

A Brief Study of the Gold applique Technique in Lacquerware from the Western Han Dynasty

Zhang Wen¹, Huang Kejia¹

¹ Beijing Union University, Beijing, China

Abstract

Gold and silver applique technique was a sophisticated technique used in lacquerware during the Western Han Dynasty. Academic research has largely focused on compiling historical records and analyzing the artistic qualities of excavated artifacts, with relatively little attention paid to the manufacturing techniques involved. This study combines ancient texts and archaeological findings, and draws on experimental analysis to explore the characteristics and cultural significance of this technique.

Keywords: Han Dynasty lacquerware; gold and silver applique technique; gold foil decoration; lacquer craftsmanship; archaeological excavation

1 Introduction

Lacquerware was widely used in the Han Dynasty, and high-quality pieces featured a variety of decorative techniques, including gilding and inlay, with gold and silver applique technique being particularly prevalent. Gold and silver applique technique were frequently found in Han Dynasty tombs, appearing in both large-scale tombs of princes and nobles and smaller tombs of officials; they were one of the most significant decorative technique used in Han Dynasty lacquerware.

Gold and silver were hammered into sheets and cut into various decorative shapes, and the details of the designs—including landscapes, clouds, figures, mythical creatures, and animals—were painted onto them using lacquer. This technique became widely popular during the Western Han Dynasty; it was less common from the late Han Dynasty through the Tang Dynasty; then, during the Tang Dynasty, gold and silver *pingtuo* lacquerware began to flourish, and decorative gold and silver work on lacquerware once again reached its peak; in the mid-to-late Tang Dynasty, as the nation's power waned, the imperial court issued several bans on inlaid lacquerware; after the Song Dynasty, the practice of decorating lacquerware with gold and silver eventually disappeared entirely.

1. Lacquerware with Gold Foil Found in Archaeological Excavations

Currently, the earliest physical evidence of gold foil applique on lacquerware has been found at the Shang Dynasty site in Taixi Village, Gaocheng, Hebei Province (1300 BCE). The excavation report states: “In the decayed remains of a round box from M14, a semicircular gold ornament was discovered, less than 0.1 centimeters thick, with a cloud-and-thunder pattern engraved on the front. This was clearly gold foil originally applied to a lacquerware object, indicating that Shang Dynasty lacquerware from Taixi Village featured not only

turquoise inlays but also gold foil decoration” [1].

During the Warring States period, few artifacts featuring gold foil appliqués have been unearthed. However, gold foil fragments excavated from an Eastern Zhou-period tomb at Langjiazhuang in Linzi, Shandong Province, bear embossed coiled dragon patterns and may have served as decorations on lacquerware [2]. Gold foil fragments excavated from the western section of the burial pit at the Tomb of the Marquis of Cai in Shouxian, Anhui Province, come in various shapes, including circular, cloud-shaped, animal-face, and swallowtail forms; however, most were adhered to lacquered surfaces and were so fragmented that they could not be counted [3].

This gold and silver foil, used to decorate lacquerware, has been unearthed in Western Han tombs throughout the country, with the highest concentration found in the Central Plains and southeastern regions. Notable high-status tombs include the Han Tombs at Mancheng, Hebei Province [4]; the Tomb of the King of Jiangdu at Dayunshan, Jiangsu Province [5]; the Tomb of the King of Nanyue in Guangzhou [6]; the Tomb of the Marquis of Haihun in Jiangxi Province [7]; and Han Tomb No. 1 at Dabaotai, Beijing [8]. Other examples include the Han Tombs at Xinhua Residential Area in Gongyi City, Henan Province [9]; the Han Tombs at Haiqu in Rizhao City, Shandong Province [10]; the No. 1 Wanggang Tomb at Chaohu, Anhui Province [11]; the Wulipai Han Tomb in Changsha, Hunan Province [12]; the Zhaowan Han Tomb in the southern suburbs of Baotou, Inner Mongolia [13]; and the Lijiashan site in Jiangchuan, Yunnan Province [14]. The tombs span various periods, including the tomb of the King of Nanyue from the early Western Han Dynasty and the Han Dynasty tombs in the Xinhua Residential Area from the late Eastern Han Dynasty, with the majority dating from the middle to late Western Han Dynasty.

