NOTES

282

Chapter 23

THE WIDE USE OF MOVABLE TYPE

IN KOREA

Korea came under the domination of the Mongol Empire before the
death of Jenghis Khan but retained throughout the Mongol period
a certain amount of autonomy, the kings of the native Koryu
dynasty merely receiving their appointment from the Grand Khan
and acknowledging his suzerainty. After the imperial court had
become thoroughly Chinese under Kublai and his successors, it
became the custom of the Korean kings to spend a large part of
their time at Cambaluc (Peking). Korea had always been accus-
tomed to draw her cultural stimulus from China, but during the
Mongol period this cultural connection became peculiarly close.
One copy of the Korean edition of the Tripitaka, begun in 1256
and completed in 1254, was donated in 1308 to the Yüan court and
was sent to Mongolia in 1312.

In 1314 a library of 10,800 books
was brought to Korea from Nanking, to which the Mongol emperor
added some 4,070 volumes. The relationship that was established
at this time brought Korea in closer contact with the countries of
Central Asia, and it is generally believed that the large number of
Sanskrit and Tibetan books that are still found in the monasteries
of Korea date from the Mongol period.

The last years of the Mongol dynasty and the first years after
its overthrow were a time of misgovernment and anarchy in Korea.
The last degenerate kings of the Koryu line spent their time in
pleasure and license at the court of Cambaluc and, after the Mongol
dynasty had been overthrown, in stupid vacillation between alle-
giance to the defeated Mongols and allegiance to the victorious
Ming. Meanwhile the country was altogether a prey to Japanese
pirates. In 1392, Korea’s great hero, General Yi, put an end to this
condition by deposing the last weak Koryu king and taking the throne, thus ushering in a line of energetic rulers who for a century gave Korea the best government the country has known. This century of good government, under kings who were not only strong rulers but patrons of literature as well, was the time when Korea led the world in printing and developed to a high degree the use of metal type.

The earliest mention of such type goes back to the period when Korea was under Mongol domination. In 1241, in the last year of his life, Yi Kyo-bo (1168-1241), put movable type to use with the publication in twenty-eight volumes (pen) of the Sangjong Yeonun, a work of fifty chapters (chian). There are indications that Yi's quiet statement of fact may be true. In the British Museum there is a book printed with type in Korea that on two title pages bears dates equivalent to 1317 and 1324. But the authority for these dates is not convincing, and the British Museum book may easily be a reprint containing the dates of the two original block-printed works. Maurice Courant takes note of a Korean book, dated 1377, which declares that it was printed by means of movable type. The earliest official date for Korean typography under the aegis of the court is the starting of the "Department of Books" in 1392. The Korean annals for this year relate: "A department of books was established, which had as its responsibility the casting of type and the printing of books." By 1403 the government type foundry was established. Quite naturally Korean writers of the next century regarded the latter year, the time when the department actually began work, as marking a new era in the history of printing.

Whereas in Eastern Asia, as later in Europe, the beginnings of block printing had been so gradual and unheralded as to be almost untraceable, the first official use of metal type for the printing of books was immediately hailed as a great invention. Both the Korean annals and the prefaces of the books printed abound in ascriptions of praise to the kings who have enhanced the glory of their reigns by fostering this great invention.

The new department apparently did little till the year 1403. Two years before this the founder of the dynasty had died, and the energetic crown prince, to whose skill the successful establishment of the dynasty had been largely due, had come to the throne under the name of Taajong. A reformer whose energy and ability brought about radical changes in Korean life, Taajong is regarded by many as Korea's greatest king. The notice in the Korean annals of the beginning of official typography is as follows: "In the third year of Taajong (1407), the king thought with sadness of the fact that so few books could be printed. He founded therefore an establishment for the making of type and had books printed with them. The carrying on of the work was put in the hands of certain officers [here follow the names], and the metal for the purpose was furnished by the government." A fuller account of this same event appears in the preface of a book Sonja suisajju which, according to a statement on its title page, was printed with movable type in 1499 and a copy of which is still preserved:

In the second moon of the first year of Unglo (1403), the king said to his attendants, "Whosever is desirous of governing must have a wide acquaintance with the laws and the Classics. Then he will be able to act righteously without and to maintain an upright character within, and thus to bring peace and order to the land. Our eastern country lies beyond the seas, and the number of books reaching us from China is small. The books printed from blocks are often imperfect, and moreover it is difficult to print in their entirety all the books that exist. I ordain therefore that characters be formed of bronze and that everything without exception upon which I can lay my hands be printed, in order to pass on the tradition of what these works contain. That will be a blessing to us all eternity. However, the costs shall not be taken from the people in taxes. I and my family, and those ministers who so wish will privately bear the expense." Then was money in great abundance given from the private treasury of the king, and officials appointed [list of names] to superintend the undertaking and to carry it out. The Book of Poetry, the Book of History, and the Commentaries of Yoo were given from the royal palace to furnish models for the type. The casting began on the nineteenth day of the same month, and within a few months several hundred thousand type had been cast. . . . These type were cast in order that all books might be printed. May they extend to a myriad volumes.
in number and be handed down through a myriad of generations.

Thus vast was the design, so deep and far-reaching the thought that
inspired it.18

This preface is dated in the eleventh month of the same year (i.e.,
between December 14, 1403, and January 13, 1404) and appears in
exactly the same form in books printed in 1409, 1434, and 1437.

That this event was regarded by Korean writers as, on the one
hand, connected with the Chinese invention of movable type, and,
on the other, as marking a new era in the history of printing, is
indicated by the following statement written in Korea toward the
close of the century.

The movable type method was begun by Shén Kua14 and
brought to perfection by Yang Wei-chung. All old and new books
in the world could be printed with these type, so that their use was
very great. But the type were usually made of burnt earthenware,
were easily broken, and were not durable. After some hundreds of
years there had been great progress in intelligence, and then type were
made of bronze in order to preserve them forever. I am confident
that the beginning of this was under our dynasty. Kongjìng Wang
[another name of Taijìng, the dates of whose reign are 1401 to 1418]
was the first to make them. Changhón Wang [1419–50] and Hyejong
Wang [1456–68] carried on the work. Then the perfection of mov-
able type could go no further... From the time of Kija [the re-
puted founder of the Korean kingdom, about 2027 b.c.] Korea has
been a literary nation, but, being separated from China, there has
been a lack of great books. Fortunately through the inventive wis-
dom of the sages of our dynasty, who have discovered the art of casting
type to print books, all Classics, histories, books of philosophy, and
literary collections are in every home.19

Improvements—and with them new fonts of type—followed one
another in rapid succession, ten royal decrees relative to the casting
of new fonts being recorded from 1403 to 1416. The best writers
in the land were employed to write characters as models for the
typemakers, and the autographs of ancient Chinese calligraphers
were also used. The enthusiasm went so far that, when there was
lack of bronze, the bells of ruined monasteries and vases and instru-
ments belonging to individuals and to various government depart-
ments were melted down.10

Ch. 23] USE OF MOVABLE TYPE IN KOREA

The second font was cast in 1420,17 and a record of its founding
is preserved in the second preface (dated 1422) of a book printed in
1437.18

