried, and the print burned in until it is of a dark-brown color.

The copperplate is then etched in a bath of perchloride of iron. If finer results are desired the plate is proved, and re-etched in the parts needing it by applying the acid with a brush. Thus it will be seen that the quality of a halftone depends upon the attention given it at this stage of the process.

If the halftone is to be vignetted (with fading edge) the face of the plate, except the edges, is protected from the acid by a coating of asphalt varnish and the plate again immersed in the etching acid which eats away the unprotected edges.

The plates are then routed, trimmed and mounted on blocks.

Zinc halftones are etched with nitric acid instead of perchloride of iron, and are inked, powdered and baked as are line cuts. They are not re-etched.

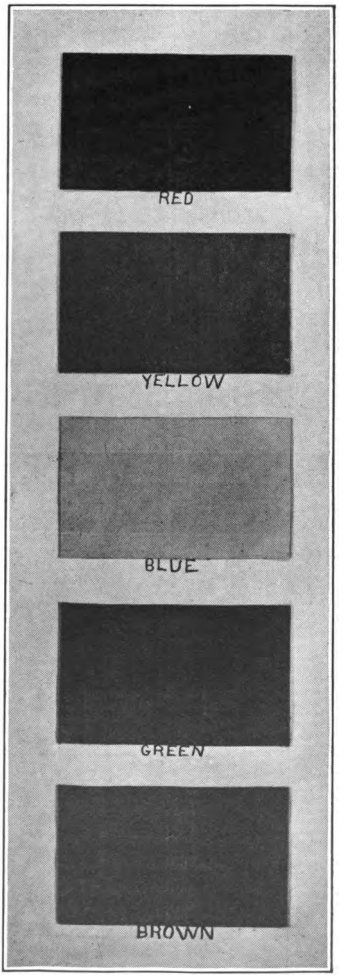
Color plates are made in halftone, generally by what is known as three- and four-color processes.

60-line screen

100-line screen

133-line screen

Halftones, showing different screens



How colors photograph
Yellow reproduces dark
Blue reproduces light

In the three-color process three separate plates are made—for printing with yellow, red and blue, respectively.

The yellow plate is made by photographing through a colored glass known as a filter, which excludes all but the yellow rays. The red plate is made through a filter that excludes all but the red rays, and the blue plate through a filter that excludes all but the blue rays. In printing, the yellow is first printed, the red and blue following in order. The red and blue being transparent many hues are caused by the overlapping of color.

In the four-color process the blue is of a lighter shade, the extra color being black or dark gray.

Color plates for two-color work are made by re-etching a duplicate plate, or cutting high lights in a flat tint block.

Miscellaneous

A copper halftone is similar in appearance to an electrotype of a halftone, but the original can be told because the metal is thinner.

A zinc plate is thin and of a light-gray color. Dense black lines on white background make the best copy for zinc etching, but reproductions can be made from almost any color except light blue.

As yellow photographs black, reproductions cannot be made from copy on a strong yellow background.

The best results are obtained in halftones if the copy is a smooth, glossy sun print, such as was once used for portrait photographs.

It is difficult to make a good halftone from the print of a halftone plate because of the dots or screen of the plate; yet when necessary fairly good results can be obtained especially in a reduced size.

Drawings should be made at least twice the size of the finished plate as any defects or irregularities are modified in the reduction. However, it is possible to make plates larger than the copy.

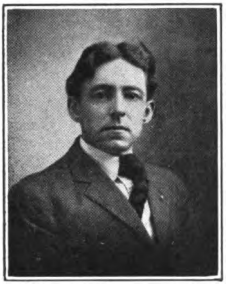
Engravers have a minimum price for zinc etchings. If a number of small etchings are to be made a few pennies may be saved by pasting several copies together and having them made on one block, and afterward cut apart at time rates.

Photo-engravers have a number of designs known as Ben Day screens which are used to get various hues in color printing. With careful work by the artist and engraver the effect of three and four-colors can be had with two printings.

A Ben Day screen is a sheet of celluloid upon which the screen design stands raised above the surface. These raised portions are inked and a transfer made upon the negative. The portions of the negative that are not to contain the screen are protected by a frisket or by being painted with a liquid which will resist the ink and be easily washed from the glass.

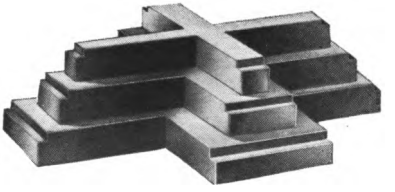
Zinc etchings cost six and eight cents a square inch, with a minimum charge of sixty or seventy-five cents for small cuts.

Halftones cost ten, fifteen and twenty cents a square

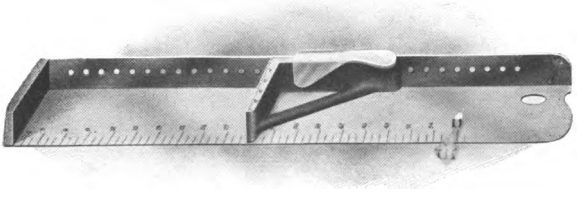


A square halftone

Oval halftone, with tooled background



A silhouette halftone



A vignette halftone

inch, according to quality. Three-color halftones cost about one dollar a square inch.

Zinc etchings will print well on almost all kinds of paper, but halftones should be printed on coated paper if good results are wanted.

Before ordering halftones it should be first determined upon what paper they are to be printed. A newspaper halftone for stereotyping should be as coarse as 80-line screen.

For newspapers printed from type on fairly good news stock, 100-line screen should be ordered.

A screen of 120 lines will print on smooth machine-finish book paper, and 133-line screen on super-calendered.

A screen of 150 lines gives good results on six-and eight-cent coated book paper.

Halftones of 200-line screen and more are difficult to print and are suitable only for papers having a highly enameled surface.

Halftones are made in several finishes: Square, vignette, silhouette, and combination plates.

The square halftone is the common finish and is made with or without a line border.

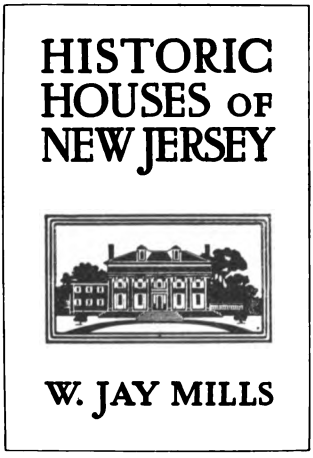
The vignetted halftone has a shadowy edge fading away to the paper. It is difficult to print, especially on a platen press.

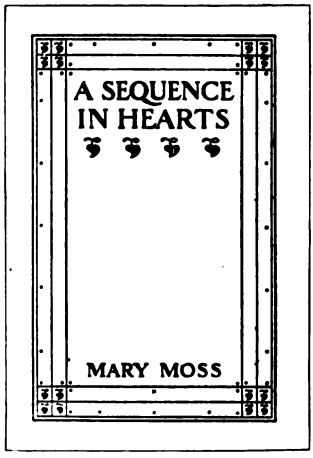
In the silhouetted halftone the background is routed away. This kind is easy to print.

Combination halftone and line plates are pleasing, but are more expensive than either zinc or halftone

plates. Combination plates are often made by cutting and transferring the films of the negatives.

Unless a photograph is clear and contains contrast of whites and blacks, it should be retouched by an artist before the plate is made. Machinery cuts are seldom





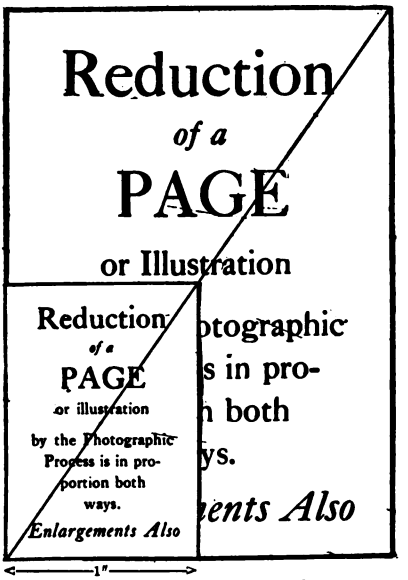
Designs of this kind are lettered and sketched about twice the intended size of the cut

made unless the machine is almost entirely re-sketched on the photograph.

A halftone plate can be removed from the block without injury to the plate by "slamming" the back of the plate flatly on an imposing stone or other solid surface. Repeat this several times and the tacks will be found to be almost entirely out of the block.

If a picture or drawing is to be made smaller in the plate, the result can be determined by viewing the copy through a reducing glass, a handy tool costing very little.

In reducing, a design will become smaller in proportion. To ascertain the exact proportions a diagonal



How to ascertain the proportions, after reduction or enlargement, of a drawing or print

line should be drawn from corner to corner the size of the original. By marking the width the plate is to be made (as here shown), the hight is ascertained.

Copy reduced "one-half," as the engraver understands it, is really one-fourth the size; by reducing the width one-half the hight is also reduced one-half. To avoid misunderstanding, the size of the cut should be specified in inches.

Zinc etchings can be made from lithographs, wood engravings, or other prints composed entirely of lines and dots.

CHAPTER FIFTEEN

Lithography

[Historical]

LITHOGRAPHY was discovered about 1800 by Alois Senefelder, of Bavaria, Germany. He had composed several pieces of music but was too poor to have them printed, so he attempted engraving them himself on copper as was done in those days.

Economical reasons led him to experiment etching a slab of lime-stone instead of copper.

It occurred to Senefelder that characters written on the stone with greasy ink could be brought into relief by etching away the background with diluted nitric acid; which plan worked out successfully and he printed several of his musical compositions in that manner.

However, this relief printing was not lithography, as the process is known to-day.

Senefelder, after more than a thousand experiments discovered two principles upon which lithography is based:

(1) That lime stone had a chemical affinity for grease.

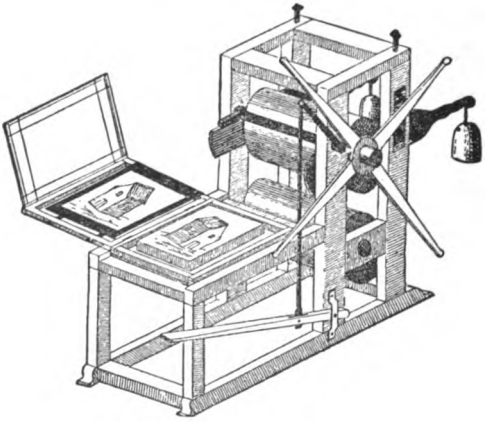
(2) That the stone being porous absorbed moisture.

The portions of the surface containing ink would repel water, and the portions containing moisture would refuse ink.

Transferring was his next discovery. Writing or drawing could be done on paper with a greasy ink and transferred to the printing stone.

A rather amusing incident in his early struggles is related by Senefelder:

"I laid a copy of our first work before the Electoral Academy of Sciences with a Memoir, in which after



Senefelder's lithographic press

explaining the mode of printing and other advantages of the new art, I also mentioned the cheapness of the press, which did not cost more than six florins.

"How much was I therefore disappointed when instead of seeing my new invention honorably mentioned in the transactions of the Society, I received from its vice-president a present of twelve florins, double compensation on the cost of the press."

