The Chronology and Changing Nature of the Lime Mortar Burials of the Joseon Period

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Introduction

The lime mortar burial[1] type represents a novel inhumation form that emerged and came to be widely adopted during the Joseon period. As the emergence and adoption of lime mortar burials is believed to be closely linked with Neo-Confucianism, which held considerable sway over the social institutions of the time, these burials represent a category of material culture with an important role to play in promoting the understanding of Joseon society. However, since the temporal scope of archaeological investigation has been implicitly limited to prehistoric and ancient periods of Korean history, the study of lime mortar burials has not been actively pursued in Korean archaeology. As a result, burials from the Joseon period, including lime mortar burials, have not been properly investigated.

The common perception has been to simply regard lime mortar burials as constructions from which Joseon period mummies and well-preserved garments can at times be obtained, rather than viewing them as subjects of archaeological research in their own right. Such mummies are formed when the fortuitous use of lime mortar acts to seal off the burial compartment, resulting in a vacuum which facilitates the preservation of organic remains. Medical and biological analyses have been carried out on these mummies, and the results have been published in both Korean and international journals (Shin Donghoon et al. 2009). However, since most were discovered accidentally during the relocation of ancestral burial grounds, the relevant data were generally obtained by cultural heritage authorities applying emergency measures rather than by specialists undertaking full-fledged archaeological investigations. As a result, the study of Joseon mummies has been limited to piecemeal analyses that do not take into consideration the broader archaeological context.

The increased number of rescue excavations since the 2000s has resulted in an accumulation of archaeological data from the Joseon period, and lime mortar burials and other types of Joseon period burials have naturally become a subject of archaeological interest. Attempts have been made to outline the development of lime mortar burials and to identify regional modes of construction (Lee Myungyup et al. 2008; Lee Jongsu et al. 2008), but in most cases these efforts have not contributed greatly to the archaeological understanding of the Joseon period. This is in part due to the brief history of such research, the sparse nature of the grave goods, and the simple architectural structure of the burials, but the lack of a chronological understanding of lime mortar burials is a contributing factor as well. Study of these burials from a diachronic and regional perspective can only take place after a chronological understanding has been achieved. The aim of this paper, therefore, is to establish a chronological scheme for lime mortar burials that can be applied as a basic framework for archeological research on the Joseon period. The changes apparent in lime mortar burials will also be considered according to this scheme.

1 This type of burial structure has also been referred to as lime-soil mixture barrier (LSMB) tombs in the English literature, but the author considers this term to be excessively complicated and not well suited to conveying the characteristic nature of this type of burial. As such, the term "lime mortar burial" will be used instead.

Lime Mortar Burials as Seen in Literary Sources

It is widely known that Neo-Confucianism was the founding ideology upon which the Joseon state was established. King Taejo (太祖, r. 1392–1398) proclaimed through his enthronement message (卽位敎書) that Confucianism was to provide the state ideology and all ceremonies and institutions were to be revamped accordingly. Jeong Dojeon (鄭道傳, 1342–1398), who played an instrumental role in the creation of the Joseon state, stated in the *Administrative Code of Joseon* (朝鮮經國典, *Joseon gyeonggukjeon*) in the third year of King Taejo's reign that the realization of Confucian rule by sage kings was to be the goal of national administration. As part of this effort, study and application of Neo-Confucian rituals were actively pursued from the early Joseon period. This was the case not only regarding state rituals, but also for family rituals taking place within the domestic sphere. It is in this context that lime mortar burials came to be practiced as an observance of the guidelines for Neo-Confucian funerary rituals. The construction methods used in lime mortar burials, from the digging of the burial pit to the recipe for the lime mortar mixture, are illustrated in detail in the *Family Rituals of Master Zhu* (朱子家禮; K. *Juja garye*, Ch. *Zhuzi jiali*), a text by Zhu Xi (朱熹, 1130–1200) in which the guidelines for Neo-Confucian domestic rites are laid out (Fig. 1). The study of such domestic rituals continued to be pursued by Joseon Neo-Confucian scholars.

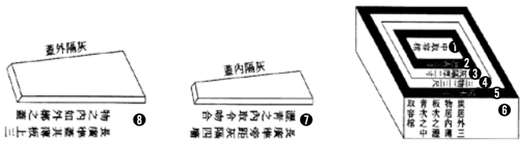


Fig. 1. Schematic plan of a lime mortar structure and the inner and outer covers (築灰隔及內外盖圖, *Chukhoigyuk geup naeoegae do*): ❶ *gwan* (棺, burial compartment), ❷ *yeokcheong* (瀝青, presumed to be an oily mixture, but not yet identified through archaeological investigation), ❸ *hoegyeok* (灰隔, wooden cist structure) ❹ *sammul* (三物, packed lime mortar mixture), ❺ *sut* (charcoal mixture), ❻ explanation of structure, and ❼ and ❽ cover. (*Illustration Volume of Commentaries on the Various Theories Concerning the Family Rituals of Master Zhu*)

Fig. 2. Stone chamber burial of Yi Wonjeung, investigated during the process of relocation and believed to have been constructed during the reign of King Sejong (Author's photograph)

The adoption of lime mortar burials by the Joseon royal family can therefore be seen as a natural development. In 1406, King Taejong (太宗, r. 1400–1418) forbade the construction of stone chamber or stone-lined tombs (Fig. 2), complying with the guidelines set forth in the *Family Rituals of Master Zhu*, and imposed the use of lime mortar burials for those below the rank of royal relatives. In 1418, he expanded the class of those required to follow the *Family Rituals of Master Zhu* for tomb construction to include royal relatives as well. In addition, in 1445 during the reign of King Sejong (世宗, r. 1418–1450), rules were set out regarding the provision of lime for use in the funerals of royal relatives. Regardless of such efforts, however, it appears that lime mortar burials were not adopted unreservedly. This is indicated by passages in the *Annals of the Joseon Dynasty* (朝鮮王朝實錄, *Joseon wangjo sillok*) that mention punishments being meted out for the use of stone chamber tombs or stone-lined burials. In 1468, during the reign of King Yejong (睿宗, r. 1468–1469), the tomb of King Sejo (世祖, r. 1455–1468) was established using a lime mortar burial structure in accordance with the wishes of the deceased king. Great controversy surrounded this decision, but it appears to have led to the eventual adoption of lime mortar burials by all members of Joseon society, including the king and his ministers (Figs. 3 and 4). After this, mention of burials is rarely found in the *Annals of the Joseon Dynasty*.

Absolute Dating of Lime Mortar Burials

In contrast to burials from preceding periods, there are quite a few instances in which it is possible to establish a construction date for lime mortar burials based on information on the deceased. For example, the date of death can be obtained from steles erected in front of burials or from funerary tablets interred within. There are also cases in which a grave has been continuously maintained by descendants. However, few of these graves have been subjected to formal excavation. Consequently, reports have simply focused on cataloguing the garments recovered from such graves and reports providing more detailed information on the structure and grave goods of lime mortar burials have been rare indeed. No study of lime mortar burials can take place solely based on the above data set.

The preservation rate of organic remains is relatively high in the case of lime mortar burials. As a result, there are a number of instances in which wood from coffins could be recovered during excavation. Dendrochronological analysis has been carried out on some of these wooden samples, making it possible to obtain absolute dates for the wood. A master dendrochronological sequence for Korea has been established based on pine wood from across South Korea (excluding Jejudo Island), allowing pine wood felled between 1200 CE and the present to be dated (Lee Hyunchae 2009, 5).