The invention of cast type for printing all kinds of books for
transmission to posterity is truly of infinite advantage. But at first
the type thus cast did not attain to the highest degree of perfection,
and printers lamented that the work was difficult to perform. In the
eleventh month of the eighteenth year of Yunglo [1448]. His High-
ness of his own motion ordered his officer Yi Chang, a vice-president
of the Board of Works, to cast a fresh set of type to be very fine and
small, and he commanded the following officers [titles and names]
to superintend and carry out the undertaking. The work was com-
pleted within the space of seven months. The printers found these type
more convenient, and were able with them to print at the rate of
twenty sheets a day. Our late king, Kongjìng Wang [1401–18], had
already done the same thing, and now His Highness, our present
sovereign, has extended his work. It would be impossible to add to
the perfection of the workmanship. Thus there will be no book left
unprinted, and no man who does not learn. Literature and religion
will make daily progress, and the cause of morality must gain enor-
mously. The T'ang and Han rulers, who considered the first duty
of the sovereign to be finance and war, are not to be mentioned in
the same day with the sovereign to whom this work is due. It is cer-
tainly an eternal and boundless piece of fortune for this Korea of
ours.19

The fine print was found to be unsatisfactory, and in 1434 a
new font with larger type was ordered cast.

In the seventh month of the ninth year of Sōnjang [1434], His Highness said to Yi Chang, "The books printed with type, cast under
your superintendence, are certainly very beautiful and admirable, but
it is to be regretted that the characters are difficult to read, owing to
their small size. It would be a fine thing to cast a fresh font from
written characters of a larger size." So he ordered him to super-
intend the undertaking. A commencement was made on the 12th day
of that month [August 16th] and in two months' time over two
hundred thousand type had been cast. On the ninth day of the ninth
month [October 11th] the printing was begun, and it was found possible to print more than forty sheets a day. The clearness and
exactness of the type made the labor twice as easy as under the old
conditions... After two successive reforms the type cast had at-
tained the greatest possible degree of beauty and are indeed a treasure for this Korea of ours for all time to come.20

These three fonts were certainly cast before the invention of printing in Europe—in 1409, 1420, and 1434. They were followed by new fonts in 1436, 1450, 1456, and 1466 and finally by a very magnificent printing outfit in 1484. It is evident that a large number of books was printed from each font. Sir Ernest Satow in 1882, in two libraries in Japan, found thirty-seven books still preserved, dating from 1409 to the end of the century, the oldest of which bear the dates 1409, 1433, and 1437. A much larger number are now to be seen in the monasteries and libraries of Korea and Japan.

Like the Uighurs, the Koreans came so close to the use of alphabetic type that it seems strange that they should have stopped at the threshold of this further advance. From the earliest times Chinese had been the literary language of Korea. The Koreans had also worked out a method of expressing their own language more or less clumsily in Chinese characters. But during the Mongol period Koreans came closely in contact with the alphabet-using peoples of Central Asia—people whose languages were more akin in structure to their own. Large numbers of Sanskrit and Tibetan books found their way into Korean monasteries, and the study of foreign languages became a matter of interest. The result was that during the reign of the great literary king, Changhŏn Wang (1419-1459), who followed T'aijong, a Korean alphabet was evolved—a perfectly phonetic alphabet based largely on Sanskrit. Just one book of early date in movable type in the new alphabet is extant.21 It is dated 1434. But it is printed in even more complicated form than that used by the Uighurs. It is in parallel columns, Korean and Chinese, the Korean showing the pronunciation of the Chinese characters. Each Chinese character with its corresponding Korean phonetic symbols forms a type. Again, as in the case of the Uighurs, printing was done with movable type in an alphabetic language, but again the idea of type representing single letters was, so far as is known, not thought of.

Most of the books produced in Korea from metal type are royal editions. The title pages are in large characters, and prefaces in facsimile of the handwriting of the author are printed from blocks. Very frequently the title page mentions the fact that movable type were used. The style of the characters is that of Sung writing—a style that continued to be used down to the last century—so that early and late books are almost impossible to distinguish unless there is a date on the title page. During the early period Korean typography was confined to classical literature and books of history and morals.22 Buddhist books in movable type are almost non-existent.

De Vinne, in his book on the invention of printing in Europe, writes, "The inventor of printing did not invent paper and did not originate engraving on wood. He was not the first to print upon paper, he was not the first to make printed books, it is not certain that he made the first press, it is not probable that he was the first to think of or make movable type. What he did was to invent the type mold—the first therefore to do practical and useful work."23 The type mold then was the key to the invention of typographic printing. And it was the type mold that the Koreans developed. That is the significance of Korean printing. But it was a very different type mold from that of Europe. The European mold makes type so uniform that they naturally lock together and keep their alignment. The Korean type required mechanical contrivances, either a plate of wax or bamboo strips, and probably also a metal rod fitted into grooves of the type, to hold them in place. Song Hyon, writing between 1495 and 1507, thus described the Korean process:

Characters were cut first from beech wood, these were the models. Then sand was taken from the shore of the sea where the reeds grow. This was placed in a trough and the wooden letters pressed against it. In this way the negative molds were made, from which the type were cast. Over these was placed a cover with openings, and melted bronze poured in. When this cooled, it became type. Where irregularities occurred such as sharp corners, they were worked over afterwards with a file. The single type were held in columns by bamboo strips, so that they could not get out of line. At first it was not known how the type could be placed one against the other and held firm, and for that purpose a wax plate was arranged for fixing
the type. This, however, was not sufficiently firm, and so the practice began of fitting the type into a bamboo frame.26

In the National Museum of Korea are still preserved a large number of type made of bronze, iron, wood, and clay, estimated at over 600,000 in all. Unfortunately in no case do these type belong to the earlier period; they date from the years 1777-1858. The curator asserts, however, that there are books extant printed from all of the ten castings (that of 1450 possibly excepted) back to 1420 inclusive.27 There are in Leipzig and in the American Museum of Natural History28 in New York Korean type which purport to be of the early fifteenth century, but these ascriptions are contradicted by Korean experts. On the other hand it is probable that the style of type did not greatly change, and that an examination of the type now existing is useful in order to ascertain what the early Korean type were like. In fact, according to the curator of the National Museum of Korea, the type cast in 1573, 1580, 1772, and 1777, all of bronze, are modeled in each case after those cast in 1434. The type in New York are made of bronze and are quite rough in their workmanship. They are about one centimeter square, and the height to paper is only a little over half a centimeter. From the filing off of the jet, it can be seen just how the type were cast—the molten metal was poured in at the side of the type. Each type is grooved on the side, evidently so that they could be laid along a metal bar to give the alignment. The edges, however, are so irregular that they never could have properly locked together. They must have been set in some soft material such as wax and made even with a planer. Judging from the gradual slope where the space between the lines of the characters is cut away (in marked contrast to the direct deep cutting of our steel punches), it is quite evident that the models were made of wood. A certain roughness of the type indicates that the molds from which the type were cast were of sand.