Similar gold foil fragments were unearthed from Tomb M5 at the Xianyang No. 202 Research Institute in Xi'an [15] and Tomb No. 1 at Gongjiaguan [16], while silver foil fragments were found in Han Dynasty Tombs M11 and M18 in the northern suburbs [17] and Han Dynasty Tomb No. 5 (M95) at Bailu Yuan [18]. These findings are undoubtedly decorative elements from lacquerware; since the wooden or wood-and-linen bodies of the vessels have decayed, only fragments of gold and silver foil remain.

More compelling evidence comes from the Western Han-era tomb at Maquan in Xianyang. The excavation report states: “A large lacquer cosmetic case and a small lacquer jar were discovered. Inside the large lacquered box were three small lacquered boxes. All of the lacquerware had fabric bodies. The large lacquer cosmetic case is now broken. Judging from the remaining traces, the box was decorated with red cloud patterns, gilded phoenix motifs, and various designs including animal patterns, cloud patterns, chariots, horses, acrobatic scenes, and hunting scenes... No. 90 has a square base, with a lid shaped like an inverted trapezoidal prism. It bears traces of a four-leaf clover-shaped gold ornament on the top, with traces of gilded birds, beasts, and other motifs around the edges. It features four silver clasps and measures 5.8 cm in height and 4 cm on each side” [19] (Fig. 1).

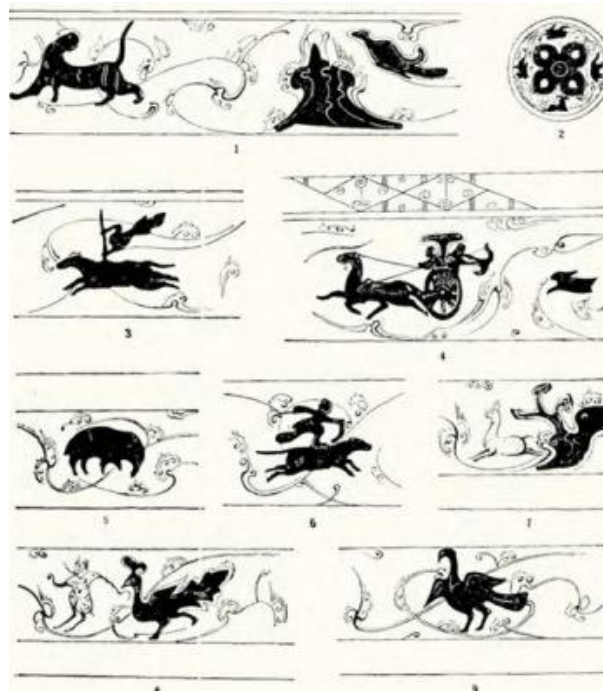


Fig. 1 Copy of Lacquered Cosmetic Case Design

From a regional perspective, lacquerware discovered in Han Dynasty tombs is more commonly found in southern China; a significant factor contributing to this is that the environmental conditions in northern tombs were less conducive to the preservation of lacquerware. Chronologically, lacquerware decorated with gold and silver inlays appeared continuously from the early to the late Han Dynasty. In terms of decoration, animal motifs, scenes of hunting, and geometric patterns are particularly common.

II. Analysis of the Gold Foil Applique Technique for Lacquerware

Due to a lack of documented evidence, there is no consensus among scholars regarding this decorative technique using gold and silver foil, which appeared in large numbers in Han Dynasty tombs and remained popular for a long time.

