



Research Journal Ulum-e-Islamia

Journal Home Page: <https://journals.iub.edu.pk/index.php/Ulum.e.Islamia/index>

ISSN: 2073-5146(Print)

ISSN: 2710-5393(Online)

E-Mail: muloomi@iub.edu.pk

Vol.No: 29, Issue: 02 .(July-Dec) 2022

Published by: Department of Islamic Studies, The Islamia University of Bahawalpur

The Origin of Chinese Gilding Techniques and Its Influence on Buddha's Golden Body in Gandhara Art

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It is a general misconception that Chinese gilding technique were far earlier than other countries, and Chinese gilded Buddha statues were influenced by Gandhara art. The birthplace of Gandhara art, which was originally a place where East and West met, it would have no qualms about absorbing any excellent art or advanced technology, which is a characteristic of Gandhara art, otherwise how could it has been influenced by Greek sculpture. Then, as the country where gilding technology was invented and matured, since it could gild all kinds of objects it liked, it would also habitually gild on top of the worshiped Buddha statues. The use of gilding technology on Buddha statues was not necessarily influenced by Buddhist doctrine or the stories of Buddhist scriptures, but most likely the use of gilding process in Buddhist statues influenced the description of Buddha's looks in Buddhist scriptures. In the Gandhara region compared to the Chinese hinterland, it is more likely that China first used the gilding process applied to the gilt bronze Buddha statues. Furthermore, not a single gilt statue of the Buddha is seen in the early days of Madhura art, the birthplace of Buddhism a little further away from the northwestern Silk Road, but instead gilt statues of the Buddha have been unearthed in Pakistan, near the front end of the Chinese Silk Road. This section attempts to find enough evidence in historical materials and artifacts to prove the origin of Chinese gilded art, how it was travelled and its influence on Gandhara art. Both finally and secondly sources are used to make a logical statement of Buddha decoration and Gandhara Art.

Keywords: Gandhara Art Gilding Techniques Early Buddha Statues Gilding Techniques Spread

Literature Review

Western studies on Gandhara art in Central Asia were conducted under the leadership of Western-centered thought, and the study on the influence of Western civilization on Buddhist art in Central Asia and South Asia accounted for the vast majority. For example, Cunningham, an early researcher of Gandhara, wrote in his archaeological report that I firmly believe that Northwest India has long followed the style of Greek sculpture... The magnificent Corinthian foliated capitals are undoubtedly of Greek origin (Alexander Cunningham, 1872). Influenced by this, most western scholars were associated with Gandhara art. Although Lolita Nehru argued in his article *The Origin of Gandhara Style* that Gandhara art was influenced not only by Greco-Roman culture, but also by Bactrian culture, Benin culture and Indian native culture, later researchers including Indian and Japanese researchers also found the diversity of Gandhara art. However, they collectively ignore the influence of an ancient Oriental civilization. As the "crossroads" of Eastern and Western civilizations, it is extremely unreasonable for Buddhist art in Central Asia not to absorb cultural elements from China (Cai Feng, 2012). The Chinese study of Gandhara art in Central Asia was later than that in the West. Although there was no involvement of Chinese culture in Gandhara factors, some doubts were raised. For example, Mr. Subai discussed the artistic characteristics and quantity of the Kizil statues in Qiuqi area in the preface of *Chinese Grottoes · Kizil Grottoes (Three Volumes)*, and speculated that the shape and system of Kizil statues influenced the Buddhist art in the west of Scallion Mountain (Subai, 1982). Liao Yang put forward in his book *A Study on the Chronology of the Murals in Kizil Grottoes* that if we blindly regard the spread of Buddhist art as the source in the west and the flow in the east, early in the west and late in the east, and ignore the specific historical situations in different places, it will inevitably be biased and one-sided (Liao Yang, 2012). It is particularly important to point out that Mr. Ruan Rongchun pointed out the "polycentric wave pattern" of Buddhism communication in the Buddha's World, which provided the theoretical basis of reverse communication for this topic (Ruan Rongchun, 1995). Geng Jian, in *The Buddhist Relationship between Kizil and Gandhara from the Perspective of Dingguang Buddha Statues*, analyzed that images of Dingguang Buddha's invitations were prevalent in the Gandhara territory of Pakistan and Afghanistan, but almost not in India. Based on the plot of the story, Geng Jian speculated that there had been classics related to the Chinese translation of the

Spiritual Cultivation and Qigong in Gandhara (Geng Jian, 2008). The research of the above scholars provides a theoretical basis for the westward spread of Chinese Buddhist art.

