compared this to some of the best ink made in Rome in his day. It is possible that this Indian ink in fact originated in China, as suggested by Berthold Laufer, since many other valuable articles of trade, such as silk, regularly made their way from China to Europe by way of India from as early as the Former Han period.

Japanese and Korean inks, made either from pine sotot or lampblack, were apparently borrowed from those of China, since the manufacturing processes are almost the same, while inking, papermaking, and brush-making were crafts that foreign students at the Thang court were required to learn. Tibet also appears to have learned the use of ink from the Chinese, although their ink was kept in a liquid rather than a solid form.

Without samples of all these inks, it is difficult to make meaningful comparisons between them and Chinese ink, but we know that the special qualities of Chinese ink caused it to be actively sought after and imitated in many areas of the world, including Europe. Louis Le Comte in the 17th century said of Chinese ink that 'it is most excellent; and they have hitherto vainly tried in France to imitate it.' Du Halde also wrote in 1755 that 'the Europeans have endeavored to counterfeit this ink, but without success.'

In commenting on the general characteristics of Chinese ink which have probably been responsible for its popularity, Laufer said:

It produces, first of all, a deep and true black; and second, it is permanent, unchangeable in color, and almost indestructible. Chinese written documents may be soaked in water for several weeks without washing out. . . . In documents written as far back as the Han dynasty . . . the ink is as bright and well preserved as though it had been applied but yesterday. The same holds good of the productions of the printer's art. Books of the Yüan, Ming, and Ch'ing dynasties have come down to us with paper and type in a perfect state of composition.

These distinguishing qualities were due, of course, to various ingredients in the composition and to the elaborate methods used in the manufacture of Chinese ink, which will be discussed below.

(ii) Origin and early specimens of Chinese ink

Traditionally, the invention of ink in China has been attributed to the calligrapher Wei Tan ( + 179-253) early in the +3rd century. Archaeological and literary evidence, however, attests to the widespread use of various kinds of ink, or pigment, which functioned like ink, well before this time. The early symbols and signs appearing on painted pottery found in Pao-phi, Shensi, indicate the use of red and
black pigments as early as the neolithic period, and a considerable number of late Shang oracle bones bear traces of red and black pigments used in conjunction with characters either before or after they were incised into the surface. The red pigment has been identified as cinnabar and the black pigment as a carbonaceous material variously identified as ink or dried blood. Characters written in black fluid have also been found on the surfaces of stone objects, jade, and pottery of the Shang period.

The earliest form of the character ink (墨) was used in Western Chou bronze inscriptions, and apparently refers to a punishment of blackening or tattooing the face rather than to use of a writing fluid. The earliest textual reference to ink as a fluid used in writing appears in the Chuang Tzu of the Warring States period, which mentions that when Prince Yuan of Song expressed a desire to have his picture painted, all the court scribes stood up and starting dipping their brushes and mixing their ink. Two later works refer to the use of ink as a writing medium in the Spring and Autumn period. A minister of the state of Chin is quoted as remarking to his master: "I wish I could be your critical subordinate, handling tablets with brush and ink and watching over you to record whatever faults you have." And Duke Huan of Chin asked the officials to record his orders on a wooden board with brush and ink. All three references imply that brushes were used to apply ink to a writing or painting surface, while the Chuang Tzu passage implies that ink was kept in a solid form prior to use.

Archaeological excavations have turned up numerous documents of various kinds from the Spring and Autumn, Warring States, and Chin periods written in ink on precious stones and on bamboo or wooden tablets. Since the 1950s, archaeology has also yielded several artifacts of Chinese ink. The oldest is a small piece of ink found in a group of twelve Chin graves dating back to the third century, in the late Warring States or Chin dynastic period, excavated at Shui-hu-ti, Yün-meng, Hsien, Hopei in late 1955 and early 1956. It is reported that this ink (M4: 1) is cylindrical in shape and of pure black colour, with a diameter of 2.1 cm, and height of 1.2 cm. In the same grave there was also found an inkstone and a small piece of stone apparently used for grinding the inkstone, for both items bear traces of grinding and remnants of ink.

Again, five specimens of ancient ink were discovered in several later Han graves located at Lin-chai-chih, Shan-hsien, Honan province in 1965. In the site report, three of these specimens (8:60, 37:45, and 102:9) are said to be relatively well preserved and are described as cylindrical in shape; they were formed by moulding

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3 Cf. Kugyin (7), no. 504a.
4 Chuang Tzu (SPTX), ch. 7, p. 56a.
5 See Han Shi Wu-chi Chien (SPTX), ch. 7, p. 64a.
6 See Han Shi Wu-chi Chien (SPTX), ch. 9, p. 16.
7 See excavation report of the Shui-hu-ti site in WFTX, 1956, no. 9, p. 53, and illustration in plate 7, fig. 5.
9 See KTH, 1956, no. 5, p. 299.
11 袁家骝
12 潘伯聞

With the hands, and either one or both ends had been used for grinding. Their sizes vary from 1.5 cm to 2.4 cm in diameter, and from 1.8 cm to 3.5 cm in height. One of them has a wood base. Two specimens of ink were also found in two Chin period graves, M2 and M3, located at Liao-hu-shan, Nanking in 1956. According to the site report, the M2 specimen, which is bar-shaped, is approximately 6 cm in length and 2.5 cm in width, while the M3 specimen has crumpled, and consequently its measurements are not given. Both these specimens were analysed by Chih-hua Chia-Kuei of Nanking University, who concluded that the M2 specimen was not ink but of a kind of earth with organic material present in it. His analysis of the M3 specimen yielded markedly different results:

The ink is black in colour and light in weight. There are small yellow grains in it which appear to be lens impurities. When this sample is placed under the microscope and compared with contemporary ink, the particles seen are very similar. They form clusters and are combustible when heat is applied, leaving behind a small amount of ash. It is evident that this sample is also very comparable to contemporary ink in this respect. Thus I conclude that this is ink.

On the basis of this study, it has been conjectured that the M2 specimen was similar in composition to the 'stone ink' mentioned in early records and that the M3 specimen was representative of a more advanced ink.
incising. These tablets also cite regulations for lacquer orchards and testing the quality of lacquer. The references indicate that lacquer was used at an early date for writing on certain kinds of materials such as metals, which do not absorb watery ink. But it seems certain that lacquer was not a major vehicle for writing, since there is no archaeological evidence that it was used on more conventional hard-surfaced writing media, such as bamboo or wooden tablets. However, lacquer was possibly present as a minor ingredient in some inks.