From Korea the use of metal type spread first back to China and later to Japan—but not, so far as is known, until after the invention of typography in Europe. The first book known to have been printed by the Japanese with movable type appeared in 1595,29 just after the Japanese conquest of Korea, and from that date for the next fifty years there was a constant succession of books produced both with metal and with wooden type. Hundreds of different books were printed under imperial patronage, some of them very fine editions, among others an encyclopedia in two hundred twenty-one volumes. Suddenly, around 1647, all this activity stopped, and from that time until the coming of European influence during the last half of the nineteenth century, all Japanese printing was done with blocks.

In China printing with metal type began earlier than in Japan and continued through the eighteenth and nineteenth centuries.30 There was a printer by the name of Hua Sui31 in the city of Wushu, who used bronze type some time about the end of the fifteenth century,32 and there was printing carried on in Ch'angchou at about the same time with type of both bronze and lead.33 Throughout the Ming dynasty there was a considerable amount of printing from type, among the books thus printed being the works of Mo Ti in 155234 and the Tai Ping yu lan Encyclopedia in 1574. In 1583-84 the earliest typography under European influence is recorded.35 During the years approximately 1713 to 172236 a nearly perfect font of metal type was made under imperial direction, from which the Tu shu chi ch'eng, an encyclopedia in ten thousand volumes, was printed, as well as other works. The introduction to one of these works describes the process then in use for type founding which is similar to the process that had been in use earlier in Korea. Models were engraved in hard fine-grained wood; with these molds were made in a sort of porcelain paste baked in an oven, and from these molds finally the type were cast. In 1736 to 174437 there was a shortage of currency in the empire (and also, it would appear, in the pockets of certain officials) and this font was melted up for the minting of cash. It was replaced in 1773 by a font of wooden type, 253,500 in all, with which the catalogue and a small part of a new imperial literary collection were printed.38

This marks the end of government sponsorship of large-scale printing with movable type until fresh impulses had come from the West. But certain private individuals were still using this
method. In the middle of the next century, both before and after the Taiping rebellion (1851-64), at least three considerable fonts are recorded, one of wooden type (totaling some 350,000 separate characters) and two made of tin (more than 200,000 characters all together). There is also printing with movable type on a more modest scale, particularly of certain fugitive items. Generally speaking, however, printing with wood blocks was regarded as the normal method and it held the field, except among foreign residents and those coming under their influence. Protestant missionaries, operating initially outside of China, were the pioneers in printing with metal type. The first font in China was prepared in 1815 in Macao under the direction of Robert Morrison. During the first half century the development was gradual and experimental. After the ports were opened and especially after the suppression of the Taiping rebels, press printing came into vogue amongst Chinese publishers both public and private. In 1869, for example, the Chinese foreign office obtained several fonts of metal type from the foundry of the Presbyterian Mission Press in Shanghai and printed several major publications with this type. The Kiangnan Arsenal, established in Shanghai in 1865, also published many works, largely based on books in Western languages, with its own printing press. Finally, in 1897, the Commercial Press, the largest publishing house in China, was founded. 20

In Korea itself the printing activity of the fifteenth century continued until 1580. Then it lapsed for nearly two centuries except for one casting of bronze type in 1668. In 1772 a font of new type was made, 21 and a few years later six others (1777, 1782, 1790, 1792, 1795, and 1797), the one of 1792 involving 320,000 large and small movable wooden type. These imitated the variety made in Peking two decades earlier, and were named “rejuvenating type.” 22

In all three of the Eastern Asianic countries printing from metal type required large capital and was carried on in the main by the government, ceasing when government support was withdrawn. On account of the nonalphabetic structure of the script, block printing was found more practical for private and commercial purposes. By the nineteenth century the use of type was dying away in all three countries and was reintroduced from the West as an entirely new art.

To sum up the progress of printing with movable type in Eastern Asia. It began in China with Pi Sheng’s invention of earthenware type in the eleventh century. It made considerable advance with the development of wooden type during the thirteenth century. It reached its highest point in Korea in the fifteenth century with the extensive use of cast metal type that began in the year 1403. The Korean system spread to China and Japan and was the method in those lands, as it had been in Korea, by which strong monarchs sought to further literature and education. But it had never been a commercial success and by the nineteenth century had been almost altogether displaced by the older block printing which in its turn gave way in the larger centers to European typography. It is a strange fact that China, Korea, and Japan, whose languages present the most difficulties to the typographic printer, should have been the first nations to invent and develop the art of typography.

NOTES


2. The ultimate source of this statement is Yi Kyoo-bae in his Tongguk Yisang Yiguk Hujip 12/437. (I have consulted the reprint published in Kejo, 1913, kindly put at my disposal by the library of Yale University, L.C.G.) The statement is upheld by several authorities; cf. Annual Report on Reforms and Progress in Chosen, 1914-15, p. 17, and Kawase 1937:1, 167. The key words are, “Accordingly he made use of cast characters, and printed the book in twenty-eight volumes.”

3. The book in question is The Family Sayings of Confucius, British Museum, No. 15100, C 13. It has been the occasion of considerable controversy. Satow, who presented the book to the British Museum, makes out a strong case for its having been actually printed with movable type, partly in 1317 and partly in 1324. Later writers have largely taken the opposite position. See Satow, 1882:262; Courant, 1901:137-138; 148-149; Griffiths, 1911:67; and Planchet, 1884:894.

5. Chu 2i.


7. On this foundry see comments by Hunt, 1948-49:30-31, and the short illustrated article, 1952:20-21. Dr. Peake, 1929:61, declares, "There are accounts of fonts being cast at eleven different times by royal decree from that date (1403) on to 1544." Nagasawa, 1952:136-37, makes it twelve different fonts between 1403 and 1519 inclusive. Mr. Won-yong Kim of the National Museum of Korea, in letters dated October 2, 1952, and February 11, 1953, reduces this to ten between 1403 and 1516. He makes no mention of any cast again until 1573. After 1573, most of the fonts were, in effect, recastings of earlier castings. All of these were of bronze except the type cast in 1436, which were made of zinc. Mr. Kim's familiarity with the material gives him the right to have the final say. Since writing this note there has appeared (1954) a book entitled Early Movable Type in Korea by Won-yong Kim, which gives all the latest information on the subject. The work is in Korean with an unabridged English translation; it includes many plates illustrating books printed with movable type from the year 1307 on.

8. The more readily understood English word "preface" is used in this chapter, though the "preface" in these Korean works appears at the end of the book, and is hence called by some writers "postface."

9. Annals of the Yi dynasty, Chapter 3; from German translation of Stube, 1918.

10. According to Stube, 1918:93, a further contemporary reference to this first font is contained in a laudatory statement by the Korean scholar, Kwon Gwun (d. 1409), ascribing to the king all honor for the invention.

11. The first year (1403) of Yung-lo, emperor of China, was the same as the third year of Taijung, king of Korea.

12. According to Stube, 1918:93, this much of the preface—the king's proclamation—also appears in the Man Hon Pi Go or Korean Encyclopedia, Chapter 342.

