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THE LATE IRON AGE POTTERY FROM

KAMAN-KALEHÖYÜK

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THE LATE IRON AGE POTTERY FROM KAMAN-KALEHÖYÜK

A Master's Thesis

by

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THE LATE IRON AGE POTTERY FROM KAMAN-KALEHÖYÜK

The Graduate School of Economics and Social Sciences

of

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by

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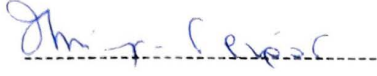
THE DEPARTMENT OF ARCHAEOLOGY

İHSAN DOĞRAMACI BİLKENT UNIVERSITY

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December, 2018

I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts in the Department of Archaeology.



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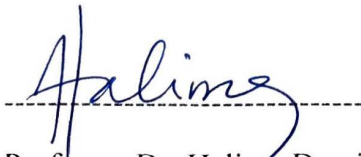
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ABSTRACT

THE LATE IRON AGE POTTERY FROM AKMAN-KALEHÖYÜK

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December 2018

This thesis investigates the pottery of the Late Iron Age Kaman-Kalehöyük which is in Kırşehir province. The aims of the thesis are to understand the pottery of Kaman-Kalehöyük with their raw material and the production technique, and also to determine its place within the Central Anatolia pottery tradition. Late Iron Age is separated into four phases from earliest to the latest: LIA 4, LIA 3; LIA 2 and LIA. 1. Thesis material belongs to LIA 3 and 1, thus LIA 4 and LIA 2 were not studied. Another aim of the thesis to propose a possible date for the LIA 2 phase which is represented by monumental buildings. As in parallel with these purposes, 150 complete vessels from the South Sectors were studied. For the analysis of the material, a form and ware typology were composed on the basis of the form, the fabric, the firing technique and the surface treatment. In this respect, eight ware types that are locally produced under the two firing techniques were observed. Concerning the contexts of the material, the vessels mainly come from pits as related to the ritualistic purposes and from buildings as related to the daily life activities. As an outcome of the comparison of the pottery traditions of the Late Iron Age settlements in Central Anatolia, during the LIA 3phase Kaman-Kalehöyük interacted mostly with Boğazköy and Gordion and in the LIA 1 phase with Alişar and Gordion. In general, in the Late Iron Age of Central Anatolia, it can be proposed the presence of a common pottery culture with small local differences.

Keywords: Central Anatolia, Kaman-Kalehöyük, Late Iron Age, Pottery

ÖZET

KAMAN-KALEHÖYÜK GEÇ DEMİR ÇAĞI SERAMİKLERİ

Akkuzu, Zeynep

Yüksek Lisans, Arkeoloji Bölümü

Tez Danışmanı: Prof. Dr. Dominique Kassab Tezgör

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Bu çalışmada Kırşehir il sınırları içerisinde yer alan Kaman-Kalehöyük Geç Demir Çağı seramikleri incelenmiştir. Çalışmanın amacı, Geç Demir Çağı'nda Kaman-Kalehöyük seramiklerini, kullanılan ham maddenin yapısını ve üretim teknolojisini anlamak; bunlarla ilişkili olarak seramik kapların işlevleri hakkında çıkarımda bulunmak ve bu kapların Orta Anadolu seramik geleneğindeki yerini tespit etmektir. Geç Demir Çağın eskidenen yeniye 4 evreye ayrılır; LIA 4, LIA 3, LIA 2 ve LIA 1. ve tez malzemesi yalnızca LIA 3 ve LIA 1'e ait evrelerden gelir; diğer iki evre LIA 4 ve LIA 2 çalışılmamıştır. Büyük anıtsal yapıların bulunduğu LIA 2 döneminin tarihini anlayabilmek bir diğer amaçtır. Bu amaçlarla 150 tam kap çalışıldı. Malzemenin analizi için kapların formları, kilin yapısı ve katkı maddeleri, pişirme yöntemi ve yüzey işlemleri baz alınarak form ve mal grubu tipolojileri oluşturuldu. Buna göre iki farklı pişirme tekniğinde üretilmiş yedi farklı mal grubunun yerel olarak üretildiği tespit edilmiştir. Kapların konteksleri genel olarak günlük yaşamsal aktivitelerle ilişkili olan binalar ya da törensel fonksiyonun olabileceği çukurlardır. Orta Anadolu'nun Geç Demir Çağı yerleşimleri seramik üretim geleneklerinin karşılaştırması sonucuna göre; Kaman-Kalehöyük'ün LIA 3 döneminde özellikle Boğazköy ve Gordion ile LIA 1 döneminde ise Alishar ve Gordion ile yoğun bir etkileşim içerisinde olduğu anlaşılmıştır. Karşılaştırma sonucunda LIA 3 MÖ 6. yüzyıla tarihlenmiş, LIA 1 4. yüzyıldan başlatılmıştır. Bu durumda LIA 2 5. yüzyıla tarihlenmiştir. Genel olarak Geç Demir Çağı Orta Anadolu'sunda küçük yerel farklılıklar göstermekle beraber ortak bir seramik kültürünün varlığından söz edilebilir.

Keywords: Geç Demir Çağı, Kaman-Kalehöyük, Orta Anadolu, Seramik

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CHAPTER 1

INTRODUCTION

1.1 Aims of the Thesis

Kaman-Kalehöyük (KL) is located 3 km east of the city of Kaman in Kırşehir province, about 100 km southeast of Ankara (Mikami & Omura, 1987a: 227) (Fig. 1). The mound is 16 m in height and 280 m in diameter (Omura, 2011: 1095). After a field survey in 1985, conducted by the Japanese Middle Eastern Culture Centre under the direction of Tsugio Mikami and Sachihiro Omura, the excavation has been ongoing since 1986 (Mikami & Omura, 1987b: 1). The excavation area is divided into different purposes: The North Trenches are aimed at constructing the stratigraphy, the South Trenches are aimed at understanding the settlement pattern, and the City Wall Trenches at uncovering the City Wall (Fig. 2). Four periods have been identified so far, which, from the latest to the earliest, are (Omura, 2011: 1096):

- Stratum I: Ottoman Period
- Stratum II: Iron Age
- Stratum III: Middle and Late Bronze Ages
- Stratum IV: Early Bronze Age

In this thesis, I concentrate on the Late Iron Age (LIA) that consists of eight layers separated into 4 phases as LIA 4, LIA 3, LIA 2, and LIA 1. Except for LIA 2, the architectural remains suggest a small city, somewhat like a village. In the LIA 2 phase, the presence of monumental buildings that cannot be ordinary houses is remarkable. There are no *in situ* findings from here and the exact date of these phases is still not clear.

In the LIA period, ancient sources that are mainly Neo-Assyrian and Greek written records point out several power struggles for Central Anatolia, among which are the Cimmerian invasions (at the end of the 8th century) that destruct the Phrygian and Lydian capitals (mid 7th century), the expansion of Median and Lydian hegemonies, which came into conflict with each other (at the beginning of the 6th century), and the invasion by the Persians (6th century), the group that administrated ancient Anatolia until the conquest of Alexander the Great (Sams, 2011: 615; Summers, 2008: 205). Since it is not possible to see the traces of these events in the archaeological record and site layers of KL, studying the material culture has become essential to establish the chronology.

On the other hand, pottery constitutes the most abundant remains for the configuration of cultural relations. Iron Age (Stratum II) pottery from Kaman-Kalehöyük has already been studied by Matsumura (2005). His doctoral dissertation concentrates on all pottery assemblages from the North Trenches of the site, dated from the beginning to the end of the Iron Age, and includes Stratum III (Middle and Late Bronze Ages) and Stratum I (the Ottoman Period). Matsumura's study provides

a major contribution to understanding the Kaman-Kalehöyük pottery assemblages and reveals the cultural relations of the settlement with the other main sites of Central Anatolia.

The ceramic material of my thesis consists of all the complete vessels coming from rooms, pits and filling soil in the South Sectors; all dated to the different phases of LIA. The first aim of my study is to re-examine the pottery of KL with the help of new data that have not been studied so far and reveal the combination of LIA pottery from the North and South Sectors. The second aim is to re-evaluate the cultural relations of the Central Anatolia at the period of the LIA pottery assemblages. Another aim is to estimate the possible date of the phase LIA 2. The last aim of this study is to provide a reference catalogue for further study of the fragments.

The thesis material is preserved in the Kaman-Kalehöyük Archaeology Museum. I could study the material in the museum but I could not see all of them because of the administrative reasons. For the drawings and the photographs, I used the database of the Japanese Anatolian Archaeology Institute. Some vessels were already drawn and I drew the remainder of them myself. Since the drawings were made by different people they are not consistent, and there are small differences between them. I could not provide the photographs of some vessels, hence a few of them are missing.

1.2 General Outline of the Thesis

Chapters of the thesis are as follows:

Chapter 1 (this chapter) is an introduction to the thesis.

InChapter 2, I will give brief information about the Kaman-Kalehöyük settlement which consists of a history of the archaeological research, including the field survey and the history of the excavation, the excavation system, the method used, the stratigraphy of the site, and the findspots of the ceramics examined in this thesis. Introducing the stratigraphy and the excavation system will help the reader to follow the relative chronology between the deposits that are studied in the thesis.

Chapter 3 is devoted to an explanation of the pottery technology to characterise the ceramics within the typology of the material. The classification of the fabrics is described according to 1) the clay body: its colour, its texture; 2) the inclusions: their appearance, size, and density; 3) the firing technique; and finally 4) to the surface treatment. Then, I will introduce the ware types, forms and decorations. The catalogue of the forms is given in this chapter.

Chapter 4 presents an analysis of forms, and ware types. In this analysis, fabric, surface treatment, firing technique, contexts and phases are analysed and the correlations between them are given.

Chapter 5 is devoted to the typological comparison of the LIA ceramic corpus of KL with the other main sites from Central Anatolia. Since Alişar Höyük, Boğazköy,

Gordion, Çadır Höyük, and Kerkenes have LIA layers, they have been chosen for comparison. In his PhD dissertation, Matsumura (2005) has already compared all these sites –with the exception of Çadır Höyük and Kerkenes- with the Iron Age ceramic assemblage from the North Trenches of KL. The aim for these comparisons is to understand the cultural relations of KL with the neighbouring sites from the east and the west, and to understand the position of the KL assemblage within the LIA Central Anatolia ceramic culture. As a conclusion to this chapter, I will determine whether the LIA pottery of KL is different from the main sites of the Central Anatolia or whether it is homogeneous with the pottery tradition of this geographical area.

Chapter 6 is devoted to discussion related to the pit contexts and the function of some special forms; two-handled pots, kraters, churns and an unguentarium.

The last chapter of the thesis, **Chapter 7**, is the conclusion and gives a brief summary of the thesis with the results of the analysis. Here I will explain the KL pottery repertoire and its contribution to an understanding of the pottery culture of Central Anatolia during the LIA.

CHAPTER 2

KAMAN-KALEHÖYÜK: A BRIEF OVERVIEW

2.1 Location

Kaman-Kalehöyük is located about 1.5 km of the modern village of Çağırkan, 3 km east of the city of Kaman in Kırşehir province, and approximately 100 km southeast of Ankara (Mikami & Omura, 1987: 227). The mound is surrounded by the Baran Moundain Range (1677 masl.) in the south and by a small stream, the Kılıçözü joining the Kızılırmak (Halys river), from the north and northwest (Omura, 2011: 1094). In the south of the mound, there is a route, known as the Göç Yolu (migration route) by local people, which connected Kaman and Kırşehir before the construction of the modern National Highway. Highway 60 is the new route to Kaman and Kırşehir, it passes on the north of the mound (Omura, 2011: 1094). Kaman-Kalehöyük is situated at the 35 km east of the Halys bend. The settlement, located near the main route, is easily accessible from the main sites of Central Anatolia such as Gordion in the west, Porsuk and Kınık Höyük in the south, and Alişar, Kerkenes, Çadır Höyük, and Boğazköy in the east, both in the past and in the present (Fig. 1).

2.2 Geographical Frame

Kırşehir is located in the Kızılırmak bend as a part of the Cappadocia region. The altitude above sea level of Kırşehir is 975 m (Sayhan, 2006: 77). The stream of Kılıçözü which is very near to the KL flows in the middle of the city in the direction of N-S and joins Kızılırmak in the south. Water sources of Kılıçözü are not only rainwater and also fault and carstic water hence its level of water is high during the whole year. The average annual rainfall is 378 mm (Sayhan, 2006: 78). The moundains of Naldöken, Baran and Barane that are located at the north of Kırşehir have the sources of marble, crystallised limestone, quartzite, mica schist, and gneiss (Sayhan, 2006: 79). Briefly, the KL people could easily access to water and the natural sources because of the location of the settlement.

2.3 Archaeological Research History

Matsumura has summaried in his thesis the history of the archaeological research (2005:22-25) and I am following here his summary. The exploration of KL has begun with the first travellers. During the 18th and the 19th centuries, Central Anatolia has been visited by a few travellers. One of them, Chantre, investigated Central Anatolia and Cilicia and mentioned that there is a *höyük* on the right side of the route from Kaman to Kırşehir called “Chihirgan Heuyuk” or “Karaheuyuk” (Matsumura, 2005: 23). In the early year of the establishment of the Turkish Republic, von der Osten who did some research in Central Anatolia reported a *höyük* in the east of the city of Kaman it was likely Kalehöyük (Matsumura, 2005: 23). Alkım, in 1950, made a study on the surface findings from the KL (Matsumura, 2005: 23). At the beginning of the 1960s, Meriggi investigated Central Anatolia once again and mentioned Kaman-Kalehöyük as Kale (Matsumura, 2005: 23). After

Meriggi's research, carried out in 1960, even though a few surveys have been conducted, there is no further research in the Kırşehir province until the Japanese excavations.

In 1985, a Japanese team from the Middle Eastern Culture Centre in Japan (MECCJ) organized a survey under the direction of Tsugio Mikami and Sachihito Omura (Mikami & Omura, 1987: 227). After the topographical mapping of the site, findings from the surface were systematically collected and analyzed (Mikami & Omura, 1987: 228). Since 1986, the site has been excavated by the Japanese team.

2.4 Kaman-Kalehöyük Excavation System

The site has been divided into 5x5 m squares at the beginning. These squares are called as grids coordinate counting takes place at 5-meter intervals to the south and to the east; it first gives the value of the coordinate from north to south in Roman numerals and from east to west coordinate in Arabic numerals. Therefore, the grid LXII-54 is the intersection of the north-south coordinates LXII with the east-west coordinate 54. Four grids make a sector which is named with the Roman numeric system. Sectors are 10x10 m in size. From 1986 to 2012, the grids were the smallest excavation area after that each sector is excavated as a unit. Between sectors, there is 1-meter which corresponds to the baulk of each of them and left (0, 5 m of each). Therefore, if the 1meter baulk between the sectors XXVIII and XXX is excavated, it is called as XXVIII-XXX baulk.

The smallest excavation unit is provisional layer(PL). A provisional layer corresponds to a unit in some other excavations and is an individual soil deposit that shows a difference from the other units. It can be related to the nature of the soil and its colour, any architectural remains (room, pit, hearth, or any other architecture), or it can be any limited area within a sector such as the general levelling of the whole sector except for the pits and the rooms. The provisional layers have been recorded in the excavation diaries and on the PL sheet in a very detailed way. The sketch of each provisional layer has been drawn and its height and thickness are recorded. The nature of the soil (hard or soft and wet or dry), its colour (gray, brown, white, brownish gray, or yellowish brown), and its content (pottery sherds, bone, stone, ash, and mudbrick) with a rough amount of the finds (few, medium, or high) are recorded. The "Provisional layers" are counted per grid (until 2012, after that for per sector) with Arabic numerals from top to bottom.

2.5 Stratigraphy

In Kaman-Kalehöyük, four main strata have been identified so far that can be further subdivided into layers and each layer can be further divided into occupational phases.

From the latest to the earliest in the sequence of the excavations:

Stratum I is dated between the fifteenth to the seventeenth centuries AD and has two layers (Omura: 2011: 1097):

- Stratum Ia 1, Ia 2, Ia 3: Ottoman Period
- Stratum Ib 4-Ib 5: Byzantine Period.

Stratum II is dated between the twelfth and the fourth centuries BC (Omori and Nakamura, 2006) and has four layers (Omura, 2011: 1099):

- Stratum IIa 1-IIa 2: Hellenistic Period (Alexander the Great, contemporaneous to Galatian, and after)
- Stratum IIa 3, IIa 4, IIa 5: Late Iron Age (contemporaneous to Lydian and Achaemenid)
- Stratum IIa 6, IIa 7, IIa 8, IIc 1¹: Middle Iron Age (Phrygian rule)
- Stratum IIc 2-IIc 3: Middle Iron Age (Alişar IV culture)
- Stratum IId 1, IId 2, IId 3: Early Iron Age (Dark Age).

Stratum III is dated between the twentieth to the twelfth centuries BC corresponding to Middle and Late Bronze Ages and has three layers (Omura, 2011: 1102):

- Stratum IIIa: Hittite Empire Period (Late Bronze Age)
- Stratum IIIb: Old Hittite Period (Middle Bronze Age)
- Stratum IIIc: Assyrian Colony Period (Middle Bronze Age)

Stratum IV is dated from the twenty-third to the twentieth century BC and has two layers (Omura, 2011: 1108):

- Stratum IVa 1-IV 4: Intermediate Period
- Stratum IVb 5-IV 6: Early Bronze Age.

In this study, I will only focus on the Late Iron Age Period corresponding to the stratum IIa.

¹IIb period in KL was identified in the North Sectors and separated from the earlier and later period according to the architecture. However, in the South Sectors, it could not be identified, due to the lack of a difference in the architecture. It corresponds to the earliest layer of MIA (IIc-1),

2.6 Stratigraphy and Architecture of the LIA in the South Sectors

The material in this study came from the excavations in the South Sectors (Fig. 2, 3). There are 8 layers only in the South Sector in the LIA period of KL. Not all layers exist in each grid and upper layers of each grid were destroyed by the layers of later period under different conditions. As a result, it is difficult to trace each layer from grid to grid on the section and to find out the stratigraphic relationship among layers. Therefore, in this research I try to classify the layer according to the following criteria:

- the direct relationship,
- the type of buildings,
- the orientation of buildings.

However, such criteria are not always decisive to understand the relative chronology.

There are also limitations of data. Because of the heavy destructions, most of the architectural remains are found fragmentally and it is difficult to interpret the character of architectures. Moreover, the layers from 8 to 4 were identified in very limited areas.

Layer 8: This is the earliest layer of this period. This layer is represented with only one-roomed building R232 (Fig. 4). The building has a north-south orientation and its size is 10x15 m. It covers the sectors XXVIII, XXX, I and III. The north part of

R232 is destroyed by the later layers and the south part of R232 has not been uncovered completely since excavation still continues in the area.

Layer 7: The layer is represented with only R229 which covers a part of the sectors XXVIII and XXX (Fig. 5). The structure has a west-east orientation. It has been uncovered almost completely and its size is ca. 7x9 m. The west wall of it had been destroyed by the later period. Postholes and circular shaped hearths surrounded with potsherds have been identified on the floor.

Layer 6: The layer is represented with a building which is composed of at least two rooms (R223 and R224) (Fig. 6). It covers the sectors XXVIII and XXX. The buildings show a west-east orientation. The preserved size is 5x8 m (R224) and 2x8 m (R223). A stone pavement, a hard floor and a rectangular shaped hearth made of clay were identified in R224. The trefoil-mouthed jug (92) has been found in the R224.

Layer 5: This layer is represented by both one-roomed house, R41, (preserved length around 3x3 m) in sector XXII and a multi-roomed house, R37, R38, and R39, (preserved length around 7x4 m) in sector XI (Fig. 7). Only a part of the buildings was identified. Quadrangle shaped hearths that are adjoining or next to a wall of room and surrounded with stones were identified on the floor. From the floor of R8, 12 *in situ* complete vessels were found (3,4, 36, 51, 55, 65, 82, 83, 108, 138, and 140).

Layer 4: There are typically one-roomed buildings with small -R7- (ca. 5x5 m) and large -R212- (ca. 8x10 m) in size (Fig. 8). Some buildings have more than one room but it is very fragmental. Small buildings are found in the Sectors XXII-II, LV-XXV, and XXVIII and large ones are located in the Sectors III, IV, V, VI, and VII. In situ complete vessels were found in this layer from R209 (79) and R7 (53, 80, and 130).

Layer 3: This layer is represented with two large buildings R4 and R7. One of them (ca. 25 m long) is situated at LIV, XXVI, XXVII, and XLVI the north part of the South Sectors and the other (ca. 10 m long) is in the Sectors IV, VI, and X (Fig. 9). The building in the northern part of the South Sectors has been heavily destroyed by the later period. It is around 25 m large and lies down in the northeast-southwest direction. Besides these buildings there is also a stone pavement (ca. 20 m long) belonging to this layer and located in the Sectors LVI, LVII, XXXIV, and XXXII.

Layer 2: This layer is represented with three large stone pavements which are not complete (Fig. 10). One (ca. 8x3 m) is situated in the Sectors LIV and XXVI and is orientated the northwest-southeast direction. The other (ca. 5x3 m) is found in the Sector XLI and it has an east-west orientation. The last one (ca. 20x3,5 m) is located in Sectors II, X, and IX and has a northwest-southeast orientation. This stone pavement is cut by two later pits P1 and P84. All these pavements seem to have been parts of a large building structure that was clearly not an ordinary house and possible had an administrative function. The *in situ* vessels from this layer came from R204 (37 and 109) and R206 (88 and 89).

Layer 1: This layer is represented by both Galatian pits and small-sized and one-room houses, R41, R67, R68, R156, R192, R193, R199, R204, R206, situated mainly around the middle of the South Sectors (Fig. 11). Small-sized houses (ca. 4x6 m) with a hearth which caused a bulge on one of the walls of the buildings are typical for this layer. The pits were found after the removing of the remains of Stratum I (Ottoman period) and belong to the latest layer. They contain half or complete human and/or dog skeletons (Matsumura, 2007: 98). This practice is interpreted by Matsumura as a part of Galatian culture (2007: 107). The relation between the Galatian pits and these houses seem to belong the same phase and only one pit cuts a house.

2.7 Periodization of the LIA in the South Sector in Relation with the North Sector of KL

The LIA layers are, in general, intensely destroyed by the later periods' activities. A fortification wall around the city had been used only during the layers IIa3-5 in the North². In the South Sector, on the edge of the mound, the City Wall was uncovered, yet the relation between the layers of the LIA period and the wall could not be understood. The LIA in KL can be divided into four phases (Table 1):

- 1) **LIA 4:** IIa8, IIa7, and IIa6; the typical architecture for these layers is one-roomed and small-sized houses.
- 2) **LIA 3:** IIa4 and IIa5; multi-roomed large architectures and one-room small houses appear in this phase.

²It is identified only in the North, working on the LIA layers in the South Sectors still continues. Personal communication with Assoc. Prof. Kimiyoshi Matsumura (2.12.18).

- 3) **LIA 2:**Ila3and Ila2; in this layer the typical character is a large architecture of paved stones. The same type of architectureis recognized in the North Sector Ila3-5 period. A megaron-shaped building in the North (Fig. 12)(Matsumura, 2005: 58) and a longer building in the South are the indication of a different building pattern from previous and the following layers. The function of these buildingsis not clear but it is thought as an administrative building because of its monumental size and completely different plan (Omura, 2011: 1100).
- 4) **LIA 1:**Ila1: there are only small-sized structures (ca. 4x6 m) and pits that cut into the architectures of Ila2 and Ila3.