However, it should be kept in mind that a dendrochronological date simply represents the felling date of the wood and cannot be regarded as the construction date of the lime mortar burial from which the wood was derived. In addition, in order to establish a precise felling date, bark from the wood involved must be present. In the case of wood that features a clear distinction between heartwood and sapwood, it has also been proven through statistical analysis that an error range of ±10 years exists (Park Wonkyu and Kim Yojung 2004, 172). Unfortunately, in most cases dendrochronological dates tend to be obtained from simply the outermost tree ring of a given wooden sample, diminishing the utility of the dendrochronological information for archaeological research.

Nevertheless, given that in only a limited number of cases can the construction date of lime mortar burials be identified based on information regarding the deceased, dendrochronological dates do have an important role to play in the study of the lime mortar burials of the Joseon period. Therefore, methods of utilizing dendrochronological data in archaeological research must be explored in order to fully exploit its potential. This study represents one such attempt.

Lime Mortar Burial Chronology

Establishing the Key Elements for Chronological Research

Most of the lime mortar burials that have been identified thus far consist only of a subterranean burial chamber. Elements that were located above ground, such as the earthen mound covering the burial or stone statues erected nearby, are rarely extant. For this reason, diachronic change in lime mortar burials can only be identified through the burial compart-

Fig. 3. Overview of an excavation of a burial believed to be a royal tomb (presumed to be King Sejong's primary burial site) (Korea Cultural Heritage Foundation 2009, p. 4)

Fig. 4. Overview of an excavation of a burial believed to be a royal tomb (presumed to be King Sejong's primary burial site) (Korea Cultural Heritage Foundation 2009, p. 5)

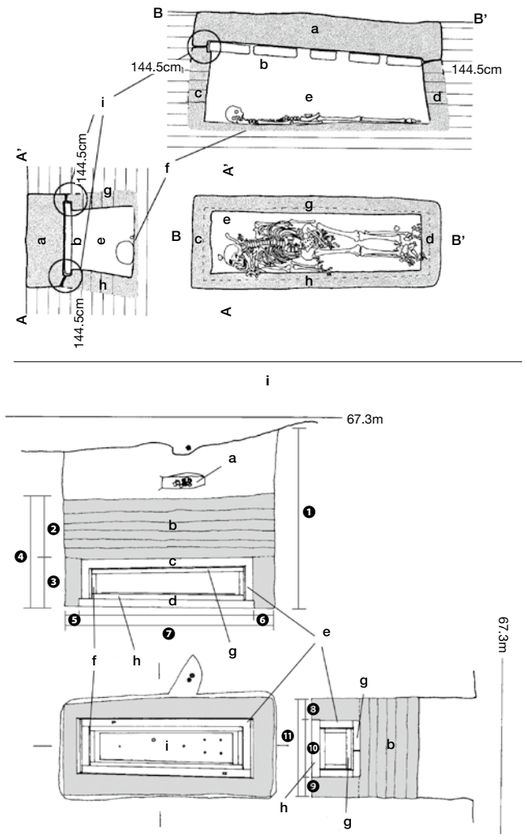


Fig. 5. The nominal and continuous attributes examined in this study

i. Lime mortar burial without a wooden cist structure (edited from Gyeonggi Institute of Cultural Properties 2001, p. 76)
a) lime mortar covering the burial compartment, b) horizontal wooden slabs, c) short wall near the deceased's head, d) short wall near the deceased's feet, e) inner burial pit, f) lime mortar lining the burial pit base, g) left long wall, h) right long wall, i) stepped space protruding into the lime mortar at the upper entrance of the burial compartment

ii. Lime mortar burial with a wooden cist structure (edited from Yoon Seyoung and Kim Woolim 1992, p. 15)
❶ burial pit depth, ❷ thickness of the lime mortar above the burial compartment, ❸ lime mortar wall height, ❹ entire lime mortar structure height, ❺ thickness of the lime mortar lining the short wall near the deceased's feet, ❻ thickness of the lime mortar lining the short wall near the deceased's head, ❼ long axis length, ❽ thickness of the lime mortar lining the right long wall, ❾ thickness of the lime mortar lining the left long wall, ❿ inner burial pit width, ⓫ short axis length
a) auxiliary niche, b) lime mortar covering the burial compartment, c) wooden cist cover, d) wooden cist base, e) wooden cist, f) wooden coffin, g) wooden coffin cover, h) wooden coffin base, i) wooden slab (featuring 7 holes depicting the Big Dipper constellation) for the placement of the deceased's body

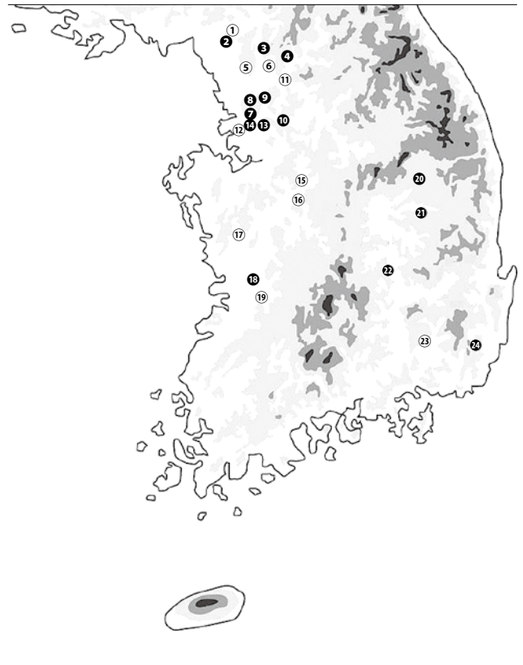


Fig. 6. Distribution of sites where lime mortar burials with known dates of construction have been discovered.

Lime mortar burials with known dates of death of the deceased (38 graves)
❷ Burial ground of the Papyeong Yun clan (1 grave)
❸ Burials of Gwon Su (father) and Gwon Gyeongnam (son) (3 graves)
❹ Archaeological site within the Hopyeong & Pyeongnae housing site, Namyangju (1 grave)
❼ Burial ground site of the Andong Kim clan located within the Banwol district, Gyeonggi-do Province (9 graves)
❽ Double burial of Yi Gijo of the Hansan Yi clan (2 graves)
❾ Burial of Taeangun of the Jeonju Yi clan burial (2 graves)
❿ Dongbaek-ri & Jung-ri sites, Yongin (1 grave)
⓭ Geongeon-ri, Palgok-ri, and Dundae-ri sites, Hwaseong (1 grave)
⓮ West coast highway construction area (Ansan-Anjung) site (4 graves)
⓲ Burial ground of the Jeonju Yu clan (9 graves)
⓴ Double burial of Kim Heumjo (1 grave)
㉑ Burials of Lady Mun of the Ilseon Mun clan and Yi Eungtae in Jeongsangdong, Andong (2 graves)
㉒ Burial of a member of the Yi clan in Inpyeong-dong, Chilgok (1 grave)
㉔ Joseon period burial at Samho-ri, Yangsan (1 grave)

Lime mortar burials with dendrochronological dates (33 graves)
① Neungsan-ri site, Paju (1 grave)
⑤ Jingwan-dong cemetery, Seoul (7 graves)
Jingwan-dong site, Seoul (4 graves)
④ Archaeological site within the Hopyeong and Pyeongnae housing site, Namyangju (1 grave)
⑥ Sinnae-dong site, Seoul (8 graves)
⑪ Surigol site in Deokpung-dong, Hanam
⑫ Namyang-dong site, Hwaseong (6 graves)
⑮ Seongsan-ri site, Cheongwon (1 grave)
⑯ Site located within the grounds of Chungbuk National University
⑰ Jeongdong-ri site, Buyeo (1 grave)
⑲ Majeon site, Jeonju (1 grave)
㉓ Geumpo-ri site, Miryang (1 grave)

ment structure and grave goods. However, since the number of objects commonly deposited in graves decreased dramatically over the Joseon period, it is mainly through an analysis of the burial compartment structure that a chronology of lime mortar burials can be established. In this paper, therefore, certain nominal and continuous attributes will be extracted from lime mortar burials with known absolute dates. The nominal attributes will be applied to delineate the phases of the chronological scheme, and the continuous attributes will be used to establish a comprehensive overview of the evolving nature of lime mortar burials (Fig. 5).

