

Value Construction of Proto-Porcelain Skeuomorphs in the Yue State in Southeast China

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Abstract: Proto-porcelain, made of kaolin clay and fired at a temperature of 1100–1200°C, was the preferred medium for imitating bronze objects in Southeast China during the Yue Bronze Age (circa third to sixth century BC). This chapter firstly focuses on the characteristics of this special skeuomorphic tradition and explores the value construction of proto-porcelain vessels. Secondly, the process which transformed proto-porcelain into the main component of grave-good assemblages in the Yue region is analyzed. Proto-porcelain consumption seems to have been impacted by both complex socio-political processes on a transregional scale and socio-technical decisions on a local communal level. Moreover, the main component of proto-porcelain seems to have been sourced locally, was used over multiple generations, and can therefore be envisioned as a historical agent through which the inhabitants of Southeast China stressed their local “Yue” origin.

Keywords: Proto-porcelain, Bronze Age China, Yue State, skeuomorphs, ceramic production

7.1. Introduction

Since the Early Bronze Age (ca. 2000 BC), the river valleys of Zhejiang province in Southeast China have been inhabited by people who produced a diverse set of ceramic materials for both daily and ritual use. Far removed from the traditional center of power located in the Central Plain, this early ceramic tradition was remarkable for its highly specialized production of a new type of material, proto-porcelain, in locally developed dragon kilns. In particular, the Dongtiaoxi river valley, in modern Huzhou City, is often considered to be the birthplace of proto-porcelain due to the overwhelming archeological evidence of large-scale kilns producing a variety of proto-porcelain products. Stimulated by the unprecedented growth in ceramic production that took place in the Yue State (ca. 600/500–330 BC), the craft of proto-porcelain was brought to perfection through the practice of skeuomorphism. Proto-porcelain skeuomorphs, mainly imitating bronze objects, became a distinctive craft product and an essential part of mortuary rituals in the Yue State. This being said, the choice to select proto-porcelain as a medium for the production of key burial goods, instead of other “customary” materials representing status and wealth, is still not well understood and is often explained in terms of functionality and material scarcity. In addition, despite growing evidence of local autonomy and regionally coordinated developments, outside stimuli are still seen as the underlying cause guiding the consumption of proto-porcelain. This chapter will investigate this specific instance of material preference and attempts to provide an alternative explanation by considering different factors in tandem. Two main questions will be considered:

Why did people in this region consider proto-porcelain to be valuable? And why was proto-porcelain selected as a fundamental component of grave good assemblages? Through the analysis of the process of value construction of proto-porcelain skeuomorphs, and its relationship with the selected prototype and skeuomorphic material, it will be argued that proto-porcelain consumption was largely impacted by complex socio-political processes related to the display of power, status and regional identity on a transregional scale. Furthermore, the value of proto-porcelain skeuomorphs seems also to have been socially constructed on a local level and involved specific technical decisions. Moreover, the people that produced and used proto-porcelain might have envisioned proto-porcelain as a historical agent that stressed their local origin as inhabitants of the Yue land and recalled an emotional bond with the ancestral past, which was evoked by its material source, e.g. kaolin clay, and its consistent use over different generations in the Yue region.

7.2. Setting the scene: proto-porcelain and the Yue State

Proto-porcelain is a ceramic material, made of kaolin clay and fired at a temperature of 1100–1200°C, that started to circulate in various parts of China before and during the Shang Dynasty (1250–1046 BC) (Lu 2015: 354–55). Although its name and place of origins is controversial (Xie 2012: 69–71), proto-porcelain is often seen as occupying an intermediate stage on the evolutionary scale between earthenware and porcelain, and can be categorized as a special type of stoneware. Furthermore, the technical ability to produce proto-porcelain is seen as a

first and “essential” step towards the production of “real” porcelain, as happened during the Han Dynasty (206 BC–AD 220) and which would reach its apogee during the Yuan Dynasty (AD 1279–1368). However, while the craftsmanship and beauty of porcelain has been admired all over the world, the history of its stoneware “predecessor” has been obscure. This seems perplexing considering the overwhelming archeological evidence testifying to the prominent use of proto-porcelain in early China, and especially in the early societies inhabiting Southeast China.

Many scholars agree that the majority of proto-porcelain products were produced on the southeastern periphery, far removed from the dominant cultural realms situated in the Central Plain, and were superior in terms of appearance, hardness and porosity (von Falkenhausen 1999: 530; Shen & Zheng 2015: 13–22). More specifically, from the third millennium BC until the sixth century BC, the region comprising the Dongtiaoxi river valley, in modern Zhejiang province, was one of the most important production centers of proto-porcelain (Fig. 7.1). Currently, archeologists call this period the “Yue Bronze Age” and the people living in this area the “Yue people.” However, the “Yue” term first appeared in historical sources from the Central Plain, such as the *Zuo Zhuan* (*Zuo’s Commentary*), to denote a state that was founded in northern Zhejiang in the sixth century BC: the Yue State (ca. 600–333 BC). To complicate

matters even more, the concept of “Yue” has also been used to refer to people living in other peripheral regions in China’s southeast, such as the Minyue and Dongyue, and is “not limited to a single ethnicity or group” (Brindley 2005: 65). This chapter exclusively deals with historical events originally taking place in the region comprising modern-day Zhejiang province and, therefore, “Yue” will only designate the Bronze Age culture, region, people and state of this region (Fig. 7.2).

Until today the archeological cultures situated in the Central Plain have enjoyed the majority of the scholarly limelight, and the origin and development of the Yue State has received far less attention. Often considered to be of less importance in the grander scale of things that were happening during this period, the Yue State has often been described in very few words or lumped together with its neighbor: the Wu State. Reasons for this range from the restrictive focus of written sources, and the attraction of splendid artifacts found at Anyang (Loewe and Shaughnessy 1999: 14–15), to aspirations to prove the indigenous origin of Chinese civilization and the concentration of construction projects (Zhang 2006: 54). In regards to the Yue State, Eric Henry (2007: 1) has complained that “the history of Yue lies scattered and submerged, awaiting an exhumers to attempt some sort of reassembly.” Although the present study only touches the surface of the Yue cultural realms, it can offer some initial