2.8 Dating of the LIA Layers

Relative Dating: There are some artefacts,all of them correspond to our layers from the earlier to the later, that enable us to understand cultural relations and their dates. The first artefact group is arrowheads almost all of them were found in the layers of Ila *in situ* and in filling soils of the layers of Stratum I (Omura, 1987: 19, Fig. 15; Omura, 1988: 363, Fig. 6). There are various types of arrowheads dating to different periods:

- 1) Scythian type arrowheads (Fig. 13) dated from the first half of the 7th century to the 6th century: willow leaf shaped (Yukishima, 1992: 91, 92; Fig. 1:1-17)³.
- 2) Lydian type arrowhead (Fig. 14) dated to the first half of the 6th century (Yukishima, 1992: 93, 94 Fig. 2: 1-5). There is one more example for this

³Yukishima suggests that this type of arrowhead is brought to Anatolia by Cimmerians not from Scythians (1992: 91, 92).

type from the The South Sectors: oval and two winged arrowheads (Omura, 2008: 31, Fig. 56. 3).

- 3) Achaemenid type arrowhead (Fig. 15) dated to the 5th and 4th centuries: diamond-shaped three winged arrowheads (Yukishima, 1992: 93, 94 Fig. 2: 9-10).

The other artefact is a button shaped bone ornament (Fig. 16) on which the typical Scythian bird motive is depicted and a bird head shaped equipment (Fig. 17) made of bone. They are comparable with an ornament from Sardis and regarded as related to the Scythians (Takahama, 1999: 175).

Another artefact is an Achaemenid type stamp seal (Fig. 18) which must have been produced in Anatolia (Omura, 1994: 24). The seal was found during the cleaning. It is dated from the end of 6th century to the beginning of the 5th century (Omura, 1994: 24).

Besides them, there are two coins that have the depiction of the portrait of Alexander the Great. These coins are similar to the coin found in Sardis and dated to after the death of Alexander the Great and the early Hellenistic Period (336- 323 BC) (Fig. 19) (Oettel, 2000: 137, 144, Cat. no.:2). Another coin which has a Macedonian shield depiction (not attributed to a Macedonian ruler) is dated between 311 and 229 BC (Fig. 20) (Oettel, 2000: 137, 144, Cat. no.:3).

These findings indicate that all the layers of LIA of KL have various cultures like Lydian, Achaemenid, and Hellenistic, and begin around 7th century and end in the end of the 4th century.

Absolute Dating: The absolute chronology of Kaman based on the C14 dating is established in two articles (Omori & Nakamura, 2006; Hirao, 1995). The results of the analysis indicate that the LIA in KL is dated to the end of 8th/ the beginning of the 7th century and the end of the 4th century BC, but the transition dates from one period to another are not clear (Fig. 21) (Omori & Nakamura, 2006: 267).

2.9 Pottery Analysis

The pottery analysis is made according to the results of the stratigraphical analysis.

There are some peculiarities for the material in this study:

1) The complete vessels of KL studied in this thesis mainly come from pits, buildings, and filling soil. In total, 75% of them have been found in the pits, 13% have been found from the filling soil, and 11% come from the buildings (Fig. 22). The chronology and contexts show that pits are the main context for complete vessels in each layer. The most of the vessels come from the pits and the layer to which these pits belong is difficult to understand. The best and only one solution for dating is that these pits are divided into 3 groups; 1) pits older than the large layer LIA3 (yellow), 2) pits later than the large layer LIA 1(blue), and 3) stratigraphically indefinite pits (red) (Fig. 23). There appear large architectures in Phase 2 of IIA2 and IIA3 layers. Those large architectures are not regarded as a common house. Most of the pottery

(42%) comes from the layers later than this large building LIA 3 and some of them (30%) are found from the layers older than the large building LIA 1 (Fig. 24). There is no pottery which is found *in situ* from this large building.

2) The oldest phase 1 of layers 6, 7, and 8 is excavated in very small area, for that reason the pottery material that belongs to this phase is very limited and there are no complete vessels belonging to these layers. For that reason, the material from this phase is excluded for the statistical analysis.

3) Pottery from pits which stratigraphical position is unknown is excluded for the statistical analysis. However, they are used for comparative studies.

4) There is a group of pottery whose stratigraphical position is also difficult to understand (27%) because, as mentioned above, the stratigraphical relation between these pits and buildings could not be clarified. They are excluded for the statistical analysis, but they are used for comparative studies.

2.10 Contextual Distribution of the Material

In general, the main context for complete vessels is pits. However, for LIA 3, the rate of buildings as a context for vessels is remarkably high. Since the exact layers of all buildings could be identified, within the indefinite group there are not *in situ* vessels. The vessels in the indefinite group come from pits and filling soil (Fig. 25, Table 2). A detailed information about the contexts of the material is provided (Table 3).

CHAPTER 3

PRODUCTION TECHNIQUE AND TYPOLOGY

3.1 Production Technique

3.1.1 Ware

For the differentiation of the fabric groups, I used the term **ware** which includes the combinations of all the criteria described below as common features. Rice defines the ware as “a ceramic material in the raw or fired state (green ware, earthenware, stoneware etc.); a class of pottery whose members shares similar firing technology, composition, and surface treatment, or some combination of these”(2015: 464).

By understanding the manufacturing technique of the ceramic researchers can identify the regional characteristics of one particular ceramic group, construct a relative chronology, and understand cultural relations based on the ceramic comparisons (Matsumura, 2001: 101). As the ethnographical studies suggest, potters can adopt the decorative motives and forms easily, while they can be more conservative in the adaptation of the manufacturing technology such as wheel or kiln

(Rice, 2015: 448). Therefore, preference of the pottery manufacturing technology can, sometimes, be related to a continuity or a discontinuity of the culture or an intensive influence of another culture.

Criteria for the identification of Ware: According to the following criteria the ware typology was made: 1) Fabric, 2) Inclusions including density and size, 3) Colour, 4) Firing atmosphere, 5) Surface treatment.

3.1.2 Fabric

The term fabric refers to the clay body and temper from which the pottery is made, and is related to the technology of the production of the pottery (Orton & Hughes, 2013: 151). For this reason, the fabric is related to both the geological features of the raw material and the conscious awareness and the choices of the potters. All these elements make a fabric unique (Whitebread, 2017: 200). From the point of view, the ceramic researchers, a fabric is like a “comprehensive written record” based on “the analyst’s observation” and turns the complex visual and physical characteristics into a compact small unity (Whitebread, 2017: 202).

To look at the fabric plays a key role in the ceramic analysis since it provides several significant clues to understand the material the way that a pottery is made. It gives “the temporal perspective” to the pottery researches so that we can comprehend the chronological changes or the long-term traditions in the technology of the pottery production and it also gives “the spatial perspective” for the comparisons with the

neighbour sites' pottery (Knappett & Kilikoglou, 2007: 241). To analyse the fabric also gives about information about the origin of the clay and the temper that helps us to identify the local or the import vessels within our corpus.

For analysing the fabric of the thesis material, I have only applied the visual examination, but there are some scientific analysis such as XRD, SEM-EDS, XPS and CHN elemental analysis that are made on several kinds of ware types of the LIA (Matsunaga & Nakai, 2000; Shiriashi & Nakai, 2006; Kumazaki & Nakai, 2007). The surface colours of the pottery, the inclusions, the clay quality (size of the inclusions), the surface treatment, and the firing technique were analysed in order to distinguish fabric clusters. According to the appearance, I named the fabric groups according to their colour like Buff Ware or the surface treatment like Black Polished Ware.

3.1.3 Inclusion

Inclusions are in/organic material within the clay added by potters for different purposes or may belong to the clay body. The potters add combinations of different type of inclusions to the clay, aiming to decrease the plasticity of the clay and to increase the durability of the vessel during its usage, to inhibit the deformation during drying, to strengthen the resistance to the fire on the vessels (Rice, 2015: 79; Quinn, 2013: 156). One important problem with the presence of the inclusions within pottery clay is to decide whether a specific inclusion is one of the components of the clay or if it is added to the clay deliberately. The term of *temper* is used for inclusions by the ceramic analysts to emphasize the deliberate addition of the potters

(Orton & Hughes, 2013: 75). There are three aims for looking at the inclusions of a fabric: the first is to characterize of temper and its origin and the second aim is to understand the input of the temper to the texture of a fabric and last aim is to characterise the fabric with its density and size and categorise them. The kinds of temper, and their density and size can be related to the function of vessels.

To identify the inclusions in the clay body of my material, I used a visual examination. The main inclusions of the Kaman-Kalehöyük LIA pottery assemblages are **grit (G),lime (L),mica (M), chaff (C), mica+lime (ML), and mica+chaff (MC)**. Grit is a predominant inclusion for ceramics. In my material, all ware types include grits without exception and it is difficult to evaluate whether they are a natural content of clay or intentionally added later. However, I consider them as an inclusion.

Grit: Grit is a general term used for crushes of different mineral grains seen in the paste of a ceramic section. It is sometimes a natural component of the clay or is added later deliberately. The finer grains are thought as natural, while the coarser as the addition (Velde & Druc, 1999: 6). It is composed of different minerals such as silicates, feldspars, and quartz among others, they are seen in different colours such as red, white, or black; sizes from very fine to coarse; and shapes such as rounded, irregular, or angular (Orton & Hughes, 2013: 280-83). Only petrographic analysis or XRF could allow to identifying the inclusions, I used the term of grit referring to the different kinds of minerals, due to the lack of this analysis.

Mica: Mica is natural rocks found prevalently in the range of mountains and in soil (Velde & Druc, 1999: 24) and it is a very common content for ceramic objects. If it is seen on a thin section of the pottery fragments as very tiny, it is a temper added deliberately to the clay. Otherwise, if they are bigger particles, it must belong to the clay body (Velde & Druc, 1999: 23). Mica is preferred as a finishing technique for aesthetic reasons because of its shiny surface (Quinn, 2013: 159): it is the case in my material with two ware types, Plumbeous and Gold Wash Ware, like in KL (see in this chapter p. 29 and 31).

Lime: The lime is a very common inclusion in clay since the limestone is very common in nature as well. Although the colour of the pure lime is white, it can be red, green, or black depending on the mineral within the lime (Ökse, 2012: 20). On the surface and the section of a potsherd, the lime can be identified when it is burst. The reason behind this is that during the firing of the vessel, the lime inclusions widen and burst. It results in a distorted surface (Ökse, 2012: 20).

After the identification of the inclusions, I described the size of the inclusions as **fine, medium, and coarse**, (Table 4) and their density as **few, medium, and high** (Fig. 26)⁴ for the differentiation of the fabric group. The nature, the size and the density of a inclusion changes from one fabric group to another and sometimes one vessel form to another. Such changes are sometimes related to the function of the vessels.

⁴In the figure 3, the ratio of the size and the density is given as percentage (5%, 10%, 15%, and 20%), but in my description, I give as quantity from few to high.

3.1.4 Colour

For the description of one pottery assemblage, looking at the colour of the fired clay body is a prevalent analysis method, since the colour can be easily classified with the visual differentiation (Rice, 2015: 276). Colour is one of the significant attribute to identify ware groups. It gives clues about the raw material of the ceramics and the firing technology. The classification of the different colour has been standardized with the introduction of the *Munsell Soil Colour Chart* adapted from the Geological Society of America (Orton & Hughes, 2013: 157). It includes the hues of the main colour of the earth and the values of the hues.

In this study *Munsell Chart* was used as a reference for the classification and description of the colour of my material. First, I classify the vessels that have the similar surface colour into a group by the visual examination, such as buff ware, red ware. Then, I identify the main colours and hues of each of them for each ware type. I specify these colour values in the definition of the fabric groups.

3.1.5 Firing Technique

The firing transforms the clay into a ceramic (Orton & Hughes, 2013: 134). The clay body is changed into a more durable and hard product by losing its water, hence its plasticity (Sinopoli, 1991: 28). Three aspects of firing determine the appearance and the structure of the ceramic: 1) the firing time, 2) the temperature, and 3) the firing atmosphere (Sinopoli, 1991: 28). The firing time is the lapse of time from the movement that the vessel becomes heated then is exposed to maximum temperature

until the end of the cooling process. The temperature of the firing determines the hardness of the ceramic.

The firing atmosphere depends on the air circulation, especially the oxygen circulation, in the firing chamber. Under the *oxidation atmosphere* the oxygen can circulate during the firing. Under the *reduction atmosphere* little oxygen is present. Firing atmosphere can be controlled by potters by allowing or blocking the flow of oxygen from the openings of the kiln (Sinopoli, 1991: 30; Rice, 2015: 176-77).

Through the examination of the hardness and colour, it is possible to assume the firing temperature. If the pottery is harder, its firing temperature is higher. According to the colours of the surface and core, the firing atmosphere of the pottery can be estimated. I have attributed these vessels to different ware groups because of their distinct appearance and firing technology.

3.1.6 Kiln

There are different techniques of firing contexts such as hearth firing, pit firing, and kiln that affect the characteristics and the quality of production. A kiln is the main technology for firing for the ceramics of LIA in Central Anatolia.

The most sophisticated firing facility is the kiln. Kilns are characterized by separate chambers for fuel and vessels, with flues for heat transport connecting to each other.

The duration of firing is longer than the open air firings, the control of temperature and atmosphere is easier hence the quality of pottery is much higher (Velde & Druc, 1999: 109). The simplest kilns are known as updraft kilns. These are two-level kilns, with the chamber holding vessels located directly above the firing chamber. The heat from the firing chamber rises through holes to reach the chamber containing the vessels (Sinopoli, 1991: 130).

During the excavation at Gordion, an updraft type of kiln was found from the layers of YHSS 5 (Middle Phrygian, 700-550 BCE) of Küçük Höyük (Henrickson, 2005: 125). This kiln must have made possible to increase the temperature over the 800°C in this kiln (Henrickson, 1993: 112). It can provide some clues about the pottery production technique in Central Anatolia in LIA. The kiln in Gordion is the only example for this period of Central Anatolia.

In KL, no kiln has been identified, but in one of the pits of the North Trenches, a few vessels were deformed due to the over-firing. Since such vessels should not be imported, the presence of these findings promises as a local production (Matsumura, 2005: 129).

3.1.7 Surface Treatment

A surface treatment is a process practised by the potters before the firing vessels, in order to diminish the evaporation of the water and shaping a more regular surface

(Orton & Hughes, 2013: 134). Surface treatment is classified into the types that are recognized by this study.

- 1) *Wet smoothing* is the smoothing of the surface of the vessel with the wet hand or sometimes soft tools like a cloth piece can be used (Rice, 2015: 149) before it becomes completely dry. The traces of the wet smoothing on the vessel are identified by shallow, thin, and parallel lines sometimes associated with the potter's fingerprint.
- 2) *Polishing* refers to a shiny surface. It is practised on a dry surface with a soft material such as cloth or animal skin before the firing. It gives a lustrous surface without any processing traces to the vessel.
- 3) *Burnishing* produces a lustrous surface. In this practice, the potter rubs the vessel with the help of a hard tool such as pebble, wooden, or bone, before the pot is completely dry. The traces of the burnishing can be detected by the narrow, parallel shiny lines on the surface. If it is not made attentively matt and shiny linear areas can be seen on the surface (Rice, 2015: 149).

Both polishing and burnishing provide a lustrous surface. However, on the polished vessels, the surface is completely shiny without any matt area, while on the surface of the burnished vessel, the traces of the burnishing can be identified by the traces of shiny and matt lines.

3.2 Typology

3.2.1 Ware Typology

First of all, according to the firing atmosphere, pottery is classified into reduced and oxidised. In total there are seven ware groups and three of them are fired under the reduced atmosphere: Gray Ware (GW), Black Polished Ware (BPW), and Plumbeous Ware (PW). Five are fired under the oxidised atmosphere: Red Ware (RW), Brown Ware (BrW), Buff Ware (BW), and Gold Wash Ware (GWW) (Fig. 6).⁵ Vessels made of GW, BPW, GWW and PW are specified with small signs because they are needed to a special production process (Table 5) and also a detail information including colour, ware type, surface treatment, inclusions and size of each vessel are provided with the abbreviations used in this table (Table 6, 7).

3.2.1.1 Ware Fired under the Reduced Atmosphere

3.2.1.1.1 Gray Ware (GW)

Gray ware is defined a gray colour of the pottery.

The surface colour of the gray ware are as follows: Light gray: 10YR6/0, 7.5YR6/2, 5YR7/1; Reddish gray: 5YR 6/2; Gray: 10YR4/1, 7.5YR7/1, 7.5YR5/1-5/2, 7.5YR4/1, 5YR5/1, 2.5Y 6/1, 2.5Y5/1, 5Y5/1, N4/0, N5/0; Dark gray: 5Y3/1, 2.5Y4/1, N3/0; Dark reddish gray: 10YR3/1, 7.5YR4/2.

The core colour of this type of ware ranges from gray to red and reddish brown.

⁵For the name of the ware groups, I have followed the names given by Matsumura (2005) in order to prevent confusion.

3.2.1.1.2 Black Polished Ware (BPW)

This ware is defined with a completely black colour and highly lustrous surface.

Pottery sherds from KL made of BPW has studied by Shiraishi and Nakai (2006) using SEM-EDS, X-ray powder diffraction and Raman microspectroscopy analyses. The results indicate that 1) there are two types of BPW: one is slipped on the surface, the other is not, 2) these two types of BPW can be identified with the help of analysis not with naked eyes, 3) in both types the origin of black colour is carbon added as temper 4) the amount of carbon on surfaces is more than the clays (Shiraishi & Nakai, 2006: 260).

The colour for this ware is Black: N2/0 and 5Y2/1.

3.2.1.1.3 Plumbeous Ware (PW)

The most important character of this ware is a shiny silver surface. There are two types of plumbeous ware: in the first type mica particles can be seen with a naked eye on the surface. However, in the second type mica cannot be seen. Also in the first type, the clay body is brownish gray colour and there is a slightly thicker lustrous layer on the surface, in the second type the clay body is dark gray colour. However, the lustrous layer is thinner (Matsunaga & Nakai, 2000: 207). Because of its gray colour, this ware is regarded to have been produced with the reduction firing technique. The production technique of this ware type is controversial. Matsumura adopts the name of *Plumbate Ware* from Mesoamerica where the pottery has a similar surface (2000:123). Yet, in the Mesoamerican *Plumbate Ware*, the reason of this shiny surface is explained by the high firing temperature. In KL, no other can be identified. In Gordion, this ware type has also been found and there are various

techniques for producing this ware. The first one is the technique that at first a high amount of mica was added to the clay and this mica moves to the surface during the firing. The second one is the application of a mica wash to the surface, and the last one is the use of a micaceous clay as a surface finishing (Matsumura, 2000: 123). An experimental study regarding the production technique of the silver luster on Gray ware was performed by Matsunaga and Nakai. It reveals that 1) the origin of the shiny surface is mica, not metal oxide (2000: 210), 2) the some plumbeous ware in KL was fired at 1000°C, otherwise at 750°C (2000: 210), 3) and the shiny surface is given by the application of a little tiny particles of muscovite (kind of mica) with finger on the surface.

Its colour are similar to the outer surface of GW and as follow: Light gray: 10YR6/0, 7.5YR6/2, 5YR7/1; Reddish gray: 5YR 6/2; Gray: 10YR 4/1, 7.5YR7/1, 7.5YR5/1-5/2, 7.5YR4/1, 5YR5/1, 2.5Y 6/1, 2.5Y5/1, 5Y5/1, N4/0, N5/0; Dark gray: 5Y3/1, 2.5Y4/1, N3/0; Dark reddish gray: 10YR3/1, 7.5YR4/2.

3.2.1.2 Ware Fired under the Oxidation Atmosphere

3.2.1.2.1 Red Ware (RW)

Red ware is defined by the red colour of pottery.

The surface colour of this range between colours as follows: Light Red: 5YR 7/4; Red: 10R 6/6, 5YR 7/6, 5YR6/6, 5YR6/4, 2.5YR5/6, 2.5YR 5/8, 2.5YR6/4, 2.5YR6/6, 2.5YR6/8; Dark Red: 10R5/6, 10R6/4.

Core colour of this type of ware ranges from red and reddish brown to gray.

3.2.1.2.2 Buff Ware (BW)

This ware type is defined with a buff colour of pottery.

The surface and the core colours of this ware range between colour as follows: Matt orange: 7.5YR7/3, 7.5YR6/4, 10YR8/2, 10YR7/3-7/4, 10YR6/4-6/2, 2.5Y7/2, 2.5Y6/3; Orange: 7.5YR7/6. Within this ware, there is no example for light hues.

The colour of the core in some vessels fluctuate reddish to greyish.

3.2.1.2.3 Brown Ware (BrW)

This ware type is defined with a brown colour of pottery.

The surface and the core colours of this ware range between colours as follow: Light Brown: 10R5/4, 5YR5/6; Brown: 7.5YR5/4-5/3, 7.5YR4/6, 5YR5/4, 5YR5/3, 2.5YR5/4, 2.5YR4/4; Dark Brown: 7.5YR2/3.

3.2.1.2.4 Gold Wash Ware (GWW)

The most important character of this ware is a shiny gold surface. The manufacturing technique of Gold Wash Ware is completely similar to Plumbeous Ware, except with the firing technique. PW is fired under a reducing atmosphere, while Gold Wash Ware is fired under an oxidizing atmosphere. Their surface is always red or orange, while their cores are gray or red. There are two types of Gold Wash Ware, in the first type, mica particles can be seen with the naked eye, in the second type mica particles

are not seen with the naked eye (Matsumura, 2000: 124). An experimental study, by Kumazaki and Nakai reveals that the temper of the first type is muscovite (kind of mica) which same with the PW and the temper of the second type GWW is the fri-octahedral mica that is close to a phlogopite (another kind of mica) composition (2007: 188). Both types are fired up to 900°C. Between the PW and GWW, there is nodifference in terms of chemical properties, both include white muscovite. (Kumazaki & Nakai, 2007: 187).

The colour of this ware is same as the colour of RW. Light Red: 5YR 7/4; Red: 10R6/6, 5YR7/6, 5 YR6/6, 5YR6/4, 2.5YR5/6, 2.5YR5/8, 2.5YR6/4, 2.5YR6/6, 2.5YR6/8; Dark Red: 10R5/6, 10R6/4.

3.2.2 Form Typology

The typology is the classification of the vessels based on the form. Its aim is to standardize the descriptions of the similar forms (Rice, 2015: 244). Hence, the grouping of similar vessels provides a synthetic presentation of the shapes and clarity and makes easier to follow their chronological evolution and to compare it with another sites' pottery. The method for the classification is to make groups of the forms by looking at the similar and dissimilar features of the vessels and to specify the variations under each group.

The classification in this study, following features are taken into consideration to make a typology.

1. Open or Closed Shapes: the first I separate forms as open or closed shapes.

Within the open shapes, there are

- **basins** with a carinated and rounded wall(Fig. 27, 28),
- **deep bowls** with a flat or ring base(Fig. 27, 28),
- **a footed cup**(Fig. 27),
- **one-handled deep vessel**(Fig. 29).