13. The translation is that of Satow, revised by comparison with the Chinese text as given by Kamezō, 1909:117.

14. Evidently a mistake for Pi Sheng. (See Chapter 22, note 14.)


17. It is possible that there was another font cast between 1403 and 1420. In the preface of the Korean edition of the History of the Earlier Han Dynasty, there is the statement: "in the eleventh month of 1413 the king ordered his officer Yi Ch'ang to cast a fresh set of type, which was finished within the space of seven months." There is however some confusion about dates, and it seems likely that this font was identical with the one described under 1420.

18. Yokkue chuanggam paku. The first preface of this book is identical with the preface of the books published in 1409 and 1434 and has already been translated above.


20. The third preface of the Yokkue chuanggam paku is dated December, 1496, and the book itself September, 1437. Courant, 1894:96-45, makes the statement (authority not given) that this font of 1496 was made of lead. Mr. Kim of the National Museum of Korea calls it bronze.

21. This statement that a book was produced in 1494 in Korean alphabet and movable type is contained in Courant, 1894:96. The book is numbered by him 255 and romanized, Sam k'ang hwaon si to.

22. There is another kind of early Korean type-printing consisting of very roughly printed books, and there is a tradition among Korean scholars that they were printed from type of baked clay, a survival of Pi Sheng's method. Such clay type also survived to a later period in Japan. See Courant, 1894:96-97.

23. De la Vigne, 1876:67-68.

24. There is a theory held by some investigators that the earliest type made by Gutenberg at Mainz were also made from wooden models and sand or clay molds.

25. From German translation of Stube, 1918:93. The romanization of the name of the author is Stube's.


27. These type were obtained by the Museum of Natural History from Homer B. Hulbert (author of The History of Korea). They are described by Mr. Hulbert in an article in Harper's Magazine (June, 1899, vol. 99, pp. 102-8). In answer to a question on the provenance of these type, Mr. Hulbert replied, "Among the archives of the Educational Department in Seoul in 1897 I found the remnants of all three of these issues [the three issues of the first half of the fifteenth century]. Of the oldest set there were only fifty-three pieces left, and these are the ones which the Minister of Education gave me and which I placed in the Natural History Museum. There is no actual prima facie evidence that these are the actual first pieces made, but all the circumstantial evidence points to this fact." The curators of the Seoul Museum, to whom impressions of the New York type were sent for comparison (1924), came to the conclusion on the basis of their examination that the type in New York probably belong to one of the fonts that were cast at the end of the eighteenth century.
38. Kawase considers in detail the history of movable type printing in Japan. It is true that the Jesuits were the first to use this method of printing, beginning in 1596. But in his opinion their influence was not as great as that which came following the campaigns of Hideyoshi on Korean soil, 1592–97. The first book now known to have been printed with movable type by the Japanese themselves is dated 1596. Kawase puts the end of the first employment of movable type printing at ca. 1647. During this half century some 350 movable type editions of books were published. For an English summary of his views see Peake, 1939:78–99. Nagasawa, 1952:137 ff., diverges from this statement only in minor details; his general opinion is the same. He reports that the first non-Jesuit book printed with movable type in Japan was published in 1595, but this is no longer extant. He adds that movable type printing was welcomed during the next five decades by physicians, temple priests, and government administrators because printing in this way was more economical than by wood blocks, also more time- and space-saving. The culture of this half century demanded small-scale printing activity. Previously, most books had been issued by the Buddhist church. Now, he continues, there was a strong appetite for books on Confucianism (including commentaries after the Sung school), on history, thought, poetry, prose literature (like that in China), and books on medicine. After 1640, however, the constant demand for reprints of popular items for illustrations, together with the difficulty of making type for the running script and type bearing explanatory kana and hiragana alongside Chinese characters, brought movable type printing to a halt. The silencing of the Christian church, in his opinion, had nothing to do with this stoppage.


40. His fancy name, or hou, was Hui-lung, and his dates 1439–1513. Wu, 1943:214–18, devotes considerable attention to Hua Sui and to members of the Hua clan who followed him in printing books with the use of movable bronze type. See also the long note of Pelliot, 1924:172–74.

41. The earliest known work of his so printed is dated 1494. Columbia University is the possessor of one of the books, the Chiaw-chang yin-chih shih chiing in twenty chiuan, printed in his establishment, the Hui-lung kuan, with movable type in 1497. An Kuo (1481–1534), a second famous printer at Wuhsi, is also treated by Wu, 1943:218–19, as are other later users of copper movable type.

32. “Recently in P‘ing [i.e., Ch‘angchou in southern Kiangsu] bronze and lead have been used for the making of movable type, the use of which is much more convenient than printing from blocks. But in setting the type a large number of errors are made.” Lu Shih (1477–1544), *Chin tai chi wen, T‘ung shu chi chieng* edition No. 1506: 7. This work in one chiuan deals with events of the years 1505–08.

33. Forke, 1923:8; also Wu, 1943:219.
Chapter 24

THE PEDIGREE OF GUTENBERG'S INVENTION

On the occasion of the five hundredth anniversary of Gutenberg's birth, a commemorative volume was published by German scholars which contained a monograph on the genealogy of the inventor's family. That is the pedigree of Gutenberg the man. It is possible now, in recapitulating the story of printing in China, to draw attention for a moment to certain persons who may be regarded as in a sense the ancestors, not of Gutenberg the man, but of Gutenberg the inventor of printing.

If this pedigree is confined to that branch of the ancestry of the printer's art which leads back to China, the purpose is not to minimize the European line of descent—it is merely to leave the European line, which is beyond the scope of this volume, to those who have specialized in that subject. The bookbinders with their metal stamps, the engravers of metal plates, the block printers, the textile printers—that long line of ancestry leading back finally to the brick makers and seal cutters of Babylon and Egypt—all are of supreme importance for an understanding of the background of European printing. But it is the other side of the family, so to speak, with which it is our purpose to deal here, a side that has hitherto been neglected.

First in that line stands an imposing figure, Ts'ai Lun the eunuch and so-called inventor of paper (A.D. 105). Ts'ai Lun and Gutenberg, spiritual father and spiritual son. Of all the world's inventors these two, the inventor of paper and the originator of European typography, stand out pre-eminent as those who have advanced the cause of literature and education in the world.

Next in line stand certain men of unknown name and unknown date: the man who first rubbed his seal in ink and stamped it on paper instead of on wax or clay; the Taoist makers of good luck charms, who enlarged their wooden seals, smeared them with red cinnabar, and made with them potent charms; the long line of Buddhist priests and monks who sought by every conceivable device, including stamps of metal and wood, to multiply representations of the sacred Buddha.

The line now goes to Japan and includes the first imperial patroness of printing, the Empress Shōtoku, the superstitious old lady who, to prolong her life, printed a million charms (A.D. 754-70). Following her, and back in China once more, is Féng Su, an official in Szechuan who in 835 asked the imperial court to forbid the printing of calendars throughout the Yangtze valley; Ho-kan Chi, who, about 850, had several thousand copies of his biography of a certain worthy printed; and Wang Chieh, who honored his parents with the long printed roll of the Diamond Sutra (A.D. 868).