Nine nominal attributes are used to establish the chronological phases: 1) the presence or absence of lime mortar used to cover the burial compartment; 2) the presence or absence of lime mortar on the base of the burial pit; 3) method of covering the burial compartment; 4) the presence or absence of a stepped space protruding into the lime mortar at the upper entrance of the burial compartment; 5) the presence or absence of packed charcoal lining the sides of the burial pit; 6) the presence or absence of miniature grave goods; 7) the presence or absence of coffin nails; 8) the presence or absence of a wooden cist structure; and 9) the presence or absence of an auxiliary niche.

Upon establishing chronological phases based on the above nominal attributes, the values of twelve continuous attributes were examined in order to identify changes in the nature of lime mortar burials. These continuous attributes are as follows: 1) long axis length; 2) short axis length; 3) burial pit depth; 4) height of the entire lime mortar structure; 5) lime mortar wall height; 6) thickness of the lime mortar above the burial compartment; 7) thickness of the lime mortar at the base of the burial pit; 8) thickness of the lime mortar lining the left long wall; 9) thickness of the lime mortar lining the right long wall; 10) thickness of the lime mortar lining the short wall near the deceased's head; 11) thickness of the lime mortar lining the short wall near the deceased's feet; and 12) volume of the entire lime mortar structure.[2]

In order to construct a chronological framework for lime mortar burials, burials in which the date of death of the deceased was known or in which dendrochronological analysis could provide an absolute date were examined. Based on these, data was compiled from burials in which it was possible to take detailed measurements of the dimensions of the structure from either photographs or excavation plans. Accordingly, data from 38 lime mortar burials at 14 sites were analyzed. Based on the results of the analysis, the basic trends in the ways in which lime mortar burials changed over time were examined, and through a comparative analysis with these results, an additional 33 lime mortar burials from 11 sites with dendrochronological dates were included in this study.

The Chronology of Lime Mortar Burials Based on Nominal Attributes

As discussed above, a significant discrepancy may exist between the actual date of a burial and the date provided by dendrochronological analysis. In the absence of any information on the error range between these two dates, it is difficult to use dendrochronological dates to construct a chronological framework for lime mortar burials. It therefore becomes necessary to develop a way to test the reliability of the dendrochronological dates, albeit through indirect methods.

To this end, diachronic change in lime mortar burials will first be identified through the analysis of examples in which the identity of the interred is known. Dendrochronological dates will then be indirectly tested by comparing the nature of the diachronic change observed in those burials with known dates of death of the interred with that observed in burials with dendrochronological dates. If key changes can be confirmed to have taken place at a broadly similar time, then any discrepancy between the actual date and the dendrochronological date for a given lime mortar burial can be regarded as insignificant. Ac-

2 The volume of the lime mortar was calculated based on the measurements of the respective components of the lime mortar structure, which was treated as a cube-like structure. As such, the volume identified through this method may not necessarily represent the actual volume of the lime mortar mixture used. However, the author believes that this estimated volume is sufficient for the purpose of identifying diachronic change in the amount of lime used in the burials.
Volume of the lime mortar = {long axis length × short axis length × (covering lime thickness + height of packed lime walls)} - {long axis length - (thickness of the short wall near the deceased's head + thickness of the short wall near the deceased's feet)} × {short axis length-(thickness of the left long wall + thickness of the right long wall)} × height of packed lime walls.

cordingly, it will then be possible to use lime mortar burials with dendrochronological dates to construct a chronological framework. Due to space restrictions, the details of this method through which the reliability of dendrochronological dates can be investigated will not be discussed further.

Lime mortar burials with absolute dates are presented in Table 1 according to their temporal order. The 33 lime mortar burials with definite dendrochronological dates mostly cluster around the later phases. Based on burials with known dates of death, it can be established that lime mortar burials experienced a change in form sometime between the early and late seventeenth century. A similar trend can be identified in the lime mortar burials with definite dendrochronological dates. Therefore—although further accumulation of data and refinement of the verification method is required—it can be suggested that it is indeed possible to broadly examine the trajectory of change in lime mortar burials using dendrochronological dates.

However, in the case of Namyang-dong Area 5 Burial No. 19 (Table 1, 48), Sinnae-dong Area 1 Burial No. 57 (Table 1, 53), and Sinnae-dong Area 1 Burial No. 56 (Table 1, 58), a significant discrepancy in size was identified between these three lime mortar burials and the lime mortar burials in which the deceased had passed away at a date similar to the dendrochronological dates identified for the above three burials. When methods of verifying dendrochronological dates are further developed through the discovery of additional lime mortar burials with known death dates, this problem can be addressed. Since these three problematic burials only represent a small fraction of the entire data set, and as there is no way to further assess the validity of the dates involved, the information from these three burials will be regarded as outliers within the data set.

As can be seen in Table 1, the presence or absence of packed charcoal, a wooden cist structure, a stepped space intruding into the lime mortar at the entrance of the burial pit, coffin nails, lime mortar at the base of the burial pit, miniature grave goods, and an auxiliary niche are identified as the temporally sensitive nominal attributes. Among these, the presence or absence of packed charcoal and a wooden cist structure were identified as the most temporally meaningful nominal attributes. A wooden cist structure and packed charcoal appear together in early lime mortar burials, whereas in later burials the use of packed charcoal disappears, followed by the wooden cist structure. This trend can clearly be observed throughout the data set. Coffin nails, lime mortar at the base of the burial pit, miniature grave goods, and an auxiliary niche are attributes that are frequently observed in earlier burials. However, these attributes do not occur universally in all early lime mortar burials and, in addition to being temporally sensitive, they also appear to be associated with regional identity or social status. Consequently, these attributes may be used to supplement the chronological framework.

A four-phase chronological scheme was established for lime mortar burials based on the above nominal attributes (Table 2). Phase I is characterized by the use of both charcoal packing and a wooden cist structure in lime mortar burials. It should be acknowledged that only four burials belong to this phase, bringing into question the validity of separating it from Phase II. It should be noted, however, that rules concerning the packing of charcoal when constructing lime mortar burials are clearly laid out in the *Family Rituals of Master Zhu*. As such, the presence of charcoal packing in early lime mortar burials can be seen as an indication of the intent to strictly conform with the rules set forth in the *Family Rituals of Master Zhu* when adopting this new form of burial. In addition, the fact that only a limited number of burials can be attributed to Phase I can be taken to indicate that upon its introduction this novel form of burial was not widely adopted. For these reasons, a separate phase is established for lime mortar burials with charcoal packing, despite their limited number. Among the lime mortar burials that have been properly excavated and therefore feature identified details regarding their structure, the earliest dated example is the 1528 burial of Kim Heumjo (Table 1, 1). In order to examine the earliest adoption of lime mortar burials, however, the literary record must be considered alongside the archaeological record. The earliest known lime mortar burials are that of Prince Munyang Yi Gyeyun (文陽君 李季胤, 1431–1489), dating to 1489, and that of Park Gyeongwon (朴堅源, c. 1435–1501), dating to 1501 (these burials were not included in the present study since detailed plans of the burials do not exist). The presence of passages in the *Annals of the Joseon Dynasty* mentioning punishments handed out for the use of stone chamber or stone-lined burials indicates that traditional forms of burial did continue to be applied even after their use was banned in 1406. Therefore, rather than to 1406, the initiation of lime mortar burial use can only be dated to around the time of the construction of the burials of Yi Gyeyun and Park Gyeongwon. As such, the beginning of Phase I should be tentatively dated to around 1500.