Before a press was available, Senefelder printed by placing dampened paper on the stone and rubbing the surface of the paper with a piece of polished wood, but he could not get his assistants to do this properly, as "out of three reams of the best paper only thirty-three perfect sheets could be produced."

Senefelder built several presses before getting satisfactory results. On one of these presses a three hundred pound stone was made to descend from a hight of ten feet with a pressure of more than fifty tons. The lithographic stone, however, was broken after several impressions.

Senefelder published a book in which he tells the story of his experiments, and gives in detail a full account of his discoveries.

[Practical]

Lithography (which word is derived from the Greek *Lithos,* a stone, and *Graphein,* to write) is an important branch of the printing business. Large posters, magazine covers, check books, commercial and art work of various kinds, are produced by this process.

Lithography is the art of printing from characters contained upon a flat surface; copper and steelplate printing is done from characters sunk below the surface (intaglio); letterpress printing, the common method, is done from characters raised above the surface.

A lithographed print is made by writing or transferring greasy ink or chalk onto a smooth surface of porous

limestone, dampening the surface, inking the characters, and pulling an impression with a powerful press.

The stone used for lithographing is found in various parts of the world, including the United States. An interesting fact is that the best comes from Bavaria—the Kelheim stone—the same kind as was used by Senefelder in his experiments.

Stones are three or four inches thick, and the edges are generally rounded. The surface is cleansed and polished, and if it is to be grained (a stipple or crayon effect) silver sand is rubbed on it with a circular piece of stone.

The ink now used is composed of the same ingredients as that used by Senefelder one hundred years ago: Soap, tallow, wax, shellac and lampblack. It is made as a liquid for use with the pen, and in solid state for use as a chalk.

The paper for transferring is specially prepared. A design drawn directly upon the stone must be in reverse, but in the transfer method, the design is drawn on paper in natural position and transferred to the stone afterwards.

Ordinary transfer paper is coated with plaster-of-paris, to which is added flour and glue to make the surface slightly adhesive. There is a variety of papers suitable for the various methods of transferring.

The drawings or prints are transferred to the lithograph stone by being dampened, laid face down and subjected to pressure.

Designs are also reproduced by photography, printed

from the negative on transfer paper and then transferred onto a stone.

The photographic method reduces or enlarges in proportion both ways, but by the use of a rubber blanket the dimensions can be varied. A transfer is made upon the blanket which is contracted or expanded to the desired size, when the design is again transferred, this time from the blanket to a stone.

When a stipple effect is wanted, the drawing is made with chalk, on a grained stone, but when drawings of sharp lines are to be executed they must be made on perfectly smooth surfaces.

In preparing the stone to resist the printing ink, so that no parts but the design shall print, the surface is washed with aqua fortis (a solution of nitric acid and water) and gum arabic. The acid etches, or roughens, the stone slightly, the design standing in relief about the thickness of a sheet of paper.

Most lithographic printing is now done on cylinder presses, similar in appearance to those used in letterpress work, but necessarily different in detail of construction. The stones are automatically dampened, then inked by rollers, the surface of which is made of glazed or grained calf-skin. (The common printing roller is a glue composition.)

One thousand impressions an hour is the average speed of lithographic presses. Particular jobs are double-inked or double-printed to get fine results.

Color printing is done with a separate stone for each color, made by the transfer method. The key design is

first put on and a few impressions pulled, to be used in placing the other colors in position.

Three-color printing is not possible in lithography because a stipple fine enough for delicate tints cannot be produced on stone. About ten impressions are necessary when the design calls for many colors and tints. These ten impressions may be yellow, orange, pink, light blue, red, dark blue, brown, light gray, black, and dark gray, in the order given.

Zinc and aluminum plates are often used as substitutes for limestone, especially in lithographic printing on rotary presses. India-rubber rollers, instead of calf-skin, are used in such cases. Lithographs are roughened after printing to give that "artistic feeling" associated with non-smooth paper.

CHAPTER SIXTEEN

Newspapers and Magazines

[Historical]

THE distribution of news was originally effected by means of the news-letter, a method of conveying information to and from the principal cities of the world.

In the Beginning

The first newspaper ever printed was probably the *Gazette,* published about 1457 at Nuremberg, Bavaria. The *Weekly Newes,* published in London in 1622, was the first English newspaper. *Publick Occurrences* (Boston 1690) was the pioneer newspaper in America, but was suppressed after one issue by the authorities. Benjamin Harris was the publisher. The *News-Letter,* of Boston, (1704), was the first newspaper to be continuously printed in America.

The second newspaper to be published in America was the Boston *Gazette* (1719), and the third the *American Weekly Mercury,* Philadelphia (1719).

The first advertisement appeared in 1648 in an English paper, the *Impartial Intelligencer,* and was in reference to stolen horses.

The daily newspaper was born in England in 1702, the paper being called the *Daily Courant,* and published

Domestick Intelligence,

Or, News both from

CITY and COUNTRY,

Published to prevent false Reports.

Tuesday, *Decemb.* 23. 1679.

London Decemb. 22.

LAst Friday being the nineteenth of this Instant *December*, the Justices of the Peace of *Middlesex* and *Westminster* attended His Majesty in Council, to receive Power and Instructions for the removal of all Papists from the Citiy of *London* and *Westminster*, in pursuance of His Majesties late Proclamation to that Purpose, and being called in, there were Orders given them, to make strict search for all *Papists* that are His Majesties Subjects, or any other *Popish* Recusants who have not the Priviledge of continuing here, (in *Somerset* House in the Absence of the Queen, as also in His Majesties Palace at *St. James's*,) and that the said Justices of the Peace, shall seize and Imprison all that be found Transgressors of the Law, and Contemners of His Majesties Authority. His Majesty hath also sent Orders into the Countrey to the several Knights of the Shire, to take an Exact List of the Names of all the Papists of any repute in their Respective Countries, and to return the said List to the Secretary of State, to be communicated to the Council, and that thereupon such Effectual proceedings would be used against them as the utmost Severity and Rigour of the Law will allow, and the said Lists being accordingly returned to the Lords of the Committee appointed to consider of the most Effectual means for putting the Laws in Execution against Papists, and for the suppression of Poperv (mentioned in our last) the Lord Chancellor has order to prepare Commissions (in which the said Lists are to be Inserted) which do Impower and require the Justices of Peace of the several Countries in *England* and *Wales*, to tender the Oaths of Allegiance and Supremacy to all Persons mentioned therein, and in case of their Denial to take the same, to proceed against them according to Law, in order to their speedy Conviction; with the said Commissions are also to be sent special Instructions for the better direction of the said Justices therein, and also Letters from the Council Board, to require and Encourage them diligently to Execute the said Commissions, and to send up an Account of their proceedings, as likewise the Names of all other Papists and suspected Papists as are not in the said Commissions, And that no Papist shall be allowed a License or Dispensation to stay in Town; Further that a List be taken of all House-keepers, and especially such as entertain Lodgers within the Bills of Mortality, and of all Midwives, Apothecaries and Physicians that are Papists or suspected to be such, and to return the List to the Council: And that no Papist may Harbour in any of His Majesties Palaces, a Commission is ordered for the Green-cloth to offer the Oaths of Allegiance, Supremacy and the Test to all Papists and suspected Papists as shall be found in *Whitehall*, and the Precinct thereof, who upon refusal are to be proceeded against according to Law, And the Messengers and Knights-Marshals men are ordered to seize and bring them before the said Officers, and a Reward of Ten pound is to be paid to those who shall discover any Papist or suspected Papist in any of His Majesties Houses, and the Officer that harbours them shall be turned out of his Place, and Imployment. And the Officers of the Parishes, where Ambassadors and Foreign Ministers reside shall have Lists brought them of their Menial Servants, and if any others shall presume to resort to their *Popish* Chappels they shall be seized and prosecuted.

It hath been given out that *Francis Smith* the Bookseller, was upon the Seventeenth of this Instant *December*, by order of the Council Board, Committed to *Newgate* for Printing the Association, and Seditious Queries upon it, and Promoting *Tumultuous Petitions*, but our last gave you a *True* Account of his Commitment as expressed in the Warrant, and that he had brought his *Habeas Corpus* upon the late Act of Parliament, and we can now assure you that upon Friday the Nineteenth Instant he was thereupon restored to his Liberty.

This day, *December* 22. was the Election (according to the Custom of the City of *London*) of the Common-Council-men for the year ensuing, and all good Protestants are abundantly satisfied, that those who are chosen are such as will stedfastly adhere to the *Protestant* Interest, and will upon all occasions assert their own, and the Rights of this City.

The *Gazette* having told you, That the Lord Mayor and Aldermen of *London*, were directed by the Lord Chancellor, by His Majesties Command, not to suffer such persons as should sign tumultuous Petitions to go unpunished, but that they should proceed against them, or cause them to be brought before the Council Board to be punished as they deserve, according to a Judgement of all the Judges of *England* 2 *Jacobi*, we suppose it may gratifie our Readers curiosity, (and prevent his danger too) to see what the Law Books say therein. Judge *Croke* in his *Reports*, *folio* 37. saith, That by command from the King, all the Justices of *England*, and divers of the Nobility, with the Archbishop of *Canterbury*, and Bishop of *London*, were Assembled in the *Star-chamber*, when the Lord Chancellor demanded of the Judges, whether it were *an Offence* punishable, and what punishment they deserve, who framed *Petitions*, and Collected a multitude of hands thereto, to present to the King in a publick cause, as the *Puritans* had done, (*which was as it seems for Attestation of the Law* (with an intimation to the King, that if he denied their *Suit*, many *Thousands* of his Subjects would be *disfurnished*) whereto all the Justices answered, "That it was an Offence finable at "*Discretion*, and very near Treason and *Felony*, in the "punishment, for they tended to the Raising of Seditio"on, Rebellion, and Discontent among the People, To which Resolution all the Lords agreed, and then many of the Lords declared that some of the *Puritans* had raised a false Rumor of the King, how he intended to to grant a Toleration to *Papists*, which offence the Ju-

An early "newspaper" (See page 263)

by a woman—Elizabeth Mallet. The first daily in the United States was the *American Daily Advertiser,* appearing in Philadelphia in 1784, published by Benjamin Franklin Bache.

A recent census showed that about 20,000,000 copies of daily newspapers are issued each day in the United States, about 2,500,000 being issued in New York City.

The circulation of daily papers of New York City in 1816 ranged from 875 to 2000 copies. In 1907 the *Evening Journal* alone had a circulation of almost eight hundred thousand.

The *Gazette,* established in 1725 by William Bradford, was the first newspaper in New York, now famous for its great journals.

The first newspaper in what was then the Northwest was the *Centinel,* founded in 1793 in Cincinnati, Ohio.

The first libel-suit in America was the celebrated case of 1734. J. Peter Zenger, editor of the *New York Journal,* was imprisoned almost a year without trial, finally being found not guilty after being defended by Andrew Hamilton, a famous Philadelphia jurist. In 1751 his son made an appeal to subscribers, some of whom were in arrears nine years, to send him "flour, hams, butter and cheese."

New Year's verses, the addresses with which carriers served their customers on New Year's day, originated in 1776 with William Bradford of Philadelphia.

The first religious newspaper in the world, *The Recorder,* was published at Boston in 1816 by Nathaniel Willis and edited by Sidney E. Morse.