2. Closed shapes include different groups according to the presence or absence of a neck and a handle.

- **Pots without a neck**; one-handled(cooking pots) (Fig. 30, 31, 32, 33), two-handled pot (Fig. 34, 35), pot with two horizontal handles (Fig. 36)or pot without a handle (storage vessels) (Fig. 37, 38).
- **Pots with a narrow neck**; one handled (Fig. 39, 40), and with a globular body specified with an intentional hole on the upper body (churn) (Fig.41, 42), **trefoil-mouthed jugs** (Fig. 43,44, 45, 46), **spouted pitcher** (Fig. 47), pots with two handles (amphora) (Fig. 48, 49), pots with tall body (churn) (Fig. 50, 51), pots without handle (Fig. 52, 53).
- **Pots a wide neck** includes **kraters**(Fig. 54, 55), and a large and deep vessel (Fig. 56).
- **Unknown pots** (completely broken rim and neck) (Fig. 57).
- **A pilgrim flask** (Fig. 58)(wide and flat body with two small handles and a narrow neck), **gourd-shaped vessel**⁶(Fig. 59) (rounded body, a long and flaring neck, and a spouted base), spouted pitcher (globular body, high spout and one handle attached to the shoulder) and

⁶The name of the vessel was given by Omura (2007: 28) and I followed him.

alabastron (Fig. 60) (small and narrow neck and high body), a **pedestal** (Fig. 61), and **ascos** (Fig. 62);(bird/duck shaped vessels) are also included in this group but they are mainly separated according to their distinctive feature.

- **Miniature vessels** (Fig. 63, 64)**including juglets, pots, cups, an unguentarium, and a strainer.** Miniature vessels differ from the other forms with their small size.

3.3 Finger Marks on the Handles

Within the LIA pottery repertoire of KL, there is a remarkable number of vessels with a finger mark on the handles (Fig. 65). The finger marks are always seen in the base of the handle except for pilgrim flask. The vessel forms with the finger mark are, two handled pots with and without a neck, and one handled pots with a narrow neck and without a neck. The appearance of the finger marks is more or less similar to each other. Only two vessels like pilgrim flask with a small loop handle and amphora with a horizontal handle have a different shape of finger mark but it must be related to the shape of the handle.

As for the function of the finger marks, Kull observed one potter from Kınık and concluded that the finger mark was stamped to strengthen the connection between the body and the handle (1988: 112, 114 Fig. 120h, i).

3.4 Decorations

There is a few decorated pottery in the corpus including almost all forms. Decoration styles are follows:

1. **Incised decorations:** Incised decorations are made on the outer surface of the vessels with a sharp tool like wood. Motifs are quite simple includes; waves (Fig. 66), horizontal and vertical grooves (Fig. 67), and slashes (Fig. 68).
2. **Facetted decorations:** There are two kinds: 1) diamond facetted and 2) horizontal facetted (Fig. 69). This type of decoration is always used in Black Polished Ware.
3. **Painted decorations:** For painted decorations there are different types of decorations and designs.
 - Monochrome: There are only two motifs in this type; 1) horizontal parallel bands which consist of two or three lines varied from thin to thick, are seen mostly on the upper part of the body (Fig. 70). 2) Geometric design includes lines, crosses, and triangles mostly on the upper part of the vessels (Fig.71).
 - Bichrome: Horizontal parallel bands (Fig. 72) in red and brown colours and so-called panel technique (Fig. 73) can be classified in here. Panel technique is framing of the decoration area. Framed area was coated with white-cream slip and geometric or figurative motifs are painted with red/ reddish brown colour on the slip.
 - Trichrome: There is only one example for this painting, a krater (122) (Fig.74, 75). On two sides of the neck of the krater are decorated with the geometric design. On the one side, lines of squares and hatching

motif inside them can be seen. In the other side, lines of meanders and hatching around them are present.



CHAPTER 4

ANALYSIS OF LIA POTTERY IN KAMAN-KALEHÖYÜK

In this chapter, so as to understand main characteristics of the pottery of each phase, the ware and form analysis are carried out at first for the material from the South Sector and its result is compared with the result in the North Sector. For ware analysis ware ratio, inclusion, clay, surface treatment, and firing atmosphere are considered for each phase and whole corpus. Then correlation between them is analyzed. For form analysis, the same order is followed. First, forms are considered for each phase and whole corpus and then correlation between form and ware, inclusion, clay, surface treatment, and firing atmosphere are analyzed.

4.1 Ware Analysis

4.1.1 Ware Ratio

As described in the previous chapter (Chapter 3, p. 28), there are seven types of ware; GW, RW, BW, BrW, BPW, PW, and GWW. Within the whole corpus, most

vessels belong to RW and GW. Their ratios are almost close to each other (28 % for RW and 24% for GW). The other ware types BW and BrW are the second most wares and their ratios are also close to each other (20% for BW and 18% for BrW). There are limited numbers of vessels produced in BPW, PW and GWW (Fig. 76). The chronological distribution of the ware types shows us that the ratio of GW dramatically decreases from LIA 3 to LIA 1 and PW and GWW disappear completely in LIA 1. On the other hand, the ratios of RW and BrW remarkably increase and the ratios of BW slightly increase (Fig. 77, Table 8). As a result, GW, BPW, PW, and GWW are typical for LIA 3, while RW, BW, and BrW seem common in LIA 1.

North Sector: The LIA pottery from the North Sector shows a more or less similarity with the LIA pottery in the South Sector. The decrease of GW and the increase of RW from the LIA 3 to the LIA 1 can be clearly detected in the North Sector. Even though there is not a sharp distinction between LIA 3 and LIA 1 as much as seen in the South Sector. Contrary to the South Sector, PW and GWW can be seen during the layers of LIA 1 but their ratios remarkably decrease. The difference between both sectors can be seen in BPW and BrW. The ratio of BPW is getting decrease from LIA 3 to LIA 1 and the ratios of BrW increases in the South Sector. However, in the North Sector, the ratios of BPW and BrW do not change during LIA (Matsumura, 2005: 225, Table 4.1-3).

4.1.2 Inclusions

In general, almost a half of the LIA pottery of the South Sector has only grit. The other common inclusion is mica and lime. The ratios of inclusions like chaff, mica

and lime, mica and chaff are very limited (Fig. 78). According to the chronological distribution of the inclusions, there are some changes in preference of used inclusion or of chosen clay resource. The ratios of the vessels with grit inclusion increase from LIA 3 to LIA 1. The ratio of mica remarkably decreases, on the contrary the ratio of lime increases (Fig. 79, Table 9). As a result, the typical inclusion for LIA 3 is mica. There must be two reasons for this;

1. mica did not add deliberately to the clay it was a natural component of the clay. Because, in the LIA 1 phase, people change the clay resource was changed, the ratio of mica decreases during this phase.
2. mica was a usual inclusion during LIA 3, in the following phase, it became used rarely. The disappearance of GWW and PW during LIA 1 which have very much mica can be related this habit.

Except for PW, each ware has generally grit. The ratio of grit by GW is almost similar between LIA 3 and LIA 1. The usage of mica decreases in the later phase (LIA 1). GW has no much different types of inclusions like chaff, mica+chaff and mica+lime. The ratio of pottery with grit increases from LIA 3 to LIA 1. On the contrary, mica decreases. Lime is used in during the whole layers but under 20%. BW and BrW use the most various inclusions (Fig. 80). BPW has generally grit. Only mica is used for PW, but GWW is produced without inclusion or with only lime inclusion. By GWW, mica is applied to the outer surface as wash not for the clay itself (Fig.81).

North Sector: The North Sector shows more or less similar results. Decrease of the pottery with grit inclusion and significant increase of the ratio of mica from LIA 3 to LIA 1 are the same. The only difference between the sectors is the ratio of lime inclusion. During the LIA in the North Sector, lime inclusion is always under 2% (Matsumura, 2005: 223, Table 4.1-1).

4.1.3 Clay

Within the whole material the most common clay is the medium and more than half of pottery is made with medium clay. The coarse clay is the second common type and the fine clay is minimal (Fig. 82). According to the chronological distribution, during LIA 3, almost half of pottery use medium clay, and the ratio of fine vessels is higher than the coarse clay. During LIA 1, the ratio of coarse clay is almost similar with the previous phase. However, from LIA 3 to LIA 1, the ratio of fine clay substantially decreases (from 29% to 12%) and the ratio of medium clay increases to the same degree (from 47% to 62%) (Fig. 83, Table 10). Consequently, during the LIA 3 fine clay is used more than during LIA 1.

As we look at the chronological change of the clay in the basis of ware type, GW is mainly produced with coarse and medium clay in LIA 3, but the clay is getting finer in LIA 1. For RW, fine clay is predominantly in LIA 3 and it is getting coarser in the later phase. BW and BrW are generally produced with medium clay. The only difference is a slight increase of the coarse vessels through phases. BPW and PW are always produced with fine clay, and GWW is with medium clay (Fig. 84, 85).

North Sector: The South and North Sectors slightly differs each other in terms of clay. Contrary to the South Sector, the increase of fine clay from LIA 3 to LIA 1 cannot be seen in the North Sector. In the South Sector, pottery is - in general- getting coarser, but the same tendency cannot be detected in the North Sector. There is not remarkable difference in the clay in the North Sector through phases (Matsumura, 2005: 227, Table 4.1-4).

4.1.4 Surface Treatment

In the South Sector of KL, most of vessels are smoothed which is two times more than the ratio of polished and burnished vessels (Fig. 86). The ratio of polished vessels decreases from LIA 3 to LIA 1, while burnished and smoothed vessels increase (Fig. 87, Table 11). Therefore, it is clear that the quality of pottery increases from LIA 3 to LIA 1. This result corresponds to the tendency of the quality of clay (Fig. 83).

According to the distribution of surface treatment in relation to ware types, the ratio of polished and burnished vessels of GW is increasing towards LIA 1. There is no polished vessel in BW in both LIA 3 and LIA 1. The ratio of burnished vessels of BW decreases. On the contrary, the ratio of smoothed vessels of BW increases. For BrW, there is not polished vessel in LIA 3 no burnished vessel in LIA 1. The ratio of smoothed vessels dramatically increases in LIA 1 (Fig. 88). BPW, as its name proposes, only polished in both two phases. PW is polished and GWW is only smoothed (Fig. 89).

North Sector: The LIA pottery of the North Sector shows the same tendency with the South Sector (Matsumura, 2005: 236, Table 4.1-11). The increase of the smoothed vessels from LIA 3 to LIA 1 and the decrease of the ratio of polished vessel are same in both North and South Sectors. It can be stated that the LIA pottery in KL is getting coarser through phases.

4.1.5 Firing Technique

In general, the ratio of the vessels fired under oxidised atmosphere is more than two times higher than the reduced vessels in KL (Fig. 90). The chronological distribution of the two firing techniques demonstrates ratios a clear picture. The ratio of reduced vessels in LIA 3 is higher than the oxidised one in LIA 1 (Fig. 91). Thus, we can understand that the reduction firing technique is a common way to produce pottery in LIA 3, while it is replaced with the oxidation firing technique in LIA 1.

North Sector: As for the firing technique both South and North Sectors show a similar tendency, but with small differences. In the South Sector, the change in the ratios of reduced to oxidised are quite distinct in the North Sector. The decrease of reduced vessels from LIA 3 to LIA 1 and the increase of oxidised vessels in contrast with the reduced ones can be detected as well, but the change between phases is more moderate (Matsumura, 2005: 224, Table 4.1-2).

4.1.6 Summary of Ware Analysis

The most common wares among the LIA pottery of KL are RW, GW, BW and BrW are the second. Ware types like PW, GWW, and BPW are used for very few vessels. Most of the pottery has no inclusion. Mica is the typical inclusion for the LIA of KL. Lime, chaff, mica+lime, and mica+chaff exist in limited numbers. The pottery used medium clay is predominantly and fine and coarse clays are used with a limited number. The main surface treatment for the pottery is smoothing. Polishing and burnishing are present in a few numbers. The ratios of oxidised vessels within the whole corpus are more than two times.

4.2 Form Analysis

4.2.1 Correlation between Form and Phases

Initially, I look at the frequency of open and closed vessels during LIA 3 and LIA 1 phases. The ratio of open vessels in total is significantly less than the closed vessels (Fig. 92). The ratios of open vessels are more in LIA 3 than LIA 1 but still lesser than the closed vessels (Fig. 93).

North Sector: In the North Sector, the ratios of the open vessels (42%) are slightly lesser than the closed vessels (50%) in IIA3-5, but in LIA 1, these ratios changes considerably (open vessels 34% and closed vessels 57%) (Matsumura, 2005: 248, Fig. 4.2-1).

Main forms are classified into 1) basins, 2) cooking pots, 3) two handled pot without a neck, 4) trefoil-mouthed jug, 5) one handled pot with a narrow neck, 6) amphora, 7) large and 8) miniature vessels, 9) churns and 10) others. The group which is called as unique type includes different forms that are represented just one example. In total, the most frequent vessels are cooking pots, trefoil-mouthed jugs, miniature vessels and basins (Fig. 94, Table 12). In LIA 3, the most number of forms are trefoil-mouthed jugs (26%), basins (15%), miniature vessels and two handled pots without a neck (11%). One handled pot with a narrow neck and one handle are not found in this phase. Amphora and churn are represented with only a few vessels (Fig. 95, Table 12). In LIA 1 layer, the ratios of the basins (6%) and trefoil-mouthed jugs (7%) are significantly decreased. To the contrary, the ratio of cooking pots (29%) and large vessels (10%) remarkably increase. One handled pots with a narrow neck appear (Fig. 96, Table 12).

North Sector: The similar tendency with small differences is recognized in both sectors. The ratio of open vessels decreases from Ila3-5 (LIA 3 in the South Sector) to Ila1-2 (LIA 1 in the South Sector). To the contrary, the ratios of cooking pots decrease. There is not a remarkable change in the ratios of jugs, and miniature vessels (Matsumura, 2005: 4.2-2).

4.2.2 Correlation between Form and Ware Types

Diagrams of Figure 97, 98 and 99 show the correlation between the form and ware type. It is difficult to claim a preference of a specific ware type for particular form. The only exception is trefoil-mouthed jugs. They are predominantly made of GW in

both LIA 3 and LIA 1. Wares like PW, GWW, and BPW which demand more elaborated production techniques are also seen in this form, but only in LIA 3.

North Sector: The similar tendency can be followed in terms of preference a specific ware and forms (Matsumura, 2005: 338 and 339, Fig. 4.3-4 and 4.3-5). Jugs are predominantly made of GW and BPW in both IIA3-5 (LIA 3 in the South Sector) and LIA 1 (LIA 1 in the South Sector). Distinctly from the South Sector there are PW and GWW examples for open vessels and pots without a neck as well as jugs (Matsumura, 2005: 340, 4.3-6).

4.2.3 Correlation between Form and Inclusions

As indicated in Figure 100 and 101, the most common group is the vessels with grit inclusion and is prevalent among almost all forms. Basins, trefoil-mouthed jugs, narrow necked- pot, amphora, large vessels, and churn contain only grit. Mica is quite common and seen in all forms, especially predominant in cooking pots and miniature vessels.

North Sector: There is no correlation between form and inclusion in the North Sector.

4.2.4 Correlation between Form and Clay

Figure 102 and 103 indicates the correlation between form and clay. Medium clay is predominant group for almost all forms. Trefoil-mouthed jugs are remarkably finer than the other forms. Cooking pots, large vessels, churns and one handled pots with a

narrow neck are predominantly produced with medium clay and coarse clay was used in smaller quantity.

North Sector: The correlation between the form and clay in the North Sector demonstrates the same tendency with in the South Sector. Open vessels and pots without a neck are made mostly with medium. Pots with narrow and wide neck use also medium clay. Jugs are noticeably finer than the other forms as seen in the South Sector (Matsumura, 2005: 334, Fig. 4.3-2).

4.2.5 Correlation between Form and Surface Treatment

According to Figure 104 and 105, the most common surface treatment is smoothing and could be seen in almost all forms. Trefoil-mouthed jugs and amphorae are mostly polished and there is no burnished example in these forms. Miniature vessels and churns have no polished examples. They are predominantly smoothed and fewer samples are burnished.

North Sector: The correlation between the form and surface treatment in the North Sector shows slightly a different tendency. In the South Sector burnishing is the least surface treatment, whereas in the North the ratio of burnishing is significantly higher and could be identified in all forms (Matsumura, 2005: 342, 4.3-7).

4.2.6 Correlation between Form and Firing Technique

Most of the vessels are oxidised which are predominant for such forms like cooking pots, two handled pots and one handled pots with a narrow neck, and churns. The only exception is trefoil-mouthed jugs. They are mainly reduced fired (Fig. 106, 107).

North Sector: There is no correlation between form and firing technique in the North Sector.

4.2.7 Summary of Form Analysis

Except for trefoil-mouthed jugs, there is no preference of specific ware for particular form. Trefoil-mouthed jugs are mainly produced in GW. Besides, ware types like PW, GWW, and BPW are used for predominantly for trefoil-mouthed jugs. Basins, pots with and without neck, jugs, churns, and amphorae used mainly medium clay. Cooking pots and miniature vessels have mostly mica inclusion. Jugs are distinctly finer than other all forms. Typical surface treatment for the LIA pottery of KL is smoothing. Burnishing and polishing represent in a small quantity. Except for trefoil mouthed jugs all forms are predominantly fired under an oxidised atmosphere.

4.3. Decorations

As shown in Figure 108 and in Table 13, the ratio of decorated and painted vessel is mainly under or around 10% for each phase and total corpus. The ratio of decorated vessels is lesser (for LIA 3 13%, for LIA 1 12%, and for total 11%). Painted vessels for LIA 3 is 4%, for LIA 1 is 9% and for total is 7%. A detailed information table

regarding to the painted vessels is provided (Table 14) and I look at the distribution of motifs on the vessels according to the phases (Table 15).

4.3.1 Correlation between Decoration and Ware Type

I look at only wares of painted vessels. All painted vessels are produce in RW, BW, or BrW. There is no painted example for other type of wares. In the LIA 3 phase, the only ware for painted vessels is RW (100%), in the LIA 1 is the ratio of RW (33%), BW (33%) , and BrW (33%) is same and for stratigraphically indefinite vessels wares are RW (66%) and (33%) (Fig.109).

4.3.2 Correlation between Decoration and Form

Since the painted and decorated vessels are represented by almost all forms with one vessel, I did not look at the correlation between decoration and form. Painted vessels include basin, spouted pitcher, miniature vessel, one-handled pot with a narrow neck and pot without handle, while decorated vessels include trefoil-mouthed jugs, one and two handled pots with and without handle.

4.4 Main Characteristics of the Phases

4.4.1 Pottery of the LIA 3 Phase

Ware: Typical ware types of his phase are GW, BPW, PW, and GWW. Grit and mica is the main inclusions for this phase. The clay is medium, but the ratio of fine clay is relatively high. Typical surface treatment is smoothing, yet the ratio of polishing is relatively high. Clay and surface treatment suggest medium/fine quality for the

pottery of this phase. The reduced vessels are slightly higher than the oxidised ones. Reduction is the typical firing technique for LIA 3.

There are two studies to understand the origin of the special wares of KL. The first is related to trade pottery from KL (Grave & Kealhofer, 2006). The second is Neutron Activation Analysis conducted by Kealhofer and her colleagues. The results of these studies are 1) Almost all vessels made of GW are locally produced (Kealhofer et al., 2008: 208). Whether the BPW of KL is imported or local production is imprecise since they could not be separated from the Gordion examples either stylistically and chemically (Grave & Kealhofer, 2006: 144). 3) PW and GWW are local production (Kealhofer et al., 2008: 208). Within my material there is no import pottery but from the North Sectors Lydian, Attic black and Black on Red pottery from Southwest Anatolia are present.

Form: The vessels of this phase are mainly closed (over 60%). Most of the vessels are trefoil-mouthed jugs, basins, miniature vessels and two handled pots. There are some specific features that show a clear difference from the same forms dated to the later phase. These are the typical for this phase and they include; carinated basins, straight handles, trefoil mouthed jugs with faceted decorations, spouted pitchers, concave bodies (1 and 62), globular body, and panel technique painting (Fig. 110).

4.4.2 Pottery of the LIA 1 Phase

Ware: RW, BrW, and BW are the dominant ware types. GW, BPW, PW, and GWW noticeably decrease. Grit is the main inclusion same with the previous phase. However, lime and combination of mica, lime, chaff increases. Typical clay is medium and coarse. Typical surface treatment is smoothing and polishing remarkably decreases. As clay and surface treatment suggest, the quality of the pottery is low quality. Oxidation is the main firing technique of this phase (over 80%).

Form: The forms of LIA 1 are predominantly closed (over 80%). Cooking vessels, miniature vessel, large and deep vessels, one-handled pots with a narrow neck are the most number of vessels. Main features of the forms are the angular bodies seen in different forms such as, miniature vessels (148, 145), cooking pots (20), cups (144), and trefoil mouthed- jugs (90). Elongated bodies (58, 23, and 114), convex bodies (58, 67), shorter and more rounded handles (42), and narrow necks (71 and 114) are other typical features. One-handled pots with a narrow neck are the typical form of this phase and they do not exist in the previous phase (71) (Fig. 111).

The detailed analysis of the material provides detailed information in the basis of waer and form and make possible to generalize these results for each phase. As a result, with the help of the synthesis of the analysis for each phase make easier to understand main characteristics and to compare this compact information to the pottery from other sites in Central Aantolia.

CHAPTER 5

COMPARISONS

5.1 Introduction

The aim for these comparisons is to understand the relations of KL with the neighbouring sites from east, west, and south and to understand the details of the KL pottery within the LIA Central Anatolia ceramic culture. For this reason, I have chosen Gordion from the west, Boğazköy from the east, Alişar, Çadır Höyük, and Kerkenes (Fig. 1). To determine whether the LIA pottery of KL is different from the main sites of Central Anatolia or similar will show if the ceramics production of this geographical area homogeneous or not.

When comparing KL material, I have encountered several issues that delimited my study. I had to eliminate two significant sites from the south, Porsuk and Kınık Höyük. The level III of Porsuk is dated from the 8th until the end of the 7th century BC (Dupre, 1983: 111) and is contemporary with the beginning of the IIa layer (LIA) of

KL. Since I have no pottery from the earliest layers of KL (LIA 4) which is contemporary with Porsuk III, I omit this site for comparison.

The second issue is related to Kınık Höyük which is the southern neighbour of KL. The Iron Age ceramics of Kınık Höyük have recently been studied by Ergürer in a thesis (2016), yet the material in the excavation site and that work (including the plates) are not accessible. On the website of the excavation, there are no drawings or photographs of the findings (<http://www.kinikhoyuk.org/index.html>). I could only find a few publications mentioning the LIA pottery of Kınık Höyük with a few figures. Within the very limited general information about LIA pottery, a few figures provided in this publication, they did not have any common form with KL (D'Alfonso et al., 2014). There is also one more publication on the very specific import pottery originated from the Eastern Greek dated to again the LIA (D'Alfonso, 2014). Because of these reasons, I had to eliminate Kınık Höyük for comparisons.

There are two extra problematic sites that are Çadır Höyük and Kerkenes. I did not eliminate these sites in spite of the fact that to get a precise information is very difficult. The pottery comparison of these two sites with the KL pottery corpus is quite limited because of the lack of detailed study and publications. For Çadır Höyük, there are a few publications (Ross, 2010; Genz, 2001) and the website of the excavation (<http://www.cadirhoyuk.com/>). For Kerkenes, only the website of the excavation (<http://www.kerkenes.metu.edu.tr/>) and one publication (Kealhofer et al., 2010) could provide some information. Since the publications and websites provide a

limited number of drawings to compare form by form, the comparison is very limited.

