popular literature, art albums, and pictures for amusement prompted some complexity and sophistication in design. The four decades from the beginning of the 17th century through to the end of the dynasty in 1644 produced the greatest number of woodcuts, introducing new techniques which led to the greater refinement of the art, with delicate lines, detailed design and composition, and exquisite execution. It was the golden age of woodcuts and book illustration in Chinese graphic history.

Under the Ch’ing dynasty, the woodcut in book illustration showed less creativity and prosperity than in the Ming. In one sense, the decline resulted from the suppression of certain categories of fiction and drama which had inspired the greatest part of the Ming illustrations. On the other hand, a new horizon of official patronage had developed, and also a new interest in popular woodcuts of New Year pictures. Peking became the centre of official printing, while private and commercial printers continued to produce in other cities in both the north and the south.

During the first part of the Ch’ing, over a dozen illustrated books were produced at the imperial printing office, Wu Yang Tien, designed and cut by court artists and expert craftsmen. Many of these works were produced to record imperial ceremonies, journeys, military campaigns, or imperial establishments; the records were accompanied by poems composed by the emperors. One of such earlier works was the Wan Shou Sheng T’ien Thu, which depicts various scenes at the celebration of Emperor Ch’ien-lung’s sixtieth birthday in 1713, when a procession extended some six miles in Peking. It was painted by the court artist Wang Yuan-chih (1642–1713) on silk, and later reproduced by the most skilful Chu Kuei in 148 woodcuts, which, if joined in a scroll, would be 166 feet long. A similar work recording the celebrations of Emperor Ch’ien-lung’s eightieth birthday in 1791 was printed in 1796, but it was not so well executed as the earlier one. Another pictorial record, known as the Nam Hsin Sheng tien (Fig. 117), was made during the emperor’s inspection tours to four provinces in 1754–55. It depicts the most beautiful landscapes along several thousand miles of the journeys.

Imperial gardens, establishments, and collections of ritual articles were other themes for illustrated works, which always included poems composed by the emperors. These included the Pi Shu Shan Ch’ang Shih Thu, depicting scenes of the imperial summer palace in Jehol, printed in 1712, and the T’ian Ming Yuan Su Shih Ch’ang Shih Thu (Fig. 1179), consisting of forty pictures of the summer palace in a suburb of Peking (1745). Another illustrated work is the Hsung Chhao Li Chh’i Thu Shih, which portrays sacrificial vessels, robes, musical instruments, astronomical apparatus, weapons, insignia, etc., used in the imperial rites of the reigning

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* See separate discussion on pp. 168–171 below.

** Wang Po-Min (I), pp. 115–135; Kuo Wei-Chih (I), pp. 135–155; Hasegawa Hiroshi (I), pp. 24–25.

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* See an excellent reproduction of forty-eight colour woodcuts of various local scenes from the 1794 edition and sixteen black-and-white pictures from the 1784 edition in Pictoral (196).
Fig. 1178. Temporary palace of Emperor Chien-Lung near the Golden Mountain at Chekiang, Chinchou during his inspection tour to the South, printed in colour in 1750. From Nan Hai Shih Tsu, reproduced in Felius (16).

dynasty; this was printed in 1759 and revised in 1766. Portraits of meritorious persons were preserved in such works as the Phong Ting Taiwan San Shih Erh Kang Chih Chih Thu Hsien (1683), which contains some thirty-two portraits of military heroes of the conquest of Taiwan in 1683. Non-Chinese persons are portrayed in the Huang Ching Chih Kang Thu (1751) and depicts some 500 figures and their costumes from the native tribes of southwest China to the peoples of distant European countries, based on reports and observations by Chinese envoys who had been sent abroad.

Among noted works on agriculture and other subjects, the most famous is probably the Yu Chih Kung Chih Thu (1712) which was based on the Sung version but includes twenty-three pictures each of tillage and weaving, designed by the court painter Chiao Peng-chin, with one additional poem for each subject on the top margin of the picture by the Emperor Kiang-Hsi (Fig. 1180) and others. It was printed in colour in 1766, carved later on stone, and reproduced in woodcuts by Chu Kuei in 1772. Other similar works include the Min Hu Chih Thu on the culture

and processing of cotton, printed in 1765; the Shou Shih Thung Khan (1742), primarily based on an earlier work on agriculture by Hsu Kuang-chih; the Wu Ting Tien Chih Chih Fan Chih Shih (1770), a manual for the various stages of making moveable types and printing (Fig. 1149); and the grand encyclopedia, Tho Shui Chi Chih (1776), which includes thousands of illustrations in its various sections, even though it was printed with bronze moveable type in 1728 (Fig. 1147).

