
JOURNAL OF THE CLASSICAL CHINESE FURNITURE SOCIETY



VOLUME FOUR
NUMBER ONE

Chinese furniture shows a consistent stylistic development from the Song to the Qing dynasties, and surpasses, in terms of beauty, the furniture produced by any other great civilisation.

Klaas Ruitenbeek

WINTER QUARTER 1993

Curtis Evarts Media Links

CONTENTS

Cabinets and Shelves Containing All Things in China 4

Sarah Handler

Sarah Handler traces the development of cabinets and shelves—associated with a chair-level lifestyle—from earlier storage containers such as boxes and chests.

Klaas Ruitenbeek's *Lu Ban jing*: A Review 30

Craig Clunas

Craig Clunas reviews Klaas Ruitenbeek's recently published study and translation of the Ming dynasty carpenter's manual known as the *Lu Ban jing*.

The "Classic of Lu Ban" and Classical Chinese Furniture 33

Curtis Evarts

Curtis Evarts studies the relationship between the *Lu Ban jing* and extant hardwood furniture by exploring aspects of measurement and terminology.

The *Lu Ban jing*: An Annotated Translation 45

Klaas Ruitenbeek

Klaas Ruitenbeek has made the first complete translation of the *Lu Ban jing*, the furniture-making sections of which are excerpted here, accompanied by his technical drawings.

Chinese Furniture and Decorative Arts: The New Gallery at the Nelson-Atkins Museum 65

Laurence Sickman: Early Scholarship, 1966

Laurence Sickman inaugurates the gallery devoted to Chinese furniture that opened in 1966 at the Nelson-Atkins Museum in Kansas City, Missouri.

The *Classic of Lu Ban* and Classical Chinese Furniture

Curtis Evarts

The *Lu Ban jing* (Classic of Lu Ban) is a Ming dynasty carpenter's manual that contains a significant section describing popular furniture types of the era. Klaas Ruitenbeek, in his recent publication, *Carpentry and Building in Late Imperial China: A Study of the Fifteenth-Century Carpenter's Manual Lu Ban jing* (which includes a translation of the complete text of the manual), wrote, "Viewed from the angle of art history, the furniture sections are by far the most important part of the *Lu Ban jing*. They constitute the only written document on what is one of the major traditions of furniture construction in the world, a tradition, moreover, which shows a consistent stylistic development from the Song to the Qing dynasties, and which surpasses, in terms of beauty, the furniture produced by any other great civilization" (Ruitenbeek 140). An examination of the *Lu Ban jing* in relation to extant hardwood examples of classical Chinese furniture offers many new insights into terminology, decoration, materials, and construction, and raises nearly as many questions.

Lu Ban was a legendary master craftsman, said to have been born in 507 B.C. in the state of Lu. Because of his skill in technical invention, he was lured to the state of Chu, where he is credited with inventing military devices instrumental in victories over neighboring states. He is better known, however, as the inventor of basic carpentry tools such as the plane, the drill, and the inkline and ruler. Legend also has it that he was inspired to invent the saw after he was cut by the fine serrations along the edge of a blade of grass (Cooper 121). The *Lu Ban jing* begins with a short biography of the master, who is said to have spoken the following words:

Roundness not brought about by the use of compasses, squareness not brought about by use of the square, such is the natural shape of Heaven and Earth. Using compasses to bring about roundness, using the square to bring about squareness, such is truly the faculty of man's senses with regard to these shapes. Furthermore, even if my understanding is sufficient to grasp fully the spirit of construction, how would it be possible that ten thousand generations all over the world would by their own effort have an understanding like mine? If their understanding is not like mine, then my own understanding will die with me, and my skill as well. So having strained the power of my eye to the utmost, I extend it by means of compasses and square, level and inkline so that when I want to build palaces and houses publicly or privately, to construct ships and carriages, to assemble implements and pottery, the methods that were used by people in the past should not surpass my own method and self-tested way. (Ruitenbeek 153)

Because of his god-like abilities, Lu Ban was deified by later generations throughout China and southeast Asia, and became the patron saint of carpenters and other building workers. His biography also records that a Lu Ban temple was erected in Beijing during the Yongle reign (1403-1424). There the tens of thousands of artisans and corvée workers worshiped and drew guidance from Lu Ban during the construction of the new imperial palace. Today his birthday is unceremoniously celebrated as a holiday by craftsmen in Hong Kong. Notwithstanding, an active Lu Ban temple (*Lu Ban xianshi miao*) nestled in a small alley in Kennedy Town (Hong Kong) can still be found. Inside, a statue of Lu Ban is enthroned upon a large, red-lacquered chair with gilt dragons decorating the protruding ends of the crest rail and armrests (fig. 1). His gaze is fixed above as he holds a *ruyi* scepter in his right hand. An attendant stands on either side, holding instruments emblematic of his art—the inkline and ruler.

The *Lu Ban jing* thus perpetuates the understanding of Lu Ban. The earliest extant edition was published during the Wanli period (1573-1619), although major sections were probably compiled from earlier sources (Ruitenbeek 139; Wang 1989, 201). The manual is divided into three chapters (*juan*), the first of which deals mainly with house construction and geomantic and almanac calculations. The second discusses the construction of furniture and agricultural implements, and the final chapter is concerned with ritual and magic associated with the owners and builders during house construction.

