

# Six hundred years since the birth of Johannes Gutenberg—inventor of the printing press

## An assessment of his significance

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*“The whole world admits unhesitatingly; and there can be no doubt about this, that Gutenberg's invention is the incomparably greatest event in the history of the world”*—Mark Twain

Recently an American team researching world history over the last centuries declared Johannes Gutenberg to be the “man of the millennium”. In their statement they insisted that with his invention of the movable letter press, Gutenberg had established a vital precondition for huge changes in socio-economic, political and cultural fields which followed in succeeding centuries.

There is a deficit of reliable information about the life of Gutenberg; many aspects of his own biography either remain blank, are the subject of speculation or still under research. Nevertheless the question can and should be posed: who was this man and what is the significance of his invention?

There can be no doubt that the printing press has had an enormous impact on the development of human communication and therefore human history. Many articles have been written about him in the international press to coincide with the six hundredth anniversary of his birth—coming together as it does with the ushering in of a new millennium. Despite somewhat exaggerated attempts to depict Gutenberg as *the* man of the second millennium, one can reasonably describe him as “one among many” who made a huge contribution to human progress.

In its early days, printing was known as the German art or “*Schwarze Kunst*”. It is misleading, however, to depict Johannes Gutenberg simply as the inventor of printing. Printing with the aid of engraved wooden blocks had already been practised in Far Eastern countries such as China, Japan and Korea from the eighth and ninth centuries. Wood block printing only appeared in Europe in the fourteenth century. The technique was arduous and time consuming, with every individual block having to be carved by hand. The technical revolution inaugurated by Gutenberg involved the development of reusable movable type—the basic principle of which survived well into the twentieth century. In this respect he justifiably deserves his title as the “the father of printing”.

Inventors and their inventions have always fascinated human beings throughout history, but the significance of the invention of the movable letter press can be only understood if one becomes familiar with the life and times of the inventor. Gutenberg's life spanned much of the fifteenth century—a period bridging the end of the Middle Ages and the Renaissance, an era of profound social transformation. His own life and character were forged in a period of the decay of the old feudal order and the emergence of pre-bourgeois society based on commodity-money relationships.

Centuries of a relative standstill in terms of human development were finally coming to an end. New technologies were coming into being or had been imported into Europe from other countries and bygone

civilisations. Already in the thirteenth century those returning from the Holy Crusades brought back with them a wealth of knowledge from the Greeks and Romans, lost to educated Europe since the downfall of the Roman Empire. The discovery of gun powder, the compass and the water wheel, paper production, the clock and developments in medicine, astronomy and mathematics, together with the emergence of universities all over Europe, opened up a new chapter in human history.

All of these advances, together with developments in navigation, broke apart old geographical limitations. Following the example of Henry of Portugal (Henry the Navigator), and Columbus's discovery of America in 1492, European navigators began circumnavigating the globe. An expansion took place—mainly from Portugal, Spain and Western Europe—into Africa and the New World. The discovery of “new worlds” and “new peoples” was the by-product of the efforts by mercantile capital to extend trade across the oceans. The exchange and comparison of information, both in the form of maps and printed books, made the globe comprehensible as a resource to be exploited.

During the period of the late Middle Ages the Roman Catholic Church was the biggest single landowner in Europe. In alliance with the feudal aristocracy it represented the most powerful bastion of resistance to change. Its religious doctrine influenced all walks of life and every branch of learning was dominated by the clergy. Students came mostly from the feudal aristocracy and many studied to become members of the priesthood. Much of the power of the Church was based on its ability to enforce the use of Latin as the language of worship.

The invention of movable type press, which made possible the mass printing of the Bible, shook the foundations of the Church. For the first time masses of people were stimulated by printed text and became aware that Jesus Christ was not wealthy, but rather a simple man. New interpretations of the Bible served, above all, the interests of the new merchant class. Old boundaries and divisions—differences of caste and race that divided the masses and cemented the rule of powerful regional kings in the old feudal system—hindered the emerging bourgeoisie. New interpretations of the Bible became an important instrument for breaking the monopoly of the Church and monarchy and enabling the merchants to realise their goal of a powerful nation-state as opposed to dozens of regional fiefdoms.

Fearing growing unrest and opposition to Church authorities amongst the masses, the Church had to re-invent its own regulations and codes of law to survive the upheavals. New lines were added to its own interpretation of the Bible stating: “To possess more money than one needs is a sin”—a clear swipe by the Church and its allies against the merchant class and its popularised ideals.