Silk was used as a writing medium at least as early as the 5th century, and silk documents, dating from the Warring States through to the Han period, have been found at many sites in China and Central Asia. Paper was also used for writing beginning in the Later Han dynasty. Specimen of writing with black ink from the + century and have been found at Chia-yen, Tun-huang, Low-lan, and other sites, but since the ink on these early silk and paper documents has never been chemically analysed, it is difficult to say what its composition is.

Pine soot, traditionally the favourite pigment in ink, was used in ink manufacture in the time of Wei Tan, as is attested in a poem by T'hsiao Chih (192–224). An inkmaking formula appearing in a +-century work and attributed to Wei Tan calls for the use of fine and pure soot, pounded and strained to remove any adhering vegetable substance. Although the source of this soot is not indicated, it seems likely, in view of the fact that there is a procedure to remove 'adhering vegetable substance', that it was made from wood, perhaps pine. Recent studies carried out with a scanning electron microscope have shown that the sizes of carbon particles found in 14th-century Chinese ink made from pine soot are remarkably small and uniform, superior in these respects to a sample of modern ink also made with soot.

The method of making ink from pine soot is given by the Ming author Sung Ying-Hsing (1600–60) as follows:

Ordinary ink is made from pine wood after all the resin has been eliminated. The least amount of resin left in the wood will result in a non-free-flowing quality in the ink produced. To get rid of the resin, a small hole is cut near the root of the tree, into which a lamp is placed and allowed to burn slowly. The resin in the entire tree will gather at the warm spot and flow out. For making pine wood soot, the tree is felled and sawn into pieces. A rounded chamber of bamboo is built, resembling in appearance the curved rain-shield on small boats and constructed in sections; it has a total length of more than 100 feet. The external and internal surfaces of this chamber and the connecting joints are all securely pasted with paper and

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1 See T'ai-kuo Chih (Taipei, 1979), pp. 37–8, 121–2, 138.

2 In the quality test, the process used is designated by the term 'pin hsi'. The meaning of this term is not clear, but the general idea seems to be that the quality of lacquer varies in inverse proportion to the amount of water (lan) needed for the test.

3 See T'ien (a), p. 260.


5 By water

6 1. 2

7 1 2

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mattening, but small holes are made at certain intervals for the emission of smoke. The floor of the chamber is constructed of brick and mud with channels for the smoke built in. After the pine wood has been burned for several days, the chamber is allowed to cool and workers will now enter and scrape out the soot [Fig. 1862]. That which is obtained from the last one or two sections of the chamber is of 'pure' quality and is used as raw material for the manufacture of the best ink. The soot obtained from the middle sections is of 'mixed' quality and is used in ordinary ink. That from the first one or two sections, however, is scraped and sold only as low-grade soot; it is further pounded and ground by printers for printing books. In addition, lacquer workers and plasterers also use the coarse grade as black paint.

Although pine soot probably remained the most popular pigment used in making ink, it was soon rivalled from the Sung dynasty onwards by lampblack made from combustion, in lamps with wicks, of animal, vegetable, and mineral oils such as fish oil, rapeseed oil, bean oil, hemp oil, sesame oil, tung oil, and petroleum. In Ming times, it is said that nine-tenths of all ink was made from pine soot and one-tenth from oil lampblack. In 1738 Du Halde described a lampblack inking operation as follows:

1 See T'ai-kuo Chih (Taipei, 1979), pp. 276–7; Sun & Sun (1), pp. 260–3.

2 See T'ai-kuo Chih (Taipei, 1979), pp. 276–7; Sun & Sun (1), p. 260. It notes that one catty of oil, after burning, will yield more than one ounce of fine quality lampblack.
They put five or six lighted wicks into a vessel full of oil, and lay upon this vessel and iron cover, made in the shape of a funnel, which must be set at a certain distance, so as to receive all the smoke. When it has received enough, they take it off, and with a goose feather gently brush the bottom, letting the soot fall upon a dry sheet of strong paper. It is this that makes their fine and shining ink. The best oil also gives a lustre to the black, and by consequence makes the ink more esteemed and dearer. The lampblack which is not fetched off with the feather, and which sticks very fast to the cover, is coarser, and they use it to make an ordinary sort of ink, after they have scraped it off into a dish.  

Another kind of ink mentioned in early Chinese sources is 'stone ink' (石墨). This appears to have been a mineral substance of some sort which was either used as found or was prepared by grinding. It was possibly a form of coal, petroleum, or graphite, for the discovery sites specified in early records are all located in areas where graphite is produced at the present time.  

Pine soot and lampblack consist principally of carbon, which, in its free state, does not combine readily with other materials; consequently, the use of carbon in ink necessitates the use also of an agent that will bind the carbon pigment to the writing surface. Binding agents also play another role in Chinese ink in holding the carbon particles together in the solid form.  

The binding agents used in Chinese ink were traditionally glues made from a variety of animal remains, including raw hides or leather, muscles, bones, shells, horns, fish skin, fish scales, and fish maws; the quality of the water used was also important. After one of these substances was boiled, the resulting hot viscous fluid was strained through a silk gauze or cotton filter to remove lumps and then allowed to condense into solid form until needed for use. The solid glue was then dissolved before use in inking tools with solvents such as the juice of the bark of the chintri tree (Acer pseudoplatanus, D.C., var. Palmatissim 1). The ratio of glue to pigment probably varied with the nature of the materials used and the stickiness of the ink desired, the latter probably being dictated by the quality of the writing surface to be employed. We know, for instance, that equal weights of lampblack and glue are specified in an inking formula contained in an encyclopedia compiled in the early 18th century.  

In addition to the essential pigments and binding agents, other materials were often added, especially in periods prior to the Ming dynasty, to improve consistency, colour, and aroma. As many as 100 miscellaneous additives were sometimes used. These included egg whites, gamboge, raw lacquer sap, soaptree pods, and croton seeds to improve consistency; cinnamon, chintri tree bark, purple herb, madder root, yellow reed, black beans, copper vitriol, gull nuts, 

(iv) Technical processes of inking  

It seems likely that inking formulations were usually kept secret to guard against competition; consequently, the formulae which were recorded and survive to the present day probably represent only a very small fraction of those actually used. Although the ingredients used in making any ink are generally not very numerous, the exact composition, preparation, and quantity of each ingredient were subject to considerable variation. According to early works on inking by such authors as Li Hsiao-Mei1 (fl. + 1095), Chao Kuan-Chih2 (c. + 1100), and Shen Chi-Sun3 (fl. + 1598), the steps involved in making ink consist of gathering soot or lampblack, straining and then mixing with pre-dissolved glue and miscellaneous additives, kneading, pounding, steaming, moulding, covering with ashes, drying, waxing, storing, and testing (Fig. 1163).  