There are three sites, Alişar, Boğazköy, and Gordion which offer relatively more reliable results. Apart from the fact that these sites are well published, their LIA layers are chronologically confirmed by the archaeological evidence and are almost contemporary with the LIA layers of KL.

As a methodology, I consider the form, the size, and the ware type of each vessel by looking at the publications and the museum exhibition in Gordion and Boğazköy Museums. I will take into consideration the number of similar vessels in KL and in the other settlements and the dates to understand the interaction between them in each phase of the LIA.

5.2 Kaman-Kalehöyük - Boğazköy

The LIA period of the Boğazköy could be identified in Büyükkale and there are three building layers from earliest to the latest BK Ic, Ib, and Ia (Fig. 112). In this period, a new city wall was built instead of using the wall of Hittite period. The walls have been strengthened with small quadrangle towers. On the wall, there are two gates one is in the southeast and the other is in the northwest (Bossert, 2000: 14). The wall was used during the layers of Ic and Ib. In Ia, it was not repaired and used. In the first layer, Ic, the remains could be scantily preserved. There are only a limited number of ordinary houses that are rectangular shaped and shares a common wall (Bossert,

2000: 15). The remains of Ib is more and well-planned than the previous layer. Besides ordinary houses, in the upper plateau, there is a palace complex which consists of a wide hall in the centre and small rooms in two sides. This complex and pathways built by stone pavements have been used during the Ib and Ia (Bossert, 2000: 15).

Another LIA occupation at Boğazköy is the Northwest Slope built on the debris of the Hittite buildings ended by a fire in the 16th century BC (Genz, 2007: 137). It was, at first, thought as a MIA occupation, yet after the identification of *in situ* pottery sherds from the first phase in the area it was dated to the LIA (Genz, 2007: 137, 139 Fig. 3). At the Northwest Slope, there are two occupational phases the first is represented with ordinary houses contemporary with the Boğazköy Ic. In the second phase, there is a monumental building (Fig. 113), the function of which could not be identified (Genz, 2007: 137) and the relation between this monumental building and the palace used during Ib and Ia is not clarified by Genz. *In situ* ceramics only come from the first phase; the ceramics of the second phase come from pits, fillings and the layers that are in the same level with the monumental building (Genz, 2007: 139).

Pottery: Kaman-Kalehöyük and Boğazköy share a considerable extent of common forms including bowls, round-mouthed jugs, pitchers with spout, pots with short neck, one handled pots without a neck (cooking pots), and amphorae. Bowls with simple rounded rims in rounded or carinated body forms and bowls with flat and flaring rims can be seen in both sites. Besides, an open shaped vessel with lug-

shaped handles and footed cups are similar in KL and Boğazköy (Fig. 114: f). One handled cups which are highly decorated with painting in geometric design are known from the MIA period (BK II in Boğazköy, IIC in KL). This form continued until the mid of the LIA (BK Ic in Boğazköy, IIC3-5/LIA 3in KL). The earliest example of this form from Boğazköy comes from Büyükkale IIb. Further examples of the Phrygian period (Middle Iron Age) are from BK II, from below the castle wall Ic, at the northwest slope from NWH 3and from the lower city (Bossert: 2000: 88, 89). They continued to exist during BK Ib and Ia (Bossert, 2000: 89) In KL, this form becomes appear in the IID1-3 (Early Iron Age) and continue to exist until IIA6-IIC1, but it is typical for IIC2-3 (Matsumura, 2005: 320) (Fig. 115). Spouted pitchers are decorated in ‘panel technique’ painting are the other common forms for both sites. This decoration technique exists during the IIA6-IIC1 and IA3-5 in the North Sectors in KL, but it is typical for the IIA3-5 layer (Matsumura, 2005: 388) (Fig. 116). Another pitcher type with decorated reliefs in shape “diamond” (Matsumura, 2008: 76) and spouted vessels produced in the “facetted” decoration with this type of pitcher are similar forms. The common feature of these vessels is their ware type – BPW-. Spouted vessels with a short and straight neck are mainly seen in IIC3-5 in KL (Matsumura, 2005: 345, 346) and in only BK I in Boğazköy (Bossert, 2000: Pl. 415-8, 422, 424, 426, 428-9) (Fig. 117). Pots with a short neck and cooking pots show similarity in both sites (Fig. 117). The last similar form is amphora in which the flaring rims, the short and narrow neck, the belly body, and two handles attached to the shoulders are similar are the same shaped (Fig. 118).

As clay wares, Gray Ware and Black Polished Ware are common in both KL and Boğazköy. Gray ware is seen from the beginning to the end of the LIA in Boğazköy,

notably in Ia. There are many examples from almost all forms including bowls, pots with and without a neck, trefoil and round-mouthed jugs, amphora, flask, potsherds and handles. There are also more examples for gray ware dated to Ib-Ia period and more than these phases from the unknown context dated to the LIA –BK I- (Bossert, 2000: 25, 26). Black Polished Ware is another similar ware type. Bowls, pots, round-mouthed jugs are produced in this ware type. Facetted and relief design in diamond shaped associated with BPW are common decoration in KL and Boğazköy.

Since the absence of any finding for absolute chronology like wooden pieces that provide exact dates like dendrochronology, the chronology of Büyükkale is based on the typological examination of the imported pottery which can be precisely dated. The earliest phase of LIA in Boğazköy, Ic, is dated from 674/73 BC to the mid of the 7th century (Bossert, 2000: 163). The following phase, Ib, is dated by Bossert on the basis of the presence of Eastern Greek pottery made in Orientalising style. For this phase, she proposes the second half of the 7th century BC (2000: 164) (Fig. 119). The last phase of the LIA occupation at Boğazköy, Ia, is dated to the first half of the 6th century BC according to the imitation of an Ionian skyphos (Fig. 120). It may be expanded to the first half of the 5th century BC (Bossert, 2000: 169). As far as the settlements in it have been studied so far, it is suggested that, Boğazköy with its fortification on Büyükkale was abandoned in the Late Phrygian period and only repopulated in Hellenistic-Roman times (Bossert, 2000: 167). Although the dates for LIA in Boğazköy suggest contemporaneous, there is no Achaemenid object that prove the presence of an Achaemenid settlement. Therefore, in the 6th century BC, Boğazköy was not settled by Achaemenidians, but was settled by local people which might contact with Achaemenidians.

The monumental building from both the North and South Sectors in KL and from Büyükkale Ib and Ia and also from North West Slope in Boğazköy show similar characteristics. The similar vessels indicated in the figures (114-118) from Boğazköy are mainly dated to the Büyükkale (BK) Ia layer and BK Ib-Ia. Only a few vessels belong to BK Ib and BK I. To sum up, the proposed dates for the LIA in Boğazköy are the 7th and 6th centuries, even perhaps 5th century BCE; they correspond to Ila3-5/LIA 3 in KL. The architectural pattern of two sites and the presence of various common forms, wares and decoration styles are an indication of a similar culture.

5.3 Kaman-Kalehöyük -Alişar

The building layers of 2a-b-3a-bM (Mound) and also the layers of 4-7T (Terrace) corresponds to the second half of the first millennium BC. These phases have been uncovered after the removing of the remains of the Byzantine and Roman periods. (von der Osten, 1937: 1).

In the mound, the city wall from the previous period (4aM) was reused and a tower was built on the gateway. The remains of 3M are few. The remains of 2M are preserved better and indicate a planned settlement. The walls are wider and built better, and there are stone pavements which are seen in the Ila2 layer of KL (Fig. 121) (von der Osten, 1937: 3, Fig. 1). The remains of terrace are scantier. Four building layers (4-7) belonging to this period could be preserved very limitedly and the situation of these layers are uncertain. The Hittite city wall was reused in this area as foundation.

The architectural remains of this period, in general, points out the presence of an unimportant small village in the second half of the first millennium (von der Osten, 1937: 1). The structures of this period, in general, one or two-roomed and the population must have been few.

Pottery: The architectural remains of Alişar propose two building layer at this period, but the pottery has not been identified according to its phases. Since the excavators did not identify the pottery according to the building layers, I have specified the pottery which can be found in KL or not.

The pottery of Alişar demonstrates a strong similarity with the LIA pottery of KL in many forms. Types of basins (Fig. 122: a-e), miniature vessels (Fig. 122: f, g) and gourd-shaped vessels (Fig. 122: h, i) are similar in both sites. The body and the bottom shapes of ‘gourd-shaped vessel’ are slightly different from each other. The clay quality and surface treatment of this form in KL is significantly better than the Alişar examples. It is called as “funnel” in Alişar (von der Osten, 1937: 52) because of the hole in the bottom of the vessel, yet I can suggest a function related to special events/ceremonies in KL due to its distinctive form and high quality.

The other similar forms are trefoil-mouthed jugs (Fig. 123: a, b) and pitchers with a spout (Fig. 123: c-f). Both short and high bodies for each form are seen in KL and

Alişar. So-called ‘panel technique’ decoration (see in Chapter 3, p.35) on the pitchers is also seen in both sites.

Wide-mouthed vessels are similar in both sites (Fig. 124: a). Pots without a neck and pot with a narrow and short neck (Fig. 124: b,c) are substantially similar. However, two other vessels are slightly different. In general, wide-mouthed vessels, including the head of a bull as decoration, are similar, yet there are some differences; rectangular (Alişar example) and rounded body shape (KL vessels), the width of the bottom (Alişar example has a narrower base than KL one), and handles are different to each other. The rim forms, narrow and high necks, body and bottom shapes of amphorae from both sites (Fig. 124: d) are the common elements, but the handles of KL vessel are slightly higher than the Alişar one⁷.

In Alişar, there are a group of pottery which are totally distinct from KL pottery (Fig. 125 and Fig. 126). Mold-made basins (Fig. 125: a), so-called ‘fish plates’ (Fig. 125: b-d), and slightly deep bowls with relief decorations on bottoms (Fig. 125: e-g), large deep bowls (Fig. 125: i,j), and trefoil-mouthed jugs with a quite globular body (Fig. 119: k-p), are absent in KL. Beakers (Fig. 126: a,b), flasks (Fig. 126: e, f), one handled jug (Fig. 126: g), two handled jugs with a long flaring neck (Fig. 126: l-p) are also absent in KL. A similar vessel to one of the two-handled jug (l) is found in Sardis and dated to the Late Hellenistic period (Olivier & Rotroff, 2003: 66: PL

⁷The amphora from KL (KL87-13) (Matsumura, 2005: 220) is from the North Trenches, not from the South. It was found in P63, in grid XL-54(A). Building layer of this context is dated to the IIa3-5 layer by Matsumura but. After re-examination of its context, we decided it must belong to IIa1-2, since the pit cuts the IIc (MIA) building.

41:242). These vessels must belong a later period than KL LIA 1, thus the lack of these vessels in KL can be explained with the absence of this period in KL.

Waagé remarks the presence of different types of ware in “Greek, Hellenistic, and Roman pottery”, like Black-Glazed Pottery (1937: 74), with and without incised decorations (1937: 77), Gray Ware (1937: 76), Polychrome and Molded Pottery (1937: 78), and the imitation of Red-Glazed Pottery, so-called “Pergamene Ware” (1937: 80). The only Gray Ware is common with KL and the others are not seen in KL.

Except from the pitchers with a spout, all similar forms are found from the Ila1-2 layer. Thus one of the building layers of Alişar is contemporary with Ila1-2 of KL. This layer must be the earlier layer of Alişar Höyük. The other building layer, the later one, must be the later than Ila1-2 of KL. It must be contemporary with YHSS-3 period of Gordion (explained in this chapter, p. 62). The mold-made vessels, ‘fishplates’, beakers, two handled jugs with a flaring neck belong to a later period. Consequently, it is suggested that Alişar 3M is contemporary with Ila1-2 of KL, Alişar 2M belong to the later period.

5.4 Kaman-Kalehöyük – Gordion

Middle Phrygian Period (YHSS-5): The Early Phrygian period (YHSS-6) ends with a destructive layer. YHSS-5 was begun to build over the destruction after the remains of previous layer was covered with a 2-4 m clay filling. The plan of YHSS-5

is almost same with the previous layer, but there are small differences in the orientation and construction technique. The stones of this phase was used during Late Phrygian period, thus the remains are less (Voigt et al., 1997: 30). In this phase there is relatively well-established city surrounded with citadel and included monumental buildings such as; palace complex, ashlar building and so on (Voigt et al., 1997: 32; Voigt, 2011: 50) (Fig. 127). According to the import Eastern Greek pottery, the phase is dated to the beginning of the 7th century and mid of the 6th century (Henrickson, 1993: 131, 132)

Late Phrygian Period (YHSS-4): Identification of the remains of YHSS-4 and YHSS-3 (Hellenistic) is difficult. This layer is represented only with a couple of ordinary houses. The phase begins around mid of 6th century and continues to the 330 BC.

Pottery: Middle and Late Phrygian pottery from Gordion have not extensively been studied. Henrickson provides some information and drawings, but quite limited (1993, 1994, and 2005).

As indicated Figure 128, basins with a rounded wall made of BPW (a-b in Gordion) and basins with a carinated wall (d-e in Gordion) are common in both sides. Strainers (f) and pots with a short and straight neck (g) made of BPW are also common. Form, decoration and ware of strainers are shared by two sites. Pots with a straight neck are similar to lydion and this form is related to Lydian culture (Matsumura, 2008: 183).

A bowl fragment from Gordion (c) which is a Black on Red Ware import from Southwest Anatolia is also found in KL but it is not published yet⁸. Common forms shown in this figure are dated to Middle Phrygian Period (YHSS-5) in Gordion and LIA 3/ IIa3-5 in KL.

Bowls with simple rounded rims, flaring rims and thickened rims are comparable (Fig. 129). Miniature vessels and unguentaria are also shared by two sites (Fig.130). These common forms are dated to Late Phrygian Period (YHSS-4) in Gordion and LIA 1/ IIa1-2 in KL.

A group of pottery that are dated to Middle Phrygian Period and include Black Incised vessels (a-b), Black on Red (c), and others are typical in Gordion but they are not seen in KL (Fig. 131). Another pottery group which belong to Late Phrygian Period and include Achaemenid bowls (a-e), Lydia related vessels (g-h), and a two-handled jug related to Achaemenid culture (i) are not found in KL (Fig. 132) A similar jug to two-handled jugs are found in Gordion (Voigt et al, 1997: 54, Fig. 30i), but. The similar vessel to two-handled jug (i) is found in Pasargadae (Stronach, 1978: Pl. 171, 172). The origin of the vessel is Iran and Achaemenid culture and it is dated to the 3rd century BC (Stronach, 1978: 184). It should have come to Gordion later than this date.

⁸Personal communication with Assoc. Prof. Kimiyoshi Matsumura (15.11.18).

Pottery dated to Hellenistic (Early and Middle) period (YHSS-3) which includes angular bodies, ring-bases or short foot in the base of the vessels are completely different from KL (Fig. 133 and 134). These vessels indicate the presence of a settlement in Gordion dated a later period than LIA 1 of KL.

Ware of Gordion is predominantly Gray Ware in both Middle (over 85%) and Late (60%) Phrygian periods. Another ware is Buff Common Ware (6.4% in Middle Phrygian and 18.1% in Late Phrygian) (Henrickson, 1993: Table 4). Gray Ware is dominant in the LIA 3 phase in KL. In LIA 1, it remarkably decreases, but the ratio of oxidised vessels increases⁹. Wares also show similar tendency in both sites.

Between KL and Gordion there is relatively close and continuing interaction during the phases of LIA 3 and LIA 1. After KL was abandoned, Gordion continued to be settled during the Hellenistic period.

5.5 Kaman-Kalehöyük -Çadır Höyük

In the Late Iron Age period of Çadır Höyük, a few layers have been identified, but their characteristic could not be understood clearly. Several buildings and three pits were partly uncovered in the Upper South Slope (Fig. 135), since they are destroyed by later periods' activities and they are situated in the slope (Ross, 2010: 75). The pits were used for garbage dumping, but the function of the buildings could not be understood. A limited number of preserved mudbrick and stone walls and a plastered

⁹Colour references of Red Ware and Buff Ware are similar with the Buff Ware in Gordion. For this reason, I prefer to say oxidised vessels rather than compare the ratio of only buff ware.

floor give clues about construction. The construction material of the LIA in KL is only stone. Mudbrick are used in IIC period (MIA).

Pottery: Pottery of Iron Age in Çadır is studied by Genz (2001) and Ross (2010) and also the *Neutron Activation Analysis* of pottery made (Kealhofer et al., 2010). Genz studies on the pottery from survey and step trenches excavated in 1994, 1998, 1999, and 2000. Within the corpus studied by Genz there is no in situ pottery, for this reason he identifies the periods of the pottery by looking at the pottery Central Anatolia, mostly to Boğazköy (2001: 159). Ross studies on the pottery from the Upper South Slope trenches excavated between 2006 and 2009. They provide small information and drawings about the LIA pottery. Both identify the pottery according to the periods, but they are not make clear the pottery according to the layers in a period. Thus, we do not know the difference or similarity of pottery from the earliest layer and the latest layer.

Simple round mouthed basin, strainer, miniature vessel, cooking pot, and pot with a narrow neck are the common forms seen in both sides (Fig. 136). Except for strainer (140 in KL and b in Çadır), all forms are dated to LIA 1 in KL. Strainer is dated to Early Iron Age by Genz (2001, 167, Fig. 1), but in KL it belongs to LIA 3. The pottery from Çadır is not identified according to the layers, nonetheless, as the common forms suggested the LIA layers of Çadır Höyük must be contemporary with LIA 1 of KL. There are small differences between both sides' pottery shown in Figure 137. These forms were not found in KL, the reason behind this may be related to the absence of these layers in KL or different pottery traditions. Achaemenid bowls

(a-c), suggests possibility for contemporaneous with the YHSS-5 and YHSS-4 layer of Gordion. This similarity cannot be followed between KL and Çadır Höyük in the LIA 3 phase. However, the forms and decorations on the rims of the vessels seen in Figure 137 cannot be dated to a later date than LIA 1. They should belong to LIA 3 or the earlier phase, LIA 4, yet still the evidence at hand is not enough for such suggestion. The publications about LIA pottery of Çadır Höyük will be able to make clearer this suggestion. The LIA of KL and Çadır Höyük finish around the same date, end of the LIA 1 (around 330 BC). In both sites, the settlements were abandoned after that time. In brief, the earlier layers of the LIA in Çadır has potential to be contemporary with LIA 3 of KL, and the later layers of Çadır Höyük must belong to a common pottery culture with the LIA 1 phase of KL.

5.6 Kaman-Kalehöyük –Kerkenes

Kerkenes is another city from the northeast of KL and situated at the near of Çadır Höyük and Alişar Höyük. Kerkenes is thought to be the ancient Pteria in which the Medes and the Lydians fought as it is mentioned in the Herodotus' History (Kealhofer et al., 2010: 75). The city was settled between 700/650-550 (Summers, 2018: 17) but so far there is no finding for an absolute chronology that verifies these dates. Due to the lack of Greek imported pottery, the relative chronology and the stratigraphy is based on the sequences and the pottery of Alişar. The beginning of the settlement is dated to the 7th century because of the absence of the deer motif on the painted ceramics which is the characteristic of the layer Alişar IV and spread throughout Central Anatolia during the 8th century (Kealhofer et al., 2010: 75; Baran, 2016: 63).

The layers of the site are not clear. Summers provides the city plan of Kerkenes that show the public buildings, Cappadocian Gate and Palace Complex (Fig. 138)

However, the plan is based on “the ground survey and observation, interpretation of balloon photograph and geomagnetic mapping of sub-surface features” (Summers, 2000: 60).

Pottery: The information about the LIA pottery of Kerkenes is very limited due to the fact that there is no published study on ceramic. The only publication mentioning the Kerkenes pottery is related to the *Neutron Activation Analysis* of the ceramics of three sites in –Çadır Höyük, Tilkigediği¹⁰, and Kerkenes- in Yozgat province (Kealhofer et al., 2010) and provides general information about the ware types and forms. The Kerkenes pottery used for analysis in this publication is limited in number (57 fragments in total) and comes from “the burned debris in the Palace and the Cappadocia Gate” not from the “good domestic contexts” (Kealhofer et al., 2010: 85). The pottery is mainly described as red or buff table wares, gray ware and kitchen ware (Kealhofer et al., 2010: 75) and includes the forms of one cooking pot, bowls, jars, and jugs -in different sizes- (Kealhofer et al., 2010: 85). Most of the ceramics are slipped, burnished or polished as well as painting decorated with elaborated geometric designs on a white panel. Also, there are several black polished sherds, and red, orange, or polychrome band decorations (Kealhofer et al., 2010: 85, 87, Table 9).

¹⁰Tilkigediği is not an excavated site. The pottery from there only comes from survey.

The official website of the excavation provides some drawings. The common forms between two sides include basins made of GW, spouted pitchers with panel technique decoration and potsherds with decorated diamond facets (Fig. 139). These forms are typical for the LIA 3phase in KL, hence the LIA layers of Kerkenes must have contemporary with KL. Besides common forms, some painted potsherd show close relation in terms of the motifs and geometrical design (Fig.140). Anabolu suggests that the origin of the meander motif is Archaic Greek, and its development is completed in Geometric period (1994; 1), thus this decoration must have been derived from the East Greek/West Anatolia.

There are some forms which are not found in KL. These are pots with painted decoration (a), spouted pitcher made of Black Incised Ware (b) small (e, f) and large (g) jars, and lids (h, i) similar to the Boğazköy pottery (Fig. 141). The geometric painted motifs on the vessels (a), the form of the spouted pitcher (b), and remarks on the vessels seen in d are characteristics for the earlier phases of the LIA, such as LIA 4 or LIA 3. Therefore, KL and Kerkenes can comparable for the LIA 3 phase, and the limited number of vessels propose the presence of an earlier phase than LIA 3 (LIA 4) in Kerkenes which corresponds to the beginning of the LIA period.

5.7 Discussion

The comparison of the LIA pottery assemblage of KL and its neighbours indicates a close parallelism in the whole period. KL and Boğazköy shares the largest number of elements including common forms, wares and decorations, yet this close similarity is limited only with the LIA 3 period. After this phase, Boğazköy was not settled until

Hellenistic- Roman period. Alişar Höyük shares another large group of pottery with KL but only in the LIA 1 phase. The similar vessels between KL and Gordion corresponds to the both the LIA 3 and LIA 1 phase. Although the similarity between KL and Gordion is lesser than Boğazköy, it continues during both the LIA 3 and 1 phases. Kerkenes also makes a small contribution to this comparison in the LIA 3 phase, mostly with the similar decorations rather forms or wares. A precise similarity between KL and Çadır Höyük is seen in the LIA 1 phase, it is limited with only a few forms and decorations. I prepared a relative chronology table of these sites which indicates the relationship among them (Table 16).

In the LIA 3 phase, KL shares some distinctive forms, wares and decorations with Boğazköy (BK I), Gordion (YHSS-5) and Kerkenes. Carinated basins, typical basins made of BPW, spouted pitchers, pots with sieve spout are common forms in each site. Dominant ware type of this phase, GW, and characteristic wares, PW and BPW, can be seen in each site. Typical decorations of this phase such as horizontal and diamond-shaped facets on the Black Polished Wares, ‘panel technique’ paintings and meander motifs are seen in KL, Boğazköy, Gordion and Kerkenes. Alişar Höyük also shares these decorations, but it is more close to the LIA 1 phase in terms of forms. The certain evidence to prove the relationship between KL and Çadır Höyük in the LIA phase is not present. To conclude, LIA 3 in KL, YHSS-5 in Gordion, BK I in Boğazköy and Kerkenes are contemporary and have a similar culture which is relatively influenced by Lydians from the west and Achamenids from the east.