In 1820 Sidney E. Morse and Richard C. Morse, started the New York *Observer*. Another brother was Prof. Samuel F. B. Morse, inventor of the telegraphic alphabet.

The New York *World* was started as a religious newspaper. There were 277 religious periodicals published in the United States in 1860.

The New York *American* was established in 1819 as a Tammany paper, but its political complexion changed several times, until it was united in 1845 with the *Courier and Enquirer*.

A literary periodical, the *New American Magazine*, a forerunner of the modern magazine, was started in 1758 by James Parker.

The first magazine exclusively for women in the United States, *The Ladies Magazine*, was published at Boston in 1827 by Mrs. Sarah Josepha Hale. This magazine was later consolidated with *Godey's Lady's Book*, of Philadelphia.

Pictorial newspapers appeared with the development of wood engraving in the Nineteenth Century. About 1854 Frank Leslie established his *Illustrated Newspaper*, now *Leslie's Weekly*.

Trade journals originated in England, being first devoted to agricultural and financial interests. Now papers and magazines are published in the special interests of almost all callings, trades and occupations. Each industry (iron, cement, etc.) has its paper. No matter what one may be interested in, there is a paper on the subject for him to read.

Newspapers were not issued Sundays until 1825, when the *Sunday Courier* was established in New York by Joseph C. Melcher, and edited by a theological student. The Sunday newspaper as a separate proposition, was developed by Morrill Goddard, who as editor first of the Sunday edition of the New York *World,* then of the Sunday edition of the *American,* introduced the magazine section, the editorial section, and the comic section.

The *Youth's Companion,* started in 1827, was probably the first children's periodical.

Rags for the making of paper were scarce during the latter part of the Eighteenth Century, and newspapers are known to have suspended publication on this account.

The strenuous style of journalistic expression now associated with Arthur Brisbane and William Randolph Hearst, and made famous during war times by Horace Greeley's "You lie, you villian," existed several centuries ago. In 1642 the *Mercurius Britannicus* contained such pleasant words as "lies," "forgeries," "insolencies."

In the early days of the United States government there was no *Congressional Record* and such records of famous debates and historical proceedings as now exist are due to the energy of private individuals and newspaper reporters. Joseph Gales and William W. Seaton, of the Washington *National Intelligencer,* are two famous Congressional reporters of the first quarter of the Nineteenth Century. When the British Army captured Washington, during the war of 1812, it destroyed the office of the *Intelligencer.*

In 1848 a half-dozen New York papers formed an organization for the joint collection of news, which later expanded and is now known as the Associated Press. The invention of the telegraph (about 1844) made possible the rapid gathering of news from all parts of the country.

Famous Editors and Newspapers

The small sheets of the early days contained very little besides the news and a few advertisements. Editorial expression was not advisable, hence no attempt was made by most of the editors to "mold public opinion."

An exception, however, was the editor of the *New England Courant,* James Franklin, brother of the great Benjamin. For his fearless criticism of public conditions he was imprisoned on several occasions.

It was in this paper that Benjamin Franklin's first essays appeared, those which history tells were anonymously thrust under the door of his brother's printshop.

In 1729, in Philadelphia, Benjamin Franklin began the publication of the *Pennsylvania Gazette,* which was continued under various names until 1845, when it was merged with the Philadelphia *North American,* although the *Saturday Evening Post,* a weekly literary magazine claims descent from the *Gazette.*

The *Aurora,* an anti-Federalist paper, published in Philadelphia by Benjamin Franklin Bache (a nephew of Benjamin Franklin), in 1797 contained an article on Washington retiring from the Presidency in which

was said: "The name of Washington from this day ceases to give a currency to political iniquity and to legalized corruption." A number of veterans of the Revolution attacked the *Aurora* office and threw its type into the street.

William Duane, who succeeded Bache as editor of the *Aurora,* led an exciting political life. He was almost beaten to death by a band of men who attacked his office in 1799, because of his views on the Alien and Sedition Laws.

One of the most respected papers of Great Britain, and perhaps the leading paper of the world, is the London *Times,* a name it assumed three years after its establishment in 1785 by John Walter.

John Walter the second, who took charge of the *Times* in 1803, was a man of great ability. Besides making his paper influential and powerful, he did much for the advancement of printing, in 1814 introducing Koenig's steam printing press. Trade unionism was strong in those days. As a result of a strike on the *Times,* nineteen of the strikers were imprisoned for conspiracy.

The *Massachusetts Spy,* a famous paper of the stirring days of the Revolution, was established in 1770 by Isaiah Thomas, who later also wrote a "History of Printing."

It was customary at that time, and for almost a hundred years after, for newspapers to display a motto with its title. One used by the *Spy* was: "Americans! Liberty or Death! Join or Die!"

Noah Webster, of dictionary fame, established at New York in 1793, a Federal organ, the *Minerva;* the name of which was afterward changed to the *Commercial Advertiser,* and now combined with the *Globe.*

Major Benjamin Russell, for forty-two years editor of the Massachusetts *Centinel,* was a prominent journalist and originated the phrase "Era of good feeling," associated with the administration of President Monroe.

In early American politics Russell was a warm supporter of the Federalist party.

The *Evening Post,* now published in New York, first appeared in 1801, and was supported by Alexander Hamilton in opposition to the administration of Thomas Jefferson. William Cullen Bryant was later known as editor of the *Post* and a free-trade advocate.

Samuel Woodworth, author of "The Old Oaken Bucket," in 1823 started the New York Weekly *Mirror,* a literary and society paper.

Thurlow Weed became editor of the Albany Evening *Journal* in 1830. The *Journal* was one of thirty-three anti-masonic papers in New York State. There was much political opposition to the masons at that time because of the mysterious disappearance of William Morgan after he had threatened to publish the secrets of masonry. It was Weed who secured Horace Greeley to edit the *Log Cabin* in the presidential campaign of "Tippicanoe" Harrison.

William M. Swain, foreman of the New York *Sun* at $12 a week, was "docked" for time lost by illness. He resigned, went to Philadelphia and started the *Public*

Ledger in 1836 as a penny paper. The success of the *Ledger* was similar to that of the New York *Herald,* except during the anti-foreign excitement in 1844, when its policy was contrary to public opinion.

George W. Childs bought the *Ledger* in 1864 and became well-known for his philanthropy, and ability as a publisher.

Robert Bonner was a man of individuality and originality. He purchased the New York *Ledger* in 1851 and made of it a widely known and highly successful literary paper. Not an advertisement appeared in the *Ledger,* but Bonner spent thousands of dollars in catchy, attractive advertising in the *Herald* and other papers of New York.

A remarkable paper was the Boston *Liberator.* It was started in 1831 by William Lloyd Garrison to fight for the abolition of slavery. Thirty-four years later (1865) its work being accomplished, the paper ceased to exist. During these years Garrison was reviled, threatened, assaulted, hanged in effigy and subjected to many kinds of persecution.

Harriet Beecher Stowe's "Uncle Tom's Cabin" was first published in 1851 as a serial story in the columns of the *National Era,* an organ of the Abolitionists at Washington.

Parson Brownlow (William G. Brownlow) was one of the noted political editors of the period before and during the Civil War. As the forceful and fire-eating editor of the *Knoxville Whig* he went about "with a chip on his shoulder" and led an exciting life.

In 1864 a bogus proclamation of President Lincoln, calling for troops, was imposed upon several New York papers. The editors and proprietors of the *World* and *Journal of Commerce* were ordered arrested and the papers suppressed.

The Louisville *Courier-Journal,* famous because of its editor, Henry Watterson, is an amalgamation of the *Courier,* a Confederate paper, and the *Journal,* a Union paper once edited by George D. Prentice, the poet and writer. During the rebellion the offices of these two papers were situated opposite each other on the same street; one floated the Stars and Stripes, the other the Stars and Bars.

Harper's Weekly, started in 1857, is now issued monthly as a high class magazine. George William Curtis was well known as the political editor of the weekly.

A unique personality, linked with brains and ability, has made Elbert Hubbard ("Fra Albertus"), of the *Philistine,* a commanding figure in literary circles. It is understood, he has a co-operative plan among his workers at East Aurora, N. Y., who print, bind and decorate, and are popularly known as "Roycrofters."

The New York Sun

With the possible exception of the *Morning Post* (started by Horace Greeley and others with $200 capital and which existed but three weeks), the first newspaper selling for one cent was the New York *Sun,* established in 1833 by Benjamin H. Day.

THE SUN.

Number 1.] NEW YORK, TUESDAY, SEPTEMBER 3, 1833. [Price One Penny.

PUBLISHED DAILY,

At 166 WILLIAM ST ..... DOOR N. ANN, PRINTER.

The object of this paper is to by before the public, at a price within the means of every man, and the rates of our ads, and at the same time afford an advantageous medium for advertising. The sheet will be enlarged as soon as the increase of advertisements requires it—the price remaining the same.

Yearly advertisers (without the paper) Thirty Dollars for 1 square—Casual advertising, at the usual price charged by the city papers.

Subscriptions will be received, if paid in advance, at the rate of three dollars per annum.

AN IRISH CAPTAIN.

"There we arrived a pair of pistols as easy in the three kingdoms," said an officer, showing a pair to a young student of his acquaintance, "and have done execution before now; at the highest touch, all they go, as sweet as honey, without either recoiling or dipping. I never lost yet without them."

"I never heard of high-waymen in this part of the country?"

"Not I—" replied the officer, "and if I had I should not trouble myself to carry the pistols on their account—High-waymen are a species of sharks who advert their of nothing at bottom; they know we are a little too hard to catch. No, my dear sir, highwaymen have that old-fash'ned much money, and what they have they fight for."

"Since that is the case, how come you to travel always with pistols?"

"Because," answered the officer, "I find them very useful in commanding my debtors; I may not have occasionally have with a friend, to which one friend may chance to have with another?"

"Do you often find a difference in that way?"

"Why, I can point out before I arrived at your age—The first time was with a relation of my own, who said he would sue my engage what I owed him. I said nothing with the other towards the thousand of my fine relation; but I met him next and that I would be happy to give him proof the very next morning, or I what we met. I fetched him so smartly in the leg, that he has halted ever since. But all his doubts being now removed, he cheerfully contented his quota with the rest of my relations; and we have been very good friends ever since."

"Pray what gave you occasion for the second?" said the young student.

"Now it begins delightfully to more than I can tell," answered the captain; yet I know in, that a large company of us dined together; we eat long and drank deep, and I went to bed rather in a state of forgetfulness, and was awoken in the morning from a profound sleep, by a gentleman who began a long story, how I had said something that required explanation; and when that I had accidentally given him a blow, but he supposed I had no intention to offend him, and as he continued talking in a reasonable kind of way, without coming to any point. So I was under the necessity of interrupting him, "upon my conscience, Sir, (said I) I am unable to declare, with certainty, whether I had any intention of offending you or not, because my head is still a little confused, and I have no clear recollection of what passed, nor do I fully comprehend your drift at present, but I conjecture that you wish to have satisfaction; if so, I must beg you will be a little enough to say so at once, and I shall be at your service. Finding himself does not shoot, he moved the place and the hour. I met him punctually at the time. His first friend missed fire, but I hit him in the shoulder. At his second shot, the bullet passed pretty near me, but takes lodged in his hip, and then he declared he was quite satisfied. So as I had given a blow the preceding night, and two rounds that morning, upon declaring himself satisfied, I said I was contented."