The earliest known formula for inking in China, often attributed to Wei Tan (+ 1729–1753), appears in a work on agriculture and manufacture written by Chia Su-shih in the + 5th century. Fine and pure soot is to be pounded and strained into a jar through a sieve of thin silk. This process is to free the soot of any adhering vegetable substance so that it becomes like fine sand or dust. It is very light in weight, and great care should be taken to prevent it from being scattered around by not exposing it to the air after straining. To make one catty of ink, five ounces of the best glue must be dissolved in the juice of the bark of the chintri tree which is called jiao-chih wood in the southern part of the Yangtze Valley. The juice of this bark is green in colour; it dissolves the glue and improves the colour of the ink. Add five egg whites, one ounce of crushed pearl, and the same amount of musk, after they have been separately treated and well strained. All these ingredients are mixed in an iron mortar; a paste, preferably dry rather than damp, is obtained after pounding thirty thousand times, or pounding more for better quality. The best time for mixing ink is before the second and after the ninth month in a year. It will decay and produce a bad odour if the weather is too warm, or will be hard to dry and melt in cold, which causes breakage when exposed to air. The weight of each piece of ink cake should not exceed two or three ounces. The secret of an ink is as described; keeping the pieces small rather than large.  

All the main ingredients used in manufacturing ink in later times, even in the present day, are to be found in this early formula: a pigment (soot), a binding agent  

3. See Chih Mei Fa Shu (TTHOC), ch. 9, p. 97.  
(glue), and miscellaneous additives (chhin tree bark, egg whites, cinnabar, and musk).

Another formula of Master Chi³ of the Liang dynasty (+502–72) specified that:

Two ounces of pine soot are added with small amounts of cloves, musk, and dried lacquer and mixed with glue to form a stick, which is then dried over the fire. The ink will be ready for use in a month. The colour turns purplish when the purple herb [zu chian; Lithospermum erythrorhizon] is put in and bluish if the chhin bark powder is added. Both colours are pleasant.⁴

Still another formula is ascribed to Li Thing-Kuei of the +10th century in the Southern Tang period:

Wash, clean and shred three ounces of cow horn, soaked in 10 catties of water for seven days. Boil three honey locust pods [tou chian; Gladiolus imbricatus] for one day to get three catties of juice, soak in the juice one ounce each of gardenia kernel [chhin tsu; Gardenia floribunda], the bark of the amar cork tree [muung fu; Phellodendron amurense], bark of the ash [chhin fuh; Fraxinus fangsong] and sappan wood [sa ma; Casipina sappan], half an ounce of white sandalwood, and one piece of sour pomegranate skin, for another three days. Bubble up the mixture to get one catty of juice and mix the juice with two and a half ounces of fish glue; soak overnight. Cook again, add a little green vitriol, and it will be ready to mix with one catty of screwed soot.⁵

A later formula attributed to Shen Chi-Sun ([+1598]) used lampblack in place of soot for pigmentation: ten ounces of tung oil lampblack mixed with four and one-half ounces of cowhide glue, one-half ounce of fish glue, and one-half ounce each of the bark of the ash and of sappanwood.⁶ The formulae of the Ming and Ching period were probably somewhat simpler on the whole than those given here, for it appears that inkmakers of these periods did not use the many additives as freely as before, because they were considered to reduce the quality of the ink. Economic considerations may also have been a factor.

The qualities sought in Chinese ink are often reflected in remarks made concerning the ink of noted inkmakers. The ink of Wei Tan (+179–253), the earliest inkmaker of fame, was described by Hsiao Tzu-Liang,⁷ a prince of the Southern Chhi dynasty, as so black that “each drop looks like lacquer.”⁸ The ink of Chang Yung,⁹ an inkmaker during the period of the Northern and Southern Dynasties, was also compared with lacquer.⁹ From the late Tang period on, the names of numerous distinguished inkmakers have been recorded in history.¹ The most famous is perhaps Li Thing-Kuei¹⁰ (fl. +590–80) a member of a prominent family

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* Wen Feng Sun Fu (TSHCC), p. 67.
* Mo Fu Fu Shih (MSTS), pp. 172–5.
* Mo Fu Chi Fai (TSHCC), p. 97.
* See Kuo Chih Ching Fai (1755 ed.), ch. 37, p. 31a.
* Lu Hsiu An Fi Chih (RCCIT), p. 4.
* Lu Yu (+1351) in his Mo Shih and Mu Sun-Heng (+1637) in his Mo Chih list a total of 488 inkmakers from ancient times to +1637.

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Fig. 15-59. Methods of making lampblack ink in the +16th century. (a) Burning oil in enclosed room with paper curtain. (b) Gathering and straining the lampblack. (c) Grinding and heating the ink paste. (d) Moulding the paste into different shapes. From Mo Fu Chi Fai, c. +1598.
of inkmakers. After his father, Li Chiao² (fl. +907–36), also a noted inkmaker originally from a Hsi family at Li-shui, Hopei, moved to She-hsien, Anhui, Li Thong-Kuei served as an official in charge of inkmaking at the Southern Sung court of Prince Li Yu³ (+937–76), who granted the royal surname of Li to Thong-Kuei in honour of his distinguished services. The ink made by him and his father is especially famous for its qualities of hardness and insolubility in water.⁴

In the Sung period, Chang Yu⁴ (fl. +1068–85) was known for an ink made from oil lampblack, musk, camphor, and gold flakes, and which appeared in the form of small round coin shapes.⁵ Phan Ku⁶ (fl. +1088) was noted for making ink with very small amounts of glue, only five to ten ounces per pound of soot, and for pounding his ink dough ten thousand times. Ink made by the Sung Emperor Hui-tsung (r. +1101–25) was also highly sought after; the ingredients included a special aromatic (Liquidambar orientalis) resin, Chu Wan-Chiu⁷ (fl. +1328–30) of the Yuan period is remembered for using only soot from pine trees.⁸

