

# MARKS OF THE PRINTER

**IN SERIES:**  
L'ETIQUETTE DE VIN



THE ROYAL ARMS OF  
GREAT BRITAIN AND IRELAND.



# MARKS OF THE PRINTER

printing techniques  
and type design as a guide to  
identification

JOHN WALTER



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*For Alison, Adam, Nicky, Findlay, Georgia and Holly...with love*

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**Half-title:**

Typical border elements, taken from a Monotype specimen book of the 1960s.

**Frontispiece:**

This heraldic picture-postcard was made for the British market, but printed in Germany between 1910 and 1914. It is a lithograph of nine colours: red, pink, gold, yellow, yellow-green, green, dark blue and light blue, with black to provide the detail. The card has also been die-embossed, giving a three-dimensional quality, and then varnished.

**Plate 1, Opposite:**

Another of the decorative multi-media cards published prior to the First World War by Birn Bros., this is lithographed in pale lilac, purple, yellow and two shades of green. A gold impasto ink has been applied to give depth, and the entire design has been embossed. The reverse of the card notes that it had been printed in Saxony.

PRODUCED IN GREAT BRITAIN

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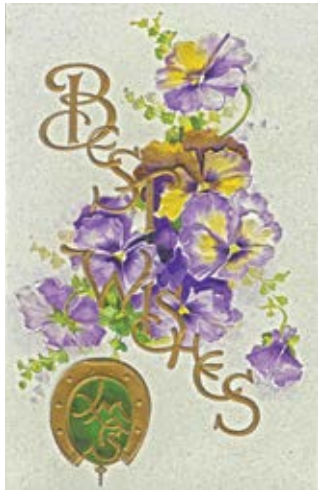
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## PREFACE & INTRODUCTION

Identifying and dating ephemera are helped by many little things. A printer's order code or a postmark may be invaluable; so, too, may be the content of advertisements, and details visible—for example—in an illustration of the factory site. Changes in topography, costume, the style of vehicles, and even the growth of shrubs and trees can all help mark a specific point in time. Yet there are also many pitfalls. Printers often used the same basic illustrations for twenty years or more, persisting with obsolescent blocks long after a particular type of car or a railway company had ceased to exist. Others used a single illustration to masquerade as several things, supposedly different but outwardly very difficult to distinguish—e.g., the near-sisters *Olympic* and *Titanic* of the White Star Line, or Royal Navy warships where one illustration sufficed for an entire class.

My interest in printing and lettering is long-standing. I had had a 'John Bull' kit as a child, allowing me to replicate typesetting even though the letters were moulded rubber instead of lead-alloy castings. They worked surprisingly well when pressed against the ink pad and then onto paper. In my early teens I made hectographic prints—drawings (in special ink) which were transferred to a petroleum-jelly mattress, and then back to a sheet of paper rolled onto the jelly. The image could be too dense for a couple of pulls, and weakened perceptibly when too many had been taken, but I could usually get a dozen usable prints. The jelly could then be melted (usually in our best cooking pot!) and used again.

My family lived a few doors from a small printing business which relied on hand setting, an antiquated horizontal process camera the size of a wardrobe, a 1946 Heidelberg platen in near-showroom condition, and a brace of Multilith 1250 offset-lithography printing machines. I spent many hours in my mid-teens making negatives and plates, running the Multiliths and operating the guillotine, though I never quite mastered the platen (which had a mind of its own) and hand-setting was always challenging.

When the time came to get a proper job, more by accident than design, I found myself in the employment of a specialist publishing company where my



**Plate 2.** Created for AM Varsity in 1985 and printed by offset lithography, this promotional brochure was very successful. This is my proof copy, with the 'p' of 'Special' extended to align with the base of 'British format type discs'; for the final version, the client moved the 'British format' line to a more conventional horizontal position and compromised the design!

knowledge of printing camouflaged lack of experience in commerce. At this time, much of the creation of the books was still being left to printers. But they made too many mistakes, particularly when entrusted with layouts, and we elected to work 'in house' after one of our suppliers lost the film and plates for an entire book.

Type was set on Linotype casters, proof-read, corrected, then supplied on specially coated stock as 'repro pulls'. These were pasted in place, headings were added in Letraset, illustration masks were created with rubylith self-adhesive film, and base negatives were produced. Then we took the half-tones, removing backgrounds where necessary with brush-and-opaque (my preferred method) or a Rotring drawing pen, and spray-glued them to the base negatives. Everything went away to be printed. Then it came back...

We were usually pleased with our endeavours. A few mistakes could creep through, but they were rarely more than minor. I once put a slightly different title on the title-page and jacket of a book, and an occasional half-tone was reversed, but the process of creation was simultaneously challenging and enjoyable. Of course, there was the occasional frustrating moment when, late at night with a deadline fast-approaching, accents had to be scraped (in reverse) into the emulsion side of a base-sheet to compensate for the unsophistication of 1970s typesetting.

In the early 1980s, I went to work for another printing business: London-based, large, vibrant, and specialising in then-fashionable 'Instantprint'. The studio, which was my responsibility, supplied all the needs of the large-scale jobbing printer: from business cards and compliments slips to orders of service and antique-fair catalogues, for customers who had literally 'walked into the shop' and a few large corporate clients.

Typesetting was undertaken on a Compugraphic EditWriter 7500, which could accept four-font strips on a revolving drum. The provision of accents and the ability to mix faces was limited, but the system was surprisingly efficient even though point sizes were restricted to the lenses supplied by the manufacturer. Care had to be taken to ensure the appropriate width cards were inserted in the VDU console, and to lock the font-strips in place. Fortunately, I *did* manage to retouch scratches when the font strips (which were essentially long negative sheets) unexpectedly flew off the drum.

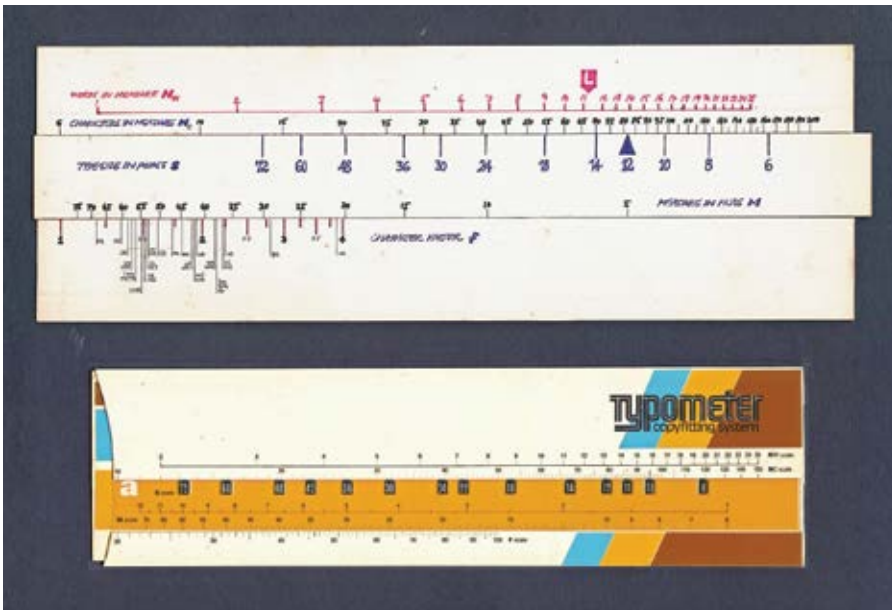
The EditWriter was eventually replaced by an AM Varityper Comp-Edit 5900, one of the last of this particular manufacturer's typesetters to rely on optical image-generation. Four rotating four-font discs allowed sixteen type faces to be used. Unfortunately, the system was designed to run fast enough to compete with the first generation of digital setters, and its noticeably weak



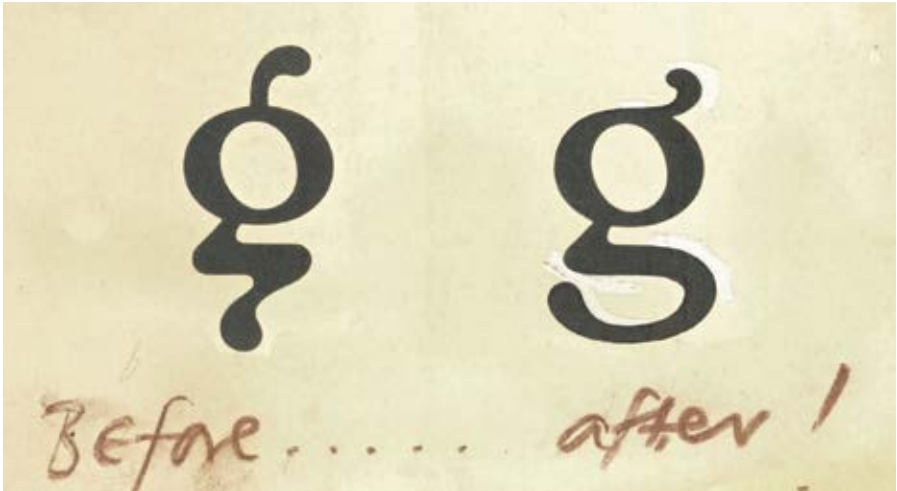
image gave constant trouble if the typeface had thin strokes. Small sizes of Baskerville and Tiffany were particular nightmares, but the 5900 coped well with Plantin and Univers.

AM Varityper replaced the Comp-Edit 5900 with the digital 6400, which gave a robust image without the blurred edges that had characterised the output of its predecessor. I was loaned to AM Varityper's British headquarters to create samples for the first major European exhibition of the 6400, and was privileged to meet type-historian Lawrence Wallis. His views on the development of digital fonts, still in their infancy, were thought-provoking.

I had once tried to develop a font, only to find that Letraset promptly introduced something very similar; and the Typometer, a copy-fitting slide rule, met a near-identical fate when AM Varitype UK (the prospective customer) discovered that its U.S. parent had invested heavily in a device of its own! The underlying principles of The Copyfitter and the Typometer were essentially similar, but tests showed my interpretation to be more accurate.



**Plate 3.** The straight-line prototype (top), preceded by an unsuccessful circular design, led to an improved Typometer which measured merely 23 × 6cm. I made four of these in 1981—accompanied by instruction books of similar size—before the project was abandoned. One displayed AM Varityper colours; another had the only 'CS' ('Compensated Spacing') slide. Digital type and 'on screen' copy-fitting would soon have made the Typometer obsolete.



**Plate 4.** Yellowed and beginning to fade, my attempt to improve on the Letraset Chesterfield ‘g’ still shows traces of opaque and Rotring ink. The characters were quite small at this stage; next came an enlargement, when the irregularities in the curves were removed.

One of the most interesting problems to arise during this period, and also one of the most annoying, was posed by a client who wanted things ‘just right’—generally an indication that work will never proceed easily. He rejected our computer-set typefaces; then he rejected practically all of the Letraset catalogue. Then he had an epiphany: Chesterfield, Letraset, letter-by-letter, word-by-word, paragraph-by-paragraph. But he didn’t want the lower-case ‘g’: ‘like a tadpole’, he said. And I, stupidly, agreed with him![\*]

It took several days of hard work to modify the ‘g’ to his liking, which also gave me an insight into the difficulty of fitting letters together satisfactorily. The new ‘g’ *did* look better. Making up the words was another challenge. We had the Letraset, but not the ‘g’. Commissioning a special Letragraphica sheet was too expensive for a ‘one off’, and the reflectivity of the new ‘g’ made on the Copy Proof system failed to match that of Letraset letters. When the text was translated into print, there was a slight-but-perceptible difference in weight. The client was so pleased he didn’t notice. Being perfectionists, we did.

\* Chesterfield was then a very recent introduction to Letraset. We assumed that it dated from the period of faces such as Cheltenham Old Style (by Bertram Goodhue and Ingalls Kimble, 1896) or De Vinne (by Gustrav Schroeder, 1894), and were surprised to discover—some time after the job had been completed—that Chesterfield had been designed by Alan Meeks for ITC only in 1977. My adaptation of the ‘g’ was probably a breach of copyright, which, thirty years on, I think I can safely acknowledge.

The problem was eventually solved by photocopying large-scale Letraset words without ‘tadpole g’, then photocopying the equally large ‘new g’ before pasting the whole lot together and reducing the results on the process camera. This actually gave a far more consistent result. But think how easy it would have been with Photoshop!

*Marks of the Printer* uses these experiences (and a talk I gave in 1998 to a group of postcard enthusiasts) to suggest how changes in the styles of lettering, the setting of type, and the development of production techniques may be used to assist identification. It does not pretend to be exhaustive. The history of printing has been widely documented elsewhere (see Bibliography), detailed research has been undertaken into the work of the great artist-typefounders; conversely, the development of mechanical typesetting systems has rarely been accorded such scrutiny, and the history of the earliest machine-cast/machine-set typefaces rarely receives the public attention it demands.

Gaps in my knowledge and the complexities of typeface classification (which I *thought* I understood!) still prove to be particularly challenging and I hope that any errors in these pages are not significant. My special thanks are due to those who have helped to ease my burden: to Kenneth Theelke, once of the Benedict Press, who had more faith in my abilities than most of my teachers; to Lionel Leventhal, who gave me my first ‘real job’ longer ago than either us would willingly acknowledge; to David Gibbons and Tony Evans, ex-colleagues, who were part of the same steep learning curve; to Dr Jonathan Minns of the late, lamented British Engineerium, Hove, for vastly improving my knowledge of engineering; to Dr Mathew Philip, once of the University of Brighton, who mentored me when I led the university’s Conservation of Industrial Heritage MSc course; and to Robert Jeeves, for granting unlimited access to the stupendous ‘Step Back in Time’ stock of postcards.

I must thank Alison, my wife, for her support during the lengthy gestation of this book; son Adam and daughter-in-law Nicky; and our grandchildren Findlay, Georgia and Holly, for their contributions to wall-art!

*John Walter, Portslade, 2013*

# I. ABOUT PRINTING

The Romans are known to have used carved wood-block dies to stamp designs in plaster or on textiles, and similar techniques were being used to print currency and religious ephemera in the Far East long before Marco Polo made his first eastward journey. However, whether the introduction of printing in the Europe of the Middle Ages was based on Chinese experience, or had developed independently from Roman times, is still vigorously contested.

The introduction to Europe of simple wood-block printing—also known as *xylography*—took place about 1380, making use of paper which had been introduced in the twelfth century from China by way of Arab traders. The earliest products included religious illustrations, playing cards and small booklets. The work was originally undertaken simply by laying a sheet of paper over the inked surface of a block, and transferring the image by pressing the paper with a thick leather-covered pad.

The introduction of the first printing-press in the early fifteenth century was a great step forward, even though it was merely adapted from the wine-presses of the day. A sturdy wooden bed supported a *forme* containing the blocks and type-matter (anchored in a separate frame called the *chase*), and a block or *platen* was dropped by turning a screw to press the paper against the inked image. This gave a better impression than hand-inking could ever do, though output was much slower.

A rapid-pitch thread was used from the 1490s, enabling the platen to be dropped with only one turn of a hand-spike, and a sliding bed was added so that the contents of the chase could be printed in two stages. Iron replaced wood in the platen-screw after 1550, and a double-hinge chase was introduced in the 1570s. This had a mask or *frisket* to protect the paper-sheet from marks that would otherwise be applied outside the image area, and a thick layer of fabric (the *tympan*) was added to improve the impression.

Improvements were made in the years that followed the introduction of the first printing presses. Among them were the *hose*, the wood block connecting the platen with the press-screw to ensure that no twisting occurred at the moment of impression; counterweights to ease the physical labour; accurately



**Plate 5.** This late sixteenth-century printer's shop would have been equally typical of the preceding century. Note the press-man at a screw-type press, another man inking the type with two large pads (rear centre), and the correction of the type in the forme (left foreground). From a wood-block engraving by the Dutch artist Jan van der Straat ('Stradanus', 1536–1604).

planed stone type-beds; and rails enabling the bed to be run out of the frame. Yet the printers of 1800 still worked minor variations of screw-presses which would have been familiar to Gutenberg and his contemporaries.

Charles, third Earl Stanhope (1753–1816), produced a printing press with a cast-iron frame in 1798, using a lever-and-screw system to accelerate the impression stroke. This laid the ground for the patent granted in the U.S.A. in 1813 to protect George Clymer's Columbian press, which replaced the platen-screw with a lever mechanism balanced by a large weight in the form of an ornate spread-wing eagle. However, though the effort involved in printing was reduced, operation remained slow; output of the Columbian rarely exceeded an hourly rate of 250 sheets.

The basic principles of the Columbian were then improved in Britain in the 1820s by Richard Cope. Cope's 'Albion' press relied on an elliptical bar to apply pressure to the platen. It was light and strong, and did not need the extravagant counterweight of the Columbian; decoration included the Royal Arms, which customarily took the place of the eagle. Albions and 'Improved Albions' made by Miller & Richard and others were still being sold in quantity in 1914, but the introduction in 1851 of a vertical bed plate, patented by Steven Ruggles of Boston, Massachusetts, enabled type and paper to be seen at all times—excepting, of course, at the actual moment of impression. The platen was hinged at the base of the bed and rocked forward to make the impression; the chase was mounted on a flat-face cylinder and inked by a swinging roller unit. Power was customarily provided by a foot treadle, though later machines could be driven by steam, hot-air or gas engines.

