The Manifestation of Seal Paste Usage and Material Evolution in Gan Yang's Treatise on Seals

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Abstract: This study examines Gan Yang's Treatise on Seals, focusing on the role and production techniques of seal paste in the development of seal engraving art, as well as the impact of material evolution on artistic expression within seal engraving. The article notes that Gan Yang was the first to systematically document seal paste production methods, emphasizing the transition from sealing clay to vermilion paste and its artistic function in calligraphy and painting seals. It also explores the expressive differences of various seal materials — such as bronze, jade, and stone — in seal engraving, particularly highlighting how the widespread use of stone propelled seal engraving into a vital medium for literati art. The article argues that the evolution of seal paste and seal materials collectively formed the material foundation for seal carving's transition from utility to art, reflecting Ming literati seal carvers' conscious pursuit of "ancient charm" and "elegant taste".
***Keywords*:** Gan Yang; Collected Discourses on Seals; Seal Paste; Seal Materials

1. Introduction

Gan Yang's Collected Discourses on Seals, composed during the Wanli era of the Ming Dynasty, offers richer content than earlier works like Wu Yan's Thirty-Five Examples and Shen Ye's Discourse on Seals, covering a broader scope. Building upon earlier works, it introduces methods for preparing and preserving seal paste — an essential element for seal usage that previous texts neglected. With the rapid advancement of modern technology, seal paste production techniques have reached a high level of perfection. Consequently, contemporary seal carving artists have become increasingly stringent in their requirements for seal paste, meticulously selecting it based on craftsmanship, material composition, and color. Quality seal paste serves not only as a medium to showcase the carver's skill but also plays a crucial role in preserving the seal's inherent form.

2. The Use of "Seal Paste"

Seals have endured for millennia, evolving from the Pre-Qin period to the present. This journey encompasses transformations from utilitarian to artistic purposes, from casting and chiseling to carving with knives, and from materials like gold, silver, and bronze to stone. Each change resulted from years of practical innovation.

When discussing seal engraving art, attention often focuses solely on the seal itself, overlooking its essential companion: the sealing process. In the pre-Qin era, seals primarily served as methods for sealing tangible objects, securing items with imperial seals, affixing documents, and branding horses. The colored substance used for applying seals is called seal paste. Today, seals are primarily used for signing and authenticating calligraphic works.

The earliest use of seal paste can be traced back to the period before the Qin Dynasty. Before paper materials were unearthed, seals were primarily applied to sealing clay. Both excavated artifacts and historical records provide relevant accounts. The Book of the Later Han: Official Roles states: "The Palace Steward oversees paper, brushes, ink, and the financial resources of the Secretariat, as well as sealing clay."[1]Zhu Xiangxian also records in his Seal Compendium: "The great blue Tianyan jade seal, inscribed 'Receiving Heaven's Mandate, Emperor's Longevity and Prosperity,' was sealed with purple mud from Wudu. It was stored in a blue pouch lined with white silk, seamless at both ends. Viewed from the side, it measured one foot in length." In a cabinet labeled Zhoujian Zhai, it was noted: An old friend from Jinling gifted me a clay seal, saying: "This belonged to my ancestor, Grand Secretary Hai Zhongjie." Its substance is yellow clay, lightly fired in the kiln, inscribed with the words: "Officer in charge of moral governance."[2]Sealing clay represented the earliest method of affixing seals. We can clearly see that the earliest use of seals was on sealing clay, stamped to serve as a seal. Even when not in use, sealing clay distinguished itself through color variations. The aforementioned "purple clay" was joined by gold clay and candle wax. The Records of Miscellaneous Matters notes: "In the first year of Yuanfeng, the Kingdom of Fuxin presented a tribute of golden clay. This gold emerged from hot springs; during midsummer, the water constantly boiled and surged like

boiling fire, preventing birds from flying overhead. Locals often witnessed people smelting this gold into vessels near the water's edge. The gold appeared muddy and murky, with a color like purple-ground pigment. After a hundred refinings, its color turned white, gleaming like silver—this was the so-called 'candle gold.' People used this clay to seal various boxes and palace gates, and ghosts and demons dared not approach. During the Han dynasty, when high-ranking generals embarked on campaigns or envoys were dispatched to distant lands, they often used this clay to make seals for sealing documents. Envoys such as Wei Qing, Zhang Qian, Su Wu, and Fu Jiezi all received seals made of this golden clay."[3]The color of the sealing clay also indicated an official's rank and merit to some extent. There were also branding seals for horses. "In the second year of Yanxing, in the fifth month, an edict ordered that military guards be given seals and tokens, followed by horse brands." This branding method involved heating the seal red-hot and directly branding it onto the horse to mark ownership of the livestock. Another practice involved branding seals onto coffins, similarly applying heated seals directly onto the wood. Though neither method required seal paste, both involved irreversibly altering the substrate, resulting in distinct patterns that highlighted the unique nature of seals.