The inkmakers of the Ming and Ch'ing periods were known primarily for the forms and styles of their inks, often produced in elaborate sets, although quality of composition was no doubt still important. Wu Shu-Ta⁹ was famous for his ink of lacquer-like blackness and stone-like hardness; its ingredients included tung oil, glue, powdered gold, and musk, and the dough was beaten ten thousand times.¹⁰ Hu K'ai-Wen¹¹ in the early 19th century was noted for an ink made from lard, lampblack, antler glue, and twelve miscellaneous additives, including pearl powder and musk.¹² Although Chinese ink was generally produced in a solid form, some liquid ink was also made. It was sometimes prepared in quantity and stored in bamboo tubes by persons who wished to avoid the labour of mixing their own ink prior to use. Special liquid inks were also made for commercial applications, like printing, where the volume of ink required tended to prohibit grinding each time it was to be used. Printing ink, for instance, was first prepared as a paste made of coarse soot taken from the far end of a smoke chamber and mixed with glue and wine, and then preserved in jars or vats for later use. It had to be kept for three or four summers, for its bad odour to disappear, and in fact the longer the period of preservation, the better it became; printing done using freshly prepared ink was easily smeared. When needed, water was added to the paste and it was mixed thoroughly and strained through a sieve made of hair from horse's tails.¹³

The best ink for printing in red was a mixture of vermillion and red lead boiled in water with the mucilaginous root of a plant called po chi¹⁴ (Blethilla striata). Next best was the liquid obtained from boiling the red-stem amaranth (hien tahan¹⁵, Amaranthus tricolor, L.), but this easily turns purple and does not give as fresh a colour as the vermilion and red lead mixture. Blue ink was made from indigo (sien,¹⁶ or ma lan, Indigofera tinctoria), a Chinese native blue dye with a permanent colour used for dyeing textiles. Prussian blue is not suitable for printing, as the colour runs when paper is wet.¹⁷

Invisible ink was already known to the Chinese perhaps no later than the +10th century. A story of the early Southern Sung says that the son of a military official, Wang Shu², was deprived of his title because he had spread scandal about Chhin Kuei¹³ (+1090–1155), but during his banishment met a magician who could write invisible characters with a liquid on paper. When it was treated with water the characters appeared. So for fun Wang's son wrote the four characters 'death to Chhin Kuei' and applied water to test the technique. The magician then went away intending to show the paper to the government, and was only prevented by being bribed with much money.¹⁸ Although the process was called magic, the characters were apparently written with chemicals, perhaps alum, on paper; they appeared when treated with some kind of solution.

Ink was also commonly used in medicine as early as the +10th century. Ink mixed with wine was given to the daughter-in-law of the Sung prince to relieve bleeding stemming from childbirth,¹⁹ and Li Shih-Chen mentioned in his Materia medica a number of prescriptions in which ink was administered. Ink made from fine pine soot, roasted, ground, and mixed with water, vinegar, and other ingredients such as turpentine, onion, foxglove juice, bile, wine, and dried ginger, was also used as a cure for bleeding following childbirth, dysentery, ulcers and sores, nose-bleeds, swelling, and eye irritations, among other disorders.⁰ Depending on the nature of the disorder, the ink mixture was taken either orally or applied externally. Its curative effects were due, it was said, to its alkaline nature absorbing acid humours and sweetening the acrimony of the blood; it was also claimed that the glue from animal skins was a supreme remedy for a haemorrhage.²¹ Li also reminded readers that ink made of lampblack from other materials such as oil, petroleum, or straw should not be used for medical purposes.

(v) Art and connoisseurship of Chinese ink

An early shape of Chinese ink in solid form can be discerned in a Han tomb mural discovered in the vicinity of Wang-tu, Hopei, in 1953. The painting depicts a

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¹ See M. S. Hsia (THHC), pp. 10–11.
³ See M. S. Hsia (THHC), p. 15.
⁴ See M. S. Hsia (THHC), p. 15.
⁵ See M. S. Hsia (THHC), pp. 15–16.
⁶ See M. S. Hsia (THHC), pp. 16–17.
⁷ See M. S. Hsia (THHC), pp. 37–8.
⁸ See M. S. Hsia (THHC), pp. 37–8.
¹⁰ See M. S. Hsia (THHC), pp. 37–8.
¹¹ See M. S. Hsia (THHC), pp. 37–8.
¹³ See M. S. Hsia (THHC), pp. 37–8.
¹⁵ See M. S. Hsia (THHC), pp. 37–8.
¹⁶ See M. S. Hsia (THHC), pp. 37–8.
¹⁷ See M. S. Hsia (THHC), pp. 37–8.
¹⁸ See M. S. Hsia (THHC), pp. 37–8.
¹⁹ See M. S. Hsia (THHC), pp. 37–8.
²⁰ See M. S. Hsia (THHC), pp. 37–8.
²¹ See M. S. Hsia (THHC), pp. 37–8.

scholar seated on a low platform and beside him an ink stick standing on a round three-legged inkstone and a cup, presumably filled with water, for grinding the ink. The ink stick is standing on end and this suggests that it is probably paraboloidal in shape.\textsuperscript{a} Literary sources of the Han and Chin periods generally refer to ink in units of \textit{ya} or \textit{n}\textsuperscript{b},\textsuperscript{b} but they contain no full descriptions of the actual shapes of these units, though \textit{ya} generally refers to something round in shape and \textit{n} to something flat and thin. There are references to ink in a \textit{lu} (conch) shape used after the Chin dynasty, but the use of this word as a unit defies precise definition.\textsuperscript{c}

Chinese ink is generally said to have been first manufactured in a prismatic shape during the Thang period.\textsuperscript{d} The discovery of a bar-shaped piece of ink in a Chin grave may indicate that this shape was actually developed somewhat earlier, for another bar-shaped specimen attributed to the Thang period was discovered by Aurel Stein in Chinese Turkestan.\textsuperscript{e}

Prismatic shapes, of course, feature flat surfaces. The development of such ink surfaces may have been due to their capacity for facilitating design, which became increasingly prevalent as ink was transformed from a simple object of utility to an \textit{objet d'art}. The earliest known decorative elements used on ink surfaces, dating from the Thang period, consisted of propitious animals, such as the dragon and the carp, as well as calligraphy. During the Ming and Ching periods, many inks were decorated with a pictorial design on one side and calligraphy on the other. The pictorial designs, often symbolic in nature, included dragons, lions, carp, deer, pine trees, cranes, tortoises, gourds, plum flowers, pomegranates, bamboo shoots, landscapes, scenes from everyday life, inventions, religious personages and symbols, as well as others. The inscriptions, which are sometimes gilded, include details of manufacture, explanations of the pictorial design on the reverse side, moralisations, religious sayings, auspicious phrases, poems, and examples of calligraphy. Ink was also made in a variety of special shapes, often in imitation of different artistic objects such as jade pendants, bronze mirrors, and ancient knife-shaped coins.