"You would have been, though very hard to please, if you had made any difficulty."

"I thought so myself," rejoined the captain, "and as the affair ended, he being carried home in a coach, and I marching from the field of honor on foot."

"Pray, may I ask if you ever was in a battle?"

"Yes," replied the captain with a sigh, "I never was, I never had that good fortune, though I would give all the money I have in the world, and all the money I can owing, which is at least treble the earth, to be in one to-morrow."

"Practice yet had a good cause," replied the young student.

"I should not be squeamish respecting the consequence; but I not a good battle; that my dear, is what is the most essential to a consciscious officer, who wishes to improve himself in his profession. I have much reason, therefore, to wish for a war; and at the present junction, it would be much to the advantage of the nation in general, as it is dwindling into a country of jaughers, manufacturers, and merchants. And you must know, too, that I am pretty fortunate, having already stood thirteen shots, and I never was hit but once."

"Thirteen! what, have you fought thirteen duels?"

"No, no!" replied the captain, "the last that fired, I am completed only my sixth duel."

Wonders of Lisbon.—Pigs and Elks rather dull Hyramidon wrought out of ivory a chariot, with four wheels and four horses, and a chip with all her rigging, both in so small a compass, that a fly could hide behind its wings. Her should we decide that, when we find it recorded in English history, on less questionable authority, that in the twentieth year of Queen Elizabeth's reign a blacksmith of London, of the name of Mark Scaliot, made a lock of iron, steel, and brass, of eleven pieces, and a pipe key, all of which only weighed one grain. Scaliot also made a chain of gold, of forty-three links, which he fastened to the lock and by it and put it round the neck of a flea, which drew the whole with perfect ease. The chain, key, lock, and flea, altogether weighed but one grain and a half!

Hardiness Jack.—Jack was at Mackie's in Ireland, a cheerfulness and lost the form of a bucket; in it were fourteen pair of dirt distinct, the spots and numbers of which were easily to be discovered with a good eye.

But still more extraordinary does this basket of flies, or any thing we have yet mentioned, must have been a set of twenty shows at Rome. In the time of Pope Paul the Fifth, by one Ghiel of Mitchmach, who had purchased a form the noted Cornelius Vorstiegrum. It consisted of eleven hundred flakes, which were all perfect and complete in every part, yet so small and slender that the whole could be easily contained in a case fabricated in a proportion of the ordinary size! The Pope is said to have blessed counted them, but with the help of a pair of spectacles, for they were so very small as to be almost invisible to the naked eye. Although his holiness then imbibed his own eye of the fact, he did not, we are assured, require of those about him to examine it in the credit of his infallibility; for he gave every one an opportunity of examining and judging for himself, and among the persons thus highly favored, particular reference is made to Gaspar Schoppius, Johnnes Faber, a physician of Rome.

Tartlanus, of whom did so many wonderful things was related, is said to have fabricated iron mills, which moved of themselves, no minute in size, than a mach cow'd every one in the shown; and yet it was powerful enough to grind in a single day, grain enough for the consumption of eight men.

A Wonder.—A boy in Vermont, accustomed to working clothes, was so prone to wrinkling, that, as soon as he was by himself, he immediately commenced. When asked, the number of his smock, short and large were completely convenient to the exercise, he wrinkle, with astonishing dexterity. A pale countenance, loss of appetite, and almost total prostration of strength, convinced his mother it would end in death, if not speedily overcome, which was accomplished by placing him in the society of another boy, who had orders to give him a thump on turn as he began to wrinkle.

The first number of the New York Sun

The Sun is the oldest of the existing New York morning papers

It was the custom in those days to charge a certain amount a year (the *Sun's* price was $30.) for advertising, the advertiser not being limited to the number of lines used.

In 1868 Charles A. Dana and associates, purchased the *Sun,* paying $175,000 for it.

The *Sun* for a number of years was the rival of the *Herald* in enterprise, and never shone so splendidly as when it had secured a "beat."

Bennett and the Herald

James Gordon Bennett is prominently associated with the history of progressive independent journalism in the United States. After editing papers in various places he started the New York *Herald* in 1835, without capital and without friends, and later made a profit of half a million dollars yearly. The *Herald* consisted of twelve columns of reading matter and four columns of advertisements, printed on a folded sheet, ten by fourteen inches in size.

Newspaper illustrations were first used about 1838, in the *Herald,* and were ridiculed by the other New York papers.

About 1840 a coterie of papers, dubbed by Bennett "the Wall Street Holy Allies," began a fierce and violent attack on the *Herald.* Bennett's answer to their barkings was to publish the fact that the Allies' combined circulation was 36,550, while the *Herald's* alone was 51,000.

The "Personal" column that was a feature of the

Herald for many years, came to a sudden end in 1906. It was claimed that the "Personals" were inserted for immoral purposes, and the Courts intervened.

A startling and audacious enterprise of the younger Bennett's was the sending in 1870 of Henry M. Stanley at the head of an expedition to discover Dr. Livingstone in "Darkest Africa." The mission was successful and added fame to the already famous *Herald.*

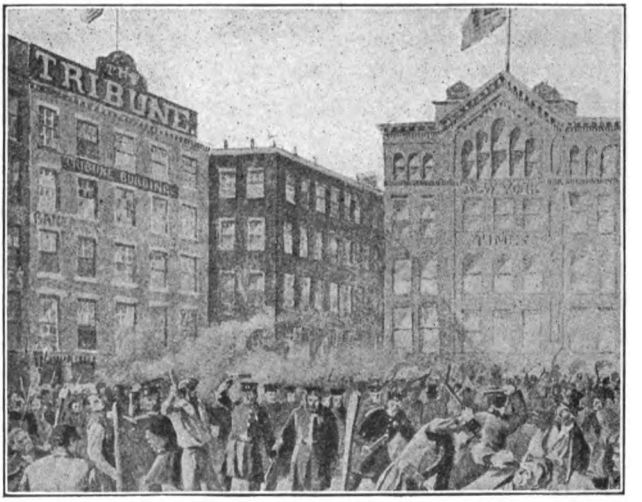
Bennett made a rule to allow no displayed advertising or illustrations in the columns of the *Herald,* and thus preserved a pleasing gray tone on the pages. Although display is now allowed it is confined to letters in outline. Illustrations are also used, but these too are in outline.

Greeley and the Tribune

Horace Greeley, the most famous of political editors, started the New York *Tribune* in 1841. He was independent in his views and radical in advancing them; a staunch Whig and Republican; an ardent protectionist; in preferences and prejudices one of the "common people." A loyal Union supporter, he surprised the country by furnishing bail for Jefferson Davis, president of the Confederacy.

Greeley's editoral cry "On to Richmond!" forced the Union Army to begin a march that resulted in the disastrous first battle of Bull Run.

During the draft riots in New York City in 1863, the *Tribune* office, in Printing House Square, was one of the objects of the mob's attack. Greeley, his editors



The attack on the Tribune building in 1863
Printing House Square, New York

and printers, worked with firearms by their side and had piles of hand-grenades at the windows, ready to drop into the crowds below.

Politically ambitious, Greeley accepted an endorsement for the Presidency in 1872 from the Democrats and ran against General Grant. Until the Roosevelt-Parker campaign of 1904 he was known as "the worst-defeated Presidental candidate." This defeat, followed by the death of his wife, affected his mind and he died soon after.

Many stories are told of the errors and misunderstandings resulting from Greeley's almost illegible handwriting.

Raymond and the Times

The New York *Times* was started in 1851, being an attempt to duplicate the successes made by the *Herald* and the *Tribune*. Henry J. Raymond, who ten years before was assistant editor and chief reporter on the *Tribune* at ten dollars a week, became its editor.

Of Raymond's work while on the *Tribune*, Greeley wrote: "A cleverer, readier, more generally efficient journalist I never saw, and he is the only assistant with whom I ever felt required to remonstrate for doing more work than any human brain could be expected long to endure."

There was an element among readers of New York newspapers in 1850 which demanded a paper more conservative than the *Herald* and more refined than the *Tribune*. Raymond realized the need and supplied it by giving New York the *Times*.

The starting of the New York *Times* was due indirectly to a discussion on Socialism during the previous decade between Raymond, who was then writing for the *Courier and Enquirer*, and Albert Brisbane (father of Arthur Brisbane, now editorial writer for the Hearst newspapers), who was supported by Greeley and his *Tribune*.

Raymond and Greeley indulged in rather lively editorial controversies, and during one of them Greeley referred to Raymond as the "Little Villain," which title clung to him ever after.

Raymond was prominent in politics. He was elected

to the New York legislature in 1849; afterward becoming Speaker of the Assembly and Lieutenant Governor. He was prominently identified with the founding of the Republican party in 1856, and was elected to Congress in 1864.

The success of the *Times* in breaking up the infamous Tweed Ring in New York is an epoch in its history. William Marcy Tweed in 1870 became the head of the Department of Public Works and organized what was known as the "Tweed Ring," which diverted to the use of its members millions of dollars of the public funds. Tweed was arrested, found guilty and sentenced to twelve years' imprisonment. In 1875 he was released on a technicality, but was rearrested and held under $3,000,000 bail in a civil suit. He escaped to Spain, was brought back, and died in Ludlow Street jail in 1878.

During the Civil War, the *Times* office was located opposite City Hall Park near the *Tribune* office. It now occupies a "sky-scraper" building in Times Square at 42d Street.

Pulitzer and the World

It is an interesting fact that the New York *World* was started in 1860 as a religious newspaper. James Gordon Bennett of the *Herald,* referred to his three contemporaries, the *World, Times* and *Tribune,* as "the world, the flesh and the devil."

In 1883 Joseph Pulitzer purchased the *World* of Jay Gould. Previously to that time the newspapers of New York had catered to the "best" people, so called,

and Pulitzer, himself born in poverty, resolved to issue a paper for the "common" people. His methods were sensational, and while the *World* twenty years before had failed because it did not publish murders and other news of like character, it now succeeded because these things were prominently published. The *World* became known as the "yellow journal" and among a certain class of newspaper writers, for a long time, service on its staff was considered one of last resort.

"Nelly Bly's" well known trip around the world to beat Phileas Fogg's record of eighty days, was a characteristic bit of its enterprise. Pulitzer founded and endowed a "College of Journalism" at Columbia University, New York.

William Randolph Hearst

William Randolph Hearst is a figure in journalism and politics as prominent as were Horace Greeley and James Gordon Bennett in their time. He owns eight newspapers, dotted from Boston to San Francisco, which cost twelve million dollars yearly to conduct, and also publishes three magazines.

Hearst came to New York in 1895 and bought the *Morning Journal,* for $150,000, investing $7,000,000 in its improvement. His methods are even more sensational than were Pulitzer's of the *World.*

It has been claimed that Hearst, through his papers, forced Congress to intervene in Cuba in 1898. In the war which followed Hearst took an active interest; he armed his private yacht and presented it to the government;

he was at El Caney bending over a wounded correspondent while the battle was in progress; he was at the naval battle of Santiago and personally captured a score of Spanish sailors.

He has political ambitions, which have been ridiculed by editors of contemporary papers, but withal he has exhibited surprising strength.

At the National Democratic Convention of 1904 he received several hundred votes for the nomination of President.