In Phase II, wooden cists continued to be used, but the packing of charcoal no longer took place. As in Phase I, some of the attributes of early lime mortar burials (e.g., coffin nails, lime mortar at the base of the burial pit, miniature grave goods, and an auxiliary niche) also continued to be used. The burial of Yu Sehwa (Table 1, 4), which was constructed in 1554, features packed charcoal and therefore belongs to Phase I. The next burial in the sequence, that of a female belonging to the Ilseon Mun clan (Table 1, 5) constructed in 1565, does not feature charcoal packing. As such, the cessation of the use of packed charcoal can be dated to sometime around 1550.

Phase III witnessed a decline in the use of the wooden cist structure and coffin nails. However, this is not to say that the wooden cist structure disappeared entirely. In addition, attributes of early lime mortar burials, such as lime mortar at the base of the burial pit, miniature grave goods, and an auxiliary niche, also continued to be applied in some burials. One key characteristic of this phase is the transition that can be observed in the type of feature used to cover the burial compartment. With the disappearance of the wooden cist structure, horizontal panels began to be applied as support for the lime mortar mixture covering the burial compartment. However, vertical panels similar in form to the wooden cist cover used previously have also been identified from burials in this phase. This phenomenon appears to illustrate the progression that accompanied the disappearance of the wooden cist structure. Many of the lime mortar burials with only dendrochronological dates pertain to this phase, making it difficult to establish a beginning date. In relation to this, it is interesting to note that lime mortar was placed at the base of Namyang-dong Area 5 Burial No. 127 (Table 1, 18), the construction date of which has been identified as some point later than 1585 based on dendrochronological analysis, and that Geumpo-ri Area Na Burial No. 1 (Table 1, 15), the construction date of which has been identified to be some point after

Fig. 7. Hwajeop-ri, Byeolnae Unit 5-3 Burial No. 6 (Phase I) in Namyangju (Hanbaek Research Institute for Cultural Heritage 2012, p. 735)

Fig. 8. Hwajeop-ri, Byeolnae Unit 4-1 Burial No. 6 (Phase II) in Namyangju (Hanbaek Research Institute for Cultural Heritage 2012, p. 624)

No.	Name of the deceased interred (Archaeological feature no.)	Date of death/reburial (dendrochronological date)	Phase	Packed char-coal	Wood-en cist	Type of burial compartment cover	Stepped space intruding into the lime mortar at the upper entrance of the burial pit	Lime mortar cover	Coffin nails	Lime paving the floor	Min-iature grave goods	Aux-iliary niche
1	Kim Heumjo	1528	I	P	P	Wooden cist cover	A	P	P	P	P	P
2	Lady of the Jeonju Yi clan (Wife of Yu Paengseong)	1547	I	P	P	Wooden cist cover	A	P	A	P	A	
3	Yu Paengseong	Mid-16th century	I	P	P	Wooden cist cover	A	P	P	P	A	P
4	Yu Sehwa	1554	I	P	P	Wooden cist cover	A		A	A	A	
5	Lady of the Ilseon Mun clan (Wife of Yi Myeongjeong)	1565	II	A	P	Wooden cist cover	A	P	A	P	A	A
6	Lady of the Papyeong Yun clan and her son (Lime mortar burial)	1566	II	A	P	Wooden cist cover	A	P	A	P	A	A
7	Lady of the Ansan Kim clan (Wife of Yi Paengsu)	1579	II	A	P	Wooden cist cover	A	P	P	A	P	P
8	Yu Jin	1580	II	A	P	Wooden cist cover	A	P	P	A	A	
9	Gwon Su	1580	II	A	P	Wooden cist cover	A	P	A	P	P	
10	Yi Yi or Yi Yedeuk (Byeokjin Yi clan)	1585	II	P	P	Wooden cist cover	A	P	A	P	A	A
11	Yi Eungtae	1586	II	A	P	Wooden cist cover	A	P	A	P	A	A
12	Yu Semu (Date from epitaph tablet)	1588	II	A	P	Wooden cist cover	A	P	A	A	P	
13	Yi Paengsoo (Died during the Japanese invasions)	1592–1598	II	A	P	Wooden cist cover	A	P	P	A	P	P
14	Yu Sagyeom	1599	II	A	P	Wooden cist cover	A	P	A	A	P	
15	Geumpo-ri Area Na Burial No. 1, Miryang	(After1591)	II	A	P	Wooden cist cover	A	P	P	A	P	P
16	Gwon Gyeongnam	1609	II	A	P	Wooden cist cover	A	P	A	A	P	P
17	Namyang-dong Area 5 Lime Mortar Burial No. 33, Hwaseong	(Early 17th century)	III	A	A	Horizontal slabs	A	P	A	A	A	A
18	Namyang-dong Area 5 Lime Mortar Burial No. 127, Hwaseong	(After 1585)	III	A	A		A	P	A	P	A	A
19	Namyang-dong Area 5 Lime Mortar Burial No. 168, Hwaseong	(After 1595)	III	A	A		A	P	A	P	A	A
20	Neungsan-ri Area 1 Lime Mortar Burial No. 1, Paju	(1607±10)	III	A	A	Horizontal slabs	P	P	A	P	A	A
21	Lady of the Jinju Ha clan (Wife of Gwon Su)	Early 17th century	III	A	P	Wooden cist cover	A	P	A	A	A	A
22	Yi Sehwan (Jeongdong-ri Lime Mortar Burial No. 1, Buyeo)	(After 1620)	III	A	P	Horizontal slabs	A	P	A	A	A	A
23	Hopyeong Area 3 Burial No. 12, Namyangju	(After 1620)	III	A	A	Horizontal slabs	A	P	A	A	P	P
24	Deokpung-dong Surigol Double Burial Nos. 27-27, Hanam	(After 1624)	III	A	A	Vertical slabs	A	P	A	A	A	A
25	Jingwan-dong II-1 Burial No. 4	(After 1626)	III	A	A	Horizontal slabs	P	P	A	A	A	A
26	Seongsan-ri Area Da Lime Mortar Burial, Cheongwon	(After 1629)	III	A	A		A	P	A		A	A
27	Namyang-dong Area 5 Burial No. 138, Hwaseong	(After 1631)	III	A	A	Horizontal slabs	A	P	A	P	A	A
28	Yu Eungwon	1637	III	A	P	Wooden cist cover	A	P	A	A	P	P
29	Jeong Eunggap	1637	III	A	A		A	A	A	P	A	P
30	Majeon Area 1 Burial No. 1, Jeonju	(1637-1638)	III	A	A	Vertical slabs	A	P	A	P	A	A
31	Yu Boksin	1644	III	A	A	Vertical slabs	P	P	A	A	A	A
32	Jingwan-dong II Area 2 Lime Burial No. 17, Seoul	(1645±10)	III	A	A	Horizontal slabs	P	P	A	A	A	A
33	Yuo Gwangjong	1655	III	A	A	Horizontal slabs	P	P	A	P	A	A
34	Sinnae-dong Area 1 Lime Burial No. 38, Seoul	(1664±10)	IV	A	A		A	A	A	A	A	A
35	Double burial of Choi Dam and Lady of the Namyang Hong clan	1677	IV	A	A	Horizontal slabs	P	P	A	A	A	A
36	Yu Bun (Pyeongnae Area 2 Burial No. 1, Namyangju)	1684	IV	A	A	Horizontal slabs	p	P	A	A	A	A
37	Jingwan-dong II Area 3 Lime Burial No. 3, Seoul	(1688±10)	IV	A	A	Horizontal slabs	P	P	A	A	A	A
38	Jingwan-dong II-2 Burial No. 54, Seoul	(1692±10)	IV	A	A	Horizontal slabs	P	P	A	A	A	A
39	Choi Suk (Gupo-ri Burial No. 1-1)	1698	IV	A	A	Horizontal slabs	P	P	A	A	A	A
40	Jingwan-dong II Area 2 Lime Burial No. 14, Seoul	(1704±10)	IV	A	A	Horizontal slabs	P	P	A	A	A	A
41	Jingwan-dong II Area 2 Lime Burial No. 15, Seoul	(Around the beginning of the 18th century)	IV	A	A	Horizontal slabs	A	P	A	A	A	A
42	Jingwan-dong II-2 Burial No. 126, Seoul	(1710±10)	IV	A	A	Horizontal slabs	P	P	A	A	A	A
43	Jingwan-dong III-3 Burial No. 229-1, Seoul	(After 1704)	IV	A	A	Horizontal slabs	P	P	A	A	A	A
44	Jingwan-dong III-3 Burial No. 229-2, Seoul	(After 1704)	IV	A	A	Horizontal slabs	P	P	A	A	A	A
45	Yi Gijo (Died in 1653)	1728	IV	A	A	Horizontal slabs	A	P	A	A	A	A
46	Lady of the Goryeong Shin clan (Wife of Yi Gijo, Died in 1673)	1728	IV	A	A	Horizontal slabs	A	P	A	A	A	A
47	Namyang-dong Area 5 Lime Mortar Burial No. 15, Hwaseong	(Mid-18th century)	IV	A			A	A	A	A	A	A
48	Namyang-dong Area 5 Lime Mortar Burial No. 19, Hwaseong	(After 1722)	IV	A	A	Horizontal slabs	A	P	A	P	A	A