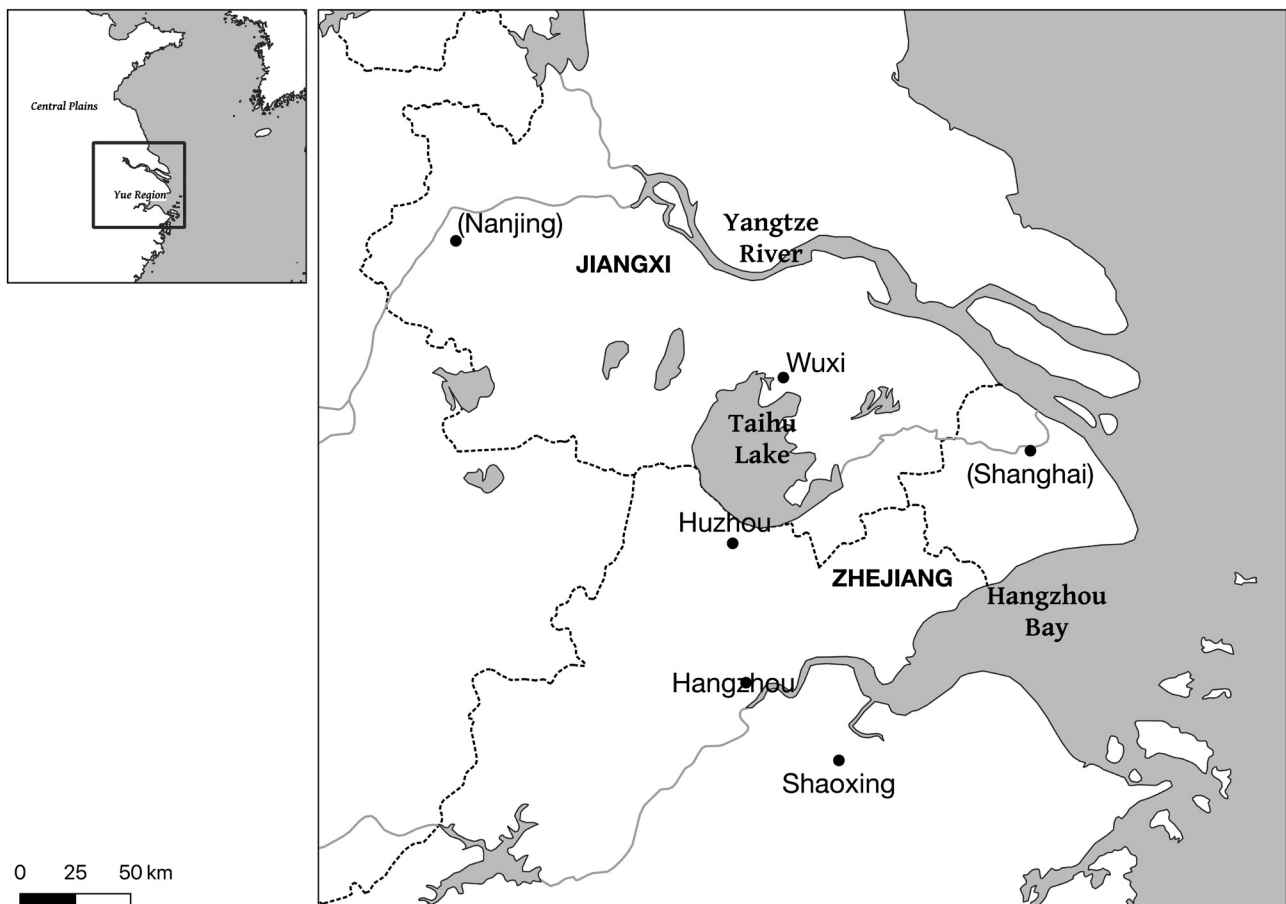


Figure 7.1. Map of Warring States China and the Yue State.

| Central Plain | Northern Zhejiang |
|--|---|
| Eastern Zhou (770 – 256 BC) Warring States (475 – 221 BC) Spring and Autumn (770 – 475 BC) | Chu Occupation (333 – 223 BC) Yue State (ca. 600 – 333 BC) Middle – Late Period (473 – 333 BC) Early – Middle Period (ca. 600 – 473 BC) |
| Western Zhou (1046 – 770 BC) Shang (1250 – 1040 BC) Erligang and Erlitou (1900 – 1250 BC) | Yue Bronze Age (ca. 1200 – 600 BC) Maqiao Culture (1950 – 1250 BC) |
| Late Neolithic (3000 – 1900 BC) Middle Neolithic (5000 – 3000 BC) Early Neolithic (7000 – 5000 BC) | Pre-Yue Neolithic Qianshanyang – Guangfulin (2500 – 2000 BC) Liangzhu (3300 – 2200 BC) Songze (3800 – 3300 BC) Majiabang (5000 – 3800 BC) Hemudu (5050 – 3050 BC) |

Figure 7.2. Chronology of the cultural sequence of the Central Plain and Northern Zhejiang (Liu & Chen 2012: 123, 169, 213, 253, 350, Meng 2010: 184–90, Cao 2015: 147, 149).

insights on selected matters related to political complexity, interregional contact and internal social dynamics. More specifically, the reasons for selecting proto-porcelain over bronze and the process underlying the value construction of proto-porcelain will be discussed in greater detail.

Besides being used for the manufacture of simple ceramic forms, such as daily utensils and cooking vessels, proto-porcelain produced in the Yue region played an important role in burial customs. It often appeared together with low-fired earthenware and geometric stamped stoneware, as a third category of ceramic materials that were selected as a medium for burial assemblages. At the height of the Yue State, proto-porcelain production reached an unprecedented level, with the appearance of intricately crafted skeuomorphs that were often close imitations of imported bronze goods. This is evidenced by the discovery of individual elite tombs, such as Zhujiashan M1, Xiaojiashan M17 and Xiaohuangshan M13 in Shaoxing (Zhejiang Provincial Institute of Cultural Relics and Archaeology et al. eds. 2016: 54–127), and Bizishan in Huzhou City (Zhejiang Provincial Institute of Cultural Relics and Archaeology ed. 2009: 48–100), as well as several burial complexes, such as Hongshan in Wuxi City (Nanjing

Museum et al. ed. 2007), Huangheshan (Shen 2003: 27–29), Dongpoling in Huzhou City (Zhejiang Provincial Institute of Cultural Relics & Deqing District Museum 2018: 46–55) and Shangyu in Shaoxing City (Zhejiang Provincial Institute of Cultural Relics and Archaeology ed. 2002: 96–177), which contained a large variety of high-quality proto-porcelain skeuomorphs. Nonetheless, with some exceptions, the selection of ceramic surrogates as key burial goods was atypical in the regional burial rituals characterizing this period, often referred to as the Warring States period (475–221 BC). Although other states, such as Chu, Zhongshan and Yan, also produced and used ceramic skeuomorphs (Wu 1999: 729–32), the appearance and quality of these objects was quite different. For instance, ceramics found in Warring States burials of the Yan State often had a gray color and were covered by a blackish glaze. Moreover, on an intraregional level proto-porcelain seems to have ranked lower on the overall value scale of materials used to produce burial goods. For instance, elite tombs in other regions typically featured bronze burial goods, which were accompanied by a smaller selection of ceramics and sometimes other types of status goods, such as lacquerware and silk. On the contrary, the majority of Yue tombs discovered contained no bronze goods at all.