In 1905, nominated by petition and without the support of any political party, he came so close to being elected Mayor of New York City, that a long contest for a recount of the ballots has resulted.

In 1906 he captured the New York Democratic State convention and was nominated for Governor. The politicians of the opposition organization, to minimize Hearst's chances of a victory, nominated Charles E. Hughes, an able lawyer, famous for his investigations of insurance evils. With all but one of the New York City papers against him, he carried the city by more than seventy thousand plurality. His Republican opponent, however, was elected by about sixty thousand plurality in the State.

Hearst pays large salaries and employs the best talent. The salaries of three men in his New York office aggregate $122,000, exactly the sum paid by the United States to President Roosevelt and his nine cabinet officers.

EDITORIAL PAGE OF THE EVENING JOURNAL. NEW YORK, FEBRUARY 11, 1907.

THE NEW YORK EVENING JOURNAL.

WILLIAM RANDOLPH HEARST.

Big Profits Through Cheap Labor.

Snow and Municipal Ownership.

THE HALL ROOM BOYS.

JUST KIDS.

MR. E. Z. MARK PAYS A COMMISSION.

Snow and Municipal Ownership.

ELLA WHEELER WILCOX.

BY ELLA WHEELER WILCOX.

Editorial page of the New York Journal
Showing Brisbane's editorials, the Hall Room Boys, Easy Mark and Ella Wheeler Wilcox's daily talk

Arthur Brisbane, editor of the *Evening Journal,* and whose editorials are read by millions of people every day, alone receives $52,000.

Several years ago Hearst changed the name of the morning edition of the *Journal* to the *New York American.*

Humor

Of the comic papers published in the world to-day, *Punch,* started in England in 1841, is perhaps the best known.

Puck, started in 1877, *Judge,* started in 1884, and *Life,* started in 1883, are the comic journals of America.

A feature of the Sunday editions of the city newspapers is the "comic supplement," usually four pages in colors. These supplements supply fun to millions of readers.

Evening papers, such as the New York *Telegram, Journal,* and *World,* also have instalments of humorous sketches.

American humorists have made use of the many newspapers to get their wit before the public. "Artemus Ward," "Mark Twain," "Josh Billings," "Bret Harte," "Petroleum V. Nasby," "Bill Nye," and "Mr. Dooley," are names associated with humor and certain kinds of philosophy.

Among the prominent makers of serious cartoons and comic pictures, are:

Thomas Nast, the pioneer cartoonist, who thirty years ago was on the staff of *Harper's Weekly,* and who with

his pencil created the familiar Republican Elephant, the Democratic Donkey and the Tammany Tiger.

Homer Davenport, who pictured Mark Hanna in a dollar-mark suit, and who drew the famous cartoon "He's good enough for me," used in the Roosevelt campaign of 1904.

Robert Carter, who so forcefully illustrates Arthur Brisbane's editorials in the Sunday *American.*

T. A. Dorgan, "Tad," the sporting cartoonist, who drew the famous "Look out, Murphy!" cartoon used in the Hearst campaigns of 1905-6.

R. F. Outcault, who originated the mischievous and philosophical "Buster Brown," and the "Yellow Kid."

T. E. Powers, who made a hit with his "Down and Out Club" in the New York political campaign of 1906.

Fred B. Opper, who originated the unfortunate "Happy Hooligan" of the comic supplements.

Rudolph Dirks, originator of the irrepressible "Katzenjammer Kids."

H. A. McGill, originator of the "Great Mr. Peewee" and the bluffing "Hallroom Boys."

Nell Brinkley, a young Western artist whose dainty characters are most artistically drawn.

Magazines

Some of the magazines now published in the United States are:

The *Century,* formerly *Scribner's Magazine,* edited by Richard Watson Gilder.

Review of Reviews, edited by Albert Shaw.

Cosmopolitan, founded by John Brisben Walker, now owned by W. R. Hearst.

Ladies Home Journal, edited by Edward William Bok.

Munsey's, established in 1890 as *Munsey's Weekly* by Frank A. Munsey.

The *Saturday Evening Post,* edited by George Horace Lorimer.

The *Scrap Book,* established in 1906 by Frank A. Munsey.

Magazines devoted to printing are published in various parts of the world.

The *British Printer* and the *Deutscher Buch-und-Steindrucker* are the best two European publications.

The *Inland Printer* was established in 1883, and is now printed in Chicago by the Inland Printer Company.

The *American Printer,* established in 1885 as the *American Bookmaker,* purchased in 1897 by John Clyde Oswald, is now published in New York by the Oswald Publishing Company.

The Printing Art, established in 1903, at Cambridge, Mass., by the University Press.

Profitable Advertising, published at Boston by Kate E. Griswold, is the leading magazine for advertisers. George French is the editor.

[Practical]

Newspaper making, while based upon certain elementary principles, varies according to the views and methods of the thousands of owners and editors.

From the unimportant owner who writes his own articles, sets his own type, and runs his own press, to the important Hearst who pays $220,000 a year to eight assistants and uses forty-six thousand tons of white paper every year; is a multitude of conscientious, hard-working, self-sacrificing newspaper men, laboring overtime in the service of the people.

The news for the country weeklies is supplied from the small town by correspondents who are quick to notice a newly painted barn, or a stranger "sojourning" in the "burg." Country weeklies have made big successes by developing this feature.

The Small Dailies

Most of the dailies in small cities are evening papers, going to press at three or four o'clock in the afternoon. With circulations varying from two to ten thousand the news is set on linotype machines and printed on web presses, either from type or curved stereotype plates.

These papers have their managing editor, local editor and local reporters.

The reporters make tours every day of the manufacturing plants and stores, gathering "personals," church and secret society news. Police and fire stations are visited and politicians interviewed. The passerby is greeted with the cheery "Anything new?"

The local editor writes headings for the articles, reads the exchanges, blue pencils and corrects copy, and adds the missing words to Associated or Publishers' Press

Public Sale

Homestead Property!

Saturday, November 24, 1906

A page of "country correspondence"

telegrams. These telegrams consist mostly of nouns, and are elaborated and enlarged as desired by the local editor.

Many dailies also use a "plate service." The news of the world is gathered together by press associations in the cities, put into type, illustrated, made up into columns, and cast into stereotyped plates an eighth of an inch thick. These plates are expressed to the various papers early in the morning, and are used on metal bases already in their possession.

The Large City Dailies

Many of the New York dailies have both morning and evening editions. The evening edition of the *Herald* is called the *Telegram,* and the evening edition of the *American,* is known as the *Journal.* The morning editions are published at an early hour, while the evening editions are published at intervals from seven o'clock in the morning to nine in the evening. At noon the newsboys are already selling the "four o'clock" edition.

The morning and the evening edition each has its own corps of editors and reporters.

The writers for the old-line, conservative newspapers are generally unknown to the public, but most writers and artists on the *American,* the *Journal,* and *World,* sign their work, and hence to a certain extent are known to their readers.

The Morning Editions

No sooner are the morning papers issued than preparations are begun for the following day's edition. A

personage similar to the old-time "exchange editor" is the first to arrive, and he carefully reads and marks all the morning papers.

Next comes the assistant city editor, the daily news editor, the sporting editor, etc. The city and managing editors usually appear at three in the afternoon. In New York all of the papers but the *Sun* get the routine news of the city from the local branch of the Associated Press. The *Sun* conducts a bureau of its own, supplying news to over a hundred papers throughout the country.

Some of the morning dailies have as many as fifty reporters. Most of them receive assignments and a few are held for emergencies.

The important assignments are given to "star" reporters, and when a murder case is exciting more than the usual attention, it is written up from the viewpoints of as many as a half-dozen persons: a minister, an author, the writer on affairs of the heart, and other members of the staff.

The duty of a newspaper man is not only to get news, but to make news. When Frederick Remington, the artist, was in Cuba previously to the opening of hostilities, he wrote to the New York *Journal* that he was coming home, as there would be no war. W. R. Hearst immediately wired him "You furnish the pictures; I'll furnish the war."

Neither expense nor effort is spared in getting important news. Special trains, boats and automobiles are hired, when necessary. The services of great lawyers are secured, large sums of money are spent in getting

The Sun.

NEW YORK, SATURDAY FEBRUARY 23, 1907. PRICE TWO CENTS.

San Francisco Examiner

SAN FRANCISCO, MONDAY, FEBRUARY 18, 1907.

5 INJURED WHEN CARS CRASH AT CROSSING

DUKE ASSERTS THAT DETECTIVES ARE INCOMPETENT AND LAZY

GIVES HERSELF FOR SON

THAW'S MOTHER PLANS SACRIFICE GREATER THAN THAT OF HIS WIFE

TRAGEDY IN HER LIFE WILL BE LAID BARE

The Chicago Daily Tribune.

FRIDAY, FEBRUARY 22, 1907—EIGHTEEN PAGES. PRICE TWO CENTS.

HARRISON ROUTED—MAY NAME DUNNE

MIKE M'DONALD'S WIFE KILLS MAN.

ALL LOST BUT ONE IN SHIP'S WRECK.

"CZAR" SHEA IS ACQUITTED.

WIFE'S SACRIFICE STUNS THAW JURY

1907 VERSION OF A GREAT HISTORICAL ROMANCE.

Newspapers of three American cities

evidence against corporations and public individuals. Nothing seems impossible to the managing editor and the same spirit is possessed by the staff.

As night comes on and the reporters return with their stories, excitement increases. The copy is passed to the readers who cut it down when necessary, alter it to conform to the "policy" of the paper, correct errors and write heads.

Reporters who have been detained tell their stories over the 'phone.

There is a telegraph editor who passes upon all news coming over the wire.

Much of the news is rewritten by a clever member of the staff, who picks out the interesting points and makes the stories more readable.

At one o'clock the excitement is at its hight; as the reporters write their final copy it is snatched from them before a half page is written, and sent to the linotypes.

The managing and city editors rush to the composing room and supervise the final makeup directly in the type forms.

Beginning with the editorial page, one form after another is closed, and hustled away to be stereotyped for the first edition, which is sent out of the city.

For the city edition some of the pages are rearranged. This is done in the type forms while the first edition is being printed from the stereotype plates.

If, when the early edition of the rival papers are examined, a "beat" is discovered, the presses are stopped and the news inserted.

The Evening Editions

The evening edition, being a series of editions issued during the day, is even more exciting to produce than that of the morning. Every minute is valuable, and each edition must if possible get on the street before that of the rival paper.

The latest news goes on the first page with a big head in red or green ink. The cover of the final edition of the *Journal* is printed on pink paper, that of the *World* on green paper.

As each edition gets on the streets the newsboys add their quota to the excitement. They chase after the delivery wagons, and packages of papers are thrust at them without stopping the wagons.

The Sunday Edition

The Sunday edition, apart from the regular news section, is printed ahead of the date of issue; the colored supplement about three weeks in advance, and the other sections about two weeks.

The newsdealers get most of the sheets of the Sunday papers several days before the day of publication, and on Sunday morning when the news section arrives, place the issue together for delivery.

The Sunday papers have grown to enormous size, numbering as high as one hundred pages, together with various cut-out novelties and trick post cards.

The comic supplements are an important feature and are printed upon specially built color-presses.

Magazines

All publications the pages of which are much smaller than the newspaper and more bulky, are called magazines.