The various shapes and designs of the ink stick were conditioned by the construction and engraving of the mould, which was made of either copper or wood. Copper moulds produced sharp and clear images of the design but were hard to engrave. Wood was easier to carve but sometimes showed its grain on the surface of the ink. The designs into which the ink paste was pressed were cut intaglio into the mould, resulting in their appearance in relief on the surface of the ink stick. Shen Chi-Sun (fl. 1129) provides in his work an illustration of a six-piece mould for the six sides of an ink stick, in addition to a base into which the six-piece mould would be assembled and fitted (Fig. 1164).\textsuperscript{f}

\begin{itemize}
  \item See \textit{Wang-Tsung Hsi Yu Pin Hsi}, pp. 15–14; \textit{Shao Tien (1)}, p. 165; Plate XXVII.
  \item Cf. \textit{Wen-hsiang (1)}, pp. 32–3.
  \item \textit{Bun} (4), p. 376.
  \item See Shui (4), x, p. 96.
\end{itemize}

The decorated sets of inks were also quite popular in the Ching period and are still sold today. Usually a set was arranged around a common theme, such as different kinds of animals, the eight trigrams, views of the imperial palace, landscapes of scenic splendours, etc. Each set was usually encased in a specially made ornate box which could be opened to show off its contents to best advantage. The largest set of ink cakes ever made in China was perhaps a group of sixty-four pieces entitled ‘Pictorial Inks Commemorating the Gardens’ (Fig. 1165) made by the Chien Ku Ch’\textsuperscript{e} by imperial order of the Chia-chih emperor (r. 1796–1821).\textsuperscript{g}

\begin{itemize}
  \item Ink was well collected in China almost as soon as it was noticed that two different specimens could differ widely in quality, but extant records do not reveal much about the art of collecting before the 19th century, in the Southern Thang and Sung periods. The poet Su Shih\textsuperscript{g} (1037–1101) was an avid ink collector who amassed a collection of five hundred pieces, and his contemporary, Lu Hsin-Fu,\textsuperscript{g} was also a noted collector. The imperial collections of the Ming and Ching dynasties featured numerous inks which still survive.
  \item Many catalogues of ink collections have been published since the late 19th
\end{itemize}

\item The art is kept in the collection of the Metropolitan Museum of Art in New York City; see \textit{Wang-Chi-Chen (1)}, p. 139.
\item \textit{Pei} \textit{Yng}
\item \textit{Ku} \textit{Hsiu}
\item \textit{Lyu} \textit{Hsiu}
century by inkmakers, ink dealers, and ink collectors, primarily for appreciation and connoisseurship of the artistic aspects of ink tablets. The earliest and most influential examples are two collections of ink designs reproduced by woodcuts. One titled Fang Shih Mo P'u (*Fang’s Album of Ink Designs*) by Fang Yu-Lan (*c.* 1530–1580), containing more than 300 illustrations, arranged by the form and subject-matter of the designs under six categories, as well as a number of didactic essays, was published in She-hsien, Anhui in +1580. Eighteen years later, his professional competitor Chcheng Ta-Yueh (*fl.* 1541–1616) published another collection called Chcheng Shih Mo Yuan (*Chcheng’s Album of Ink Designs*), which contains some 500 designs printed in colour together with essays, poems, eulogies, and testimonials from his friends. The two works are similar in nature and content and many of their designs are even identical, but the latter surpassed the former not only in the number of illustrations it provided but also in artistic excellence; furthermore, it included some special features such as the Western alphabets and biblical pictures copied from European engravings given to Chcheng by Matteo Ricci (*1552–1610*) in +1606 (Fig. 1166). It is perhaps the first Chinese book which includes illustrations of an occidental origin.

Another kind of ink catalogue, produced by ink dealers, includes among other things the prices at which the items featured were apparently offered for sale. One early example is the Mo Shih (*History of Ink*) by Chcheng 1st (*fl.* 1662–1722), an inkseller owner from She-hsien, Anhui, who listed ink titles, kinds of materials, weights, and prices, together with eulogies of inks written by his friends. A third category of ink catalogues is represented by those of private collections. Two early examples are the Huieh Thang Mo P’iu (*Ink Collection of the Snow Pavilion*) by Chang Jen-Hao (*pub.* 1670, and the Man Thang Mo P’iu (*Ink Collections of the Boundless Pavilion*) by Sung Lo (*1634–1715*), published in 1684. Both list the names of inkmakers, ink titles, dates of manufacture, forms, number of pieces, and weights, all of them standard items described in such catalogues. Interest in ink collecting and connoisseurship has continued up to the present time, and an album of rubbings and descriptions of eighty-three old specimens of Ming-Ching ink kept in four private collections in Peking, titled Sia Chao Thang Mo Thu Lo (*Illustrated Catalogue of Four Ink Collections*), was published in about 1936.

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1 For stories of the two rival inkmakers, see Wang Chi-Chen (1), pp. 126 f.; K. T. Wu (5, pp. 90 f.; and his two articles in Goodrich (3)), pp. 213 ff.; and his bibliography of Ricci.
2 A poster to the illustrations of four biblical stories, dated 6 January 1606, is said to be in the handwriting of Ricci.
3 *See Shu-Chiao (1), pp. 7–5.
5 The four collectors include a cabinet, a noted calligrapher, and two other scholars, who wrote the descriptions in their own handwriting; see bibliography under Yeh Kung-Chih (2).
6 万氏墨譜
7 万氏墨譜
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(2) AESTHETIC ASPECTS OF CHINESE PRINTING

Block printing not only involves various procedures of a technical nature, but also consists of many elements that are of artistic significance, while the text itself can display different styles of writing and so represents a piece of calligraphy which can be read for its aesthetic appreciation. Illustrations using woodcuts and other methods are forms of graphic art; they supplement and adorn the text, aid interpretation, assist the memory, and can also provide additional understanding to supplement the written word. Without illustrations, the text may even lack a sustaining interest or, in some cases, be quite unintelligible. Book illustration is nearly as old as the earliest books, but its practical development began with the application of printing.