In the LIA1 period, KL and Alişar shares the largest number of pottery. Gordion and Çadır Höyük also show parallelism but in a smaller amount¹¹. Basins with a rounded wall, miniatures vessels and pots with a narrow neck are common forms among these sites. A limited number of GW is also common. Horizontal band painting on the vessel which is typical for this phase can be seen in each site. Consequently, the LIA 1 phase of KL must be contemporary with Gordion (YHSS-4), Alişar (3a-bM), and Çadır Höyük.

Here there are some common elements seen in other sites, but not in KL.

Achaemenid bowls found in YHSS-4 of Gordion and Çadır Höyük, Achaemenid type two-handled vessels found in YHSS-4 of Gordion and a Late Hellenistic amphora found in Alişar Höyük, and Black- Incised Wares found in Alişar Höyük have not been found in KL neither in the LIA 3 nor in the LIA 1 phase. Except for Çadır Höyük and Kerkenes, these forms and wares must be dated to a later period than the LIA 1 phase of KL. The vessels from Çadır Höyük and Kerkenes which are not common with KL may belong to an earlier phase instead of the later nonetheless their exact dates are not clear. Gordion and Alişar Höyük continued to be settled after LIA 1 of KL. The LIA layers of Kerkenes and Çadır Höyük are not clear, but 1) the geometric design on the vessels (Fig. 137; a and b for Çadır and Fig. 141; a for Kerkenes) 2) the form of bowls from Çadır and of spouted pitcher from Kerkenes and 3) (probably Phrygian) remarks on the vessels (Fig. 141; d) from Kerkenes sites suggests the presence of an earlier phase (probably LIA 4).

¹¹However, we should remember that publications about pottery from these two sites are limited. In the future, this picture can be change with the help of detailed publication about the LIA pottery.

CHAPTER 6

INTERPRETATION ON THE PITS AND SOME SPECIAL VESSELS

6.1 Consideration of Pits

Pits are one of the most common contexts for material found in an archaeological site. They are mostly regarded as something that is not wished to be found, because they cause confusion with artefacts by destroying the buildings that provide a fixed stratigraphy. However, pits give insight into understanding of the dynamics of a society via their place in daily-life activities and special events. They have been used in all periods from prehistoric to modern times. An ethnographic study from the Middle Black Sea region shows that pits still continue to be used for storage purposes in some villages (Yılmaz, 2015: 72, 73). For storing potatoes, for instance, they are covered with wood and plastic canvas (Fig. 142).

Pit Usage before the Iron Age: Many sites from different regions and periods have different functions with regard to pits. Pits from two different Chalcolithic settlements, Değirmentepe and Aktopraklık, appear to be related to ritual purposes.

Complete or restorable pots, animal bones and several small objects were found from these pits (Esin & Harmankaya, 1987, 92, 93; Karul, 2013: 43). A pit from Yanık Tepe in Iran contains large restorable pottery fragments (Fig. 143). It is interpreted as an intentional deposition, no possible function has been suggested (Summers & Burney, 2012: 272). This pit belongs to the Early Caucasian period (corresponding to the Early Bronze Age). Summers and Burney emphasize the absence of similar practices in other pits (for instance, pits with complete or almost complete vessels) anywhere in Azerbaijan or Iran (2012: 272). An example of usage of pits as storage facilities comes from Troy II. One group of treasures was found in a pit that had been an intentional filling (Bachhuber, 2009: 6). Examples for ritual functions for pits have been found in Küllüoba and in Poliochni. Two pits that play a role in ritual ceremonies were found in Poliochni. Behind the banquet hall of a building called “granary” a pit was found and identified an offering pit (Cutraro, 2013: 110) because of the findings that included miniature vessels, a bowl, a footed cup, and animal bones (Cutraro, 2013: 104, 105). This building and pit were dated to EBA I. Another pit from Poliochni, which belongs to the EBA II period and which is plastered with clay, contained miniature vessels, animal bones, carbonized grains and ashy filling (Kouka, 2011: 47). In Küllüoba, many pits were uncovered in all strata. Except for the pits dated to EBA III, all of them were used for garbage dumping. These pits contained a small number of potsherds and animal bones. However, EBA III pits contain complete or restorable vessels, complete animal skeletons and various small finds and regarded as offering or sacrificial-related pits (Türkteki & Başkurt, 2016: 9, 15).

There are also philological sources that mention pits. Hittite texts provide various examples that reveal different types of usage of pits. A word *wappu* refers to clay pits situated at riversides and *ARÀH* refers to storage pits (Collins, 2002: 225). In addition, pits play an important role in ritual. In the religious Hittite texts, pits are frequently mentioned in relation to the “Underworld, dark earth, and dark Underworld” (Collins, 2002: 224; Sevinç, 2009: 234). They were regarded as a gate that opens to “Underworld” and a place that helps communication with the Gods of the Underworld (Collins, 2002: 224; Sevinç, 2009: 241). People gave offerings to these pits and the blood of animals from sacrifice ceremonies flowed into the pits (Collins, 1995: 84; Sevinç, 2009: 204). Another written resource, a Kizzuwatnaean religious text, refers to the role of pits during a ritualistic event. In the text, it is mentioned that on the 3rd day of the ritual, a pit was dug and on the 11th day, offerings were put into the pit (Beckman, 2013: 114). In brief, as written sources are clarified, the pits were used as storage, as sources of clay and in ceremonies in Hittites.

Pit Usage in the Iron Age: A pit dated to the Early Iron Age from Oymaağaç contains complete vessels (Fig. 144). The researcher has not clarified the function of this pit. However, the function of the pits in Oymaağaç, concerns mostly general use, storage, use as grave, as hearths and for garbage disposal (Yılmaz, 2015: 72). Only one pit within the 328 pits¹² contains complete vessels, similar to Group 2 (explained below) from KL. Another pit with complete vessels was found in Gordion (Fig. 145). Building M was used between 550 and 500 BC and contains complete vessels

¹²328 pits were uncovered between 2007 and 2011. Pits identified after 2011 have not been studied so far (Yılmaz, 2015: 69).

including large and deep vessels, pithoi and open mouthed vessels (Edwards, 1959: 264). Again excavators did not make its purpose clear, but the open mouthed vessels were put one inside the other. The arrangements of the closed vessels in the pit can suggest storage purpose. Nevertheless, storing the food inside vessels is not needed a pit, they can be stored in a room. The last example from the Iron Age is from a pit dated to 575 to 525 BC in Sardis (Hanfmann, 1983: 73). A group of pottery objects, including a bowl, a cooking pot, a deep bowl, a trefoil-mouthed jug, a dog skeleton, and an iron knife fragment was found in a pit (Fig. 146). A Carian text (from the 7th and 6th century BC) mentions a “ritual dinner” and offerings of a dog. The function of the pit is supposed to be related to this ritualistic event; most probably an offering to gods (Hanfmann, 1983: 73).

Pits in KL: In KL, pits take on an important role within an archaeological context. In the North Sector, more than three thousand pits have been identified so far, and in the South Sector, more than one thousand pits. As indicated above (Chapter 2, p. 18; Fig. 25), most of the complete vessels come from pits dated to the LIA period. In total, there are 34 pits and 113 vessels excavated from these pits. Fifteen pits belong to LIA 3 and 24 vessels were found in them. Eleven pits belong to LIA 1 and 56 vessels come from these pits. Lastly, it is important to mention that 8 pits are stratigraphically difficult to determine (named ‘indefinite’) and 33 vessels were found in these pits (Table 17).

In the LIA period in KL, there are three types of pits filled with pots: Group 1 refers to the pits filled with intentionally broken vessels (Fig. 148). Group 2 refers to the

pits with arranged complete vessels (Fig. 149). Group 3 refers to the pits with one or two vessels (Fig. 150). From LIA 3, one pit belongs to Group 1, 14 pits belong to Group 3 and there is no example for Group 2. From LIA 1, there are 5 pits from Group 1, 2 pits from Group 2, and 4 pits from Group 3. Within the stratigraphically indefinite pits, one pit belongs to Group 1, 2 pits belong to Group 2 and 5 pits belong to Group 3 (Table 18).

There are many reasons to dig a pit including for storage, garbage, or for ritual purposes. The function of the pits in KL can be relatively easily understood within this classification. The pits, at least a large group of them, were used for grain storage purpose. A white and soft material on the floors and on the walls of the pits consists of plant remains (Kimura et al., 1998: 323) that were used to prevent humidification. Therefore, pits with this material have serviced as grain storage. Most of such pits contain potsherds, animal bones and ashes. They must have been used as garbage dumps in the end. Another function of the pits relates to ceremonial events. The pits dated to the end of LIA in KL, contain dog and/or human skeletons that were deliberately killed and buried inside the pits but, these pits do not include complete pottery (Fig. 151). These pits are related to the Galatian culture and to sacrificial ritual (Matsumura, 2007: 107). Galatian pits and pits filled with complete pottery are different.

There is no a direct relation between pits filled with dog/human skeleton and filled with complete vessels in KL and there is no a pit which contains skeleton and complete vessel in the same time. Thus, pit filled with a dog skeleton and vessels

from Sardis and these pits (filled with skeleton and vessel) from KL might be aimed to similar ritualistic purpose; “holy dinner”. We have no a precise evidence for this suggestion and the dates of this kind of practice (filling pits with different kind of material) are not contemporary in both sites. Nonetheless, I should remark the similarity between these practices and the possibility the relation between pits containing skeleton and pits containing complete vessel.

The LIA pits examined here provide a different function from daily activities. As Chapman points out, “deliberate, structured deposition, often in pits, is an important social practice, leading to the incorporation of large quantities of material in contexts favouring excellent preservation” (2000a: 61). According to the different characteristics, pits filled with complete vessels in KL can be divided into three groups: Group 1, 2, and 3. Deposition of the vessels into pits in different ways can be related to the different purposes or usage of the pits. The first pit group shows that vessels were not put carefully into the pits but rather were thrown and deliberately broken. These vessels were complete before disposal. A few vessels that are still complete inside P1076 and P1327 (Fig. 147) indicate this practice. However, vessels in P369 and P558 could have been broken before throwing. In both cases, throwing complete vessels into pits and breaking them does not seem like an ever-day event. Chapman has proposed different purposes for fragmentation of objects; 1) accidentally broken, 2) burying of an object because it was broken (not deliberately), 2) killing and burying of an object symbolically, 4) dispersal of fragments to enable fertility and 5) deliberate broken for re-used in enchainment (2000b: 23-27). Because these broken vessels were not planned to use any more, they must have been killed and buried. Thus, this practice might be related to “ritualistic death of objects”.

In Groups 2 and 3, vessels were arranged and preserved as complete. This practice might be related to storing food. However, as seen in P775, the smaller vessels were put inside the bigger ones (Fig. 151). Therefore, vessels were preserved without food storage. The form of the vessels found in the pit vary from miniature vessels to large and deep vessels and there are some forms that might have a special function, such as a gourd shaped vessel, miniature vessels and an unguentarium (Fig. 152). The presence of miniature vessels seen in P775 or highly decorated krater in P961 has a potential for ritualistic event. These vessels might be re-used and re-buried, but we have no a certain evidence for this suggestion.

The results of archaeo-botanical analysis (not yet published) suggest that at least a few pits filled with pots had specific function due to the variety of floral remains¹³ uncovered. These remains inside the pits might be offering like mentioned in Hittite written sources (above p. 72, 73). Looking at the small finds coming from these pits, zoo-archaeological and archaeo-botanical studies for the faunal and floral remains found in these pits provide a better overall understanding of the pits. However, the available evidence regarding to the pits filled with vessels in the LIA had potential to be used for different kind of ritualistic events.

¹³Personal communication with Dr Andrew Fairbain (October, 2018).

6.2 Consideration of Special Vessels

In KL, there are a few vessel forms that are needed a more detailed consideration.

The first form is the kraters and two-handled vessels without a neck (Fig. 153). The function of kraters is mostly known as a mixing vessel for wine and water in the Greek world. Yet the examples for a krater form from KL have a small hole under the bottom of the vessel which makes impossible to mix liquid inside the vessel. In Boğazköy, some kraters, not all of them, have a small hole under the bottom. Bossert who has studied on the Iron Age pottery of Boğazköy proposes a function related to the funerary contexts since they have been found in the graves in Boğazköy (2000: 41). I eliminate this possibility for KL material because there is no cemetery in KL. The large vessels with a hole under the bottom from the Late Bronze Age of Near Eastern (Fig. 153; at the right) are called as beer fermentation vessels (Zarnkow, et al., 2011: 47, Fig. 4.1) because of the textual evidence and the depictions of the beer production scenes. Since the Sumerians, the written sources provide clear evidence for the beer production. Civil points out the presence of a few clear evidence for beer production in Near Eastern: 1) a word for beer making vessel on a list of the domestic tools (1996: 57), 2) a word for a beer fermentation vessel (1996: 85) and 3) a song for the goddess Ninkasi lyrics of which is related to the stages of the beer production (1996: 72). Thus the beer production and consumption have a long history in Central Anatolia the kraters from KL might have been used in beer production.

The second form is pots with a narrow neck include one or two handled examples. On the upper part of the body, there is a large hole that resembles the milk processing vessels found in KL (Fig.154, 155) (Powroznik, 2008; Fig. 3). The number and the

shape of the handles are different but the shape of the handle in KL vessel is similar with the handle of a modern *yayık*(churn) which is also a butter production vessel.

A gourd-shaped vessel found inside a large vessel (Fig. 156) in P775 has potential for ritualistic purpose because of its distinctive shape and remarkably high quality fabric. A similar form has not been found so far around Central Anatolia, but an amphora from Pasargadae show similarity (Fig.156). This vessel, which has a narrow neck and two handles attached to the rim and the shoulder and two small holes in the bottom, is regarded as a prototype for metal vessels with its high quality buff fabric (Stronach, 1978: 259). It is the only example from Iran and dated to the 3rd century BC (Stronach, 1978: 184). The function of the vessel is not clarified by the excavators, but a special purpose can be suggested because of the holes in the bottom and high quality fabric.

An unguentarium from P775 can provide precise date for the pit. They were used as offerings in the cemetery contexts and for preserving precious oils in every-day life. Anderson studied on the unguentaria from Stobi in Yugoslavia (1987). He classified unguentaria into two types; fusiform and pear or onion shaped. The unguentarium from KL is defined as “fusiform”. This type has many variations and was used during a few centuries (1987: 108). It becomes appear in the mid of 5th century in Spain and comes to Eastern Mediterranean around the end of 4th century. Because of the location of Central Anatolia, around Eastern Mediterranean rather the west, P775 must, at least, be dated to the end of 4th century or a later period.

Another remarkable point related to the function is repaired vessels. There are some vessels within the KL pottery repertoire were used after they had been repaired (large and deep vessels with and without a neck, trefoil-mouthed jug and one-handled pots with and without a neck) (Fig. 157). On the body of these vessels, there are some small drilled holes on both sides of the broken part. The fragments of the vessel are combined to each other by these holes. Two lead cramps on the broken vessel shows how the holes are used for repairing (Fig. 158) (Branting et al., 2016: 190, fig. 7). The reason for this practice is that repairing of a vessel should be easier than to get a new one. After the repairing, these vessels cannot be used to keep liquid thus they must have been used for dry food stuff like grains.

CHAPTER 7

CONCLUSION

In this study, the LIA pottery of KL was analysed. The LIA consists of four phases, and from the earliest to the latest include: LIA 4, LIA, 3, LIA 2 and LIA1. Since there is no complete vessel from the phases LIA 4 and LIA 2, only the pottery from LIA 3 and LIA 1 has been studied.

Seven ware types have been determined; GW, RW, BrW, BW, BPW, PW, and GWW. The characteristics of phase LIA 3 and LIA 1 have been identified. In the LIA 3 phase, GW and RW are dominant, but the ratio of GW is slightly higher. The ratio of BrW and BW are notably close to each other. Lastly, the BPW, PW, and GWW, which demand a special production process, are represented in limited numbers, but they are typical wares of this period. The main inclusions for this phase are grit and mica. Clay is mainly medium and the ratio of fine clays is relatively high. The main surface treatment is smoothing and polishing in a smaller quantity. The ratios of vessels fired under a reduced and oxidised atmosphere are close to each

other, but reduced vessels are slightly higher. Almost all forms are contained in this phase; basins, one- and two-handled pots with and without neck, trefoil mouthed jugs, deep and large vessels, churns and miniature vessels. The number of trefoil-mouthed jugs and basins is slightly higher. Facetted and panel technique paintings are typical decoration styles of this phase.

In the LIA 1 phase, GW and RW are dominant, but the ratio of GW decreases remarkably and RW becomes predominant. BrW and BW, especially BrW, become typical for the phase. The other wares, BPW, PW, and GWW disappear. Grit is the most common inclusion like the previous phase, and grit decreases and lime, chaff, and combinations of them become appear. Clay is predominantly medium, but fine clay is replaced with coarse and medium clay. Therefore, the quality of clay in the LIA phase is coarser than the previous phase. An oxidised atmosphere is typical for this period, their ratios are significantly higher. Simple horizontal painted bands are the typical decoration motif of this phase. The result of the forms and ware analysis and decoration motifs indicates us a marked difference in the pottery technology between the two phases. This difference must be related to the change in fashion and/or culture.

A comparison between the sites indicates a close and continuing relationship of KL with its eastern and western neighbours. The review of the similar vessels between KL and its western neighbour Gordion shows an influence that continues from the earliest to the latest phase. Similarity can be seen in the forms including basins, and pots with sieve spout, in wares like BPW, GW, and PW and in facetted decorations

in the LIA 3 phase (Middle Phrygian, YHSS-5 in Gordion). In the LIA 1 phase (Late Phrygian, YHSS-4 in Gordion), The different types of basins, miniatures vessels and unguentaria are similar in form. However, there is considerable number of different forms in both phases. Pots made of black-incised and Black on Red from LIA 3phase and Achaemenid bowls, jugs and Lydian painted vessels are absent in KL. Therefore, it is suggested that the western influence on KL pottery is limited but continuing during the Middle (YHSS-5) and Late Phrygian (YHSS-4) periods. However, Hellenistic Period(YHSS-3) cannot be seen in KL since the settlement in KL ended prior to that in Gordion.

The relationship between KL and its eastern neighbours is closer than that in the west in terms of forms. The LIA layers of Boğazköy correspond to LIA 3 in KL. The two areas share a large number of vessel forms including basins, cups, spouted jugs, cooking pots, and amphorae. Additionally, wares like GW and BPW, decoration such as, diamond motif, faceted, and panel technique paintings are common in both sites. An intensive relationship is seen in the similarities in large quantity of material. During the LIA 1phase, the settlement was abandoned in Boğazköy, but the interaction with the east did not come to end. In the LIA 1 phase, the pottery from KL and Alişar Höyük has many common elements. They are very similar to each other in terms of forms; different types of basins, miniature vessels, trefoil- mouthed jugs and spouted pitcher, pots, large vessels, and amphorae wares; GW and BPW, and decorations of simple horizontal band and panel technique paintings. A group of pottery from Alişar Höyük that is different from KL suggests a later period than KL. Kerkenes and Çadır Höyük make only a small contribution to understanding the relationship with the east. The comparison of KL and Kerkenes pottery shows that

the LIA 3phase of KL and Kerkenes are contemporary and also a small group of pottery from Kerkenes proposes that the interaction between two sites began in the beginning of the LIA period (LIA 4 in KL). However, the lack of the pottery from this phase (LIA 4) within my thesis material and the publication about the LIA pottery of Kerkenes, this suggestion is not certain. The LIA 1 phase of KL is different from Kerkenes and this means that interaction between the two sites did not continue for the whole period. The reason for such suggestion is that during the LIA 1 (550-330 BC) the settlement in KL still continued while it was ended in Kerkenes. All these comparisons suggest a homogeneous culture in Central Anatolia and KL is fully integrate into this culture by continuing interaction with the west and the east via the different settlements that were close to each other.

The pits were found in all strata of KL. However, the pits filled with complete vessels are a typical feature of this period. It is clear that this practice is not related every-day activities. These pits must have a place in ritualistic events but different type of pits (3 groups) should be related a different kind of ritualistic event such as offering, symbolic death of pottery or deliberate deposition of vessels to re-used in the ceremonies.

Thus the relative chronology of Central Anatolia can be established according to the results of the comparisons. One of the aims of this study was to explain the possible period of the LIA 2 phase. In the light of this information, we can estimate the possible date of this phase that is represented with by monumental buildings. The LIA 3 phase of KL begins around the first quarter of the 6th century BC and

continues to the beginning of the LIA 1 phase which is around the end of this 4th century BC. LIA 3 and LIA 2 continue through two centuries. Thus the phase of LIA 2 must belong to mid 5th century that corresponds to the Achaemenid administration of Ancient Anatolia. An Achaemenid type stamp seal, which is not a trade object thus it must belong to this site, might be an indication of the presence of Achamenids in KL. Seals are administration-related objects hence the administrator of KL in that time can be in contact with Achamenids or is influenced by Achamenids. I eliminate the presence of a direct Achamenid administration in KL because of the lack of a considerable number of Achaemenid findings like in Sardis or Daskyleion which are Achaemenid satrapies. In KL the most of the objects and pottery are locally produced. The Achaemenid influence must have been limited only with elites of the city and the people was substantially survived their local culture. Therefore, I propose the presence of a local administration influenced by Achaemenid culture.

This study contributes to understanding of the LIA pottery of KL and its place in the pottery tradition of Central Anatolia. The LIA pottery of KL fully integrates the homogeneous pottery culture in the region with small local differences. Parallels in the changes in the pottery technology from the mid to the end of the period (from LIA 3 to LIA 1) can be followed both in KL and in Central Anatolia. The pottery is only one aspect of understanding of these cultural changes, in this regard this thesis enables to determine this phenomenon. Additionally, this study provides a basis for examining the social and spiritual aspect of these societies based on pit usage. Further study by considering the pottery with the other objects, faunal and floral remains from these pits make possible better understating. Lastly, the catalogue of

this thesis can help a further study on the pottery and determination the relative chronology for LIA of the sites Çadır Höyük and Kerkenes.



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TABLES

Tablo 1: Correlation between the South and North Sectors.

	The South Sectors	The North Sectors
LIA 4	IIa6, IIa7, IIa8	IIa6- IIc1
LIA 3	IIa5, IIa4	
LIA 2	IIa3, IIa2	IIa3-5
LIA 1	IIa1	IIa1-2

Tablo 2: Table of the stratigraphical and contextual distribution of the pottery.

	LIA 3	LIA 1	Indefinite	Total
Pit	24	57	32	113
Building	14	3	0	17
Filling	7	4	9	20
Total	45	64	41	150

Tablo 3: Chronological and contextual information of the thesis material.