The decision to omit bronzes has often been explained as being the result of practical and economical concerns (Zheng 2007: 240–44). Moreover, when it was first discovered, archeologists did not even entertain the notion that the inclusion of proto-porcelain could have been a deliberate choice. Instead, it was believed to be the result of looting practices (Chen 2011: 33). Only recently, after the discovery of undisturbed tombs of the Yue State, such as Xiaohuangshan M13 and Bizishan (Zhejiang Provincial Institute of Cultural Relics and Archaeology ed. 2009), has it been accepted that burial assemblages solely consisting of proto-porcelains represent the original finding context. Another problem characterizing the study of the Yue State and its proto-porcelain is the belief that cultural contact with the core region of Warring States China, i.e. the Central Plain, was the main instigator of change. This has led to the dominant view that proto-porcelain consumption was strongly influenced by outside forces, and in particular by the political and ritual system of Central Plain states, which were formerly united under the Zhou Dynasty (Wang H. 2017; Zheng 2019). Although the impact of the Zhou cultural realms on the Yue State, often via its neighboring state Chu, cannot be ignored, it should also not be exaggerated. Instead, it needs to be acknowledged that local continuities and regional developments might have also played a role. Chen Yuanfu (2015) has tried to break with these research conventions and has offered a more nuanced explanation of the appearance of proto-porcelain. In addition to the impact of the ritual system of the Central Plain, he mentions the practice of mingqi or ritual articles, e.g. specially produced burial goods, and the persistence of local traditions as two additional causes. However, although his analysis should be commended and partially explains the appearance of proto-porcelain skeuomorphs, it lacks a detailed discussion and consideration of the socio-political climate and internal developments of the Yue State.

Finally, research about proto-porcelain has also been unbalanced in focus. Generally speaking, most research about proto-porcelain has concentrated on its technical features and glaze, and issues related to its provenance and chemical composition (Chen T. et al. 1997; Wu J. et al. 2011a; Wu J. et al. 2011b; Yin et al. 2011). In addition, several detailed studies exist about the construction and development of the specialized elongated kilns (so-called dragon kilns) which were used to fire proto-porcelain (Wang Y. 2010; Wang H. 2017; Xie 2012). These technology-focused studies are critical for understanding some aspects of the proto-porcelain phenomenon, but, on the other hand, they push aside research topics of equal importance. In particular, questions regarding the function of proto-porcelain and the reasons why it became a socially valued material have not been answered in a meaningful way. Therefore, this chapter hopes to introduce the topic of “proto-porcelain” and focus on both the technical and social features of this unique material. This will be done by reconstructing the value of proto-porcelain in early Southeast China, and more specifically in the Yue State.

7.3. Foundations of the Yue State: literary and archeological evidence

The Yue State’s origin is murky, and it first appears by name in the Chunqiu (Spring and Autumn Annals), which records events taking place from the mid-sixth century BC to 476 BC, and other literary sources, such as the Shi ji (Historical Records), Zuo zhuan, and the Yuejue shu (The Glory of the Yue). In chapter 41 of the Shi ji, it is recorded that the famous Yue king, Goujian (r. 496–465 BC), descended from Yu the Great of the “semi-legendary” Xia Dynasty, and founded a capital in Kuaiji, near modern Shaoxing in Zhejiang. The historicity of Goujian is confirmed by the discovery of a beautiful bronze sword inscribed with “Goujian, King of Yue” in a Chu tomb in Jiangling, Hubei (Lin 1987). Historical sources further note that the Yue State rose to power during the late Spring and Autumn period (770–476 BC) and became entangled in a bloody feud with its neighboring state, Wu. Several battles, led by King Goujian and King Fuchai of the Wu (r. 495–474 BC), were fought for control over precious rice-growing lands in the lower Yangtze region. From its foundation the Yue State was located in northern Zhejiang and centered in the Ningshao plain, the Hangjiahu plain and the Jinqu hills in Shaoxing. However, after their victory over the Wu in 473 BC, parts of Shandong, Jiangxi, Anhui and eastern Jiangsu were also integrated, and in 469 BC the capital of the Yue was moved to Langye in western Shandong (Meng 2010: 2–5). Although it is debated (See Henry 2007: 13–16; Brindley 2015: 92), conventionally, 333 BC, the year King Wei of the Chu state conquered and annexed the lands of the Yue, as recorded in chapter 41 of the Shi ji, is seen as the end date of the Yue State. However, their cultural influence did not end here, and some of the Yue people seem to have dispersed further south, possibly into present-day Fujian province.

In the last two decades, scholars have acknowledged the strong impact of local factors on state development in the lower Yangtze region, rejecting earlier theories that prioritized the role of outside stimuli, such as socio-political contacts with state-level societies in the Central Plain (von Falkenhausen 1999: 529–39; Zhang 2006; Brindley 2015: 13–20). As is the case for many pre-imperial cultures in South and Southeast China, the Yue and Wu are now recognized as independent states with a distinctive archeological repertoire. Their roots can be traced back to the Liangzhu culture (3300–2200 BC), situated in the Lake Taihu region, which was famous for its exquisite jade-crafting, early rice cultivation and large-scale urban planning (Ling and Liu 2020). The most distinguishable feature of the Yue and Wu is their preferred use of earth-mounded tombs (tudun mu) instead of the vertical pits popular in the Central Plain. These tomb structures started to appear during the Late Bronze Age (ca. 1200 BC–ca. 500/600 BC) and can be subdivided into two types: simple earthen mounds and mounds containing a stone burial chamber (von Falkenhausen 1999: 527). Because of these and other similarities, such as their mastery of bronze-casting, their use of “bird script” or

niaoshu (bird-shaped characters that are derivative of northern seal script) on bronzes and swords, and their consumption of geometric stamped ceramics, the Wu and Yue are often considered in unison as the “Wuyue” culture (Zhao 2017), and separate discussions about their cultural features are rare. However, the Yue’s large-scale ceramic production and special mortuary use of proto-porcelain sets it apart. Based on archeological evidence, the Yue State was likely already in existence before it became popularized in the written record. Moreover, before power became centralized, northern Zhejiang was already inhabited by different complex societies that were familiar with rice-based cultivation, sericulture, metallurgy and specialized craft production. These people also initiated burial customs that included proto-porcelain grave goods and mounded tombs.