Introduced to Britain in 1882, the Ruggles printing press became known generically as the 'Cropper' after H.S. Cropper & Co. Ltd of Nottingham, its principal licensee. Vertical-bed presses survived in the jobbing printing trade in large numbers long after the Second World War had ended in 1945. In 1905, the 'Cropper Minerva Machines Company, Ltd' was advertising the 'Improved Cropper' printing press (or 1896 pattern) in four sizes—Foolscap Folio (17 × 13½in), Crown Folio (15 × 20in), Large Post Folio (19 × 15½in) and Demy Folio (17½ × 22½in). A miniature 'Cropperette Platen' measured only 8·5in or 11·7in inside the chase.

Among the machinery being offered prior to the First World War by J.M. Powell & Son of Otley, "Printers' Engineers & Furnishers", was the letterpress 'Little Wonder Fast Treadle Jobbing Machine', which could be supplied in Foolscap, Crown or Demy Folio sizes with an hourly output optimistically rated at 3600 impressions. The 'Little Wonder Litho' could print lithographic plates at 2000 impressions per hour, and the 'Improved Gordon' platen press could be obtained in sizes ranging from No. 1 (13 × 9in) to No. 4 (19 × 13in). Small platen and rotary-cylinder machines could be operated manually, relying on heavy flywheels to assure smooth operation. However, Cropper was also advertising a 'gas engine' in 1905—an internal-combustion machine bought from Gardner of Patricroft, Manchester—and electric-motor drive became increasingly common after the end of the First World War.

**Plate 6**, next page. A selection of small printing presses and associated equipment, from a trade catalogue published in Britain in 1900. Note the gas engine in the bottom left hand corner. Note the inclusion of a 'Triple Disc' trademark, and also the customary pre-1914 selection of plain and decorated typesetter.

# The "Cropper" Printing Machinery, Guillotines, &c.

**The Improved Cropper**  
1896 **PATTERN PRINTING MACHINE.**

SEE PROSPECTUS FOR  
SPECIAL FEATURES.



Made in Four Sizes—F-CAP FD., CROWN FO.,  
POST FO., and DEMY FO.

Send for Descriptive Circular detailing advantages.

## The 'Cropper' & 'Minerva'



### H. S. CROPPER & Co., Ltd.

**The Cropperette Lever Guillotine**  
A useful Cutting Machine, and Cheap.



To cut 12 x 2 in.	— 47
— 20 x 3 in.	— 615
— 22 x 3 in.	— 615

**The "Minerva"**  
PLATEN PRINTING MACHINE.



Better known as the "CROPPER."

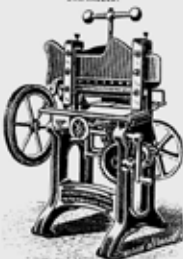
**The Cropperette Platen**  
PRINTING MACHINE.



Made in Two Sizes—  
No. 1, 8x5 in. inside chain. No. 2, 7x7 in., do.  
Send for Prices and Terms.

**The "Minerva" Guillotine**

FOR STRENGTH AND DURABILITY IT IS  
UNRIVALLED.



To Cut 20 inch, £35. To Cut 28 inch, £45.

Sharp Guillotin, £27.50. Square Guillotin, £37.50.

LIBERAL DISCOUNT FOR CASH.

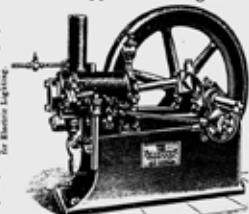
**The Minerva Self-flyer**  
PRINTING MACHINE.

SEND FOR PROSPECTUS  
WITH PRICES AND TERMS.



**The Cropper Gas Engine.**

Specifically designed for mounting on to high speed  
for Electric Lightings.



The greatest Brake Horse Power given for the smallest  
Gas Consumption.  
Simple and up-to-date in every detail.  
Send for Descriptive Circulars.

Methods include the  
following:—  
Swiss Embroidery, Frilling, and Patent  
Edging Machines.

- Perforating Machines (Treadle).
- Perforating Machines (Hand-lever).
- Improved Card Cutters.
- "Midget" Presses (Hand or Treadle).
- Paging Machines (Hand).
- Paging Machines (Treadle, on Pedestal with  
Elevating Table for Consecutive, Alternate,  
and Duplicating Numbering).
- Improved "Minerva" Stereotyping Plant.

"SINGLE STROKE" (patent)  
PUNCHING and EYELETTING SELF-  
FEEDING MACHINE.

The above is an important Labour-saving Machine,  
Printers' Requisites of every description.

Swiss Embroidery, Frilling, and Patent  
Edging Machines.

Complete Furnishing and Equipment on any scale either for at Home or Abroad.

ILLUSTRATED PRICE LISTS ON APPLICATION.

When ordering please specify H. S. Cropper & Co.'s Machines.

**THE CROPPER MINERVA MACHINES COMPANY, LIMITED,**  
**MINERVA WORKS, NOTTINGHAM.**

Though the cylinder press patented in the U.S.A. in 1844 by Richard Hoe developed within forty years into the giant roll-fed 'web' marvels of printing engineering, these machines had little effect on the jobbing trades; postcards, handbills and advertising flyers were inevitably confined to small presses. This has always been partly due to a desire to minimise capital investment, but also to the ease with which the small printing machines could be used. Many items were printed time and time again, requiring formes and printing blocks to be stored for long periods, but these problems were a small price to pay for the ease of reprinting.

Unlike the printers of books and journals, who sought machines large enough to print 32 or more pages at one pass, the leaflet and postcard publishers preferred several small presses to a solitary large one. Many separate ranges of cards could be produced simultaneously, and confining each individual group of cards to a single set of blocks or plates minimised the problems caused by reprint orders.

The meagre sizes of the Cropper and Powell machines, quoted previously, typified jobbing practice. Though the largest of them could theoretically print 21 postcards measuring  $5 \times 3\frac{1}{2}$ in 'to view' (i.e., on a single sheet), the full capability of chase was rarely utilised as the inking of solids was customarily poorer at the edges than toward the centre. Sets of twelve cards could be printed economically in four rows of three, but many six-card series were published (two rows of three) and even a few fours. Indeed, there was nothing to stop 'one-man' businesses printing cards singly on small platen presses such as the Cropperette.



## II. PRINTING TECHNIQUES

A reliance on carved-wood blocks soon gave way to a combination of movable cast-metal type and wood-block illustrations. The experimentation with metal plates dated back to the middle of the fourteenth century, but exploitation was delayed until the development of oil-based inks in the 1450s. However, very few significant changes were made to printing machinery until the nineteenth century even though attempts were made to improve quality. Letterpress was to remain the most common form of printing until the middle of the twentieth century, when offset lithography found increasing favour, and a variety of systems have been offered commercially.

### **LETTERPRESS**

The most popular of the basic systems relied on type-matter and illustrations which were cut or cast in relief. Though wood was often difficult to work and prone to split, surprisingly fine detail could be introduced into good-quality boxwood. The German artist Albrecht Dürer (1471–1528) was renowned for the delicacy with which he could engrave wood, particularly for heraldic purposes, but many equally skilled practitioners were to be found in the days before metal plates were popularised. The image on the block was upright, but cut deliberately as a reversed or ‘mirror’ form of the printed version. The block was then inked, and an image of the raised parts of the design was transferred to paper by pressure.

The introduction of copper printing plates raised the profile of incised or ‘intaglio’ printing (see below), where the ink was carried in grooves in the plate instead of atop of a raised surface. However, the gradual perfection of type-founding allowed lettering to be supplied in ever-increasing quantities at prices that (in real terms at least) reduced as distribution improved. Mechanical typesetting systems, from the 1890s onward, allowed letterpress to reign supreme in Britain and the U.S.A. for many years.

By the time the First World War began in Europe in 1914, the letterpress process had been brought to near perfection. One of the principal advantages was the ease with which material—type-matter in particular—could be taken

GARDNER'S PATENT

TELEGRAMS AND CABLES  
GARDNER, GLOUCESTER  
NAT. TELEPHONE-Nº117

# Combined Rapid Sifter AND Mixer



SIZES for HAND or POWER.

Also Machines for:—  
POWDER DRYING,  
SUGAR GRINDING,  
ESSENCE SPRAYING,  
MIXING LIQUIDS,  
CRUSHING & GRINDING,  
FINE POWDER SIFTING,  
CONTINUOUS MIXING,  
AUTOMATIC BLENDING,  
&c., &c.

A SPECIALITY  
FLOUR BLENDING PLANTS  
UP TO 100 SACKS  
PER HOUR.

For  
REDUCING  
SIFTING . . .  
and . . .  
MIXING . . .  
every kind of  
DRY and  
LUMPY . . .  
POWDERS



SIZES for HAND or POWER



AUTOMATIC BLENDER AND SIFTER



REVISED  
CATALOGUE  
Nº25

W<sup>M</sup> GARDNER & SONS, GLOUCESTER, LTD  
BRISTOL ROAD, GLOUCESTER.

COPYRIGHT

Plate 7. A catalogue published prior to 1914 by a English agricultural-machinery supplier. It was printed by letterpress, with a lithographed green background on the cover. The thinness of the paper is apparent in the reversed impression of characters printed on the page-back.

from a handwritten draft to a printed page, and the ease with which elements of the page could be changed. It was simply necessary to unlock the chase, correct errors or amend information, then re-lock the chase and proceed to the press stage. The ability to mix lettering and illustrations was another attractive feature.

Letterpress can invariably be recognised by a combination of sharpness of line and evidence of pressure on the reverse of paper or thin card. Screened images and colour blocks, as well as large-scale display type, also have a characteristic 'edge'; the density of ink was customarily less in the middle of a surface than at the margins, and this can be detected even in the dots of a screened half-tone.

### **INTAGLIO (GRAVURE)**

Though otherwise broadly comparable with letterpress, intaglio type-matter and illustrations were incised instead of cut in relief. Ink was spread over the forme and then wiped away by the 'doctor blade', which left ink in the incisions but cleaned the remainder. Pressure applied during the impression stroke then forced the surface of the paper into the grooves, transferring ink.

Rotating-cylinder intaglio presses printed continuous rolls of textiles as early as 1770, though the satisfactory use of paper awaited the introduction of effectual automatic inking and wiping systems in the nineteenth century. However, the limited production capacity of these early machines customarily limited intaglio printing to high quality short-run work.

In 1878, a Bohemian engineer named Karel Klič (often Germanised as 'Karl Klietsch') patented a method of copying a grid screen directly onto photosensitive carbon tissue simultaneously with the development of an image. This allowed a cylindrical plate to be engraved with tiny cells, the depth of each cell varying in accordance with exposure time.

Klič and his partners founded the Rembrandt Intaglio Printing Company in London in 1895, enjoying a monopoly of the 'gravure' or 'rotogravure' system only until 1903—when the trade secrets were betrayed to the promoters of a rival American firm by disaffected Rembrandt employees. Consequently, the manufacturing process had spread virtually worldwide by 1914.

The key to gravure was the use of a 'Tissue', which acted as a mask or resist during the engraving process, and a grid that broke the surface of the image into individual cells. The process began with a continuous-tone positive, produced photographically, and paper coated with a gelatine/pigment mixture. Immersion in a chemical bath made the paper (the 'Tissue') sensitive to light. Once the paper had been dried, it was overlaid with a grid

and exposed to light. The photographic positive was then substituted for the grid, exposure was repeated (with lights of different type), and the Tissue was finally ready for use. It was placed in contact with an appropriate plate, which could be a copper cylinder, and the backing paper was removed. This left a gelatine mask—a combination of the image and the grid—face-down on the plate surface, ensuring that the final image would be suitably reversed. An acid-resisting varnish was then applied over the areas that were to be white in the final print. The plate was then carefully etched to eat away the gelatine, a process that required well-practised skill. However, as the thickness of the gelatine covering varied considerably, etching proceeded selectively.

Intaglio printing relied on the depths of the cells for its effect: the deeper the cell, the greater the ink that could be transferred. The first cells to be etched were those that were protected by the thinnest gelatine layer, ultimately to be the blacks and dark greys. Last to be touched were those with the thickest coating, which provided the highlights. Once the etching process was complete, the plate was washed, dried and readied for print.

Rotogravure was initially confined to fine-art prints, but soon became very popular for journals and periodicals where high-quality illustration sections, printed on smooth-surface paper, co-existed with text printed by letterpress on poor-quality stock. Intaglio-printed postcards were usually confined to a large-scale establishments such as Gale & Polden of Aldershot, which issued many military and naval cards of this type.

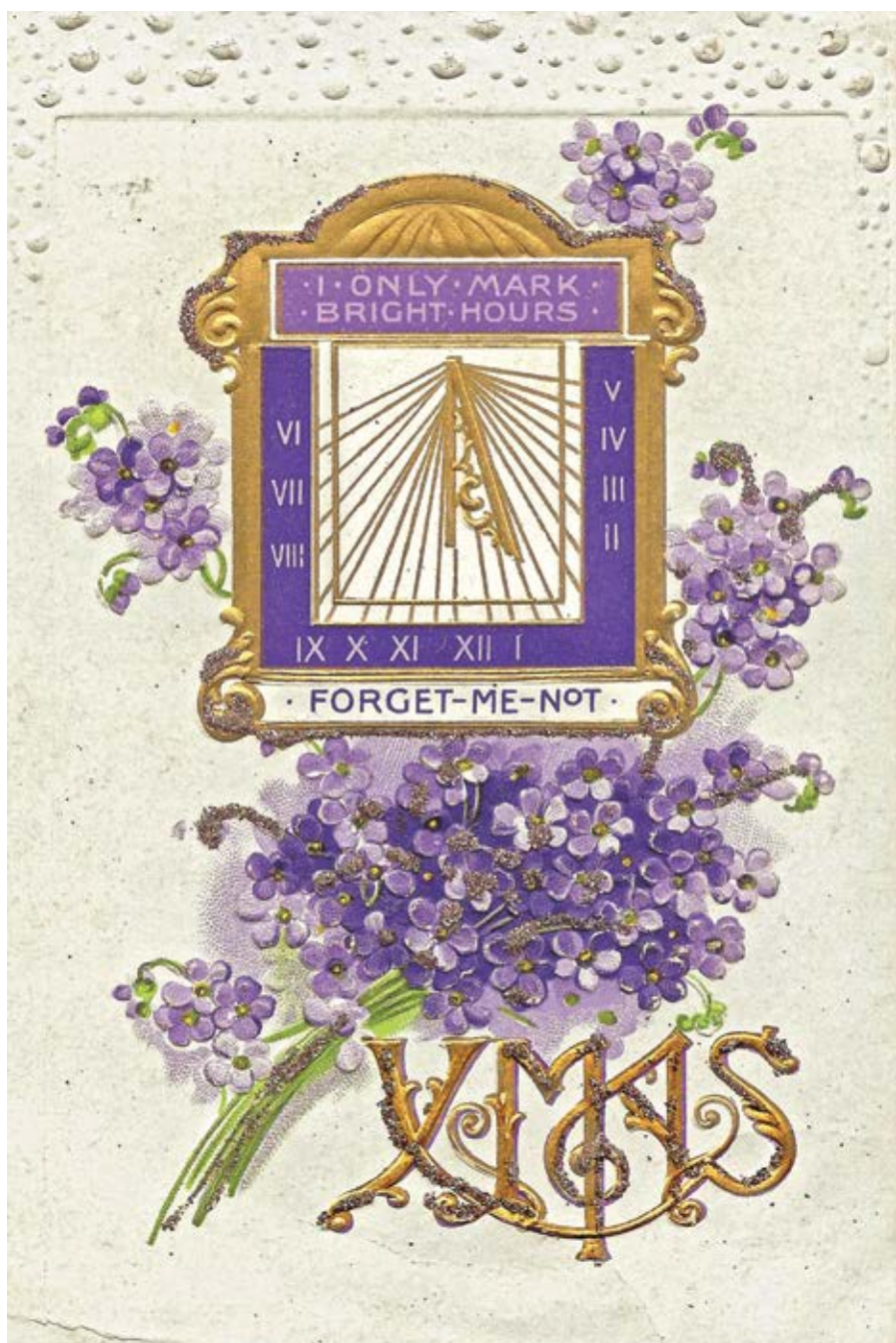
Intaglio printing has none of the sharpness of letterpress, showing distinctly soft lines when viewed with a magnifying glass, and the pressure applied during the impression stroke may be difficult to determine. However, it was extremely durable (particularly if the copper plate had been chromed before use) and could withstand long print runs without notable deterioration of the image. This was quite unlike collotype plates, which soon disintegrated, or even letterpress, where the comparatively soft lead projections on type and illustration-blocks alike wore progressively down.

Screened intaglio images customarily show soft-edged 'dots', which are really individual cells, and dots may merge at the edge of thin-wall cells in an unmistakable way. Type-matter printed by gravure has characteristically irregular edges, if processed directly, or will show a grid pattern if it has been processed as part of an illustration. Owing to the delicacy of the process, screens as fine as 400 lines per inch have been used in 'best quality' gravure. These are almost impossible to detect with the naked eye, and can lead to confusion with collotype. A glance under low-power magnification (at least 20×) will soon resolve identification.