Cat. No:	Phase:	Sector:	Grid:	Deposit:	Provisional Layer:
1	LIA 3	I-XXVIII		P1185	10
2	Indefinite	I	LXIII-55(D)	P1327	42
3	LIA 3	XI	LXVII-59 (LL)	R8	5
4	LIA 3	XI	LXVII-59 (LL)	R8	5
5	LIA 3	I		P1279	20
6	LIA 3	LVII	LV-48(91)	Filling	15
7	LIA 3	XLIX	LIV-57(58)	Filling	9g
8	LIA 1	XLIX	LV-56 (59)	P369	5
9	LIA 1	XLIX	LV-56 (59)	P369	5
10	LIA 1	XLIX	LV-56 (59)	P369	5
11	LIA 1	XXVII	LVII-52 (gg)	P494	10
12	LIA 3	XXVIII		Filling	40
13	Indefinite	XXVI	LIX-52(cc)	P813	8
14	LIA 3	LVII	LV-48(91)	Filling	15
15	Indefinite	XXVIII	LX-54(ii)	P1076	52
16	LIA 3	II	LXIV-54 (E)	R7	?
17	LIA 3	III		P1160	14
18	LIA 3	III		P1188	27
19	LIA 1	LVII-LVIII		P775	10
20	LIA 1	LVII-LVIII		P775	10
21	LIA 1	LV	LX-50 (81)	P558	19
22	LIA 1	XLIX	LV-56 (59)	P369	5
23	LIA 1	LV	LX-50 (81)	P558	19
24	LIA 1	LVII-LVIII		P775	10
25	Indefinite	XXXII	LVI-51 (B)	P517	10a
26	LIA 1	XL	LIX-54(23)	P955	28
27	LIA 1	LV	LX-50 (81)	P558	19
28	Indefinite	XXVIII	LX-54(ii)	P1076	52
29	Indefinite	III		Filling	9
30	Indefinite	XXV	LV-52(u)	P?	10a
31	Indefinite	XXVIII	LX-54(ii)	P1076	52
32	Indefinite	XXV	LV-52(u)	P?	10a
33	Indefinite	XXV	LV-52(u)	P?	10a

(cont'd)

Cat. No:	Phase:	Sector:	Grid:	Deposit:	Provisional Layer:
34	Indefinite	XXV	LV-52(u)	P?	10a
35	LIA 3	I- XXVIII		P1185	10
36	LIA 3	XI	LXVII-59 (LL)	R8	5
37	LIA 1	XXVIII		R204	25
38	LIA 1	XXV	LX-52 (v)	P594	12a
39	LIA 1	XL	LIX-54(23)	P955	28
40	LIA 1	LVII-LVIII		P775	10
41	LIA 1	LV	LX-51(82)	P572	?
42	LIA 1	XXVII	LVII-52(gg)	P494	?
43	LIA 1	LV	LX-51 (82)	P572	?
44	LIA 1	LV	LX-51(82)	P572	?
45	LIA 1	LV	LX-50 (81)	P558	19
46	LIA 1	XLIX	LV-56 (59)	P369	5
47	Indefinite	LIV	LIX-51(80)	P961	24
48	Indefinite	XXII	LXIV-52(e)	P1423	8
49	Indefinite	XXV	LV-52(u)	P?	10a
50	Indefinite	XXV	LV-52(u)	P?	10a
51	LIA 3	XI	LXVII-59 (LL)	R8	5
52	Indefinite	I	LXIII-55(D)	P1327	42
53	LIA 3	II	LXIV-54 (E)	R7	?
54	LIA 3	III		P1167	18
55	LIA 3	XI	LXVII-59 (LL)	R8	5
56	LIA 1	XXVIII		P1135	51
57	Indefinite	XXV	LV-52(u)	P?	10a
58	LIA 1	LVII-LVIII		P775	10
59	LIA 1	LV	LX-50 (81)	P558	19
60	LIA 1	XLIX	LV-56 (59)	P369	5
61	Indefinite	XXV	LXI-53(x)	Filling	13
62	Indefinite	XXV	LV-52(u)	P?	10a
63	Indefinite	XXV	LV-52(u)	P?	10a
64	LIA 1	LV	LX-50 (81)	P558	19
65	LIA 3	LVI	LIII-49(87)	P624	28
66	LIA 3	XI	LXVII-59 (LL)	R8	5
69	LIA 1	LVII-LVIII		P775	10
70	LIA 1	LVII-LVIII		P775	10

(cont'd)

Cat. No:	Phase:	Sector:	Grid:	Deposit:	Provisional Layer:
67	LIA 3	XXV	LX-52(u)	P543	13a
68	LIA 1	LVII-LVIII		P775	10
71	LIA 1	XLIX	LV-56 (59)	P369	5
72	LIA 1	LVII-LVIII		P775	10
73	Indefinite	XXXII	LVI-51 (B)	P517	10a
74	LIA 1	LVII-LVIII		P775	10
75	LIA 1	XLIX	LV-56 (59)	P369	5
76	LIA 1	LV	LX-50 (81)	P558	19
77	LIA 1	XLIX	LV-56 (59)	P369	5
78	Indefinite	XXVIII	LX-54(ii)	P1076	52
79	Indefinite	XXI	LXIII-52 (k)	P1424	8
80	LIA 3	XI	LXVII-59 (LL)	R8	5
81	LIA 1	XXVIII		R204	25
82	LIA 3	XXVIII		R209	39
83	LIA 3	II	LXIV-54 (E)	R7	?
84	LIA 3	III		P1304	44
85	LIA 3	XI	LXVII-59 (LL)	R8	5
86	LIA 3	XI	LXVII-59 (LL)	R8	5
87	LIA 3	XXX		P1383	34
88	Indefinite	I	LXIII-55(D)	P1327	42
89	LIA 3	I		P1300	35
90	Indefinite	I	LXIII-55(D)	P1327	42
91	LIA 1	XXVIII		R206	29
92	LIA 1	XXVIII		R206	29
93	LIA 1	LV	LX-51(82)	Filling	17
94	LIA 1	LV	LXI-50 (83)	P585	19
95	Indefinite	I-III		Filling	12
96	Indefinite	XXII	LXIV-52(e)	P1423	8
97	Indefinite	III		East section	-
98	Indefinite	XXV	LXI-53(x)	Filling	13
99	Indefinite	I	LXIII-55(D)	P1327	42
100	LIA 3	I		P1364	45
101	LIA 3	XXV	LX-52(u)	P543	11a
102	Indefinite	XXXII	LVI-51 (B)	P517	10a
103	Indefinite	XXII	LXIV-52(e)	P1423	8

(cont'd)

Cat. No:	Phase:	Sector:	Grid:	Deposit:	Provisional Layer:
104	Indefinite	LIV	LIX-51(80)	P961	24
105	Indefinite	LIV	LIX-51(80)	P961	24
106	LIA 3	XXVIII		P1131	48
107	Indefinite	I	LXIII-55(D)	P1327	42
108	LIA 3	XI	LXVII-59 (LL)	R8	5
109	Indefinite	XXVIII	LX-54(ii)	P1076	52
110	LIA 1	LVII-LVIII		P775	10
111	LIA 1	XLIX	LV-56 (59)	P369	5
112	LIA 1	LVII-LVIII		P775	10
113	Indefinite	XXVIII	LX-54(ii)	P1076	52
114	Indefinite	I	LXIII-55(D)	P1327	42
115	Indefinite	LIV	LIX-51(80)	P961	24
116	Indefinite	XXI		Filling	22
117	Indefinite	XXI		P1410	25
118	Indefinite	XXVIII	LX-54(ii)	P1076	52
119	LIA 1	LVII-LVIII		P775	10
120	LIA 1	XLIX	LV-56 (59)	P369	5
121	LIA 1	XLIX	LV-56 (59)	P369	5
122	LIA 1	LVII-LVIII		P775	10
123	Indefinite	XXV		P1076	32
124	Indefinite	XXV	LV-52(u)	P?	10a
125	Indefinite	XXVIII	LX-54(ii)	P1076	52
126	Indefinite	XXV	LV-52(u)	P?	10a
127	Indefinite	XXV	LV-52(u)	P?	10a
128	Indefinite	XXV	LV-52(u)	P?	10a
129	LIA 1	LVII-LVIII		P775	10
130	LIA 1	XL		P955	28
131	LIA 1	XXVI	LVIII-52 (aa)	P483	10a
132	Indefinite	XXXI	LXXI-57(Y)	Filling	4
133	Indefinite		Unknown	Context	
134	LIA 3	I		P1365	46
135	LIA 1	XLIX	LV-56 (59)	P369	5
136	Indefinite	XXI	LXIII-52 (k)	P1424	8
137	Indefinite	I	LXIII-55(D)	P1327	42
138	LIA 3	XI	LXVII-59 (LL)	R8	5

(cont'd)

Cat. No:	Phase:	Sector:	Grid:	Deposit:	Provisional Layer:
139	LIA 3	LVI	LII-49(86)	Filling	14b
140	LIA 3	XI	LXVII-59 (LL)	R8	5
141	LIA 3	XXVIII		P1259	96
142	LIA 1	LVII-LVIII		P775	10
143	LIA 1	LVII-LVIII		P775	10
144	LIA 1	XXVI	LVIII-52(aa)	P483	10a
145	LIA 1	LVII-LVIII		P775	10
146	LIA 1	XVII	LXX-55(NN)	Filling	6
147	LIA 1	LIV	LVIII-51(78)	18o/L	15
148	LIA 1	LV	LX-51(82)	P572	?
149	LIA 1	LVII-LVIII		P775	10
150	Indefinite	XXXII-LIV		Filling	1

Tablo 4: Size of inclusions (Orton & Hughes, 2013: 281).

very fine:	up to 0.1 mm
fine:	0.1 to 0.25 mm
medium:	0.25 to 0.5 mm
coarse:	0.5 to 1 mm
very coarse:	larger than 1 mm

Tablo 5: Signs used on the vessels made of special wares.

▲	Gray Ware
■	Black Polished Ware
○	Plumbeous Ware
•	Gold Wash Ware

Tablo 6: Abbreviation table for catalogue information.

Out.	Outer
In.	Inner
S. T.	Surface Treatment
Inc.	Inclusion
RD	Rim Diameter
H	Height



Tablo 7: Detailed catalogue information about the thesis material.

Cat. No:	Colour out.:	Colour in.:	Colour core:	S.T. out./in.:	Inc.(density+size):	RD/ H:
1	N 3/0	N 3/0	N 4/0	Sm/Sm	G+M(h+m)	30/9.7
2	N 3/0	N 3/0	N 3/0	Sm/Sm	G(h+m)	23/6.9
3	2.5Y 6/1	2.5Y 5/1	2.5Y 4/1	Sm/Sm	G(f+c)	29/ 8.4
4	N 4/0	N 3/0	10YR 4/2	Po/Po	G(f+f)	23/7.6
5	10YR 7/3	10YR 7/3	7.5YR 5/6	Sm/Sm	G+M(h+m)	27/ 8.8
6	2.5Y 7/2	7.5YR 7/1	7.5YR 7/4	Sm/Sm	G+L(h+c)	29/ 9
7	7.5 Y 4/1	7.5 Y 4/1	N 5/0	Po/Po	G(h+f)	?/2.8
8	10R 5/8	10R 5/8	10R 5/8	Sm/Sm	G(h+c)	19.2/5.4
9	2.5YR 6/6	2.5YR 6/6	5YR 6/2	Br/Sm	G(f+m)	19.4/5
10	7.5YR 7/4	7.5YR 6/4	7.5YR 7/3	Sm/Sm	G+C(h+m)	18/5.4
11	5 YR 6/4	7.5 YR 7/4	7.5 YR 7/4	Sm/Sm	G(f+f)	24/8.6
12	7.5YR 7/6	10R 5/6	2.5YR 5/6	Sm/Sm	G(h+m)	9.8/7.3
13	5YR 1.7/1	5YR 1.7/1	7.5YR 5/2	Po/Po	G(h+f)	12/ 7
14	7.5YR 6/4	2.5YR 6/6	5YR 6/6	Sm/Sm	G+M(h+c)	34.5/ 18.2
15	2.5YR 5/6	2.5YR 5/6	2.5YR 5/8	Sm/Sm	G+L(h+c)	41/ 21.6
16	10 YR 7/4	10 YR 4/2	10 YR 4/2	Br/Sm	G+M(h+c)	22/ 29.6
17	7.5YR 5/4	7.5YR 5/4	7.5YR 5/3	Sm/Sm	G+M+L(f+m)	14/ 20.5
18	2.5YR 5/6	2.5YR 5/6	2.5YR 3/1	Sm/Sm	G+M(h+m)	11.2/ 16
19	10YR 6/1	10YR 6/4	2.5Y 5/1	Sm/Sm	G+M(h+m)	9.8/ 12
20	7.5YR 6/4	5YR 6/4	5YR 6/4	Sm/Sm	G+L(f+m)	9.4/ 11
21	5 YR 5/3	2.5YR 5/3	2.5YR 5/4	Sm/Sm	G+M+L(h+m)	17/ 23.6
22	2.5YR 5/6	2.5YR 5/6	2.5YR 6/8	Br/Sm	G(h+m)	18.6/25.7
23	10R 6/4	10R 5/6	2.5YR 5/4	Po/Sm	G+L(h+c)	18/26
24	5Y 3/1	5Y 4/1	2.5Y 4/2	Po/Sm	G+M(h+m)	14.6/ 20.2
25	7.5YR 5/3	5YR 6/4	2.5YR 6/6	Sm/Sm	G+L(h+m)	18.6/ 24.4
26	10 R 5/6	2.5 YR 6/6	2.5 YR 7/4	Br/Sm	G(h+m)	16/24.3
27	10 R 5/6	10 R 5/6	10 R 5/6	Br/Sm	G+L(f+m)	18/12
28	N 2/0	5YR 6/3	N 2/0	Sm/Sm	G(h+m)	10.2 /14.1
29	5YR 7/1	5YR 7/4	5YR 7/4	Sm/Sm	G+M(h+m)	8.8/ 9.8
30	5YR 5/3	5YR 5/3	10YR 6/3	Br/Sm	G(h+m)	14/ 18.6

(cont'd)

Cat. No:	Colour out.:	Colour in.:	Colour core:	S.T. out./in.:	Inc.(density+size):	RD/ H:
31	10R 6/6	10R 6/6	2.5YR 5/1	Sm/Sm	G+M(f+m)	11.6/ 14.4
32	2.5YR 5/6	2.5YR 6/6	2.5YR 5/6	Br/Sm	G(h+m)	14/16
33	5YR 6/4	5YR 6/4	2.5YR 6/4	Sm/Sm	G(h+m)	16/ 24.4
34	5YR 5/3	5YR 5/3	5 YR 5/3	Sm/Sm	G+M(h+m)	15.5/ 19.8
35	N 3/0	N 3/0	N 3/0	Sm/Sm	G+M(f+c)	14/ 15.3
36	10 YR 7/3	10 YR 7/3	10 YR 4/3	Sm/Sm	G+M(h+m)	10.4/15.1
37	5YR 5/3	2.5YR 6/4	N 5/0	Sm/Sm	G(h+m)	12/ 13.9
38	7.5 YR 7/3	7.5 YR 6/3	5YR 6/4	Sm/Sm	G+M+L(h+m)	15/ 15.2
39	2.5YR 5/6	10R 6/8	N 5/0	Sm/Sm	G(h+m)	?/20.4
40	5YR 6/4	5YR 6/4	5YR 6/1	Sm/Sm	G(f+m)	16.8/ 21.8
41	10 YR 5/3	10 YR 5/3	5 Y 5/1	Sm/Sm	G+M+C(h+m)	11/13.3
42	7.5 YR 4/3	7.5 YR 5/3	7.5 YR 5/4	Sm/Sm	G(h+m)	16/22.7
43	10 YR 6/3	10 YR 6/3	10 YR 6/3	Sm/Sm	G(f+c)	16.5/12
44	7.5 YR 7/3	7.5 YR 7/3	10 YR 6/1	Sm/Sm	G+M(h+c)	20/16.7
45	10 R 4/6	10 R 5/6	10 R 5/6	Po/Sm	G(f+c)	16/8.6
46	7.5 YR 5/3	7.5 YR 5/3	7.5 YR 6/3	Sm/Sm	G(h+m)	12/9.8
47	2.5Y 7/2	2.5Y 5/1	2.5Y 4/1	Sm/Sm	G+M(h+m)	11.7/ 12
48	10R 5/4	10R 5/3	2.5YR 6/3	Sm/Sm	G(h+c)	16.5/ 23
49	2.5YR 5/4	2.5YR 5/3	5YR 7/2	Sm/Sm	G(f+m)	14/ 22.8
50	7.5YR 4/1	7.5YR 6/3	5YR 6/3	Sm/Sm	G(h+m)	?/21.8
51	2.5 Y 8/3	2.5 Y 7/2	?	Sm/Sm	G(h+m)	32/ 30
52	7.5YR 6/2	N 5/0	10R 5/6	Po/Sm	G(h+m)	29/ 28.2
53	2.5 YR 6/4	2.5 YR 6/4	7.5 YR 4/2	Br/Sm	G(f+f)	15/ 17.5
54	N 5/0	N 6/0	N 6/0	Sm/Sm	G+M(f+c)	21/ 23.2
55	2.5 YR 5/6	10 YR 6/3	10 YR 5/3	Sm/Sm	G(h+f)	23/ 36.2
56	5YR 6/4	7.5YR 6/3	N 4/0	Sm/Sm	G+M(f+m)	21/ 27.7
57	10 YR2/1	7.5 YR 7/3	10 YR 3/2	Sm/Sm	G+M(h+m)	30/31.5
58	2.5YR 5/4	2.5YR 4/2	2.5YR 5/6	Sm/Sm	G+L(f+c)	21/33
59	5 YR 4/3	5 YR 6/3	5 YR 5/3	Sm/Sm	G+M+L(h+m)	18/ 30.1
60	5YR 6/6	5YR 6/4	2.5YR 6/4	Sm/Sm	G(f+c)	23.3/36.1

(cont'd)

Cat. No:	Colour out.:	Colour in.:	Colour core:	S.T. out./in.:	Inc.(density+size):	RD/ H:
61	10YR 6/2	10YR 6/3	7.5YR 5/1	Sm/Sm	G+M(f+c)	10.8/11.9
62	2.5YR 5/6	2.5YR 5/6	10R 5/6	Sm/Sm	G(f+m)	20.9/ 33
63	5YR 5/6	2.5YR 6/4	10YR 6/4	Po/Sm	G+M(h+f)	28/ 31.8
64	2.5 YR 5/3	2.5YR 5/2	2.5YR 5/2	Po/Sm	G+C(h+c)	31/9.4
65	2.5 Y 4/1	2.5 Y 6/1	2.5 Y 3/1	Sm/Sm	G+M(f+m)	32/66
66	7.5 Y 5/1	2.5 Y 6/3	10 GY 5/1	Sm/Sm	G(h+c)	26/64
67	10 YR 5/2	10 YR 5/2	10 YR 4/3	Br/Sm	G+M+C(h+c)	25/34.5
68	7.5YR 6/4	7.5YR 6/4	7.5YR 6/4	Sm/Sm	G(f+m)	25/ 54.4
69	2.5YR 6/4	2.5YR 6/3	2.5YR 6/6	Sm/Sm	G(f+m)	17.5/ 60
70	2.5YR 5/4	2.5YR 6/4	2.5YR 6/4	Sm/Sm	G+L(f+c)	18/ 30.7
71	2.5YR 5/6 - 5Y 6/2	10R 4/6	2.5YR 4/8	Sm/Sm	G+L(f+c)	/28.8
72	10R 5/6	10R 6/4	10R 5/6	Sm/Sm	G(f+m)	11/ 37.9
73	10R 6/6	10R 6/6	10R 6/6	Po/Sm	G+M+L (f+m)	10.5/ 34
74	7.5YR 5/3	7.5YR 6/4	5YR 6/4	Sm/Sm	G(f+f)	9.8/ 27.4
75	5YR 6/3	2.5YR 6/4	5YR 6/3	Sm/Sm	G+M+L (h+m)	.3/25.3
76	10 YR 5/1	7.5 YR 6/1	2.5 YR 4/4	Po/Sm	G(h+m)	7.5/22
77	5YR 7/4	7.5YR 6/4	5YR 6/4	Br/Sm	G(f+c)	?/29.5
78	10R 5/4	10 R 6/6	10 R 6/4	Po/Sm	G+L(h+m)	12/ 38
79	5YR 7/4	7.5YR 7/3	5YR 7/4	Sm/Sm	G+L(f+m)	11/32
80				Sm/Sm	G(h+m)	?/33.5
81	7.5YR 4/1	5YR 5/1	2.5Y 6/1- 2.5YR 6/6	Br/Sm	G(h+m)	?/31.7
82	N 2/0	N 4/0	N 4/0	Po/Sm	G(h+f)	-/8.9
83	N 4/0	N 4/0	N 3/0	Po/Sm	G(f+f)	-/14.6
84	7.5 YR 4/1	7.5 YR 5/1	10 YR 4/1	Sm/Sm	G+M(f+c)	-/7.8
85	5 Y 3/1	5 Y 3/1	5 Y 3/1	Po/Sm	G(f+f)	-/10.6
86	2.5 Y 3/1	2.5 Y 4/1	2.5 Y 4/1	Po/Sm	G(f+f)	-/16.1
87	5Y 2/1	5Y2/1	N 3/0	Po/Sm	G+M(f+f)	-/19
88	N 3/0	N 3/0	N 3/0	Po/Sm	G(f+c)	-/13.6
89	10YR 8/2	10YR 8/2	2.5YR 6/5	Sm/Sm	G(h+m)	-/10.8
90	N 4/0	N 4/0	N 3/0	Po/Sm	G(f+f)	-/14.6
91	N 3/0	N 3/0	N 2/0	Po/Sm	G(h+f)	-/10.3
92	5YR 5/4	N 4/0	2.5YR 5/2	Sm/Sm	G(h+f)	-/9
93	N 1.5/0	N 3/0	N 3/0	Po/Sm	G(f+f)	-/11.6
94	2.5 Y 5/1	7.5 YR 4/2	10 YR 5/1	Po/Sm	G(f+m)	-/11.3
95	5Y 2/1	5Y 4/1	5Y 4/3	Br/Sm	G+L+M (f+f)	-/8.5

(cont'd)