The chapter on furniture and implements contains ninety-one entries,* fifty-three of which describe furniture or related furnishings of a household. (In this article, Ruitenbeek's numbering system for the entries will be retained to facilitate cross-referencing with his translation. See this issue, pp. 45-64.) The remaining entries are mostly related to agricultural structures and implements such as granaries, cowsheds, and irrigation wheels, and of these about half are geomantic and almanac calcula-

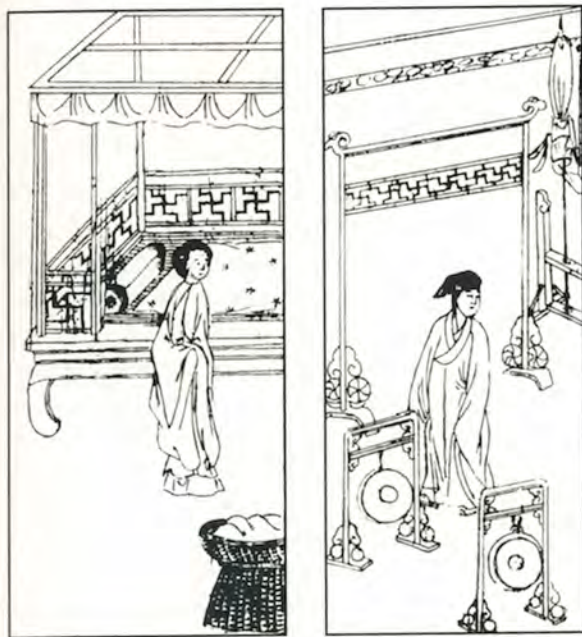
*The last six of these entries, 86-91, are not found in the Wanli edition, but appear in a later Qing edition (Ruitenbeek, 149).



tions for their construction and placement. Interestingly, it appears that calculations of this type did not usually concern the furniture-maker. Only the bed (fig. 2), perhaps because of its more architectural nature as well as the obvious associations with conception, birth, and death, has almanac calculations—favorable days to hang bed curtains. And numerology also enters when the reader is warned that on no account may the interior door panels of the alcove bed (no. 35) be 1 *chi* wide, although 9 *cun* 9 *fen* (only 3 mm less) is fine. In one of the late Ming geomantic works for bringing luck into the house, the author summarizes, “in calculating, one should never deviate from the number nine. Nine means luck” (Ruitenbeek 81). Auspicious measurements are not alluded to in relation to any other category of furniture.

Each of the furniture entries begins with a title indicating the type or pattern (*shi*). Here the modern reader learns that what is today popularly called a “half-moon table” is more likely the surviving half of a round table (*yuanzhuo*, no. 47) constructed in two parts; and that it would probably be more accurate to call lamp stands (no. 71) candle stands (*zhutai*) (see fig. 15, page 39), as lamps and lanterns appear to have been suspended rather than placed atop stands. After the title, some of the standard dimensions for the object are given, and here, too, there are surprises. For instance, an “Eight Immortals table” (*baxianzhuo*, no. 44) is not necessarily a square table. Measurements of some of the component parts are also given, and occasionally moldings and carved decoration are described. The entry often concludes with a few words of advice from the master: instructions to precisely follow the measurements or layout calculations, or on the use of certain types of wood, or a word of caution about handling delicate components. Woodblock print illustrations also accompany about half of the entries; however, they rarely correspond to the text.

There are a number of difficulties in reading the original text. It has numerous incorrectly written characters, lacks punctuation, and uses archaic terminology. Wang Shixiang, who annotated the *Lu Ban jing jiangjia jing*, notes that, “[The text] lacks precision and thoroughness. The articles vary widely in their minuteness of detail. Most of them are too sketchy, some even leave the most important structural members out, and when they are mentioned



the dimensions are missing. Some furniture terms and measurements of individual members are obviously wrong." Wang also noted, however, that familiarity with the *Lu Ban jing* was essential for scholars researching Ming furniture (Wang 1989, 201). Klaas Ruitenbeek's study, which not only includes a translation of the *Lu Ban jing* but also a facsimile of the earliest extant copy, has made it possible for a more general audience to penetrate this elusive text.

The discussion of furniture in *juan 2* of the *Lu Ban jing* begins with a "standing screen pattern" (*pingfeng shi*) as the thirty-first entry, following that of a "carrying cage for chickens." Although the rather arbitrary listing of furniture entries indicates a lack of any formal classification system, similar types are often grouped and illustrated together.

The illustrations appear to have been made independently of the text; perhaps the illustrator gleaned his conception of forms from a cursory reading of the entry titles. For instance, a careful reading of the entry for a mirror stand and case (no. 41) gives a fairly clear description of the type known as a "cosmetic chest," with two drawers and having a folding stand that can be stored

under a hinged lid, similar to one excavated from a Southern Song tomb (Wang 1989, 98). The illustration, however, depicts another type of mirror stand, which has carved, stepped panels surrounding the mirror to form a throne-like stage for the reflected image (fig. 20, p. 42). The clothes rack with carved decoration (no. 55) should have three *taohuan* panels in its central section, but the illustrator filled it with a *wanzi* design (fig. 3). And the top rail of the gong stand (no. 59) should, according to the text, have carved protruding ends like the clothes rack (*shangdanao diao yijiatou hua*). In the illustration, however, the top rail flows continuously into the vertical posts (fig. 3).