Wang Shixiang believes that the lacquerware decorated with gold and silver leaf unearthed from tombs dating from the late Western Han to the early Eastern Han periods represents the technique of gold and silver inlay. These gold and silver inlays, featuring engraved animal motifs, evolved from the leaf-shaped inlays found on fasteners [20]. Hong Shi believes that this technique, like the silver clasps found on lacquerware, falls under the category of gold and silver inlay work [21]. Liu Fangfang conducted research on the gold and silver applique technique of the Western Han Dynasty and the gold and silver pingtuo of the Tang Dynasty, and analyzed the similarities and differences between the two techniques [22].

In recent years, archaeological excavations have been conducted in the Xixian New Area of Xi'an, focusing primarily on Han Dynasty tombs. Among the finds, the gold foil fragments unearthed from Tomb M29 are particularly significant. A total of seven gold foil fragments were discovered, cut into animal and geometric shapes. The animal shapes include tigers, deer, and cranes, while the geometric shapes are rhombuses; all are vividly rendered, tiny,

and exquisitely crafted (Fig. 2).



Fig.2 Gold foil fragment unearthed at Site M29

Due to the lack of relevant research, we conducted scientific analyses of these gold leaf fragments immediately after their excavation [23]. Microscopic examination revealed that the surfaces of these gold foil fragments bore traces of grinding and polishing, the edges of the patterns had been trimmed, and some areas had undergone plastic deformation. X-ray fluorescence spectroscopy revealed that the gold content of these gold foil pieces varies: the crane-shaped piece contains approximately 92% gold and 8% silver, while the others contain approximately 95% to 97% gold and 3% to 5% silver. Infrared spectroscopy analysis indicated that the surfaces of all gold foil pieces are coated with lacquer.

Further scientific testing and analysis reveal that the production process for applied gold foil is largely consistent with historical records. The process is as follows: 1. Gold material is hammered into thin sheets and cut into various patterns; 2. The gold foil is refined and polished, then applied to the surface of the lacquerware; 3. Several layers of lacquer are applied to level the surface, followed by final polishing to reveal the foil; 4. Lines are outlined using urushi lacquer.

Given the limited number of samples in this experiment, the absence of testing on Tang Dynasty gold and silver *pingtuo* pieces, and the lack of precise technical descriptions or manufacturing records regarding the gold and silver applique technique from the Western Han Dynasty, it cannot yet be definitively concluded that the Western Han gold and silver applique technique is identical to the Tang Dynasty gold and silver *pingtuo*. However, based on the results of this analysis, there is no clear distinction between the two techniques. Therefore, it is reasonable to regard Western Han gold and silver applique technique as the precursor to Tang Dynasty gold and silver *pingtuo*.

The tomb is located on the Xianyang Plain on the north bank of the Wei River, north of the Western Han imperial tombs and south of the Jing River. The Xianyang Plain, also known as the Wuling Plain, is home to the nine imperial tombs of the Western Han Dynasty and their associated tomb complexes. Beginning in the reign of Emperor Gaozu of Han, the imperial court forcibly relocated the Tian clan of Qi, the three major noble families of Chu—the Zhao, Qu, and Jing clans—as well as numerous families of meritorious officials to settle in the Changling area. The Han Dynasty thus formally established the system of imperial

mausoleum towns. During the reign of Emperor Wu of Han, powerful local clans from various commanderies and feudal states, as well as wealthy families with assets exceeding three million coins, were relocated to the Maoling area. The imperial court rewarded each relocating household with 200,000 coins and two qing of fertile land. Thereafter, successive emperors of the Western Han Dynasty continued to construct mausoleums and establish mausoleum towns, causing local powerful figures and wealthy families from all regions to flock to the Xianyang Plain to settle. Therefore, using gold and silver as decoration is befitting the status of the tomb's occupant.

III. The Development and Aesthetic Effects of Gold and Silver Applique Technique

The tomb records and bamboo and wooden slips unearthed from Han Dynasty tombs do not yet contain any records of the name of this gold and silver applique technique, nor do the lacquerware pieces decorated with gold and silver that have been discovered to date bear any inscriptions mentioning the name of this technique. However, in documents of the Han Dynasty and earlier periods, gold and silver decorations on lacquerware were called diaolou 雕镂 (carving/openwork) and cuolou 错镂 (inlaid openwork).