49	Sinnae-dong Area 1 Lime Burial No. 53, Seoul	(1723±10)	IV	A	A		A	P	A	A	A	A
50	Lady of the Wansan Yi clan (Wife of Choi Gyeongwu)	1729	IV	A	A	Horizontal slabs	P	P	A	A	A	A
51	Sinnae-dong Area 1 Lime Burial No. 29, Seoul	(1747-1748)	IV	A	A	Horizontal slabs	A	P	A	A	A	A
52	Sinnae-dong Area 1 Lime Burial No. 30, Seoul	(1748±10)	IV	A	A	Horizontal slabs	A	P	A	A	A	A
53	Sinnae-dong Area 1 Lime Burial No. 57, Seoul	(After 1733)	IV	A	P	Horizontal slabs	P	P	A	A	A	A
54	Sinnae-dong Area 2 Lime Burial No. 2-2, Seoul	(1755±10)	IV	A	A	Horizontal slabs	A	P	A	A	A	A
55	Sinnae-dong Area 2 Lime Burial No. 2-1, Seoul	(1765±10)	IV	A	A	Horizontal slabs	P	P	A	A	A	A
56	Choi Wunik (Gupo-ri Burial No. 1-2)	1789	IV	A	A	Horizontal slabs	P	P	A	A	A	A
57	Min Changeok (Dundae-ri Burial No. 9)	1797	IV	A	A	Horizontal slabs	A	P	A	A	A	A
58	Sinnae-dong Area 1 Lime Burial No. 56, Seoul	(1799±10)	IV	A	P	Wooden cist cover	A	P	P	A	A	A
59	Lady of the Haepyeong Yun clan (Wife of Choi Wunik, Gupo-ri Burial No. 1-2)	1810	IV	A	A	Horizontal slabs	P	P	A	A	A	A
60	Jingwan-dong II-3 Burial No. 67, Seoul	(After 1836)	IV	A	A	Horizontal slabs	P	P	A	A	A	A
61	Jingwan-dong II-4 Burial No. 45, Seoul	(After 1845)	IV	A	A		A	A	A	A	A	A
62	Lady of the Hansan Yi clan (Burial No. G, Kim Byeongguk's first wife)	1852	IV	A	A	Horizontal slabs	P	P	A		A	A
63	Lady of the Pungcheon Lim clan (Burial No. G, Kim Byeongguk's second wife)	1854	IV	A	A	Horizontal slabs	P	P	A		A	A
64	Kim Sugeun, Lady of the Yangju Jo clan, and Lady of the Jeonju Ryu clan (Burial No. F)	1861	IV	A	A	Horizontal slabs	P	P	A		A	A
65	Burial of unknown identity located within the grounds of Chungbuk National University	(1860-1870)	IV	A	A	Horizontal slabs	P		A	A	A	A
66	Lady of the Papyeong Yun clan double burial (Burial No. A, Kim Byeonghak's first and second wives)	1872	IV	A	A	Horizontal slabs	P	P	A		A	A
67	Lady of the Geochang Shin clan (Burial No. B, Kim Sugeun's third wife)	1872	IV	A	A	Horizontal slabs	P	P	A		A	A
68	Kim Byeonghak (Burial No. A)	1879	IV	A	A	Horizontal slabs	P	P	A		A	A
69	Lady of the Gimhae Heo clan (Burial No. H, Kim Byeongguk's second wife)	1879	IV	A	A	Horizontal slabs	P	P	A		A	A
70	Lady of the Papyeong Yun clan (burial No. G, Kim Byeongguk's third wife)	1879	IV	A	A	Horizontal slabs	P	P	A		A	A
71	Kim Byeongguk (Burial No. G)	1904	IV	A	A	Horizontal slabs	P	P	A		A	A

Table 1. Nominal attributes from lime mortar burials with known dates or death of the interred (P = present, A = absent)

Phase	Lime mortar burial type			Chronologically sensitive attributes				
	Lime mortar burial with packed charcoal	Lime mortar burial with wooden cist structure	Lime mortar burial with wooden coffin	Coffin nails	Miniature grave goods	Auxiliary niche	Lime-paved floor	Stepped space intruding into the lime mortar at the upper entrance of the burial pit
I								
II								
III								
IV								

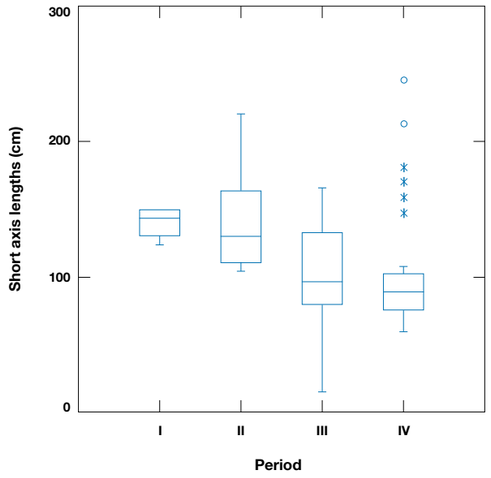
Table 2. Chronological scheme for lime mortar burials from the Joseon period

Fig. 9. Majeon Area 1 Burial No. 1 (Phase III) in Jeonju, Jeollabuk-do Province (Honam Cultural Property Research Institute 2008, pp. 63-64)
Top: lime mortar structure viewed from above
Bottom: cross-section of lime mortar structure, with horizontal covering panels and wooden coffin visible

Fig. 10. Jingwan-dong Area 2 Section B Unit 2 Burial No. 24 (Phase IV) in Seoul (Hangang Institute of Cultural Heritage 2010, p. 70)

1591 (again based on dendrochronological analysis) feature a wooden cist structure. However, given that the dendrochronological dates of these two burials are derived from the outermost tree ring, the actual construction dates could be later. On the other hand, Neungsan-ri Area 1 Burial No. 1 (Table 1, 20) has a reliable dendrochronological date of 1607±10 years. Based on these facts, it is possible to presume that the wooden cist structure began to disappear from the early seventeenth century. As such, the beginning date for Phase III can be set at around 1600.