At this time, Western art was influencing that of the Chinese court due to the presence of Roman Catholic priests who were serving in various capacities at the imperial palace. Thus when the Phong Ting Lui Chih Pa Chih Thu (1781) with paintings of sixteen scenes from battles and memorable events in the conquests of Kii and
Chinese Turkestan, was completed in 1766, it was sent to Paris by imperial order to be engraved on thirty-six copper plates, which were completed in 1774.  

The official interest in printing book illustrations and the demand for excellence promoted production by private and commercial printers. Although the pre-


Fig. 188. An album on tillage and weaving, redrawn under imperial sanction in 1772, here depicting rice planting with poem from original Sung edition in the upper right corner and an additional poem by Emperor Kung-Hui in his own calligraphy in the top margin. From Li Ch’i Hsiang Liu Hsi, 1771 ed., British Library.

dominance of many famous Ming family publishers had gradually disappeared, a few noted designers collaborating with skilful cutters were able to contribute to give an excellence to early Ching woodcuts, especially those illustrating landscapes and human figures. Most noted among these artists was Hsiao Yün-Tshung1 (1596–1673), whose design of pictures was most outstanding. He painted forty-three scenes of the landscape of Thai-phing (in modern Anhui), *Thai-Phing Shan Shai Thu Huo*2 (Fig. 188), at the request of an official of that place. These were engraved on wood by a number of skilful cutters in 1648 to accompany poems and essays, and consisted panoramic views of the scenic mountains and rivers, all with very elaborate and delicate carving. Another of his works is an illustration with figures of Chih Yu’s *Elegy on Encountering Swallows*, *Li Ssu Thu*3, printed in 1645 (Fig. 182). Inspired by the expressive style of Chhen Hung-Shou and cut by some of the same cutters as the previous work, it shows both vivid facial expressions and dynamic flowing lines of garments.

Other important illustrations with figures include the *Ling-Yen-Ko Kung Chhen*
The Hoang, printed in 1608, which portrays twenty-four famous officials, scholars, poets, and artists of successive dynasties; and the Ho Chi Tho, printed in 1609, an album of forty unique personalities of Chinese history. Both of these works and two of the palace editions, the K'ung Chi Thu and Pi Shu Shan Ch'ung Shih Thu, were cut by Chu Kuei, who was probably the most distinguished craftsman of the early Chih Ming and who contributed so much to the excellence of the work of this period. Another important book is the Wu Hsiung Thang Hua Ch'ian, printed in 1745, illustrating 120 persons noted in history from Han to Ming times. The most distinguished work of multi-colour woodcuts was the painting manual of the Mustard Seed Garden, which will be discussed in the following section.

During the second part of the Chih Ming period, after 1600, nothing particularly significant appeared, except for some illustrated works of a practical nature, archaeological repertories, local sceneries, fiction, and other miscellaneous materials. However, among scientific and technical works, there was an illustrated book on botany, Chih Wu Min Shih Thu Khao, printed in 1848 after the death of its author, Wu Chi-Jui (1783-1847); this included drawings of some 1714 specimens of plants, flowers, and fruits, based on previous records as well as the author's own collections and observations during his journeys throughout the country. Another illustrated book worthy of note is the Ho Kung Chi Chi Thu Shao, on water conservancy, printed in 1836; this recorded the tools and materials for dyke building and river management. Of archaeological works, there were such illustrated catalogues as the Chi-Ku-Chai Ch'ung T'ang Chi Kuan Shih on ancient bronze inscriptions, printed in 1804; and the Ku Yu Thu Khao on ancient jade (1890).

A number of novels and short stories produced in the Chih Ming period were also illustrated. Especially notable is the Dream of the Red Chamber, of which the earliest edition, of 1791, includes some twenty or more pictures of heroes and heroines of the story, though the best is probably the Hung Lou Meng Thu Yin (Fig. 1182), with fifty portraits of characters painted by Kai-Chhi (1774-1829); it is elegantly designed and well executed. Another noted figure painter who should be mentioned is Jen Hsiung (1795-1846), whose portraits, particularly the portraits of the emperors, are often copied by later artists.