**Plate 8.** A detail from a picture-postcard of Dresden, famous not only as a university town but also as the centre of the German fine-art printing industry. Dating prior to 1914, this is a good example of gravure or intaglio printing—capable of surprising subtlety of tone.





**Plate 9**, previous page. This extraordinary collage of differing techniques was manufactured in Saxony for distribution by Birn Bros. of New York. It combines four lithographed colours (green and three shades of purple) with an 'impasto' gold. It has been embossed with a wonderfully precisely-cut die, then selectively 'glued and glittered' (by hand) to give a dazzling effect—if expensive to make and unpractical to send.

## LITHOGRAPHY

This process was devised by Johann Aloys Senefelder, who was born in Prague in 1771 but was living in München (Munich) by the time he undertook the first of the two thousand experiments that were needed in 1795–8 to perfect his planographic ('flat drawing') printing system.

Lithography relied on the mutual repulsion of oil and water-based ink. A design was drawn in ink on a specially prepared block of Jura Limestone (calcium carbonate) and then carefully dried. Senefelder soon found that a superimposed coat of ink could be transferred from the image when a sheet of paper was pressed onto the stone, and also that ink was repelled by the wetted surface of the stone to give an unblemished background. A gum arabic coating, carefully washed from the printing stone prior to printing, improved both the life and the definition of the image by 'fixing' the ink and filling minute pores in the stone surface.

Senefelder also noticed that an image drawn on paper in special greasy ink could be transferred to one or more specially-prepared stones before the ink dried, a development which he considered to be by far the best of his many inventions. These included an intaglio (q.v.) method of printing fabric, and an artificial block or 'plate' made of a solution of powdered stone applied to thick paper or card. He even experimented unsuccessfully with a rotary lithographic printing-press.

Treated with contempt by the letterpress printers of the day, lithography had been spread throughout Europe by the 1820s by the enthusiasm of Senefelder himself. It appealed greatly to the artistic community, owing to the ease with which designs could be drawn directly onto printing stones, and came to be seen as a genuinely creative process.

Lithographic presses used prior to the 1850s were hand operated flat-bed designs, with a large hinged tympan or paper-board. The tympan was closed down onto the face of the stone, pulling a hand-lever raised the stone/tympan unit to touch the transverse pressure or 'scraper' bar, and a turn on a hand crank moved the stone-bed unit sideways under the scraper bar to make the impression. Pressure was then released and the bed was returned to its original or rest position with the crank.

Though an Austrian named Sigl patented a mechanically driven flat-bed lithographic press in 1852, attempts to increase the output of the hand press had to wait for the perfection of a suitable zinc-alloy cylinder in 1868. Ironically, Senefelder had experimented with zinc more than fifty years earlier; six-colour images had even been printed with planographic plates of this type in the 1840s, but commercial success had proved elusive.

Though still popular for hand-made prints, lithography was too slow, too cumbersome to suit mass production, and incapable (at least originally) of handling an image generated photographically. However, the ease with which even the most delicate hand-drawn images could be transferred directly to a stone or lithographic plate encouraged many printers to lay down colours—characterised by notably irregular dots and dashes—before adding detail by letterpress, gravure or colotype.

Multi-media techniques of this type will be found on very many coloured pre-1914 postcards, excepting, of course, the letterpress Oillettes of Raphael Tuck. The gradual distribution of first four-colour letterpress systems and then offset lithography (q.v.) undermined the use of 'direct' lithography in the period between the world wars.

## **OFFSET LITHOGRAPHY**

One of the first successful cylinder-type lithographic presses was patented in 1875 by an English tin-printer, Robert Barclay, who was seeking an easier way of decorating sheet-metal plates than the laborious transfer system. The Barclay printing press consisted of a flat reciprocating stone-bed in the base, carrying the image, beneath two cylinders. An image was transferred ('offset') from the bed-plate to the card covering of the lower cylinder, and thence to the underside of the tin sheet as it passed horizontally between the cylinders.

Experiments with a variety of transfer media revealed that a rubberised cotton blanket held a much better image than card, and machines of this type continued to be used by the tin-printing industry until the end of the nineteenth century without ever attracting the interest of the paper-printers. Though trials with small cylinder-type offset-lithography presses were made in the 1890s, not until an appropriate combination of flexible metal plates, ink and damping fluid was discovered by Ira Rubel of Newark, New Jersey (1904), did offset lithography become efficient enough to challenge letterpress.

The printing plates were made of sensitised zinc or aluminium, which allowed images to be created on areas exposed to light passing through an intermediate photographic negative. The plate had to be wetted or 'damped' during each revolution, to ensure that ink did not adhere to the unexposed



Publication 5456.

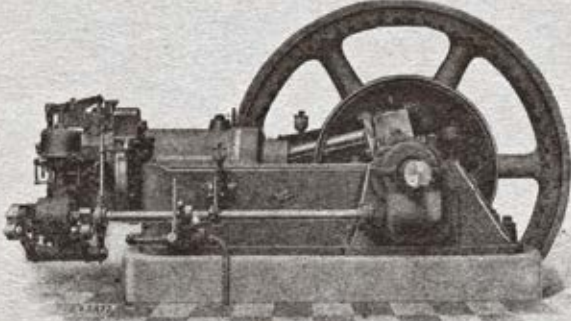
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**Plate 10.** Letterpress parts-list published by Ruston & Hornsby, makers of steam engines working in Britain in the early twentieth century. It bears the identification number '5456' and a code in the bottom left-hand corner suggesting that it was one of 300 copies printed in November 1928.

# HAUPT-PREISLISTE

über

WAFFEN  
*aller Arten,*

WAFFENTEILE,  
ZUBEHÖR-  
ARTIKEL

und MUNITION

vom



VENUS-WAFFENWERK

Oscar Mill

Lella <sup>St.</sup> Blasii

bei SÜHL in THÜRINGEN.

Copyright 1900 Oscar Mill, Suhl

**Plate 11**, left. Catalogues dating from the *Belle Epoque*, the ‘Golden Era’ which ended in 1914, were often extremely decorative—using virtually every technique from silk-screening of block colours to delicate engravings. This illustration, from an 1896-vintage catalogue issued by one of Thuringia’s leading gunmakers, combines lithography with a line block.

parts, but the offset-lithography process soon proved to be successful in North America.

Printing of this type was introduced to Britain about 1910 and, after a slow start, had completely eclipsed letterpress by the 1960s. It eventually attained universal popularity, before being challenged in the 1980s by images created by heat-sealed electrostatic powder transfer or *xerography* (‘photocopying’), laser-printing, and the ink-jet printer systems that now accompany virtually every personal computer.

A related process known as ‘Dry offset lithography’, introduced in the U.S.A. in the 1920s, transferred images from letterpress-type stereo plates to rubber impression cylinders. Owing to the use of type-matter and illustrations which were already in relief, this uncommon method did not require wetting.

Offset lithography had many advantages—sheet-metal plates were easy to store—and few notable drawbacks, though the removal of an impressed image (however shallow) can give a lifeless appearance. When viewed under a magnifying glass, work of this type customarily has sharp edges to type-matter and dots that display uniform density or colour across their width.

### **SILK SCREEN (SERIGRAPHY)**

This process is unrelated to conventional printing. Ink is forced onto paper through a fine-mesh screen, elements being blanked off to enable designs to be transferred by rollers, blades or a large sponge. Silk-screening enables vibrant colours to be applied over large areas. It has always been ideally suited to poster-work, but originally lacked the sophistication to handle delicate images. Consequently, it is comparatively rarely found on small-scale items such as postcards other than to provide a brightly coloured background.

However, though most machines were operated manually prior to 1939, the development of photosensitive screens and automatic printing frames has undoubtedly increased not only efficacy but also production capacity since the end of the Second World War.

### **COLLOTYPE (PHOTOCOLLOGRAPHY)**

Perhaps the most interesting of printing methods, once very popular, colotype is now virtually unknown in Britain. It was patented as ‘photo-



**Plate 12.** This picture-postcard of the French provincial town of Alençon dates from the years immediately before the First World War. Printed by the collotype process, it is so sharply detailed that the advertisement on the gable wall of the 'Cafe du Mans' can easily be read.

lithography' in France in 1855, by Alphonse Poitevin, a printer, and the earliest known success was a print published in Britain in 1860 in the *Photographic Journal*. This was the work of François Joubet, who offered the secrets of what he called 'Phototype' for sale. There is no evidence that Joubet ever encountered tangible success, and though Tessié du Motay & Maréchal had substituted polished copper plates for the original lithographic stone by 1865, the comparatively poor bond between gelatine and copper restricted runs to little more than a hundred prints. Commercial success awaited a Bavarian photographer, Joseph Albert of Munich, whose 'Albertypy' system (patented in 1868) popularised the use of glass plates and an intermediate bonding layer.

Faber & Co. built the first mechanically-operated collotype press in 1873, a rotary design relying on cylindrical alloy plates, and commercial success was assured by the 1880s. Then came a variety of lesser amendments, including an additional short exposure through the back of the plate to improve the bond between the gelatine and its carrier, and the introduction of glycerine as a wetting agent to facilitate inking.

Collotype relied on a combination of a reversed continuous-tone negative, produced photographically, and the microscopic graining ('reticulation') of gelatine. Making a plate began with a suitable piece of glass, which was layered



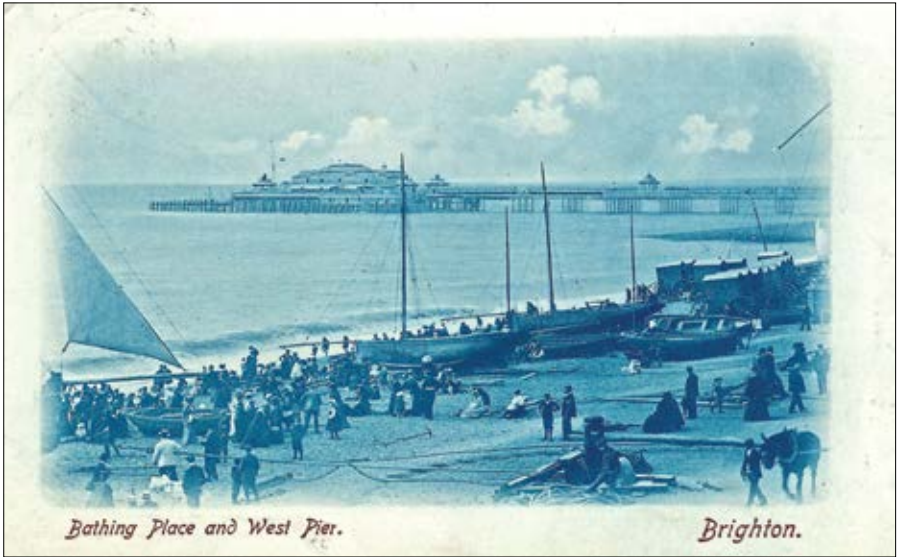
with a silicate/albumen mixture and bichromated gelatine, and then dried to enhance the light-sensitivity of the gelatine. This was greater towards the centre of each grain, where the coating was at its thickest, than at the edge.

The negative was placed on top of the plate and exposed to light, with a short additional 'flash' through the back of the plate to improve the strength of the exposed coating. The depth of the image, and thus the ultimate density of the inking, was proportional to the length of exposure: the unexposed areas remained absorbent, whereas the areas that received the most light became the hardest. The plate was then dried and taken to the print-room, where it was soaked with a solution of glycerine.

The gelatine absorbed this wetting agent in proportion to the tone density of each individual grain, and the plate could be taken to the printing press. The specially-formulated greasy inks could adhere only to the drier part of the gelatine, effectively the image area, in proportion to the degree of moisture contained within each grain. As even this could vary across the surface of

**Plate 13.** One of the flamboyant staterooms of Schloss Herrenchiemsee, an ambitious (and ultimately futile) attempt by the king of Bavaria, Ludwig II, to recreate the palace of Versailles. Work began in 1878, but stopped when the king died in 1886 and never recommenced. The postcard dates from the heyday of printing in Saxony prior to 1914. Blocks of colour, lithographed in blue, golden yellow and red-brown, underlie a black collotype print supplying fine detail.





**Plate 14.** This rich blue Hartmann postcard ‘Old China Series No. 5’, postmarked ‘Brighton’ and dated 1906, is another example of good-quality collotype. The lettering style of ‘Bathing Place and West Pier.’ and ‘Brighton.’, printed in a dark purplish brown, suggests that (like so many others distributed in Britain) the card originated in Saxony. **Plates 15–17**, right, show typical letterheadings of a large German metalworking business, a well-established British lubricant manufacturer, and a leading French gunsmithy. Alexanderwerk’s heading, printed about 1908 to judge from its content, is a letterpress line-block, printed in black. Ragosine’s, from the early 1950s, is conventional two-colour letterpress. Verney-Carron’s two-colour lithographed riot of prize medals helps to date printing to 1900 or 1901; it was replaced in 1904, after more awards, by a heading featuring no fewer than 26 images of medals.

an individual grain—which was usually drier in the centre than around the periphery—an efficient conversion of a continuous-tone original to a granular half-tone image was made without requiring intermediate screening.

Though the heyday of collotype printing was short, the ease with which the plates could be made (with few of the dangers that accompanied gravure) has ensured that a huge legacy of postcards and ephemera has survived. These items were almost, but not quite exclusively Continental European; the best pre-1914 work was undoubtedly confined to France and southern Germany, especially the Saxon cities of Leipzig and Dresden.

Though collotype established a foothold in Britain from the mid 1870s until 1914, it was unable to displace letterpress and the screened half-tone block

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STÉTIENNE 1820  
1<sup>er</sup> PRIX  
AMSTERDAM 1823  
MEMBRE DU JURY  
ST PÉTERSBOURG 1827  
DIPLOME D'HONNEUR

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STÉTIENNE

Lc

N.

A RAPPELER

for anything other than fine-quality short-run work. But even the Mezzotint Company (which should by rights and name have used only intaglio methods) promoted postcards printed by collotype. The advent of colour photography eventually reduced the value of the collotype process virtually to nothing.

A few German printers are still keeping the traditions alive, but the Cotswold Collotype Company, the last British practitioner, ceased trading in 1983. At its very best, the collotype process could produce vibrantly-coloured images approaching the quality of photographs. However, to save money, many printers lithographed coloured backgrounds before using a single collotype plate to add the fine detail in black or dark brown.

Associated with single-, false- or full-colour designs alike, the collotype process had several important drawbacks. The gelatine-membrane image was susceptible to changes of temperature and humidity during printing, and care was required to maintain quality. Output was very slow, often limited to no more than two hundred impressions hourly on the standard flat-bed presses, and a lack of durability often caused the special plate to break down before two thousand impressions had been made. Maximum life was only about 5000 impressions, and the plates could not be stored satisfactorily in the manner of a letterpress/gravure block or an offset-lithography plate.

Collotype printing has a distinctive and unmistakable signature; viewed under a magnifying glass, it displays granulations in the form of short irregular strands and swirls instead of regimented process dots. In theory, the process will reproduce the finest line in a way that screen process cannot, and the detail on collotype images is often unbelievably precise. It is not uncommon to be able to discover names on the destination boards of trams, to be able to read playbills and advertising hoardings, or see the graining of the individual bricks in a wall.

Like all of the techniques based on the use of a photographic negative, adding type presented the collotype printer with difficulties. Most of them solved this simply by overprinting captions and similar information by letterpress. Others, however, relied on lettering added to the print—either by hand or with the assistance of a small printing press—before the negative was created. Lettering of this type can be recognised by the absence of pressure, the regularity of colour, and, under magnification, by the characteristically soft edges. It will also seem to be an integral part of the picture.



### III. PROCESSING IMAGES

Most of the earliest illustrations were reproduced from wood-cut blocks, but, as these were not particularly durable, metal equivalents were eventually substituted. The first metallic plates—customarily copper, though lead-alloy and zinc were tried—were engraved with hand tools to provide a relief (raised) or incised (cut-in) image for transfer to the paper.