Cat. No:	Colour out.:	Colour in.:	Colour core:	S.T. out./in.:	Inc.(density+size):	RD/ H:
96	5YR 6/4	5YR 7/4	7.5Y 6/1	Po/Sm	G(h+f)	-/16.2
97	N3/0	N 3/0	2.5Y 6/1	Po/Sm	G(f+f)	-/13.3
98	10R 3/1	5YR 5/4	5YR 5/4	Sm/Sm	G(f+m)	-/12
99	N 5/0	N 5/0	10 R 5/6	Po/Sm	G+M(h+m)	-/37.4
100	10R 5/6	2.5YR 5/4	N 4/0	Sm/Sm	G+L(h+m)	-/27.5
101	7.5 YR 5/3	2.5 Y 5/1	2.5 Y 5/1	Sm/Sm	G+M+C(h+m)	-/30.3
102	5YR 6/2	10R 5/6	10R 5/6	Sm/Sm	G(f+f)	-/35.4
103	5YR 7/6	5YR 7/6	?	Sm/Sm	G+L(h+m)	-/40
104	2.5 Y 5/1	2.5 Y 5/1	2.5 Y 5/1	Sm/Sm	G+M(f+m)	-/35.2
105	10 YR 7/4	10 YR 6/2	5 YR 7/4	Sm/Sm	G(h+m)	-/39
106	5YR 6/4	2.5YR 6/4	2.5YR 6/4	Po/Sm	G+L(f+f)	-/31.1
107	N 4/0	N 4/0	N 4/0	Po/Sm	G+M(h+m)	14/ 30.1
108	2.5 Y 8/3	2.5 Y 7/2	?	Po/Sm	G(f+f)	14.4/32.5
109	2.5YR 6/4	10R 5/6	10R 5/6	Sm/Sm	G+L(h+m)	16/ 33.1
110	2.5YR 6/4	2.5YR 6/4	2.5YR 6/4	Sm/Sm	G(f+f)	11.1/ 24.4
111	2.5YR 6/6	5YR 7/6	2.5YR 6/6	Sm/Sm	G(f+c)	14.5/55.5
112	2.5YR 4/4	2.5YR 4/4	5YR 6/4	Sm/Sm	G(f+c)	28/ 58
113	5YR 5/6	5YR 5/6	5YR 5/8	Sm/Sm	G+M(h+c)	?/46.9
114	N 3/0	N 3/0	2.5YR 4/4	Po/Sm	G+M(h+m)	32/ 30
115	2.5YR 5/6	7.5YR 7/4	?	Po/Sm	G+M(f+f)	38.4/ 34.6
116	7.5Y 7/1	7.5Y 4/1	N 7/0	Br/Sm	G+M(h+m)	20/ 18.3
117	10R 5/4	5YR 6/3	5Y 2/1	Sm/Sm	G(f+f)	25.4/ 28.4
118	2.5YR 6/8	5YR 6/4	5YR 6/4	Sm/Sm	G+L(h+m)	23,6/ 34
119	5YR 6/4	5YR 6/4	5YR 7/3	Po/Sm	G(f+m)	31.5/ 55.2
120	5Y 7/2	5Y 7/2	5Y7/2-10R5/4	Sm/Sm	G(h+m)	11.2/29
121	2.5YR 6/4	2.5YR 6/6	2.5YR 6/6	Po/Sm	G+M(h+m)	11/29.5
122	5YR 6/4	5YR 6/6	5YR 6/6	Sm/Sm	G+M(h+m)	12.8/ 36.4
123	7.5 YR 4/6	2.5YR 5/6	10 R5/6	Sm/Sm	G+L(h+m)	9.5/21.2
124	2.5YR 6/8	5YR 6/4	5YR 6/4	Po/Sm	G(h+m)	13.9/ 40.3
125	2.5YR 5/6	5YR 5/6	5YR 5/6	Sm/Sm	G+M(h+c)	?/36.4
126	5YR 6/4	2.5YR 7/6	2.5YR 7/6	Sm/Sm	G(f+c)	15.2/ 42.8

(cont'd)

Cat. No:	Colour out.:	Colour in.:	Colour core:	S.T. out./in.:	Inc.(density+size):	RD/ H:
128	2.5YR 5/8	2.5YR 5/6	2.5YR 5/6	Sm/Sm	G+M(h+c)	-/31.6
129	10YR 4/1	10YR 4/1	10YR 4/1	Po/Sm	G(h+f)	8.6/ 16.5
130	10YR 7/4	5YR 6/6	5YR 6/6	Sm/Sm	G+C(f+m)	5/21
131	5 YR6/4	7.5 YR 8/2	5 YR 7/1	Sm/Sm	G(h+c)	-/11.3
132	7.5 YR 5/2	10 YR 6/1	7.5 YR 7/1	Po/Sm	G(h+f)	-/8.1
133	5 YR 7/4	5 YR 7/3	5 YR 7/3	Po/Sm	G(f+f)	-/8.5
134	10 YR 5/2	10 YR 5/2	7.5 YR 6/2	Br/Sm	G(h+m)	?/26.4
135	10R 3/6	5YR 6/4	10YR 6/2	Sm/Sm	G(h+m)	?/28.5
136	2.5YR 6/6	2.5YR 6/6	2.5YR 6/6	Br/Sm	G+L(h+m)	?/26.1
137	7.5YR 5/1	N 2/0	10 R 3/1	Sm/Sm	G+M(f+c)	13.7/4.3
138	10 YR 5/3	10 YR 5/3	10 YR 3/2	Sm/Sm	G(f+m)	5.6/6.7
139	2.5Y 4/1	2.5Y 4/1	2.5Y 5/1	Sm/Sm	G+M(h+c)	6/9.2
140	10 YR 5/1	10 YR 5/1	10 YR 5/1	Sm/Sm	G+M(f+m)	7.7
141	2.5 YR 5/8	2.5 YR 5/8	7.5 YR 5/3	Sm/Sm	G+M(f+m)	10/3.8
142	5YR 7/4	7.5YR 7/3	5YR 7/4	Sm/Sm	G+L(f+m)	?/7.5
143	7.5YR 7/3	7.5YR 6/3	5YR 6/3	Sm/Sm	G+L(f+m)	?/ 7.6
144	7.5YR 5/3	7.5YR 6/2	5YR 5/4	Sm/Sm	G(f+c)	6/5.4
145	5YR 6/3	7.5YR 7/4	7.5YR 7/4	Sm/Sm	G(h+m)	4.6/ 6.4
146	7.5YR 6/4	7.5YR 5/3	7.5YR 6/4	Sm/Sm	G+M(h+f)	? /5.8
147	10YR 6/2	7.5YR 6/3	10YR 6/2	Br/Sm	G+M(f+m)	5.2/ 6.5
148	7.5 YR 5/2	7.5 YR 3/1	7.5 YR 6/2	Sm/Sm	G+M(h+m)	4/5.3
149	2.5YR 5/6	2.5YR 5/4	2.5YR 4/6	Sm/Sm	G(h+f)	?/ 8.7
150	10 YR 4/1	10 YR 4/1	10 YR 5/3	Sm/Sm	G(f+m)	6.1/9.1

Tablo 8: Table of stratigraphical distribution of ware types.

	LIA 3	LIA 1	TOTAL
GW	18	9	27
RW	6	25	31
BW	8	14	22
BrW	5	15	20
BPW	3	1	4
GWW	2	0	2
PW	3	0	3
TOTAL	46	64	109

Tablo 9: Table of stratigraphical distribution of inclusions.

	LIA 3	LIA 1	Total
Grit (G)	21	35	56
Mica (M)	17	12	29
Lime (L)	4	9	13
Chaff (C)	0	2	2
Mica+Lime (ML)	1	5	6
Mica+Chaff (MC)	2	1	3

Tablo 10: Table of stratigraphical distribution of clay.

	LIA 3	LIA 1	Total
Fine	12	8	20
Medium	22	40	62
Coarse	11	16	27
Total	45	64	109

Tablo 11: Table of stratigraphical distribution of surface treatment.

	Smoothed	Burnished	Polished	Total
LIA 3	26	4	15	45
LIA 1	46	7	11	64
Total	72	11	26	109

Tablo 12: Stratigraphical distribution of forms.

	LIA 3	LIA 1	Total
Basin	7	4	11
Cooking pot.	4	19	23
2 Handled p.	5	5	10
Trefoil mj.	12	5	17
Pot w Neck+1Handle	0	7	7
Amphora	2	0	2
Large v.	3	7	10
Miniature v.	5	8	13
Churn	1	3	4
Other	6	6	12
Total	45	64	109

Tablo 13: Stratigraphical distribution of forms.

	LIA 3	LIA 1	Indefinite
Panel tech.	2	0	0
Band (monochrome)	0	4	1
Band (bichrome)	0	2	0
Geometric (monochrome)	0	0	1
Geometric (bichrome)	0	0	1

Tablo 14: Detailed information about the decorated vessels.

Cat. No.:	Period:	Ware Type:	Colour outer:	Colour inner:	Colour core:	Colour painting:	Decoration:
114	LIA 1	BW	5Y 7/2	5Y7/2	5Y7/2-10R5/4	7.5YR 4/3	Simple band monochrome
142	LIA 1	RW	5YR 7/4	7.5YR 7/3	5YR 7/4	10R 5/6	Simple band monochrome
149	LIA 1	RW	2.5YR 5/6	2.5YR 5/4	2.5YR 4/6	10R 5/6	Simple band monochrome
126	Indefinite	BrW	10R 5/2	2.5YR 6/4	10R 6/4	7.5R 4/3	Simple band monochrome
64	LIA 1	BrW	2.5YR 5/3	2.5YR 5/2	2.5YR 5/2	10R 4/6	Simple band monochrome
11	LIA 1	BW	5YR 6/4	7.5 YR 7/4	7.5 YR 7/4	2.5YR4/2-7.5R4/4	Simple band bichrome
106	LIA 3	RW	5YR 6/4	2.5YR 6/4	2.5YR 6/4	2.5YR8/3 - 2.5YR5/6	Panel technique
108	LIA 3	RW	2.5YR 6/6	2.5 YR 5/4	2.5 YR 5/4	10R3/2-5YR 7/3	Panel technique
79	Indefinite	RW	5YR 7/4	7.5YR 7/3	5YR 7/4	10R 4/6	Geometric monochrome
123	Indefinite	RW	2.5YR 5/6	7.5YR 7/4	?	2.5Y 8/2-5YR 3/2-10YR 3/6	Geometric trichrome

Tablo 15: Detailed information about the decorated vessels.

	LIA 3	LIA 1	Indefinite
Grooves	4	6	3
Wave motif.	0	2	0
Slashes	1	0	0
Facetted m.	1	0	0

Tablo 16: The relative chronology table of LIA in Central Anatolia.

Date (BC)	Kaman-Kalehöyük	Gordion	Boğazköy	Alişar Höyük	Çadır Höyük	Kerkenes
ca. 700	LIA 4		BK II			✓?
			BK I			
ca. 600	LIA 3	YHSS-5	(a, b, c)		✓?	✓
ca. 400	LIA 2					
ca. 300	LIA 1	YHSS-4		3a-bM	✓	?
				2a-bM		
		YHSS-3				

Tablo 17: Pits and pots according to the layers of LIA.

	Pits:	Pots:
LIA 3:	15	24
LIA 1:	11	56
Indefinite:	8	33
Total:	34	113

Tablo 18: List of pits and pots found inside these pits according to the different groups and layers of the LIA.

	LIA 3 (Pots)	LIA 1(Pots)	Indefinite (Pots)
Group 1	P1327 (8)	P483 (2) P558 (8) P369 (12) P775 (19)	P1076 (9)
Group 2		P517 (3) P955 (3)	P961 (4) P1423 (3)
Group 3	P1383 (1) P1160 (1) P1167 (1) P1188 (1) P1300 (1) P1304 (1) P1279 (1) P1364 (1) P1259 (1) P624 (1) P1365 (1) P1185 (2) P131 (1) P543 (2)	P1135 (1) P594 (1) P494 (2) P572 (1)	P? (12) P1410 (1) P1424 (2) P? (1) P813 (1)

FIGURES

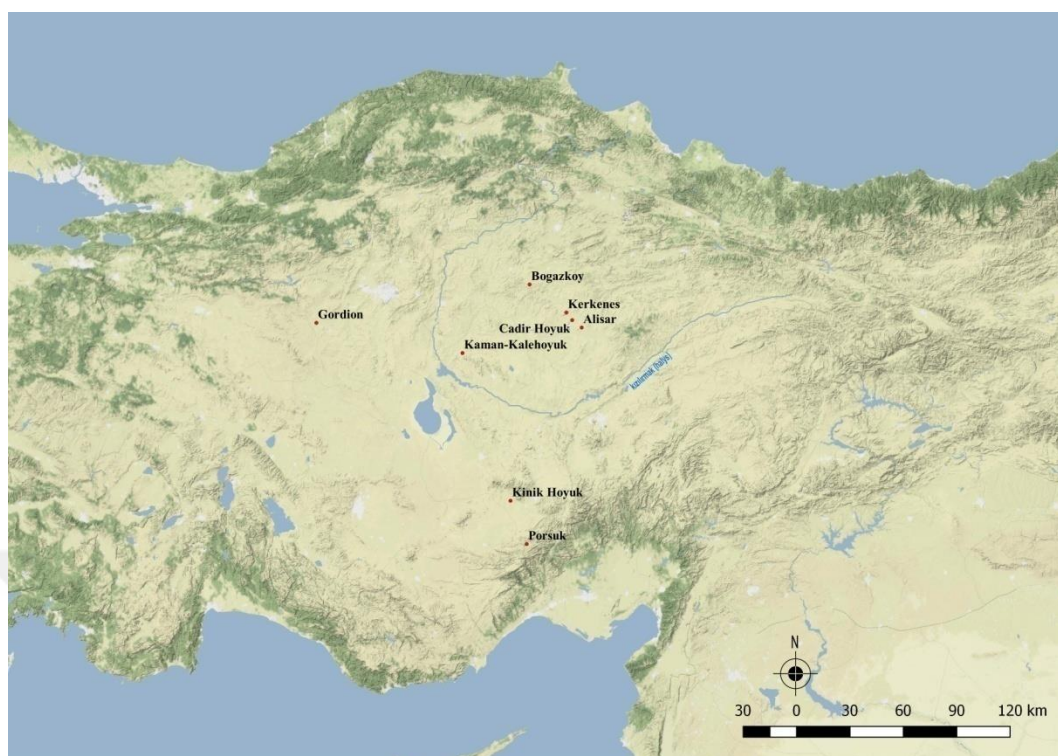


Figure 1: The location of Kaman-Kalehöyük and its neighbours (adapted from QCIS).



Figure 2: Aerial photograph of the mound (adopted from JIAA).

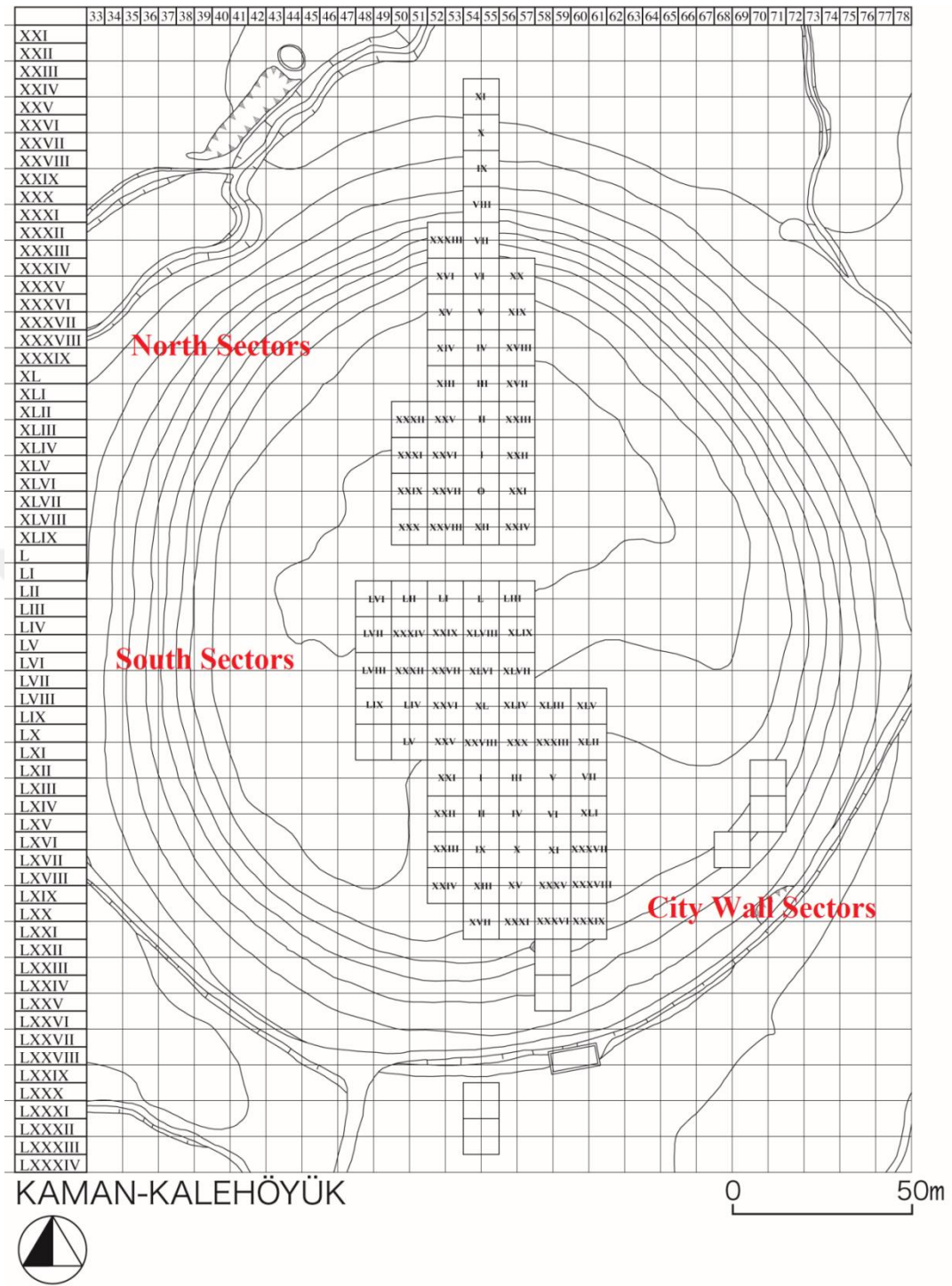


Figure 3: Plan of Kaman-Kalehöyük (adopted from JIAA).

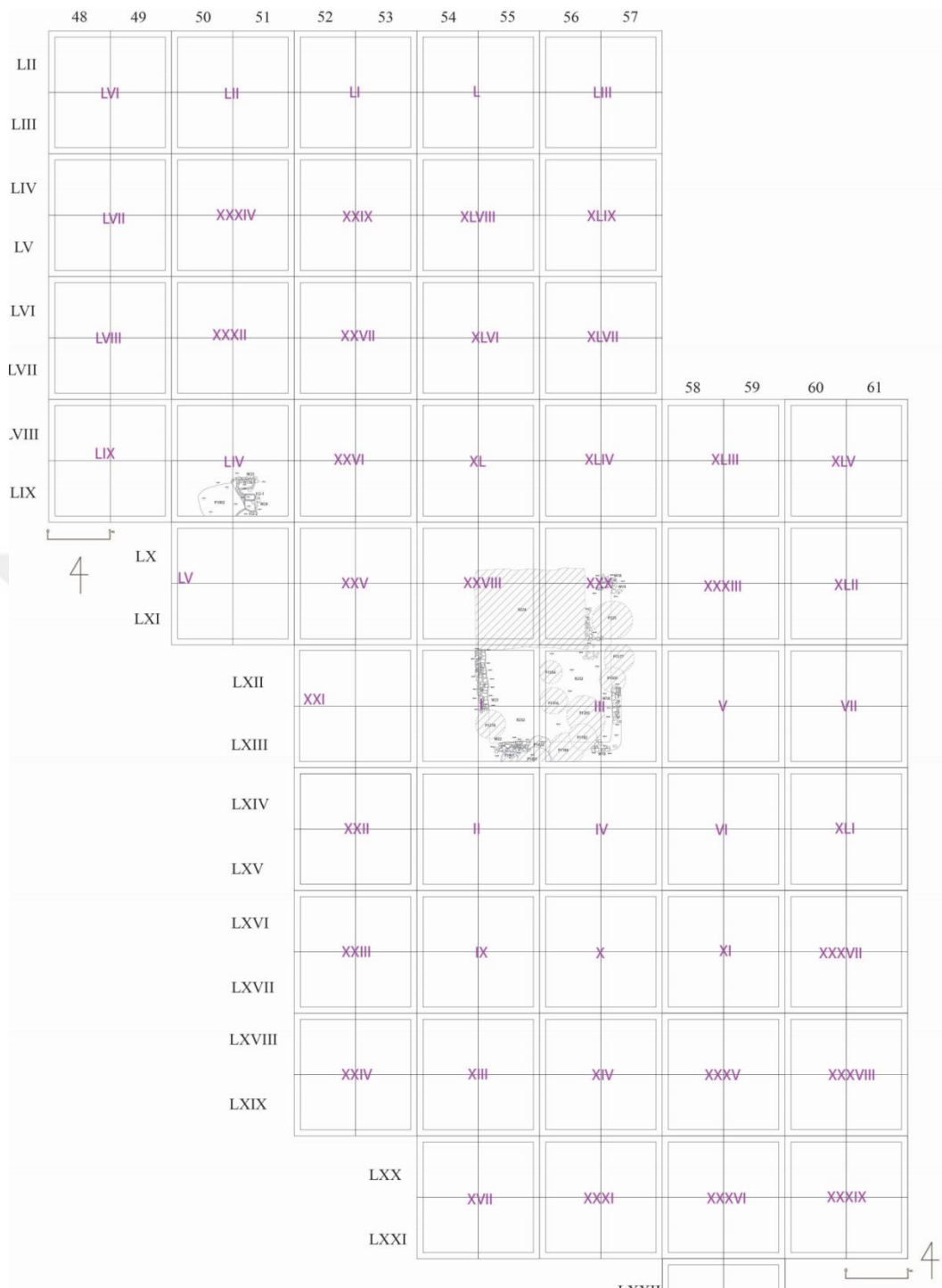


Figure 4: Plan of building layer 8.

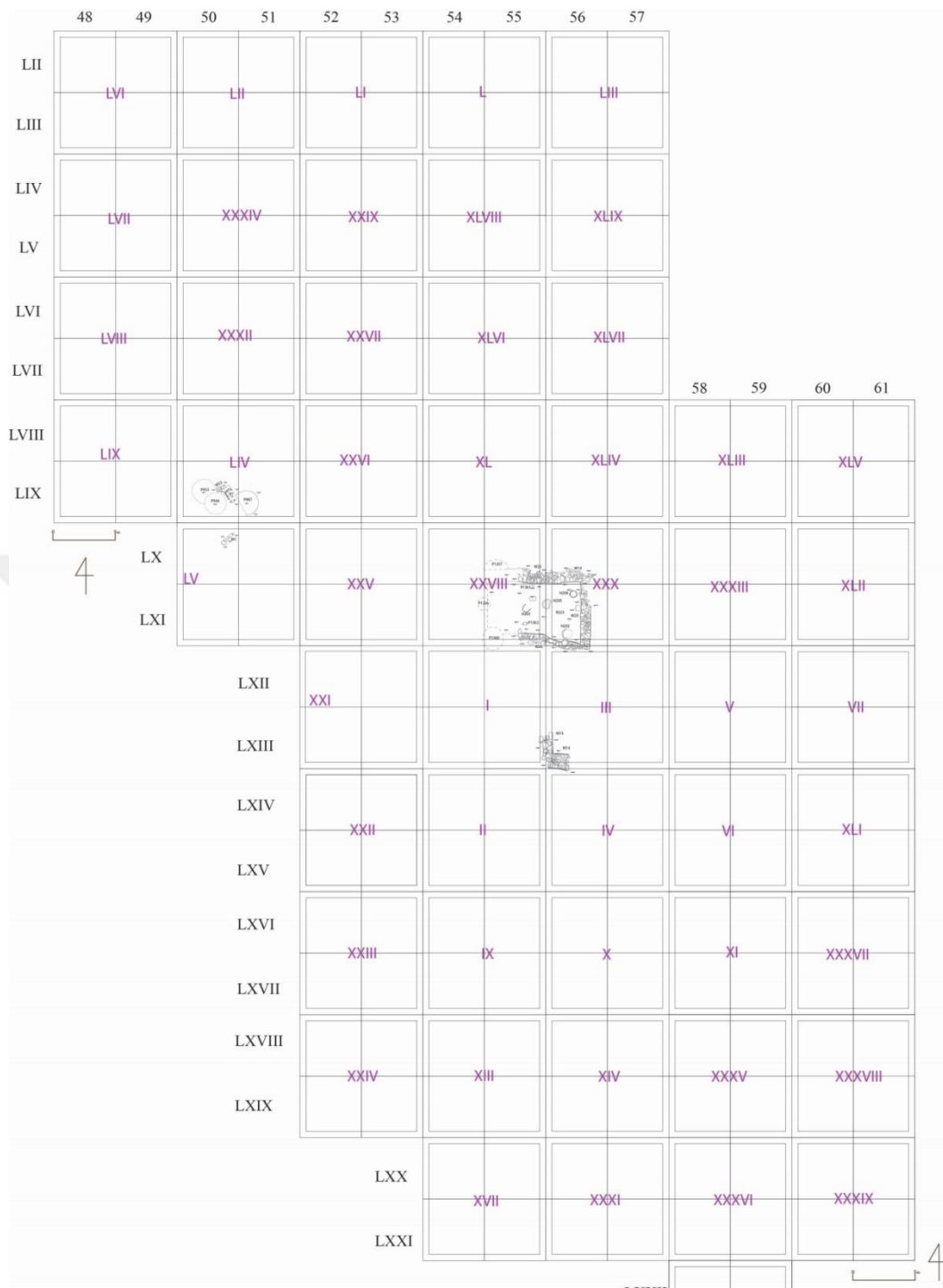


Figure 5: Plan of building layer 7.