Parallel to the Taoist and Buddhist lines were those Confucian scholars, who, more interested in the exact text of the Classics than in charms and sūtras, started to cut that Classic text in stone and from it to make rubbings or squeezes, which later came to be bound in books. There were scholars, too, who saw to the reproduction of lexicons and dictionaries for students going up for their literary examinations.

The various lines converge in the next great name, which to most Chinese writers is the greatest since Ts'ai Lun, Féng Tao, the prime minister who held the empire together through the troubled reigns of seven emperors and four dynasties, and who showed his greatness by having printed during that period of anarchy the text of the Confucian Classics—a work that did for Chinese printing almost what Gutenberg's Bible later did for that of Europe (A.D. 953).

Following Féng Tao the line again diverges. On the one side were the great block printers, who for the next four hundred years printed everything that was worth preserving and printed it well, making block printing a vehicle for thought and education such as it has not been in any other part of the world.

On the other side were the experimenters with movable type, whose place in this ancestral table is perhaps more collateral than
direct. The first of these, Pi Shêng the artist (between 1041 and 1049) made his type of baked clay. His device was ingenious, but after his death it was never greatly used. The second was Wang Chên, who has left us a detailed record (1354) of the method used in his day for printing with wooden type, a record confirmed by type that have been found at Tun-huang. Following Pi Shêng with his type of clay and Wang Chên with his type of wood were the Korean kings of the half century before Gutenberg who printed at royal expense a goodly number of books from type of bronze—type that now for the first time were cast from molds.

Such is the pedigree of the invention of printing on the Chinese side. It must not be supposed that all the persons mentioned are necessarily in the direct line of ancestry of the European inventor. The last in particular, the inventors and perfectors of type, would seem perhaps to be a collateral branch, as it were—cousins rather than ancestors of the inventor of European typography.

This question of direct connection between the type of earthenware, wood, and bronze of Eastern Asia and the invention of printing in Europe is a difficult one, but the evidence so far is negative. Pi Shêng’s type were never greatly used and had been almost forgotten before close intercourse with Europe under the Mongols began. Wooden type were in use at the time European intercourse by the overland route was at its height, but the hundred years that elapsed after the closing of the trade routes and before the invention in Europe are difficult to bridge. The Korean type were far more used than their clay and wooden prototypes had been, and it seems a strange coincidence that entirely without connection the Koreans began printing with metal type just half a century before Gutenberg’s invention. Yet there is no evidence of such connection. And intercourse between Europe and Eastern Asia during that half century was, so far as we now know, almost nonexistent.5 To state categorically that there was no direct connection between the typography of China and Korea and that of Europe would be premature. On the other hand no clear evidence of such connection has been found,4 and until such evidence—or the contrary—is at hand it is necessary to keep an open mind.

If China’s influence on European printing was probably not through China’s typography, it will be well to recapitulate some of the points at which China’s influence is likely to have made itself effective.

1. Through paper. Here we are on clear historic ground. Paper was an invention fully perfected in China and transmitted through the Islamic world. It served as the foundation for the invention of printing.

2. Through playing cards. Playing cards were introduced into Europe from China, either directly or indirectly, during the latter part of the fourteenth century. Block printing, and with it the production of playing cards by printing, had begun by about the end of that same century, if not earlier. That among the first objects printed in Europe were these bits of cardboard, whose use is known to have been at that time recently introduced from China, is at least suggestive.

3. Through paper money. We know that some notes were transported far across Asia. It is not impossible that a few came to Europe, since Mongol armies “at one moment reached the Adriatic, occupied Poland and Hungary, and invaded German Silesia.” Others may have been carried thereafter in the ordinary course of trade.

4. Through image prints. The earliest European block prints that have come down to us are religious pictures, which, while European in design, in subject matter and purpose, in ink and in technique, suggest the prints of Central Asia.

5. Through the great number of books printed in China. Men who returned from China to Europe, especially ecclesiastics, cannot have failed to spread reports of the great diffusion of books in China, which far exceeded that in Europe. Such reports, coming to Europe at a time of intellectual awakening, must have been an incentive to invention. Even if the reports were vague and conveyed only hazy information as to method, this dimly seen background of achievement in another land must have added to that favorable atmosphere in which the art of printing was bound sooner or later to be developed. There may here be seen a direct but ill-defined connection...
between Chinese block printing and European typography, two
processes which, however different in technique, were similar up to
a certain point in cultural result.

6. To these may be added the possibility, though not the proba-
bility, that the actual method of typography in use in the Far East
had in some way been reported in Europe.

Thus we see that no categorical answer to the question whether
or how printing came from China can be given. The best that can
be said is that the introduction of paper from China is certain; that
the influence of Chinese block printing on European printing rests
on such strong circumstantial evidence as to be accepted with a
reasonable degree of certainty; that little or no reliable evidence
has yet been found to show that the typography of China or Korea
influenced that of Europe.

More significant than the evidence for or against the influence
of China on European printing, and also more certain, is the evidence
which this inquiry affords of the parallelism of the human
mind in East and West. Here there can be no controversy. Those
who write of Eastern inscrutability, who believe that the Chinese
are a mysterious people with mental processes altogether different
from our own, will here find food for thought. In China as in
Europe the use of finely engraved seals began before the Christian
era. In China as in Europe the desire for ornamentation led early
to printing on textiles. At both ends of the world the religious
impulse, reinforced in the monasteries, led to the beginnings of block
printing, and in both cases the play impulse as represented by cards
had also its part. In both China and Europe, when civilization
reached the point where printing on a larger scale was needed,
printers came, making the diffusion of books and of education
(at least for those who could afford it) general. That it came
earlier in China than in Europe, is due to the fact that China
recovered more quickly from its Dark Ages and developed earlier
a civilization that was ready for the multiplication of books. Finally,
both China and Europe evolved elaborate and ingenious schemes
for the use of movable type. That block printing in the end
prevailed in China, whereas typography prevailed in Europe, is
due to the difference between Chinese and European script. Given
similar conditions, the two ends of the world have done similar
things. Intercourse there undoubtedly has been—at certain points
we have been able to trace it. But the great outstanding fact that has
been shown by this inquiry is the parallelism in the working of the
human mind on the two sides of the world, a parallelism that has
been manifest at every stage in the history of printing.