The World's Earliest Gilding Technique is in China

Gilding is a unique technique created by the ancient Chinese working people during the process of making utensils and repeated experiments. The traditional gilding process consists of the following steps: First, the mercury and gold leaves are heated in a certain proportion to form an alloy paste, and then the gold-amalgam alloy paste is evenly applied to the surface of the object, which is why gilding is also called gold coating in the Han Dynasty. The first gilding is done by cleaning, searching for color, and pressing. The gilding process described above needs to be repeated several times to make the gilding layer tight and uniform in color. In the identification, the presence or absence of mercury in the gold composition of the surface is the main basis for distinguishing gilt from other gold processing techniques (Wu Kunyi, 1981 & Zhao Zhenmao, 1994). Gilding technology is generally used to enhance the surface brightness, color and noble texture of objects, thus enhancing the ornamental effect of the objects, this technology is the most advanced gold decoration technology in ancient times, this technology is long controlled by the ruler. It is also likely that this technology was invented by the Chinese ancestors through the process of alchemy and chance.

China was the first country in the world to use gilding technology, and from the current excavation of cultural relics, the earliest gilt ware is a late Spring and Autumn period gilt and inlaid jade buckle ornament excavated from the Lion Mountain Tomb in Shaoxing (Qi Dongfang, 1998). Some scholars believe that even as early as the Western Zhou period, the Qin people in Gansu already mastered gilding techniques (Gao Xisheng, 2009). Although Europe and ancient Egypt early also have gold processing technology and preferences, such as gold crowns, gold coins, etc. either casting process or wrought



The gilding "Changxin Palace Lamp" in the Tomb of Liu Sheng, King Jing of Zhongshan, Western Han Dynasty, 2nd century BC

gold technology but no gilding process. Until the second and third centuries AD, South Asia, Persia and the Roman region gilding technology appeared in large numbers, about six hundred years later than China. It is possible that this was the result of China's technological blockade of the gilding process.

According to The British scholar Andrew Oddy, fire gilding, invented by the Chinese in the 4th century AD, until it reached Rome in the 2nd century AD. Electroplating followed in the mid-19th century. However, imported Achaemenid style silver has been found in Chinese tombs dating back to the 2nd century BC, but until now, there has been no evidence that the Parthian Iranians knew about fire gilding, except that with the beginning of Sassanid rule in Iran, there was a sudden abundance of fire gilding silver (Oddy, A.1993).

In another paper from 1975, British scholars P.A. Lins and W.A. Oddy mentioned that the question of whether mercury gilding originated in China remains unanswered (Lins, P. A.&Oddy, W. A.,1975).

The text suggests that gilt work spread westward from China probably through Central and South Asia. In the Metropolitan Museum of Art, a gilt Buddha statue dated from the first century to the mid-second century A.D. is dated according to its proximity to Greek sculpture, a view that is clearly guided by Western-centrism and an unreliable chronology. In his book "Gandhara Art Tracing" Gong Jizhao argues that "some people used to think that the statues with obvious Greek and Roman influences were the oldest, but from recent excavations, it is clear that this is too simplistic (Gong Zhizhao, 2006). However, according to the analysis of the spread of the gilding process, this gilded statue cannot be earlier than the 2nd century A.D. This statue can be added to the chain of evidence for the spread of the gilding process from China to the west.

The advent of the gilding process allowed the precious gold to be evenly distributed on the surface of the wares as well as in a thin manner, which greatly reduced the cost of making decorated gold implements and allowed decorated gold implements and Buddha statues to be used in large numbers in the higher levels of society and religion. The high cost of making gilded Buddha statues could not have prevailed in the temples without the gilding technology. Of course, with the development of gold processing technology, the maturity of gold foil technology, can also be inexpensive in some aspects of the replacement of the gilding process, but the paste gold process to form the surface strength and durability is lower than the gilding process.