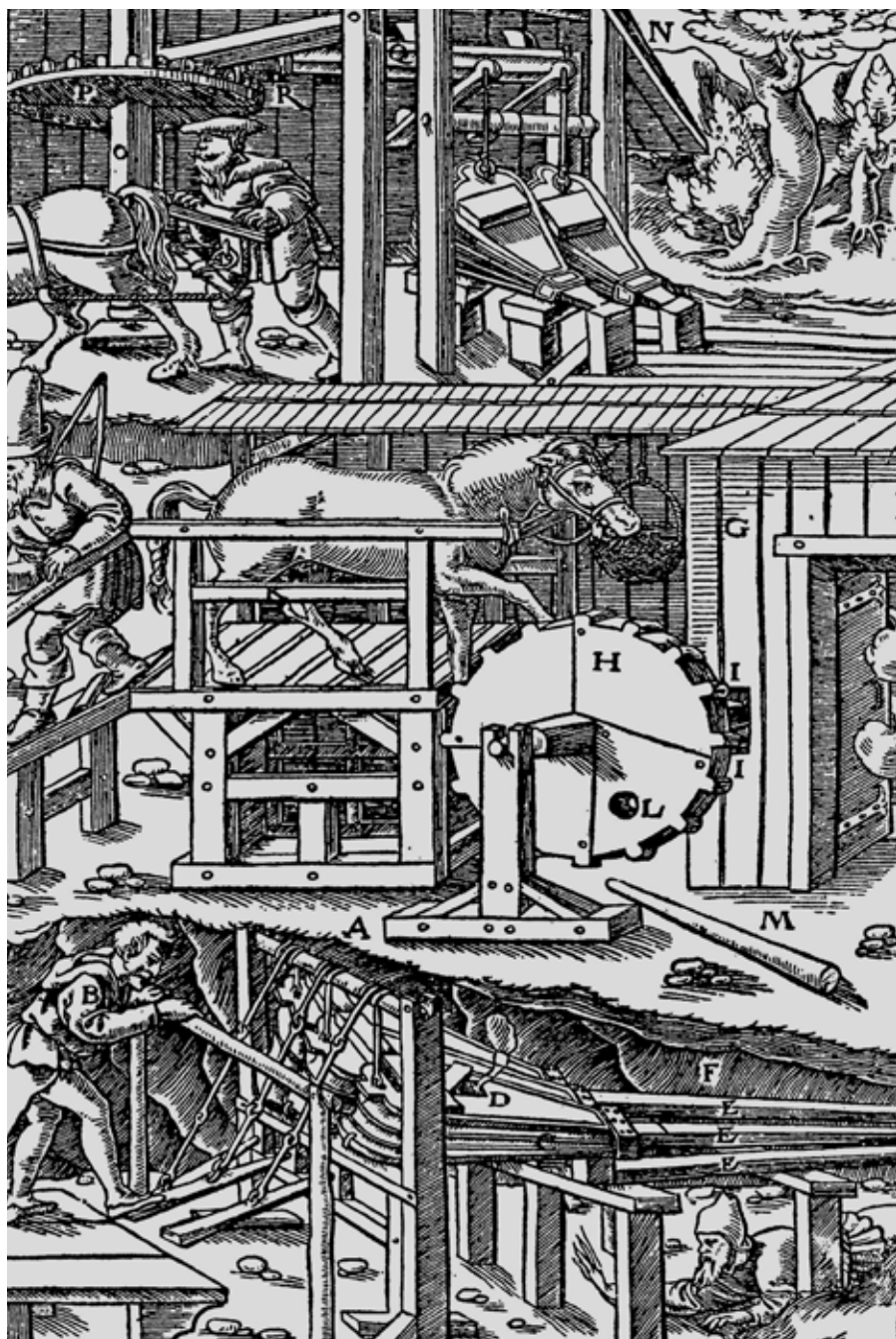
The comparable seventeenth-century mezzotint method, originating in the Netherlands, was named from the Italian *mezza tinta* or ‘half tone’ but attained its greatest popularity in England. Mezzotinting was undertaken with a small-toothed engraving wheel known as a ‘roulette’ or by rocking multi-blade tools to give a finely hatched ground. Often reinforced with engraved lines to emphasize detail, the mezzotint process was capable of great delicacy; however, production was time-consuming and great care was required during printing to prevent flooding the plate with ink.

Though the craft of the block engraver lasted well into the twentieth century, and though the finest examples were incomparable, the process was not only time-consuming but ultimately confined to a handful of specialist agencies. Acid-etching methods proved to be far easier to use, rapidly gaining in popularity. In these, a plate was coated in wax and the design could be drawn through the wax coat with a scribe.

The plate was then dipped in an acid bath, which ate into the exposed parts of the metal; the acid was neutralised, the wax coat was removed, and the etched lines were cleaned (if necessary) with graters before being delivered to the printer. Etchings can usually be recognised by the granular quality and variable depth of the lines. Sharpening with engraving tools was never carried out across the entire image surface, and evidence of the etching process will remain.

#### **BLOCK-COLOUR PRINTING**

Single-colour or monochrome printing was relatively easy, once suitable ink hues had been perfected, and production techniques were quickly refined. The first two-colour work was undertaken in the 1470s by Pieter Schöffer,



**Plate 18**, preceding page. A typical wood-block engraving, originally published in 1556 in *De re metallica* by Georgius Agricola (the pseudonym of Georg Bauer, 1494–1555).

who combined red initials with black text. All that was needed was accurate registration, to ensure that the two components fitted together properly.

Improved presses allowed images to be built up from blocks and type-matter of many different colours, requiring only the skill and vigilance of the printer to ensure that the components did not move in relation to each other (getting ‘out of register’). The employment of registration marks and comparable aids ensured that the best work has always been superb.

Problems began in earnest when lifelike colour was desirable. Many early efforts drew from experience with lithographic prints, where the individual colour components, drawn separately on paper or specially prepared stones, were printed layer-upon-layer. Experienced lithographers could prepare work of great delicacy, but the process was not as easily adaptable to conventional printing. Consequently, it gave way to simpler systems.

Many methods were used to produce the pseudo- or false-colour images that, while producing an approximation of the object, depended on the skill of the interpreters and block-makers to mix the colour components accurately. The principal method was to add blocks of colour—often broken into dots, swirls or similar patterns—to an image printed in black, very dark sepia, or a dark navy blue. Individual colour elements could be added as required: grass could be highlighted in green, roofs in red, water in blue.

The complexity of some images, however, could require as many as ten separate inkings even though the crafty printer used tints of the base colours to make others. Pink could be made simply by breaking red down into dots, the intensity being controlled by the amount of white space, and green could be made by overprinting blue dots onto a yellow ground. But the results did not always justify the expense of labour, even though shortcuts of this type were used until the demise of large-scale letterpress printing.

## **FULL-COLOUR PRINTING**

The basis of three- and four-colour (‘trichromatic’ and ‘quadrichromatic’) printing was laid with the publication of Isaac Newton’s *Opticks* in 1704, which declared that light comprised three primary colours—red, blue and yellow—and that all other hues could be made by combining these three in proportion. The first person to apply Newtonian principles to printing was a German painter of French ancestry, Jakob Christoffel Le Blon (1667–1740), who began his work in Amsterdam in 1704 and had perfected his multi-colour

mezzotint process by 1710. Plates of blue, yellow and red allowed coloured images to be created, though the process of separation relied entirely on the skill of the engraver in judging the individual components of the plates. Some illustrations benefited from an additional black plate, usually to emphasise the fine detail; others substituted browns for red or omitted yellow entirely, but the basic principles were sound.

Le Blon then came to England, where, after receiving Letters Patent in 1719, he entered a partnership with Colonel John Guise which ended in bankruptcy a decade later. However, Le Blon had laid the foundation for the high-quality anatomical illustrations that his one-time pupil, the Dutchman Jan l'Amiral, reproduced with impeccable register controlled by a pin-hole system.

The first steps towards a successful automatic method of separating the elements of multi-colour images were made by Joseph-Nicéphore Niepce, who, seeking to engrave blocks automatically, became aware of the potential value of photosensitivity. He was followed by William Fox Talbot, who exposed a negative of a leaf through a piece of muslin onto a pre-prepared photosensitive plate; to his astonishment, a lifelike positive image was recreated when the weave of the muslin acted as a screen to break down the image into individual cells whose depth (and intensity) varied in direct relation to the amount of light passing through the screen.

Fox Talbot was able to patent his 'photolythic' process in 1852–8, but the practical exploitation of this crude screening method was extremely limited. The first mechanical half-tone screening system is now reckoned to be the work of a Swede, Carl Carleman. Used commercially in 1871–5, the Carleman system broke the image into lines whose depth varied in proportion to exposure time. It was followed by the engraved glass-sandwich cross-line grid or 'dot' screen about 1880; the earliest use of this type of screen in Britain occurred in *The Graphic* in September 1885.

One result of the investigation of colour combinations was the work of the French artist Georges Seurat (1859–91). Seurat was fascinated by the work of the scientist Michel-Eugène Chevreul (1786–1889), who had studied the creation of subordinate hues from the three primary colours of blue, red and yellow. Exhibited in Paris in 1884, 'Une Baignarde, Asnières' was Seurat's first major pointilliste work, composed entirely of tiny colour dots. When viewed from a distance, these created impressions of colours that were refuted only when the composition of the painting was examined at close quarters.

Though Seurat died young, followers such as Paul Signac showed that the principle of creating colour with seemingly unrelated dots was valid. It was only a matter of time before the theory could be duplicated by printing. The

key lay in the use of colour-filtering to separate the 'base' or primary colours from a picture. In order to reproduce photographic or full-tone images, a fine-mesh screen was interposed to break the continuous tones of the original into a series of graded dots (collotype excepted) whose size was controlled by the relative density of the original image corresponding with each individual screen cell. A white image registered practically nothing on the photographic

**Plate 19.** Enlargements of detail show the difference between 'false colour'—a monochrome image to which blocks of colour have been added—and a 'true colour' image printed in several passes. The view of Hove Town Hall shows clearly that brown, blue and yellow-green blocks have been used to highlight a screened half-tone printed in black. The legend 'Town Hall, Hove' has then been overprinted in red. The view of HMS *Monmouth*, conversely, shows the make-up characteristic of the four-colour process: blue ('cyan'), yellow, magenta and black dots.



negative, whereas a black or densely coloured image gave virtually a full-cell dot. The 'screened' negatives were then used to expose a printing plate or block which could subsequently be eaten away in an acid bath until an appropriate image was created.

Printing each block in succession with inks of carefully controlled colour allowed the original picture to be recreated, assuming the operator inked the machine correctly. The block makers normally provided sheets of prints taken from each set of blocks on a special manually-operated 'proofing press', which showed the correct intensity and colour distribution of each stage of the printing process. However, though most block- and plate-makers labelled each individual element of the sets, there was nothing to stop the yellow plate being printed in blue, or the magenta plate in black—with odd-looking results.

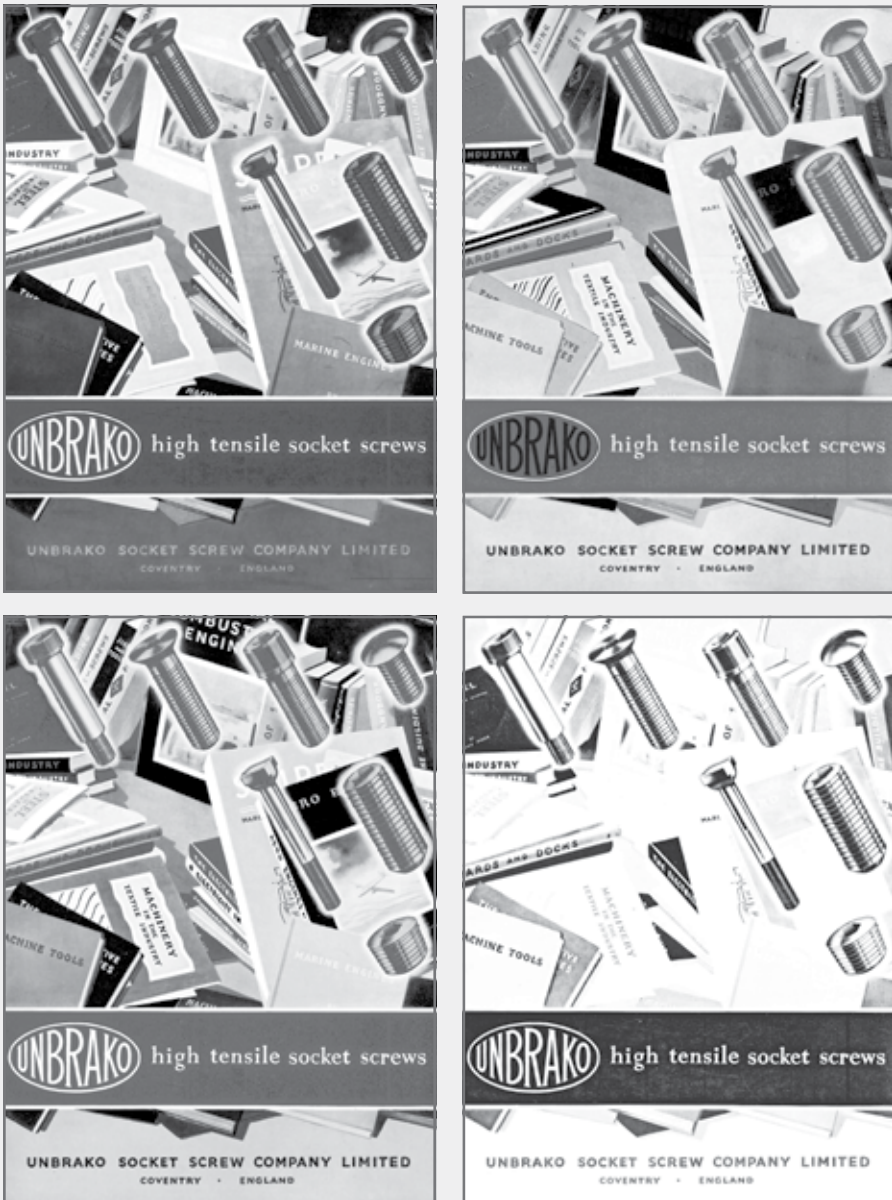
Several multi-hue systems were tried, including proprietary methods which achieved limited (if usually insipid) success, but the perfected method involved three standard components: yellow, a bright blue called 'cyan', and magenta. Though these colours produced an approximation of black when combined, the lack of intensity and problems reproducing fine detail soon led to the addition of a separate (fourth) black plate.

One of the first coloured half-tone process pictures appeared in *Land and Water* in February 1892, though reproductions of this genre did not become commonplace until the end of the nineteenth century. The perfection of the system then allowed virtually any continuous-tone original (e.g., a photograph or painting) to be replicated in 'screened' form on a block or plate shaped by immersion in an acid bath. Though some practise was poor, the best results were very good—even from the earliest days, when the techniques were only just out of the experimental stage.

Among the first postcard publishers to use the four-colour system was Raphael Tuck, who introduced the famous 'Oilette' design early in the 1900s. This was claimed to reproduce even the finest works of art faithfully, though the results were actually often inferior to collotype or lithography.

Screened printing, including the application of mechanical tints to break down blocks of colour into lighter hues, is usually betrayed by the presence of dots across all parts of the image (excepting solids). The use of grid lines intersecting at right angles ensured that most 'dots' are rectangular, though linear, radial, concentric-circle, and a variety of irregular patterns have all been tried. Practice rapidly discovered the best angle for the screens, which had to interact satisfactorily with each other; if the angles were wrong, a tartan-like moiré pattern—once known to printers colloquially as 'The Marys'—appeared across the image.





**Plate 20.** A 'true colour' image is created by breaking an illustration down by filters and screens into the dots that allow variations of hue to be reproduced. Most printers begin with the cyan block or plate (top left), before proceeding to yellow (top right), magenta (bottom left), and then black (bottom right) to give fine detail. Each component is shown in relative 'grey' strengths.



**Plate 21** shows each of the plates or blocks in their true colours, emphasising how the visual weakness of the yellow may make it a bad choice for the 'first run' on the press. **Plate 22** (next page) shows how the Unbrako leaflet, which dates from about 1960, gradually emerges from the printing process: first, the cyan run; second, the yellow added to the cyan; then the magenta added to the preceding two, and finally the black to give contrast and sharpness of detail.





Among the best screen angles are 0 degrees for yellow, 15 degrees for cyan, 75 degrees for magenta and 45 degrees for black. Interference patterns often appear if a screened image is subsequently re-screened for reproduction. Oddly, problems can be greater with monochrome illustrations than colour; where the multiplicity of screens can neutralise the worst re-screening effects.



**Plates 23 and 24**, above, show what happens if errors occur at the plate-making stage. In the first example, the cyan (blue) plate has been printed in yellow, and the yellow plate in cyan; in the second, the cyan and magenta plates have been transposed. Comparison with the illustration on the preceding page shows how different the results can look! **Plate 25**, right. Printed in Saxony prior to 1914, for Misch & Co. of London (in the “World’s Galleries” Series), this reproduction of ‘The Goddess of Flowers’ by Titian is a seven-colour lithograph: pink, red, yellow, blue, cream and green, with black to add detail. Great skill and experience was needed to separate the colours so that, after printing, they combined accurately.

The initial expense of filtering and screening equipment restricted the spread of four-colour process work for some time. Many jobbing printers continued to rely on ‘pseudo’ or false-colour systems until the 1930s, often to compete with the ever-increasing popularity of hand-tinted photographic prints, though the differences are easily detected under a magnifying glass.

However, differences between letterpress, gravure and offset-lithography colour-work are not always so easily detected. The key is usually found in the detail of individual dots. If the dot has a noticeable edging, denser than the dot-field, then the work is most probably letterpress; dots with soft edges, tending to merge into each other (but with no other obvious characteristics) are most likely to have been the result of gravure printing; and featureless even-colour matt-finish dots with clearly-defined edges will almost always have been achieved with offset lithography.