To date, in the Dongtiaoxi valley, the “birthplace” of proto-porcelain, over 144 kiln sites have been discovered, which have yielded proto-porcelain made of local kaolin clay and which range in date from 1950 BC to 333 BC (Zhejiang Provincial Institute of Cultural Relics and Archaeology et al. eds. 2015: 20). Among these, Piaoshan and Nanshan in Huzhou are the sites with the earliest evidence of proto-porcelain made in dragon kilns (Zhejiang Provincial Institute of Cultural Relics and Archaeology et al. 2015). Other important kiln sites are Huoshaoshan and Tingziqiao, also located in Huzhou. At the Huoshaoshan site, dated roughly to between the ninth century BC and the fifth century BC, numerous kilns remains, fire pits, post holes and remains of small vessels, such as bowls, plates and jars with various colors of glaze, have been found (Zhejiang Provincial Institute of Cultural Relics and Archaeology et al. 2008). This kiln site has a clear stratification and was used continuously for four centuries. This site, therefore, provides important information about the evolution of stoneware types and proto-porcelain technology as it developed before the foundation of the Yue State. The Tingziqiao kiln site, dated to roughly between the fourth century BC and 223 BC, contained a large number of high-quality proto-porcelain objects, including ritual vessels, such as small eating and drinking vessels and large storage containers, but also a small number of musical instruments (Zhejiang Provincial Institute of Cultural Relics and Archaeology & Deqing County Museum eds. 2011: 148). Many of these objects are exquisitely crafted and are exact copies of bronze prototypes popular in the Central Plain. Moreover, it is believed that Tingziqiao might have been part of an official kiln complex that was supervised by the Yue administration and produced mortuary items for royalty and the upper elite class (Zhejiang Provincial Institute of Cultural Relics and Archaeology & Deqing County Museum eds. 2011: 149). This argument is also supported by the discovery of mounded elite tombs dated to the Yue State period which contained large amounts of proto-porcelain. The most important (and unlooted) ones are Bizishan, Xiaohuangshan M13, and the large burial complex of Hongshan (Zhejiang Institute of Cultural Relics and Archaeology ed. 2009; Nanjing Museum et al. ed. 2007).

7.4. Skeuomorphism, technology and ceramic materials

Skeuomorphism is the manufacture in one material of objects, i.e. the skeuomorph, intended to evoke the appearance of other objects, i.e. the prototype, regularly made in another material (Manzo 2003: 17). The first focus in this process of imitation lies on the material transformation and the nature of the medium selected for the skeuomorph. As a result, skeuomorphism has often been linked to economic factors and the desire to mimic a more prestigious material, such as metal, in a more common one, such as stone or ceramics (Vickers 1989). Based on this reasoning, raw materials used to produce a skeuomorph are almost always placed on a lower value scale than those of the original prototype. In particular, scarcity and the geographic distance that needs to be travelled to acquire certain materials are seen as critical elements in the value construction of the prototype, as opposed to the “cheaper” substitute material used for skeuomorphs. A second goal skeuomorphs fulfill is the signification of similarity. As a result of this, their appearance can be linked to certain aesthetic and stylistic demands (Blitz 2015). For instance, during the process of skeuomorphism, shapes and decorative motifs as well as physical attributes that reference the original material of the prototype are copied. In some instances, the complete appearance of a prototype is imitated. However, an explanation solely based on the origin and prestige of the imitated material or the visual appeal of the prototype does not consider the impact of the physical properties as well as the visual, social and stylistic qualities of the material selected for skeuomorphism.

Timothy Insoll (2015: 239) has argued that skeuomorphism “can indicate technical virtuosity superior to those needed to work in the original material.” Clay, in particular, is a material with technical advantages, because it can easily be used for both additive and subtractive technological purposes (Insoll 2015: 230). With a similar focus, Bhan et al. (1994) have suggested that certain craft products whose raw materials were relatively common or easy to obtain can also be considered valuable because of the complex character of the technologies involved. In particular, goods that involve elaborate pyro-technological processes, such as certain types of stoneware and their glazes, fall into this category. For instance, Arretine ware, a type of Roman fine ware with a red glossy slip, stood out among other ceramics due to its high quality and distinctive firing process, despite being made with plain, local clays (Bhan et al. 1994: 143). Naturally, proto-porcelain as well as other types of celadon and porcelain produced in later periods also belong to this category. In most of these cases, the final object was made of “common” and easily accessible raw materials but gained value through technically complex actions and the resulting physical properties.

Some of these properties were utilitarian, such as thermal shock resistance, permeability, durability and heating/

cooling effectiveness (Gille 1978; Skibo & Shiffer 2008), while others were of an aesthetic nature, such as texture, decoration patterns and surface color. Moreover, actions, such as creating certain colors, adding a specific motif or glaze, or polishing could have transformed ordinary skeuomorphs into more prestigious objects that possibly matched the value of their original prototype. On another level, ceramic materials could have also been imbued with stylistic and symbolic qualities that were socially constructed and could participate in processes of information exchange. This made ceramics suitable for broadcasting information about, for instance, relative identity and group affiliation (Wobst 1977; Wiessner 1983). Moreover, Knappett (2002: 108–10) has noted that “the relationship between skeuomorph and prototype is not restricted to the objects, but extends to those groups habitually using them, themselves symbolically represented by the vessels they consume.” In this way, skeuomorphs were part of the entire social structure of a society. Furthermore, possession of them might have conferred prestige and could have been used to legitimize and sustain power and authority, as well as to reflect group identities and social memory. Finally, the value of skeuomorphs might be completely unrelated to material or artistic considerations, and instead be connected to sympathetic magic (Knappett 2002: 111). In other words, the production of skeuomorphs could have been regarded as magical because the ability to transform one material into another showcases control over ritually transformative processes. For these reasons, the skeuomorphic material selected to imitate a prototype might have had a higher position on the value hierarchy, and craftsmen might have consciously employed specialized technological knowledge to acquire an end result that transcended the original meaning and purpose of the prototype.

7.5. Proto-porcelain skeuomorphs in the Yue State

7.5.1. Technically based value

From a technical point of view, the southern proto-porcelain tradition, originating in the Dongtiaoxi river valley, has three main characteristics: firstly, it is made of kaolin clay, which is not completely purified; secondly, it is covered by a thin layer of vitric glaze; and thirdly, it has a firing temperature between 1100°C and 1300°C (Wu et al. 2011a; Zhejiang Provincial Institute of Cultural Relics and Archaeology et al. eds. 2015: 247–50). The raw materials for making proto-porcelain were abundant and locally available in the river plains of northern Zhejiang. As early as the Maqiao period (1950–1250 BC), potters were experimenting with kaolin clay, mainly composed of low amounts of aluminum and high concentrations of silicate, until finally reaching a stable formula during the Yue State period (Zhou et al. 2015; Li et al. 2015). For instance, EDXRF analysis of samples from Huoshaoshan shows an aluminum content that is lower than 20wt%, a silica content of around 75wt%, and an LOI in the range of 0.93–5.65% (Xiong 2008). Although the iron content gradually decreased, some impurities were left in the paste recipes,