Regarding cuo 错, the Book of Songs·Xiaoya already states, “One can use stones from other mountains to polish jade”—a metaphor for drawing on outside help to correct one's own shortcomings. The original character for cuo 错 (inlay) is cuo 厝 (grindstone), which refers to a grindstone made of fine sandstone used to polish gold, silver, red copper, and other materials inlaid into bronze wares.

The gold and silver inlay technique was popular in the Warring States Period and remained prevalent in the Western Han Dynasty. For example, the chime bells unearthed from the grand tombs of Han dynasty princes and nobles were mostly decorated using the gold-inlay technique. This technique involves carving grooves into an object, inlaying metal into them, and then polishing the surface to ensure the metal lies flush with the object's surface; this is known as the gold and silver inlay technique.

Due to the physical properties of raw lacquer, techniques such as carving cannot be applied to the surface of lacquerware; only simple decorative painting is possible. Consequently, a style of gold and silver decoration emerged that was more opulent and featured a greater variety of patterns.

The gold and silver applique technique, which flourished during the Han Dynasty, involved applying sheets of gold and silver foil to colored lacquer rather than embedding them within the lacquer as in the inlay technique; however, the decorative effects of the two were identical. Beginning in the late Han Dynasty, the patterns on the gold foil sheets often took the form of intricate, interconnected geometric cloud designs.

It is generally accepted in academic circles that, among the various roles in lacquerware production, the first category of workers is responsible for carving the wooden core; the second category applies the initial coat of lacquer; the third category applies subsequent coats;

the fourth category works with decorative gold and silver; the fifth category applies the colored designs; the sixth category polishes the lacquerware; and the seventh category handles the final finishing and cleaning.

Lacquerware decorated with gold and silver applique technique is considered a high-grade variety, with no expense spared in using gold and silver for ornamentation. From the reign of Emperor Wu onward during the Western Han Dynasty, a culture of extravagance flourished among the common people. After Emperor Wu's reign, lacquerware adorned with gold and silver applique technique became items bestowed upon officials. The *Book of Han* records: "Minister Yu once accompanied the emperor to the Eastern Palace, where he was presented with cups and trays, all intricately painted and adorned with gold and silver—items not meant to be bestowed upon subordinates for their meals" [24].

Consequently, lacquerware featuring gold and silver applique technique began to emerge from the imperial court around this time. The tremendous growth of handicrafts during the Western Han Dynasty—particularly the assembly-line production model exemplified by the lacquerware workshops in Shu and Guanghan Commanderies—enabled the large-scale production of lacquerware, making it the preferred choice of wealthy households and leading to its widespread circulation among the general populace.

References to lacquerware featuring cuolou 错镂 (inlaid openwork) techniques are frequently found in historical texts. Cao Cao's *Memorial on Miscellaneous Items* includes the following entries: "One writing desk made of solid silver with three openwork designs, lacquered and painted" and "Four lacquered boxes with silver inlay" [25]. The *Book of Liang* records: "The first type consists of two openwork copper water jugs, with silver openwork on the handles... The second type consists of two ancient-style vases made of gold and silver inlay and openwork" [26], proving that this technique was applied not only to lacquerware but also to bronze objects.

Lacquerware is lightweight, durable, and vibrantly colored. By the Han Dynasty, it had begun to replace bronze and pottery, becoming one of the most commonly used types of vessels in daily life. Due to the superior quality of its materials and the complexity of its craftsmanship, lacquerware was among the more expensive types of artifacts during the Han Dynasty. To make lacquerware more exquisite and luxurious, craftsmen often adorn its surface with patterns depicting a variety of subjects. In addition to gold and silver applique technique, other techniques include metal clasps, metal feet, and door knockers; however, none of these techniques match the artistic expressiveness of gold and silver applique technique. This technique not only renders the lacquerware exceptionally splendid and beautiful but also serves as a symbol of the user's status and prestige.

