THE EARLY DEVELOPMENT OF SEALS AND RUBBINGS

By

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Introduction

The first edition of Thomas Francise Carter’s (1852-1925) valuable book, The Invention of Printing in China and Its Spread Westward, was published in 1925. Hsiang Ta (何達) translated several chapters into Chinese, and they were published successively in the Library Science Quarterly (圖書館學季刊) and the Bulletin of the Metropolitan Library (北平北海圖書館月刊) from 1926 to 1932. Although the second edition of Carter’s book was published in 1931, it appeared essentially the same as the first one. Liu Lin-shêng (劉麟生) translated the entire book into Chinese from the second edition, and it was published in 1939. Paul Pelliot (1878-1945) once attempted to discuss many questions concerning early Chinese printing. After Pelliot’s death, Robert des Rotours arranged the former’s manuscripts and prepared a book under the title Les Débuts de l’Imprimerie en Chine, which was published in 1953. In 1955, L. Carrington Goodrich wrote a revised edition of Carter’s book. In this edition, some original parts were eliminated while much new material was added.

In Carter’s original book as well as in the revised edition, the second chapter deals with seals, and the third chapter with rubbings from stone inscriptions. Carter believes that seals and rubbings were the forerunners of printing. However, he gives only fundamental ideas without any elaboration. The remarkable account written in detail by Pelliot seems still to be incomplete and even erroneous in some respects. Therefore I shall attempt to make some additions and corrections so as to present a clear picture of the origin of seals and rubbings.

I. Seals

Seals were called “hsi” (璽) in ancient times and since then have been used for authentication. The Shuo-wen (說文), written by Hsü Shen (許愼) in 100 A.D., states: “A seal is something held by an official for authentication.” In his Tu-tuan, (蠲詔) Ts’ai Yung (蔡邕, 133-192) gives the following definition: “Hsi is a seal; a seal serves as a proof of genuineness,” and he adds that in ancient times “hsi” was used by the ruler and also his subjects without any difference. Tuan Yü-ts’ai (段玉裁, 1735-1815), in his Commentary on the Shuo-wen (說文解字注), also explains the use of “hsi” almost in the same manner. These texts indicate that “hsi” was used indistinctly by the ruler as well as by his
It is interesting to try to determine just when the use of seals began. In his *Hou Han Shu*, or the *History of the Later Han Dynasty*, Fan Yeh (范曄, 398-445) says that down to the Three Dynasties, dishonest practices arose, and the use of the seal for checking purposes was started. The *Tung-tien* (通典) by Tu Yu (杜佑, 735-812) states: “As a rule in the Three Dynasties, officials all used gold or jade to make seals, on the upper part of which a dragon or a tiger was carved in whatever forms these officials wished.” Therefore, we must conclude that seals already existed at the time of the Three Dynasties.

For the Hsia Dynasty, we have neither written documents nor archaeological evidence to do any research on this subject. For the Chou Dynasty we have not only ample evidence from written documents about seals, but also many actual remains obtained by excavations. This will be discussed in detail later. Many scholars doubted the existence of seals in the Shang or Yin Dynasty between the two dynasties just mentioned. Hsü Chien (徐堅, 1702-1789) states: “[The use of seals] originated in the Chou, and became more widespread through the Ch’in and the Han.” Lo Chen-yü (羅振玉) states: “As to the oldest seal, we are not able to find any evidence of its existence during the Hsia and Shang Dynasties. Moreover, there is no evidence of its existence prior to the Chou Dynasty.” Wang Hsien-t’ang (王獻唐) also states: “In the Shang or Yin, there was no seal.” These scholars thought so, because at that time no actual remains were found to prove the contrary.

In 1916, Lo Chen-yü discovered that some of the characters on ancient seals greatly resembled those of the inscriptions on ancient pottery and bronze vessels, or animal bones and tortoise shells.

In 1930, in his illustrated book on ancient implements, entitled *Hsuang-chien-ch’ih-ku-ch’i-wu-t’u-lu* (雙劍診古器物圖錄), Yü Hsing-wu (于省吾) recorded three bronze seals and their impressions of the Shang Dynasty, with the characters in relief for the first and second seals (See Fig. 1 a & b) and possibly with characters in intaglio for the third (Fig. 1 c). While the characters on the first and third seals are not legible, it is possible that the second was a famous general’s seal in the period of Wu-ting (武丁). The impression of the latter seal was reproduced in the *Chinese Historical Atlas and Figures* (中國歷史參考圖譜) by Tung Tso-pin (董作賓) in 1953. All of the three seals and their impressions were also inserted in Hu Hou-hsüan’s (胡厚宣) book on *Excavation in the Ancient Site of a Capital of the Yin* (殷墟發掘) in 1955. These three seals, which were obtained from antique dealers, are said to have been excavated at An-yang (安陽). According to Tung Tso-pin, the idea that these three seals came from the Shang Dynasty is quite acceptable. He added,
“Many ancient seals in hieroglyphic characters might have come from the Shang era, but these characters have not yet been deciphered.”

Fig. 1

Impressions of three bronze seals of the Shang Dynasty in about the 14th century B.C. a and b: Characters in relief; c: Characters possibly in intaglio

From the *Hsuan-chien-ku-ch’i-wu-l’u-lu-* 隨器物圖錄 - by Yü Hsing-wu-于省吾

From the Chou Dynasty through the period of the Warring States, to the Ch’in and the beginning of the Western or Earlier Han, the use of seals was already widespread. Let us cite some examples.

In the *Tso-chuan* (左傳), there is mention of a letter closed by a seal stamped on it (壓書, hsi shu) and sent by Chi Wu-tzŭ (季武子) to the Duke Hsiang of Lu (魯襄公) in 543 B.C. The *Chou-li*, or *Rites of Chou* (周禮), says, “The officer in charge of gold, jade, tin, stone, red and blue matter, receives these materials in payment of tax. He discriminates between superior and inferior qualities. He also records the quantity of these materials and has them stamped with a seal.” The *Chuang-tzu* (莊子), after mentioning the tally and seal (符誓, fu hsi) several times, states, “If the tally was burned up and the seal destroyed, people would be ingenuous and sincere.” In the *Lu-shih-ch’un-ch’iu* (呂氏春秋), there is a text saying that “the official seals are to be closed tightly in the first winter month.”

In the Biography of Ch‘èn Shê (陳涉世家) in the *Shih Chi*, or the *Historical Memoirs* (史記), Siu-ma Ch‘ien (司馬遷) records, “Chou Wên (周文) was a man of excellent virtues in Ch‘en; the Prince Ch‘ên gave him the seal of a general (209 B.C.);” and also, “The Prince Ch‘ên sent the seal of the Premier (令尹) Ch‘u (楚) to T‘ien Tsang (田臧) and appointed him a general.” In the Biography of Chang Liang (昌世世家) in the *Shih Chi*, we find mention of “seal cutting” (封印) ordered by Liu Pang (劉邦) in 204 B.C., then Prince Han (漢王), when it was necessary to confer titles on some persons. In the *Biography of
Han Hsin (騫信) in the Ch'ien Han Shu, (前漢書) or the History of the Former Han Dynasty, we also find mention of "seal cutting" ordered by Hsiang Yü (項羽) for similar purposes.

In the Han-chiu-yi (漢舊儀), Wei Hung (衛宏), who lived in the first half of the first century A.D., says, "Before the Ch'in Dynasty a seal of one square inch was made of gold, silver, copper, rhinoceros horn or ivory, just as one wished." This is in accordance with many Chou seals found today. In fact, ninety-nine percent of the Chou seals for private use which still exist are made of copper, and only a small portion of them are made of ivory, rhinoceros horn, stone or pottery. Each seal is not larger than about half of an inch, and this was the so-called square inch seal. The Chou seals for official use are made of copper or jade, and occasionally of iron. The bigger ones are double the size of a square inch, or even larger. Characters on the Chou seals are in an old style, elegant and forceful (古勁合秀), and not very similar to those found in ancient bronze inscriptions. There are still many characters on these seals which have not yet been deciphered. (See Fig. 2 and Fig. 3) These characters are either square or circular. Most of the

Fig. 2
Seal impression of T'ien Chi, a general of Ch'i in the Chou Dynasty in the fourth century B.C. Characters in intaglio.

From the Chou-Ch' in-liang-Hu ming-jen-yin-kao — 周梁漢名人印考—by Wu Ta-ch' eng - 吳大澂

Fig. 3
Impressions of a group of jade and bronze seals probably towards the end of the Chou. Characters in relief.