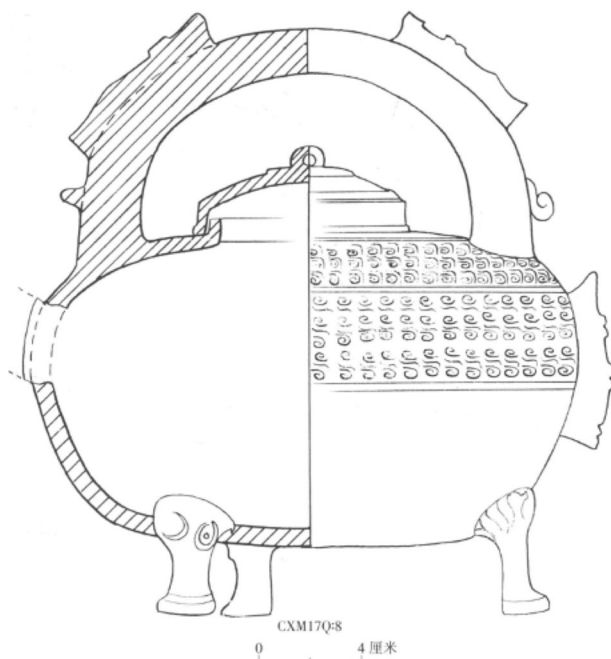
causing the difference between white-bodied “mature” porcelain and proto-porcelain featuring darker pigments (Wu et al. 2011a). There exist some color differences between products of different kilns in Dongtiaoxi, but we cannot know for sure if potters intentionally adapted and purified china clay for this reason. Glazes, on the other hand, were most likely the result of predetermined actions such as the deliberate application of ash from organic vegetation onto ceramic vessels. Technical properties that would result from adding glaze include water-tightness and mechanical strength (Wu J. et al. 2011b). Two types of glazes fluxed by calcium oxide have been recognized through chemical analysis of proto-porcelain samples from Tingziqiao and Huoshaoshan (Zhou et al. 2015). The first type is a high-fired glaze with a calcium oxide flux of between 10 and 20 percent that is found on the majority of studied samples. The second type is only found on five samples from Tingziqiao and has a relatively low calcium oxide content (between 2 and 6 percent). Scholars believe these differences might be related to the use of different sources of plant materials for the preparation of glaze recipes (Wu et al. 2011b). These improvements to the paste and glaze recipes were responsible for the technical as well as aesthetic superiority of proto-porcelain vessels as opposed to other ceramic types.

Proto-porcelain was fired in dragon kilns constructed on the inclined surface of a slope or hill and made up of a fire chamber, a firebox and a flue. The earliest remains of dragon kilns have been found at Piaoshan, dated to 2070–1600 BC, and Nanshan, dated to ca. 1200–1000 BC (Li et al. 2015). The Nanshan dragon kiln is quite well preserved: it is 7 m long with a 20-degree slope and a firebox occupying almost one third of the total kiln (Zheng 2019: 15). From the early Bronze Age to the period of the historical Yue State the dragon kiln structure evolved and reached a more mature stage. For instance, the seven dragon kilns found at the Tingziqiao site are between 8 and 10 m long with a 10-degree slope and a rectangular fire chamber (Zheng 2019: 15). The width of the firebox also increased at this site. For instance, kiln Y2 was between 3.32 and 3.54 m wide and had kiln walls as thick as 30 cm (Zhejiang Provincial Institute of Cultural Relics and Archaeology & Deqing County Museum eds. 2011: 152). In addition, also at Tingziqiao, archeologists have discovered kiln furniture and vessels being stacked together. This is not only the earliest evidence of this practice in China, but also testifies to the progress of setting techniques. For instance, there are unique pieces of kiln furniture that were specially designed to guarantee the even firing of musical instruments (Zhejiang Provincial Institute of Cultural Relics and Archaeology & Deqing County Museum eds. 2011: 148). Smaller utilitarian objects, such as cups and bowls, were stacked and positioned in lower areas, resulting in products that were not completely fired and of lower quality. The improved kiln design and the use of kiln furniture indicates that craftsmen understood how to control kiln temperatures and were aware that objects could be fired more efficiently when placed higher or inside other vessels.

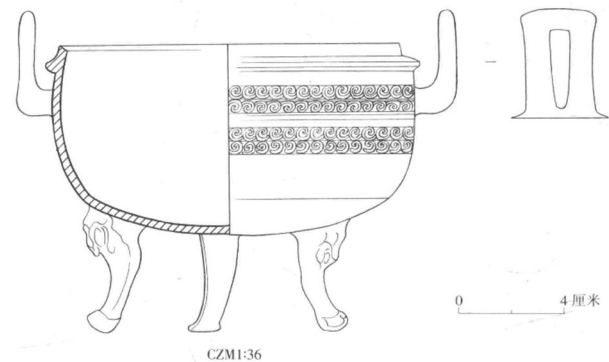
7.5.2. Funerary consumption of proto-porcelain skeuomorphs

The appearance of proto-porcelain skeuomorphs was part of a larger regional development influencing funerary rituals: in particular, the phenomenon of mingqi, which were imitations of burial goods having a utilitarian or ritual function. Although mingqi were usually made from ceramic materials, their value seems to have been less determined by medium or form, but was based on ritual function and symbolism (Wu H. 1999: 733). Moreover, mingqi did not have any real practical value and were specially produced to accompany the deceased in the afterlife. Proto-porcelain vessels seem to have shared some of these features. However, while mingqi are generally seen as a by-product that accompanied more valuable funerary goods, such as bronzes and jades, proto-porcelain skeuomorphs were the central component of Yue burials. Based on their function, proto-porcelain skeuomorphs can be divided into five different categories: 1) utilitarian vessels (Fig. 7.6), 2) ritual vessels (Fig. 7.3), 3) musical instruments (Fig. 7.4 & Fig. 7.5), 4) tools and 5) personal ornaments etc. Despite this variety, the majority of objects are vessels used for pouring alcohol, serving food or storage. There are a number of vessels that could be used in both ritual and ordinary occasions, for instance “ding” tripod vessels like Fig. 7.3b. In these cases, differences in quality and more elaborate decorations are thought to reflect ceremonial uses. In addition, due to their less frequent occurrence in burials, ritual vessels and musical instruments that imitate bronze prototypes from the Central Plain are also considered to be more valuable.