Sometimes the illustrator included several variations, even though only one is described. A simple recessed-leg footstool (no. 51) is described in the text, yet the illustration includes both corner-leg

Fig. 1, facing page. Statue of Lu Ban in the Lu Ban Temple in Kennedy Town, Hong Kong.

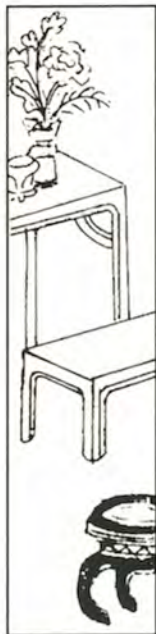
Fig. 2, above left. Canopy bed. Woodblock print illustration to *Lu Ban jing*, II 39. After Ruitenbeek.

Fig. 3, above right. Clothes rack and gong stands. Woodblock print illustration to *Lu Ban jing*, II 55 and 59. After Ruitenbeek.

Fig. 4, below left. Footstools. Woodblock print illustration to *Lu Ban jing*, II 51. After Ruitenbeek.

Fig. 5, below right. Chairs, II 62. Woodblock print illustration to *Lu Ban jing*. After Ruitenbeek.





and recessed-leg examples, as well as one with rollers (fig. 4). Accompanying the entry for a yokeback folding chair (no. 62) is an illustration with a horseshoe-back folding chair, a southern official's hat chair, and a side chair, none of which are discussed in the text (fig. 5). Later, a simple recessed-leg stool (no. 65) is described, but the illustrations include examples of recessed-leg, corner-leg, hexagonal, and round stools (fig. 6, and see this issue p. 45). Because all of the illustrations are in the style of the woodblock print illustrations made during the Wanli period, when illustrated books became quite popular, it is likely that they are contemporary

with the Wanli edition of the *Lu Ban jing*. Whether the text is contemporary with the Wanli period is another question.

Klaas Ruitenbeek suggests that the text of the furniture section dates from the early Ming. This is based upon the inclusion of cabinets (no. 67), which do not appear to have existed during the Song and Yuan dynasties, as well as of the *dansu*-like coffer with wheels (*gui*, 櫃) (no. 83), which seems to have disappeared by the late Ming (Ruitenbeek 140). Although these coffers are not found in the body of extant Ming furniture, similar coffers can be found in the large body of miniature pottery tomb furniture

from the Ming dynasty. One example recently seen also has a removable access panel (fig. 7) similar to the coffer (*gui*, 櫃) depicted in the illustrated primer *Xinbian duixiang*, which was published in the mid fifteenth century (fig. 8). The coffer illustrated in the *Lu Ban jing*, however, is similar to those known today as a late Ming coffer (fig. 9).

Furthermore, although the *Lu Ban jing* occasionally specifies some types of native woods, none of the tropical hardwoods that became popular near the end of the sixteenth century are mentioned. *Zhangmu* (camphorwood) and *nanmu* are both specified for washbasin stands (no. 42). *Shamu* (fir) is prescribed for the drawers of a medicine chest, with explicit instructions to avoid the use of wood from broadleaf trees (*zamu*). The reader is also advised to use a dry and smooth "tough wood" (*gengmu*) and to avoid knots when selecting material for the folding chair (no. 62). (The character for *geng* (梗) may have been incorrectly written for *ying* (硬) meaning hard. Wang 1989, 210.) "Tough" woods generally have long fibers, and thus possess a bending strength and resilience markedly greater than woods with short fibers. The fact that the folding chair's upright members (1 *cun*) are nearly 25 percent smaller in diameter than those of the meditation chair (no. 40) (1 *cun* 3 *fen*) suggests that the design of the latter was intended for softwoods.



Fig. 6, above left. Stools. Woodblock print illustration to *Lu Ban jing*, II 65. After Ruitenbeek.

Fig. 7, left. Miniature coffer with removable access panel, Ming dynasty (1368-1644). Pottery with green glaze. Private collection.

Fig. 8, above right. Woodblock print illustration of a coffer (*gui*), from the primer *Xinbian duixiang*, published in the mid fifteenth century. After Ruitenbeek 266.

Fig. 9, facing page, left. Coffin and waisted table. Woodblock print illustration to *Lu Ban jing*, II 83. After Ruitenbeek.

Fig. 10, facing page, above right. Horseshoe-back sedan chair, II 33. Woodblock print illustration to *Lu Ban jing*. After Ruitenbeek.

Fig. 11, facing page, below right. Horseshoe-back armchair, late sixteenth/early seventeenth century. Huanghuali; height 100.5 cm, width 62.5 cm, depth 48 cm. Museum of Classical Chinese Furniture, Renaissance, California.