Towards the end of the Chih Ming dynasty Western printing techniques and facilities were introduced and gradually replaced the time-honoured art of woodcut illustration. Quite a few pictorial works, especially those from the Tien Shih Chai, were printed by lithography and other mechanical processes. However, the art of the woodcut has survived to modern times. Certainly, there is a
school influenced by Western techniques and styles of print-making, but a traditional school still continues and has been revitalised, especially by a demand for multi-colour woodblock printing for the reproduction of works of art, stationery, and New Year pictures.

(5) **Development of Multi-colour Printing**

Chinese multi-colour woodblock printing, known as *tsao pan*¹ (set of blocks) or *tsou pan*² (assembled blocks), was produced by a set of separate blocks (Fig. 1184), each of which was registered in position and printed in succession on the paper using a water-based ink in different colours. The number of blocks in a set varies from a few to several dozens or more, depending upon the variety of colours and tones printed (Fig. 1185). This polychrome process was used for printing text with punctuation and commentaries, for cartographic works, paper money, book illustration, ornamental letter-papers, New Year pictures, and works on painting, calligraphy, and the decorative arts.

Reproduction of works of art is usually done with the same kind of ink, colour, and paper as those used for the original. To some extent, the exactness of wood-

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¹ 索板
² 装板
block prints cannot be equalled even by the modern photo-mechanical processes, because in photo-engraving, the fine reticulated lines do not express the exact texture and spirit of the original brushwork. Moreover, offset prints cannot reproduce the rich gradations and tones of Chinese ink painting, while the oil-based ink is unable to produce the same effect as the water colours of the original; in addition a background shadow produced by the photographic method is often observed.

The colour prints from woodblocks require considerable skill and expertise to master the various steps in designing, engraving, registering, and printing. Although no record is left to tell how the old colour prints were made, the process is believed to have been very similar to that used today. For reproduction of colour painting, the first step is to study and analyse the colours used in the original. Separate outline copies of each basic colour are then traced on thin transparent paper, which is then stuck upside down on the smooth surface of the woodblock using a rice paste. After drying, the back layer of the paper is rubbed off and the block is ready for cutting. As the lines and coloured areas must reproduce the original work exactly, the original is always kept beside the cutter and the printer (Fig. 1186).

The paper used for Chinese colour prints is usually the whitish, smooth, absorbent Haire-chih which is used by all Chinese artists for painting and calligraphy. The inks are the same water colours, most of which are earth pigments mixed with peach-tree resin or hide glue and water. These are mixed as they were for the originals so they produce the exact colours after drying. The worktable is made of two wooden boards placed to leave a slit between them (Fig. 1187). On the left side the engraved block is firmly fixed with pitch or wax to the table, with brushes and inks to hand. On the right side, sheets of paper are firmly held together under a clamp. When the block is inked, the printer must see that no colour runs beyond its proper boundaries. A sheet of paper is then laid upon the inked block and softly brushed over. Different pressure is applied to different parts of the block, depending upon the expression and texture needed for each stroke. Sometimes certain colours have to be printed first and dried before others are applied, and sometimes later printing must be done while the earlier colours are still wet. Gradation is achieved by applying varying degrees of colour from light to dark repeatedly from the same block, either by causing the ink to run on the block with a special brush, or by wiping away the ink at the desired place. In this way, an exact copy is produced

Fig. 1185. Ten steps for making a multicolour blockprint as exemplified by the picture of goldfish. Courtesy of Jung Pao Chai, Peking.
which sometimes cannot be distinguished from the original. As a noted typographer has said: ‘There is hardly another graphic art in the world that depends so entirely on the artistic sympathy and understanding of the printer as does the Chinese colour print.’