The majority of proto-porcelain skeuomorphs dated to the Yue State period have been discovered in elite tombs. These tombs, covered by a large earthen mound, are usually rectangular-shaped with a tomb entrance leading to the burial chamber, which contains a wooden coffin and is sometimes paved by cobble stones. Furthermore, it seems that status differences between Yue elites were often expressed through the scale of the tomb structure, as well as the amount and types of burial goods that were gifted. Higher-ranking tombs usually included larger numbers of high-quality jades and/or proto-porcelain skeuomorphs, including musical instruments and ritual vessels. For instance, at the Hongshan burial complex, seven Yue elite tombs have been excavated that can be divided into five levels (Nanjing Museum et al. eds. 2007). The Qiuchengdun tomb, belonging to level 1, was the largest and richest tomb of this complex and contained 1098 grave goods, of which 581 were proto-porcelains. These included both utilitarian goods and skeuomorphs of ritual goods and musical instruments, such as yongzhong bells like Fig. 7.4b. By way of comparison, the Laofendun tomb (belonging to level 5), contained only 52 goods, including five proto-porcelain cups, and no skeuomorphs. Of interest is the fact that sometimes a shallow pit for burial goods, including proto-porcelain skeuomorphs, is found outside the main tomb. For instance, in the Bizishan tomb 62 ceramic burial goods were found in the tomb chamber, and 47 in the outside pit (Zhejiang Provincial Institute of Cultural Relics and Archaeology ed. 2009: 57–93). Most of these were made from proto-porcelain and were imitations of large bronze musical vessels (Fig. 7.5). Additionally, only a small number of burials belonging to lower-ranking elites have been published, and usually these contain



图II-3-3-8 小家山 M17Q 出土原始瓷提梁壶



图II-2-4-1c 祝家山 M1 出土原始瓷附耳鼎

Figure 7.3. Proto-porcelain ritual vessels. a: He vessel from Xiaojaoshan M17Q Tomb b: Ding vessel from Zhujiashan M1 Tomb. (Zhejiang Provincial Institute of Cultural Relics and Archaeology eds. 2016: 85, 60).

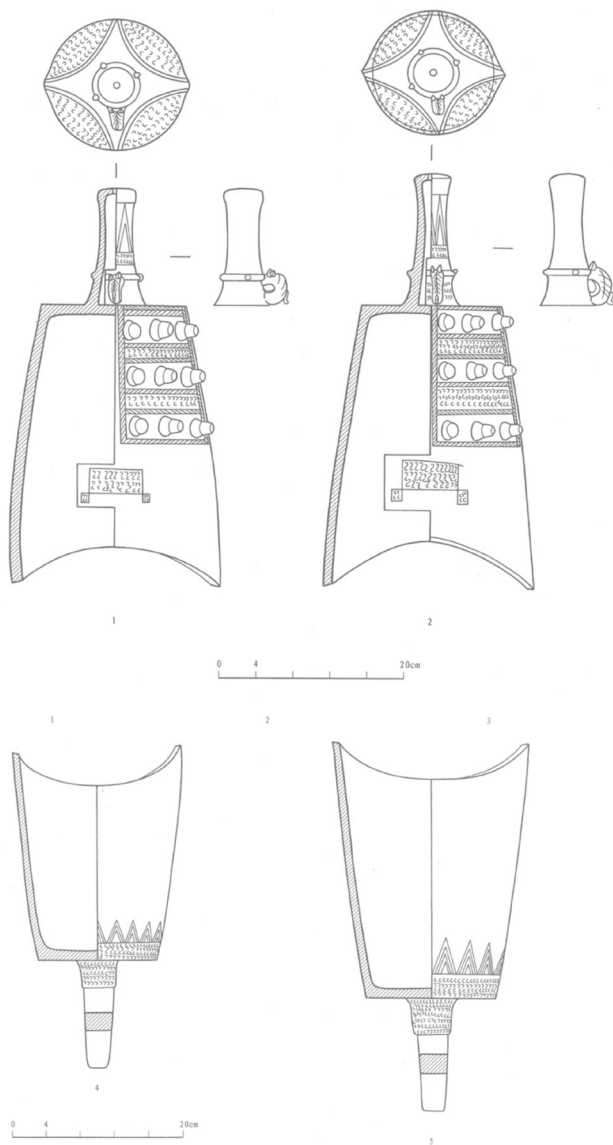


Figure 7.4. Proto-porcelain musical instruments. a: Yongzhong bell from Qiuchengdun M1 Tomb. b: Jugou bell from Laohudun DI Tomb (Nanjing Museum et al. eds. 2007: fig. 185 & 109).

fewer proto-porcelain vessels, and these are of a lower quality. Moreover, in these types of tombs the majority of grave goods are utilitarian vessels, made of other types of ceramic materials (Fig. 7.6a). At the Huangheshan burial complex, situated in Banshan, Hangzhou City, for instance, a number of burials contained fewer than 10 grave goods with only one proto-porcelain object (Shen 2003: 27–29). All of these goods were simple and small utilitarian objects.

7.5.3. Regional and historical contextualization of proto-porcelain value construction

As mentioned before, the reason why proto-porcelain was the preferred medium for mingqi in the Yue State is not well understood. Previous research has often stressed practical concerns, such as limited resources and labor, as the main motives for switching to proto-porcelain.



Figure 7.5. Proto-porcelain Yongzhong Bell from Bizishan M1Q Tomb (Courtesy of Zhejiang Provincial Institute of Cultural Relics and Archaeology).

Scholars have further argued that the Yue State lacked the economic capacity and sufficient bronze resources to produce bronze burial goods and instead had to prioritize the manufacture of agricultural tools and weapons (Zheng 2007: 240–44). To some degree this explanation makes sense. For one thing, the production process of proto-porcelain compared to that of bronze goods was less expensive and less complex. Also, the raw materials for making proto-porcelain were widely available in the Yue region and therefore much easier to acquire than those for bronze. However, both historical and archeological sources testify to the military and economic strength of the Yue State. For instance, the Yue's victory over the Wu State and their mastery of casting bronze swords are mentioned in the Yuejue shu (chapters 1 and 13) and the Shi ji (chapter 41) (Milburn 2010; Sima 1959). The discovery of specialized kilns and large-scale mounded tombs is also inconsistent with the weak state theory. Moreover, if the Yue's economic ability was this limited, why were they producing so much proto-porcelain? Proto-porcelain surely required more effort and specialized labor than less demanding types of ceramics. The production of copies of elaborately decorated musical instruments would also not have been cost-effective. Finally, discussions often forget that the decrease in the number of bronze vessels in burial contexts was a regional phenomenon during the Warring States period and other states were also prioritizing the production of bronze weapons.



Figure 7.6. Utilitarian Ceramics: a: Geometric Stamped Pot from Bizishan M1(21). b: Proto-Porcelain Pot from Bizishan M1(60)(Courtesy of Zhejiang Provincial Institute of Cultural Relics and Archaeology).