The earliest documented reference to the gold and silver applique technique appears in the *Continuation of the Book of Han* from the Western Jin dynasty: "The lacquered carriages of Han dynasty emperors were adorned with dragon motifs made from gold foil" [27]. However, detailed technical records of the gold and silver applique technique did not appear until the Ming Dynasty, when *Xiushilu* (Record of Lacquer Decorations) called it jinxiu 金髹 (gold

lacquering). Wang Shixiang explained the process as: first applying gold adhesive to the lacquerware, then using bamboo clamps to hold gold foil with backing paper and paste it onto the surface [28].

The earliest physical evidence of lacquerware with gold applique was found in M14 at the Taixi Site in Gaocheng, Hebei Province (1300 BC), a Shang Dynasty site. A semicircular gold foil fragment, less than 0.1 centimeters thick, was discovered in a decayed section of a round box; its front side features an intaglio design of cloud-and-thunder motifs, and it is believed to have been applied to a lacquerware object [1]. During the mid-Western Han Dynasty, lacquerware decorated with gold and silver applique became widely popular and has been unearthed throughout the country.

The emergence and prosperity of gold and silver applique lacquerware were not sudden but underwent a long development. Notably, the bronze gold and silver inlay technique, which also used gold and silver for surface decoration, shared a close aesthetic connection with it. From the Warring States Period to the Han Dynasty, bronze products were gradually phased out, and lacquerware became the mainstream material for high-grade artifacts. Although the change in material led to technical modifications, the aesthetic tendency remained largely unchanged. In particular, the gold applique technique enhances the decorative effect.

The sight of animals gathered in such numbers easily brings to mind hunting expeditions. As described in the famous Han Dynasty *Book Shanglin*: “Looking out across the vast expanse, all things flourish in boundless abundance...” [29]. By depicting the grand scene of a dance of a hundred beasts on lacquerware—using red and black lacquer as a base and gold and silver leaf as decoration—the designs of the figures and animals are not only highlighted, but the color contrast is also enhanced, creating a magnificent and opulent effect.

The motifs depicted in the gold and silver foil decorations on lacquerware resemble the celestial realms portrayed in the sculptures of Boshan incense burners. Gold and silver foil were used to depict deities, humans, birds, beasts, mystical mountains, sacred trees, and hunting scenes. With their distinct shapes and broad strokes, these motifs lend themselves well to being cut out and arranged into various compositions. The combination of gold, sacred mountains, and divine beasts in these celestial scenes reflects the Western Han people’s imagination of the exotic lands to the west.

References

- [1] Li Jiemin, Hua Xiangrong, Liu Shishu, Chen Yingqi, Wen Qiming, Yao Yuanzhen, and Tang Yunming, “A Brief Report on the Excavation of the Shang Dynasty Site at Taixi Village, Gaocheng, Hebei,” *Cultural Relics*, No. 6, 1979.
- [2] Shandong Museum, “The Eastern Zhou Human Sacrifice Tomb No. 1 at Langjiazhuang, Linzi,” *Acta Archaeologica Sinica*, No. 1, 1977.
- [3] Anhui Provincial Cultural Relics Management Committee and Anhui Provincial Museum, *Artifacts Unearthed from the Tomb of the Marquis of Cai in Shouxian County*, Science Press, 1956.
- [4] Institute of Archaeology, Chinese Academy of Social Sciences, *Report on the Excavation*

of the Han Tombs at Mancheng, Cultural Relics Press, 1980.