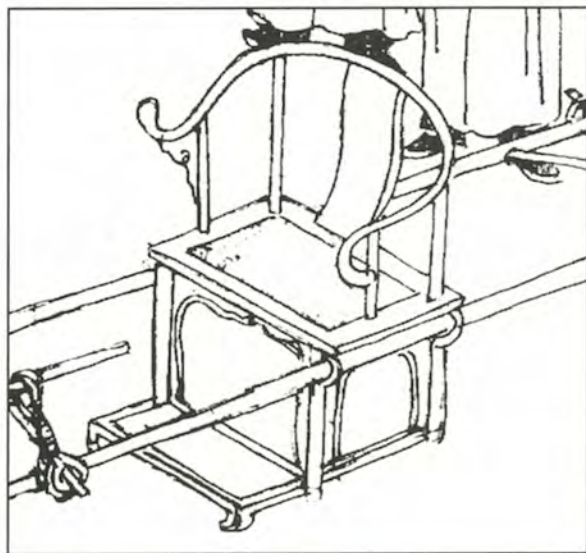


Furniture made from softwoods and local hardwoods generally has heavier and thicker proportions than that made from tropical hardwoods, whose greater density and superior strength permit more delicate joints and more slender shaping of members. As measurements for many of the component parts are given for each furniture entry, it is possible to compare them with those of extant examples of hardwood furniture. For instance, the dimensions of the frame of a canopy bed with soft caning (*tengchuan*, no. 37) are given as 5 *cun* 2 *fen* wide and 1 *cun* 2 *fen* thick. The Chinese ruler used by carpenters is roughly equivalent to the English foot, or 30 cm. One foot, or *chi*, is divided into ten *cun*, and each *cun* is divided into 10 *fen*. Ten *chi* equals one *zhang*. The cross-section of the bed frame member thus measures 15.6 cm wide and 3.6 cm thick. Although the thickness is close to what is commonly found, the width of the frame is nearly twice that found on any extant hardwood bed.

According to instructions for the folding screen (no. 32), the main frame members should be constructed from members a mere 8 *fen* (2.4 cm) wide and 6 *fen* (1.8 cm) thick, which is then reduced to 5 *fen* (1.5 cm) after the surface is finished. At the end of the entry the craftsman is warned to "be especially careful to avoid breaking the frame." This frame, even made from a tropical hardwood, would be rather delicate. Further comparison of measurements for component parts reveals that subtle differences between measurements given in the *Lu Ban jing* and those of extant pieces do not yield any conclusive indication that the *Lu Ban jing* measurements referred to furniture made of local woods.

In general, however, the pieces described in the manual seem to be somewhat smaller than their extant hardwood counterparts. Even the horseshoe-back sedan chair (no. 33) (fig. 10) is considerably smaller than a standard *huanghuali* horseshoe-back chair in the Museum of Classical Chinese Furniture, whose height is greater by 15.6 cm, the width by 7.5 cm, and the depth by 6 cm (fig. 11). The 111.9 cm height of the meditation chair (no. 40) (fig. 12) is also

considerably less than that of a standard *huanghuali* yokeback armchair in the Museum's collection, whose height is 118 cm. The tables in the *Lu Ban jing* are generally shorter, none measuring more than 75 cm, with the exception of temple tables described in the first chapter. Of the large body of extant hardwood tables, most exceed 80 cm, and formal side tables often exceed 90 cm. The square table discussed in entry no. 46 is 88 cm square and 75 cm high. The average dimensions of five *huanghuali* square tables in



the Museum's collection is 99 cm square and 86 cm high. The clothes rack with decorated carving (no. 55), with a height of 150 cm and a width of 111 cm, is also rather small when compared to extant examples. The average dimensions of four published *huanghuali* clothes racks are 170 cm (height) by 164 cm (width). And the average height of three lamp stands in the Museum's collection (including an adjustable stand at its lowest setting) is 34 cm greater than that of the candle stand described in entry no. 71.

The smaller proportions of the furniture in the *Lu Ban jing* could signify that these formulas represented popular furniture for ordinary people who lived in small homes. Although the reader is often warned that he must not deviate from the measurements, there are several instances throughout the entries, including the very first furniture entry (no. 31), when the reader is advised to "adjust the measurements of the piece in proportion to the size of the room." The fact that extant hardwood furniture is generally 10-15 percent larger in its overall dimensions could indicate that these pieces were made for the large rooms and halls of wealthy families.

This variance in size may also reflect the fact that the length of the *chi* was not standardized. It is believed that, although the length of the official foot

(which was 32 cm during the Ming and Qing dynasties) changed with each dynasty, the carpenter's foot remained constant at 30 cm (Ruitenbeek 80). In recent correspondence, however, Ruitenbeek raised the possibility that, if the furniture section of the *Lu Ban Jing* was "adapted from manuscript regulations used in palace workshops, the *chi* that the compilers had in mind could have been the *yingzao chi* of 32 cm." This difference would increase the overall



size and parts of furniture by nearly seven percent, which would account for a good part of the discrepancy between the measurements in the *Lu Ban jing* and those of actual examples.