In the course of its development, the woodcut became a highly sophisticated art not only in the way it depicted the subject-matter, but also in the techniques and styles of its design and engraving, which depend entirely on the skill and vision of individual artists and craftsmen. This is especially true in the case of Chinese colour prints, which require the exactness of the originals in line, in colour, in graduation, and even in the texture and expression of the brushwork. It is perhaps the only kind of graphic art which depends completely on the mutual artistic understanding of the designer, cutter, and printer. Consequently, the woodcut and the subject of book illustration serve a double purpose in their utilitarian and aesthetic qualities. Their contents may represent the thoughts, ideas, events, and personalities of a period. The picture may be at the same time a work of art and the only surviving evidence of an element of the culture of its time.

(1) BEGINNINGS OF CHINESE GRAPHIC ART IN PRINT

Pictorial representation in Chinese documents can be traced back to the beginnings of writing itself. The pictographic nature of Chinese characters indicates the use in ancient times of drawings as a means of communication; the majority of the Shang characters were, in fact, pictograms or combinations of pictograms to indicate ideas. Symbols of birds or beasts were used in ancient seal carvings, and either decorative bird signs were appended to ordinary characters, or individual strokes of a character were written with a motif of bird feathers. Scenes of battle, hunting, and daily life were cast on bronzes or rendered on clay or on lacquered objects, and in particular illustrations on silk cloth were appended to books of bamboo tablets since the narrow tablets themselves were not suitable for drawings. Pictorial representations on stone were very common before any recorded use of wood for carving, and the techniques of relief or intaglio stone carving, the use of decorative designs and the line structure, may have exerted some direct influence on the woodcuts of later times. The close relationship between calligraphy and painting also may have influenced the trends of illustrated books, since a picture sometimes needs written description to tell the otherwise unintelligible story of the painting—the very reverse of the dependence of text on pictures for clarification.

The earliest woodcut illustration in a printed book known to us is that in the Diamond Sutra of 868, discovered in Tunhuang at the turn of the 9th century. It has a frontispiece (feh hau) at the beginning of the roll depicting a scene with the Buddha sitting in the centre, in discourse with his disciple Subhuti who kneels on the ground, and attended by divine beings, monks, and officials in Chinese attire (Fig. 1167). The picture is carefully executed, displays complicated details, lifelike facial expressions, delicate lines to the costumes, and decorative effects in the background, all of which show the artistic and technical maturity of woodcuts at that time. There is no question that the art of woodcut illustration had developed much earlier than the production of this picture, though no other printed illustrated specimens of the 9th century or earlier are extant; however, quite a few survive from the 10th century. These include a number of Buddhist pictures from Tunhuang, each on a single sheet with the illustration above and the text below, some undated and others dated. Buddhist images also appear on individual blocks.

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2. Reproduced in Forn (5), pl. C.
4. 謝霆

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The figure 166 shows an ink design by Chiheng Ta-Yueh with Biblical story provided by Matteo Ricci, c. +1606. From Ottorini, Shihe Mu Tien, +1606 ed.
printed together in red or black; as well as drawings on calendars; and several other printed texts with illustrations.

While the specimens mentioned are all from the northwestern region, woodcut pictures are also known to have been produced in the southeastern part of the country. The most prominent of these are the three different versions of the invocation sutra, *Pao Ch’ien Yin Tu Lo Ni Chiung*¹ printed by Prince Chhien Shua² (+929–986) of the Wu-Yi Reed Kingdom, dated 956, 965, and 975.³ The frontispieces of the three versions are similar though slightly different in design, depicting the prince’s consort, nee Huang, kneeling before an altar and praying for blessings (Fig. 1115). The technique of engraving is not so refined as in the frontispiece of

the *Diamond Sutra*, but its appearance at the beginning of the sutra shows that 84,000 copies of each version were illustrated. Indeed, it seems that all the Buddhist works were printed in great quantities, as the Buddhist religious outlook required, and it is recorded that 1,40,000 copies of a picture of a Maitreya pagoda were printed by the monk Yen-Shou⁴ (+904–75); in addition, 20,000 copies of a Kuan-Yin portrait were printed on silk, and 70,000 copies of the *Fa Chieh Hsin T’u.*⁵ Although none of these woodcuts survive, the large quantities indicate a significant printing power at this early stage.

Further advances in the art of the woodcut were made during the Sung, Chin, and Yuan periods. Not only were standards of artistic and technical skills improved, but the scope of illustrations was extended from the religious to such secular fields as art, archaeology, scientific works, and Confucian classics, subject-matter being widened to include designs, landscapes, portraits, pictures of daily happenings and amusements, all reflecting the Chinese life of the time.⁶ Religious pictures continued, of course, and among the Buddhist sutras, a few surviving items include the drawing of a Bodhisattva with eight arms in the *Ta Sai chiou*⁷ *duhatari* printed in 789 and found in Tanchung; a picture of Maitreya seated on a lotus throne under a canopy, painted by an academicians artist, Kao Wen-chin,⁸ in Yien-chou (Shao-hsing, Chekiang), and printed in +984 (Fig. 1168), a life of Wen-Shu or Manjusri, God of Wisdom, printed during the Southern Sung by the Chia family in Lin-an (Hangchow), and frontispieces to different editions of individual works of the *Tripitaka* depicting the Buddha and his disciples; these were printed from +971 onward. The most unusual illustration in the Buddhist texts is a set of four landscape woodcuts from chapter 13 of the *Yi Chi Pi T’’ang Chi’’an,*⁹ one of the imperial prerogatives to the Khai-Pao illustrated edition of the *Tripitaka*, printed in +984–91.¹⁰ Showing an affinity to Sung landscape paintings, the woodcut prints are excellently composed and executed with meticulous care (Fig. 1169).