From Tombs of Old Lo-yang by William Charles White
Chou seals were cast in molds with characters mostly in relief. Only ten to twenty percent of the specimens were made with characters in intaglio. In some of the Chou seals the characters in intaglio were made by a cutting process.\textsuperscript{19}

The Ch'in seals are the same in size as those of the Chou. The characters on the Ch'in seals are similar to certain bronze inscriptions. A statement of Ts'ui Hao (崔浩) quoted in the commentary to the \textit{Biography of Shih-Huang of the Ch'in} or \textit{Ch'in Shih-Huang (秦始皇, 256-210 B.C.)} says, "Li Ssü (李斯) made the great imperial seal with the jade from Ho (和氏璧); the Han emperors all used it, from one generation to another, and it was called the seal of inheritance of the empire."\textsuperscript{20} Eight characters were engraved on this imperial seal. According to the \textit{Nan-ts'un-ch'o-kêng-lu} (南村韻耕錄) which was completed by T'ao Tsung-i (陶宗儀) in 1366, the term "hsi" (璽) was specially reserved for the imperial seal since the Ch'in Dynasty; whereas the term "yin" (印) used for seals of officials originated in the period of the Warring States.\textsuperscript{21}

In the Han, seals followed the Ch'in system, but the style of writing thereon was changed. This style was the same as the "li" (龺) style. Characters of this style were particularly smooth, upright, splendid and imposing. The specimens of the Han seals which still exist are numerous. The Han style continued through the Wei and Chin dynasties without change.

Seals of the Han were made primarily with characters in intaglio no matter whether they were official or private. Those with characters in relief were very rare. (See Fig. 4) The Han seals were principally made of copper, and occasionally made of silver, ivory, jade or other stones. Copper seals were mostly made by casting; however, there were also seals made by cutting. Because of the urgent need in the army, seals for the appointment of officers were usually made by cutting. Official seals of the Han were mostly square, and occasionally rectangular. In the Han, seals of generals (將軍), provincial governors (太守), and censors (御史) were called "chang" (章). The character "chang" used for seals originated in the Han Dynasty.\textsuperscript{22}

Approximately from the Six Dynasties on, all official seals were made with the characters in relief and by casting. Since the Sui and T'ang time, the size of the official seal has been gradually enlarged, and the rank of an officer generally distinguished by the size of his seal.

Before the invention of paper, books and documents were written on bamboo slips (竹簡), wooden tablets (木板), and silk (錦帛). In the Shang or Yin and Western Chou Dynasties, bamboo slips were already in use. According to Wang Kuo-wei's (王國維) research on the method of sealing a letter or a
Seal Impressions of the Han:
a: Liu Shêng, son of Ching-ti of the Han (156-141 B.C.),
   Characters in relief
b: Liu Ming, a prince installed in 151 B.C., Characters in
   relief and in intaglio
c: Liu Hung, son of Wu-tî of the Han (140-87 B.C.),
   Characters in intaglio

From the *Chou-Ch'în-liang-Han-ming-jên-yin-k'ao*
by Wu Ta-ch'êng

document, a certain number of slips or tablets were tied up by a cord with
an added board, called “chien” (検), and sealed with clay, which was then
impressed with a seal. The receiver's name and address were written on the
board. Wang Kuo-wei believes that the seal was invented at the time when
slips and tablets were in use.23 This is in accordance with the fact that copper
seals existed already in the Shang. The earliest mention of the word “sealing
clay” (封泥) which means a piece of clay impressed with characters by a
seal is found in the *Treatise on Civil Servants* in the *Later Han History*
(後漢書, 百官志)24 As its use was long ago abandoned, the fact of its exist-
tence has been scarcely known in modern times. Many pieces of sealing clay
were discovered by excavations principally in Shantung (山東) in the past
hundred years. At first they were considered to be the possible seal molds (印模). Later, Wu Shih-fen (吳式芬, 1796-1856) proved for the first time that they were pieces of sealing clay.25

A passage from the Lü-shih-ch’ü-ch’un-ch’iu reads as follows:

Like a seal applied to “t’u” (塗) or mud; if the seal is square, its impression is also square; if it is circular, its impression also circular.26

Here the “mud” means sealing clay. In a text of the Huai-nan-tzu (淮南子) We find:

Like a seal pressed on “chih” (埴) or sticky soil; if the seal is placed in a perpendicular position, its impression is also in a perpendicular position, if it is in an oblique position, its impression also oblique.27

Here the “sticky soil” is also sealing clay. In the Hsi-ching-tsa-chi (西京韻記) Ko Hung (葛洪), who died in the period of Hsien-ho (咸和, 326-334) at the age of 81, when he referred to the Han Dynasty, said that the Private Imperial Secretariat had used “violet mud of ‘Wu-tu’ (武都紫泥)” for the impression of the imperial seal.28 This was the sealing clay of the emperor.

Today we can still find some specimens of sealing clay of the Chou. Those of the Ch’in are more numerous; those of the Early and Later Han are the most numerous; but those of the Wei and the Ch’in are found less frequently.29 If we examine carefully the impression of sealing clay, we can easily understand the practice of ancient times in regard to this procedure. (See Fig. 5.)

![Fig. 5](image)

Sealing clay of the Han:

a: Impression of the Emperor’s seal on sealing clay

b: Impression of the Prime Minister’s seal on sealing clay

From the Feng-ni-Kao-liao - 封泥考略 - by Wu Shih-fen - 吳式芬 - and Ch’en Chieh-ch’i - 陳介祺

c: Impression on sealing clay of the seal of the Commissioner of Rivers and Irrigation of Ch’i

d: Impression on sealing clay of the seal of the Commissioner of Iron of Ch’i

From the Feng-ni-ts’un-chên - 封泥存真
Wang Kuo-wei believes that in ancient times seals were all applied on clay and not on silk. But, as Tsien Tsun-hsün (錢任訓) points out, of the two pieces of silk—not dyed—cut from the same material, found by Aurel Stein in the Tun-huang area, one has a seal impression of rectangular form, which is not clear, whereas the other piece has written characters indicating the size, the weight, and the price of a roll of silk of the “ku-fu” style in the Jen-ch'eng state (任城國夕父離一匹). Basing his conclusion on the Hou Han Shu which says that the Jen-ch'eng state was created in 84 A.D. (in the present Chi-ning 華亭 in Shantung), Chavannes says that the written text mentioned the price of this style of silk at the end of the first century and the beginning of the second century A.D. What is particularly interesting to us is the seal impression which in that period must have been applied also to the silk.

Wang Kuo-wei adds: “Since the characters of the Chou and Ch'in seals were mostly in relief, and the Han seals were mostly in intaglio, consequently there were two kinds of inscriptions resulting from the impression of sealing clay.” By “two kinds of inscriptions” he means inscriptions in intaglio and in relief on sealing clay.

Paper was invented by Ts'ai Lun (蔡倫) in 105 A.D., but the use of paper did not become general in China until the fifth century in the period of the Southern and Northern Dynasties. At that time the use of bamboo slips and wooden tablets was entirely abandoned and replaced by paper, and sealing clay was no longer used. Since the fifth century, seals have generally been applied on paper and inked in red with vermilion. This is the reason why seals were called “red seals” (朱印) in the period of the Southern and Northern Dynasties. The earliest mention of “red seals” is found in the Biography of Lu Tung (盧同, 476-532) in the Hou Wei Shu (後魏書). In a letter to the Later Wei Court regarding rules for the nomination and promotion of officials, Lu Tung spoke of red seals for stamping some lists of officials as being in common use. According to the Tsu-chih-t'ung-chien (袁治通鑑) by Ssu-ma Kuang (司馬光, 1018-1086), this letter was addressed to the court in 517 A.D.; it is evident that the use of red seals began much earlier than that year.

There is also mention of “red seals” in the Biography of Lu Fa-ho (陸法和傳) in the Pei Chi Shu (北齊書, 550-577).

In the Han, sealing clay was most commonly used. When seals with inverted characters in intaglio were applied on clay, the characters came out in their proper position and in relief. On clay, characters in relief are clearer than in intaglio. This is the principal reason why the Han seals were made chiefly with characters in intaglio. In the Southern and Northern Dynasties, the use of sealing clay was abandoned, and since then, vermilion has been
used instead. When seals with inverted characters in relief are applied on white paper, after being inked with vermilion, the characters come out positive and red on white ground. These characters thus impressed have been called “red characters” (朱文). If seals with inverted characters in intaglio are applied on white paper, when inked with vermilion, the characters come out positive and white on red ground. These characters from such an impression have been called “white characters” (白文). On paper, the “red characters” are clearer and more attractive than the “white characters”, and this is the reason for using seals with characters in relief for all official seals in the Six Dynasties.

