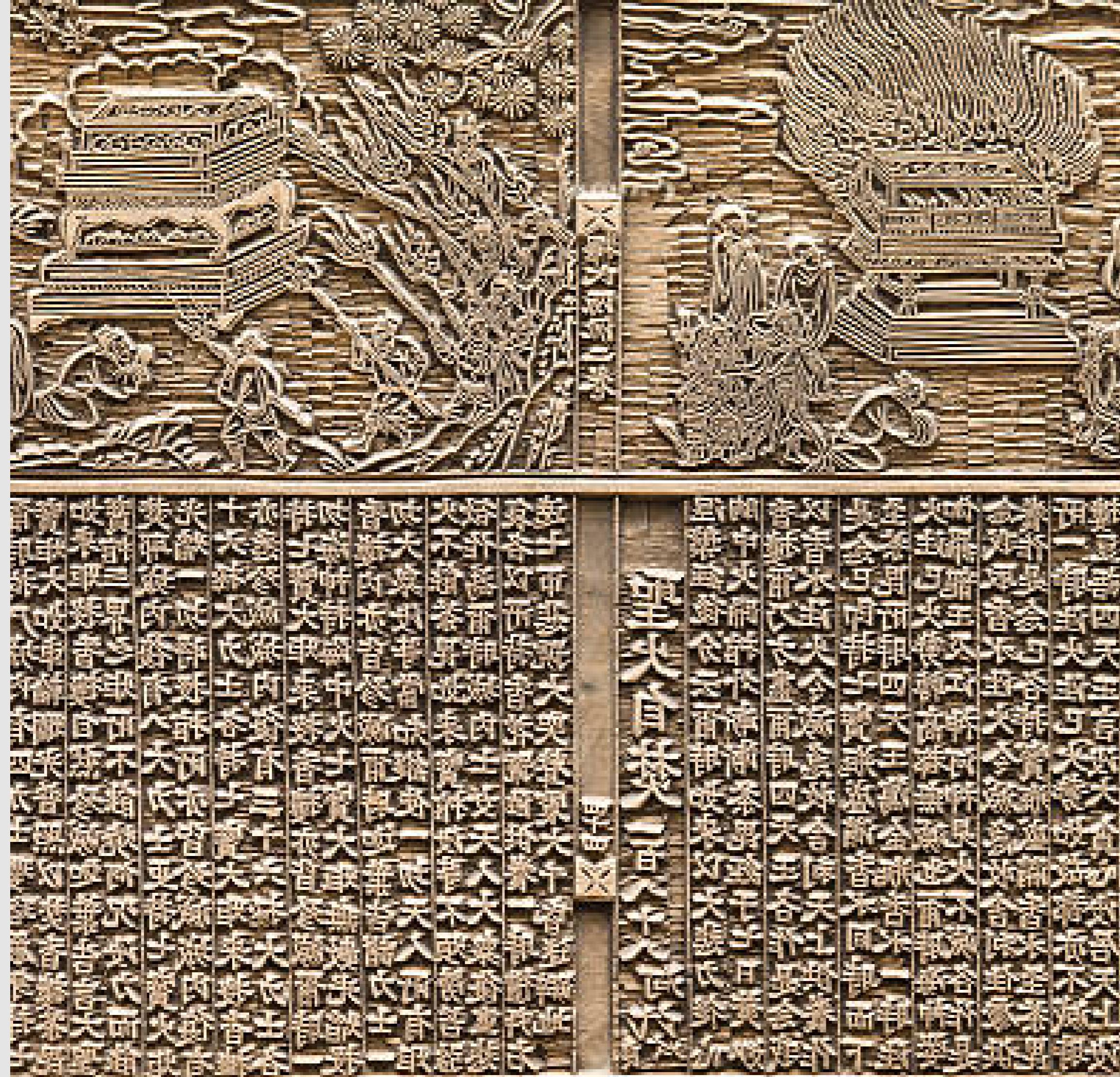


introduction

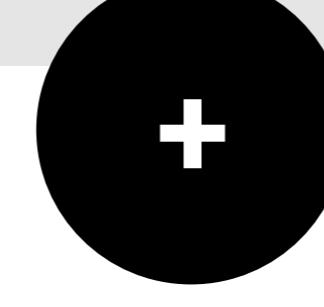
Printing in East Asia evolved from ink rubbings made on paper or cloth from texts on stone tables in China during the Han dynasty. **Mechanical woodblock printing** on paper started in China during the Tang dynasty. The use of woodblock printing quickly spread to **other East Asian countries**. While the Chinese used only clay and wood movable type at first, use of metal **movable type** was pioneered in Korea. The **Western-style printing press** became known in East Asia by the 16th century but was not fully adopted until centuries later.

woodblock printing

In the woodblock technique, ink is applied to letters carved upon a wooden board, which is then pressed onto paper. With moveable type, the board is assembled using different lettertypes, according to the page being printed. Wooden printing was used in the East from the 8th century onwards, and moveable metal type came into use during the 12th century.



The earliest specimen of woodblock printing on paper, whereby individual sheets of paper were pressed into wooden blocks with the text and illustrations carved into them, was discovered in 1974 in an excavation of Xi'an (then called Chang'an, the capital of Tang China), Shaanxi, China.^[6] It is a dharani sutra printed on hemp paper and dated to 650 to 670 AD, during the Tang dynasty (618–907). Another printed document dating to the early half of the Chinese Tang dynasty has also been found, the Saddharmapuṇḍarīka sutra or Lotus Sutra printed from 690 to 699.



The manuscript is transcribed onto thin slightly waxed sheets of paper by a professional calligrapher. The wax prevents the ink from being as readily absorbed into the paper, allowing more ink to be absorbed onto another surface. The paper is placed ink side down onto a wooden block on which a thin layer of rice paste has been thinly spread. The back of the paper is rubbed with a flat palm-fibre brush so that the wet rice paste absorbs some of the ink and an impression of the inked area is left on the block. The engraver uses a set of sharp-edged tools to cut away the uninked areas of the wood block in essence raising an inverse image of the original calligraphy above the background.



movable type

Wooden movable type was also first developed around 1040 AD by Bi Sheng (990–1051), as described by the Chinese scholar Shen Kuo (1031–1095), but was abandoned in favour of clay movable types due to the presence of wood grains and the unevenness of the wooden type after being soaked in ink.



A revolving typecase for wooden type in China, from Wang Zhen's book published in 1313.