However, the emergence of paper in the late Eastern Han Dynasty shifted perceptions. People replaced bamboo slips with paper as the writing medium, and the method of applying seals consequently evolved. Seals were now stamped onto paper. This series of changes meant seals could no longer be pressed using specially prepared clay; instead, a specific substance was required for stamping, compelling the development of seal paste.

Calligraphy and painting works embody the artistic sensibilities of literati. Affixing a seal to such works serves as proof of ownership and complements the overall composition. Among surviving calligraphy and painting works, it is not uncommon to find seals that do not belong to the original artist—these are collector's seals. Collector seals emerged during the Tang and Song dynasties, where individuals stamped seals on their collected masterpieces to certify ownership or past possession of ancient paintings and calligraphy. The use of seal paste on calligraphic works during this period significantly impacted the overall aesthetic of these pieces. In some cases, the presence of seals severely compromised the artistic integrity of cultural relics.

The true use of seal paste emerged during the Sui and Tang dynasties. As paper replaced bamboo slips, the application method of seals evolved—seals were now directly stamped onto paper, giving rise to early seal paste. At this stage, seal paste was primarily a mixture of water and cinnabar. It was applied to the seal face and then pressed onto paper, forming the earliest form of seal impressions. The seal paste of this period remained relatively simple, lacking complex production techniques. However, as time progressed, demands for seal paste grew increasingly sophisticated. Coupled with the development of seal engraving during the Ming and Qing dynasties, literati gradually altered their expectations for seal paste, driving stricter production standards. The materials required for its manufacture also varied significantly.

As times evolve, people's demand for seal paste colors has gradually expanded beyond the singular pursuit of red. Zhu Xiangxian's Seal Manual records: "In ancient times, the 'Seals of the Imperial Library' of the Tang Dynasty used ink paste. Later, antiquarians compiled ancient seals into catalogs. The most effective paste allows seals to capture their essence most readily, while retaining their color unchanged over time. For creating seal catalogs, all should use this paste. Oil and mugwort seals are comparable to vermilion, while those made with the finest soot, dragon bone, and eight-treasure powder also match vermilion in quality."[4]Moreover, seal usage varied, and people often selected seal paste colors based on personal preference, resulting in inconsistent hues. Later records also differed from earlier methods in seal oil production, suggesting that the traditional use of castor oil was not optimal. They proposed adding pangolin oil to prevent seepage.

He also mentions the inscriptions in the Ji Gu Yin Pu and Yin Sou. The distortion in Yin Sou stems from material deterioration, yet both Ji Gu Yin Pu and Yin Sou were compiled by stamping seals onto paper and sold as volumes, indicating widespread seal usage at the time. Moreover, the extant editions of Ji Gu Yin Pu still display clear seal impressions, showing no blurring or illegibility despite centuries of passage.

Despite centuries of preservation and conservation challenges, the original appearance of these seal impressions remains unchanged. This demonstrates that the seal paste used at the time was of exceptional quality, enabling such long-term preservation. The text also mentions oil preservation, noting that sealing the jar's mouth could keep it intact for centuries. This further demonstrates the exceptional craftsmanship of the era.

3. Selection of Seal Materials

Throughout the article's explanations of various seal materials — including bronze, gemstone, agate, porcelain, crystal, stone, ivory, and rhinoceros horn seals — Gan Yang consistently highlights a common thread: the contrast between ancient and modern, refined and popular. Comparing these materials with ancient seals reveals that, except for bronze and stone seals, most appeared primarily as private seals. Gan Yang's era coincided with the flourishing of literati seal engraving. Dur-

ing this period, the involvement of literati elevated aesthetic standards and accelerated the development of seal engraving art. Consequently, people's concepts regarding seal engraving evolved. Influenced by the revivalist trend, the pursuit of Qin and Han dynasty seals became a prevailing trend.