It seems certain that the names of “red character seal” (朱文印) and “white character seal” (白文印) have appeared since the use of vermilion. At the time when sealing clay was in use, there were only seals with characters in relief and seals with those in intaglio, but the terms of “red characters” and “white characters” did not exist. We know that today the term “red characters” (朱文) is equal to that of “characters in relief” (陽文), and the term “white characters” (白文) is the same as that of “characters in intaglio” (陰文). But this terminology has been available only since the use of vermilion, and this was not the conception at the time when sealing clay was in use.

The Hsieh-ku-pien (學古篇), written by Wu-ch’iu Yen (吾邱衍, 1272-1311) in 1309, says: “All the seals of the Han and the Wei were made in white characters.” The Nan-ts’un-ch’o-kêng-lu, completed by T’ao Tsung-i in 1366, states, “The Han and the Chin seals all had white characters.” In the Yin-chang-chi-shuo (印章集説), Wen P’eng (文彭, 1498-1573) says: “All ancient seals had white characters.” He also says: “There were no seals with red characters in ancient times; red character seals originated in the Six Dynasties.” Kan Yang (甘陽) of the Ming Dynasty also cites in his Yin-chang-chi-shuo (印章集説), “There were no seals with red characters in ancient times; they began to appear in the Six Dynasties, and they became more popular in the T’ang and the Sung.” The Yin-tien (印典), written by Chu Hsiang-hsien (朱象賢) who lived in the first half of the eighteenth century, states: “The seals of the Six Dynasties were changed according to [the style of] the time, and red characters and white characters gradually came into use.” These texts are somewhat ambiguous and may lead readers to erroneous interpretations. If these statements are taken as an indication that vermilion was first used on paper in the Six Dynasties, this assumption is justified. If we assume that all ancient seals had characters in intaglio and seals with characters in relief began only in the Six Dynasties, that is wrong and contrary to historical facts. As shown above, there were seals with characters in relief in the Shang Dynasty. Among
the Chou seals, those with characters in relief were more numerous than those with characters in intaglio. Although the Han seals had characters mainly in intaglio, there were also a small number of them with characters in relief. Therefore, it is untrue that all ancient seals had only characters in intaglio, and that seals with characters in relief were an invention of the Six Dynasties.

In a posthumous work by Pelliot, there is no mention of seals prior to the Han. We find the following passage in particular:

The Chinese seals of the Han and the beginning of the Six Dynasties were engraved with characters in intaglio and applied generally on clay or wax; the characters came out in relief on clay or wax. When they were applied on a flat surface, they had to be inked, most frequently with vermilion, and the characters came out white on a red ground. As far as we can judge, it was only toward 500 A.D. that seal cutting in relief was devised, and, when inked with vermilion, the characters came out red on a white ground.41

Some passages in the chapter on the use of the seal, in the revised edition by Goodrich of Carter’s book, are based on Pelliot’s work. Goodrich adds:

But around the year 500 A.D., someone conceived the idea of cutting seals in relief which, when inked with vermilion, came out red on a white ground. This was a capital shift, vital in the prehistory of printing, wherein characters had to be cut in reverse and in relief.42

As the term “red seal” was already in common use in 517 A.D. in the days of Lu T’ung, it seems certain that the use of vermilion for inking seals began much earlier than 517. Moreover, the discovery by Aurel Stein in the Tun-huang area of a piece of silk on which a seal impression must have been applied in about 100 A.D. shows that the use of vermilion for seals may have gone back to the time when silk was used as writing material before the invention of paper. However, the use of vermilion for seals applied on paper became general only in the fifth century after the use of paper had become general. Anyhow, the fact that one could obtain characters in red on white ground by using seals cut in relief, when inked with vermilion, is certainly an important step forward. If seals in ancient times had only characters in intaglio and if seals with characters in relief had not appeared until about 500 A.D., then progress in the development of seals in relation to the invention of printing would seem more logical. But actually the historical facts were otherwise. Seals with characters in relief were invented much earlier than 500 A.D., and as I have shown above, they had existed since ancient times. This mistake on the part of Pelliot may be due to his misunderstanding of certain records from authors such as Wu-ch’iu Yên, T’ao Chung-i, Wen
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Pêng, Kan Yang, and Chu Hsiang-hsien, cited above.

A hundred years before Ch'in Shih-huang's conquests, Alexander the Great (356-323 B.C.) had conquered a part of India and had brought Greek culture to certain countries of Central Asia. Consequently Carter thought that it was not an impossibility for the Hellenistic influence to penetrate into China as far as the use of seals was concerned. According to our knowledge today, we can say for certain that this supposition is not correct. The seal was a Chinese invention without any doubt. About 1000 years before Ch'in Shih-huang, seals had already existed in China, and were in common use in the Chou Dynasty. Therefore, there was not any influence from abroad on the use of seals in China.

Besides the use of seals for authentication by official and private persons, seals were also used by Taoist priests to make their charms by impressing seals on paper. Seals used by them were made of wood, and became much larger—several inches square. Now let us cite some passages as examples of these Taoist charm seals:

The Hou Han Shu reads:

In the second month of summer, seals were made of peach wood (桃印), six inches in length and three inches in breadth, on which words were written in five colors according to rule. They were placed at the gates or doors. 43

These so-called seals of peach wood must have been of the first or second century A.D. As the words were written in five colors and not cut with knives, the characters must have been in a normal position and not in reverse. Although they were called seals, they were really not seals but charms hung on doors.

In the Pao-p'u-tzû Nei-pien (抱朴子内篇), Ko Hung says:

The ancients who went up to the mountains wore a 'yûeh-chang' seal of the Yellow God (黃神越章之印), four inches in breadth and having a hundred and twenty characters. With the seal, they made impressions on sealing clay which they placed around the spot they had chosen to stay at, one hundred steps (步, pu) long on each of the four sides. Tigers and wolves did not dare to go inside this barrier. If, while traveling, the ancients saw a tiger's fresh footprint and impressed the seal there in the same direction in which the beast had moved, they made the tiger proceed in the same direction; but if they impressed the seal in a contrary direction, the tiger turned back. As a result of having these seals with them in the mountains, the ancients were not afraid of tigers and wolves. Moreover, they could make blood-thirsty, evil gods of the hills and streams or temples powerless
by placing seal impressions on sealing clay along the path—if there were such evil gods capable of causing unhappiness or bad luck.  

In this strange statement, what is interesting to us is the seal, four inches in breadth and having a hundred and twenty characters. As this seal was used for making impressions on sealing clay, the characters must have been cut in reverse, and this is entirely different from seals of peach wood mentioned in the *Hou Han Shu*. This also shows that sealing clay was still in use at Ko Hung’s time in the second half of the third century and the beginning of the fourth.

In referring to a method used for subduing tigers and leopards, a commentary to the *Ch'ü-hsüeh-chi* (初學記), written by Hsü Chien (徐堅, 659-729) in 725, states that the Taoist priests should cut seals, four inches square, made of the heart of jujube wood. This last sentence is also quoted in the *Ko-chih-ching-yüan* (格致鏡原).  

The seal made of jujube wood was just the same size as the “yüeh-chang” seal described by Ko Hung, but he did not mention of what wood the seal was cut, while the *Ch'ü-hsüeh-chi* indicates that the seal was made of jujube wood.

According to the *T'ung-tien* (通典), in the court of the Northern Ch'i there was a large wooden seal, one foot two inches long, two and half inches wide, with four characters. This seal was used to stamp the joining of copies of documents (以印縫). This is the largest of old seals ever mentioned. This usage also indicates that the origin of using a seal for stamping the joining of document copies or envelopes, a practice which is still in use in China today, dates back to the Northern Ch'i times. Although the *T'ung-tien* does not specify whether the characters of this large wooden seal were in relief or in intaglio, we must assume they were in relief, because all official seals were made with the characters in relief approximately from the Six Dynasties on, as mentioned above.

The large seals made of wood by the Taoists for the impression of their charms and the large wooden seal of the Northern Ch'i for stamping the joining of copies of documents may be considered a transition from the seal to the block used for printing.

A seal is just a reduced block for printing, while a block for printing is an enlarged seal. If a seal with inverted characters in relief is inked with black ink to replace vermilion ink and applied on white paper, the characters will come out positive and black on white ground. This is nothing other than block printing. In fact, a block for printing consists of a large flat wooden board, with characters cut in reverse and in relief, and inked with special
black ink. When we smoothiy put a sheet of paper over the board and press it slightly, we have printed matter.