Technology Embargo on the Exclusive Process of the Ruler

Gilding techniques were kept secret during the Western and Eastern Han dynasties, and were reserved for the rulers. It was not until the Sixteen Kingdoms period that gilding was used extensively in Buddhist art. The secrecy of the process enabled the royal and upper classes to use it exclusively, but it also led to the loss of many excellent techniques, such as the secret porcelain made exclusively for the royal family during the Tang Dynasty in China. Before the discovery of the underground palace of Famen Temple only legend, no one knows what the secret porcelain is like (Zhuo Zhenxim,1995) Historically, China has not only embargoed technology for the royal niche, but also for the West for commodities like silk that are available on the market, allowing only the export of goods and prohibiting the export of core technology. With the opening of the Silk Road, silk was not only exported to India, Persia, and Rome, but the large number of exchanges also made it difficult to keep the "silk manufacturing technology" secret, even though the "technology blockade" very difficult, but China still kept this technology secret from BC to the 6th century AD. During China's Northern and Southern Dynasties, a period of great division, political instability made border checks lax, the Romans had a once-in-a-lifetime opportunity to use commercial spies to hide eggs and larvae in a walking stick and bring them back to Rome, thus leaking the process of silk production. Without the technology blockade, silk no longer sold well in the West, and later there were "porcelain", "tea" and other goods that sold well in the West, but later also because of commercial leaks and bankruptcy.

China is a country with a long tradition of secrecy. As early as in the pre-Qin dynasty, there are clear instructions on the importance of secrecy, such as 《周易·系辞上》：“君不密，则失臣；臣不密，则失身；凡事不密，则害成。是以君子慎密而不出也”。 (Lou Yulie, 2012) Translated awareness is When the emperor does not keep secrets will lose his ministers; and ministers do not keep secrets will lose their lives; there are a few secrets that are not well protected, they will cause mischief. So people should be careful with secrets. In the Qin and Han dynasties, the state secrecy system was already very complete, the ministers were very careful with their words and actions, the craftsmen were not only bound by the ruling class, but also had to guard their money-making craft, naturally they all took the recipe for the gilding process as a secret method not to be passed on, in fact the gilding process was

not simple, in the absence of modern science in ancient times to be able to understand the "gold clay" by stealing it "The recipe was almost impossible. The dictatorship of the ruling class, the conservatism of the craftsmen, and the difficulty of the process made the gilding process less likely to be transmitted to the West.

In the Eastern Han Dynasty and before, from the excavated gilded wares, it can be analyzed that only the tombs of kings and generals could have gilded utensils. This also shows the secrecy of the ancient Chinese hierarchy with regard to the process of the imperial utensils, which was difficult to be applied by the Chinese folk, not to mention the Gandhara region in Central and South Asia. Due to the royal exclusivity of the gold utensils, the export of gilt utensils was not possible at that time, unless it was a transaction between two regimes. From the analysis of the time and political background of the gilding process to the west, it was not until after 190 A.D. that the gilding process had the opportunity to spread to the west, when Dong Zhuo took the Han Emperor as a hostage and moved the capital to Chang'an, and the Eastern Han Dynasty existed in name only and fell into a period of turmoil. In this context, the gilding process appeared in large numbers in South Asia, Persia and Rome.

Golden Body Concept Formation of Buddha

The use of gilding technology, no doubt China's earliest, the world-wide recorded for the Buddha statue decorated the earliest historical material is also only China, using an objective and rigorous historical analysis, the concept of the Buddha's golden body and the origin of the statue decorated with gold are in China, rather than in the founding of Buddhism, there are two historical materials are as follows: 《后汉书·西域·天竺国传》中载“世传明帝，梦见金人，长大，顶有光明，以问群臣。或曰：西方有神，或曰佛，其形长丈六尺而黄金色。” It is recorded in the Book of the Later Han Dynasty that Emperor Mingdi dreamed of a golden man, who was tall and big with a light coming out of his head. When he woke up, he asked his ministers, and some ministers told him that there was a god in the western world, whose name was Buddha. His height was more than five meters and his whole body was golden (Fan ye,1965).The reign of Emperor Ming was from 57 to 75 A.D. At that time,