It was a crime to translate the Bible. “In 1521, William Tyndale, an Oxford scholar, began to translate the Bible into English. He did so

because he was shocked to find that the people of England were scripturally illiterate. Tyndale translated the Bible into English, printed copies of his version at Antwerp, and illegally smuggled the Bibles into England. In 1535, he was betrayed by a fellow Englishman and was burnt at the stake. His last words, reportedly, were “Lord, open the king of England’s eyes!”

The single greatest challenge to the hegemony of the Catholic Church was initiated in Germany at the beginning of sixteenth century by Martin Luther, whose publication of the Bible in the German language initiated what was to become later known as the Protestant Reformation. During the Middle Ages illiteracy was the norm in Europe; religious propaganda for the masses had been largely communicated through the spoken word and images. Luther’s powerful challenge to the monopoly of the Catholic Church came in the form of books—notably Bibles and prayer books in vernacular (non-Latin) languages.

The shift from a religious focus and the worship of god to other, more earthly horizons created a new demand for printed matter. The rise of the university and libraries available to scholars filled the growing demand for books, including those of a secular nature. An increasingly literate public was able to confront the emerging fields of science as a whole. The rise of science finally sounded the death bell for the supremacy of the Church.

Despite the demand for knowledge, created by the rise of the universities, the technology to further motivate this process was still in a primitive stage. Elizabeth Eisenstein (a researcher and writer on the Middle Ages as well as printing) argues that this was one of the reasons for the eclipse of the early “Italian renaissance”. Though the universities remained, “the original burst of scholarship could not be maintained because the communication system was inadequate to the task” (Elizabeth Eisenstein, *The Printing Press as an Agent of Change*, 2 vols.. Cambridge: Cambridge University Press, 1979).

It is within this context that the significance of Gutenberg’s invention of the printing press must be seen. It created the sole base for the circulation of the vast knowledge of the late golden renaissance. The printed book became the means of establishing the vernacular language as a medium for understanding literary texts, which themselves were to play such a major role in the democratic revolutions of later centuries (see note below).

### **The life of Johannes Gutenberg**

Although the exact year of Gutenberg’s birth is not known, it is estimated he was born around the year 1400. He was the son of a merchant in one of the largest towns in Germany—Mainz, a town renowned for its wine with a population of over 6,000 and residence of an elector, one of the mightiest princes of the Church in Germany. Johannes Gutenberg was the third of three children. His real name was Johannes Gensfleisch, but he encountered some problems with his surname, which translates into English as “goose-flesh”. He adopted the name of the area where his family lived, “Zum Gutenberg”. In his youth he was educated in Latin by the clergy, and without his training in Latin his later work may well have proved impossible.

In the early decades of the fifteenth century Mainz, lying on the River Rhine, was a significant centre for trade. The town had 40 churches soaring to the skies, mocking the mere mortals forced to eke out their existence in the streets below. Gutenberg lived there until about 1428, learning the goldsmith craft and working for his father. The years 1428-34 are unwritten pages in his biography. It is not clear where he lived during this period, however records say that from 1434 until 1444 he lived in Strasbourg—possibly in a sort of exile imposed by the Mainz town authorities for tax irregularities. It was in Strasbourg that he devoted his time, talents and material means to make the necessary preparations for the printing of the Bible.

“He trained under his father in metal working and spent some time in Strasbourg perfecting his skills in jewel making, gem cutting and a variety

of other crafts. Although he found little success in making souvenirs and trinkets for religious pilgrims; one item in his line did bring some profit and spurred the printing idea.

“Gutenberg cast a metal stamp for printing indulgences, (those Church contracts that Martin Luther hated so much). There was more of a profit motive in the business than any religious calling. If one could make money stamping out little scraps of paper, what could be made by taking on the ‘big job’—the whole Bible itself. As early as the 1430s, he was working on an idea for a printing press” (Frank Granger, *Gutenberg—The Most Important Man of the Millennium* <http://teched.edtl.vt.edu/gcc/HTML/PrintingsPast/GutenbergBible.html>)

In one of the most extraordinary ironies of history, Gutenberg’s efforts to make his fortune by popularising the Bible were to play a decisive role in the undermining of the influence of the organised church.

Biographies of Gutenberg note his bitter disputes with his business partner, a man named Fust who had invested money in Gutenberg’s work and shared the rights to Gutenberg’s print shop. Fust was a wealthy German merchant who, like all merchants, was looking for a healthy return on his investment. While Gutenberg was struggling to develop a printing machine which was cheaper, simpler, faster and more reliable, Fust demanded concrete results and was concerned that his outlay of finance was misplaced. Although Gutenberg and Fust belonged to the same new-merchant class, Gutenberg was driven by the spirit of innovation (most probably with the intention of earning more money) and this was sufficient to cause friction between the two.