Carter's belief that the use of the seal with inverted characters in relief might have led to the invention of printing is certainly correct. As Carter points out, the seal was small, and its purpose was authentication; the block print was larger and its purpose was reduplication. Although the purpose is different, the Chinese word "yin" (印) today denotes both print and seal. A study of the history of the word sheds considerable light on the origin of Chinese printing. In developing his ideas, Carter has brought out the essential point.

II. Rubbings

Inked rubbings (摩樺 or 拓本) can be made from any inscriptions or designs in relief or in intaglio on stone, wood, bronze, tile and brick. But the most common practice is the taking of rubbings from stone inscriptions. This is purely a Chinese method of duplication or reproduction. A sheet of thin paper is laid on the surface of the stone inscription; the paper is forced into every depression and crevice of the stone with a brush or some pad; then an inked pad is passed lightly over it; finally the paper is peeled off. As characters on stone inscriptions are usually in a normal position and in intaglio, they come out white on black ground. The direction of the text on the paper is the same as that on the stone from which it is taken. The practice of taking rubbings must have been invented after paper came into use.

The oldest stone inscriptions which still exist in China are those on Stone Drums (石鼓), of which there are ten in number. They were unearthed at Fēng-hsiang (鳳翔) in Shensi (陝西) probably in the period of Chēn-kuan (貞觀, 627-649). The date of their cutting which has been much discussed for a long time is one of the most controversial subjects. These stone inscriptions were generally said to have been cut during the reign of the King Hsūan of the Chou (周宣王, 827-780 B.C.). But Chēng Ch'iao (鄭樵, 1104-1162) of the Southern Sung considered them inscriptions of the Ch'in. In 1923, Ma Hêng (馬衡) determined that the date must have been in the years of the Duke Mu of Ch'in (秦穆公, 658-629 B.C.). Finally, according to Kuo Mo-jo's work in 1939, the Stone Drum Inscriptions were made in 770 B.C. in memory of the glory of the Duke Hsiang of Ch'in (秦襄公) and his army against Ch'üan-jung (犬戎) to help the King P'ing (周平王) to move to the East. Kuo's conclusion seems to be correct, as his investigation is more thorough. Originally, there were more than seven hundred characters in the ten Stone Drums. In the days of Ou-yang
Hsiu (黃陽修, 1007-1072), the number of characters was reduced to 465, because of damage. Today there only 321 remain.

There were six stone inscriptions in memory of the imperial visit of Ch'in Shih-huang in the East. These stone inscriptions were made successively at Tsou-i-shan (鄔嶺山), T'ai-shan (泰山), Chih-fu (芝罘), and Lang-ya (琅琊) in 219 B.C.; then at Chieh-shih (碣石) in 215 B.C.; and finally at K'uai-chi (會稽) in 209 B.C. Today only the stone inscription at Lang-ya T'ai (琅琊臺) remains in the Hai-shên Temple (海神廟) at Chu-chêng (諸城) in Shantung.

In order to insure accuracy of the six Confucian Classics, Ts'ao Yung (蔡邕) wrote the text with his own hand on stone in the fourth year of the Hsi-p'ing (熹平) period of the Later Han or in 175 A.D. Then, the characters were cut by specialists, and these stones were erected outside the gate of the National University (太學) in Lo-yang (洛陽). These stone inscriptions, which were the first of Confucian Classics, are called the “Hsi-p'ing Stone Classics” (熹平石經). They were followed by the “Chêng-shih Stone Classics” (正始石經) cut in the Chêng-shih period (240-249) of the Wei, and the “K'ai-chêng Stone Classics” (開成石經), of which the cutting was completed in 837 A.D. in the K'ai-chêng period of the Tang. Later, cuttings of Confucian Classics were also made during the Hou Shu of the Mêng House (後蜀孟氏) in the tenth century, in the Chia-yu (嘉祐) period of the Northern Sung in the eleventh century, and during the reign of Kao-tsung (高宗) of the Southern Sung in the twelfth century.

Today, only the twelve classics on stone of the K'ai-chêng period (together with the thirteenth classic containing the teachings of Mencius cut in stone in the Ch'ing Dynasty) still remain at the Stele Forest in Si-an (西安碑林). Although certain characters have been changed by cutters of later times, these stones are the originals of the Tang. As for the Hsi-p'ing Stone Classics, the Chêng-shih Stone Classics and other stone classics, we now have only certain fragments or rubbings from fragments.

The practice of cutting texts of the Buddhist Canon flourished in the Northern Ch'i (北齊). Stone inscriptions of this epoch have been found at T'ai-yüan (太原) in Shansi (山西), and at Wu-an (武安) in Honan (河南). As they feared a possible destruction of their canon, the Buddhist monks, on certain occasions, cut the texts on stones and put them in grottoes. The stones or steles bearing inscriptions of the Buddhist Canon have thus been preserved in considerable numbers in grottoes on the Stone Canon Mountain (石經山), and have also been buried under the south pagoda of the Hsi-yü Temple (西嶽寺), both places being at Fang-shan District (房山縣) in Hopei (河北). Based on the records of the Jih-hsia-chiu-wên (日下舊聞) and the Jih-hsia-chiu-wên-k'ao
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(日下舊聞考), I found in 1935 that there was a total of 7135 steles, of which 2875 were in the Stone Canon Mountain and 4260 under the south pagoda in the Hsi-yu Temple. These 7135 steles may be divided into two categories: those of the Sui and T'ang times from the first year of Ta-yeh (大業) to the fourth year of Yüan-ho (元和), that is, from 605 to 809; and those of the Liao (遼) from the seventh year of T'ai-p'ing (太平) to the tenth year of Ta-an (大安), corresponding to 1027-1094.53

As for the Taoist texts, the Tao-teh-ching of Lao-tzü has been cut on stone in the T'ang, Sung, and Yüan Dynasties. The oldest stele of the Tao-teh-ching (道德經) was cut in the second year of Ching-lung (景龍) of the T'ang (708 A.D.), and it is now in the Lung-hsing-kuan of I-hsien (易縣, 龍興觀) in Hopei. A little later, in the twenty-sixth year of K'ai-yüan (開元, 733 A.D.), a pillar with inscriptions of the Tao-teh-ching (道德經) was cut and is also found in the Lung-hsing-kuan of I-hsien. One year later, in the twenty-seventh year of K'ai-yüan (739), another Tao-teh-ching pillar was cut and is preserved today in the Lung-hsing-kuan of Hsing-t'ai District (邢臺縣) in Hopei.54

When did the practice of taking rubbings from stone inscriptions begin? Like the use of seals and many other Chinese inventions in ancient times, the exact date of the beginning of this practice cannot be determined. We know only the approximate time when it started.

Certain authors have believed that the taking of rubbings began immediately after the cutting of the Hsi-p'ing stone classics in the Later Han. In the Hou Han Shu, a passage in Ts'ai Yung's Biography (蔡邕傳) concerning the stone classics, says:

Later scholars and junior students all took these inscriptions as a standard (取正, 輸古-銘). As soon as these stones had been erected, people came to see them and to make copies by following the text (錦繡, 莫識). These people were so numerous that the horse carts (in which they came) were more than a thousand every day (車乘日千餘輛).

Some authors have interpreted the Chinese words “chü-cheng” and “mo-hsieh” as meaning “taking rubbings from stone inscriptions.” Referring to the stone classics written by Ts'ai Yung in his History of Chinese Printing, Sun Yü-hsiu or Liu-an (孫毓修, 留菴) said in 1916, “People returned home after taking rubbings (摹榻而歸).”55 Carter translated the Chinese word “mo-hsieh” as “to make exact copies.” He said that this word actually referred to the making of rubbings by the traditional interpretation, and that this form of printing or pre-printing went as far back as the second century. But immediately after this statement, he expressed his doubt on this point by declaring, “whether this is true or not, the process certainly began early.”
In fact, the taking of rubbings did not begin in the days of Ts'ai Yung, though paper was invented 70 years earlier. The goal of cutting in stone the text of Confucian classics is to fix the standard of the text in order to avoid errors, and also to insure permanency. During the Later Han era, the practice of taking inked rubbings was still not known. The word “mo-hsieh” in the passage of Ts'ai Yung’s Biography means to “make copies by following the text”, and does not have the meaning of “taking rubbings.”

