

THE PRINTING PRESS

Steven Kris — *historyguide.org* (adapted)

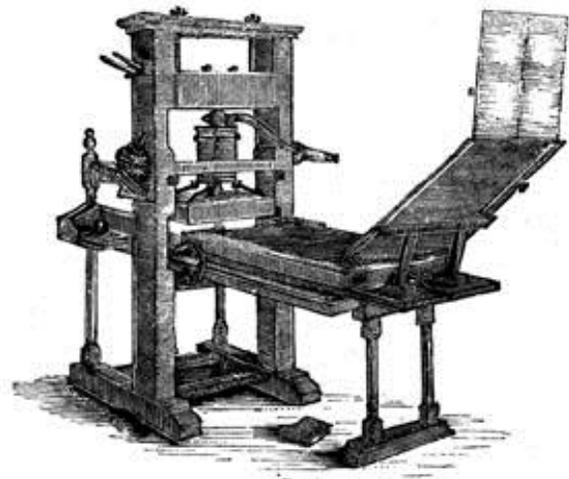
Two factors worked to accelerate the spread of Renaissance culture after 1450: **growing economic prosperity** and the **printing press**. This period of prosperity, resulting from a decrease in warfare together with the decline of famine and the plague, led to the founding of schools and colleges. In these schools the sons of gentlemen and nobles would receive a humanistic education imported from Italy. The purpose of such an education was to prepare men for a career in the church or civil service.

Sometime in the 13th century, paper money and playing cards from China reached the West. They were "**block-printed**," that is, characters or pictures were carved into a **wooden block**, inked, and then transferred to paper. Since each word, phrase, or picture was on a separate block, this early printing method was **expensive** and **time-consuming**.



Chinese Woodblock Printing: A large wooden stamp was used to reproduce a single page.

The extension of **literacy among laypeople** (common people) and the greater dependence of governments and businesses upon **written records** created a demand for a less-costly method of reproducing the written word. The import of paper from the East as well as European-made "block-books" were major steps in transforming the printing of books. However, **woodcuts** were not sufficiently **durable**, as they tended to split in the press after repeated use. Furthermore, a **new block had to be carved** for each new impression, and the block was discarded (thrown out) as unusable as soon as a slightly different impression was needed.



By the middle of the 15th century several print masters were on the verge of perfecting the techniques of printing with **movable metal type**. The first man to demonstrate the practicability of movable type was **Johannes Gutenberg** (c.1398-1468), the son of a noble family of Mainz, Germany. A former stonecutter and goldsmith, Gutenberg devised an alloy of lead, tin, and antimony that would melt at low temperature, cast (shape) well in the die (metal mold), and be durable in the press. It was then possible to use and reuse the separate individual-letter type pieces, as long as the metal in which they were cast did not wear down, simply by arranging them in the desired order.

The mirror image of each letter (rather than entire words or phrases), was carved in relief on a small block. **Individual letters, easily movable**, were put together to form words; words separated by blank spaces formed lines of type; and lines of type were brought together to make up a page. Since letters could be arranged into any format, an infinite variety of texts could be printed by **reusing and resetting the type**.



By **1452**, with the aid of borrowed money, Gutenberg began his famous Bible project. Two hundred copies of the two-volume **Gutenberg Bible** were printed, a small number of which were printed on vellum. The expensive and beautiful Bibles were completed and sold at the 1455 Book Fair in Frankfurt, Germany, and cost the equivalent of **three years' pay** for the average clerk. Roughly fifty of all Gutenberg Bibles survive today.

In spite of Gutenberg's efforts to keep his technique a secret, the printing press **spread rapidly**. Before 1500 some 2500 European cities had acquired presses. German masters held an early leadership, but the Italians soon challenged their dominance. The Venetian printer Aldus Manutius published many works, notably editions of the **classics of Greece and Rome**.

The **immediate effect** of the printing press was to **multiply the output** and **cut the costs** of books. It thus made information available to a much **larger segment of the population** who were, of course, eager for information of any variety. Libraries could now store greater quantities of information at much lower cost. Printing also facilitated the dissemination (distribution) and preservation of knowledge in standardized form -- this was most important in the advance of **science, technology, and scholarship**.

The printing press certainly initiated an "**information revolution**" on par with the **Internet** today. Printing could and did **spread new ideas quickly** and with greater impact.

Printing stimulated the literacy of lay people and eventually came to have a deep and lasting impact on their private lives. Although most of the earliest books dealt with religious subjects, students, businessmen, and upper and middle class people bought books on all subjects. Printers responded with moral, medical, practical, and travel manuals. Printing allowed **new political and religious** ideas to spread quickly, provided a superior basis for scholarship, and prevented the further **corruption of texts** through hand copying. By giving all scholars the **same text** to work from, it made progress in critical scholarship and science faster and more reliable.