This colour process apparently evolved from one in which prints with black outlines were coloured at first by hand and later by applying various colours to different parts of the same block. When separate blocks were used for different colours with gradations of tone, the technique became a highly sophisticated and refined art of printing. Several of the earliest examples of prints coloured by hand survive. A picture of Kuan-yin dated +947 and a few similar sheets with six colours were found in T’ung-huang,⁸ and paper money issued in +1107 was printed with legends in black, a circle design in vermilion, and ‘blue face’ in indigo, as a precaution against counterfeiting.⁹

One of the earliest examples of colour printing extant is perhaps a single sheet of woodcut recently discovered in Sian. It depicts the legend of Tung-fang Shao¹ (b. –1086), a humorous official at the Han court who is said to have stolen the peaches of immortality from the Queen Mother of the West. The picture is attributed to the Thang artist Wu Tao-Tzu¹ (d. +792) and printed in black, grey, and green with a seal in red, possibly by a commercial printer at P’ing-yang under the Jurhen in the early 12th century (Fig. 1188).¹ This piece is believed to have been used for

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¹ Tschichold (51, p. 41).
² Specimen of early coloured prints are kept in the Musée Guimet, Paris.
³ See description in Cha Chang Kuan Chi (CHUN), ch. 67, pp. 96a–98a.
⁴ This print was found, together with a rubbing of calligraphy, some fragments of Jurhen documents, and fifty-eight iron and copper coins of the Sung and Chin period of which the latest dated to +1128, inside the cavity of a pillar for the stone tablet at the Forest of Seals (Pet Liang¹), Sian in 1915 when the tablet was repaired; see a report in WFTK, 1915 (no. 3), pp. 2, 7, pl. 2.
⁵ 夏方熙 ⁶ 吴道子 ⁷ 朝林
house decoration or as one of the New Year pictures with a theme popular then.

Texts printed with colour commentaries date back to the early part of the 14th century, although the actual beginning must have been earlier. One of the surviving examples is an edition of the Diamond Sutra, printed at the Ts'ao-fu Temple of Chung-hsin Circuit in 1340, using black for text and red for prayers and a picture of the ling tsu plant (Fig. 118a).

The multi-colour technique was further developed toward the end of the 17th century or around the turn of the 18th, when the Min and Ling families and other printers of the Chiang-su-Chekiang region printed hundreds of classical works, illustrated novels, dramatic texts, and medical writings in two to five colours. The most noted among them was Min Chi-chi, who and others printed no less than one hundred titles of such a kind of work during this time. One edition of the Shi Shao Hsin Tu, a collection of short stories compiled in the 15th century, was printed in 1581 by Ling Yin-chhu in blue, red, and yellow. In the next century, in 1666, an album of ink-cake designs, Ch'eng Shih Mo Yuan by the famous ink-maker

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8 A number of manuscript books with pagination and comments in colour are listed in the bibliographies of the Three Kingdoms and Sui periods in the 3rd to early 7th century.

9 See facsimile reprints of the Hsi Hwang Chi' printed in five volumes by Min Chi-chi in 1670, by the Museum für Ostasiatische Kunst, Köln, 1977 with text by Edith Dittrich (7); Tsao Hsiung (1) lists 130 titles in 152 works printed by the Min and other families in 1600-40.

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Ch'eng Ta-Yueh (1541-1616) of Hui-chou, was printed in five colours. For the first time in Chinese woodcuts it incorporated some Western engraved designs from the Bible, and a romanised form of Chinese apparently supplied by Matthew Ricci (Fig. 118a). At about the same time, numerous erotic picture albums in multi-colour were also printed, including the popular Feng Liu Chieh Ch'ang Thu, pictures of the gay life and excessive pleasure, made by the famous cutter Hsueh I-Min of Hsin-an, and printed with five colours in 1606. The earliest extant atlas printed in colours is probably the Chi Chiu Ti Chu of 1643, a collection of sixty maps showing geographical areas in contemporary and ancient times. Place names and boundaries of the Ming period are shown in black, while those of antiquity, and the annotations, appear in red. All these works, however, were printed with solid colours without gradations.

This polychrome technique was advanced to the highest degree of perfection in the first part of the 18th century, when many collections of painting, calligraphy, and ornamental letter-papers were produced with even more sophisticated processes. Unlike the previous illustrations with black outlines, the new technique was characterised by applying colours to the blocks without outlines but with a variety of graded tones. This development reached its peak with the Shih Chu Chai Shih Hua Pho, a manual of calligraphy and painting from the Ten Bamboo Studio (Fig. 1190), and the Shih Chu Chai Chien Pho, a collection of ornamental letter-paper designs from the same studio (Fig. 1191) both printed in five colours with graded tones by Hu Cheng-Yen in Nanking. The first of these two monumental works appeared in 1619-33, and the second in 1644 or 1645.