Monthly magazines such as *Munsey's, Everybody's,* etc., measure 7x10 inches and contain about a hundred pages.

Weekly publications such as the *Saturday Evening Post, Colliers,* etc., measure 12x15 inches, and contain about twenty-four pages.

Trade publications, such as *The American Printer,* the *Furniture Records,* etc., measure 9x12 inches, and contain from seventy-five to one hundred and twenty-five pages.

Very few of the magazines are printed in their own offices, as are newspapers. There are printers who make a specialty of publication printing, and publishers find it more profitable to let them do the work.

Many magazines are usually prepared several months ahead of the publication date. The articles are written perhaps six months ahead, the reading pages are in type and printed two months ahead, and the magazines are on the newstands two weeks ahead. The advertising pages are the last closed.

CHAPTER SEVENTEEN

Advertising and Ad-Writing

[Historical]

IN these days of modern advertising when appropriations for the purpose amount to millions of dollars, the primitive methods of advertising, and even the customs of a hundred years ago, seem insignificant and ridiculous.

In the Middle Ages, when ability to write or read was considered effeminate, the public "crier" and his trumpet were depended upon to make announcements and effect sales. This official was later known as a "Belman."

The modern auctioneer is evolved from the "crier," and in many county-seats throughout the United States the auctioneer walks through the streets ringing a bell and shouting his announcement until he succeeds in getting together a crowd of prospective buyers in the public square. Court houses still have their "court-crier" with his "oyez! oyez!"

As early as the Fifteenth Century, in districts where stalls or shops were numerous the shopkeeper stood and bawled his wares to the passersby, much in the style of the "barker" at some American seaside resorts.

Laying hands on the passerby and almost forcibly persuading him to buy (as was practiced on the Bowery,

New York, several years ago) was also the custom in those days.

During the periods preceding and following the Eleventh Century the houses of the nobility were used as hostelries for travelers. The coats of arms were hung in front of the houses, and led to these stopping places being called by the object most prominent on these arms. Thus originated the "Red Lion," "White Horse Tavern," etc.

The people being mostly illiterate, advertising was confined to signs consisting merely of objects suspended in front of the shops. Thus a knife for a cutler, a stocking for a hosier, etc., sufficed.

As shops in the same line of business multiplied, other distinguishing signs were introduced, but little attention was given to appropriateness.

The druggist's colored light, the barber's striped pole and the pawnbroker's sign of three balls, are a few of the distinguishing marks which have come down to us.

An old advertisement read:

> TO BE LETT, Newbury House, in St. James's Park, next door but one to Lady Oxford's, *having two balls at the gate, and iron rails before the door*, etc.

Printers work-marks, or devices, probably originated with booksellers printing woodcut reproductions of their signs on the colophon of their books. This was done so that the public would recognize the shop by the sign hanging in front.

Aldus, the Venetian printer, in 1518, complained that other printers were fraudulently making use of his sign

fices conceived to be highly fineable by the Rules of the Common Law, either in the Kings Bench, *or by the King and his Council*, or now since the Statute of the 3. *Henry* 7. in the *Star-chamber*, The Lords severally declared how the King was discontented with the said false Rumor, and had made but the day before a Protestation unto them, *That he never intended it, and that he would spend the last Drop of blood in his body before he would do it, and prayed that before any of his Subjects should maintain any other Religion then what he truly professed and maintained, that God would take them out of the world.*

There were Eleven Persons Condemned to dye the last Sessions in the *Old Baily*, six Men and five Women, but one man and three women received a Gracious Reprieve from His Majesty, the other seven suffered at *Tyburn* upon *Friday* last the Nineteenth Instant, whose Names and Crimes follow, *John Parker* by Trade a Watchmaker, for Clipping and Coining, having been formerly Convicted of the like at *Salisbury*; *Benjamin Perry*, a lusty stout man, convicted of being a Notorious Highway-man, and Companion with *French* Executed last Sessions; *John Dell*, who with *Richard Dean*, his Servant were heretofore Tryed, for the Murder of *Dells* wives Brother, and now of his wife, which seemed rather to want Proof then Truth, they were both Condemned for stealing a Mare, and Executed for the same; This *Dean* set fire of the Room wherein he lay at two Places the Night before he was Executed; *William Atkins* for Felony, being an old Trader in that way; The two women, *Susan white*, and *Deborah Rogers* were both old Offenders.

The Right Honourable the Earl of *Shaftsbury* hath been lately ill, but is pretty well recovered to the Joy of all Good *Protestants*.

From *Holland* they write, That there are some hopes of a League Offensive and Defensive between His Majesty and the *States General* of the *United Provinces*, but on the contrary many fear that a League will be concluded between the said *States*, and the *French* King.

The Report of the Death of the Duchess of *Cleveland* is altogether false and groundless, she having not been indisposed of late.

Mr. *Benjamin Claypool* attended the Council again upon Fryday last, and was discharged from the custody of the Messenger being told that his word should be taken for his Appearance when he should be summoned.

Mr. *Mason* Attended the Council about writing News Letters, and entred into Recognizance to appear after the Holidays, upon which he was discharged from the custody of the Messenger.

Captain *Sharp* attended upon summons for erecting some buildings upon *Tower-hill*, and was ordered to produce all his Deeds and Records to the Attorney General, who is to inspect them and make a Report thereof to the Council Board.

For the reader dispatch of Affairs, there are three Committees fit this day *December*, the 22th. at *Whitehall*, one about *Jamaica*, Another concerning Trade and the Forreign Plantations, and a Third about *Tangier*, to which place we hear there is order for sending more Forces and Provisions, for the reinforcing that Garrison, and preventing any danger that may arise from the *Moors*. We hear further from thence that there are several persons who were formerly *Roman* Catholicks, and amongst the rest Captain St. *Johns*, *Captain Talbot*, and one Mr. *White* since made a Captain, with divers *others* who have freely and voluntarily renounced the said Religion, and are become *Protestants*, having received the Sacrament according to the usage of the Church of *England*, the chief motive of their conversion proceeding from their conviction of the Horrid Principles and the bloody Trayterous, and damnable practises of the *Popish* Faction, and especially since the discovery of the Hellish *Popish* Plot against His Majesties Person, the Protestant Religion, and for enslaving the Kingdom.

There is a Report that three Suns were lately seen about *Richmond* in *Surrey*, by divers credible persons, of which different observations are made according to the fancy of the People.

This day, *Decemb.* 22. Captain *William Redlow* one of the Kings Evidences, who has been so instrumental in discovering the *Hellish Popish* Plot, and thereby (under God) for preserving his Majesties Person and the whole Nation, was married to a Lady of a very considerable Fortune.

There being Intimation given, that *Mrs.* Cesier the *Popish* Midwife now a Prisoner in *Newgate*, would make some Discovery both of the Plot, and the Counter Plot; She was brought before the Council last week, but would confess nothing; whereupon Justice *Warcup* produced some Informations against her taken before him; Upon which she acknowledged the greatest part of what was charged against her, and thereby gave very strong Confirmation to the Truth of Mr. *Thomas Dangerfields* Depositions, concerning that cursed Conspiracy managed by the Lady *Pawn*, her self, and several others, for the destruction of many Hundreds of his Majesties Loyal *Protestant* Subjects.

It is reported, that a Quaker fell in love with a Lady of very great Quality, and hath extraordinarly petitioned to obtain her for his Wife.

Upon the 17th. instant in the evening Mr. *Dryden* the great Poet, was set upon in *Rose-street* in *Covent Garden*, by three persons, who calling him rogue, and Son of a whore, knockt him down and dangerously wounded him, but upon his crying out murther, they made their escape; it is conceived that they had their pay beforehand, and designed not to rob him but to execute on him some *Feminine*, if not *Popish* vengeance.

Mr. *Stretch* the *Custom-house* Waiter, who seized the Papers in Colonel *Manfields* lodgings, and was soon after suspended from his place, upon his humble *Petition* to His Majesty, was yesterday restored.

In pursuance of His Majesties most strict order for the removing all *Papists* and suspected *Papists*, from his Palace, the Dutchess of *Portsmouths* Servants that are of the *Romish* Church are discharged.

It hath pleased His Majesty to take from His Grace the Duke of *Monmouth*, the Office of Master of the Horse, that being the only place which remained to him; but we know not yet who shall succeed him, and the Earl of *Peterborough* is made Master of the Horse to the Queen.

Advertisements.

These are to give Notice That the Right Honourable the Lord Mayor, and the Commissioners of Sewers for the City of London, and the Liberties thereof; have constituted and appointed Samuel Potts *and* Robert Davies, *Citizens; who the General Rakers of the said City and Liberties, and do keep their Office in* Red Lyon Court, *in* Watling-street, *where any Persons or Persons that are disposed to be employed under them, as Carters and Sweepers of the Streets, may repair from Eight a Clock in the morning, till twelve a Clock at noon, and from two till Six at night, where they may be entertained accordingly: And if any Carters, Farmers or others will be furnished with any Dung Soyl or Compost, they there agree for it accordingly: and all Gentlemen having private Stables, and all Inholders and Masters of Livery Stables; and all others, are desired to repair thither for the carrying away of their Dung and Soil from their respective Stables, and other places, according to an Act of Common Council for that purpose.*

There is newly published a Peace of Coins, containing an History of all the Popish Plots that have been in England; beginning with that in Queen Elizabeth's time, and ending with this last damnable Plot against his Majesty Charles II: Excellently engraven in Copper Plates, with very large descriptions under each Coin. The like was never extant. Sold by Randal Taylor *near Stationers-hall, and* Benjamin Harris *at the Stationers Arms under the Royal Exchange in Cornhill.*

The Milliners Goods that was to be sold at the Naked Boy near Strand Bridge, are Sold at Mr. Vandon *Broker in Elmstreet.*

Lost on Saturday night the 11 Instant in the Mewes, a pocket watch in a Snap's Hunting Case, made by Richard Lyons; *if a Bunch of Keys, and other things; whoever brings them to Mr.* Scally *in Covent-Garden, or Mr.* Allwood *the Mewes Gate shall have 20 s. Reward.*

London, Printed for *Benjamin Harris* at the *Stationers Armes* in the *Piazza* under the *Royal Exchange* in *Cornhill*, 1679.

The way advertisements appeared in the early news sheets. Set in italic to distinguish them from the news items

(a dolphin wound around an anchor) but that the dolphin's head was turned in another direction (due perhaps to transferring the design).

The practice prevailing in New York and other cities at the present time of covering the sides of buildings with advertisements, was foreshadowed in 1803 by a London firm of razor makers which had the side of its building painted with letters three feet high, advertising its "excellent and superb" razors.

Using the names of well-known men with an article of merchandise, such as "Robert Burns Cigar," "Garfield Tea," etc., as an advertising idea is not new. In 1784 packages of tobacco contained a head of Sir Walter Raleigh with these lines under it:

> "Great Britain to great Raleigh owes
> This plant and country where it grows."

Benjamin Franklin once told the story of the introduction to the principles of ad-writing of a journeyman hatter, a companion of Franklin's when young. This young hatter on commencing business wrote for his sign:

> JOHN THOMPSON, HATTER,
> makes and sells hats
> for Ready Money.