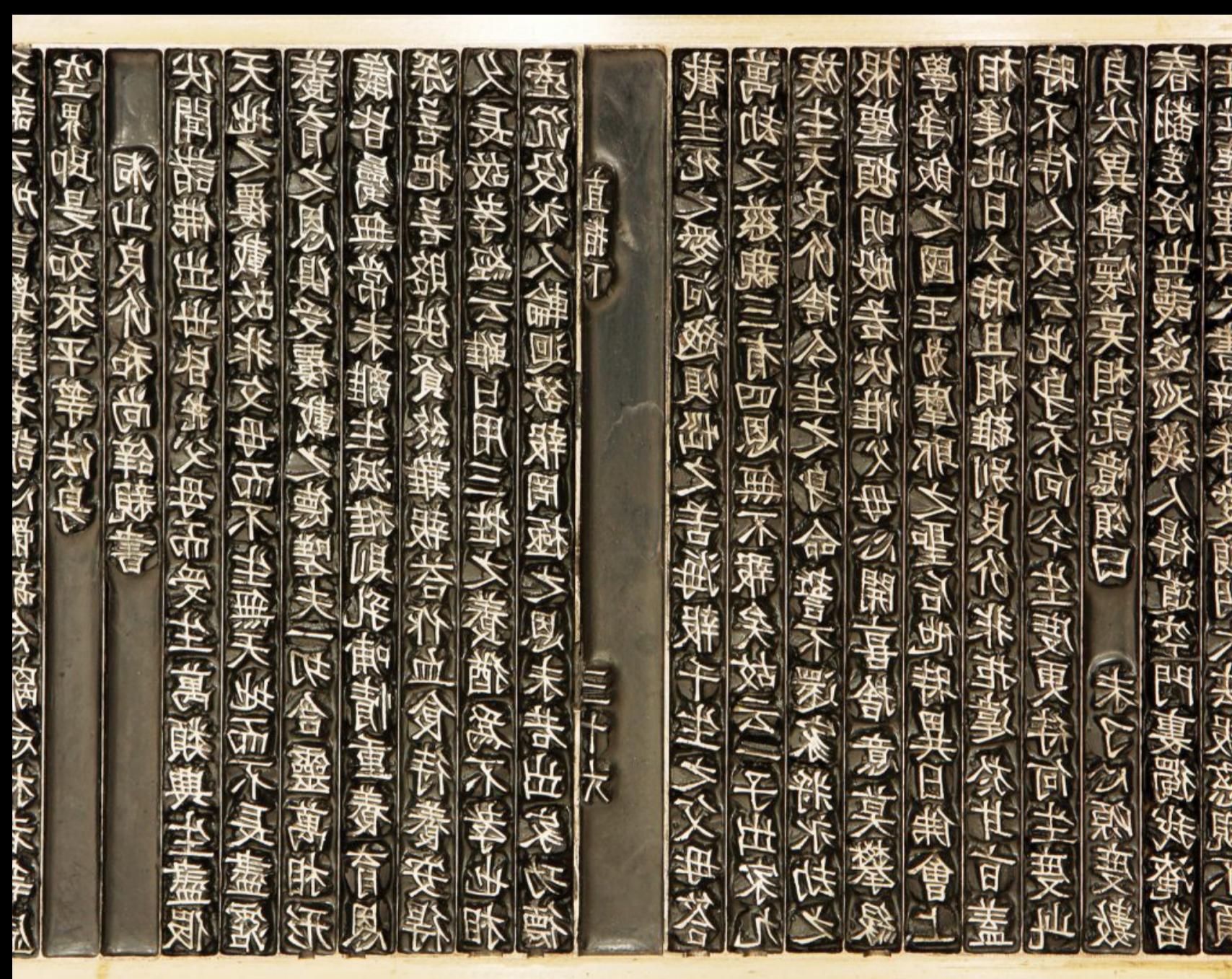
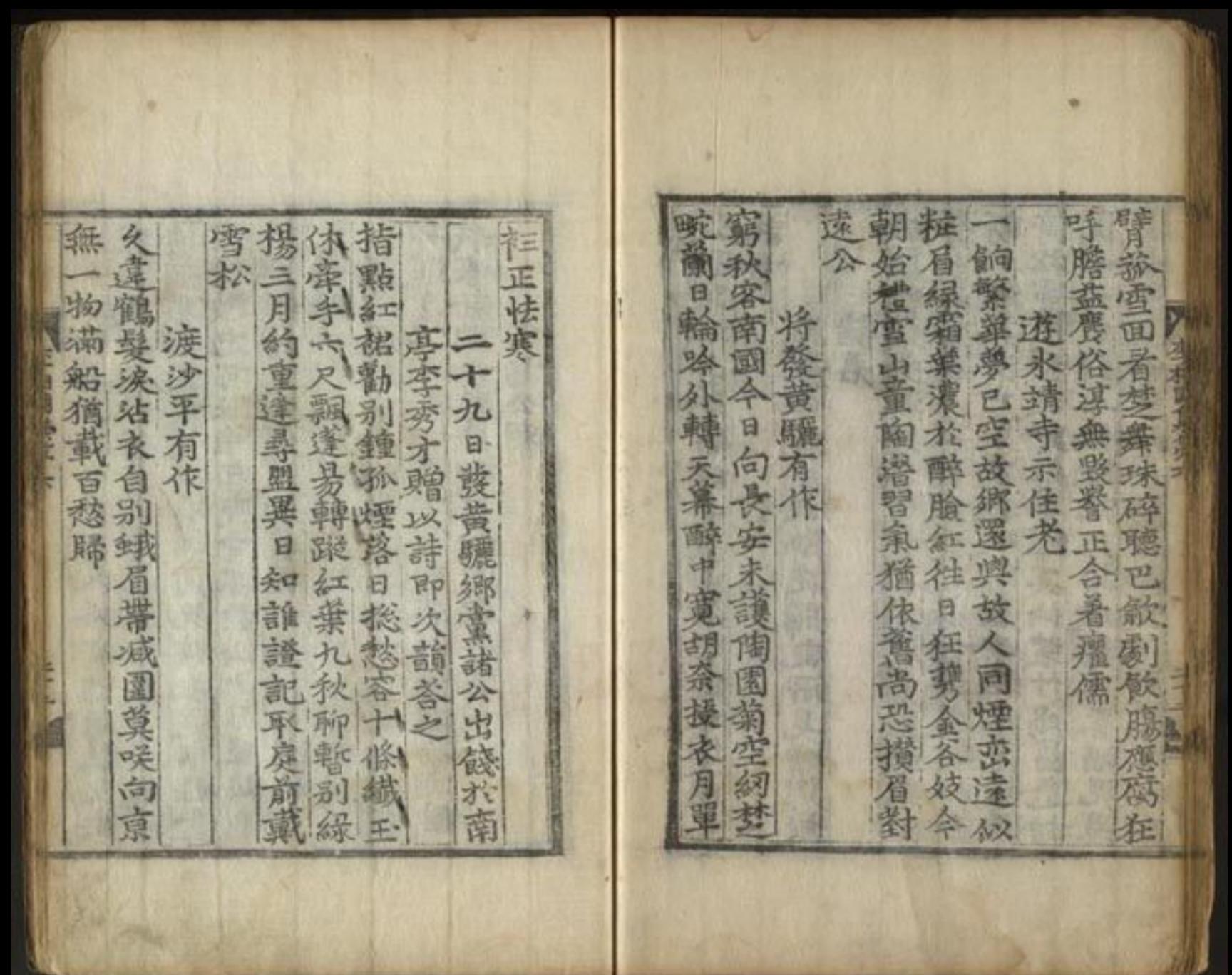
In 1298, Wang Zhen, a Yuan dynasty governmental official of Jingde County, Anhui Province, China, re-invented a method of making movable wooden types. He made more than 30,000 wooden movable types and printed 100 copies of Records of Jingde County, a book of more than 60,000 Chinese characters. Soon afterwards, he summarized his invention in his book "**A method of making moveable wooden types for printing books.**" This system was later enhanced by pressing wooden blocks into sand and casting metal types from the depression in copper, bronze, iron or tin. This new method overcame many of the shortcomings of woodblock printing. Rather than manually carving an individual block to print a single page, movable type printing allowed for the quick assembly of a page of text. Furthermore, these new, more compact type fonts could be reused and stored. The set of wafer-like metal stamp types could be assembled to form pages, inked, and page impressions taken from rubbings on cloth or paper. In 1322, a Fenghua county officer Ma Chengde in Zhejiang, made 100,000 wooded movable types and printed 43 volume Daxue Yanyi. Wooden movable types were used continually in China. Even as late as 1733, a 2300-volume Wuying Palace Collected Gems Edition was printed with 253500 wooden movable type on order of the Yongzheng Emperor, and completed in one year.

mechanical

Mechanical presses as used in European printing remained unknown in East Asia. Instead, printing remained an unmechanized, laborious process with pressing the back of the paper onto the inked block by manual "rubbing" with a hand tool.[50] In Korea, the first printing presses were introduced as late as 1881–83, while in Japan, after an early but brief interlude in the 1590s, Gutenberg's printing press arrived in Nagasaki in 1848 on a Dutch ship.



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