Hu Cheng-Yen (c. 1582-1672) was a native of Hsi-ning (Hui-chou) in modern Anhui, a centre for fine paper, ink, and printing for many centuries. He later lived in Nanking, to which many prominent cutters and printers moved from the not far distant Hsi-ning. Hu was a scholar and physician by profession, but became a seal carver, painter, calligrapher, letter-paper designer, and printer of artistic talent, and his collections included a number of paintings and examples of calligraphy from his own hand as well as by some thirty other contemporary artists.

His painting manual consisted of about 180 pictorial prints and 140 poems in calligraphy, which were grouped under eight categories, including birds, fruits, orchids, bamboo, plum blossoms, rocks, paintings in circular fan shape, and miscellaneous paintings and calligraphy. Each subject category contained about forty examples of painting and calligraphy, each printed on one double-page leaf.
The categorisation and selection of the pictures showed for the first time in Chinese art a systematic approach to the study of painting and calligraphy.

Before the complete edition of the Shih Chu Chai Shu Hua P'iu was issued in 1633, a few advance editions are known to have been printed. These included one printed in 1629, of seventeen pictures of bamboo; one of unknown date on the four noble plants (plum blossom, orchid, bamboo, and chrysanthemum), with eight pictures; and one on birds printed in 1627, with ten pictures. The Shu Hua P'iu was apparently a collection of previous works plus new ones printed in or before 1633. The earlier editions of this work are extremely rare.*

Hua's collection of ornamental letter papers, the Shih Chu Chai Chien P'iu, consists of designs of rocks, ritual vessels, landscapes, human figures, and plants and

* An excellent facsimile reproduction of the first edition of this manual has been made with colour offset by Tschichold (5).
flowers. Some of these designs were made, with or without colour, from embossed blocks, another Chinese printing invention.\* The process, known as kung ju\* (embossed blocks) or kung hua\* (embossed designs), employed either simple pressure on paper to produce the effect of relief from an engraved block, or a true embossing through pressure on paper placed between negative and positive blocks. One expert believes it was a process of true embossing with a negative cut from short-grained wood;\* it is not true, however, that this technique was Hu's creation or that his collection of writing-paper designs was the first of its kind. At least two other collections of such stationery are known to have been published around or before this time. One is the Lo Hsiaun Pien Ku Chih P'u\* (Collection of Letter Papers with Antique and New Designs from the Wisteria Pavilion), compiled by Wu Fa-Hsiang\* (Hu Lo-hsiaun, b. 1570), also from Nanking, and printed in 1626, nineteen years earlier than the one from the Ten Bamboo Studio. The other is the Yin Shih Chien P'u\* (Collection of letter papers from the Yin family), which includes embossed designs and is believed to have been printed at about the same time.\*

The manual from the Ten Bamboo Studio was instrumental in the publication of later works of colour prints. Especially noted is the Chih Tzu Yuan Hua Chuang (Painting Manual of the Mustard Seed Garden) (Fig. 1392), which was even more influential than its predecessor and has enjoyed prestige as a model for beginners in brush work for the last three centuries. The Mustard Seed Garden was built in Nanking by Li Yü (1611-80), a playwright and prolific writer on many subjects, who printed a number of his own books and others under this name. Although he wrote a preface to the first series of this manual in 1679, it was apparently a sponsor but not the author. It is generally agreed that the first three series of this work, parts 2 and 3 of which were published in 1701, were prepared by his son-in-law, Shen Yin-Yu,\* and illustrated by Wang K'ai\* and his two brothers Wang Shih\* and Wang Nieh,\* the fourth series was added by others in 1818. This work is a step-by-step instruction book on how to do paintings of landscapes (series 1); of plum blossom, orchid, bamboo, and chrysanthemum (series 2); of birds, insects, and flowers (series 3); and of human figures (series 4). This work has been widely circulated in China and Japan, with numerous editions reprinted in both countries and translation into different languages.\*

(4) POPULARITY OF NEW YEAR PICTURES

No other significant works of colour prints are known to have been produced since the publication of the painting manual from the Mustard Seed Garden, except perhaps for some minor collections of ornamental letter-paper designs and for the numerous New Year pictures known as nim hua.\*