Alternatively, the increased appearance of proto-porcelain skeuomorphs can be linked to certain technical properties of the material it is made of. Many scholars have acknowledged that clay is a substance that has been widely used for the creation of skeuomorphs because of its plasticity and malleability (Insoll 2015: 207). Thus, by using clay, the shapes and attributes of bronze prototypes could be easily copied and reproduced. Additionally, compared to other types of ceramics, proto-porcelain had some technical benefits. For instance, its impermeability mimicked one of the desired qualities of bronzes and made it so that proto-porcelain could perform similar functions to bronze vessels used for pouring and serving. While technical features played an important role in the value construction of proto-porcelain they were not the only determinants responsible for the selection of this specific material. If this were the case, we would have observed a more limited repertoire of skeuomorphs within the archeological record of the Yue State, but instead proto-porcelain was used for the reproduction of a diverse group of objects, some of which were specially produced for ritual reasons. In addition, at times proto-porcelain was also used as a surrogate for stone, jade and possibly organic objects (for instance horn-shaped objects). Therefore, an explanation that is based solely on economic or technical factors also does not hold up, and we need to consider additional reasons for the selection of proto-porcelain. As mentioned before, the appearance of skeuomorphs is closely linked to the social groups using them and the symbolic role attributed to them. Consequently, to understand how proto-porcelain as a skeuomorphic material involved enrolled in ritual consumption in the Yue State, we first need to consider in more detail the socio-political background of its consumption.

The Yue State rose to power during the Warring States period, which was characterized by intense social

turmoil and fragmentation, but also by an unprecedented flourishing of the arts, literature and intellectual life. After the collapse of the Jin State, whose inhabitants were the last remaining descendants of the Zhou Dynasty, in 475 BC, a number of territorial states rose to power, eventually being dominated by the Chu in the South, the Qi in the northeast and the Qin in the north. The Warring States period represented the decline of the Zhou political order based on feudal kinship and the beginning of an autocratic tradition of state building governed by hereditary kings. Although these territorial states had clearly demarcated borders, they were constantly competing over new territory and the title of hegemon (ba), a new structure of authority that had appeared during the Spring and Autumn period (Li 2013: 162–66). These waves of constant conquest and annexation would give the final blow to an already crumbling ritual system and its physical representation: bronze vessels. During the Western Zhou bronze vessels were important symbols of political legitimization and were mainly involved in rituals for religious communication and gift-giving feasts performed by the Zhou king, but starting from the sixth century BC this ritual system was challenged in a number of ways: firstly, local rulers no longer followed the strict ritual prescriptions outlining the types and quantities of bronzes that could be used as burial goods; secondly, bronze styles were being adapted to regional needs and new cultural influences; thirdly, rather than adopting the Zhou political ideology, bronzes became a tool for self-aggrandizement and expressing regional identity (Cook 1995). This resulted in bronze being used for the production of a very wide range of objects that represented luxury and elite life, including personal ornaments, horse-riding equipment, oil lamps etc. Moreover, over the course of the Warring States period, the use of Zhou-style bronzes diminished even more, and new types of status goods, such as gold, silver

or turquoise inlaid bronzes and finely painted lacquerware vessels became popular.

The more standardized and widespread use of proto-porcelain in the Yue State not only took place against this backdrop of political competition and territorial expansion, but also corresponds with the high point of political power of the Yue State, under the rule of King Goujian and his successors. Historical sources, such as the *Yuejue shu*, record that after annexing the Wu Kingdom in 473 BC the Yue moved their capital further north and strived to be recognized as hegemon among the states of the north (Henry 2007). Moreover, over the years the Yue kings used different strategies to curry favor with other states against the Qin, including pursuing alliances and sending tribute. For instance, in 312 BC, the Yue sent 300 boats, 5 million arrows, together with horns and ivory to the Wei State (Henry 2007: 13). Therefore, although often omitted in general discussion about the territorial states of the Warring States period, the Yue kings were clearly also engaged in interregional politics and power struggles.

The impact of the geopolitical climate on the identity construction of the Yue State clearly finds its expression in local burial practices. In particular, the shift in political loyalties that took place during the Warring States period and was replaced by a focus on the political and military accomplishments of regional rulers had an enormous impact. No longer being places for offerings and worship, burials were now centered around the practice of boasting and replicating the elite's lavish lifestyle. Besides *mingqi* and luxury objects, concrete evidence of this includes changes in the typology and arrangement of grave goods. For instance, as is the case with bronze burial goods in other territorial states, proto-porcelain *skeuomorphs* found in Yue burials no longer adhere to strict rules and are found in different quantities and combinations. Moreover, while tombs still contain a high number of musical instruments, and pouring and serving vessels, these seem to be part of the increased popularity of secular feasts and banquets (Cook 1995). Similarly, the discovery of different types of luxury objects mirroring local traditions also reflects trends towards self-aggrandizement. Another artistic development influencing burial customs in the Yue State was the use of alternative media to produce burial goods (Wu 1999: 684). For instance, in the Chu state there was the emerging prominence of other materials, such as lacquered wood and woven textiles, to challenge the supremacy of bronze as the material of choice and prestige (Cook & Major 1999: 34). Moreover, as mentioned before, the use of ceramic surrogates has also occasionally been observed in tombs of the Chu, Yan and Zhongshan states (Wu 1999: 729–32). This all indicates that the higher class of the Yue State expressed status and wealth in a similar way to other autocratic rulers: opposing ideas and materials associated with the former Zhou Dynasty and selecting new types of social valuables to legitimize their rule and display their wealth to rivals.

Although it is clear that the Yue followed some regional trends, they seem to be doing so in a very selective way.

Many contemporary autocratic rulers expressed their wealth and power through monumental burials and the internment of non-ritual and personal belongings made of valuable materials and decorated with elaborate motifs. Compared to this, the burial assemblages and tombs of the Yue elite seem to be more modest. Other status objects, such as bronze mirrors, lacquerware, inlaid bronzes and bamboo strips were also almost non-existent in these burials. Moreover, it seems that the Yue were less concerned with copying the extravagant lifestyle of their neighbors, and were more interested in expressing local systems of belief and tradition. The popularization of proto-porcelain in the Yue State seems to have been in line with this aim. Moreover, proto-porcelain, literally made of the land of the Yue, is not only a material symbolizing ownership, but can also be considered to materialize the long-distant past. Over centuries proto-porcelain as a physical substance and surrogate had been continuously produced and had also performed a prominent role in burial rituals. For instance, as mentioned in section 7.3, all over Zhejiang numerous tombs, dating to the Yue Bronze Age, have been found containing proto-porcelain vessels that loosely copied Western Zhou bronzes. Of interest is the fact that these tombs also seem to have lacked bronzes. Furthermore, in continuing this tradition it is likely that the Yue people were aware of the associated memory and history of proto-porcelain. This use of ceramics as historical agents has also been observed in other early states. For instance, the Aztecs might have legitimized their status in the basin of Mexico through the use of a Black-on-Orange pottery that was associated with the earlier Toltec civilization (De Lucia 2018). In a similar way, proto-porcelain as a reminder of the ancestral past of the Yue could have served political purposes and strengthened state identity. This argument can be taken one step further with the assumption, as suggested by Knappett (2002), that *skeuomorphs* might have been seen as magical imitations and been produced in order to take control of the original objects. In this way, pyro-technological processes might have been imbedded with a magical dimension because of the way they transformed foreign symbols related to political power into local indexes of power.