The smallest unit of measurement given in the *Lu Ban jing* is the *fen*. Disregarding the few times a half *fen* is added to small parts, if 30 cm is taken as the standard for the carpenter's rule, the smallest unit of measurement would then equal 3 mm. Therefore, measurements of parts should all be in multiples of 3 mm, taking into account the final shaping and scraping to finish surfaces, as well as the wear and tear of several centuries. This can be tested on extant pieces. For instance, a piece that can, with relative safety, be dated to the late Ming period is a small *huanghuali* side table in the Museum of Classical Chinese Furniture; it is 90.8 cm long, 42.3 cm wide, and 84 cm high. Converted to the *chi* system based upon 30 cm per *chi*, the measurements round off nicely to 3 *chi* long, 1 *chi* 4 *cun* wide, and 2 *chi* 8 *cun* high (3 *cun* taller than any of the standard tables described in the *Lu Ban jing*). The exposed tenons in the table frame measure 1.5 cm by 3 cm, or 5 *fen* by 1 *cun*. The Museum's small table was thus likely constructed with a 30 cm/*chi* rule. After making such an experimental rule, one will be pleasantly surprised to see how many measurements of antique Chinese furniture fall exactly on marked divisions. Thus the argument for the constancy of the 30-cm *chi* is further reinforced, while the possible origin and connection of the furniture section of the *Lu Ban jing* with palace workshops is also strengthened.

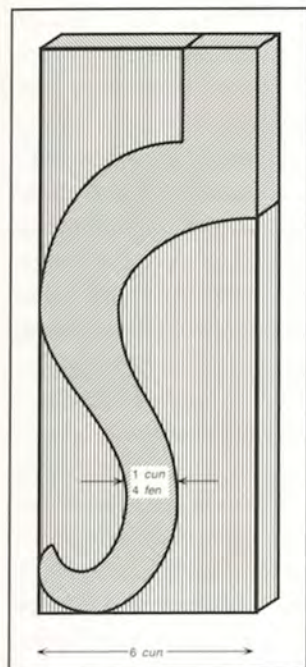
The terminology throughout the *Lu Ban jing* affords many frustrations as well as new insights. It should not come as a surprise that specialized terminology should be so elusive. The terminology used by carpenters today will surely prove

Fig. 12, left. Meditation chair. Woodblock print illustration to *Lu Ban jing*, II 40. After Ruitenbeek.

Fig. 13, facing page, above left. Drawing of a *baojiao* (leopard leg), showing how it is shaped from a block of wood according to the measurements in the *Lu Ban jing*.

Fig. 14, facing page, above right. Miniature tomb model of a washstand, Ming dynasty (1368-1644). Pottery with green and yellow glaze; height 13 cm, diameter of basin 12 cm. Museum of Classical Chinese Furniture, Renaissance, California.

Fig. 15, facing page, below right. Clothes chest. Woodblock print illustration to *Lu Ban jing*, II 70. After Ruitenbeek.



equally frustrating to scholars and historians of future centuries. For instance, why would a carpenter use a pair of “cripples” to support a header (beam)? (Will this term be interpreted as reflecting prejudicial attitudes toward the handicapped?) And for what purpose would a carpenter place a “bird’s mouth” on the “rafter tail”? (Could this refer to some sorcerer’s rite that Western carpenters

practiced?) Any attempt to interpret the language of a specialized trade gives rise to similar confusion.

Both Wang Shixiang and Klaas Ruitenbeek were frustrated in their attempts to understand the entry describing a folding table (*zhezhuo*, no. 49). First of all, does the folding table itself fold, or is it a table upon which something else is folded? In extant examples, the only folding tables are a few *kang* tables with legs that fold under. The high, recessed-leg tables that are sometimes called “folding” tables are actually tables with removable legs whose hinged aprons fold inward. In this entry, however, there is no hint of any folding parts. A clue appears in a later entry, when instructions for making a folding stick (*yizhe*, no. 69) are given, utilizing the same character for “fold” (*zhe*). This sword-shaped stick was used to facilitate the folding of fabrics. Perhaps the table does not fold, but was folded upon. Another clue lies in the instruction given to the reader at the end of the entry, “The installed leopard leg stabilizes (the table so) it will not move” (*baojiao shang fangwen buhui dong*). If this table was a working table, it is possible that short, S-shaped leopard legs were also used as braces, perhaps only later to become termed “giant’s arm braces.” The accompanying woodblock illustrations of corner-leg tables depict both giant’s arm and C-curved braces (see figs. 4, 6, and 9), but neither is clearly mentioned in the text. Nor do we have an early reference to the term “giant’s arm brace.”



A *baojiao* is literally a “leopard’s foot”; in the *Lu Ban jing*, however, *jiao* (foot) is used to mean “leg.” The leopard leg is consistently associated with the shape of the short cabriole leg found on low braziers and censers in the *Lu Ban jing*. In the entry for the low incense table (no. 77), the shaping of the curved leg from one piece of wood (fig. 13) is described: “[F]irst use (a board) 6 *cun* wide to allow sufficient size to shape (the curved leg) 1 *cun* 4 *fen* wide (*xian yong liu cun da, yizuo yi cun si fen da*).” Short cabriole legs appear on the miniature wooden model of a low stand found in the late twelfth-century tomb of Yan Deyuan in Datong, Shanxi (Handler 1991, fig. 6). Tomb pottery examples also frequently depict this high waisted form with short cabriole legs in rather two-dimensional forms on beds (Keppel 16), tables, and washstands (fig. 14).