- [5] Li Zebin, Qi Jun, Tian Changyou, Bai Ji, and Chen Gang, "A Brief Report on the Excavation of Tomb No. 2 of the King of Jiangdu at Dayunshan, Xuyi, Jiangsu," *Cultural Relics*, No. 1, 2013.
- [6] Guangzhou Cultural Relics Management Committee et al., eds., *The Tombs of the Kings of Nanyue in the Western Han Dynasty*, Cultural Relics Press, 1991.
- [7] Yang Jun and Xu Changqing, "The Western Han Tomb of the Marquis of Haihun in Nanchang," *Archaeology*, No. 7, 2016.
- [8] Dabaotai Han Tomb Excavation Team, *The Han Tombs at Dabaotai, Beijing*, Cultural Relics Press, 1989.
- [9] Hao Hongxing, Liu Hongmiao, and Li Qi, "A Brief Report on the Excavation of the Han Tombs at Xinhua Residential Area, Gongyi City, Henan," *Huaxia Archaeology*, No. 4, 2001.
- [10] Ji Jielang, Xu Shan, Wang Zhanqin, Zheng Tongxiu, He Deliang, Cui Shengkuan, and Liu Hongjun, "A Brief Report on the Excavation of the Western Han Tomb (M106) at Haiqu, Rizhao, Shandong," *Cultural Relics*, No. 1, 2010.
- [11] Anhui Provincial Institute of Cultural Relics and Archaeology, Chaohu City Cultural Relics Management Office, *Han Tombs of Chaohu*, Cultural Relics Press, 2007.
- [12] Luo Zhang, "A Brief Report on the Excavation of Ancient Tombs at Wulipai, Changsha," *Cultural Relics*, No. 3, 1960.
- [13] Baotou Municipal Cultural Relics Management Office, "Brief Report on the Excavation of the Han Tomb at Zhaowan in the Suburbs of Baotou," *Inner Mongolia Cultural Relics and Archaeology*, No. 1, 1981.
- [14] Zhang Zengqi and Wang Daodao, "Report on the Excavation of the Ancient Tomb Cluster at Lijiashan, Jiangchuan, Yunnan," *Acta Archaeologica Sinica*, No. 2, 1975.
- [15] Su Qingyuan and Yang Xinwen, "A Brief Report on the Excavation of Western Han Tombs at Site 202 in Xianyang, Shaanxi," *Archaeology and Cultural Relics*, No. 1, 2006.
- [16] Sun Derun and He Yayi, "A Brief Report on the Excavation of Tomb No. 1 at Gongjiaguan," *Archaeology and Cultural Relics*, No. 1, 1987.
- [17] Gu Fang and Ding Xiaolei, "Report on the Excavation of Han Tombs in the Northern Suburbs of Xi'an," *Acta Archaeologica Sinica*, No. 2, 1991.
- [18] Shaanxi Provincial Institute of Archaeology, *Han Tombs at Bailu Yuan*, Sanqin Press, 2003.
- [19] Li Yufang, "Western Han Tombs at Maquan, Xianyang, Shaanxi," *Archaeology*, No. 2, 1979.
- [20] Wang Shixiang, "Miscellaneous Notes on Ancient Chinese Lacquer Craftsmanship," *Cultural Relics*, No. 3, 1979.

- [21] Hong Shi, *A Study of Lacquerware from the Warring States, Qin, and Han Dynasties*, doctoral dissertation, Graduate School of the Chinese Academy of Social Sciences, 2002.
- [22] Liu Fangfang, “A Detailed Study of the Gold and Silver Inlay Techniques in Han Dynasty Lacquerware,” *Chinese Raw Lacquer*, No. 1, 2013.
- [23] Zhang Wen et al., “A Study on the Materials and Techniques of Gold Foil Inlays in Lacquerware Excavated from Han Dynasty Tomb M29 on the Xianyang Plateau, Xi’an,” forthcoming.
- [24] *The Book of Han*, Vol. 72, “Biography of Gong Yu,” Zhonghua Book Company, 1962, p. 3070.
- [25] *Taiping Yulan*, Zhonghua Book Company, 1960, p. 3270.
- [26] *The Book of Liang*, Jilin Publishing Group, 2005, p. 536.
- [27] *The Book of the Later Han*, Zhonghua Book Company, 1965, p. 3644.
- [28] Wang Shixiang, *Commentary on the Record of Lacquer and Ornamentation*, Cultural Relics Press, 1998.
- [29] *The Book of Han*, Vol. 57, “Biography of Sima Xiangru,” Zhonghua Book Company, 1962, p. 2556.