Confucian classics began to be printed in the +10th century, but illustrations were not included until the +12th, when a special edition having illustrations with the text below them, known as *t’ouhun thu hu chu,*¹¹ was printed for the use of students preparing for the civil service examinations. Noted works of this type included the *Liu Chuang Thu,*¹² an illustrated book on 909 objects which are mentioned in the Six Classics; this was printed in Fukien in +1106, with at least three other editions known to have been printed in the Sung period;¹³ the *Sun Li Thu,*¹⁴ a book on rituals containing illustrations of altars, insignia, costumes, and other ceremonial articles (+1175); and the *Eih Yu Thu,*¹⁵ an illustrated lexicon of classical

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¹ For the general history of Chinese woodcuts, see Ku-yi Chu (i), Wang Po-Min (i), and Joseph Highce (i); for favorite representations of Chinese woodcuts, see Anjana Atikah (i), Cheng-Chen Tsai (i), Cheng Kuei Pass E-Fa Tu Lo (Peking, 1961), v. 7, and Higuchi Hiroshi (i).
² Cf. above, pp. 101–102.
³ 資抄印校纂成部
⁴ 被致
⁵ 烏無照幻
⁶ 決等心圖
⁷ 大護法
⁸ 高文進
⁹ 方始為
¹⁰ 橫筆為
¹¹ 與善應
¹² 存古製
¹³ 存古製
¹⁴ 存古製
¹⁵ 存古製
Fig. 168. Woodcut pictures of Northern Sung, depicting Maitreya seated on the lion throne, painted by court artist Kao Wen-Chin and printed in 1194. From Tʻo-ho ching, vol. 19, no. 7.

Fig. 169. Landscape woodcut for the imperial palace in the 18th century. From Art of Shantung. From Liao (7).

32. PAPER AND PRINTING
terms on various objects and activities. Historical events were another popular subject for illustration, and one of the best works of the kind from this early period is a collection of 129 biographies of famous women, the Li shi Chiu, with original illustrations attributed to the noted painter Ku K'ai-chih of the 4th century; it was first printed c. +1065, and reprinted by the Chhiin Yu Thang of the Yi family in the latter part of the +13th century (Fig. 1170).

Before the use of photography, all kinds of objects were the subjects of woodcuts. The best-known works of this type include three archaeological catalogues of the Sung period: the K'ao Ku T'ung, which describes bronzes in the imperial and private collections, printed +1092; the Hsia Ku T'ung, which was a supplement to it; and the Hsin-siang Kiu T'ung, dealing with some 600 bronzes compiled during the Hsian-ho period (+1119-25). These are important and have frequently been cited as a reliable secondary source for the study of Chinese ancient bronzes.


Fig. 172. An illustration in the Book of Famous Women, 4th-5th century, depicting the story of Meng-wei who was admonished by his mother to continue study, for stopping study would be like cutting threads from weaving. From Li shi Chiu, K'U T'ung ed.

Another notable example was an album on plant life, the Mei Hua Hsi Sheng P'u (Fig. 1171) containing 100 excellent drawings of the plum in different stages of blossoming; it was printed in +1250 and reprinted in +1261. An album on farm life, K'ung Chih T'ung, includes twenty-one scenes of tillage and rice cultivation, and twenty-four on sericulture, spinning, and weaving; it was perhaps printed first in +1145 and then again in +1237, based on a stone carving of +1210.

In scientific and technical works, illustrations have proved to be even more essential for understanding and interpretation. One outstanding illustrated work on architectural design, Ying Tao Fa Shih, was first published in +1103 as a guide to public construction (Fig. 1172), while a book on astronomy describing the armillary sphere, Hsiin Hsiang Fa Tao, contains sixty drawings of the instrument; it was printed in Chih-cho, Chekiang, in +1127. Two medical works also are well illustrated, one on acupuncture, the T'ang T'oe Chun Chia Ching, first printed in +1065, the year in which two brass anatomical figures were made by imperial order, and the book was probably the first to contain illustrations of the human anatomy. The other is the celebrated work on materia medica, the Ching Shih Ching Lei...
Fig. 118. Interior decoration with lacquer and rhinoceros horn, Wing Yiu San, AKA, 18th century.

In the 18th century, lacquer and rhinoceros horn were used in interior decoration, often in elaborate and intricate designs. This example features a piece from the Wing Yiu San, AKA, a notable company known for its fine handicrafts.

The use of these materials was not only for functional purposes but also for aesthetic appeal, reflecting the cultural and social status of the time. The intricate designs and attention to detail indicate the high level of craftsmanship and artistry of the period.

These decorative pieces were often used in the homes of the wealthy and nobility, serving as both functional and status symbols. The use of materials like lacquer and rhinoceros horn not only demonstrated the owner's wealth but also their appreciation for art and beauty.

In summary, the 18th century was a time of great innovation and creativity in interior decoration. The use of exotic and high-quality materials like lacquer and rhinoceros horn exemplifies the aesthetic sensibilities and social values of the time.
accomplished with little official support but was primarily the achievement of private and commercial agencies located in such centres as Nanking, Hsin-an, Hangchow, and Chih-yang in southeast and south China, as well as at Peking in the north. This resulted from the political and economic stability of the country during most of the period, and from the rise of a new audience who were seeking reading materials for pleasure rather than for purely scholarly purposes or religious enthusiasm as in previous times.  

The books most frequently illustrated were fiction, drama, poetry and art albums, scientific works, and primers, as well as historical, geographical, and biographical writings. As might be expected, the greatest number of woodcuts were produced for popular literature, and almost every edition of novels, short stories, and dramas carried pictures to illustrate the story; these ranged from a few to as many as forty or fifty in one book, or even over a hundred in some cases. After the first illustrated edition of the famous drama, Hsi Hsiung Chih, or Romance of the Western Chamber, was published in 1498 (Fig. 1174), no fewer than ten others followed up to the end of the Ming. The earliest edition includes 150 illustrated themes some of which contain as many as eight pictures in sequence for a single theme. If connected, these would make a scroll some two or three feet long. The printer's colophon of this edition says: 'This large-character edition offers a combination of narrative and pictures, so that one may amuse his mind when he is staying in a hotel, travelling in a boat, wandering around, or sitting idle.' Again, in a collection of some 300 classical dramatic texts, over seventy per cent are illustrated.

(2) WOODCUTS IN THE MING AND CHING PERIODS

During the Ming dynasty, especially in the latter part of the 16th and early part of the 17th century, woodcuts formed the greater part of book illustrations and reached their highest degree of excellence in Chinese history. In both quantity and quality, they not only surpassed anything in the past but have never since been equalled. Thousands of such illustrations survive, covering a greater variety of subject matter and representing different schools of format and style, using greatly refined techniques and a highly sophisticated polychrome process. All this was

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\[ a \]

A reprint of the collection, Chih-hou Ping Hua Wu Chuang, was published in Shanghai in 1935.

\[ b \]

See separate discussion on pp. 284 ff. below.

\[ c \]

全相平呪五種
together containing 3600 woodcuts for Ming works. The Fu Chihuan Thang bookshop of the Thang family in Nanking alone printed over 1000 illustrations in some 100 works of the *chihbian chi* stories, while such famous novels as the *Hsi Yü Chi*, *San Kuo Chih Yen*?, and *Chin Ping Mei Tzu Hua* all include illustrations of the story; in addition, the *Shui Hu Chuan* is known to have had at least seven different editions printed with illustrations during the Ming period.