**Plate 26.** Dating from the late 1920s, one of a series of postcards produced by Walter Erhard of Waiblingen-Stuttgart for his 'Coins of the World' series, this shows a realistic facsimile of each coin embossed on stout card with raised decoration in the margins. Each 'coin' part of the die aligns with a disc printed in a thick, almost impasto-like metallised ink. The result bears casual comparison with thermography, but is not only much flatter but also far more even: depth is given only by the embossing die (see **Plate 27**, opposite page). The illustrations reproduced here do not do justice to the subtleties, as the cards have to differentiate between gold, silver, copper, bronze and zinc.

**ASSOCIATED PROCESSES**

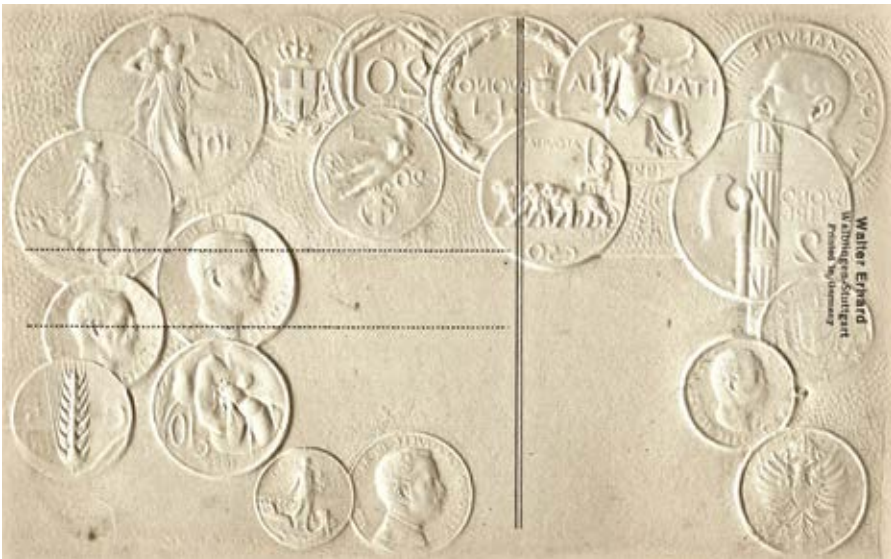
Printed matter can often be subjected to special finishing processes that may alter the appearance of the image. Many of these also embody 'multi-media' combinations of letterpress and thermography, often with the addition of 'spot' or overall varnishing, and postcards of Christmas or greetings type will feature embossing, foil stamping and glittering. Among the most popular of the labour-saving practices was to lithograph the coloured background before overprinting the detail with another printing process; with only a very few exceptions, virtually every combination of techniques has been tried.

**1. Die-cutting.** Undertaken manually or in a platen-type printing machine, this relied on the edge of a suitably bent sheet-metal strip to cut the printed sheet into decorative shapes.

**2. Duotone.** Designed to bring sparkle to an otherwise lifeless monochrome illustration, this is achieved by making two plates from a single negative at different exposures. One is printed in colour (usually very pale) and the other is printed conventionally in black. This adds a subdued element of colour to the printed illustration, but retains the white or non-coloured areas (which are common to both plates) and tends to emphasise the contrast between the light and dark. A so-called ‘false duotone’ can be created by printing a black image over pale block colour, but this method lacks depth: the white areas are confined to the black plate, instead of being common to both.

**3. Embossing.** The finished article is placed between the two faces of a die in a suitable flat-bed (or sometimes rotary) press and a raised pattern is simply pressed into its surface. Complexity of design is limited only by the skill of the die-engraver. Embossing may follow a pre-printed image, or, alternatively, it can be applied to the plain unprinted ground; the latter is usually known as ‘blind work’ or ‘blind embossing’.

**4. Foil-stamping.** Undertaken with specially adapted printing presses or die-stamping machines, this relies on the application of pressure (and sometimes also heat) to transfer metallised foil onto the image. The complexity of the design is usually limited only by the block-making process; quality was at its best prior to 1914, when hand-cut (or at least hand-finished) copper dies gave a sharpness of image unmatched by modern acid-etched zinc-alloy equivalents. The decline in quality is also clearly evident in similar book-blocking dies.





**Plate 28**

Wine-bottle labels often display several manufacturing techniques. This particular example was produced in the 1950s as a printer's sample (by Illert KG of Steinheim am Main, Germany), to seek new orders in what was a very competitive business in virtually every wine-growing district. A good-quality embossing die lends a 'high relief' three-dimensional effect to the gold printed lions-and-grapes design.

*John Walter collection.*



**5. *Glittering.*** Most commonly encountered on Christmas cards, but also on many pre-1914 'greetings' postcards, this was often done manually simply by painting lines of glue and then dusting the image with metallic particles. The process was subsequently mechanised, using blocks or plates which applied glue in accordance with acid-etched guidelines, but cards of this type rapidly lost favour with postal authorities—particularly when mechanical sorting equipment appeared—unless they were sent in envelopes.

**6. *Thermographic printing.*** Applied by a conventional printing press, using standard blocks or plates, this relies on a special powder-laden ink. The sheets are transferred from the press to an oven or heater, where the powder swells to give the characteristically raised image and then dries to a glossy surface. Some of the finest printing of this type was undertaken in Germany prior to the First World War, achieving a high-relief image rarely matched elsewhere. Even cards marketed in the U.S.A. will often bear MADE IN GERMANY.

**7. *Varnishing.*** In the years before the use of plastic laminating film became commonplace, coats of gloss varnish were often used to protect printed images. Customarily applied across the entire card surface, varnish could also be applied to individual components with a special printing block. 'Spot varnishing' can usually be detected by turning the card to catch the light, as the varnished parts reflect light differently to the remainder of the image. However, it pays to remember that black letterpress ink is characteristically glossier than many of the colours.

## IV. TYPE & TYPESETTING

The lettering content of ephemera may often be minimal, particularly where postcards and some advertisements are concerned, but it is still possible to draw conclusions from the design of the type (alias 'font' or 'type' face'). The characteristics of individual letters are particularly valuable.

Letterpress has been by far the most common method of adding captions, even to work produced by photography, lithography or collotype. The process of setting a few lines of type and then enlisting the help of a small platen-type letterpress printing machine was exceptionally easy.

Work of this type can be recognised by the sharpness of the image, even though it can be subject to 'smearing', when bad packing or uneven letter-height gives a lop-sided impression; to an occasional protrusion of a spacer between words; and to damage which may be evident in the hairline strokes of exceptionally small lettering.

### **THE DEVELOPMENT OF TYPESETTING**

The best known of the earliest lettering systems is undoubtedly Egyptian hieroglyphic, but even Egyptians accepted that applying picture-drawings was so time-consuming that an abstract system was preferable for day-to-day use. The primary influence on our modern alphabet, however, came from Rome; indeed, the upright letter-forms are still widely known as 'Roman Type'. By the first century AD, Roman inscriptional lettering had developed to a point where it had become all but indistinguishable from today's equivalents.

Work on such a monumental scale required great skill, and the cutting of inscriptions was soon recognised as a special discipline within the long-established stone-masonry traditions. However, like Egyptians before them, the Romans could also see value in simplicity. Everyday work was recorded in scripts known as 'Rustics', which bore much the same relationship to inscriptional lettering as today's handwriting does to typesetting.

Rustic script provided the basis for the calligraphy of the Dark Ages, which ranged from uncials and half-uncials to the earliest forms of black-letter. Calligraphy was customarily confined to the Church in general and to scholar-

If it please any man spirital or temporel to bye any  
 pyes of two and thre comemoracions of salisbury use  
 enpryntid after the forme of this presēt lettre whiche  
 ken wel and truly correct, late hym come to westmos-  
 nester in to the almonestye at the red pale and he that  
 haue them good chepe .-.-

### Supplico stet cedula

**Plate 29.** An example of 'black-letter' type, from a sample printed in England by William Caxton in the 1480s. Never noted for its legibility, this style soon gave way in Europe (Germany excepted) to the lighter 'roman' type based on inscriptional lettering commonly found in Italy.

monks in particular, flourishing from the eighth century AD to the early 1500s, when the advent of movable type not only radically changed the production methods but also challenged established ways of spreading knowledge.

The first books to be printed with movable type originated in the Orient, where separable wood-block compositions have been authenticated from the twelfth century. However, there is no real evidence to support the popular belief that the origins of Western typesetting also lie in the Far East; nor can weight be given to the idea that the wood-block printing practised in China and Korea found its way to Europe back along trade routes established in the thirteenth century by Marco Polo.

More probably, the first steps were taken by the monk-scholars who were already using small wooden stamps as the basis for decorative initials in the tenth century. It takes no great stretch of the imagination to see how wood-block outlines could become wood-block letters. However, there is very little evidence to show how and when the giant step was taken—and how great a leap it was!—from wood blocks to metal type. The novelty lay not so much in the replacement of hand-cut wood blocks with a cast-metal equivalent, but in the casting of many identical letters from a single mould or die.

The first stage was metallography, introduced (in the Netherlands?) about 1425. Punches were used to stamp letters into a clay or soft-lead base, re-using individual letters wherever appropriate. A one-piece letterpress plate was then cast from the mould. Metallography underwent a renaissance

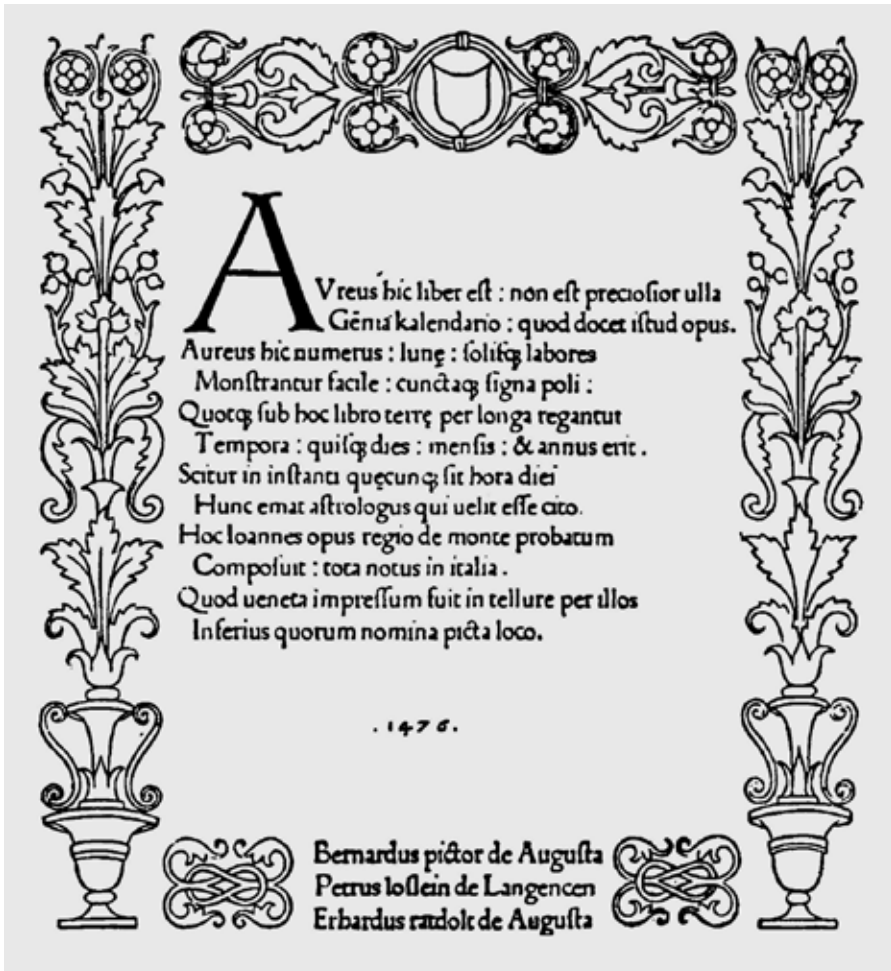
in the nineteenth century, when similar principles were used to produce ‘stereotypes’, the one-piece plates, often curved, that had been cast in papier-mâché, clay or metal moulds. Stereography was similar, but copper matrices were assembled to serve as their own mould.

Letters could be made into words, words could become pages, and pages could be made into books. The next stage in the process—the advent of re-usable metal type which could be employed to print directly onto paper—was, perhaps, the farthest-reaching invention in the history of civilisation. The first booklets to have been printed from reusable lead-alloy lettering are generally reckoned to have been produced in the late 1440s by Johannes Gensfleisch zur Laden zum Gutenberg (better known as ‘Johannes Gutenberg’) who is renowned for the ‘42 Line’ or Mainz Bible of 1456. Unfortunately, much of the earliest history of the development of movable type has been lost and it is unclear how many years were spent developing matrices and metal alloys robust enough to withstand repeated use. It is suspected that development had been underway since the 1430s.

Though it had taken centuries to advance from the quill pen to movable lead type, the new ideas spread with surprising speed. Printing was introduced to Italy by two German émigrés, Swynheim & Pannartz, contemporaries of Gutenberg in Mainz, who settled in Subiaco in 1465; and by the Frenchman Nicolas Jenson, who arrived in Venice about 1470. The first French book also appeared in this period, and Claude Garamond became the world’s pioneer commercial type-founder. The first book to be printed in English was the work of William Caxton, who printed *The Recuyell of the Historyes of Troye* in Bruges in 1474 and established a press in Westminster two years later.

By the end of the sixteenth century, it had become clear that movable type was no ten-year wonder. Though printing had had its roots in north-central Europe, grounded in black-letter calligraphy, the advent of printing in Italy brought a new approach. Schooled in traditions of the Roman monumental masons, Italian-based printers rejected darkly gothic lettering in favour of pre-Carolingian traditions. Known at first as *Antiqua*, but now more commonly as ‘romans’, the results were altogether lighter and more open than the dense north-European type forms had been.

The original Antiqua was cut in 1470–1 by, or possibly for Nicolas Jenson. A better version was cut by Francesco Griffo of Bologna in 1495 for Aldo Manucci (‘Aldus Manutius’), among the best known printers of his day and renowned for the introduction in 1501 of italic types. These were originally conceived for narrow ‘pocket-size’ editions of the Classics, religious texts and poetry, and reflected in the narrowness of their bodies the quest for smallness.



**Plate 30.** A sample of ‘roman’ type, indistinguishable from many modern typeface designs... but more than five hundred years older. Legibility enabled roman type to eclipse black-letter in most European countries, excepting Germany (where *Deutsche schrift* lasted until 1940).

Habitually used in conjunction with full-width upright or ‘roman’ capital letters in the earliest days, italics not only retained much of the beauty of the cursive Chancery script or *Scripti Cancelleresci* of the Papal scribes but also reflected the efforts that had been made to make them legible. However, italics were reduced to mere adjuncts of roman typefaces within sixty years, to be used largely for emphasis or to denote foreign-language words.



Roman type was so easy to read that it swept away much of the black-letter, though a modified version of the latter, *Deutsche schrift* (also generically called 'Fraktur') lasted in everyday use in Germany until officially abandoned in 1940. And though 'Olde English' type still retains a perverse popularity for wedding and comparable stationery, black-letter typefaces largely disappeared from English ephemera during the seventeenth century.

The eighteenth century saw the rise of an 'English School' of designers, exemplified by William Caslon the Elder (1692–1766), whose earliest specimen sheet dated from 1738, and then by John Baskerville (1706–75). Caslon is renowned largely for adapting the Garamond roman, increasing the contrast of thick and thin strokes; introduced to the U.S.A. by Benjamin Franklin, a Caslon type was used to print the Declaration of Independence in 1776.

Known as much for the development of better-surfaced paper, produced with heated rollers, Baskerville also became fascinated by type in the 1750s. His light and graceful roman is still widely used. Yet many of the advances in England and abroad were due to the refinement of foundry practice; to the development of durable alloys; to the introduction of more efficient printing machinery; and to the preparation of better paper.

## **MECHANICAL COMPOSITION**

In printing as in many other industries, the Victorian entrepreneurs were often too interested in new equipment and extra profits to bother about declining standards. The gradual introduction of powered printing presses began to place a premium on speed instead of quality, and thoughts turned to accelerating the work of compositors who were perceived to present the greatest obstacle to better productivity.

A practical type-composing machine had been patented in 1822 by William Church of Boston, Massachusetts, but the first to be exploited commercially was the work of Young & Delcambre (1840). Known as the 'Pianotype', owing to the design of the keyboard, it delivered single cast-metal letters from channel-like magazines as the appropriate keys were depressed. Each line had to be collected and justified manually, but linking the keyboard unit with a caster allowed the magazines to be replenished without the chore of distributing ('dissing') used text. Unfortunately, the Pianotype was advertised as suitable for 'use by young women', a claim that not only caused great resentment amongst printers but also led to strikes, lock-outs and acts of vandalism. Consequently, it was never a commercial success.