Of all the world’s great inventions that of printing is the most
cosmopolitan and international. China invented paper and first
experimented with block printing and movable type. Japan produced
the earliest block prints that are extant. Korea, so far as is known,
first printed with type of metal, cast from a mold. India furnished
the language and the religion of the earliest block prints. People of
Turkish race were among the most important agents in carrying
block printing across Asia, and the earliest extant type are in a
Turkish tongue. Persia and Egypt are the two lands of the Near
East where block printing is known to have been done before it
began in Europe. The Arabs were the agents who prepared the way
by carrying the making of paper from China to Europe. Paper-
making actually entered Europe through Spain, though imported
paper had already come in through the Greek Empire at Con-
stantinople. France and Italy were among the first countries in
Christendom to manufacture paper. As for block printing and its
advent in Europe, Russia’s claim to have been the channel rests on
the oldest authority, though Italy’s claim is equally strong. Germany,
Italy, and the Netherlands were the earliest centers of the block
printing art. Holland and France, as well as Germany, claim first
to have experimented with typography. Germany perfected the in-
vention, and from Germany it spread to all the world. Great Britain
and the United States, the two countries that today do the bulk of
the world’s printing, are the two great nations of the world that
lay no claim to having had a part in the invention, at least in its
early stages, and have contented themselves with such later develop-
ments as the power press, the Linotype, and typesetting by pho-
tographic means.
NOTES

1. There is no need here to go into the merits of the Gutenberg-Coster controversy. The name Gutenberg is here used to denote the inventor of printing, because that is the more generally accepted view. For a clear exposition of the opposite view the reader is referred to the article on typography in the *Encyclopaedia Britannica* (Eleventh edition).

2. A clear account of the European background of typography is found in De Vinne, 1876. A more up-to-date account, emphasizing especially bookbinders’ metal stamps, copperplate engraving, and other work in metal is found in Hartwig, ed., 1900: 101-64, and Fuhrmann, 1938.

3. There were, however, contacts between China and Arabia and Egypt up to 1440. Cf. Dooyeweld, 1949: 26-30, and Goodrich, 1952: 34-87. The great collections of Chinese porcelain of the fifteenth and sixteenth centuries in Teheran and of the sixteenth century in Istanbul also argue continuing cross continent connections.

4. The statement of Jovius written in 1546 (see Chapter 16, note 4) is the nearest approach to early direct evidence of the transmission of typography from China. It seems unwisely to everest the authority of this quotation, especially in relation to typographic. The phrases “typographos artificer” and “more nostrum” may easily be loosely used. All one can say at this stage is that metal type, as developed in Korea, were certainly being used in the lower Yangtze valley in 1454, some two decades before the arrival of the Portuguese (see Chapter 25), and that Father Bernard considers the first phrase to mean artisans of typographic.

Pierre Guzman, 1916: 137, 38, has proposed two other possible theories to account for the transference of typography from the Far East. One is that it was brought by way of Russia and learned by Gutenberg during his supposed stay in Prague. The second is that it was brought into Europe by a company of Armenians who had (supposedly) earlier been in contact with the Uighurs, and who were later living in Holland in the time of Coster. Neither theory seems convincing.

Should the version of the Coster story, according to which Coster first printed with wooden type sawed from a block, prove true, it would add a certain presumption in favor of connection with the type described by Wang Chên and found by Pelliot. But recent investigations have tended rather to discredit this part at least of the Coster theory.

Until further and more convincing evidence can be found, the question will have to remain an open one, with the presumption against any connection of European typography with China other than through the indirect channels enumerated toward the end of this chapter—through the invention of paper and through block printing.
### PAPER AND PRINTING—Continued

<table>
<thead>
<tr>
<th>Dynasty</th>
<th>Paper</th>
<th>Block Printing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Six Dynasties</strong> 220–589</td>
<td>ca. 250–300. Paper at Nisva in Turkestan. Found by Stein. 264. Earliest clearly dated paper. Found by Hedin at Loulan. Chinese records indicate rapid expansion of paper manufacture, displacing bamboo, wood, and silk as writing material. 399. Earliest paper from Turfan. 406. More than 10,000 rolls, dating from 406 to 596, all written on paper, found in one manuscript chamber at Tun-huang on the Turkestan border. Use of paper becomes general throughout Eastern Turkestan, completely displacing wood and bamboo as writing material. Usually made of a mixture of rags and raw fibers; sanded improvement in process of sizing and sizing with starch paste, starch flour, and other materials.</td>
<td>Fifth century (?). Earliest use of inked seals—inked with red cinnamon and stamped on paper.</td>
</tr>
<tr>
<td><strong>Sui Dynasty</strong> 589–618</td>
<td>650. Samarkand</td>
<td></td>
</tr>
<tr>
<td><strong>T’ang Dynasty</strong> 618–906</td>
<td>714. Mecca</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ca. 800. Egypt</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ca. 900. Egypt</td>
<td></td>
</tr>
<tr>
<td><strong>Six Dynasties</strong> 589–618</td>
<td>731. Samarkand</td>
<td></td>
</tr>
<tr>
<td><strong>T’ang Dynasty</strong> 618–906</td>
<td>793. Baghdad</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dynasty</th>
<th>Paper</th>
<th>Block Printing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Six Dynasties</strong> 589–618</td>
<td>650. Samarkand</td>
<td>Sixth century. Large Taoist seals made of wood, used for making charms.</td>
</tr>
<tr>
<td></td>
<td>ca. 800. Egypt</td>
<td>Seventh century. Experimentation in Buddhist monasteries with various forms of duplication—seals, rubbing, Buddha stamps, stencils, and textile prints—leading the way, probably early in the eighth century, to true block printing.</td>
</tr>
<tr>
<td></td>
<td>ca. 900. Egypt</td>
<td></td>
</tr>
<tr>
<td></td>
<td>793. Baghdad</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ca. 680. Egypt</td>
<td>834. First mention of printing in literature. Szechuan and lower Yangtze valley the centers of printing activity which included nonreligious works.</td>
</tr>
<tr>
<td>Dynasty</td>
<td>Paper</td>
<td>Block Printing</td>
</tr>
<tr>
<td>---------------</td>
<td>-------</td>
<td>----------------</td>
</tr>
<tr>
<td></td>
<td>Earliest Use and Import</td>
<td>Earliest Manufacture</td>
</tr>
<tr>
<td>Song Dynasty 960-1280</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ca. 1100, Constantinople</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1109, Sicily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1154, Italy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1228, Germany</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1276, Italy</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yuan (Mongol) Dynasty 1260-1368</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ca. 1100, Morocco</td>
<td>1294. Issue of printed paper money at Tabriz, Persia, in Chinese and Arabic. 1298. Chinese paper money described by Marco Polo (also written a century by seven other European writers).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1041-49. Invention of movable type by Pi Sheng. Type made of earthenware, set in an iron form. Improvement of Pi Sheng's system. Both type and form made of earthenware. Type made of tin, perforated and held in place by a wire. Neither the type of earthenware nor the type of tin were ever largely used, an account of difficulty in getting a satisfactory ink. The use of wooden type extends to borders of Turkestan and is taken up by the Uigur Turks. Font of type in Uigur language, found by Pelliot at Tun-huang, dating from about 1350.</td>
</tr>
<tr>
<td>Dynasty</td>
<td>Paper</td>
<td>Block Printing</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dynasty</th>
<th>Earliest Use and Import</th>
<th>Earliest Manufacture</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MING DYNASTY</td>
<td>1309. England</td>
<td>1346. Holland</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1494. England</td>
<td>1527. Mexico</td>
<td></td>
</tr>
</tbody>
</table>
BIBLIOGRAPHY

The following are the abbreviations for the various journals that are cited.