The I-shan stone inscription was cut in the twenty-eighth year of Ch’in Shih-huang (219 B.C.). It has been said to have been written by Li Ssū (李斯), and was burned in a later period. In his Chien-wen-chi (封氏見聞記), Fêng Yên (封演) wrote in detail about the I-shan inscription at the end of the eighth century in the T’ang:

The Tsou-shan-chi (郯山記) says: ‘Tsou-shan or the Tsou Mountain was formerly called I-shan (繡山). It was the place where Ch’in] Shih-huang ordered a stele to be cut. The characters are clearly marked. [Ch’in] Shih-huang went up the mountain in a cart drawn by goats. The path still exists.’ This was the I (繡) area where Wên-kung of Chu (呉文公) moved to in the Spring and Autumn Period (722-481 B.C.). The stone inscription which glorified Shih-huang was made with characters of the small ‘chüan’ style by Li Ssū. The Emperor T’ai-wu of the Later Wei (後魏太武帝, 424-452) climbed the mountain and ordered the stele to be thrown down. But during successive dynasties, rubbings were taken from this stele and were used as a model for handwriting. People of the district were tired of executing these orders, and they put firewood under the stele. A prairie fire (野火) then broke out, and the stele was burned. Since then, the stele has been mutilated, and it has not been possible to take rubbings. However, high officials still asked the clerks to go up the mountain, and the inhabitants and clerks became increasingly disturbed. A district chief took the ancient text and engraved it on stone in several steles. He put them in the district office building, so that rubbings could be taken there if necessary. From that time on, the inhabitants at the foot of the mountain and the clerks of the district were able to relax. All inscriptions of I-shan which we have today by chance are inscriptions cut recently. The text says among others: ‘It was cut on this musical stone (樂石, yüeh-shih.)’ Scholars have not understood the meaning of ‘yüeh-shih.’ Yên Shih-ku (顏師古) said that this stele had been made of chime-stone (磬石) from the bank of the Shih river (泗濵). The other inscriptions cut by Ch’in Shih-huang at Lang-ya and K’uai-chi mountains do not bear this term of yüeh-shih at all. We find such a term only in I-
shan. Therefore, we can understand the correctness of Yên Shih-ku's commentary.\textsuperscript{56}

The *Tsu-chih-t'ung-chien* (資治通鑑) records that in 450 A.D. the Emperor of the Hou Wei was on the Tsou Mountain, saw the stone inscription of Ch'in Shih-huang, and ordered it to be thrown down.

The account of Fêng Yên is very important as far as the history of rubbings is concerned. Although the stele was thrown down in 450 A.D., the inscriptions on the original stone seemed to be undamaged. The words “successive dynasties” must have referred to the dynasties from the Later Wei to the T'ang. Therefore, the taking of rubbings was known in China in the fifth century or even earlier.

In the Wei and the Chin, ink-making in China was much improved. In the era of the Southern and Northern Dynasties, the use of paper became general in China. Since then, inked rubbings from stone inscriptions have been developed.

Hsü Hsüan (徐鍇), who died in 991 in the Northern Sung, obtained a “mo-pên” (模本) of the I-shan stone inscription towards the end of his life, and he was extremely happy to have it. Chavannes translated “mo-pên” as rubbing (in French: estampage);\textsuperscript{57} but Pelliot said categorically that “mo-pên” was a replica. I believe that Pelliot was right. Chêng Wên-pao (鄭文寶), a student of Hsü Hsüan, again engraved on stone in Ch'ang-an (Si-an) the text according to the “mo-pên” of his master in the fourth year of the Ch'un-hua (淳化) period (993 A.D.).\textsuperscript{58}

The *Hsüeh-ku-pien* (學古編) says:

The copies of Li Ssu's stone inscription at I-shan which are vertical and long are genuine copies (真本), while those which are horizontal are all “mo-pên”. As the form of the copy of Chêng Wên-pao, Hsü's student, is long and conforms to the rule, this copy is most likely a genuine copy.

In the *Yü-shih* (語石), Yeh Ch'ang-chih (葉昌熾, 1846-1917) says that the I-shan inscription was burned in the T'ang and there were replicas at that time. Quoting Yang Tung-li's (楊東里) account, the *Yü-shih* says that among seven reduplications on stone, the stele cut by Chêng Wên-pao was the best. But according to Yeh Ch'ang-chih the characters of Chêng Wên-pao's stele, compared with the inscriptions of genuine Ch'in writing at T'ai-shan and at Lang-ya, looked so different that Chêng Wên-pao might have used a forgery for his copy, and those of the six others were not worth speaking of.\textsuperscript{59}

I think that in the *Hsüeh-ku-pien* the term “genuine copy” refers to a rubbing copy from the original stone inscription and the term “mo-pên” to a replica. If Chêng Wên-pao's copy had been a rubbing, the style of characters on his
stele would not have been so different from that on stone inscriptions at T'ai-shan and Lang-ya. This proves that “mo-pên” meant a replica and that Chêng Wên-pao’s copy was just a replica and not a rubbing.

The famous poet Tu Fu (杜甫, 712-770) of the T’ang wrote a poem on Li Ch’ao’s handwriting of the “pa-fên hsiao chuan” style (李潮八分小篆歌) in the middle of the eighth century. He said, “The inscription of I-shan was burned in a prairie fire; [the characters of] the re-cutting on jujube wood are corpulent and somewhat different.”

From this poem, we learn that after its burning, the stone inscription of I-shan was re-cut on jujube wood, but the characters were not identical to those of the original inscription.

Another reference to the re-cutting on wood of the stone inscription of I-shan and also to early rubbings is found in a commentary to the Shu-shu-fu (述書賦). The Shu-shu-fu was written by Tou Ch’i (太常) in the T’ang in the second half of the eighth century, and its commentary by his elder brother Tou Mêng (寶蒙). They were both known as calligraphers. In this commentary, after speaking of rubbing copies (打本, “ta-pên”, of which the meaning is the same as 拓本, “t’ai-pên”) from the Ten Drums, Tou Mêng said that after the destruction of the I-shan stele written by Li ssû in the “hsiao chuan” style, people of the area had cut (the text) on wood to replace the stone inscription. He also stated that the rubbing copies from the wood cutting and those from (Li) Ssû’s stone inscription were both rather rare (與斯石上本異稀). Furthermore, referring to four sheets of a rubbing copy from the stone Confucian classics written by Ts’ai Yung, Tou Mêng declared that this rubbing copy which he had seen was the rarest (其本最稀) because of the destruction of the stone. As these rubbing copies were described as being “rare” or “the rarest” they were certainly old rubbings.

As Pelliot notes, it is evident that characters cut on stone or on wood as a substitute for the original inscription are in a normal position and in intaglio, so that rubbings can be made from the new cutting, and not in reverse and in relief like printing blocks. However, Goodrich makes a remark in a footnote to the revised edition of Carter’s book:

Literary sources, however, indicate that ink squeezes (rubbings) were made a century and a half earlier (than the reign of the Emperor T’ai-tsung (627-649)), not only from stone slabs but also from wooden negatives of stone slabs. This is significant as it indicates that positives could be made directly from them—an important step in the prehistory of printing. This remark may lead readers to confusion. It is extremely probable that cutting on wood as a substitute for the stone inscription of I-shan took place in the T’ang, and not 150 years before T’ai-tsung of the T’ang. Since characters
of the original stone inscription and of its substitute, the cutting on wood, are all in a normal position and in intaglio, and come out white on black ground when rubbings are taken, it seems that there is no question of negatives or positives in this case.

The Bibliography of the Sui Shu (隋書經籍志) records a roll (卷) of the text of the stone inscription at K’uai-chi and a certain number of rolls of stone Confucian classics. There is also mention of eight rolls of stone classics of Chêng’s Book of Historical Documents in modern characters, which belonged to the Liang Dynasty (502-556) and which were lost (梁有今字石經鄭氏尚書八卷亡). In referring to the stone Confucian classics of the Han and the Wei, the Sui Shu further adds that at the beginning of the Chên-kuan (貞觀) period (627-649) in the T’ang, Wei Chêng (魏徵) began to gather the stones and obtained only less than ten percent of the total number. It also states that rubbings formerly made (相承傳拓之本) from these stone classics were still in the Library of the Imperial Palace (秘府). 64 This passage of Sui Shu is quoted in the Yü-hai (玉海) written by Wang Ying-lin (王應麟) of the Sung. 65

Since the stone classics were counted in rolls, they must have been rubbings from the stone classics, and certainly not the stone classics themselves. The mention of the loss of eight rolls of stone classics belonging to the Liang indicates that the taking of rubbings must have been commonly practiced in the Liang Dynasty in the first half of the sixth century. Furthermore, the “rubbings formerly made” must have been old rubbings taken before the T’ang.