The Hull-based *Eastern Morning News* became the first mechanically-typeset newspaper to be published in Britain in 1868, with *The Times* following

in 1872. But too many of the early machines were unreliable, and the claims of inventors rarely translated into good practice; by 1880 *The Times*, priding itself as a technological leader, allegedly had a cellar-full of typesetters that had failed to fulfil expectations. The answer eventually came from the U.S.A., where a shortage of skilled men—indeed, a shortage of manpower of any sort after the horrors of the Civil War of 1861–5—favoured the introduction of machinery, increasing emphasis on output at the expense of craftsmanship.

Among the weaknesses of the earliest type-composing machines were restrictions on type sizes, typeface designs that were often poor, and an inability to ‘justify’—i.e., to vary the spaces between the words until the left and right-hand edges of the assembled type-matter were parallel. Though the machines usually prepared the content of each line efficiently, time was lost while the spacing was adjusted manually until a line could be cast from the spaced matrices. The answer was found in the Linotype (“Line o’ Type”), the first of the successful auto-justifying machines.

The Linotype owed its origins to James Clehane, a Washington DC lawyer, who sought an easy way of recording case-notes. He eventually approached a German-born Baltimorean watchmaker named Ottmar Mergenthaler (1854–99), who designed a primitive composing machine which assembled a line of matrices, spaced them by inserting wedges between the words, and then allowed a papier-mâché mould of each line of type to be made. A lead slug was cast from the mould and a page of type-matter could be created.

Though his machine was said to have been inspired by an existing design, Ottmar Mergenthaler received a U.S. Patent in August 1884; and his composer was soon improved by adding an integral caster to allow type to be taken straight to the forme. The first book to be typeset in its entirety on a Linotype machine, the *Tribune Book of Open-air Sports*, appeared in 1886.

An alternative, but equally successful system was patented in the U.S.A. in 1887 by Tolbert Lanston (1844–1913) of Troy, Ohio. Known as the ‘Monotype’, this prepared each character individually and made up its lines in single cast-alloy characters. Justification was achieved by totalling the value of the letter widths, subtracting this from the line length, and then dividing the remainder as word spaces. A punched paper roll transferred instructions to the caster, which could be isolated from the keyboard with beneficial effects on the health of the compositors.

Capable of setting up to 12,000 characters per hour, about fifty per cent more than an otherwise comparable Linotype, Lanston Monotype machines were particularly favoured for book work, as they allowed individual characters to be replaced without requiring entire lines to be re-cast.

(No Model.)

15 Sheets—Sheet 1.

O. MERGENTHALER.  
MACHINE FOR PRODUCING TYPE BARS.

No. 425,140.

Patented Apr. 8, 1890.

Fig 1<sup>a</sup>

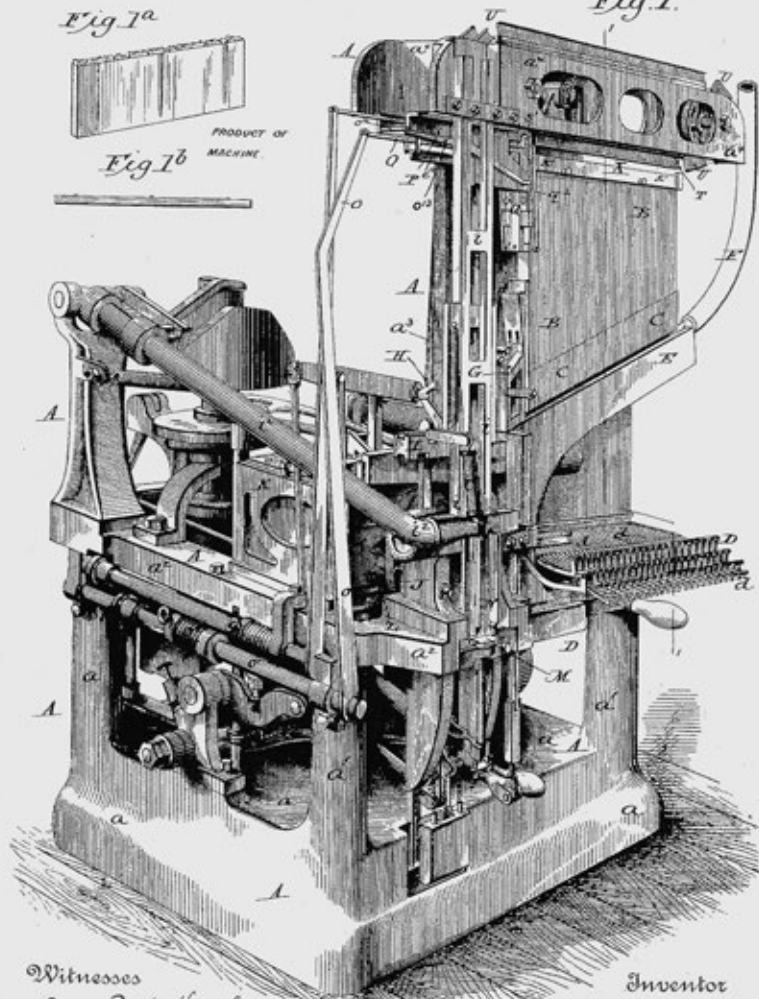


PRODUCT OF  
MACHINE.

Fig 1<sup>b</sup>



Fig. 1.



Witnesses

James F. Luffmeel  
W. R. Kennedy

Inventor

Othmar Mergenthaler  
By his Attorney  
Phil. T. Dodge.

**Plate 31**, previous page. Drawings from a U.S. Patent granted to Ottmar Mergenthaler, inventor of the Linotype composer—the first of its type to be successful commercially. Alongside the Lanston Monotype machines, Linotypes continued to be used until the end of ‘hot metal’.

Both machines were successful, though Ottmar Mergenthaler died young and Tolbert Lanston had to labour for many years before Sellers & Company of Philadelphia could be persuaded to take up manufacturing rights in 1894; the first British-made Monotype machines dated from 1897. Oddly, despite its American origins, the Monotype machine was most popular in Britain amongst the publishers of books and newspapers; in North America, however, Linotypes were widely favoured even for book-work. Assembly continued into the 1960s, when ‘hot metal’ setting gave way to phototyping.

## THE ART OF TYPESETTING

The advent of mechanical composing systems had a great impact on printing technology, though only after 1920 did equipment of this type prove beneficial to jobbing printers. The Linotype and Monotype machines could handle roman, italic and bold type simultaneously. Even the earliest Monotype matrix contained fifteen rows of fifteen positions, giving a choice of 225 characters, while later machines increased the total to 272 (sixteen rows of seventeen positions). For the sake of convenience—though not necessarily reflected in the increased capital investment—this presented a great improvement on the standard hand-setter’s ‘California case’, which contained only 84 characters and five compartments for spaces.

Unfortunately, the sudden advent of commercially-acceptable powered composing machines was accompanied by a marked reduction in the quality of typesetting. The title pages of many books of the period invariably mixed every conceivable shape and size of letter with regard neither to reason nor to good taste. Margins could be excessively wide, yet words would be crammed into pages so densely that the reader’s eye found the guiding thread supposedly provided by the baseline much too difficult to follow.

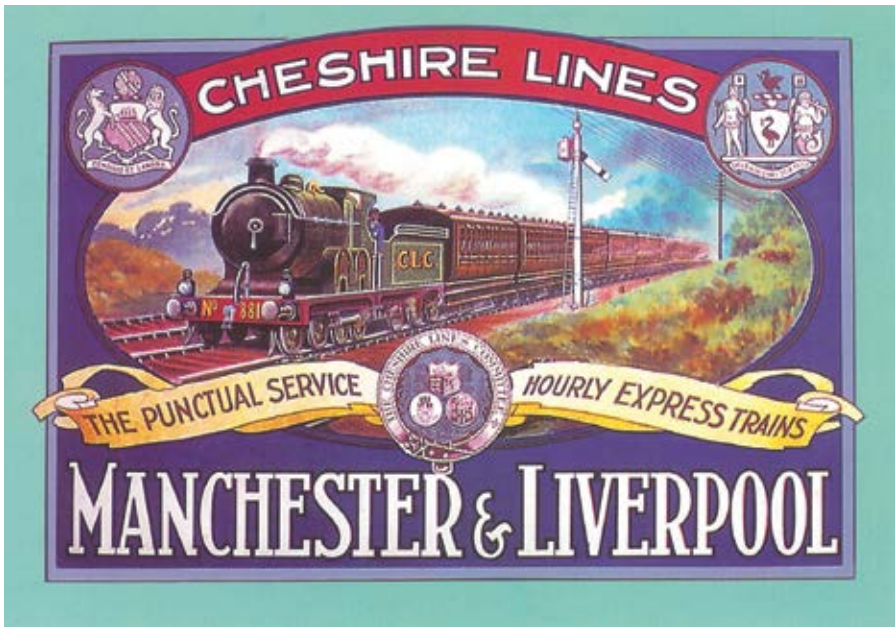
The deterioration was due less to particular defects in the design of the typesetting machines, but more to the monotony of the first mechanically-set type styles and the meagre ranges of sizes. This ended the Victorian predilection for handbills with each line in a different size and typeface, but—by relying initially on unimpressive Grotesque, Ionic, Modern and Old Style faces—threatened to substitute bland anonymity for vitality. To their credit, the promoters of even the earliest mechanical typesetting systems discouraged some of the bad features of pre-1914 hand setting, which included

leading which was used too sparingly and the insertion of excessive space between words. It was also fortunate for posterity that men such as William Morris (1834–96) strove to restore the art of the book. Whatever individual view may be taken of Morris’s work, and his techniques were scarcely forward-looking, the contribution made by the Kelmscott Press to restoring the tarnished image of the printed word was undeniable.

Though Morris was responsible for only a single roman and two ‘gothick-revival’ types (and then only in part), and had died before mechanical composing machines achieved tangible success, his espousal of skills such as printing and punch-cutting as ‘fine art’ inspired others to take up the challenge. One of the most important steps was taken by Linn Boyd Benton (1844–1932), designer of the first pantographic ‘tracing apparatus’.

Patented in the U.S.A. in May 1905 (though the application had been made in the summer of 1899), this allowed type to be enlarged, reduced, slanted, condensed and expanded with stupefying accuracy—said to have been to two ten-thousandths of an inch. The Benton pantograph was probably the single greatest advance in the mass-manufacture of type. It allowed men such as

**Plate 32.** Even after the introduction of mechanical typesetting, posters such as this example relied on hand-drawn lettering, the only way in which it could be curved to fit a shape.





Morris Benton (1872–1948), William Dwiggins (1880–1956) and Frederic Goudy (1865–1947), retained by Linotype, Monotype and their rivals, to develop fine-quality faces which were legible even in the smallest sizes.

For the first time since the days of Caslon and Baskerville, British type designers were lauded for their skills; in particular, Edward Johnston (1872–1944) and Eric Gill (1882–1940) sought to reconcile calligraphy and inscriptional lettering with type design. Their efforts were assisted by the presence of a large Monotype factory in Salfords (near the Surrey town of Redhill) and by an equally impressive Linotype & Machinery works in Altrincham, in Cheshire.

Types designed by Gill sometimes compare poorly with those specifically developed elsewhere for mechanical setting, and few survive in everyday use (though Gill Sans, first cut in 1927, retained its popularity throughout the letterpress period). Johnston's Railway Type is still used in a modernised form, but far more influential was the work of Stanley Morison (1889–1967), who drew on historical precedents to create Times New Roman in the early 1930s. Yet many of the letterforms we take for granted have their origins in the Middle Ages, changed only in details by modern punch-cutting techniques. They include Bembo and Garamond, and even the most modern serified faces draw direct influence from shapes which are now five centuries old.

## **TYPESETTING AND 'JOBGING PRINTERS'**

The conservatism of most small-scale printers complicates any attempt to date ephemera by the style of the wording, particularly prior to the First World War. Very few pre-1914 agencies used mechanical composition, and the reliance on hand setting placed by 'jobbing printers' encouraged the use of type which had seen decades of service. The fonts were purchased from foundries such as Caslon, Miller & Richard, Stevens & Shanks or Stephenson Blake & Company; from founders' agents; or from printers' suppliers.

Type could be cast mechanically in huge quantities—even the Wicks rotary caster of the early 1900s could produce 65,000 characters hourly, if the size was smaller than Long Primer (10pt), and 35,000 characters per hour if the size was Pica (12pt). The range of options could also be very impressive; in 1909, for example, the American Type Founders Company ('ATF') was offering no fewer than 183 combinations of face and size intended specifically for mechanical composition.

However, dating type-matter can still be problematical, as even the most efficient electronic scanners can fail to identify individual faces correctly. Problems may also be posed by the widespread use of obsolescent type, and by a tendency to mix roman and italic fonts of different design indiscriminately.

## V. TYPE BY DESIGN

Tens of thousands of types have been promoted since the middle of the fifteenth century, and countless new designs appear annually to satisfy the insatiable appetite of the software and advertising industries.

All type made before photo-typesetting systems emerged in the 1960s comprised individual blocks of carefully controlled size. Prior to the eighteenth century, each founder had cast type in accordance with his own idea of sizing, with the result that the output of differing typefounders could rarely (if ever) be mixed without the help of leading, spacers and shims.

Though the problems were well known, real progress was made only when the Parisian founder Pierre-Simon Fournier (1712–68) took the first steps towards standardisation. Renowned for pioneering work which included the *Table des proportions qu'il faut observer entre les caractères* (1737), Fournier is said to have selected one-sixth of the pre-revolutionary foot or 'pied' as the basis of his measuring system. This was divided by 144 to give what he termed a 'point', equal to  $\cdot 0137$ in. There is some doubt about Fournier's base unit, and it has even been suggested that he took an approximation of the English foot; this would have made the point  $\cdot 01389$ in, but the difference of one fifty-thousandth part of an inch could be ascribed simply to error in an era when accurately measuring tiny dimensions was exceptionally difficult.

Fournier died before his type-measuring system gained acceptance, and it was left to a successor, François-Ambrose Didot (1730–1804), to modify the system by basing it on the French 'Imperial Foot', the *Pied de Roi* or *Pied de Paris*. This measured 1.0661 English feet, which had the effect of increasing the value of the point to  $\cdot 0148$ in; Didot also introduced the 'cicero' or twelve-point measure, which equated to  $\cdot 1776$ in, and rejected the universally popular method of naming type sizes—e.g., 'Parisienne' or 'Petit Romain'—in favour of simple numerical designations.

The enthusiasm of post-Revolutionary French authorities for conformity, exemplified by the metric system, undoubtedly helped to spread Didot's work throughout much of Continental Europe, where it remained in vogue until the end of the 'hot metal' era of typesetting. Despite the introduction of a 'metric

foot' or *Pied métrique* of a third of a metre (333·33mm, 1·0939ft), used in France in 1812–40, the Didot point has always remained constant.

Most Anglo-American printers remained wedded to their conservatism until the middle of the nineteenth century, when the first attempts to introduce mechanical typesetting systems were made. The turning point was provided by the Great Fire of Chicago (1871), which destroyed the foundry of Marder, Luse & Company, which had supplied much of the type used by printers throughout the north-western part of the U.S.A.

With remarkable foresight, the American Federation of Master Printers seized on the ruination of Marder, Luse & Company to propose a new standard for type sizes based on the existing 'standard pica' of ·166044in, which divided into twelve points of ·013837. This system was eventually accepted in Britain in 1898, though an unwanted complication could be seen in the reluctance to abandon old practices. Consequently, as late as 1908, the principal British type-casters were still using picas which measured from ·16638in (Stephenson Blake) to ·16783 (Miller & Richards).

#### TABLE ONE: TYPE SIZES

This is six point

This is eight point

This is twelve point

This is sixteen point

This is twenty-two point

This is twenty-eight point

One problem of the two separate classification systems lies in the fact that 'Didot points' are about seven per cent larger than their Imperial-measure equivalents. Consequently, 14pt Didot type is approximately the same size as 15pt imperial, and a size classed as '8pt Didot/9pt', in Britain at least, signifies 8pt Didot-size type cast on an 9pt imperial body.

Individual British printers—together with equally cautious American cousins—were never particularly fond of the new-fangled 'scientific' French system, and the traditional names for sizes remained in vogue long after the

advent of mechanical composition. These ranked from *Minikin* (3½pt type) to *Six-line Pica* (72pt). Larger sizes were customarily cast as ‘Two-Line Small Pica’ or ‘Double Small Pica’ (about 22pt) or ‘Six-Line Pica’ (about 72pt). Few had special names, ‘Canon’ (Four-Line Pica) being an exception. Even though restricted to relatively few body sizes, however, type still came in great variety.

Individual designs are not always easy to classify, owing to the differing sizes of letters cast on the fixed-size bodies. The size-name was customarily attached to the type name, e.g., ‘Brevier Antique’ and ‘Long Primer Antique’ could be the same excepting size. Some foundries distinguished type styles by adding numbers (‘Brevier Antique No. 2’ or ‘Double Small Primer Roman No. 10’), though this practice became commonplace only when the advent of mechanical compositors brought a great burst of creativity in type design. Another problem arises from the habitual use of only single lines of type on printed work, particularly on cards, which effectively prevents the body size being deduced simply by measuring distances between successive lines.