7.6. Conclusion

Situated on the southeastern periphery, the Yue people were culturally and ethnically different from other independent states dominating the Spring and Autumn and Warring States periods, in other words, roughly the eighth through third centuries BC. Another distinctive feature was their mastery of proto-porcelain, which was of superior quality in terms of appearance, hardness and porosity. After defeating the Wu State in 473 BC the Yue State extended their territory and became a strong contender for hegemony. This process of political consolidation was accompanied by another technical advancement in the proto-porcelain craft system, which was the creation of realistic and high-quality *skeuomorphic* burial goods. This chapter has argued that two types of decisions were involved in the production process of proto-porcelain

skeuomorphs. Firstly, decisions related to the selection of a prototype and the degree to which the original material and shape of this prototype should be referenced in the final product. It is known that during the production process of proto-porcelain skeuomorphs the materiality of the prototype was altered, but, at the same time, some signifying attributes and a certain degree of similarity was maintained. In this way, it has been argued that skeuomorphs could be utilized as surrogate objects for legitimizing power and might have been imbedded with specific stylistic and symbolic information courtesy of the prototype. Secondly, the decision to select proto-porcelain for the production of skeuomorphic goods, to the degree that it became the dominant medium, has been discussed. Proto-porcelain as a material was socially valued, and although its main component, i.e. kaolin clay, was not technically superior, it had certain technical properties, such as its plasticity and malleability, that made it very suitable as a skeuomorphic material. In addition, other properties, such as its mechanical strength, translucency and impermeability, might have been attractive for the Yue people. Nonetheless, kaolin clay also expressed aesthetic and symbolic qualities, whose importance extended beyond economic and material values. Proto-porcelain as a material had a long history in the Yue region and represented traditional values and materials that were socially imbedded and passed from one generation to the next. As a result, proto-porcelain might have evoked social memories and notions of a shared local history.

On an intraregional scale the custom of proto-porcelain skeuomorphs seems to have been in line with regional tendencies that prioritized individual status and ownership, as opposed to ritual and ancestor worship. This is especially obvious when considering the new developments in burial customs that were taking place all over the territorial states, such as the looser application of rules, an increased focus on locally produced status goods, and the inclusion of ceramic imitations of bronze goods. Although the value construction of proto-porcelain was impacted by these intraregional developments in Warring States China, and echoed some ritual practices of the former Western Zhou Dynasty, it was deeply grounded in the local territorial landscape of the Yue State and involved a complex chain of decision-making. Moreover, while clearly expressing stylistic and political information about their prototypes, proto-porcelain objects also acted as mnemonic devices and were able to highlight Yue identity through the use of local materials and decoration motifs. Therefore, the selection of proto-porcelain as the preferred material for copying bronze vessels was not solely based on economic or technical factors, but should be contextualized in the regional landscape as well as in the longer history of the Yue people.

Acknowledgments

I want to sincerely thank Tian Zhengbiao and the Zhejiang Provincial Institute of Cultural Relics and Archaeology for giving me permission to use the photos and illustrations in this chapter.

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Tile Kilns and Roof-Tile Production in Ancient China

Yūsuke Mukai

Abstract: This essay describes the development of roof-tile production, discussing how craftsmen began to divide into groups working for pottery kilns and those working for roof-tile kilns from the Western Zhou to the Han period. The firing chamber of flat kilns is easy to widen and enlarge, and so they are appropriate for firing goods used in architecture like tiles and roof tiles. The kiln shape and structure that were perfected during the Han period continued to be used for centuries without major changes, mainly in northern China. During this process, the influence of roof-tile production technology and kiln structure spread widely through East Asia. It is significant that a separate history of kiln technology was revealed, different from that of porcelain and celadon-producing kilns.

Keywords: Roof tiles, structural changes in kilns, division of labor, Western Zhou, Qin and Han period

8.1. Introduction

Most of the roof tiles disseminated throughout East Asia are well known to originate in China. There is evidence for the manufacture and use of roof tiles in China during the Western Zhou period, some 3000 years ago, and there are some reports of roof tiles dating back even earlier. In the Han period, 2000 years ago, Chinese roof tiles traveled as far as the Korean peninsula in the east and Vietnam in the south, spreading throughout East and Southeast Asia in subsequent centuries. The investigation of ancient Chinese roof tiles and their production is thus also an investigation of the origins of roof tiles throughout East Asia.

In recent years, ceramic objects that resemble flat tiles have been unearthed in the Shang city at Zhengzhou in Henan Province, and there are reports of their use as construction materials in palaces of the early Shang period (Henan Provincial Institute of Cultural Relics and Archaeology 2007). At the Taosi site in Shanxi Province, which dates back some 4000 years to the late Neolithic period, many sheet-shaped ceramic objects thought to be roofing materials have been unearthed in locations where the remains of large buildings cluster within the enclosure (Shanxi Archaeological Teams of the Institute of Archaeology CASS et al. 2005). Further, at the Qiaozhen site in the city of Baoji (Baoji Municipal Institute of Archaeology 2011) and the Lushanmao site in Yan'an City (Shaanxi Academy of Archaeology et al. 2019), both in Shaanxi Province, there have been reports of round and flat tiles from the Longshan period of the late Neolithic, increasing the possibility that partial use of roof tiles dates back to the late Neolithic period.

However, while scattered discoveries of roof-tile-like remains dating from the late Neolithic to the Shang period

have been made, such tiles were clearly not in continuous use. It is not possible to find a lineage that connects the roof-tile remains from the Shang period and earlier that have been discovered so far. Most likely, the roof tiles of this era were undergoing a process of trial and error in which they repeatedly appeared and disappeared. Likewise, because the kilns used to fire them have not been discovered, it is difficult to pin down the specifics of their production.

The full-scale production and use of roof tiles came into its own in the Western Zhou period (Owaki 2002; Mukai 2012). The only remains of kilns that were certainly used to fire roof tiles that have been reported so far date from the Western Zhou and later; therefore, this paper will address shifts in tile kilns from the Western Zhou to the Qin and Han periods in northern China, centering on the Yellow River area. Ceramic kilns were used in China well before the tile kilns that have been found, and the earliest roof tiles were fired in kilns that had the same structure as those used for ceramics. This paper will first briefly outline previous research on shifts in kiln forms, then discuss examples from each period, and finally consider workers and modes of operation involved in kiln-firing.

8.2. Structural shifts in kilns

The kilns used for firing roof tiles in ancient China, particularly during their earliest period, were structurally almost identical to ordinary ceramic kilns; in fact, roof tiles and other ceramics were often fired in the same kilns. Here, following the example of prior research, we begin with an overview of shifts in kiln structure, mainly in the Yellow River region.

The kilns that appeared from the mid-Neolithic Cishan period through the early Yangshao period used a structure