BEFEO  Bulletin de l’école française d’extreme-orient, Hanoi
BMFEA  Bulletin of the Museum of Far Eastern Antiquities, Stockholm
BSOS or BSOAS Bulletin of the School of Oriental (and African) Studies, London

HIAS  Harvard Journal of Asiatic Studies, Cambridge
IA   Journal asiatique, Paris
JAOS  Journal of the American Oriental Society, New Haven
JRAS  Journal of the Royal Asiatic Society, London

Mem. Toyo Bunko Memoirs of the Research Department of the Toyo Bunko, Tokyo
MS   Monumenta Serica, Peiping
TP   Toung Pao, Leiden

———. “The Site of Chu Chia Chai,” BMFEA 17 (1945).


BIBLIOGRAPHY


BERGMAN, FORKE. "Lou-lan Wood-Carvings and Small Finds Discovered by Sven Hedin," *BMFA* 7 (1935), 71-144.


BIBLIOGRAPHY


—. "Inscriptions et pièces de chancellerie chinoises de l'époque mongole," *TP,* Series 2, 5 (1954), 357-47.

—. *Les livres chinois avant l'invention du papier,* *IV,* Series 10, 5 (1905), 1-75.


CH'EN YU-LIN (1909-1138). *Chien chai chi chuan* (A Collection from the Chien Library).*
BIBLIOGRAPHY


Chien yen i lai ch'a yeh tsu chi. See Li Hsin-ch'uan.

Chih shih shih lu (Biography of Mohammed). Published 1775-85.

CHIN T'UNG SHU. See Lü Hsiü.

Chin wen tai shih. See Hsiü-ch'ien.


CHU HSII (1130-1200) and disciples. T'ung ch'ien kung ma (A General Outline of a Comprehensive Mirror).


---, "Chung-kuo ti-fang chih tsung lu pu pien" (Supplement to the General Catalogue of Chinese Local Records), Shih hsüeh nien pao 3 (1938), 401-34.

---, Chung hsüeh-chêng, His Contributions to Chinese Local Historiography. 1950. In microfilm.


CHIANG T'UNG SHU. See Tung Kao.

CHIANG YEN 蔡慶. "Lei féng t'oa tung pao ch'i ch'eh yin t'o lo ni ch'ing" (A Postscript on the Dharaní hidden in the Thunder Peak Pagoda). T'ou ch'iu kun hsüeh chi Kan (Library Science Quarterly) 1, No. 2 (June, 1926), 311-32.

CHUNG LIN-CHEN (d. 1478) et al. (compilers). Koryu Sa (History of the Koryu Period). 139 chapters, completed 1451.


BIBLIOGRAPHY


DE VINE, T. L. The Invention of Printing. New York, 1876.


BIBLIOGRAPHY


---. "Les insignes en deux parties ( fou 萬 ) sous la dynastie des Tang.* TP 41 (1952), 1-49.


---. "Bibliographic," *TP 38* (1947), 314.


Fan, Li-ping. *Pien ch'eng lun* 明代正論 (Friendly Discussions).

Fan Shu (fl. 860-92). *Yüan ch'i yen i 3.95 (History of the Later Han Dynasty).* 1739 ed.


Félice Chia-sheng. "Hsu yao ti fa hien ch'i ch'üan pa" 大楽的 發現及其傳佈 (The, Discovery of Gunpowder and Its Spread), *Shih hsiieh chi Yuan* 史學集刊 5 (1947), 6, 29-84; 7 (1949), 1-51.


Félix-Yi. "Vierchow und de Tschernjatow (Hans Adler in China in 1845)," *MS* 13 (1948), 1-18.


Forsberg, R. "Die Zeugdrucke der byzantischen, romanischen, gothischen und späten Kunstdrucken,. Strassburg, 1894.

"Die Kunst des Zeugdruckes. Strassburg, 1898.


BIBLIOGRAPHY

—. "Note on Professor Duveyenda's Lectures on China's Discovery of Africa," *BOSAS* 14 (1992), 384-87.
—. "Western Appliances in the Chinese Printing Industry," *Journal of the China Branch of the Royal Asiatic Society* 20 (1886), 163-77.
—. *Chinesische Studien*. Munich, 1890.
Hirth, Friedrich, and Rockhill, W. W. *Chou In-kua, His Work on the Chinese and Arabic Trade in the Twelfth and Thirteenth Centuries*. St. Petersburg, 1911.
Hou Han shu. See Fan Ye.
Hsi Shên 许慎. *Shou wen chieh t'ou 説文解字* (Work in which the author shows the figurative characters and explains the composed characters). Completed A.D. 100; presented to throne 121.
Hsiên-ts'ang. *Hsie hsi chi 西域記* (Record of Western Countries).
Hüech Chu-ch'ing 胡適. "Old History of the Five Dynasties' Period.
BIBLIOGRAPHY


—. “The Development of the Book in China,” JAOS 61 (1941), 71-76.


—. “King Yang-lo Stole a March on Gutenberg,” Scene 3 (March, 1952), 80-21.


BIBLIOGRAPHY

Kuo tiung-shu 古通書 2 in Ying Fu Sung shu ta t'ai pen erh ya 影覆宋蜀大字本爾雅. Tokyo, 1884.
Kwun tzu shu chi heng 古今圖書集成 10,000 chuan. Pre-
dated 1726; printed 1758. Shanghai, edition of 1889-88.
Kure Fu (1736-1804). Li t'ai shih ching li ch 考定石經略. (The
Classics on Stone Through Successive Generations).
Shinshu 守信 11 (1956), 112-32.
Lancaster, George. The Yellow Emperor's South-Painting Chariot. The
Lang Ying (1187-1566). Chi hui lei kao 七修類稿 (A Miscel-
nary).
Lao Ka K'o. "Lao Chung-kuo tao chih shu chi yuan shih" 论
中国造纸术之原始 (On the Origin of the Art of Making
Paper in China). Bulletin of the Institute of History and Phylology,
Academia Sinica 19 (1948), 49-98.
(1917), 71-74.
——. Sino-Iranica: Chinese Contributions to the History of Civilization in
Ancient Iran, With Special Reference to the History of Cultivated Plants
and Products. Chicago, 1919.
——. "Review of Carter, The Invention of Printing in China," JAOS 47
(1927), 71-76.
Science Quarterly (Peiping) 3 (1929), 539-90.
Lessing, J. "Mitteleuropäische Zeugdrucke im Kunstgewerbe-Museum zu Ber-
lin," Jahrbuch der Königlich Preussischen Kunstsammlungen 3 (1880),
119-26.
Li Fang (1925-96). K'ai-pao hisiang ting p'ien t'ao 開寶詳定本
草 (Carefully Determined Materia Medica of the K'ai-pao Era [968-
76]).
BIBLIOGRAPHY

MA TUSAN, [fl. 1254-1322]. Wên hien t’ung k’ao [文獻通考]. A Comprehensive Study of Ancient Documents and Various Treatises [or An Encyclopedia of Social and Political Institutions]). Published 1319-24; revised, 1339. Shanghai, 1936.

MAGNUSON, J. A. “A Note on the Etymology of the Word Checkmate,” JAS 38 (1933), 662-64.


MONTHAN, L. War Through the Ages. New York, 1944.