Type made in accordance with the old sizing methods remained popular well into the twentieth century. The spread of mechanical composing was not only comparatively slow, but also restricted initially to the largest and most progressive printers—especially those who specialised in newspapers, books and periodicals. The small ‘jobbing printer’ rarely had enough money

#### TABLE TWO: TRADITIONAL TYPE SIZES

*Minikin*. About 3½ point.

*Brilliant*. About 4 point.

*Diamond* (half Bourgeois). 201.6 lines to the foot; about 4½ point.

*Pearl* (half Long Primer). 179.6 lines to the foot; about 5 point.

*Agate* or *Ruby* (half Small Pica). 160 lines to the foot; about 5½ point.

*Nonpareil* (half Pica). 142.5 lines to the foot; about 6 point.

*Emerald*. About 6½ point.

*Minion* (half English). 127 lines to the foot; about 7 point.

*Brevier* (half Columbian). 113.1 lines to the foot; about 8 point.

*Bourgeois* (half Great Primer). 100.8 lines to the foot; about 9 point.

*Long Primer* (half Paragon). 89.8 lines to the foot; about 10 point.

*Small Pica*. 80 lines to the foot, about 11 point.

*Pica*. 71.3 lines to the foot, about 12 point.

*English*. 63.5 lines to the foot; about 14 point.

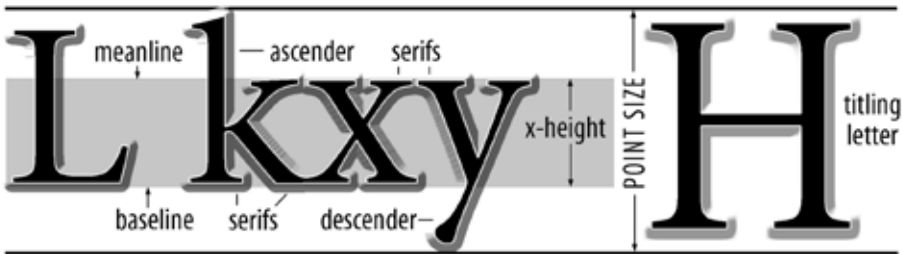
*Two-Line Brevier* or *Columbian*. 56.6 lines to the foot; about 16 point.

*Great Primer*. 50.4 lines to the foot; about 18 point.

*Paragon*. 44.9 lines to the foot; about 20 point.

to spare to invest in the latest typesetting technology and was still happily buying from specialist suppliers long after the Second World War had ended. Indeed, many large-scale foundries such as Yendall & Co. Ltd ('Riscatype') or Mouldtype survived in Britain into the 1970s.

The surprisingly long useful life of the tiny blocks of type, made of an alloy of lead and antimony, can also complicate the dating of ephemera by type style. Though pica-and-point systems had been universally adopted by progressive large-scale printers by 1914, the local or 'jobbing' shops were not so keen to scrap all their stocks of type to start again. It became common practice to periodically replace the largest or 'display' type, acquired in small batches, but to hold on to smaller patterns for many years; the large quantities of type needed for text setting were often judged to be too expensive to replace.



As late as 1948—fifty years after the acceptance of the 'pica-and-point' system in Britain—Arthur Monkman was still complaining in *Practical Printing and Binding* that '...the reluctance to dispense with the old bodies has been the cause of a considerable amount of trouble and chaos in many composing departments. Compositors have been tempted to use Brevier spaces with 8-point type or vice versa, often with disastrous results...'

Point sizes remain the preferred measurement method, even in a computer age when the rejection of traditional practice could have been expected. Though some European manufacturers have accepted metric units, the millimetre is too large unless subdivided into tenths; and the addition of decimal points in metric type sizes is an unwanted complication.

Nominal type size is, however, a misleading guide to true letter-height. The dimension actually refers to the height of the body on which individual letters are cast, an anachronistic complication that has survived even though digital setting (which obviously lacks a cast body) has become universal. A few enterprising manufacturers—e.g., Berthold—have tried in recent years to make the capital letters of all typefaces the same height, but this sensible approach has never gained universal acceptance.

Most typefaces consist of *majuscule* (capital) and *minuscule* or 'small' letters, together with numerals, punctuation and a few special symbols. A typical font may contain eighty different elements, though some may lack a lower case and others may have more than one set of numerals. Capital letters are widely known as 'upper case', owing to their superior position in the earliest compositors' type cabinets; the small letters, which always occupied the bottom or under-rack, are correspondingly known as 'lower case'.

The principal reference point for measurement, the '*x*'-height, is simply the height of the top of the lower-case '*x*' above the base line. The letters 'b', 'd', 'f', 'h', 'k', 'l' and 't' all have strokes which rise above the top of the '*x*' and are, therefore, known as *ascenders*. Conversely, 'g', 'j', 'p', 'q' and 'y' all drop below the base line and are known as *descenders*. The dots accompanying the letters 'i' and 'j' make them difficult to categorise, though customarily regarded as a normal letter and a descender respectively.

Vagaries of size and design prevent a common relationship between the point size, the '*x*'-height, the height of the capital letters, and the 'face height'—from the bottom of the deepest descender to the top of the highest ascender. Monotype Bembo, which has fifteenth-century origins, offers a comparatively small '*x*'-height in relation to the size of its ascenders and descenders. Taking 72pt type as the basis, with a body-height of about an inch, Bembo's '*x*'-height of 27pt compares with a 'face height' of 69pt; and a 42pt capital-letter height represents only 58 per cent of the body height. Monotype Grottesque No. 215, conversely, has a 38pt '*x*'-height on a 72pt body size. Though the face height is only 68pt, the 54pt capital height represents 77 per cent of the body size.

An exception to the rule that the capital height is rarely more than three-quarters that of the cast body is provided by 'capitals only' typefaces specifically made for titling purposes, which can approach within a few points of the edge of the body.

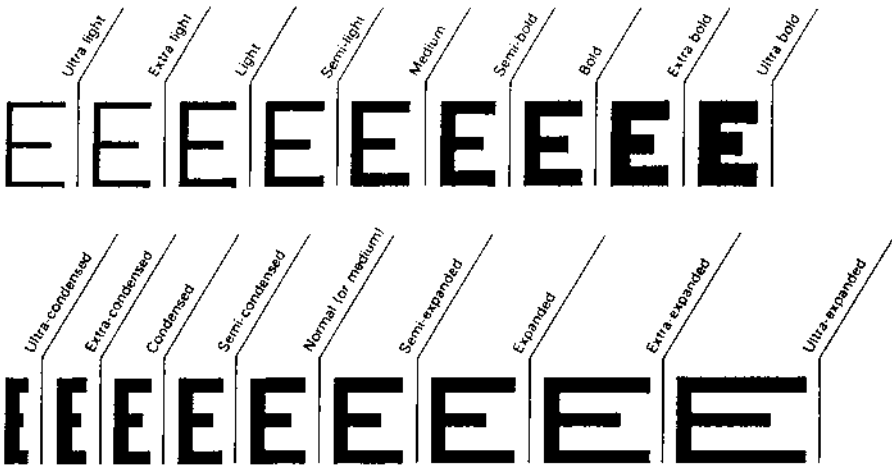
Another major problem is provided by the concept of 'leading', which originally described the most important method of introducing space into type-matter to increase legibility. This was necessary if the ascenders and descenders came too close to the body-edge or if the '*x*'-height was very large, so carefully graded strips of type-metal sheet were placed between the lines. This resulted in definitions such as '12pt type, 2 points leaded' which indicated that the actual space between successive base lines was fourteen points; this was customarily written simply as '12/14pt'.

Photo- and digital-typesetting systems can easily set leading negatively, removing space between lines until the letters can touch or overlap; similarly, they can control the spacing between letters to improve the visual fit of type



as size increases. This, of course, could not often be accomplished with the mechanical systems.

Type founders did sometimes attempt to improve the fit of some of the most awkward letter pairings (e.g., 'wa' or 'lt') either by *kerning* or by using *ligatures*. Kerned letters, widely applied to cursive 'swash' capital letters and some of the more decorative italics, were cast specially so that the beaks or tails of the letters were carried out over the body of their partners. The remnants of a tendency in the early days of typesetting to run many letters together as 'diglyphs' or 'logotypes' (e.g., ct, st or ff for 'ct', 'st' and 'ss' respectively), ligatures now contain groups of letters such as 'fi', cast as a single 'fi' unit to avoid the 'i'-dot interfering with the nose of the 'f'. Some ligatured groups, such as italic long-tail 'ffi', were also designed to kern.



Comparative type widths and weights.

Among the most important factors influencing the look of a page are the 'character width' and the 'character weight' (or degree of boldness). However, though attempts to categorise typefaces have been sub-divided into widths ranging from ultra-condensed to ultra-expanded, and in weights graded from ultra-light to ultra-bold, few promoters have ever agreed on definitions of 'normal', 'regular' or 'medium'.

Souvenir Light, for example, would be regarded as a medium if compared with 'normal' Bembo, and Souvenir Demi-bold approaches the weights of many genuine bold faces.

## VI. ORDER OUT OF CHAOS

No single typeface is suitable for every application, which has always allowed typefounders room to manoeuvre. A face with thin strokes, such as Bodoni or Walbaum, may not reproduce too well in small sizes and will certainly not be amenable to screening. Some typefaces do not reproduce well on art paper, where a hard surface permits fine detail but also allows the impression to dazzle the reader; simple faces may be too plain for large-scale use, whereas over-decoration can hinder understanding of messages in text.

There has been a great upsurge of interest in the *lineale* or ‘sans serif’ types since the end of the First World War, but their value in text setting has always been questionable. Perhaps a lack of visual interest in the letter forms bores the reader; more probably, the absence of foot serifs may simply hinder the movement of the eye along each line. In addition, many modern typefaces have ‘x’-heights which are far too large in relation to the height of ascenders/descenders, but this affects serif and sans-serif types alike.

Another problem (often a good identification guide) lies in the lack of differentiation between the lower-case ‘l’, capital letter ‘L’ and the numeral ‘1’ in many of simpler faces. One of the earliest sans-serif designs to be widely used, Edward Johnston’s Railway Type, produced for the London Transport Board in 1913, had a curved-base ‘l’ to minimise confusion on underground-railway signage. Though the fit of many individual letters was eccentric, Railway Type can still be seen in a modernised ‘New Johnston’ form, developed in 1979 by Eiichi Kono for Banks & Miles specifically to drag the original designs (which had been painstakingly drawn on tracing paper and carved from wood) into the digital age. The original Railway Type, which existed only in roman and bold, had soon acquired eight new weights.

Many attempts have been made over the years to classify the countless variations on each particular theme, though the work has been handicapped by the absence of universally agreed criteria—terms such as ‘Roman’, ‘Egyptian’ or ‘Old Style’ have always been bandied indiscriminately. The summary given below follows guidelines established by British Standard 2961:1967, but its shortcomings are often obvious.

## A CONCISE TYPEFACE CLASSIFICATION

There are two basic categories of type: *serif* (often known as ‘garalde’) and *sans serif* (‘lineale’), depending on the possession of short horizontal bars or ‘feet’ on the vertical strokes.

### The serif group

**1. HUMANIST OR ‘VENETIAN’.** These letterforms were derived from fifteenth-century handwritten minuscules, and from the types used in Venice by Nicolas Jenson in 1470–90. There is some contrast in the strokes, with ‘thicks’ and ‘thins’, though not noticeably. The letter ‘e’ customarily has an oblique cross-stroke and a cramped eye; serifs have ‘bracketed’ (hollowed) faces; the serifs on the ascenders are oblique; and the stress on rounded letters such as ‘o’ or ‘G’ is almost always diagonal. Typical example, *CENTAUR*, designed by Bruce Rogers in 1914–15 for the Metropolitan Museum, New York, and offered commercially by Lanston Monotype from 1929.

**2. GARALDE, ‘OLD FACE’ OR ‘OLD STYLE’.** The typefaces in this category are essentially similar to the Humanist group, and were originally developed in much the same period (though development thereafter continued on separate lines). The Garaldes owed their refinement to the skills of punch-cutters in Italy, France and the Netherlands.

Their success was greatly assisted by the foundation of the *Imprimerie Royale* by the French king Louis XIV, where some of the finest books of the period were printed. These often featured the *Romain du Roi* (“King’s Roman”) type cut by Philippe Grandjean on the basis of the designs that had been prepared by the *Académie Française*.

The letterforms were intended to be a ‘perfect’ mathematically-derived progression from Garamond. Garalde faces have greater contrast in the thick and thin strokes than the Humanist group; the crossbar of the ‘e’ is usually horizontal; stress is diagonal; and the serifs—oblique on the ascenders only—are bracketed. Typical example, *GARAMOND*, based on type cut by Jean Jannon and cast by Claude Garamond (1480–1561) from c. 1532. The first machine-setting adaptation was introduced by American Type Founders in 1917.

**3. TRANSITIONAL.** The first examples of this group appeared in the eighteenth century, reflecting the influence of copper-plate engraving. The letters show greater delicacy than had previously been attempted, and display a marked

contrast between thick and thin strokes. Though the serifs are still bracketed, the stress-axis has been moved closer to vertical than in Garaldes. Typical example, **BASKERVILLE**, based on type first cut and cast by John Baskerville about 1750.

**4. DIDONE OR 'MODERN'.** These represent a progression from Transitionals, the prototypes often being credited to Giambattista Bodoni (1740–1813) of Parma. Characterised by notable contrast between thick and thin strokes—often carried to extremes—the Didone group customarily has linear or straight-base horizontal serifs.

Very popular with the Victorians, the more outlandish faces of this type disappeared with the advent of mechanical composition; the extreme delicacy of the thin strokes was neither suited to very small sizes nor sufficient robust to withstand rough treatment in mechanical casters. Though some 'Modern' types were specifically developed prior to 1914 for composing machines, they exhibit a noticeable increase in the width of the thinnest strokes. Typical example, **BODONI**, based on type offered by Bodoni in the 1770s. The American Type Founders version dates from 1907.

**5. SLAB-SERIF OR 'EGYPTIANS'.** The first of these types is customarily credited to Vincent Figgins, working c. 1817, inspiring a series of similar faces for broadsheets and advertising material. They are characterised by heavy square-ended serifs, usually horizontal, whilst contrast ranges from minimal ('monoline') to exaggeration. Typical example, **ROCKWELL**, introduced by the Monotype Corporation in 1934.

## **The sans-serif group**

These are characterised, as the name suggests, by the absence of serifs and associated ornamentation. Many owed their origins to large-scale display use (e.g., on posters), where the excessive cost of cast-metal lettering was usually overcome by carving the letters from boxwood. Omitting detail not only simplified the cutting process, but also enhanced durability.

**6. LINEALE OR 'SANS SERIF'.** Now very popular, used even for large-scale text setting (though arguments about legibility continue!), these have had an ancient pedigree. The romans often used very plain linear letterforms, and modern-looking 'sans' faces were being cast in the Caslon foundry as early as

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
0123456789

CENTAUR [BRUCE ROGERS, 1914-15]

ABCDEFGHIJKLMNOPQRSTUVWXYZ&  
abcdefghijklmnopqrstuvwxyz  
0123456789

GARAMOND [SIXTEENTH-CENTURY ORIGINS]

ABCDEFGHIJKLMNOPQRSTUVWXYZ&  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
0123456789

BASKERVILLE OLD FACE [STEPHENSON BLAKE VERSION]

ABCDEFGHIJKLMNOPQRSTUVWXYZ&  
abcdefghijklmnopqrstuvwxyz  
0123456789

BODONI [EIGHTEENTH-CENTURY ORIGINS]

ABCDEFGHIJKLMNOPQRSTUVWXYZ&  
abcdefghijklmnopqrstuvwxyz  
0123456789

ROCKWELL [MONOTYPE CORPORATION, 1934]

1826. The Lineales are divided into sub-classes, depending on the degree of simplification but also often a clue to age.

#### THE SUB-CLASSES

**6A: Grotesque.** This has early nineteenth-century origins. The letters 'C' and 'G' have notably close-set jaws, some contrast is to be expected in thick and thin strokes, many of curves have a distinctly squared appearance, and the curved strokes are cut horizontally. Typical example, FETTE ENGLISCHERSCHRIFT, introduced by the Stempel foundry in the late nineteenth century.

**ABCDEFGHIJKLMNOPQRSTUVWXYZ&  
abcdefghijklmnopqrstuvwxyz  
0123456789**

FETTE ENGLISCHERSCHRIFT [STEMPEL, c. 1890]

**ABCDEFGHIJKLMNOPQRSTUVWXYZ&  
abcdefghijklmnopqrstuvwxyz  
0123456789**

HELVETICA [MAX MIEDINGER, 1957]

ABCDEFGHIJKLMNOPQRSTUVWXYZ&  
abcdefghijklmnopqrstuvwxyz  
0123456789

AVANT GARDE GOTHIC [LUBALIN AND CARNESE, 1968–70]

ABCDEFGHIJKLMNOPQRSTUVWXYZ&  
abcdefghijklmnopqrstuvwxyz  
0123456789

OPTIMA [HERMANN ZAPF, 1952]

**ABCDEFGHIJKLMNOPQRSTUVWXYZ&  
0123456789**

ENGRAVER'S GOTHIC [FREDERIC GOUDY, 1901]

*ABCDEFGHIJKLMNOPQRSTUVWXYZ&  
abcdefghijklmnopqrstuvwxyz  
0123456789*

BRUSH [ROBERT SMITH, 1942]

ABCDEFGHIJKLMNOPQRSTUVWXYZ&  
0123456789

PAPERCLIP [1970S]



**6B: Neo-grotesque.** Revisions of the original Grotesques, these are simpler and more rounded than their predecessors. The tips of the curved strokes may be cut obliquely, and the jaws of letters such as ‘C’ and ‘G’ are much more open. Typical example, *HELVETICA*, designed by Max Miedinger (1910–80) and marketed commercially by Haas Schriftgiesserei from 1957 onward.