At the end of the entry for the square brazier (no. 74), the reader is instructed to “shape the aprons like a mantis belly (*tanglang du*) to meet the leopard legs suitably.” Today, this sagging belly shape is also commonly called “fish belly” and “horse belly,” especially in relation to the horizontal aprons of chairs and stools. More commonly used in relation to aprons in the *Lu Ban jing* is the term, *leishui huaya*. *Leishui* can be interpreted “carved like water.” While *huaya* (flower or decorated tooth) has a less clear literal meaning, it is consistently used in relation to aprons, on furniture constructed both with the recessed-leg method and the corner-leg method. Sometimes it is prefixed with *sanwan leishui* to mean “curvilinear and carved like water.” This probably describes the undulating line with wave-like cusps that commonly decorates the aprons of many types of furniture. The plinth-like base frame (*chejiao*) of the clothes chest (no. 70) is also shaped with a *sanwan* profile that can be clearly seen in the accompanying woodcut illustration (fig. 15). These separate base frames were not only decorative but functional, protecting

stored in chests from moisture damage. Although they are rarely found intact today because of their disposable nature, they were often imitated in miniature tomb pottery models (fig. 16).

Standing spandrels are referred to as *jiangtui* in numerous entries. Wang Shixiang noted that the term literally means “oar leg” (Wang 1989, 202). Its undecorated form does recall the shape of an oar, as can be seen in a late Ming woodblock print from the novel *Shifumeng*, which depicts two servants carrying a large tiered box from a boat (Bruce 65, fig. 18). Incidentally, we should note the two posts decorated with carved finials. They are also specified in the *Lu Ban jing*, yet are seldom seen on extant examples. Spandrels for the standing screen (no. 31) are “to be carved in the shape of the sun, moon, and coiled elephant trunk” (*diao ri yue juanxiangbi*). Those for the candlestand are to be carved like a coiled trunk with foliage (*diao zhuanbi daiye*) (no. 71). The fact that dragon motifs are excluded as decoration may also indicate that this text originated from a manual for popular furniture compiled by official decree.

Some distinction in the quality of furniture can also be found in the *Lu Ban jing*. Although the measurements for a delicate (*xile*) censer (no. 75) and a crude (*cu*) one are the same, the latter is made without leopard legs and with an optional lip molding (*shuibian*) that prevents the censer from slipping off the edge. A similar miniature pottery example in the Museum’s collection may reflect the design of a delicate one (fig. 17). A distinction is also made between decorated (*diaohua*) and plain (*su*) types of furniture, such as the clothes rack.



Although no specific decoration is described for the decorated clothes rack (*yijia diaohua*, no. 55) except for the three *taohuan* panels in the central panel, detailed instructions from previous entries were probably meant to apply in this case also. For instance, the spandrels (for which specific measurements are given) would presumably have been carved like the previously mentioned coiled elephant trunks. The reader is also instructed that the top rail should extend 4 *cun* 4 *fen* beyond the vertical posts; decorative terminals could then be fashioned like those on the decorated washbasin stand (*diaohua mianjia*) described in entry no. 42. There the reader is instructed to “mark the top rail 3 *cun* 7 *fen* wide (11.1 cm), then its size is sufficient to be shaped and decorated with carved foliage.”

The plain clothes rack (*su yijia*, no. 56) is without carved decoration, yet has an interior panel fitted with pairs of vertical posts called *chuangchi*, literally “window teeth.” Among the numerous scenes depicting furniture illustrating the Chongzhen edition of *Jin Ping Mei* is a clothes rack with vertical poles (Evarts 36). These vertical poles, which are also seen on tomb pottery models (Keppel 46), and occasionally on extant examples, were probably used for hanging shoes to dry or air.

According to Wang Shixiang and Klaas Ruitenbeek, the reader is also given some instruction regarding the amount of splay to impart to the legs of a recessed-leg table (*yizizhuo*, no. 48) and to the ver-

tical frame members of a tapered clothes cabinet (*yichu*, no. 67). The interpretation of the character *shao* (梢) as a verb, “to taper,” is not without some question, however, unless it was mistakenly written. *Shao* is often used in relation to the tip or end of something. Another *shao*, very similarly written 稍, means to diminish slightly. More confusion arises when the same terminology is used for the legs of a small corner-leg table (*xiao qinzhuo*), which are usually not splayed (no. 45). Further studies of these seeming discrepancies may produce more convincing interpretations. There are so many Ming illustrations of Song-style furniture with feet which come to a point that some possible relationship should probably be considered. The design principles of furniture

Fig. 16, facing page, left. Miniature tomb model of a chest with base frame, Ming dynasty (1368-1644). Pottery with green and yellow glaze; length 13.8 cm, width 9.4 cm, height 11.7 cm. Museum of Classical Chinese Furniture, Renaissance, California.