Before entering into the early period of the T’ang in the history of rubbings, let us discuss a story of rubbings in connection with the Rhythmic Composition of One Thousand Characters (千字文) written by Chou Hsing-ssü (周興嗣) by the order of the Emperor Wu of the Liang or Liang Wu-ti (梁武帝, 502-549). This story is found in the Shang-shu-ku-shih (尚書故實) written by Li Ch’o (李紱) of the T’ang and also in the T’ai-p’ing-kuang-chi (太平廣記) which Li Fang (李昉) and others completed in the third year of the T’ai-p’ing-hsing-kuo (太平興國) period (978 A.D.) in the Sung. According to both books, Liang Wu-ti ordered rubbings of one thousand different characters to be made from the stone cutting of the handwriting of Wang Hsi-chih (王羲之, 320-379), who was considered the most famous Chinese calligrapher. Each character was on a separate piece of paper, and all these characters were mixed. Then Liang Wu-ti told Chou Hsing-ssü to make a rhythmic composition with these characters. The latter completed the composition on that very evening, and the hair on his temples turned white as a result of the strain. 66

According to Hu Shih (胡適), in the Biography of Chou Hsing-ssü in the Liang Shu (梁書) and in the Nan Shih (南史) there is mention only of the rhythm-
mical composition of one thousand characters written by Wang Hsi-chih (王羲之書千字), but not of taking rubbings of one thousand different characters. Hu Shih believes that this passage in the Shang-shu-kü-shih and in the T'ai-p'ing-kuang-chi is not correct. On the other hand, the story that Chou Hsing-ssu's hair turned white on that very evening because of his hard task sounds like fiction. There seems to be some exaggeration in certain sentences of this passage, but on the other hand the taking of rubbings must have been commonly practiced in the Liang as indicated above.

Now we shall come to the early period of the T'ang, the period before the invention of printing. In this period, the practice of taking rubbings became very common.

Quoting Ho Tzŭ-ch'u's (何子楚) remark, the Ki-chih-ching-yuan (格致鏡原) says:

T'ang T'ai-tsung ordered his private-secretaries (供奉) to practice handwriting by imitating the Lan-t'ing-hsü as a pattern (臨蘭亭序). Only the copy imitated by Ou-yang Hsien (歐陽詢, 557-641, a famous Chinese calligrapher himself) was most similar to the pattern. This copy was cut on stone which was kept in the Imperial Palace. Copies from other persons were released outside, and for a certain length of time high officials hurried to take rubbings from them (爭相打破).69

According to the T'ang-liu-tien (唐六典), in the Hung-wén-kuan (宏文館) belonging to the Mên-hsia-sheng (門下省), three posts of rubbing makers (揔書手), were created in the twenty-third year of Chên-kuan (649 A.D.), abolished in the third year of Lung-shuo (龍朔, 663 A.D.), and re-created in the first year of Shên-lung (神龍, 705 A.D.). In addition, there were six rubbing makers in the Chi-hsien-tien Shu-yüan (集賢殿書院) and two in the Ch'un-wén-kuan (崇文館) belonging to the Crown Prince.69

In the Treatise on Civil Servants in the Hsin T'ang Shu (新唐書), there is also mention of rubbing makers.70

Thus in the early period of the T'ang, the taking of rubbings was a very common practice. As posts of rubbing makers were established in different offices, rubbings taken by them must have been numerous.

Among the old rubbings which still exist today, the Sung rubbings are very rare, while the T'ang rubbings have almost disappeared. However, because of dry weather in the Northwest of China, some rubbings of the T'ang have been preserved at Tun-huang (敦煌) in Kansu. In March 1907, Aurel Stein (1862-1943) obtained five leaves of ink-rubbings from the inscription of Ou-yang Hsü, made up into a booklet, from a chamber of the Caves of the Thousand Buddhas at Tun-huang (敦煌千佛洞). In December of the same year,
Pelliot found two more leaves at the same place.\textsuperscript{21} These rubbings were taken from the inscription on the pagoda built in memory of the monk Jung of the Hua-tu Temple (化度寺邕禅师塔铭). The text of the inscription was prepared by Li Pai-yüeh (李伯燁), and the characters were written by Ou-yang Hsün in the normal style (正書) in the eleventh month of the fifth year of the Chên-kuan period (631 A.D.).\textsuperscript{22} Also from Tun-huang, Pelliot brought to Paris a rubbing copy from the stone inscription of T'ang T'ai-tsung's autograph in praise of a warm water spring (溫泉銘), and a rubbing copy of the Diamond Sutra (金剛經) from a stone inscription of Liu Kung-ch'üan (柳公權, 778-865, another famous calligrapher) handwriting in the “k'ai-shu” style (楷書).

According to Lo Chên-yü's study, the rubbing copy of T'ang T'ai-tsung's autograph consists of forty-eight lines: its upper half is missing: the title, the date and the name of the author are not included: the author called himself “chên” (陳), and the style of the characters appears similar to that of the steles of Kao-tsung of the T'ang (唐高宗); the last strokes of the characters “shih” (世) and “min” (民) are not lacking (Shih-min 世民 was T'ang T'ai-tsung's name); therefore, the text was compiled and written by T'ang T'ai-tsung himself. The text is not collected either in the T'ai-p'ing-yü-lan (太平御覽) nor in the Ch'üan-T'ang-wên (全唐文). Experts on bronze and stone inscriptions (金石家) have not recorded the text either. Only by looking into the text carefully did Lo Chên-yü learn that the text was written to praise the warm water spring. At the end of the sheet of paper on which the rubbing was made, there is a line of inked writing. The name of some one who saw the rubbing was written there, and the date of this inked writing was the eighth month of the fourth year of Yung-hui (永徽, 654 A.D.).\textsuperscript{24}

Thus the rubbing copy of T'ang T'ai-tsung's autograph with the additional words written in 654 A.D. was made at the beginning of the T'ang Dynasty. It is the oldest rubbing copy which still exists in the world.

There is no doubt that the practice of taking rubbings began much earlier than the invention of block printing. Was there some influence of rubbings on the invention of block printing? In reviewing Carter's book, A. C. Moule expresses the opinion that printing was not suggested by rubbings. He says that the two processes were essentially different.\textsuperscript{25} This opinion is shared by C. Peake.\textsuperscript{26} But Pelliot, who is inclined to agree with Carter's theory, says that there probably was some connection between the history of rubbings in China and printing. Shimada Kan (島田翰) goes further. He stated in 1903 that between the stone inscription in intaglio and the wood cutting in relief, there was only a slight difference. According to Shimada, rubbings from the wood cutting of the I-shan inscription may be called block printing. He said
“The I-shan inscription is not simply composed of a few words. Why wasn’t it named ‘inked block’ (墨板, mo-pan)? The only difference is that one was cut in intaglio and the other was cut in relief.”

This remark seems to be justified.

In fact, for stone inscriptions, characters are cut on stone in a normal position and in intaglio, and come out white on black ground when rubbings are taken; while, for block printing, characters are cut on wood in reverse and in relief, and come out black on white ground when printing is done. So the difference between rubbing and block printing is that the former is taken from characters in intaglio and the latter from those in relief. It is more than probable that rubbings led to the invention of block printing.

So far we have spoken of stone inscriptions of which characters are cut in a normal position and in intaglio. However, in the Southern and Northern Dynasties, sometimes characters were cut in relief on the top part of a stele, and so were those cut in reverse on a stone “ch’üeh” of a tomb (墓誌). The Yu-shih records two steles in the Northern Dynasties with characters in relief on their top parts; one of the steles was cut in the Hou Wei (後魏) and the other in Wu-p’ing (武平) period (570-575) of the Northern Ch’i (北齊). The Yu-shih further says that characters in reverse are found on a “ch’üeh” on the path to Hsiao Ching’s (蕭景) tomb in the Liang (梁), a Southern Dynasty (Hsiao Ching, a cousin of Liang Wu-ti, was the Marquis Wu-p’ing Chung 呉平忠侯), and also on a fragment of a “ch’üeh”
(殘闕) of only two characters.

At Kan-chia-hsiang (甘家巷), a village near the Hsi-hsia Mountain (棲霞山) outside Nanking, there is a site of old tombs of the Six Dynasties. There still remain certain stone inscriptions which I saw in 1931. Among them we have the right stone “ch’üeh” of Hsiao Ching’s tomb mentioned above (the left one is missing). On this “ch’üeh” there are twenty-three characters cut in reverse in six vertical columns from top to bottom and from right to left. These characters indicate the title and the name of the person buried in the tomb, and the dynasty to which he belonged (see Fig. 6).