A gilt bronze figure resembling a Buddha statue unearthed from the tomb of King Liu Fei in Jiangdu of the Western Han Dynasty in the 2nd century BC

the statue of Buddha within India did not have a golden body. 《三国志·刘繇传》：“笮融者，丹阳人，初聚众数百，往依徐州牧陶谦。谦使督广陵、丹阳运漕。遂放纵擅杀，坐断三郡委输以自入。乃大起浮图祠，以铜为人，黄金涂身，衣以锦采，垂铜槃九重，下为重楼阁道，可容三千余人” (Chen Shou,1959).It is recorded in the "Three Kingdoms - Liu Carefree Biography"

that a man called Tile Rong he was from Danyang,.... He built a very large Buddhist temple, cast the Buddha statue, then gilded it and dressed it in gorgeous clothes. The lower part of the nine-story pagoda was overlapping pavilions and corridors, which could accommodate more than three thousand people. The man called boarding rong died in 195 A.D., and the earliest record of the Buddha "body golden phase" of the Chinese translation of the Buddhist scriptures is the "practice of the origin of the scriptures" the translation of the scriptures for the Eastern Han Dynasty in the second year of Jian'an (197 A.D.)While the time of the statue of Tile Rong was recorded as predating the translation of the Buddhist scriptures, the first mention of the Buddha as a golden body was the story of Emperor Ming of the Eastern Han Dynasty who dreamed of the Buddha, a story that took place as early as the mid-first century AD.

The Buddha was a figure around the fifth century B.C. When he died, he did not allow his disciples to make a statue of him, so there were only monumental sculptures such as footprints in the early days, and when he started making statues around the first century B.C., no one knew what the Buddha actually looked like. The other one evolved from the native style. In September 1994, the British Library received an anonymous donation of 29 volumes of written sutras in Kharosthi from an anonymous person. Richard Salomon, a linguist at the University of Washington, and his team concluded that the scriptures came from the cistern of a Dhammapada monastery (located roughly in eastern Afghanistan) around the first century CE.¹⁰⁸ Most of the texts contain Buddhist parables, and some of them contain the names of two Indo-Scythian governors, namely Jikhuni, who was a member of the Buddhist community. These metaphorical texts seem to differ from the Chinese translations of the metaphorical sutras in that the former mainly relate stories of well-known figures from the Buddha's time and the Indo-Scythian period, while the latter mainly relate stories of Buddhist doctrine. The latter mainly recounts stories of Buddhist doctrine.³⁷ None of these texts

deal with the image of the Buddha, and there is no mention of the "golden body of the thirty-two phases". (Shao Ruiqi,2019) From this, it can be seen that there is no record of the "golden body" in the Buddhist texts circulating in the Gandhara region in the 1st century AD, while the concept of the Buddha's golden body already existed in the Chinese capital in the middle of the 1st century, and the earliest concept of the Buddha's golden body seems to be a way for the emperors and nobles of the Eastern Han Dynasty to express the Buddha's divinity.

Etienne Lamotte, a Belgian scholar, who concluded from his research that the thirty-two phases of the Buddha were additionally added to the Buddhist texts by Central Asian monks. (Etienne Lamotte,1988)In the preface to his article "A Preliminary Exploration of the Phasing and Dating of Some of the Caves in Kizil," he discusses the possibility that the large standing Buddhas of ten meters or more in the Kizil area may have been a feature of Buddhist art in the region. The number of large Buddhas in Bamian at that time was also far inferior to that of Guzi, which leads to the assumption that the Kizil Grottoes, with their large standing Buddha as the central cave form, influenced Buddhist art west of the Onion Ridge and east of Xinjiang (Cultural Relics Management Committee of Xinjiang Uygur Autonomous Region, Kizil Thousand Buddha Cave Cultural Relics Conservation Institute, Baicheng County, Department of Archaeology, Peking University,1996).

