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The Gutenberg Bible

Printing and papermaking were invented in the Far East more than a thousand years before these technologies became known in the West. When the Arabs introduced papermaking to Europe in the late thirteenth century, Fabriano, a small Italian town near the port of Ancona, rapidly established itself as the most important centre of production. Fabriano craftsmen were responsible for a number of papermaking innovations, including the introduction of the watermark and the use of animal gelatine (rather than starch) to size the sheets, thereby producing a smoother surface. The widespread availability of paper boosted a demand for small woodcut prints, which often included some kind of inscription or motto.

The first book printed with moveable type in the Western world was the Gutenberg Bible of 1455. Each page consisted of two columns of text 42 lines long. The style of the type, what we would call Gothic, or black letter, duplicated the standard book hand employed in written manuscripts, and as such carried an air of authenticity.

Johannes Gutenberg (c 1398–1468) was a German goldsmith based in Mainz. Very little is known about how he came to make his discoveries, but it is clear that his skills and knowledge as a metalworker were of critical importance, particularly in the formulation of the alloy that he used to cast type. He also devised an oil-based ink that was more durable than water-based varieties, and adopted a wooden press for printing that was similar to the olive and wine presses of the day.

The first stage in Gutenberg's process of manufacturing type was to make a master punch from hard metal, with the letter carved back to front in relief at one end. This punch was pressed into a soft metal, such as copper, to make a mould or matrix, which was then placed in a holder. Then individual letters were cast by pouring alloy or 'type-metal' into the mould. The matrix could then be reused. The result was that wherever the letter appeared in the text it always looked the same.

Below: Two folios from the Gutenberg Bible, printed on parchment in the workshop of Johannes Gutenberg in 1455. Each page consisted of two 42-line columns.

Gutenberg's method of manufacturing type may have been a radical new form of mass production, but it was costly, labour-intensive and time-consuming. To print even a single page would have required thousands of pieces of type, which would have taken months, if not years, to make. Even so, the process was to remain virtually unchanged until the advent of the Linotype machine in the late nineteenth century.