In Phase IV, the features of a wooden cist structure, lime mortar at the base of the burial pit, miniature grave goods, and auxiliary niche all disappeared, and only horizontal panels were used to cover the burial compartment. Among the lime mortar burials with known dates of death, the latest burial with lime mortar at the base of the burial pit is that of Yu Gwangjong (Table 1, 33), which was conducted in 1655. Among the lime mortar burials with dendrochronological dates, horizontal covering panels were identified at Majeon Area 1 Burial No. 1 in Jeonju (Table 1, 20), which dates to 1637–8. Given the fact that Namyang-dong Area 5 Burial No. 138 (Table 1, 27), which has lime mortar at the base of the burial pit, can be dated to later than 1631, and that Jingwan-dong Area 2 Burial No. 17 (Table 1, 32), in which all earlier attributes are absent, has a dendrochronological date of 1645±10 years, the beginning of Phase IV can be set to around 1650. As the latest of the lime mortar burials—that of Kim Byeongguk (Table 1, 71)—dates to 1904, Phase IV shows the broadest time range, extending into the twentieth century.



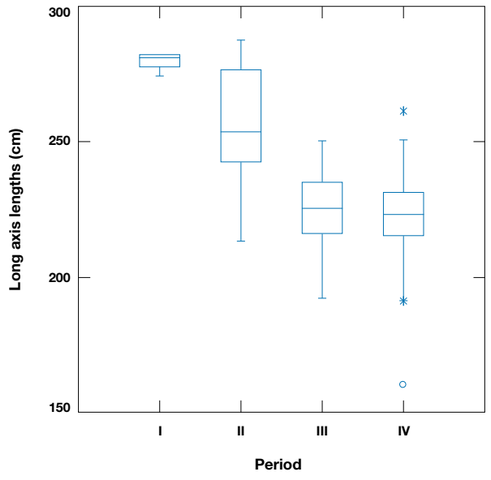


Fig. 11. Boxplots of long axis and short axis length by period (Top: boxplot of short axis lengths; Bottom: boxplot of long axis lengths)

Change in the Size of the Lime Mortar Structure

The way in which the values of the continuous attributes changed over time will now be examined according to the four-phase chronological framework established above based on nominal attributes. A boxplot was used to compare per period the values of each of the continuous attributes outlined above. Based on the results of the analysis, the lengths of the long and short axes, burial pit depth, lime mortar structure height, covering mortar thickness, and the volume of the entire lime mortar structure were identified as key attributes illustrating clear diachronic change.

The lengths of the long and short axes are generally believed to be proportionate to the size of the body of the interred individual, but an examination of these attributes over time illustrates that the floor space of the lime mortar structure gradually decreased (Fig. 11). This is particularly evident for the length of the long axis. As can be seen in the boxplot, the values for Phases III and IV are lower than those for Phases I and II, but it is also interesting to note that the two later phases share a common mean value. Phase IV extends across the greatest time span, but the variation in long axis length values decreased from Phase III and the distribution of the values remained stable.

In the case of the length of the short axis, it is difficult to establish clear distinctions between the phases, but an overall trend of a reduction in short axis length can be observed over time. The outliers of Phase IV are of interest, but it should be noted that they are not true outliers, but rather the result of double interment burials being included in the analysis. In addition, the increased number of outliers in Phase IV—in addition to being the result of an increase in double interments during this phase—may

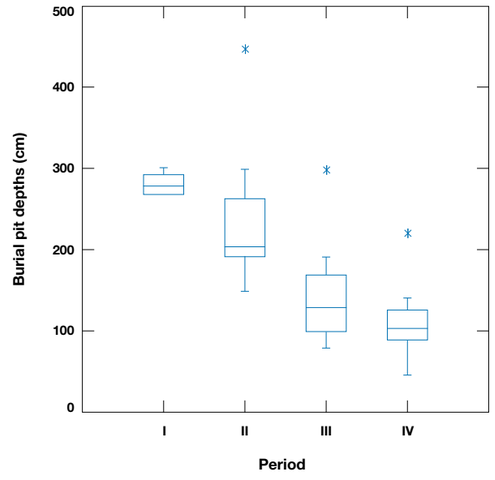
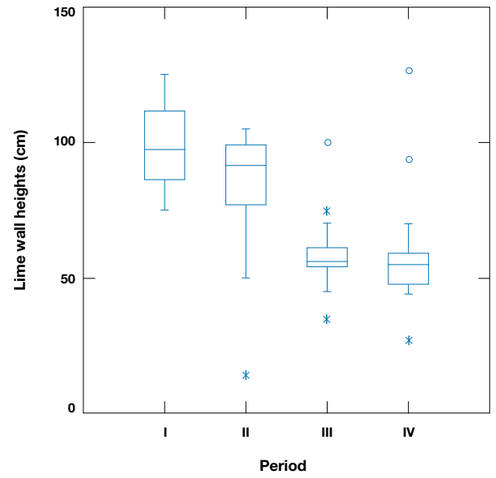


Fig. 12. Boxplot of burial pit depth by period



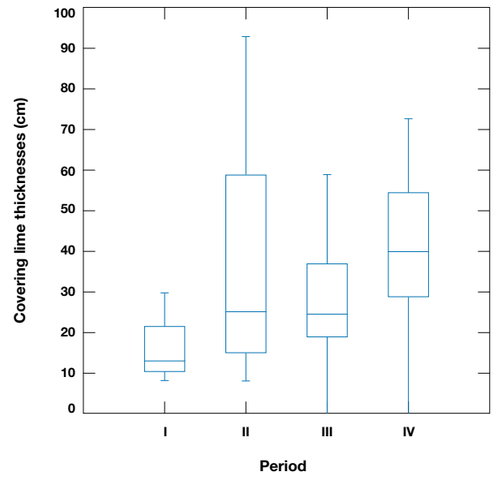


Fig. 13. Boxplots of lime wall height and covering lime thickness by period (Top: boxplot of lime wall heights; Bottom: boxplot of covering lime thicknesses)

also reflect the large number of burials that comprise the data set for Phase IV relative to the other phases. Even taking these outliers into consideration, it can be stated that the distribution and mean values for Phase III and IV remained constant overall.

A stable distribution can also be observed for burial pit depth during Phases III and IV, with variation decreasing as shallower burial pits came to be preferred over time (Fig. 12). Indeed, although the fact that the greatest number of burials pertain to Phase IV increases the likelihood of greater variation, the degree of variation in Phase IV, which has a mean value of approximately 100 cm, remains broadly similar to that of the preceding phase.

Following the above examination of diachronic change in burial pit dimensions, changes in the attributes associated with the dimensions of the lime mortar structure will now be considered, such as the height of the lime mortar walls and the thickness of the lime mortar cover and wall. Among these attributes, it is the height of the lime mortar walls that demonstrates a pattern of change similar to that examined above (Fig. 13). This height decreases throughout Phases I and II, after which it stabilizes and is maintained through Phases III and IV. The thickness of the lime mortar cover, on the other hand, demonstrates great variation, but it is possible to note that it does gradually increase over time. Based on this, it can be confirmed that whereas the overall size of the lime mortar structure decreased with time, the thickness of the mortar used to cover the burial compartment increased to a certain extent.