\* Embossed paper first appeared in Europe after the middle of the fifteenth century, in Germany, and was patented in England in 1576; see Boff (2).
\* Teichhold (3), p. 3.
\* The authorship of this work is mistakenly ascribed to Weng Sun-p, Nien 1647-1725, whose name was also Lo-hsiaun, when the second volume of an incomplete set was reproduced in the Zhen Sihua, compiled by Onzawa Suijung and printed in Tokyo in 1935. The first volume of the complete set discovered in Shanghai in 1954 contains a preface revealing the correct compiler and dating. The subject-matter and embossed designs of this work are similar to those of the Ten Bamboo Studios, but it uses oil colors for colour and line gradation of scenes; see WTE, 1956, no. 3, pp. 7-35 also pp. 282 ff. above.
\* This work survives in Japan, and two designs, one of which is embossed, are illustrated in Aoyama Arata (1), plate 191, also Nagasawa, Kikyô (2), plate 102.
\* 次板
\* 齊氏
\* 赤子圖通路
\* 森田
\* 大師
\* 出頭
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most important event of the year, and was celebrated throughout the country as an extended holiday when people conclude the old year and look forward with new hopes and expectations for the coming one. Chinese in all walks of life liked to decorate their houses with pictures in bright colours and gay in content, either hand-coloured over black outlines or, more often, printed by a multi-colour process. The origin of nien hau may be traced back to the use of illustrated seasonal calendars, door gods to protect the house, and certain family scenes in paintings, all of which appeared in the T'ang or earlier. Motifs and content continued to develop through the centuries, and this folk art increased in popularity when the technique of multi-colour woodcuts was widely applied to printing in the latter part of the Ming dynasty.*

New Year pictures fall into a wide variety of categories. Most popular are those reflecting human desires for happiness, prosperity, and longevity, symbolised by such figures as the hsi, fish, peach, lotus, pomegranate, and peony. Gods of folk religion, heroes and heroines, landscapes and scenery, family life and children, farming and weaving, and many other topics were represented. One of the earliest extant examples is a delicately printed picture of Shou Hsing* (God of Longevity) (Fig. 1195) made in Soochow in 1505. Soochow, a commercial and industrial city in the southeast of China that was most prosperous during the early Ch'ing period, was one of two major centres for the production and distribution of New Year pictures. Here, in a street named Thao Hua Wu, where a villa of this name had been built by an artist in 1505, a scenic area was formed during the following centuries, and this contained over fifty printing shops by the middle of the 17th century. Such pictures as the Wan Nien Chhiao,* or Everlasting Bridge (Fig. 1194), and the Chhang-men* City Gate, both printed in 1740, reflected the prosperous scenes of Soochow during this time.*

Another major centre was located in Yang-fu-chhing,* a town near Tientsin, where many workshops were established from the end of the 17th century on. It had become the largest production and distribution centre by the early part of the 18th century, when annual production reached twenty million copies. One single shop with several hundred cutters and printers produced over a million pictures a year, and over sixty workshops were still operating in the middle of the 19th century.* Two editions were made, one in the spring and autumn of each year. The spring edition was produced at great leisure, with more variety in designs and colours and in more refined style. The autumn edition, prepared in haste to meet

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* For the history of the development see A-Ying (2); Kuo Wei-Chhu (1), pp. 181-197; J. Heijlari (1), pp. 98-99; Pontecorvo (1).
* Reproduced in Ascona Araa (1), plate 6.
* Most of the pictures from Soochow survive in Japan, and forty-seven selected samples are reproduced in Ascona Araa (1), plates 15-27; see also A-Ying (2).

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* 日星 * 桃花源 * 青年貌 * 建門 * 宜龍霄
the immediate needs of customers, was more robust in style. With the increasing demand for such pictures, many sub-centres were developed throughout the country, especially Yang-chia-wu in Shantung, Paoting in Hopei, Chiu-hsien-cheng in Honan, Yangchow in Chekiang, and Fu-shan in Kiangsu. They became satellites of the major centres in the north and south, following the general style and pattern of their respective parent schools.