He submitted the wording to several of his friends. The first advised him that "hatter" was superfluous, as the words which followed explained that part. The words "makes and" were next crossed off as unnecessary. "For ready money" was omitted as useless, leaving merely the

statement "John Thompson sells hats." The last friend consulted ridiculed the word "sells," remarking that no one would expect him to give them away. The sign as it was put up read:

JOHN THOMPSON, HATS

The date of the first newspaper advertisement is difficult to determine. In a Dutch news sheet of 1626 was an announcement of an auction sale of articles "taken as prizes."

The introduction of tea to the Western nations may have been about the time of the following advertisement from the *Mercurius Politicus* (1658):

> "That excellent, and by all Physicians approved, China drink, called by the Chineans, Tcha, by other nations Tay alias Tee, is sold at the Sultaness Head Cophee House, in Sweeting's Rents, by the Royal Exchange, London."

One of the first medicine advertisements is an announcement appearing in the Edinburg *Courant* (1705):

> "That the Famous Loozengees for Curing the Cold, stopping and pains in the Breast, the Kinkpost; Are to be sold by George Anderson at the foot of the Fish Mercal, and at George Mowbay's Shop opposit to the Main Gaard. Price 8 sh. the box.

Silk sales are now important features of department store advertisements. This announcement from the British *Chronicle* (1763) may be interesting:

A REAL SALE OF SILKS

"At the Coventry Cross, Chandos Street, Convent Garden. Consisting of a very great assortment of rich brocades, tissues, flowered and plain Sattins, Tabbies, Ducapes, black Armozeens, Rasdumores, Mantuas, etc. It is hoped Ladies will not be offended that they cannot possibly be waited on at their own Houses."

Modern Advertising

The development of modern advertising in America began when Robert Bonner in 1855 spent as much as $27,000 a week in telling the public about the literary features of the New York *Ledger*. Mr. Bonner's spiritual adviser, thinking he had lost his senses, remonstrated with him, but the investment returned large profits.

Sometime previous to the Civil War, $3,000 was spent for a single advertisement advertising Fairbank's scales.

One of the first agencies for the handling of advertising (Geo. P. Rowell & Co.) was founded in 1865 by George P. Rowell, who also published (1869) a newspaper directory, and in 1888 started *Printers' Ink*, an advertising journal.

The manufacturers of proprietary medicines or other articles would make an appropriation of a certain amount of money and place it in the hands of an advertising agency. The agency would prepare, and electrotype, ads of various sizes and then make contracts for space with newspaper publishers, who usually allowed a discount of twenty-five per cent on their advertising rates

to agencies. In some instances newspaper publishers instead of receiving cash were forced to place orders for type to cover the amounts.

John Wanamaker, in both Philadelphia and New York, has led in department store advertising. This firm introduced the present style of such advertising, and, also, the corner coupon, which is now a part of most magazine ads.

In New York City the department stores spend more than $4,000,000 a year in advertising, Wanamaker leading with $500,000.

Advertising has in many instances changed the habits of the people. It has caused them to eat cereal preparations for breakfast; to wear ready-made clothing; to eat prepared food; to educate themselves by home study, and to do various other things which they had no previous intention of doing.

The temporary enthusiasm created by a well-written advertisement sometimes causes people to buy what they have no need for. Advertising has really made necessities of luxuries.

Some of the famous advertising successes and the features which have helped to win success are:

Sapolio, advertised for thirty years; well-known by the "Spotless Town" jingles.

Force, a breakfast food, associated with "Sunny Jim."

Macbeth lamp chimney.

Uneeda Biscuits, which have superseded the old soda cracker.

Pearline, a substitute for soap.

Royal Baking Powder; "Absolutely pure."

Heinz' "57 Varieties" of pickles and condiments.

Wilson High Ball; "That's all."

Pabst Beer, "that made Milwaukee famous."

Douglas Shoes, with the familiar portrait of the maker.

Postum, a substitute for coffee.

Cream of Wheat, "The smiling colored chef."

Quaker Oats, "The smile that won't come off."

Ivory Soap, "It floats."

Gold Dust Scouring Powder. "The Gold Dust Twins."

Lackawanna Railroad. Phoebe Snow and the "Road of Anthracite."

International Correspondence Schools, which have stimulated study.

United Cigars Stores Company, with its clever shield trademark and novel window displays.

[Practical]

Advertising is done scientifically in these days. The ad-writer constructs his advertisements from the viewpoint of the reader and prospective buyer, instead of attempting to show his command of language or tell a joke, as was common when every advertiser wrote his own ads.

Half a century ago Robert Bonner filled a page of the New York *Herald* with repetitions of an agate line of type. Now a page of department store advertising is filled with information and prices that are as carefully read by women as are the news articles.

In preparing the ad the advertising manager collects

information from the department heads; which is re-written in an interesting manner, and apportioned to its space on the page, the "leader" or special bargain being given the prominent place. Each advertiser gets distinction into his ads, by using a different series of display type; some unique panel arrangement; or a peculiar feature of decoration.

"Bargain Sales" are great successes. Almost every human is possessed of a weakness for getting things under price. The ad-writer's "former price $16.00" may refer to conditions during the Civil War or during the gold fever in California, but the buyer is satisfied just the same.

In ad-writing it is well to tell the truth, but, say some, not all the truth. "Fabrics of genuine southern-grown cotton" sounds well and perhaps would affect a sale where mere "wool clothing" would not.

The successful advertising manager studies the weaknesses of his reading audience, as well as acquaints himself with their tastes and wants.

The firm name is often considered an advertising asset. "Rogers Peet & Company" and "Charles Hellmuth" are examples. There never was a person named "Rogers Peet" conected with this firm of New York clothiers. "Charles Hellmuth" is the name of a bookkeeper who was once with Kast & Ehinger, the ink manufacturers.

There is also value in the name of a trade article. "Uneeda" (you-need-a) biscuit is an example. The clever arrangement of the word "United" in the form of a

Showing department store ads, one of Lawson's famous financial ads, the decorative border used by the Aeolian Co., etc.

Showing Macy's use of initials, New York amusement ads, Rogers, Peet & Co.'s odd style, the plain Caslon conversational ad, the plain antique ad of the Library Bureau, etc.

shield, as a trade mark is a valuable asset of the United Cigar Stores Company.

There is no straight road to success in advertising. The articles to be advertised are so varied, the characters of the businesses so different, that it is difficult to determine upon a style of advertising that will surely succeed.

In most cases the name of the article, or business, is the most prominent feature of an advertisement.

Department stores display the prices, and emphasize the bargains, and find it good policy.

General assertions such as the "best values for the least money" and "acknowledged superior to all others" sometimes bring returns, but not so much now as they formerly did.

A glance over the advertisements in current publications shows these arguments:

> "The Ramleh has 'taste' without being too heavy—and a smooth, mellow fragrance that never tires—the very quality you so often look for, but so seldom find."
>
> "The *only* soda cracker scientifically baked.
> The *only* soda cracker effectually protected.
> The *only* soda cracker ever fresh and crisp."
>
> "One-eighth of an inch—too much or too little—and your hat is either unbecoming or incorrect."
>
> "Alum in food causes stomach disorders. Its continued use means permanent injury to health. Use Royal Baking Powder."
>
> "When you need to recuperate, you need not go to the seashore. You will find exactly the uplift you need in Pabst Extract."

Some advertisers prefer the conversational style of plain paragraphs; some mere display; others border decoration or photographs retouched and lettered.

An article for universal sale needs constant repetition of a trade mark of some kind, and reiteration of its name and main qualities.

If shoes are being advertised reasons must be given why those particular shoes should be bought.

If a new invention is to be exploited, the ad must explain what it is, what it is for, and why people should buy it.

Man is like a sheep; he acts and thinks with the rest of his fellows. If the advertiser can show that Governor White buys and uses its goods, and hundreds of others do the same, the cautious man reasons that he also will act wisely in buying it.

Dealers will not carry new brands of goods unless repeated demands are first made for them by their customers. Advertising creates this demand.

In order that returns may be traced, mail-order advertisers "key" their advertisements, *i. e.*, include some mark of distinction in the address. Sometimes the street number is changed, or "Department A," "Booklet B," and other distinguishing phrases are used. Inquiries and sales containing the keyed addresses are credited to the respective publications, their value as advertising mediums being thus partly determined.

Some department stores and other large advertisers have a small printing plant where their advertisements are put in type. In most cases, however, advertising men

have their advertisements set in regular printing offices. Electrotypes of the advertisements are sent to the magazines and to small city papers, but in some of the large offices union regulations demand that all advertisements must be set in the shop.

In order to preserve a gray tone on the page, the New York *Herald* uses only outline display type, and illustrations are redrawn in outline. Some of the other newspapers tool the faces of type and border to make them print with a gray tone.

When writing an ad the mistake should be avoided of being too modest in making claims and assertions. Years ago the boy who answered "I'll try" was held up as a good example, but now unless the boy answers "I can," full confidence is not placed in him.

The ad-writer should familiarize himself with the articles or business he is to advertise, and should write with confidence and enthusiasm. Gain the confidence of the reader, and then enthuse him.

With an occasional exception, a poor article cannot be successfully advertised. If the article has merit and is advertised at the right time in the right manner, the advertising will prove successful.

While extraordinary language is to be avoided, yet sufficient adjectives should be employed to make interesting reading.

The arrangement of the ad should be carefully indicated on a lay-out sketch, or the compositor, not being a wizard, may arrange the ad differently from what was intended.

CHAPTER EIGHTEEN

Printers' Business Methods

[Historical]

Quaint Customs in the Printshop

WHILE not strictly belonging under the heading of "Business Methods," it may be of interest to mention the customs of the printshop before the present business era of short work-days and high wages.

Joseph Moxin, who in 1683 published the first book in the English language on printing, mentions the customs of printers in his time:

"Every Printing-house is called a Chappel, and all the workmen that belong to it are Members of the Chappel; and the oldest Freeman is Father of the Chappel."

The chapel was governed by custom and by-laws, and the penalty for breach of such laws was called a "solace," being the forfeiting of varying small sums of money. If a workman failed to pay his "solace," he was "solaced" in this manner:

"The workmen take him by force and lay him on his belly athwart the Correcting-stone, and hold him there while another of the workmen with a paper board give him eleven blows on his buttocks."

Playing dice with quadrats, swearing, "giving the lye" and letting fall the ink-balls, were a few of the offences that required a solace. Another custom was this:

"If any of the workmen affirm anything that is not believed, the Compositor knocks with the back corner of his composing stick against the lower ledge of his lower case; thereby signifying the discredit they give to his story."

"It is the custom for all the Journey-men to make every year new Paper Windows, whether the old will serve again or no; because that day they make them, the Master Printer gives them a Way-Goose; that is, he makes them a good feast, and not only entertains them at his own house, but besides, gives them money to spend at the Ale-house or Tavern at night. And till the Master Printer have given this Way-Goose, the Journey-men do not use to work by candle-light."

From Johnson's "Typographia" (1824) it is learned that compositors who left a "foul stone" forfeited one penny for each offence. For mixing two separate fonts (without orders from the "overseer") he was fined one shilling. Sweepings were to be cleared away before one o'clock every day or three-pence were forfeited.

Any person who took, without permission, a candlestick, bodkin, snuffers, or composing stick, not his own, was fined three-pence. For "every candle left without proper charge" the master forfeited two shillings and six-pence, overseer (foreman) one shilling, and compositor six-pence.