Whether in seal form or material selection, comparisons with ancient seals were made. Seals crafted from materials like agate, crystal, or ivory were deemed "almost vulgar." It is important to note that the rise of literati seal carving represented the artistic evolution of the craft. Gan Yang's characterization of such material usage as "vulgar" reflects the heightened artistic aesthetic standards of the time. What constitutes "vulgarity"? The Shuowen Jiezi defines it as "habitual; derived from the radical for person with the phonetic element gu, further annotated as denoting common practices and aversions." Thus, vulgarity represents an expression disdained by society. Su Shi poignantly observed in verse: "A thin man may yet grow plump, but a vulgar scholar cannot be cured."[5]Su Shi's poem underscores that while physical frailty may be remedied, vulgarity remains incurable.

The choice of seal materials by people is not merely about the ease of carving during the engraving process, but more about whether the seal face can achieve an overall aesthetic effect. The use of materials like agate, gemstones, ivory, and rhinoceros horn often leads to a reversal of priorities, obscuring the seal face's effect. Therefore, these materials are unsuitable for carving seals; any seals made from them should only be private seals for viewing and handling. They cannot truly stand comparison with the art of seal carving, which is precisely the "vulgarity" Gan Yang refers to in his text. Moreover, the reason these materials are deemed vulgar lies in their excessive preciousness. Scholars throughout history have possessed a proud spirit, unburdened by gold, silver, or wealth. Some scholars remained unmoved even by a life of hardship. Yuan Sanjun, in his Thirteen Treatises on Seal Carving, describes it thus: Huang Ruozhi said: Only vulgarity is incurable. When people wear gaudy clothes, ride in carriages in endless processions, and exude the stench of merchants, it is vulgarity that makes them unbearable. A seal carver may master all styles, yet if his work lacks the spirit of a scholar, it remains unremarkable. Only those whose hearts are filled with scrolls, who have cast off worldly ambition, can achieve natural elegance in their ink. But alas, few appreciate such artistry. Such words from those within the circle are not meant for outsiders to hear."[6] What literati scholars pursue is spiritual gratification, something material things cannot compensate for.

Beyond the seal materials mentioned above, people also crafted numerous other seal substances, including clay, wax, and pottery. Regarding wax seals, records state: "There are two types of wax used for carving: One for casting plain vessels: melt pine resin, strain it clean, mix with vegetable oil to achieve the right consistency. Use equal parts in spring and autumn, half in summer, and double in winter. The other for creating patterns: treat yellow wax like vegetable oil, aiming for softness, with a method similar to processing pine resin. When casting seals, first form the core with pine resin, then coat the exterior with yellow wax to carve the handle and engrave the characters—the result is invariably exquisite." [7]The method of crafting seals from wax is quite novel. The materials used for seals have always been specific and well-documented, particularly regarding the use of Guanyin and their specific forms, which were clearly stipulated throughout the dynasties (except for the pre-Qin period). Official ranks were determined by the material of seals—jade, gold, silver, or bronze signifying different levels of authority. Some private seals employed unique materials like rhinoceros horn or ivory, though such instances were rare. As described above, we can clearly discern the distinctiveness of wax seals. Moreover, the entire wax seal production process involves multiple intricate steps. The hardness of the seal cannot be compared to that of stone, bronze, or other materials.

It was only after the Yuan Dynasty that literati seal carving, employing stone as the primary material, truly advanced the art form. Stone proved more amenable to carving and easier to master than other materials. Consequently, over time, the variety of stones suitable for seal carving expanded significantly. In earlier times, the types of stone used for seals were limited. Shen Ye's Discourse on Seals records: Today's affluent merely value ivory, occasionally using gold, stone, or jade—yet their intent lies solely in visual appeal, unaware of the true essence of seals. In Xie Zaihang's study in Huzhou, several boxes hold seals of Duanlight and Fishfrost—the finest seen in recent times. The most prized stone is Duanlight, followed by Fishfrost. Duanlight's value surpasses even jade, its lustrous sheen truly captivating. A "light-emitting stone" with flaws becomes a "fish-freezing stone," while a flawless "fish-freezing stone" is a "light-emitting stone"—the distinction is easily discernible. [8]Here, "light-emitting stone" and "fish-freezing stone" refer to varieties of Qingdao stone, named according to their quality. The particular fondness for "light-emitting stone" at the time stemmed from its superior carving properties and ability to preserve the integrity of engraved lines. The variety of stones is vast, including Fengmen Stone, Dasong Stone, Shoushan Stone, Changhua Stone, Putian Stone, Baohua Stone, Chu Stone, Daitian Stone, Korean Stone, Lai Stone, Jet Stone, Cinnabar Seal, Turquoise, Fangshan Stone, Fengshun Stone, and more. The type and properties of the stone, combined with the engraver's skill, ultimately produce a seal that embodies the complete art of seal carving.