Another site of old tombs of the Six Dynasties is at Tan-yang (丹陽) in Kiangsu. Two stone “ch’üehs” on the path to Hsiao Shun-chih’s (蕭順之, Liang Wu-ti’s father) tomb, with eight characters on each, still exist. Characters on the left “ch’üeh” were cut in a normal position, and those on the right “ch’üeh” were cut in reverse from top to bottom and from left to right (see Fig. 7).


From the *Liu-ch’ao-ling-mu-Hsiao-ch’u-pao-kao*
As far as the history of block printing is concerned, much attention should be paid to the characters cut in reverse on the stone “chüehs” of Hsiao Ching’s tomb and Hsiao Shun-chih’s tomb. Particularly, the characters on the right “chüeh” of the latter’s tomb were cut in the same manner as wooden blocks cut in later times for printing, and printed matter can be obtained from this stone “chüeh” by means of the printing process; so the stone inscription on this “chüeh” or something similar may have led directly to the invention of block printing.

Conclusion

Seals have probably been in use for more than three thousand years in China. The taking of rubbings began about 1500 years ago. The use of seals and the practice of taking rubbings from stone inscriptions have led to the invention of printing.

Printing depends upon the use of paper. Paper was invented in 105 A.D., and since the Southern and Northern Dynasties, the use of paper has become general in China. In addition, the need for the duplication of writings for intellectual diffusion has grown increasingly in the T'ang Dynasty. After all these necessary preparations, conditions were favorable for the invention of printing in the T'ang.

NOTES

1. 卡特著，席建謨：“土魯番四獸人印術”，圖書館學季刊，1卷4期（民15）；“高麗活字印刷術”，該刊，2卷1期（民17）；“中國雕版印刷術之全盛時期（宋元時朝）”，該刊，5卷3及4兩期合刊（民20）；“論印鈔票”，該刊，6卷4期（民21）；“中國印刷術之發明及其傳入歐洲”，北平北圖藏書館月刊，2卷2號（民18）。
2. 故，許愼，說文，第9.1：“印執致所持信也”。
3. 漢，燕京，校勘，漢魏晉書“經籍”；“書者印也，印者信也”；“古者尊信之”。
4. 清，段玉裁，說文解字注，第9篇上：“古上下通口難”。
5. 後漢書，卷19，祭祀志下；“論曰：至於三代，俗化已興，詐僞僞興，始有壞印，以檢賢萌。”
6. 唐，杜佑，通典63，禮33：“三代之制，人民皆以金玉為印，龍虎銘，唯所好也。”
7. 清，徐堅，西京職官印錄，自序，乾隆11年（1746）。
8. 羅振玉，赫連泉誌古印存，序，民4（1915）。
9. 王獻唐，臨淄封泥文字斠，民25（1936）。
10. 羅振玉，赫連泉誌古印續存，序，民5（1916）。
11. 范子善，雙劍錄古器物圖錄，民29（1930）載商殷銅器摹本有三：(a) 商（或殷）鼎銘（鈐即古器銘）；(b) 商鼎銘（可誤為武丁時名將鼎）；(c) 商鼎文銘。
12. Personal communication to me by Professor Tung Tso-pin (董作賓) in a letter dated March 7, 1956.

13. 左襄29年（西元前543年）傳： “公（襄公）還及方城， 使武子取下， 使公於他， 使公所靖， 使公重道而興之．”

14. 雙瞻， 秋官司寇， 第5， “職金章凡金玉錫丹朱之戒令， 受其入征者， 賜其城之絕處， 與其鼓角， 與其器用， 與其金玉銘之， 與其旌旗之．”

15. 莊子外篇， 相無， 第10， “熾符破塊， 而民相鄭．”

16. 呂氏春秋， 孟冬記， 第10， “旅冬之月… 圖封疆．”

17. 漢， 鴻業， 漢書， 卷， 漢津館藏書甲集．

18. Thanks to Mr. Tsien Tsuen-hsuan (錢存訓) who, in a letter sent to me on June 3, 1957, drew my attention to the seals, now in Fig. 3, with archaic characters, probably of the end of the Chou Dynasty. These seals are mentioned in the Tombs of Old Lo-yang by William Charles White, Shanghai, 1934. Plate CLXXXVII, and are said to have been unearthed near Lo-yang.

19. See No. 8 above.

20. 史記， 秦始皇本紀， “正義引龍浩九：［廉］李斯時習氏壁作之， 漢諸帝世傳用之， 謂傳國印．”

21. 元， 鎮康儀， 南村稿排錄（完成於至元26年， 即西元1366年）， 卷之30， 印章制度， 四部叢刊 三編．

22. As references, see the following books and articles:

- 元， 香山， 學古編（大德四年即西元1300年撰）， 19集， 學津討原， 第15集．
- 羅振玉， 待時軒古印鑒， 序， 民11（1921）
- 黃賓虯， “古印概論”， 東方雜誌， 第27卷第2號， 頁71-78， 民19（1930）
- 沙孟海， “印學概論”， 東方雜誌， 第27卷第2號， 頁79-88， 民19（1930）
- 孔雲白， 篆學入門， 民24（1935）

Although there is much literature regarding ancient seals in Chinese, there are only a few writings in European languages in connection with this matter. However, in 1937 Daudin translated two articles from Chinese into French: “The Elements on Ancient Seals” (古印概要), by Huang Pii-hung (黃賓虯); and “A Short Study on Seals” (印學概要), by Sha Meng-hai (沙孟海). Both articles deal with ancient seals, and were used by Daudin in his book.

23. 王國維， “簡釋殼考”， 海寧王靜安先生遺書， 民39， (1940).

24. 後漢書， 太官志4（第26）， “守宮令一人， 六百石， 本注曰： 主御室筆墨及諸書器用諸物及封泥．”

25. 吳式芬， 陳介祺同輯， 封泥考略， 沈先緘30年（1904）；
封泥存真， 北京大學史地叢刊， 民23（1934）．

26. 呂氏春秋， 第19集， 羅書翼， 第7； 論物，“若器之於金， 抑之以方則方， 拼之以圓則圓．”
27. 范南子，鴻烈解，卷11，齊俗訓，“若聖之抑眾，正與之正，傾與之傾。”
28. 晉，葛洪，西京雜記，第4，四部叢刊，子部。
29. See No. 9 above.
30. In the same letter mentioned No. 18 above.
31. 後漢書，郡國志3，第21.
33. 李書華，“紙發明以前文字流行工具”，大塊雜誌9卷6期，民43，(1954).
34. 後魏書，卷76，盧同傳。“即於黃素書其大字…以朱印印之。”
35. 北魏書，卷32，陸法和傳。“其啓文朱印，名日本許司徒。”
36. See No. 22 above.
37. See No. 21 above.
38. 明，文彭，印章集說，集書集成，第1540。
39. 明，甘肅，印章集說，美術叢書初集，第8輯。
40. 墨池偏合刊（雍正刊），附印典，卷第6。
43. 後漢書，15，禮儀志中，第5。
44. 晉，葛洪，抱朴子內篇，登涉卷17，平津館叢書，辛集。
45. 唐，陸堅，初學記，唐鍾丁案（1587）本，第26卷服食部，印本。“（注）：‘起誡’印者曰：‘順君
46. 則使虎豹不申，道士當刻書心作印方四寸也。’

Contrary to Professor Goodrich’s remark, this passage does appear in a commentary to the Ch’u-hsueh-chi of the 1587 edition.