Fig. 17, facing page, right. Miniature censer, Ming dynasty (1368-1644). Pottery; height 8.5 cm, diameter 4.3 cm. Museum of Classical Chinese Furniture, Renaissance, California.

Fig. 18, below left. Cosmetic chest and mirror stand, seventeenth century. Huanghuali; height 28 cm, 41.5 x 41.5 cm. Museum of Classical Chinese Furniture, Renaissance, California.

Fig. 19, below right. Mirror stand with open carving, seventeenth century. Huanghuali; height 91.2 cm, length 63.3 cm, depth 37.2 cm. Museum of Classical Chinese Furniture, Renaissance, California.





with splayed legs seems to have a link with timber frame architecture. Although a comparison study of architectural and furniture terminology has yet to be made, further clues may lie therein. For instance, in the entry for the construction of a bell tower (no. 4), the term *fengzijiao*, “wind character leg” (風字腳), is used for an inward-sloping (splayed) column (Ruitenbeek 207), per-

haps because of the sloping side of the character *feng*, as well as such a column’s greater resistance to lateral forces such as the wind.

Some decorative motifs have already been mentioned, and many others are described in the *Lu Ban jing*, as are moldings. The second half of the mirror stand entry (no. 41) describes decorated ones (*diaohua zhe*) as having a pair of phoenixes facing the sun (*shuangfeng chaoyang*) and sides carved with floral motifs (*shuihuacao*). The antique coin (*guqian*) motif is seldom found on extant mirror stands; however, similar designs with *ruyi* cloud heads are quite commonly found decorating the center of the stand, and the sliding mirror support is also often carved in the shape of a lotus (*lianhuantuo*) (fig. 18), as specified under the entry. Another large *huanghuali* mirror stand (fig. 19) in the collection of the Museum of Classical Chinese Furniture is similar to that illustrated in the *Lu Ban jing* (fig. 20). At the top is a pair of dragons facing the sun; the mirror support below is also carved like a lotus.

The double-hook (*shuanggou*) motif is commonly combined with scrolling grass (*juancao*) (no. 64, bench), double scrolling lotus (*shuang lianwan*) (no. 74, square brazier), and tiger claws (*huzhao*) (no. 66, large carrying box). The hook-like cusps commonly seen on aprons could be interpreted as double hooks (see fig. 11). Sometimes the beading that follows the curvilinear profile is embellished with flourishes that unmistakably resemble

paired hooks (fig. 21). That they are often found along the surface of the “carved water” (*leishui*) apron may suggest an auspicious rebus associated with the prospect of abundance.

The *sichi tuntou*, literally “four-toothed swallowing-head,” found on the square chess table (no. 46), probably refers to the four fangs usually carved on animal masks decorating the shoulder where legs join the aprons on beds, tables, and stands. The tripod base of a *huanghuali* lampstand in the collection of the Museum of Classical Chinese Furniture is fashioned with short cabriole legs, possibly leopard-legs (*baojiao*), which have a four-fanged dragon mask decorating the upper part of the leg (fig. 23).

A description for altar tables (*baozhuo*) is also tucked away in the first chapter of the *Lu Ban jing* under an entry for Buddhist and Taoist temples and monasteries (Ruitenbeek 196). When discussing the table legs the reader is informed, “Sometimes they are carved like a lion or elephant from which the leg extends” (*hou diao shi xiang tou jiao*). Both forms are relatively clearly illustrated with woodblock prints (fig. 24). And another form, not illustrated, is described as made from three boards, the top and two leg panels, all marked the same thickness: 1 *cun* 8 *fen*. This follows Wen Zhenheng’s preference for “natural tables” (*tianran ji*) whose end panels should be made of timbers the same thickness as the top (Wen *juan* 6, 2a). Also of interest are the dimensions—height 3 *chi* 6 *fen* (96 cm), depth 4 *chi* (120 cm), and a length equal to the height of the hall’s corner columns—far surpassing the size of any of the tables in Chapter 2. The reader is further instructed to carve the end panels with lotus-leaf moldings (*heye xian*).

The terminology of a variety of moldings discussed in the *Lu Ban jing* may take some time to decipher. We learn, however, that the long straight





rabbit that is cut into the frame of a bed (no. 37), which is later drilled for caning, was called a "character one molding" (*yizi xian*) because it is long and straight like the character for "one" (一) (fig. 22). And a rectangular, not square, "Eight Immortals" table (no. 44) is beaded with a "2 *fen* molding" (*er-fen xian*). Several of the pieces in the Museum's collection have flat or concave beading measuring 2 *fen* in width. Another beading that is used to enhance the appearance (*chuse*) of tables (such as no. 46) is the *mahuang* molding, perhaps with a more rounded section like that of hemp twine (*ma*).

A convex molding (*zhu xian*, or more literally, "bamboo molding"), is shaped on the outside of the frame for the screen (no. 31), while a chessboard molding (*qipian xian*) is shaped around the inside of its openings. It is likely that a chessboard molding has a crisp (*yang*) appearance to balance the soft (*yin*) concave outside edge of the frame, like that on the large *huanghuali* standing screen in the Museum's collection (fig. 25) or the indented corner molding like that found on many extant examples of furniture as well as architecture.