Generally speaking, the northern school inherited the techniques of woodblock printing of Phing-yang and Peking and was generally influenced by the style and subject-matter of traditional Chinese painting, especially those of the court painters. These themes put more emphasis on folk gods, women and children, scenes from the stage, and historical romances (Fig. 1195). The style of cutting was sharp and hard, and the work was more decorative with rich colours. On the other hand, the Soochow school followed the techniques of colour prints developed in the neighbouring areas during the Ming dynasty. The designs were more delicate and elegant, with subtler execution, rich decoration, and warm tones. The themes included such familiar scenes as children playing with toys or New Year decorations often seen in scroll painting. Some Western influence in both technique and content is noticeable in the pictures produced in the Chings period. Both perspective and chiaroscuro are used, and such new scenes as a European opera house (Fig. 1196) or a locomotive were introduced as decorative art in Chinese homes. As a whole, both techniques and contents reflect the life styles and tastes of the people in the northern and southern parts of the country.

See selected samples in Chang Ying-Hsiu (7).
(4) SPREAD OF PAPER AND PRINTING TO THE WEST

(1) DEVELOPMENT OF WESTERN KNOWLEDGE OF CHINESE PAPER

Paper was introduced to Europe in the middle of the +10th century, manufactured there from the +12th century, and used for printing from the middle of the +15th century. It was a rag paper, which was assumed at the time that it was invented by Arabs or by Europeans. The fact of its true origin in China and gradual spread to Europe was not well established until around the turn of the present century. This slow recognition was due partly to the indirect transmission of the invention from China to the West through an intermediary, and partly to confusion about the nature of the material. The relationship between true paper and papyrus has been questioned from time to time, and belief in the Western origin of paper was discarded only recently.

That the Chinese used paper was unknown to Europeans for three centuries after it had already been introduced to the West. Only from the beginning of the 13th century, when European travellers visited the Eastern parts of the world, did they observe the use of paper money in China, although their primary interest was in money and not in paper. The earliest report of paper money was made by William Rubrooke, a missionary who was sent by the king of France to the Mongol capital, Karakorum, in 1253-4. After his return to France, he mentioned in 1255 that the Chinese used a common money made of pieces of cotton paper for their business transactions; the use of paper as a medium of exchange was probably not known in Europe prior to this. Rubrooke's report was soon adopted by Roger Bacon, who mentioned in his Opera majus (c. 1266) "a card of mulberry tree on which are stamped certain lines." However, a more detailed and direct observation about paper money was made by Marco Polo during his travels to the East from 1273 to 1295. He described very briefly the use of mulberry tree bark for papermaking, and went into great detail on the processes of making paper money and the systems of circulating it, using it in transactions, and replacing it when worn out.

Other pre-Renaissance writers of the 14th and early 15th centuries who gave similar accounts of the use of paper money in China were the prince of Armenia, Hayton (1307), the archbishop of Sultania (c. 1330), the Dominican John de Cora (c. 1330), the Franciscan friar Odoric of Pordenone (c. 1331), the Florentine merchant Francesco Balducci Pegolotti (1310-40), and the Venetian emissary Joseph of Cora (1336). All these early reports primarily expressed surprise that

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* The earliest dates for the use of paper in Europe are given as 910 in Spain and 1100 in Sicily, and for its manufacture 1140 in Navarre, Spain, and 1278 in Fabriano, Italy; see Hunter (i), pp. 370-4, also pp. 100-1 below.
* For the confusion between paper and papyrus and for the theories on the Western origin of paper, see Toren (j), pp. 197-8.
* C. Carter (h), p. 115, n. 2; Lach (j), p. 34.
* For discussion and quotations of these writers, see Carter (h), p. 115, n. 21; Lach (j), pp. 49-6.
* See R. Bacon (h), tr. H. Burke (Oxford, 1908), 1, p. 387.
* For the translation of a long chapter on paper money, see Yule (h), 1, pp. 497-6.
* For discussions and quotations of these writers, see Carter (h), p. 115, n. 21; Lach (j), pp. 49-6.
the cheapest stuff could be substituted for the most valuable material, but not much information about paper itself or its origin in China was revealed by these writers. Thus the Renaissance historian Polydore Vergilius (d. 1555) mentioned paper made of linen cloth in his work on inventions, first published in Venice in 1499, but he did not say who invented it or where.4