A significant proportion of the lime mortar mixture used appears to have been applied to covering the burial compartment. As such, even though the size of the burial compartment and the lime mortar structure may have decreased over time, this trend may not necessarily be reflected in the volume of lime mortar used. Therefore, diachronic change in the volume of the lime mortar mixture used was also examined (Fig. 14). It can be observed that there was in fact a decrease in the volume of lime mortar used in Phases I and II compared to in Phases III and IV. Given the increase in variation that can be observed in the boxplots of Phases II and III, it appears that the decrease in the volume of lime mortar may have occurred gradually rather than abruptly. As it is difficult to establish whether the decrease in the volume of the lime mortar was a gradual or sudden phenomenon, not only the volume of the lime mortar (in the form of numerical data) but also the changing nature of other continuous attributes associated with the size of the lime mortar structure must be considered.

As examined above, the values for some of the continuous attributes decreased gradually over time. However, in the case of the length of the long axis and the height of the lime mortar walls, which are attributes that have a relatively greater influence on the volume of the lime mortar, a marked change can be observed between Phases II and III. An examination of the boxplots of lime mortar volume also reveals a significant change between Phases II and III relative to other phases.

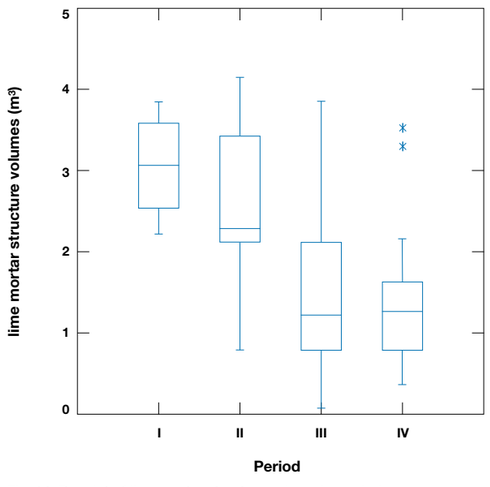


Fig. 14. Boxplot of lime mortar structure volume by period

Changes in Lime Mortar Burials and Their Meaning

The chronological analysis undertaken above on the lime mortar burials with known dates of death for the interred individual or with dendrochronological dates makes it possible to establish a chronological scheme consisting of four phases. Phase I begins in 1500 and witnesses the use of both a wooden cist structure and packed charcoal. Wooden cist structures continued to be used, but packed charcoal disappeared in Phase II, which begins in 1550 and continues until around 1600. Phase III, which features the co-existence of lime mortar burials with and without a wooden cist structure, begins around 1600 and continues until 1650. The wooden cist structure disappears entirely in Phase IV (1650 to the early twentieth century), and features such as lime mortar used to pave the floor, auxiliary niches, and miniature grave goods are also absent. Therefore, although the construction of lime mortar burials began approximately one century after the establishment of the Joseon dynasty, the fact that this new form of burial that was implemented with the adoption of Neo-Confucianism as the state ideology continued to be used until the end of the dynasty makes it possible to regard it as the representative burial type of the Joseon period.

In addition to the nominal attributes that are used to establish the phases (i.e., attributes associated with the use of packed charcoal, the wooden cist structure, etc.), coffin nails, the use of lime mortar to pave the floor of the burial compartment, miniature grave goods, and the auxiliary niche are also attributes found to be temporally sensitive. However, as these attributes are not present in all of the lime mortar burials constructed prior to Phase III, they can be used only indirectly when establishing a chronology for lime mortar burials. In addition, the possibility also exists that these attributes may be associated with non-temporal factors. Various other aspects, such as region or social or economic status, may have influenced the selective use of lime mortar paving, coffin nails, auxiliary niches, and miniature grave goods. As such, this is an issue that should be further explored.

It can be said that among these changing features in the lime mortar burials, the disappearance of the wooden cist structure from Phase III represents the greatest visible change. It has been suggested in previous studies that the reason for this change was a scarcity of materials across all aspects of life following the Japanese invasions of Korea of 1592–1598. This could have resulted in attempts to reduce the amount of lime used, leading to a change in burials (Kim Woolim 2007, 170-171). However, this possibility has not been tested through detailed analysis of burial structures or of the amount of lime used in the burials.

The approximate volume of lime mortar structures was therefore estimated for this study, using measurements obtained from the various components of the lime mortar burial. In addition, diachronic change in the volume of the lime mortar used was also examined. It was consequently possible to identify that the dimensions of the lime mortar structure did indeed begin to decrease from the seventeenth century in the aftermath of the Japanese invasions. This indicates that a link between the declining size of the lime mortar structure and the shortages following the Japanese invasions indeed seems possible. However, historical records show that the development of lime deposits actually intensified during the late Joseon period (Lee Kweonyeong 2009, 32). In addition, although only few examples have been found, most of the lime kilns identified thus far date to the late Joseon period (Sung Hyongmi 2011, 298; Lee Dongjun 2010, 91). This clearly suggests that although a shortage of lime may have arisen after the war, it was merely a temporary phenomenon that was soon overcome. We must then consider why the size of lime mortar structures did not rise again in Phase IV when this projected shortage of lime would have ceased to be an issue.

It should be remembered that in the early stages of their adoption, the construction of lime mortar burials adhered strictly to the guidelines found in manuals on Neo-Confucian rites, to the extent that even packed charcoal was used. However, as time passed and accumulated experience with constructing this type of burial led to a better understanding of the appropriate size for the lime mortar structure, the construction of lime mortar burials no longer rigorously followed the model set out in the *Family Rituals of Master Zhu*. Thus, the size of the lime mortar structure was first reduced and then maintained at that scale. Of course, the temporary shortage of lime that may have occurred following the Japanese invasions could have accelerated this trend in the reduction of the size of lime mortar structure burials, and in consequence the amount of lime used. However, even after the supply of lime returned to pre-war levels, the size of the lime mortar structure did not increase, but rather appears to have been maintained at an appropriate level.

This is indicated by the change that can be observed in the continuous attributes associated with lime mortar structure size. It is interesting to note that the values associated with these attributes demonstrate considerable variation in Phase II. The fact that the long axis length, short axis length, height, etc. all vary widely in this phase indicates that lime

mortar burials of wide-ranging sizes were being constructed. This can be taken to indicate that some of the guidelines concerning lime mortar burial construction could be adopted flexibly for various reasons, such as ease of construction or economic constraints, resulting in experimentation with different sizes of lime mortar structures and different amounts of lime mortar being included. In addition, although the use of lime mortar to pave the floor, coffin nails, miniature grave goods, and auxiliary niches (which are temporally sensitive nominal attributes) are clearly outlined in the manuals, the fact that these elements were not applied universally in all lime mortar burials demonstrates that construction took place in diverse ways.

The fact that the most significant decrease in size could be observed between Phase II and Phase III, whereas almost no further reduction in size could be observed between Phase III and Phase IV, is also in keeping with the above. Phase IV covers the greatest period of time and includes the largest number of burials, but variation in the values associated with the size of the lime mortar structure actually decreased or remained at a similar level compared to Phase III. The possibility that the size of lime mortar structures may have become standardized in Phase IV following a period of adjustment in Phases II and III should be considered.

The use of a wooden cist structure is another element of lime mortar burial that requires further consideration. Unlike in earlier forms of burials in which they were used to form a space within which the coffin and some of the grave goods could be placed, the wooden cist structure for lime mortar burials functioned as a frame or partition used in the process of establishing the lime mortar structure. This means that a significant amount of wood was used—in fact, more than was required to make the coffin—to create a structure which served merely to assist in the process of constructing the lime mortar structure.