In 1448, soon after his return to Mainz, Gutenberg borrowed 150 gulden from Johannes Fust—at that time a sum equivalent to five years’ income of an average peasant. Once again in 1450 he borrowed a further 800 gulden from Fust—equal to the cost of building 10 peasant houses out of stone. With this capital Gutenberg had the necessary means to realise his invention and began melting the letters for printing. However, Fust became increasingly impatient as Gutenberg’s experiments went on for years without discernible results. He was forced to take credit from Fust for a third time in 1452, once again a sum of 800 gulden.

Finally, in the year of 1456, Gutenberg printed his first Bible. Even before the Bible was made available to the public, Fust, encouraged by his son-in-law Peter Schöfer—the third partner of the print shop—demanded that Gutenberg repay his credits with 6 percent interest. The debt at this time amounted to 2,026 gulden—enough to finance the construction of an entire street in Mainz. Gutenberg sought to defend himself in the courts, lost the case and was forced to give up the print shop, including his invention, to Fust. Fust made a fortune as sales of the Bible soared, but not a penny went to Gutenberg.

In the final period of his life Gutenberg experienced great hardship. His sister and brother passed away and he became the last surviving member of his family. After losing his print shop he lived in poverty until 1465, when he finally received some support by the city of Mainz, which, according to town reports, allocated him annually 2,180 litres of grain, wine and a quantity of cloth for his “personal use”. Gutenberg researchers believe that he passed away in Mainz at the age of 68 in February 1468. Today his remains rest beneath the Franziskus church in Mainz.

### **Gutenberg’s Bible**

Gutenberg’s Bible was also known as the 42-line Bible, referring to the number of lines on each page of the printed book. The Bible numbered 1,282 pages in all, and was the first book to utilise movable type printing. This was a system in which pieces of type (a series of blocks each bearing a single letter on its surface) could be assembled and reused in multiple combination to print a variety of texts. It was printed on a hand press, in which ink was rolled over the raised surfaces of hand-set letters held together within a wooden form. The form was then pressed against a sheet of paper, successfully printing on both sides of a sheet of paper.

When the Bible was finally published as a printed book in the year 1456

the overwhelming majority of European people were illiterate. At the end of the fourteenth century in northern Germany only 5 percent of the population could read. But the emergence of the new medium would have immediate consequences. By 1500 almost 40,000 editions of the Bible had been printed throughout Europe. Within just three decades this new technology had spread all over Europe. Only a handful of innovations can claim to have had such a rapid and far-reaching influence in human history.

Gutenberg's original Bible, written in Latin and printed in a very thick rich black ink, still remains vividly legible even after the passing of many centuries. Gutenberg printed nearly 180 copies of his Bible and it was an immediate bestseller. Only 49 copies of the original print-run remain in existence. They are to be found in the British Library in London, the *Bibliothèque Nationale* in Paris, the Library of Congress in Washington DC, the Gutenberg Museum in Mainz, and in the possession of the German state of Niedersachsen. At a recent auction one of the Gutenberg Bibles changed hands for \$2.4 million. (The Gutenberg Bible is also accessible in digital form at <http://www.gutenbergdigital.de/>.)

Nearly 500 years have elapsed since the invention of the movable type printing machine. Since then the printing industry has gone through enormous technological advancements. No observer can fail to be amazed at the speed, power and capacity of the new digital and computer-controlled print machines on exhibit at the "Drupa" (the biggest printing and paper exhibition held once every four years in Düsseldorf, Germany).

The recent development of Internet technology has led a number of experts to predict the end of "Gutenberg's Galaxy". In their view, rapid developments in communication will put an end to printed material. But evidence indicates that the development and popularising of technologies where books are available on CD-ROM or directly on the web as "books online" have not replaced printed books, but instead function as an important supplement to reading as a whole. We can therefore anticipate that the world will be able to celebrate the anniversary of the birth of Johannes Gutenberg for many years to come.

**Note:**

At the turn of the nineteenth century the outstanding German poet Fredrich Schiller wrote: "It is remarkable what a huge role the art of printing and publicity as a whole played in the rebellion in the Netherlands. Through a printed organ a single hothead could speak to millions" (Schiller's *History of the Downfall of the Netherlands*).

**Background literature:**

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