46. 墨池偏合刊，卷40，文具類，印典。
47. 馬衡，“石鼓為秦朝石刻”，國立北京大學國學季刊，第2期，民12 (1923)。
48. 石鼓文研究，孔德研究所叢刊之七，中法文化出版委員會出版，長沙，商務印書館，民28
49. (1939)。
50. 唐，歐陽修，集古錄，卷1，“石鼓文”，【清，牛運震】宋治堂全集。
51. 史記，卷6，秦始皇本紀。
52. 後漢書，60下，“蔡邕傳。”
53. 藥昌織，詩話，卷3，清光緒27年（1901）。
54. 李書華，“房山遊記”，禹貢半月刊，第2期，民24 (1935)。
55. 王重民，考工考，民16 (1927)；
56. 周上頴，古本道德經校刻，國立北平研究院，考古專輯，1卷2號，民25 (1936)。
57. 童繼修，（留龍），中國雜誌，民5 (1916)。
58. 唐，封演，封氏見聞記第8，“釋文”，清光緒27年（1901）本。
58. 宋，鄭文寶《趙郡山誌》，墨池編，第13卷。
59. See No. 52 above.
60. 唐，杜甫，“春望八分小篆歌”，全唐詩，第4冊，第3冊，杜甫7.
61. 唐，裴冕撰，宋蒙記定遠書（10卷），法書要錄（西元九世紀中，唐，張彦遠撰）卷第5，
　　津逮祕書（明崇禎刊年）第5冊第6章，又學津詩評第11集均收入。
62. 鄧翶蕾，“中國印刷術之發明及其西傳”，圖書論考，卷11,11期，頁42-43.
64. 隋書，卷32，經籍志，“經”（小學類）。
65. 宋，王應麟，玉海，卷第43。
66. 唐，李綱，書善書，說郛，第36；
　　宋，李昉等撰，太平廣記，卷247。
67. Professor Hu Shih expressed his opinion in a conversation with me
　　some time in 1956.
68. 格致錄原，卷39，文具類，“字帖”（古帖），引何子楚跋譜（舊亭）。
69. 唐六典，亦稱大唐六典（唐玄宗御撰，李林甫校注），卷第8，9，26。
70. 新唐書47，門下省；及新唐書49，東宮官。
72. 慶，孫星衍，邢澍撰，寰宇訪碑錄（嘉慶7年），國學叢本叢書（商務），民24，卷第2；黃文
　　獻，石刻名彙，民15。
73. 羅振玉，“萬有靈石室記錄”，石刻第3，考古叢簡，東方文庫第71冊，民12（1923）。
74. A. C. Moule, Journal of the Royal Asiatic Society, London, 1926, pp. 140-
　　148.
76. 鳥田鰭，古文舊書考，卷2，雕校前後考，民16（1927）。
77. 葉昌繕，語石，卷第9，“陽文”“陰文”條。
78. 中央古物保管委員會，六朝陵墓調查報告，民24（1935）；
　　朱儁，康蘭陵六朝陵墓圖考，史地小叢書（商務印書館），民25（1936）。
印章與摩揷早期的發展
李書華

I. 印章

三千多年前商殷時代，大概印章已經使用。今有出土銅器古器物圖錄：商殷銅器墓本有三：其中二箇為陽文，一箇可能是陰文，陽文二箇中有一箇可能為武丁時名將焦。周時用簋已頗普遍，多以銅製，文字多陽文，陰文不過占十分之一成二。春秋印信應用益廣：戰國時臣下篆始稱印印；自秦以後，天子稱稱璽。漢代官私印亦多用銅製，均以陰文為主。陽文則頗罕見。漢將軍，太守，御史皆稱章。六朝以後，官印皆用陽文。

在紙的發明以前，古代書籍與文書，用竹簡木板書寫。王國維考證竹木書籍的封緘法，係簡上再加一板名曰檢，用繩繫之，用泥封之，泥上加蓋印章，是為封泥。然封泥出土，不過近百年事。

斯坦因（Aurel Stein）在敦煌所發現之種類兩塊，經沙陰（Ed. Chavannes）考證，係由同筆絲料所剪成者；一箇上有“任城王（東漢時）古文一匹”的尺寸，重量及價值的記載；另一箇上有長方形印，此為東漢時印信施於錦帛之一例。

西元五世紀南北朝時一切文書全改用紙，封泥與簡織廢而不用，普通改用紅色印泥於紙上加蓋朱印。南北朝時正史始有朱印的記載。

漢代用封泥最盛，反字陰文印施於封泥，某正文凸字，而封泥凸字較凹字清楚，這是漢印以陰文為主的原因。南北朝時普通改用紅色印泥，反字陽文印用紅色印泥印於白紙上，某正文紅字，故又稱朱文；反字陰文印用紅色印泥印於白紙上，某正文白字，故又稱白文；朱文比白文醒目且美觀，這是六朝以後官印皆用陽文的原因。紅色印泥使用以後，始有所謂朱文印與白文印；在使用封泥時代，印章僅有陽文與陰文之分，無所謂朱文與白文。
柏希和（Paul Pelliot）以为漢印及六朝初期的印是陰文，至西元500年左右始有人想起刻陽文印，這與上文所述的事實不符，陽文印並非西元500年左右的發明，這是柏氏的一個錯誤。

在秦始皇統天下以前的一百年時，亞歷山大的勢力已達到中亞及印度，因此卡特（T. F. Carter）頌論中印之印的使用，可能或受希臘的影響。吾人以為印章為中國固有的發明，絕無可疑。在秦始皇以前約一千十年，中國已有印章，而且周代已頌論善應用，絕無受外來影響的可能。

古印大小不過寸許。董昌洪 擁有于內篇所述之越章印，用木木刻，廣四寸，所刻反文有一百二十字之多。北齊又有“督授萬機”木印，以印籍額，長一尺二寸，長二十五分，這是印之最大者。

越章印及督授萬機，或為印章與雕板印刷的過渡。印章是雕板印刷的縮小，而雕板印刷是印章的擴大；所以卡特認為印章的起源，是由印章來的，自屬正確。他指出印章之印，印章或印畫之印，中文用一個字，可以闡明中國印刷術的來源。

II. 摩 擦

中國石刻文字現存於世之最早者為秦石鼓文，乃秦襄公以兵送周平王抵沈河時紀功之文，傑西元前770年所刻者。秦始皇東巡，前後有御峄，泰山，琅琊，之罘，碣石，會稽諸刻石，今惟琅琊台一刻尚存諸城。

儒家經典最早的刻石，為漢熹平石經，後來有正始石經，唐有開成石經；再後西蜀孟氏，北宋及南宋，亦皆有石經之刻。今惟開成石經尚存西安碑林；至秦平，正始及其他石經均存殘石或殘拓本而已。佛經刻石風氣，北齊頗盛，山西太原西風塔與河南武安縣鼓山北響堂山，均有北齊時所刻石經；河北房山縣石經山所藏石經及西塔寺南塔下埋藏石經最多，為隋，唐及遼時代之物。老子道德經，唐，宋，元各有刻石，最早者為河北易縣龍興觀唐景龍二年（西元708）之道德經碑。
後漢書蔡邕傳記蔡平石經有“取正”及“摹寫”字句，辨認修築“摹著”。

卡詩亦謂：相傳南即摹碑之始，但事雖未確指其是否正確。實在東漢時摹碑尚未開
始，所謂“摹著”，乃依仿抄寫，並非“摹著”之意。

按照唐封演封氏見聞記關於隴山碑的記載，西元五世紀後魏時已知摹碑石
碑。隴書題記之藏“墨（西元502—556）有今字石經鄭氏書八卷亡”；“石經”卽
稱“卷”，當修石經拓本。又載：[貞觀初]“魏徵始收篆之（石經），十不存一；
其相承傳拓之本，猶存秘府”；又稱“相承傳拓之本”，當保古拓無疑。根據此類記
載，吾人可斷以北朝後魏時期南朝隋時已知摹碑。

唐杜甫詩云：“隴山之碑野火焚，桑木傳刻肥失真”。隴山碑被燒毀後，碑文
傳刻於桑木上，大約是唐代的事。

唐初摹拓極為普遍，門下省、宏文館，集賢殿書院，[太子]崇文館，均設有摹
書手。

宋拓現今存者極少，唐拓幾已絕跡。惟因中國西北氣候乾燥，唐拓尚能保存
於敦煌千佛洞。1907年三月斯坦因由千佛洞得到歐陽詢正書化度寺邕禪師塔銘拓
本五冊。同年十二月楊守和由千佛洞得到該塔銘拓本其他二冊；同時楊守和又由千佛
d洞得到唐太宗御書溫泉銘拓本及柳公權楷書全經銘拓本。唐太宗溫泉銘拓本紙
尾有墨題一行：“永徽四年（西元653）八月圍谷府果毅令”，足證其為唐初拓本，
這是现存世界上最古的拓本。

摹拓的發明，傑在雕版印刷發明以前，絕無問題。摹拓與印刷的方法，雖然不
同，但其不同之點，不過印刷為陽文，摹拓為陰文。島田翰曾說過：“陰文刻石與
陽文刻木，僅一轉之問題”，很有道理。卡詩認為印刷的起源，亦由摹拓發展而
來，當屬正確。

六朝時碑額有用陽文的，碑額有用反字的。南朝附近甘泉皇梁蕭景墓碑，即
正書反刻；丹陽梁蕭順之墓碑，則為反書；極堪注意。如將臍順之墓碑之反書，
墨印於紙上，則與雕版印書完全相同。所以此類墓碑之反書對於雕版印刷，則是直
接的啓發。