Also illustrated were such collections of poetry as the *P'ai Yü Tho P'ien*, printed in 1597, with illustrations of 100 poems; and the *Thang Shih Hua P'eh* which is a combination of poetry and painting printed in 1600. The woodcut is especially suitable for reproduction of works of art and over a dozen such albums were published under the Ming, including the *Kao Sung Hua P'eh*, a painting manual of plants and birds by Kao Sung, (1550–4), and the *Ku Shih Hua P'eh*, a collection of paintings by famous artists of successive dynasties copied by a court painter, Ku Ping (8). This was printed in 1604 (Fig. 1172). Many biographical, historical, and geographical works were also well illustrated. For example, the *Lien Nu Ch'ien* is known to have had some half-dozen illustrated editions published between 1576 and 1644; the *Chuang Yuan Tho Hua*, printed in 1607 and 1608, portrays twenty-nine candidates who passed at the top of the civil service examinations in 1496–1521, and the *Hsi Hu Yu Lan Chi* with scenes of the West Lake in Hangchow, came out in 1547. Scientific and technical works were especially well illustrated to help explain the text, and included the famous work on agriculture and technology, *Thien Kung K'ai Wu* (Fig. 1071), printed in about 1617; the *Ngoc Chong Chi'kien Shu*, a comprehensive treatise on agriculture by Hsi Kuang-Chhi (1562–1634), that appeared in 1639; the *Wu Ch'eng T'ien Yen*, a collection of military classics printed in Chien-an in 1506–21; the *San Tho Tho Hua* (Fig. 1125), an illustrated encyclopaedia devoted to pictures, maps, charts, and tables (1605); and three editions of the book of materia medica, the *Pen Tohao Kung Mu*, printed in 1596, 1603, and 1640.

Among the few known artist-designers of the Ming woodcuts, Chhen Hung-shoou(18) (or Lao-Lien, 1599–1652) is the most noted for his creativity in showing the individual personality in human figures. An accomplished figure painter before he earned a living as an illustrator, he is known to have designed five books, the *Chiu K'Y T'ao* (the *Nine Songs*, composed by Chiih Yüan (c. –345 to –277), and printed

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* Based on the table in the *Kao P'an Hsi Chi* (*T'ang Kuo*), vol. 1–5, reprinted in Peking in 1954–7, which includes 21 Ming works with illustrations. See Kuo Wei-Chih (1), p. 75.
* Ibid.
* Reproductions in facsimile of Ming illustrations are found in Cheng Ch'en-To (1), vol. 3: 16, 19–28; Cheng *Kuo P'an Chi Chu* (1), vol. 7: Chihung P'Te (1), Aoyama Aria (1), Nogawa Kikuya (1), Hichoishi Hiroki (1), and Toshio (1).
in 1658; the Hsi Hsiao Chi¹ and the Yuen Yang Tʻao² both of which came out in 1658; the Shui Hsia T‘ao³ (Fig. 1176), which portrays forty characters of the novel Water Margin for playing cards and was designed in 1640 and the Pe K‘u T‘ao⁴ first published in 1655, which includes forty-eight figure designs of historical personages, that were also used for playing cards.¹ His designs for all these works consist of single figures against blank surfaces without any background, showing each personality as described in the literature, and the bold and sharp lines of the bodies and clothing are especially remarkable. The first two works were cut by members of the Huang clan of Hsien-an, and display clear and delicate lines.

Most of the cutters are unknown to us, but the names of a few appear on the wood blocks which they carved. As the profession was highly technical, transmitted perhaps only through tradition, they usually came from certain families or clans, spread sometimes over several generations, and sometimes moving from one place to another. Best known among them are the cutters of the families of Huang, Wang, and Liu of Hsien-an (Hui-chou or She-hsien in modern Anhui), where the best ink and paper were produced. Especially significant was the Huang family, of which more than one hundred members are known to have cut wood blocks, including thirty-one who produced the majority of all the known book illustrations during the Ming period. Their center of activity was the village Ch‘in-ch‘ia⁵ in Hsien-an; later they migrated to Nanking, Soochow, Hangchow, Peking, and elsewhere as their profession demanded. Because of the special delicacy of their style, which was characterised by fine, soft lines, their works are generally spoken of as the Hui school. Especially noted were Huang Ling⁶ (b. 1564), one of the earliest cutters of the family, who produced the famous multi-colour manual of ink-sticks, Chung Shih Mo Yüan⁷ (Fig. 1166); Huang Te-Shih⁸ (1560–1605), who contributed to the cutting of three archaeological catalogues; Huang Te-hsin⁹ (1574–1658), who cut the collection of Yuan drama, and whose five sons were all cutters; Huang I-Kai¹⁰ (1580–1622) and his brother Huang Ying-Kuang¹¹ (b. 1592), who migrated to Hangchow and together produced the largest number of illustrated books of popular literature, including the Chieh P‘ing Mei T‘ou Hua¹² (Fig. 1177) and several editions of the Hsi Hsiao Chi. A total of some fifty titles are known to have been credited to members of the Huang family during the last seven decades of the Ming dynasty.¹³

Generally speaking, woodcuts under the Ming developed gradually to a standard of artistic excellence and maturity. At the beginning of the period, both the technique and the subject matter continued the Sung-Yuan tradition, with cruder lines and composition, used mostly for religious and scholarly literature. Towards the end of the 15th and through the 16th century, the demand for illustrations for

¹ See Huang Ying-Ch‘uan (1).
³ 許輝 水浒傳
⁴ 黃成功
⁵ 王思 水護傳
⁶ 戴五 文橋
⁷ 關中 調元
⁸ 黃新士
⁹ 黃新文
¹⁰ 黃新文
¹¹ 黃新士
¹² 黃新士
¹³ 黃新士

Fig. 1176. Woodcut design for playing cards by Ch‘i-hsun Hsing-Shou, 1650, portraying the hero-Song Ch‘iang in the Hui Hsiao Chi. From the Hui T‘ao T‘ao, facsimile reprint, Shanghai, 1979.