MITO, GEN’I. Wakan shu no inai no to sono rekishi. Tokyo, 1939.

NAKAI, ISHIBASHI. Himitsu no kōro. (Commentary on the Continuation of the Chronicles of Japan [A.D. 697-791]). 12 vols. Tokyo, 1870.


NAGASAWA, KIYUTA. Wakan shu no inai no to sono rekishi. (History of Printing of Books in Japan and China). Tokyo, 1932.

BIBLIOGRAPHY

NAK CHON PARK. “Tripitaka Koreana,” Transactions of the Korea Branch of the Royal Asiatic Society 29 (1951), 62-78.


OKADA, LEO. GAUAMITE Boucher, A French Artist at the Court of the Khans. Baltimore, 1946.


———. Kwee sien lu (On Returning to the Country [or A Collection of Anecdotes About People in High Places]). Edition of Shuo fu.


PALADIN, THE ARCHIMANDRITE. Elucidations of Marco Polo’s Travels in North-China, Drawn from Chinese Sources,” JRA, North China Branch 10 (1967), 1-54.


———. “Notes and Queries,” ibid. 21 (1895-96), 119-21.

PAULIS, M. G. Le livre de Marco Polo. 2 parts. Paris, 1869.


PEEL, PAUL. “Notes de bibliographie chinoise,” BEFEO 9 (1902), 316-17.

———. “Une bibliothèque médievale retrouvée au Kan Sou,” BEFEO 8 (1903), 525-27.


BIBLIOGRAPHY

—., "Bulletin critique," TP 21 (1925) 432-34.


—., "Les bronzes de la collection Eumorfopoulos publiés par M. W. P. Yetts (1 et II)," TP 47 (1929), 374-78.

—., "Livres reçus," and "Bibliographie" TP 68 (1931), 190-91; 438-39.


—., "Further Notes on Movable Types in Korea," ibid., 253-59.

SAUSUGRK, Léopold de. "L'origine de la rose des vents et l'invention de la boussole," Archives des sciences physiques et naturelles, 5e pér. 5 (1923).


—., Chinesische Bräuche und Spiele in Europa. Breslau, 1869.

SCHUMANN, H. F., "Reviews," HIAS 15 (1925), 244-55.


SHÉN K'AI (1032-94). Mén ch’i pi t’an 美溪詩潭 (Dream Pool Jottings). Edition of Ssu pu t’ang ên hui pien (1934-35) reproduces a Ming edition, which is based on one published in 1661; also note Chi k’u ko edition 拓古闕, 1631, and Pai hui edition 翰海 of 1664.

Shih-chen ching 十三經 (The Thirteen Classics). Shanghai, 1914.

Shin Shoo-hai hōmon-tō mokuroku (新書寫類聚索引) 門等目録 (Catalogue of Buddhist Works Copied and Brought from China). Reproduced in Dai-Nihon Bukkyo Zensho 大日本
**BIBLIOGRAPHY**

**TAO THONG** (ca. 1350-90), 1900


**Tien-fang chi sheng shih-lu nien-fu** (A Year by Year Biography of the Holy One of Mecca).

**Tien tu lin lang hui pien chi yu** (History of the Liao Dynasty).

**To-To** (1313-55), *et al.* (eds.), *Liao shih shu* (History of the Liao Dynasty).

**To-To** and **OU-YANG HUAN** (1274-1358) (eds.), *Sung shih shu* (History of the Sung).


**TS’AO HO**, *Hsi-t’ung ts’un* (A Record of Readings in the Field of Literature). Published 1851.
BIBLIOGRAPHY

Tr businesses and trade (The Most Precious Collection of Documents). Compiled between 1005 and 1013 by Wang Ch'ü-jo (d. 1025), Yang L. (974-1020), and others.

Tien Hung Fou. compiled by Hu. Shih k'ê ju hsiu shih stechok (Collection of Inscraption on Stone). Published 1248.

Ts'ou Tung Tung. Ta I ti yen 大易粹言 (Pure Words About the I). Dated 1177.


Tu Ya-ch'üan. Po shih 博史 (History of Chess). Shanghai, 1933.

Tuân Yü-ts'ai (1735-1815). Shuo wen chieh ts'ai chu 說文解字 (Commentary on the Shuo wen).


Ts'ai hui 海 (Ocean of Phrases). Shanghai, 1937.

Ts'ai yuán 海 (Source of Expressions). Compiled by Lu Er-k'uei 陸爾奎 and others. Shanghai, 1925.


Vidal and Bounier. "Le papier de Khantaliq." JA 408 (1925), 139-79.


W. "Origin, Journey and Results of the First Royal Prussian Expedition to Turfan," JRAS (1909), 299-332.


W. The Book of Changes," BMFEA 1933, 121-42.

—. The Life and Times of Po Ch'i-i, with Translations of 100 New Poems. New York, 1949.


—. Ch'ing-te huien chih (Record of Ching-te). 1298.


—. Liang chê k'êu k'êu k'e 衡時古本考 (On early printed materials of the Two Chê). 2 chüan. Shanghai, 1940. Cited as Wang Kuo-wei, 1940.

—. "Wu tai chên pên k'o 五代監本考." "A Study of the Printing of the National Academy During the Five Dynasties," Kuo hui chu 考 (January, 1923), 299-302.


Wang Ming-ch'ing (1127-95?). Hui chu lu 推廣錄 (Wielding the Whisk).


Wang Tao 王巢. Wai t'ai pi yao fang 外臺秘要 (Mysterious and Important Prescriptions from the Outer Terrace). Compiled 1721.
———. Über die ältesten bis jetzt gefundenen Hadersppapiere,” ibid., 168, Part 5, 1911.
Wu, Cheng (ed.). Ch'en shu ssu pu lu 筆録 東京史書 (Compiled 715–21. Revised under the title Kao ch'en shu lu 古今書録).
———. Kai-yüan nei wai ch'ing lu 開元内外經録
———. “Ming Printing and Printers,” HJAS 7 (1943), 203–60.
———. “The Development of Typography in China During the Nineteenth Century,” The Library Quarterly 22 (July, 1952), 288–301.

Yeh Kung-ch'ei. Li t'ai t'ung-ching kao-lü 历代藏經考略 (A Study of the Buddhist Canon in Various Periods), in Chang Ch'i-sheng k'ien-sheng ch'i-shih sheng-jih chi nien wen chen chih 張菊生先生七十生日紀念論文集 (Festschrift in Honor of the 70th Birthday of Mr. Chang Yuan-chih). Shanghai, 1937.
Yokuc chuang yu puuki 历代将鑑博議 (Mirror of Officers of Successive Dynasties, with Developments and Discussions). 5 vols. Printed with movable type in 1437, according to Satow.
YUAN TUNG (1697-1761). Shu yin t'ung chuō 建隱叢說 (A Collection of Notes about Mysterious Matters about Books).

YUAN K'o (1182-1234). Chih ch'iung shao chuō yen kuo li 九經三傳沿革例. A work of 1 chiüan in the Chih pu tsu chai collection of Pao T'ing-ch'uan (1728-1814).