For example, due to the limitations of sculpting materials and techniques, the craftsmen would connect some parts that are particularly thin and easy to break, or during the casting process to facilitate the flow of copper juice would also connect the small parts, which is reflected in the sculpture is connected with webbing between the fingers, for the solidity of stone carving and the convenience of casting, Li Ling in the article "From the Thirty-two Phases of Buddha to see the statue technology, sectarian disputes and the establishment of Buddhist aesthetics" mentioned that the shape of the "Net Aman Phase", which is connected with webbing between the fingers as recorded in the Buddhist texts, is caused by the constraints of statue materials or production techniques (Li ling,2018). Over time, this common form will influence the compilers or translators of the sutras, the author believes that the gilding process between the statue and the description of the sutras should be the former earlier, thus influencing the "body gold color" of the thirty-two phases.

According to the above, the concept of the Buddha's golden body is not derived from the Buddhist scriptures nor from Gandhara art. However, the Chinese translators saw that the ruling class in China worshiped gilded Buddha statues, which led these translators to develop the natural human love and worship for "gold" and thus wrote "golden body" in the Chinese translation of the sutras. The "golden body" was written in the Chinese translation of the sutras, which gradually evolved over time to produce the "golden body color" of the Buddha's thirty-two phases.

Analysis of the Earliest Surviving Buddhist Gold Products in South Asia

The earliest Buddhist gold artifacts found so far are the Bimaran relic box, in the British Museum [(US) H. Inverter, translated by Li Tie: "Gandhara art" Shanghai People's Art Publishing House, 1991, 17 pages] It is a funeral paraphernalia, the box in addition to the figures of the Buddha and the Greek mythology of the god of the sun, the moon, the small god of love, etc. The earliest Buddhist gold artifacts found so far are the Bimaran relic box, in the British Museum (H. Inverter, 1991).It is a funeral paraphernalia, the box in addition to the figures of the Buddha and the Greek mythology of the god of the sun, the moon, the small god of love, etc..(Li Zhengxiao, 2005).It is inscribed with an inscription in Kharosthi :”on the occasion of the reception of the Venerable Master of the Ministry of All Scripture, the Great King Jagatha... In the city of Jagatha Sagapur, this incense box was a sacred offering for the prosperity and happiness of all living beings”. (Lin Meichun, 1998). The reign of Kanishka I dates from 78-101 A.D. It is likely that this box was made around the first century A.D. and is the oldest Buddhist gold artifact found so far. However, the function of this box does not prove that it is the source and basis of the concept of "Buddha's golden body", on the one hand, it is a box with storage function, not a deity to be worshiped, but only an apparatus using the image of the gods as decoration. Buddha does not have the function of the icon of Buddhist



Bimaran relic box

statue. Therefore, the way the Bimalan relic box is made of gold has nothing to do with the concept of "Buddha's golden body", and is not the source of the concept of Buddha's golden body. The same is true of the image of Buddha in the gold coins of Jagannath Sagar, whose function is "money" and whose essence is "circulation" rather than "divinity. The "Buddha" is only a decorative pattern on the coin, so a decorative object on an apparatus cannot be studied together with the image of Buddha as an idol. On the other hand, the forging process and casting process cannot popularize the rare gold to a large number of Buddhist statues, and the produced gold ware cannot reach the fine level of casting process. Then to ensure the sense of art and production costs at the same time only gilding and gilding process can be, and can be used in large quantities, and so far the earliest found decorative gold Buddha statue is the use of gilding technology, can also be a good proof of the "Buddha gold body" theory of the origin of the problem.

Gandhara Buddha statue with serrated "head light" excavated from the Metropolitan Museum of Art, Pakistan, 16.8 cm high; 11.4 cm wide; 10.2 cm deep, with traces of gilding. (The Metropolitan Museum of Art, 2007)

This small Buddha statue is of a high artistic standard and presents the Greek style in its best light. The jagged "headlights" are the most distinctive feature of this statue and a unique example of Gandhara sculpture. There is no absolute dating of Gandhara art itself, and the chronological division is unclear and controversial, so we will follow the



The gilding Buddha of Gandhara circa 2nd century AD from the Metropolitan Museum of Art

Metropolitan Museum of Art's chronological division from the 1st to the mid-2nd century AD. It was after this statue that more gilded Buddha statues were made. The fact that the earliest idols were made with foreign rather than local craftsmanship suggests that the concept of "gilded Buddha" did not exist in the early Gandhara region,

but was brought to the region with the spread of gilding, which was spreading westward from China at the time.