During the latter part of the 16th century, when paper was already popular in Europe, some of the travellers who wrote exclusively on China no longer mentioned paper money, but discussed the materials for making paper and the great variety of its uses. Gaspar de Cruz, a Portuguese Dominican who visited China briefly in 1556 and published a book on the country in 1596, said that Chinese paper was made from the bark of trees, canes, silken rags, and also rags of any quality.5 He mentioned, too, the uses of paper for different occasions—for sealing and authentication, when, for instance, a paper on which the authority’s signature was written was glued across both the doors or the gates of a city. Again, he described its use at festivals, when doors were framed by triumphal paper arches, and scaffolds were erected and decorated in paper representing figures, statues, and pictures, all very well made, painted, and lighted with candles and lanterns. The use of paper at funeral ceremonies also came in for comment, and he explained how paper pictures of men and women were hung on cords to help send the dead to Heaven while paper with printed images and cut in various shapes was burnt as offerings to the gods.6

Another missionary, Martín de Rada, a Spanish Augustinian friar who travelled to China twice, in 1573 and 1576, reported that Chinese paper was made from the inside pith of canes. "It is very thin, and you cannot easily write on both sides of the paper, as the ink runs through." He also reported the ceremonial uses of paper and the burning of paper money as offerings to the dead. Rada’s information was generally adopted by Juan González de Mendoza, a Spanish Augustinian monk, in his best-selling book on China published in 1589, and he added that "they have abundance of paper and it is very good quality."7

Not until the 17th and 18th centuries was more detailed information about Chinese paper and its early invention in China reported. At the beginning of the 17th century Matteo Ricci, the leader of the Jesuit missionaries to China, wrote that the use of paper was much more common in China than elsewhere, and its methods of production more diversified. He said that Chinese paper was thinner than any made in Europe and that made of cotton fibres was as white as the best paper found in the West.8 The date of its invention was given by another Jesuit, Alvare de Sedeno, who wrote around 1630: "It is now 1800 years since they have had the invention of paper, of which is there so many sorts and in so great plenty, that I am persuaded, that, in this, China exceeds the whole world; and is exceeded

by none in the goodness thereof." He added that paper "is made of a certain tree, which is called in India, Bambus, and in China, Ca (tsa)."9 Sermeno’s observation of bamboo paper was contemporary with Sung Ying-Hsing’s work on Chinese technology, published in 1637,9 which includes a whole chapter on the making of bamboo paper. His tracing of the origin of paper to the 2nd century is certainly interesting, because no other writer had ever said that the history of paper could be traced back to that early date; only very recently was this made clear when Western Han paper specimens from close to that date were found.

Although the Chinese invention of paper had been reported by Jesuit writers, the fact was apparently still unknown to the European scholarly community in the 17th century. A book on inventions, Munda mirabilis (Wonderful world), by Everhard Hapellus, published in Utrecht in 1689, still said that the inventor of paper was unknown but was deserving of the highest honours.

The story of Tshai Lun may have been known to the Jesuit missionaries because it was popular in China and Tshai had become a legendary figure worshipped in many public places throughout the country, but not until 1735 was summary of his biography published. Then, it appeared in Jean du Halde’s multi-volume history of China, originally published in Paris. The story says:

A great mandarin of the palace, whose name was Tshai Lun, invented a better sort of paper under the reign of Ho Ts’i, which was called Tshai lou chieh.10 paper of the Lord Tshai. This mandarin made use of the bark of different trees, and of old worn-out pieces of silk and hempen cloth, by constant boiling of which matter he brought it to a liquid consistence, and reduced it to a sort of thin paste, of which he made different sorts of paper; he also made some from knots of silk, which they called flaxen paper. Soon after the industry of the Chinese brought these discoveries to perfection, they found out the secret of polishing the paper, and giving it a lustre.11

Reports from missionaries to China in the 18th century contain little information on paper, except for one observation that Chinese paper was made from the bark of chia-lou12 [perhaps paper mulberry], which produced fine, white, fibrous, and silky fibres, and it was recommended for introduction to France.12 Up to the early second half of the 19th century, all information on Chinese paper was based primarily on du Halde, whose account seems to have been accepted as the authority on the history of Chinese papermaking.13 It was not until the discoveries toward the end of the 19th and early in this century of paper specimens in Egypt, Tunhuang, and

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4 See Polydore Vergilius (1), De rerum inventibus, Eng. tr. by Thomas Landy (New York, 1880), p. 67.
5 See tr. Bower (1), p. 120.
7 See Mendoza (1), ed. Maunoury, t. v. 123.
12 See Mendoza (1), ed. Maunoury, t. v. 123.