The article also mentions ancient seals, repeatedly contrasting them with the Tang and Song dynasties: "They did not

exist in ancient times, but appeared during the Tang and Song periods, “The Tang and Song dynasties initiated them, and the Tang and Song dynasties used them.” This contrast suggests that seal development became chaotic starting from the Tang and Song periods, losing their original essence. During the evolution of seal carving in the Tang and Song eras, phenomena emerged that were absent in Qin and Han seals. The author further notes that Hou Wenzhong frequently referenced ancient seals, primarily praising those from the Qin and Han periods. This perspective was shaped by the Ming Dynasty’s prevailing “retrospective” and “imitative” artistic philosophies, yet it also reflected the inevitable trajectory of its era. Following the Tang and Song periods, seal carving entered a chaotic phase. Throughout the Ming Dynasty, the guiding principle in seal carving was regression to antiquity. After Zi Wuyan introduced this retrospective ideology within the field, it profoundly influenced the development of seal carvers, offering a fresh conceptual framework. People regarded this revivalist approach as an inevitable path for seal carving’s advancement, pursuing the ancient spirit embodied in historical seals.

Gan Yang’s “Collected Discourses on Seals” holds significant importance in the history of seal studies, not only for its first systematic exposition on the production and use of seal paste, but also for its profound analysis of the relationship between seal materials and artistic expression. Seal paste evolved from early sealing clay to vermilion paste, with its refined craftsmanship and diverse hues directly influencing the artistic presentation of seals on paper. The evolution of seal paste and seal materials was not an isolated technological advancement but was closely intertwined with literati aesthetics, the revivalist trend, and artistic practice. By examining these dual aspects, we gain a more comprehensive understanding of how seal carving evolved from a utilitarian marker into an independent art form, while also appreciating Gan Yang’s foresight and systematic approach in constructing seal studies theory. These insights remain crucial references for comprehending the artistic essence and historical trajectory of seal carving today.

4. Conclusion

Treatise on Seals, an important seal study monograph from the Wanli period of the Ming Dynasty, holds significant value for systematically documenting the key processes of the transformation in seal engraving art. Focusing on “inkpad” and “seal materials,” the book reveals how material innovations drove an artistic revolution: inkpad technology achieved the transition from clay seals to paper and silk, enabling the stable presentation and dissemination of seal engraving effects, while the widespread adoption of stone seal materials greatly lowered the technical threshold for engraving. This allowed literati to carve their own seals, elevating seal engraving from a craft to an art form. At the same time, Gan Yang guided an aesthetic shift through the distinction between “elegance and vulgarity,” advocating for stone materials and ancient seals that aligned with artistic expression. This reflected how literati tastes and archaist ideals reshaped the evaluation system of seal engraving. As a result, seal engraving in the Ming Dynasty moved beyond mere utility, evolving into a literati art that integrated epigraphy, calligraphy, and personal expression. Thus, this work stands as a key document for understanding the transition of Chinese seal engraving from craft to aesthetics.

References

[1] Fan Ye. Book of the Later Han: Treatise 26 · Officials III [M]. Beijing: Zhonghua Book Company, 1965.
[2] Zhu Xiangxian. Seal Canon [C]//Han Tianheng. Selected Essays on Seal Studies Through the Ages [M]. Hangzhou: Xiling Seal Society, 1999.
[3] Zhang Rong. Research on Eastern Han Correspondence and the Intellectual Landscape [D]. Xiamen: Master’s Thesis, Huaqiao University, 2016.
[4] Zhu Xiangxian. Seal Canon [C]//Han Tianheng. Selected Papers on Seal Studies Through the Ages [M]. Hangzhou: Xiling Seal Society, 1999.
[5] Su Shi. “The Green Bamboo Pavilion of the Monk of Yuqian” // Kong Fanli, ed. and annotated. Collected Poems of Su Shi: Volume 9 [M]. Beijing: Zhonghua Book Company, 1982.
[6] Yuan Sanjun. Thirteen Treatises on Seal Carving [C]//Han Tianheng. Selected Papers on Seal Studies Through the Ages [M]. Hangzhou: Xiling Seal Society, 1999.
[7] Zhu Xiangxian. Seal Canon [C]//Han Tianheng. Selected Essays on Seal Studies Through the Ages [M]. Hangzhou: Xiling Seal Society, 1999.
[8] Shen Ye. Discourse on Seals [C]//Han Tianheng. Selected Essays on Seal Studies Through the Ages [M]. Hangzhou: Xiling Seal Society, 1999.

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