Analyzed from the point of view of craftsmanship, both gilt and paste gold are a cost-effective process that can best preserve the details of the original work. Although cast gold can also retain the details of the sculpture intact, the high price is not generally acceptable. And the forging process of gold is difficult to meet the needs of the subtle modeling of Gandhara art. Analyzing from the geographical point of view, among the early cases of gilding of Buddha statues in Madhura art and Gandhara art, only Gandhara, which is closer to the administrative core of China, has gilded Buddha statues, while Madhura art, which is farther away from the northern Silk Road, has not seen gilded Buddha statues, and according to the analysis of the spreading pattern of the region, the gilding technology of Buddha statues should be spread through the northwest Silk Road of China. Although Europe and India have a tradition of using gold to make decorative objects, but they are mainly cast gold, wrought gold, paste gold and other processes, and no gilding process, gilding technology until the 2nd-3rd century AD to the Roman region.

The Gandhara gilt statue in the collection of the Metropolitan Museum of Art must be dated to around the second century AD, according to the logic of the spread of "gilding techniques. Although no gilded Buddha statues have been found in China before the Eastern Han Dynasty, the dating of Gandhara art is not credible either, (Gong Zhizhao, 2006) and can only be used as a reference, not as objective evidence, but it is recorded in Chinese literature that someone did gild Buddha statues during the Eastern Han Dynasty. Comparing an unsupported conjectural date with an absolute date in the historical record, the use of gilding on Buddhist statues in China in any case predates the Gandhara region. It is also possible that the early Gandhara craftsmen did not fully master the art of gilding, and that the few Buddhist statues that were gilded were shipped to China by order, where the Chinese craftsmen completed the gilding and then returned to Gandhara. The smaller size of the Buddha statue was chosen for ease of transport, and the size of the single statue from around the 2nd century AD in Metropolitan America is perfectly suited for carry-on. We find from a slightly later sculpture than this one that the gold body statues are all gilded and not gilded, which may be due to the larger size and inconvenience of transport.

Conclusion

Based on the above material, I venture to do a comb of ideas, hoping to play a role in the academic world, the ideas are as follows: According to historical records, Buddhism was introduced to China at the beginning of the Eastern Han Dynasty (mid-first century AD), and was known not only to Emperor Han Mingdi, but also to nobles like King Liu Ying of Chu, who was keen to spread Buddhism. The ruling class, Buddhism, and the wealth of the society of a country were motivated by the previous experience of manufacturing and decorating valuable and favorite objects, and the gilding process was applied to the idol-like statues of Buddha, at a time when the scriptures did not contain any description of the "golden body color" of the Buddha's thirty-two phases. Perhaps the translators were struck by the splendor of the gilded statue and added the attribute of the Buddha's "golden body" to the image of the Buddha. This gold body, the modified sutras, and the cheap and expensive gilding work, in the context of the chaos of the late Eastern Han Dynasty, gave the royal craftsmen the opportunity to spread the gilding work westward, and the gilded Buddha statues and work spread to the Gandhara region through the Silk Road by monks and merchants, and was accepted by the Gandhara monks, who also liked gold. Meanwhile in the south of China, there was a route for the spread of Buddhism through the Southern Silk Road, through which the art of Madhura continued to influence the south of China. No early gilded Buddha statues are recorded on this southern spread route, and no early gilded Buddha statues were seen until the Northern and Southern Dynasties period, when Buddha statues as idols were gilded. The concept and production process of gilded Buddha statues must have arisen in the Central Plains of Eastern Han China and spread westward to the Gandhara region, southward to the Yangtze River valley, and finally eastward to Japan and Korea.

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