**6C: Geometric.** As the name suggests, these faces are constructed of circles, squares and monolines. Originating in the period between the world wars, they are inevitably very plain and can be difficult to read in densely-packed text. Typical example, *AVANT GARDE GOTHIC*, designed by Herb Lubalin and Tom Carnese for *Avant Garde* magazine in 1968–70.

**6D: Humanist.** This subgroup contains plain Lineale faces with noticeable decorative qualities, often drawing influence from Roman inscriptional lettering. Typical example, *OPTIMA*, designed by Hermann Zapf (b. 1918) in 1952 and introduced commercially by D. Stempel AG of Frankfurt/Main in 1958.

## Other groups

**7. GLYPHIC OR ‘CHISELLED’.** This is reserved for typefaces with a distinctively chiselled quality, often noticeable only in the wedge-shape serifs, though the distinctions between glyphic forms and humanist lineales such as *Optima* are often difficult to classify. Typical example: *COPPERPLATE GOTHIC*, developed in 1901 for American Type Founders by Frederic Goudy, who took nineteenth-century titling as his guide.

**8. SCRIPTIC OR CURSIVE.** Faces in this group may have obvious handwritten characteristics. They include a group of italics derived from the so-called Chancery or *Cancelleresca* patterns, based on the work of scribes in the fifteenth and sixteenth centuries. Some incorporate features derived from the copperplate handwriting of the eighteenth century, a few may show distinctive regional or ethnic influences, and others may reflect the influences of twentieth-century poster design. Typical example: *BRUSH SCRIPT* (1942), designed for American Type Founders by Robert Smith

**9. GRAPHIC.** This ‘catch-all’ category contains virtually any letter-form with pictorial instead of calligraphic elements. The Victorians and their forebears enjoyed faces such as *Lettres Ornées* (c. 1820), based on traditional large-scale poster and playbill lettering, for which Deberny & Peignot must take much

**Plate 33.** A small portion of a large advertising-poster produced by Mouldtype Ltd of Preston, showing some of the Gill designs that were still being promoted in the early 1960s.

of the blame, whereas the Art Nouveau movement contributed Jugendstil (c. 1898) and Arnold Böcklin (by Schrift-Giesserei Otto Weiseit, 1904).

Graphic type comes in stupendous variety, with letters which may be composed of stars, small dots, graded lines, twisted shapes, human faces or neon tubes. They range from truly useful to utter rubbish, though the worst aberrations usually fail the test of time. Typical example, PAPERCLIP.

## TYPE AND THE COMPUTER

Though this book deals largely with the products of an earlier age, when individual letters came on tiny metal blocks or as individual windows on strips of film, an acknowledgement of technological progress must be made.

The American-born artist-typographer Beatrice Warde (1900–69), known for her trenchant opinions, wrote a series of essays entitled *The Crystal Goblet* (1955). She suggested that the job of the typographer was to create a window between writer and reader, and that these endeavours were wasted if the reader ‘noticed the glass’. If type or design, good or bad, intruded into the reader’s consciousness, the effect was of stained glass: light could pass through, but little of the image on the other side could be discerned.

Today, her views are often dismissed as too rigid, and there is no doubt that many of the ‘scientific’ studies of comparative readability do not withstand critical scrutiny.<sup>[\*]</sup> Yet they have an echo of truth. I still take the view that most type-matter exists to facilitate exchange of information, as it has done since Gutenberg’s day; and that it should do so with the least possible fuss. The worst excesses have not stood the test of time, and will never do so. However, many of today’s type designs—often based on historical prototypes—are also destined to be regarded as classics.

The ability of modern computer-based typesetting systems to expand, condense, slant and distort lettering has made typematter much more difficult to identify satisfactorily. Neither is ready identification helped by burgeoning

\* Practically all of the studies undertaken prior to the Second World War concluded that traditional serified faces such as Bembo were the easiest to read, and that sans-serif faces fared badly when large amounts of text were to be read continuously. Though some observers still consider these conclusions to be valid, the trials were often based more on arbitrary criteria (e.g., blink-frequency) than on comprehension. More recent experiments have not always been as definitive: people with learning difficulties such as dyslexia, or moving quickly (e.g., in a car), often find that well-spaced sans-serif type is preferable.

GILL SANS ULTRA BOLD—series 442

36pt.

**AMSVZahjlmn**

also in 18-24-48-60-72pt.

and GILL EXTRA HEAVY TITLING 526—72pt.

GILL SANS SHADOW LINE—series 290

36pt.

**AMNOQV abcdefghin**

also in 14-18-24-30-42-48-60-72pt.

GILL SANS TITLING—series 231

36pt.

**ABNRSTUWXY**

also in 6pt. (3 sizes); 12-14-18-24-30-42-48-60-72pt.

GILL SANS BOLD TITLING—series 317

36pt.

**ABCHIKMNOP**

also in 24-30-48-60-72pt.

GILL SANS EXTRA BOLD CONDENSED TITLING—series 373

36pt.

**ADJNQSUVWXYZ**

also in 14-18-24-30-48-60-72pt.

GILL SANS BOLD EXTRA CONDENSED—series 468

36pt.

**ABCDEFGHIJKLMNST abcdefghijklmoprst**

also in 18-24-48pt.

GILL SANS SHADOW—series 304

36pt.

**ABGPSTUVWXYZ**

also in 18-24-30-48pt.

GILL SANS SHADOW No. 1—series 406

36pt.

**ABCDEFGHIJKP**

also in 24-30-42-48-60-72pt.

GILL SANS CAMEO SOLID—series 233

36pt.

**ABCDEFGHIILNU**

also in 24-42-48pt.

GILL SANS CAMEO RULED—series 299

36pt.

**ABCDEFGHIJKLMN**

also in 48pt.

enthusiasm evident in the use of highly decorative lettering, or in the need of fonts suited to digital reproduction. In the earliest days of computing, the coarse resolution of displays favoured only the plainest ‘Old School’ designs. The use of ‘industry standard’ Times New Roman in these circumstances was at best ill-considered, at worst disastrous; many of the first purpose-designed digital typefaces, though they could look strange on the printed page, were far easier to read on-screen than Baskerville, Bembo, Bodoni, Garamond, Plantin or Times. Ironically, such great strides have now been made in liquid-crystal, plasma and similar electronic displays that fonts drawn in fine detail are replacing their crude prototypes.

Among the greatest achievements of the age of digital typesetting is the facility with which special sorts, accents and matching non-Latin character sets can be provided, and the ease with which slanted ‘false italic’ or distorted type can be made. For anyone who was raised during the tyranny of lead, this is truly liberating. Forty years ago, few British printers offered anything other than acute, cedilla, circumflex, diaeresis and grave, perhaps also with an *Eszett*, the German double ‘s’. Printers in the U.S.A. often abandoned accents entirely; and even the French customarily omitted majuscule accents to avoid the use of ‘floaters’ or ‘special sorts’.<sup>[7]</sup> This was all largely due to conservatism: our fathers and grandfathers had not needed accents, ran the argument—though, paradoxically, our great-grandfather scholars, born into an era of classical education, thought nothing of phrases set in properly-accented Greek!

## IDENTIFYING TYPE

Many ‘official’ classification systems are still being promoted, but they are not efficient enough. Several ways of identifying type have been tried. One of the most obvious would be a pixel-counting program which compared a scanned image with data held in memory, but this requires access to a computer and would have to operate intelligently enough to analyse distortion. Software of this type has been offered commercially, but is regularly fooled by worn pre-1945 type, by the variable strength of letterpress strikes, or by the degraded images arising from collotype and intaglio printing.

\* The French, in particular, made use of characters comprising a letter and an accent cast on the same body. However, as the letters were noticeably shorter than the unaccented versions, the practice never became widespread. Similarly, the use of ‘floating accents’, which could be added if the lines were leaded, was another time-consuming method which failed to gain acceptance. It became generally understood, even in Francophone countries, that accents would be omitted from capital letters.

The principal goal of this section is to provide only a basis for identification. Examining type faces, especially in large sizes, allows an appreciation of the subtleties of line, weight and stress to grow. But formal classifications can be difficult to interpret if they include unfamiliar terms, and so these have been reduced here to *archaic* (black-letter), *classical* ('serif'), *plain* ('sans-serif'), *cursive* (including formal script and pseudo-handwritten styles) and *decorative*. Few classification systems can avoid problems completely: for example, those posed by faces such as "Engraver's Gothic". These are usually little more than plain, often slab-like lettering with tiny wedge-serifs at the head or foot of each stroke. In small sizes, the serifs can be all but imperceptible and the type may be listed as 'sans serif'.

The best point of departure is to look at individual letters, particularly if any of them are unusual. A quirky tail on 'g' or 'y', an odd-looking 'w' or an unusually flourished "T" can make identification easy if suitable material is to hand. And even the plainest letters can have distinctive features to set them apart from other fonts.

The 'E' is most commonly used in English and is also one of the plainer letters in a font. But consider these examples, which have been grouped according to the loose classification defined previously. The first group, the *archaic* faces, are all based on black-letter—the type of the mediaeval period, associated with Gutenberg and his fellow German type-founders (though some faces prove to have much more recent origins). Teutonic black-letter, known generically as *Deutsche Schrift*, remained in widespread use until proscribed in Germany in 1940; in its 'Olde Englishe' forms, it retains a perverse popularity and has even been used to make words entirely in majuscule.



I. THE ARCHAIC GROUP

The examples shown here capture the salient characteristics of these faces, including overtly calligraphic shaping of the letter forms, a marked contrast between thicks and thins which prevents casting of very small sizes, and a tendency towards illegibility. The individuality of characters can be baffling,

as they are not always easily differentiated: e.g., ‘G’ (‘G’) and ‘E’ (‘E’). The first example, Hanover Bold by Photolettering, Inc., is based on a Teutonic prototype; next comes Bacculaureate or ‘Copeland Bacculaureate’, a privately created design licensed to Photolettering; the third ‘E’ is Goudy Text, designed by Frederic Goudy in 1928 and marketed by American Type Founders; fourth is “Engraver’s Old English”, an ATF version of a face universally popular in Anglo-American circles; and lastly is the ‘E’ of Medallion, a Photolettering face which is essentially Old English brought up-to-date. Judged overall, faces of this class are usually easily identified, as each has many individual features.



## II. THE CLASSICAL GROUP

If the differences between the examples shown in the archaic group were easily detected, the same cannot be said of the *classical* or *serifed* faces. This is not to suggest that they cannot be distinguished, merely that the points of difference can be small. The five shown here look very similar, but are not identical. Bembo, the first, scarcely betrays its late fifteenth-century origins; the second is Bodoni, originating in the 1770s; then comes Caslon, from the early eighteenth century; Garamond, from the sixteenth century; and Minion, a modern interpretation by Robert Slimbach for Adobe Systems (1990).

All five have notable serifs, including one on the central bar. At a glance they look to be of similar weight, though, on closer inspection, Bodoni (generally classed as the first of the ‘Moderns’) is more angular, particularly where the stem joins the bars at the head and foot. The serifs on the tips of these bars are more wedge-shaped than Bembo (more rounded on the internal surface) and Garamond (nearer triangular, but with perceptible curves). Minion draws the best elements from the others in pursuit of utility: slightly greater weight in the bars and serifs and a narrower body.

The *plain*-type samples are also difficult to distinguish. Compared to the classical romans, with their serifs, the ‘sans serif’ faces struggle for distinction. This does not necessarily make them unsuitable for text setting (they can have great advantages in small sizes), but is a hindrance to identification. The five



examples range from Fette Englischerchrift (first cast by Stempel about 1890), through News Gothic (designed by Morris Benton for Allied Type Founders in 1907), Radiant Heavy (Baltimore Type Foundry), and Helvetica (designed by Max Miedinger for Haas in the 1950s) to comparatively recent Arial.



### III. THE PLAIN GROUP

On first glance, distinctive features seem to be few and far between. Fette Englischerchrift is the narrowest, but it should be remembered that faces of this class have often been condensed and expanded sufficiently to blur identification. News Gothic has a short medial bar and Radiant Heavy has contrast in the form of a strong stem, but Helvetica and Arial look very similar. A careful examination reveals that the top and bottom bars of the 'E' are rarely of equal length. The base-bar is usually fractionally the longer, to counteract the illusion that the letter is rotating forward.

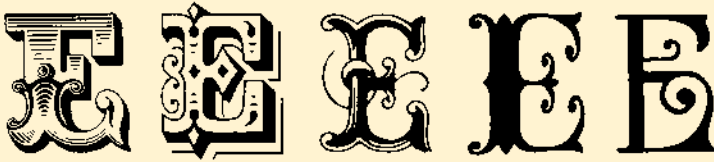
It is often necessary to look at more of the alphabet with these ultra-plain faces, seeking differences that can be subtle. Helvetica and Univers are easily confused, though equally easily distinguished if the reviewer knows that the Helvetica 'y' has a prominent tail-tip whereas the Univers 'y' has a straight tail; in addition, the 'G'-bar is right-angled in Helvetica but straight in Univers.



### IV. THE CURSIVE GROUP

*Cursive* type comes in great variety, ranging from 'swash' or decorative letters associated with some otherwise conventional faces (e.g., Caslon and

Palatino italics) to formal scripts based on eighteenth-century copy books and approximations of handwriting. The examples are Congressional Script, by Ed Benguiat for Photolettering, Inc.; Spencerian by Tony Bonagua for Photolettering; then Stationer’s Semi Script, Grayde and Murray Hill Bold, all by American Type Founders. These progress from formality to informality, and also by simplification of form until the ‘E’ resembles ‘3’ reversed.



V. THE DECORATIVE GROUP

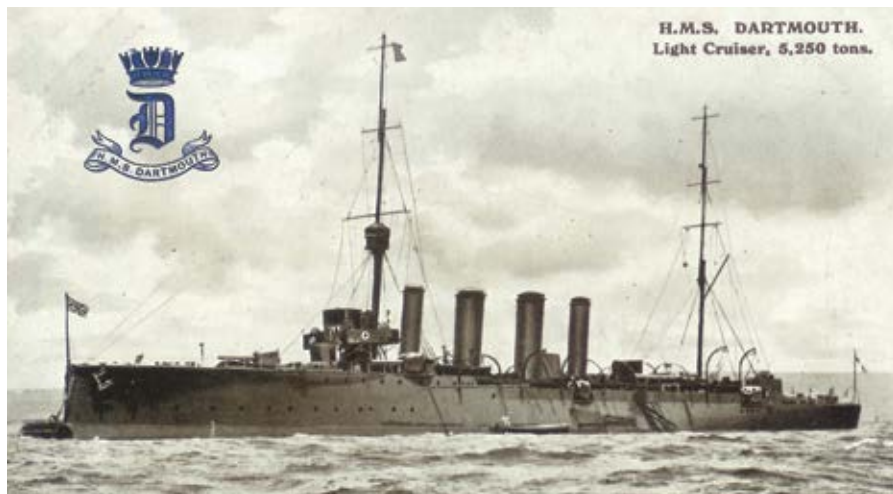
The *decorative* designs are by far the most diverse of all typematter, their styles limited by only the imagination of their creators—and, at least in most cases, some appreciation of the need for legibility. The samples are all by Photolettering, Inc: Braceleret, Tangier, Floradora, Flower, and Nymphic Xenotype. Braceleret clearly has nineteenth-century European origins, as it is similar to some of the fonts cast in France by Deberny et Peignot; Tangier recalls pre-1900 playbills and posters; Floradora and Flower (the latter designed by the great industrial designer F.H.K. Henrion) both have their roots in nineteenth-century designs based on plants; and Nymphic Xenotype has an Art Nouveau influence which, in the case of ‘E’, surrenders clarity to style. All five types are easily to distinguish if (once again!) suitable reference material can be found.

# APPENDICES

A truly amazing amount of information can be obtained from the internet simply by entering the name of a type, a designer or a foundry in any of the popular search engines. Consequently, as these electronic resources multiply daily (and as this book is essentially reflective!), only a brief selection of printed material is listed below.

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**Plate 35.** The caption identifies this light cruiser as HMS *Dartmouth*, though otherwise identical postcards will be found with the names of others in the class. Published by Gale & Polden of Aldershot prior to the First World War, the essence of *Dartmouth* is conveyed by duotone printing in black and pale brown. The Naval Crown, black-letter ‘D’ and scroll were then added in blue and embossed in a die—detailing which can be confused with thermography, which customarily puckers the back of the card and lacks the clarity of line associated with a good die.

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