Fig. 20, facing page, above. Mirror stand and washbasin stand with towel rack. Woodblock print illustration to *Lu Ban jing*, II 41. After Ruitenbeek.

Fig. 21, facing page, below. Detail of carving on base of splat of horseshoe-back folding armchair, Ming dynasty (1368-1644). *Huanghuali*. Museum of Classical Chinese Furniture, Renaissance, California.

Fig. 22, above left. Craftsmen reweaving the matting of an old bed frame into the holes in the "character one molding."

Fig. 23, left. Lampstand, seventeenth century. Detail of the tripod base. *Huanghuali*. Museum of Classical Chinese Furniture, Renaissance, California.

Fig. 24, above right. Altar table. Woodblock print illustration to *Lu Ban jing*, I 80. After Ruitenbeek.



A molding that is written *renjuan* yet interpreted as *jianji* (see this issue, pp. 63-64) molding by Wang and Ruitenbeek may require further study. Wang says that "a *jianji xian* (sword-ridge molding) is a type of molding with elevated mid-section and two sloping sides. Its name is derived from its shape, similar to the ridge along the sides of a double-edged sword"

(Wang 1989, 208). This profile is sometimes used on stretchers. *Renjuan*, on the other hand, has the connotation of a soft and charming relative, quite contrary to that of a sword ridge. Perhaps the soft molded edge of a footstool (no. 51) or the sitting board for a bath tub (no. 79) could be considered as a gentle old friend.

It is also of interest to note what is *not* included in the *Lu Ban jing*. No mention is made of lacquer or wax finishes on the furniture, nor is any reference made to the hardware that was commonly added to drawers, cabinets, and chests. Their absence from the text of a carpenter's manual may indicate that finishing and metalwork were specialized crafts distinguished from that of the joiner. In neither the entries nor the illustrations is there any occurrence of the *kang* furniture so commonly found in northern China, nor is the brick *kang* mentioned in any of the house-building entries in Chapter 1. *Kangs* seldom appear in woodblock print illustrations because most of the printing houses and engravers were from the Jiangnan region, where the *kang* was rare. The number of small portable brazier entries, as well as the obvious omission of the *kang*, suggests that the text may have originated in southern China, perhaps during the early Ming when the capital and imperial workshops were in Nanjing.

Although the entries in the *Lu Ban jing* are incomplete and lacking in detail, a careful study of the

whole provides a more understandable system. It is unlikely, however, that many craftsmen were literate. The systems and details of furniture-making were learned by observation and verbal instruction, passing from father to son as well as through difficult apprenticeships. It is not difficult to imagine a scenario in which the master of the workshop, possessing a copy of the *Lu Ban jing*, claimed to have knowledge of its inner secrets. Or who, in his old age, told his disciples that they now knew what he knew, all of which was contained within the *Lu Ban jing*. The *Lu Ban jing*, rather than a practical carpenter's manual, was more probably a ritualistic manual whose esoteric nature helped to maintain the long tradition found in building and furniture-making. Today, the artisans who dedicated themselves to *Lu Ban* are admired for their skill and artistry in applying that tradition to produce designs which are both elegant and practical. In the words of Gustav Ecke, "May their ancient and noble craft survive all perils of our mechanical civilization" (Ecke ix).

WORKS CITED

- Bruce, Grace Wu. "Small Portable Treasures." *Journal of the Classical Chinese Furniture Society* 3:4 (Autumn 1993), 57-67.
- Cooper, Eugene. *The Wood-carvers of Hong Kong: Craft Production in the World Capitalist Periphery*. Cambridge: Cambridge University Press, 1980.
- Ecke, Gustav. *Chinese Domestic Furniture*. Rutland, Vermont, and Tokyo: Charles E. Tuttle, 1962.
- Evarts, Curtis. "Furniture in the Novel *Jin Ping Mei*." *Journal of the Classical Chinese Furniture Society* 3:4 (Autumn 1993), pp. 22-45.
- Keppel, Sheila. "The Well-Furnished Tomb, Part 1." *Journal of the Classical Chinese Furniture Society* 2:3 (Summer 1992), 13-21.
- Ruitenbeek, Klaas. *Carpentry & Building in Late Imperial China: A Study of the Fifteenth-Century Carpenter's Manual Lu Ban jing*. Leiden, New York, Köln: E. J. Brill, 1993.
- Wang Shixiang. 1986. *Classic Chinese Furniture: Ming and Early Qing Dynasties*. Translated by Sarah Handler and the Author. Hong Kong: Joint Publishing Company, 1986.
- . 1989. *Mingdai jiaju yanjiu*. 2 vols. Hong Kong: Joint Publishing (H.K.) Co., Ltd., 1989.
- Wen Zhenheng. *Zhangwu ji* (Notes on Superfluous Things). A late Ming work contained in *Meishu Congshu*, vol. 3, section 9. Taiwan, 1975.

Fig. 25. Drawing of the frame of a standing screen in the Museum of Classical Chinese Furniture.