Hand Casting & Foundry Type

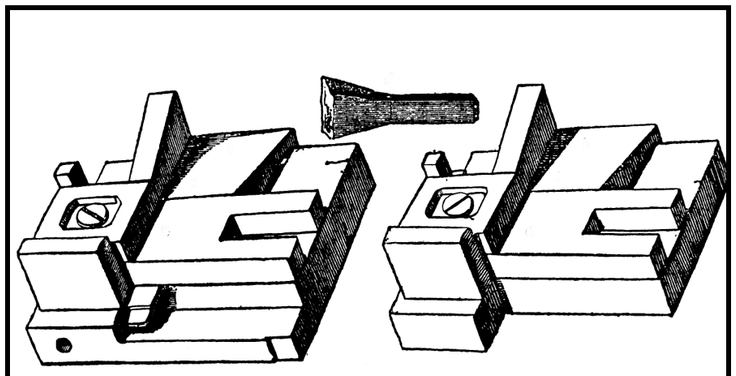
HAND CASTING

Gutenberg is credited with the invention of printing, but books were already being printed on wooden presses before his time. These "block-books" were printed from woodcut pages, usually mostly illustrations, but with the words cut in the wood at the same time as the picture. The Chinese had done such printing centuries earlier, but the idea may have been rediscovered in Europe. Individual cast metal letters for printing had also been invented long before Gutenberg, in Korea, but don't seem to have spread, or even been kept in use, possibly because their production was cumbersome. What Gutenberg seems to have realised, with his background in metalwork and fine casting of jewellery, was the principle of the hand-caster, and the significance of being able to cast quantities of interchangeable, re-useable letters to compose texts for printing.

The hand-caster is simple in concept: two L-shaped pieces of metal are fitted together to form a box thus:  The two pieces can slide to change the width of the box (properly called the m o u l d), but the height is fixed (by the short legs of the Ls), and the depth not seen here, being at right-angles to the paper, is also fixed. A metal matrix punched with the shape of the required letter is placed under the box, and molten metal poured in to cast the piece of type.

There are of course several practicalities to add to this to make it workable. The matrix has to be held in place by a spring clip; the L-shapes need to be held together by screws to keep them at a fixed setting; they need insulated covers (wood) to permit holding the mould in use; and the type is actually cast with a tail ("tang") of excess metal on the end to be removed later, and getting the casting to come out sharp and clear requires a knack in shaking the mould the right way.

The width of the box mentioned above corresponds to the width of the piece of metal on which the letter being cast is made: this is the width of the letter *and the space around it* when it prints. The height of the box is the same for all letters in a matching set of characters (a font or fount of type), and known as the body height. It is the distance from the bottom of one line of printing to the next if no extra spacing material is inserted. The depth of the box is the "height-to-paper" of the finished type, and nowadays is standard for a country. (See the poster about Printers' Measurements for more details.)



A hand mould separated & piece of type with tang still attached

Gutenberg's type inevitably tended to predetermine the dimensions of later printers, at least in the height-to-paper, but the first printers all produced their own type until the industry grew big enough to support specialist suppliers, and so while type would be standard within one firm, it might not match other printers' sizes because it seldom needed to. His hand-casting mould design survived until the nineteenth century saw the introduction of mechanical casting, at first in type-foundries to produce type for sale for hand-setting, and later in the form of mechanical composition machines that cast the type as past of the composition process. One of the earliest books describing the technical processes used in trades, by Joseph Moxon in 1683, gives details of typecasting.

FOUNDRY TYPE

Founders continued to produce type until recently in Europe & America, usually using the Thompson machine, and sometimes adapted Monotype casters. Founders' type uses a slightly different alloy from Monotype and slug-cast type, with some copper which gives added strength, but blocks the jets in composition casters. In addition, the designs of many typefaces were specific to that founder, and unavailable otherwise. Originally, the matrices for casting were hand-punched from steel punches, cut by craftsmen such as Henry Caslon who first started work engraving decorations on guns, but by the mid-nineteenth century pantographic cutters were used to reduce larger designs down to size, and electro-plating methods could copy matrices.

Founders' type is usually marked with one or more round nicks, where Monotype has a square nick, and has two "feet" left where the tang has been filed off—Monotype is cast with a square flat foot. However, these differences are not absolute guides.

Many famous names in type design were typefounders: in Europe, Bodoni, and Fournier, in England Caslon and Baskerville, are the best-known. Many others were employed by foundries, before the rise of Monotype (and later processes). Even today, a very few amateur enthusiasts still continue the tradition, designing & cutting their own punches.

Founder's matrices for a customer's special and a bold Q. About actual size.

John B Easson at The Quarto Press. September 2003. Set in Bodoni