Given this quality of the wooden cist structure, it is possible to suggest that its disappearance may have been directly influenced by socio-economic factors, such as the shortage of goods in the aftermath of the Japanese invasions. In the case of lime, supply would have been a less problematic issue since it could be sourced from various materials, such as calcite or shells. This would have allowed lime production to be expanded with relative ease compared to wood, which required considerable time for the regeneration of woodlands. Any shortage in the lumber supply, therefore, would have been an issue more difficult to resolve than a lack of lime. Of course, this is all speculation and further studies need to be undertaken regarding the social and economic conditions of the time in order to more thoroughly explore the possible reasons why wooden cist structures ceased to be used. This change must also be considered in association with other alterations in the material culture occurring at the time.

Based on the above, two key trends can be observed in the diachronic change in lime mortar burials. The first is the simplification of the overall burial structure, and the other is the reduction in the size of the lime mortar structure. The former was achieved when the use of packed charcoal and the wooden cist structure, which were required in the guidelines for lime mortar burial construction presented in manuals on Neo-Confucian rituals, was omitted. This eventually resulted in a more unassuming burial form consisting of a wooden coffin interred within a simple lime mortar structure. In addition, not only did packed charcoal and wooden cist structures vanish, but floors paved with lime mortar, auxiliary niches, miniature grave goods, and coffin nails all gradually disappeared from lime mortar burials. This makes it possible to confirm that, outside the limed wooden structure that provided the space for the coffin and the coffin containing the remains of the deceased, all other elements of lime mortar burials stipulated in ritual manuals were eliminated as this form of burial simplified.

A reduction in the size of the features of lime mortar burials can be seen to have occurred alongside the simplification of this burial type. The various measurements of the lime mortar burial features decreased over time, but this was accompanied by an increase in the thickness of the mortar used to cover and seal off the burial compartment after the placement of the coffin. However, even the increased thickness of the coating of lime mortar was insufficient to compensate for the overall reduction in burial structure size, and therefore a reduction in the volume of lime used in the burials can also be observed.

Conclusion

The lime mortar burial type which newly emerged in the Joseon period was a form of burial that conformed with the ideals of Neo-Confucian ritual and can therefore be seen to be closely interlinked with the socio-economic landscape of the Joseon dynasty. Lime mortar burials can be regarded as a valuable source of data for utilization in the archaeological study of the Joseon period. This present effort was undertaken with the aim of establishing a chronology of lime mortar burials for further use as a basis for improvement of the archaeological understanding of this era. The results of the study also allow structural simplification and size reduction to be identified as key characteristics of diachronic change in this burial type.

In order to obtain absolute dates upon which this chronological framework could be established, lime mortar burials with dendrochronological dates were also utilized. These dendrochronological dates provide a useful contribution to the understanding of diachronic change, but the limited nature of the data assemblage (71 samples) constrains their utility. In addition, the use of dendrochronological dates to establish a chronology of lime mortar burials also represents an experiment of sorts in exploring the potential of this data assemblage. It was confirmed that the dendrochronological dates fit the overall chronological framework, but no further detailed consideration of the reliability of this data set took place. Given the importance of dendrochronological dates in establishing the chronology of material culture from historic periods, future efforts to calibrate dendrochronological dates must be pursued.

The quality of the lime mortar, which comprised the single most important element of this burial type, was unfortunately not explored in this study of diachronic change. The presence of shells at the lime kiln at the site of Dangha-ri in Paju demonstrates that a variety of raw materials were used in lime production (Gyeonggi Institute of Cultural Properties 2006, 159-160). In addition, XRD analyses undertaken on lime from kilns in the Chungcheong region have revealed variations in the purity of the lime (Cho Namchul and Han Minsu 2008, 171-172). The results of these recent investigations and analyses illustrate that different grades of lime mortar, according to its purity or the raw materials used, may have existed during the Joseon period.

A basic research framework for lime mortar burials of the Joseon period, which have only garnered limited interest up to the present, was thus presented in this study on the chronology and diachronic change of this burial type. This chronological framework has already been utilized by the author to explore the social identity of those interred via lime mortar burials and the process through which it spread among the general populace (Kim Hyunwoo 2016). The socio-economic identity of those buried in lime mortar burials and simple earth cut burials during the Joseon period has also been explored based on information regarding their diets, which was obtained from stable isotope analysis of human bones from these burials (Shin Jiyoung et al. 2015). It is hoped that the various studies currently being undertaken on lime mortar burials will contribute to new understandings in the archaeology of the Joseon period.

Translated by Ko Ilhong

This paper is an abridged and revised English version of "A Study on the Chronology of Lime-Mortar Burials of the Joseon Dynasty" (조선시대 회곽묘의 편년과 변천 양상), previously published in 2012 in *Journal of the Korean Archaeological Society* (한국고고학보) 85.

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Tradition and Originality in Buddhist Incense Burners of the Goryeo Dynasty

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Introduction

The incense burners of the Goryeo dynasty (高麗, 918–1392) are considered highly significant as a bridge between the incense burners of the preceding Unified Silla (統一新羅, 676–935) period and those of the subsequent Joseon dynasty (朝鮮, 1392–1910). This is because they succeeded the forms of Unified Silla incense burners and then provided a defining influence on those of Joseon. When approached as such a bridge, two inherent characteristics of Goryeo incense burners stand out: their traditionality and originality. In discussing the traditionality of Goryeo Buddhist incense burners, focus can be placed on their succession and development of forms from Unified Silla; in discussing their originality attention should be turned to the types that first emerged during Goryeo and the decorative techniques applied.

The argument that Goryeo incense burners must have developed out of an inherent tradition has been based on the type of open-mouthed incense burners known as *hyangwan* (香垸, incense burner in the shape of a pedestal bowl). The origins of this form have been sought in the earthenware incense burners from times preceding the Unified Silla period (Hwang Suyeong 1963; Kim Wonyong 1983). The discussion on the traditions inherent within the range of Goryeo incense burners has so far been limited to *hyangwan* due to a dearth of examples of Unified Silla incense burners to use in comparison. However, thanks to newly discovered materials and research results, the question of the traditions within Goryeo incense burners can now be examined from the novel perspective of the Unified Silla period itself (Choi Eungchon 2008).

Traces of Unified Silla traditions observable in Goryeo incense burners can be examined in two regards: succession of forms and the change and development of forms. Succession of forms means that common shapes for Buddhist incense burners applied during Unified Silla continued to be produced and used in Goryeo, while the change and development of forms describes the evolution of the shapes of incense burners used in Unified Silla as they emerged as innovative forms unique to Goryeo. The type of Goryeo incense burner that best represents succession of forms is the type of incense burner with a handle and lion weight, known as *sajajin-byeong-hyangno* (獅子鎭柄香爐), while change of form is manifested in *hyangwan*, the representative type of incense burner without a handle known as *geo-hyangno* (居香爐) used during the period.

First, this paper examines the elements of the Unified Silla tradition that can be identified in incense burners with a handle and lion weight and explores how long that tradition endured. It then turns to the development of *hyangwan*, the major incense burner form of Goryeo, to ascertain how its eventual shape was achieved.

The originality of Goryeo Buddhist incense burners is most evident in the class of hanging incense burners known as *hyeonno* (懸爐) and in the decoration of incense burners using the silver inlay technique. These hanging incense burners are unique to Goryeo and no similar examples have been found in contemporaneous neighboring countries or from the preceding Unified Silla period. It is surmised that they were created for use in a particular Buddhist ceremony. This paper seeks to identify the distinctive features of these hanging incense burners in terms of their shape, function, and the period in which they were manufactured and used.

Silver inlay is a decorative technique known to have been used from the Three Kingdoms period, but no evidence of its application to Buddhist incense