Early Business Methods

Until about a hundred years ago composition consisted mostly of text matter, commonly known to printers as "straight matter."

Hansard, an English authority, in 1816 said: "The mode of making the charge of composition and reading is, first having fixed, by the scale and rules, the proper pay for the composition, to add one-fourth of that charge for the reading, and then add to the total one-half of its amount to cover the various expenses and yield a profit."

The scale for compositors in England in 1810 was about twelve cents a thousand brevier ems.

As compositors were paid only for the number of pages actually set, made up and imposed, the record shown by the pay roll also showed the main cost of doing the work.

Because the hand press was about the only piece of machinery used, and because the editions were limited and the type lasted many years, depreciation was not the imposing item of expense it now is.

It should not have been difficult to arrive at a price for work in those days, yet printers never became rich. If they kept out of the sheriff's hands they were judged to be successful printers.

Johnson in 1824 suggested the following form for a "Job Book":

Date	Compositor's Name	Compositor's Charge	Pressman's Name	Pressman's Charge	Corrections	Number printed	For whom printed	Size and description	Fol. of day book	£	s.	d.

It is only within recent years that any real system has been followed or record of costs been kept in the job printing offices of the United States. There is still room for improvement, but the trade is now more prosperous than it ever was.

[Practical]

About Costs

Most jobs of printing are secured after making estimates; or more truly, bids; inasmuch as the printer, if he gets the order, must charge just what he estimated.

To make an accurate estimate, all the costs that go to make up the job must be known.

It may be easy to find the cost of stock, plates, and binding, but unless cost records have been kept, it is most difficult to determine what to charge for composition, make-up, stonework and presswork.

The beginning of all system in a printing office is to have the compositors, make-ups, stonemen, and pressmen, keep daily time-slips showing the number of hours devoted to each job.

These time-slips give a record of the number of hours spent in producing a job, but it is necessary to know how much to charge for each hour.

This information will have to be obtained from the accummulated items of expense in conducting the plant.

When the office's own records are not available, it is reasonably safe to charge as general expense the equivalent of the workmen's pay per hour, and add from ten to twenty-five per cent for profit.

The general expenses in a medium-size shop include depreciation, interest on investment, bad debts, spoilage, rent, light, power, and the salaries of foreman, solicitors, type-distributors, proofreader, bookkeeper, stenographer and errand boys (not forgetting the proprietor's salary).

At the end of a month's business the total expenses, including all salaries (but not paper, ink, plates, binding, etc., which is charged separately to customer) are added together, say, in this manner:

Salaries	$800.00
Interest, depreciation, etc.	110.00
Rent, light, etc.	100.00
Other expenses	75.00
	$1,085.00

The sum of $1,085.00, representing the expense for the month, is next divided by the number of productive hours (say 1500) obtained from the daily time-slips:

```
        .72⅓
1500 | $1,085.00
       10500x
       ------
        3500
        3000
        ----
         500
```

The cost is thus found to be 72 1/3 cents per hour. If less than this rate per hour is charged on a job, money is lost; if more, money is made.

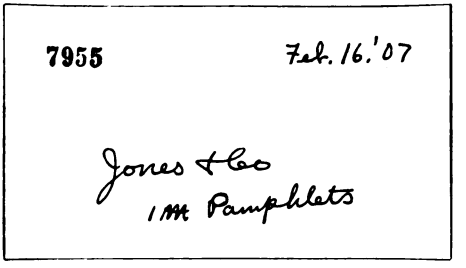
The lesson is plain: Printers must learn their costs and charge more, if profit be desired.

A System

A system suitable to its needs should be adopted by every office. A large city office may need an expert accountant to prepare forms of records and bookkeeping; a small country office may need but a single slip containing time records and all other items on its face.

A simple system is here presented, one which has proved satisfactory in a medium-size city office.

When a job comes in the office, a clerk fills out an index card for the superintendent, a job envelope for the composing room and a small slip for the pressroom.



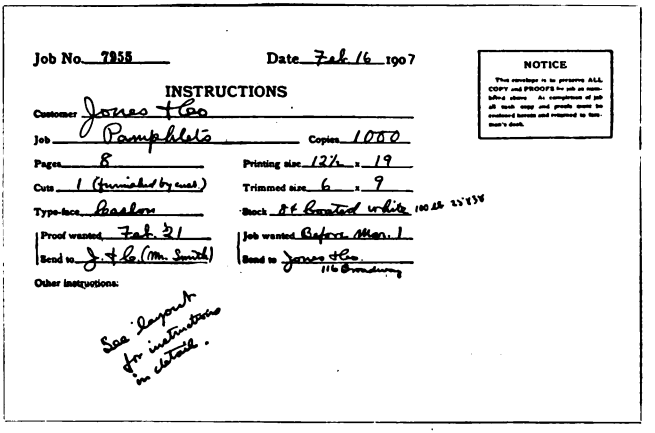
The index card

This index card is filed by the superintendent in a tray on his desk after the tab "Composition," showing that the job is in the composing room. When the customer's O. K. is received, the card is advanced after the tab "Press," and when the finished job comes to his desk, the card is placed under the tab "Finished." When he is

handed the job slip with all items totaled, and places his O. K. on it, the card is filed alphabetically.

By this system the superintendent knows what jobs are in the office, what progress is being made, and as long as he has the card, knows also that the customer has not been billed.

When the job goes to the composing room it is enclosed in a 9x12-inch job envelope with instructions on its face:


Job No. 7955 Date Feb. 16 1907

NOTICE

This envelope is to preserve ALL COPY and PROOFS for job as numbered above. At completion of job all back copy and proofs must be enclosed herein and returned to foreman's desk.

INSTRUCTIONS

Customer Jones & Co.

Job Pamphlets Copies 1000

Pages 8 Printing size 12½ x 19

Cuts 1 (furnished by cust.) Trimmed size 6 x 9

Type-face Baskerville Stock 80 # Coated white 100 lb. 25x38

Proof wanted Feb. 21 Job wanted Before Mon. 1

Send to J. & Co. (Mr. Smith) Send to Jones & Co. 116 Broadway

Other instructions:

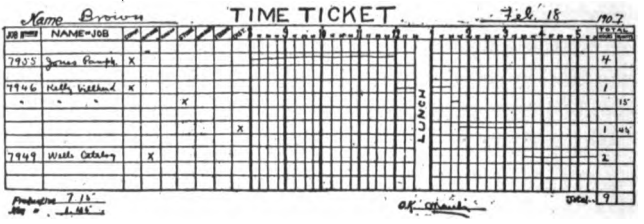
See layout for instructions in detail.

The job envelope

Until the envelope is given to a compositor it represents to the foreman a job to be done.

The compositor enters his time during the day on a time-slip, by drawing a line from left to right, and indicating the character of work with an X. An identi-

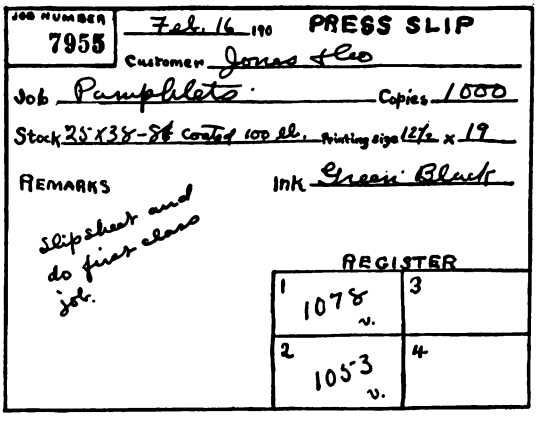
fication word is used in addition to the job number to make easier rectifying of mistakes.



The daily time slip

At the end of each day, the foreman collects the time-slips and gives them to the superintendent. This style slip is also used by pressmen and feeders, no cylinder presses being used.

The pressroom foreman receives a slip with brief in-



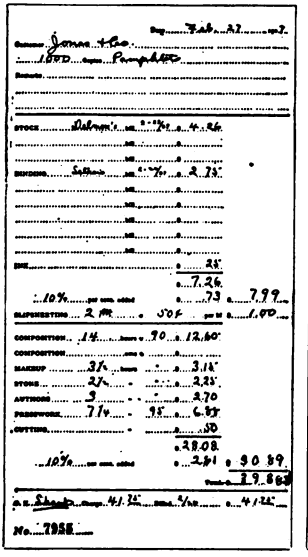
The press slip

structions, by which he is kept informed of the jobs coming to him, and of the stock and ink needed for them.

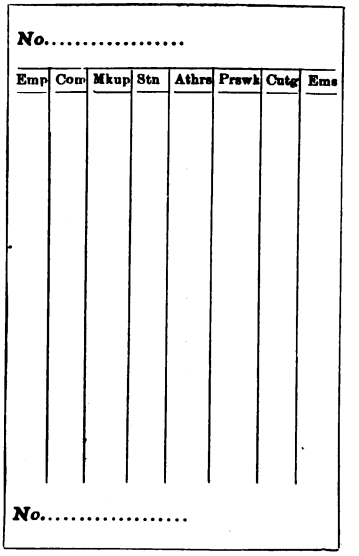
As the job is printed, the register at the end of each run is recorded on the slip, and when finished, the slip to which is attached a sample of the job, is returned to the superintendent's desk.

The bookkeeper receives the time-slips each day, and transfers the time to the back of the record blank.

When each job is completed the superintendent passes it along to the bookkeeper, who then adds the several



Face of record blank

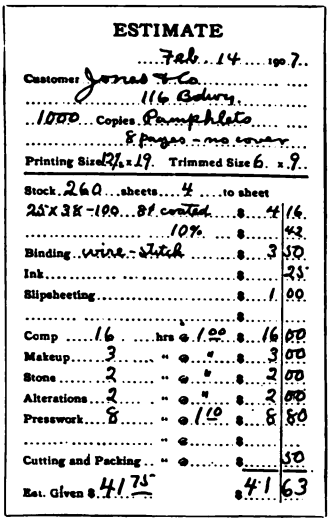


Back of record blank

columns and carries the totals to the face of the record blank. This blank also contains other items of production, such as bills for stock, binding, cuts, etc., upon which the job number was placed when approved by the superintendent.

The record, being now complete, shows the actual cost of producing the job; it is now O. K.'d, the price indicated by superintendent, and billed by the book-keeper.

A small index-card form is used in estimating:



ESTIMATE

Feb. 14 1907

Customer Jones & Co.
116 Bdwy.

1000 Copies Pamphlets
8 pages - no cover

Printing Size 17½ x 19. Trimmed Size 6. x 9.

Stock 260 sheets 4 to sheet		
25 x 38 - 100 81 coated	$ 4	16
10%	$	42
Binding wire-stitch	$ 3	50
Ink	$	25
Slipsheeting	$ 1	00
	$	
Comp 16 hrs @ 1.00	$ 16	00
Makeup 3 " @ "	$ 3	00
Stone 2 " @ "	$ 2	00
Alterations 2 " @ "	$ 2	00
Presswork 8 " @ 1.10	$ 8	80
" @	$	
Cutting and Packing " @	$	50
Est. Given $ 41.75	$ 41	63

The estimate blank

All estimates are filed, used for reference if the job is received, and for comparison when it is finished.

This system can be modified to meet other conditions.