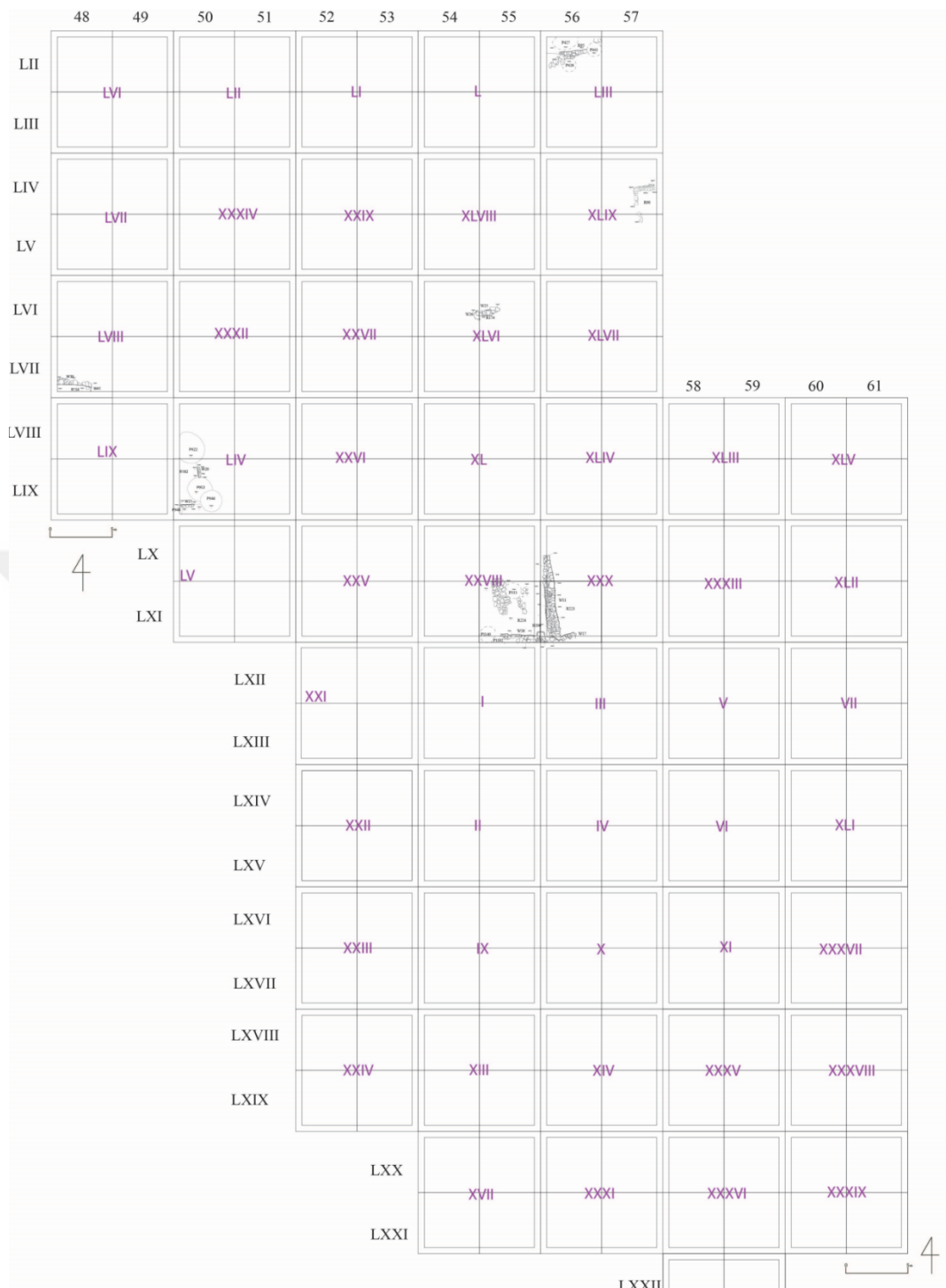


Figure 6: Plan of building layer 6.

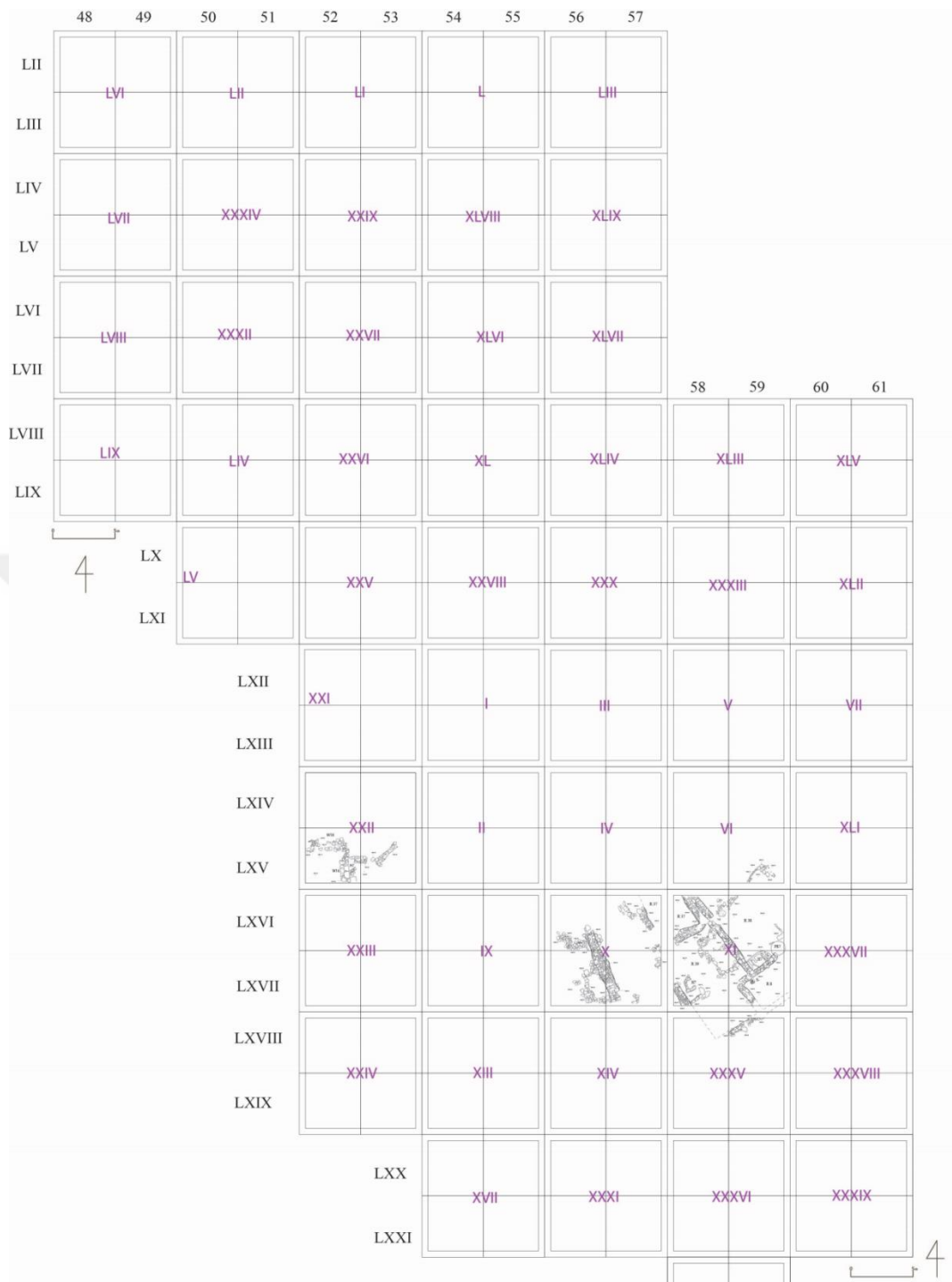


Figure 7: Plan of building layer 6.

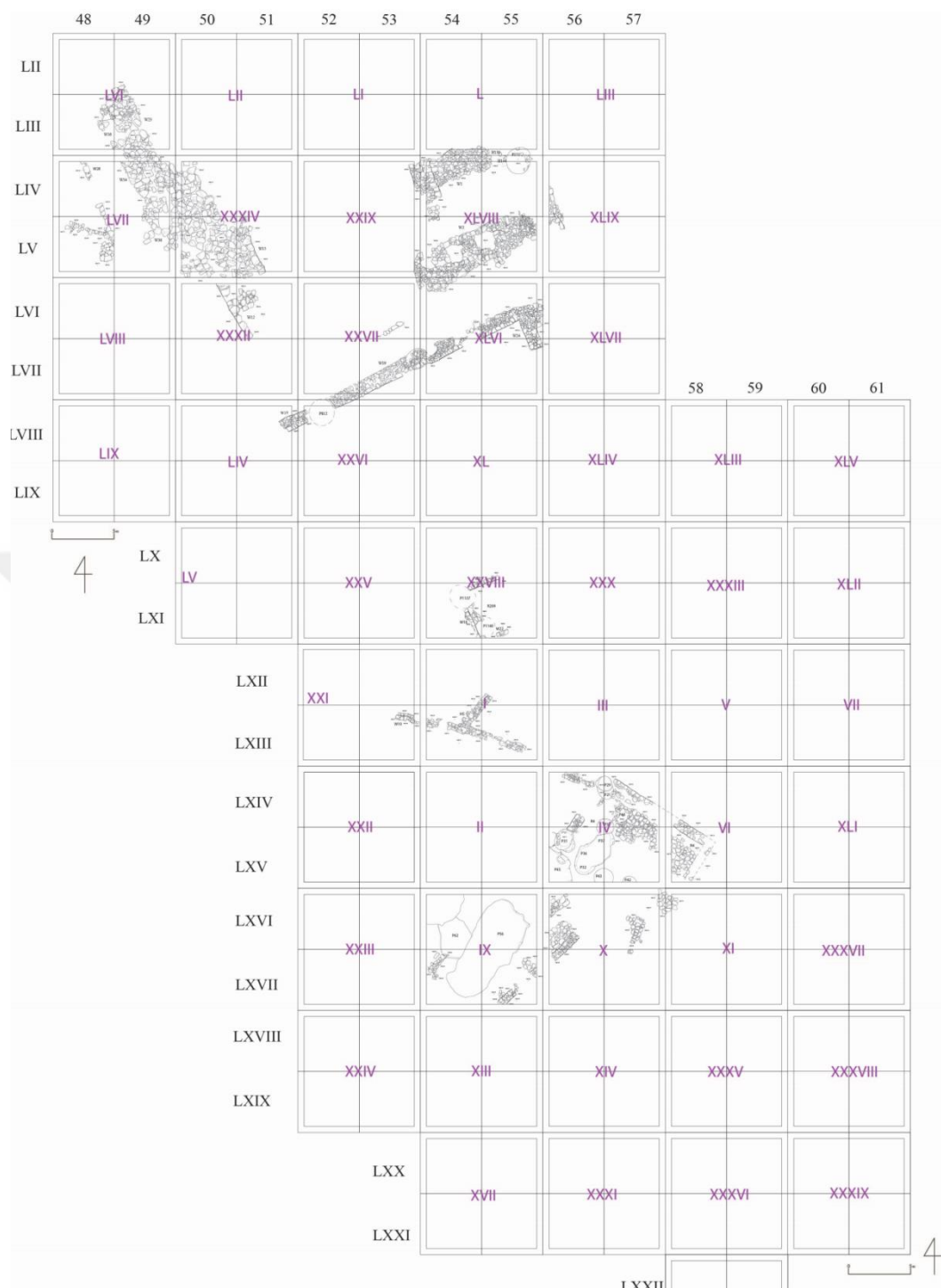


Figure 9: Plan of building layer 3.

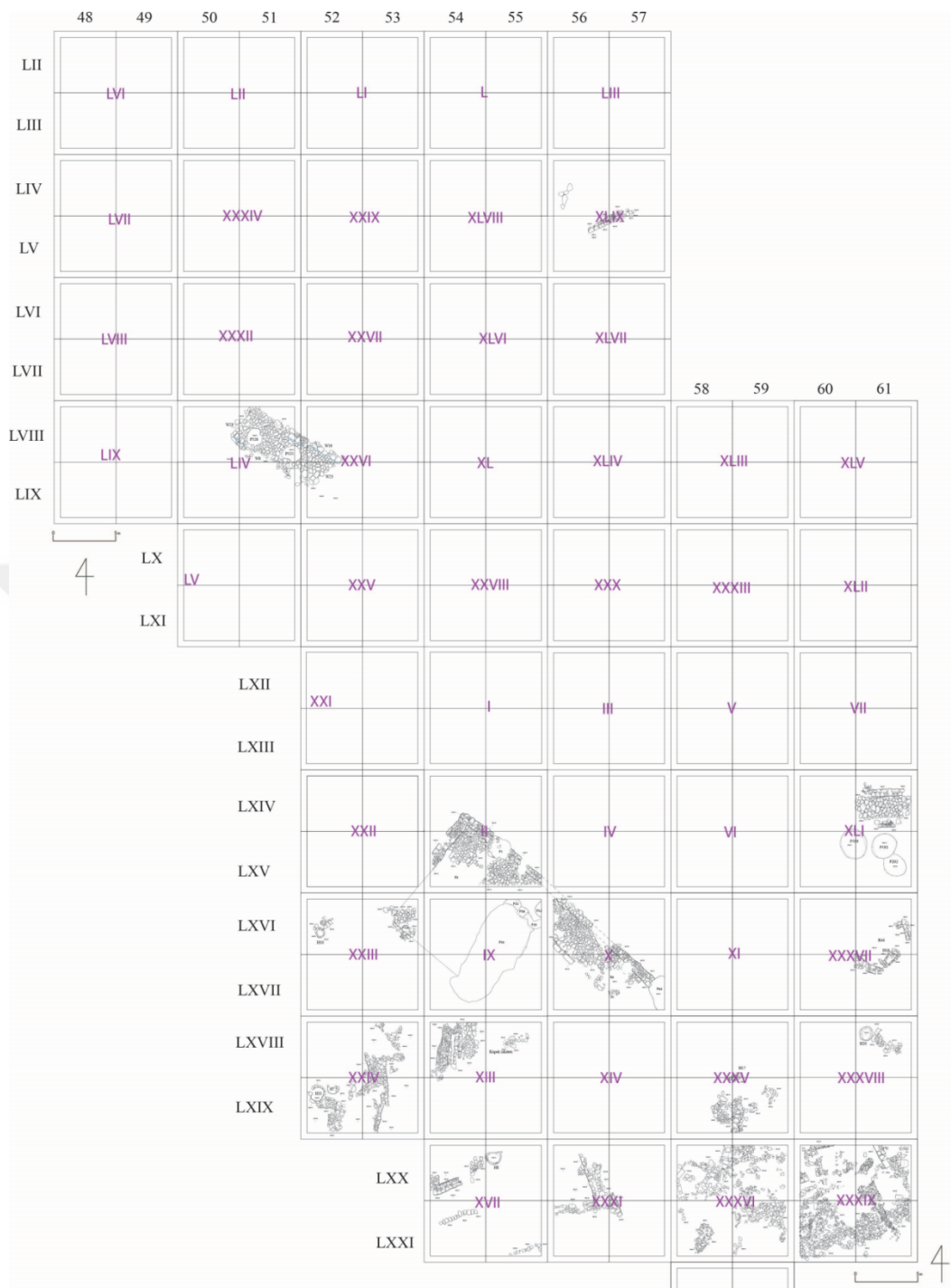


Figure 10: Plan of building layer 2.



Figure 11: Plan of building layer 1.

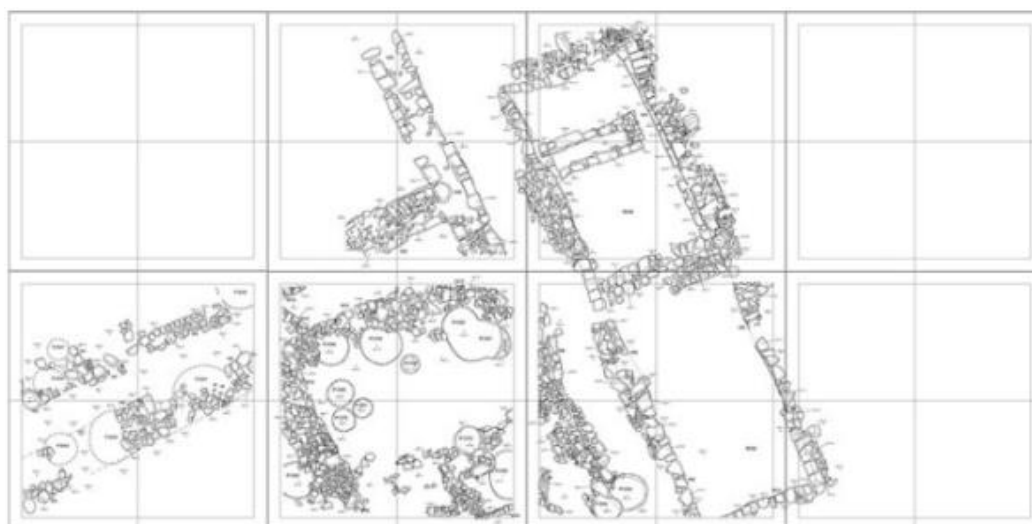


Figure 12: Megaron-shaped structure in the North Sectors (Omura, 2011: 110, Fig. 51.4).

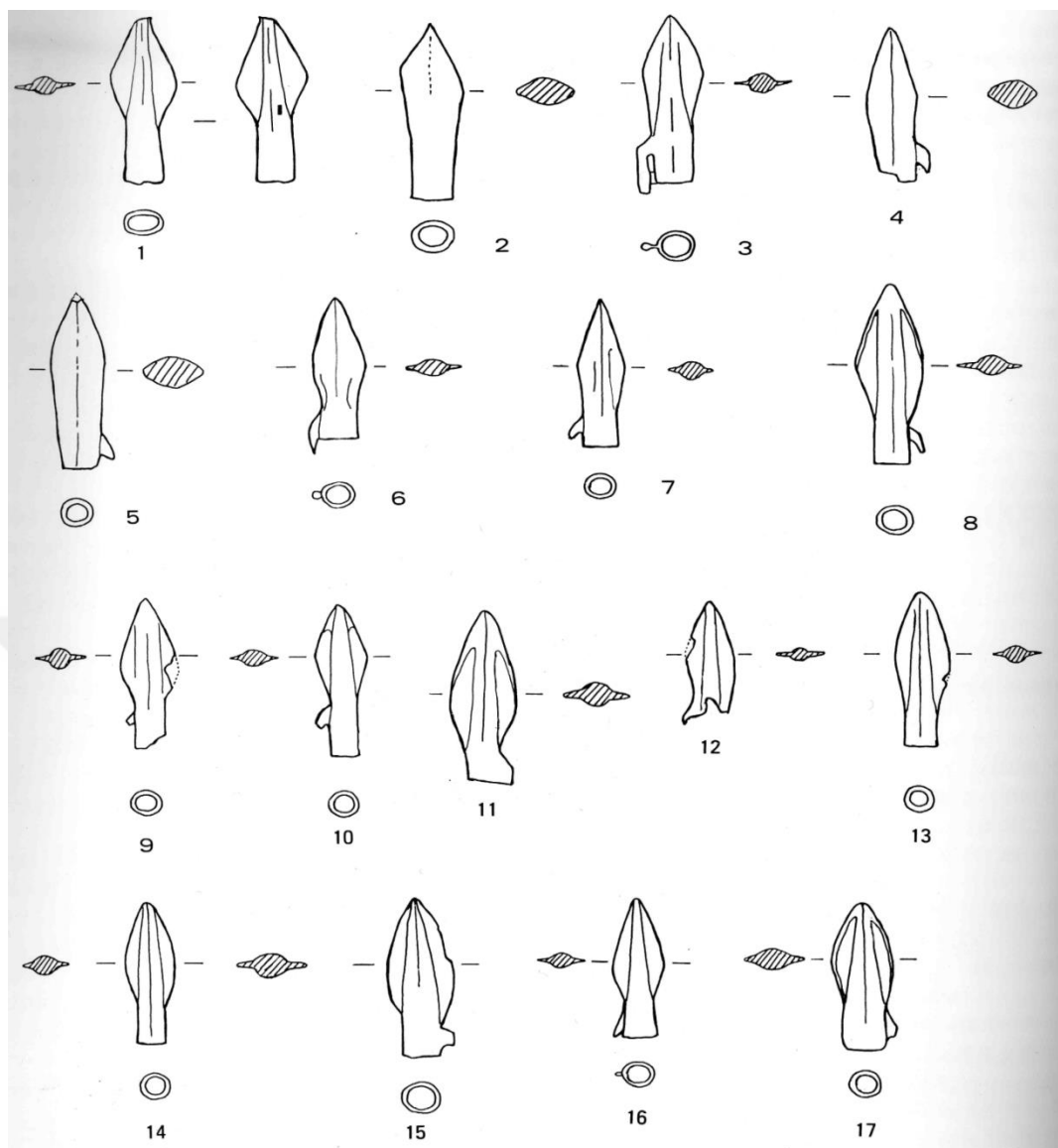


Figure 13: Scythian type arrowheads found in KL (Yukishima, 1992: 92, 93 Fig. 1: 1-17).

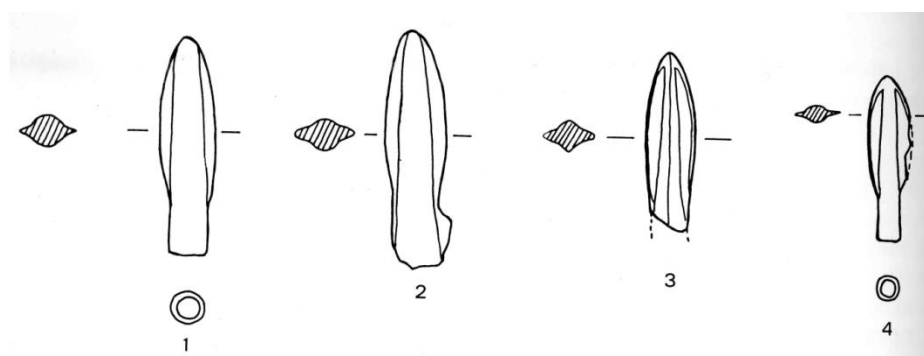


Figure 14: Lydian type arrowheads found in KL (Yukishima, 1992: 93, 94 Fig. 2: 1-5).

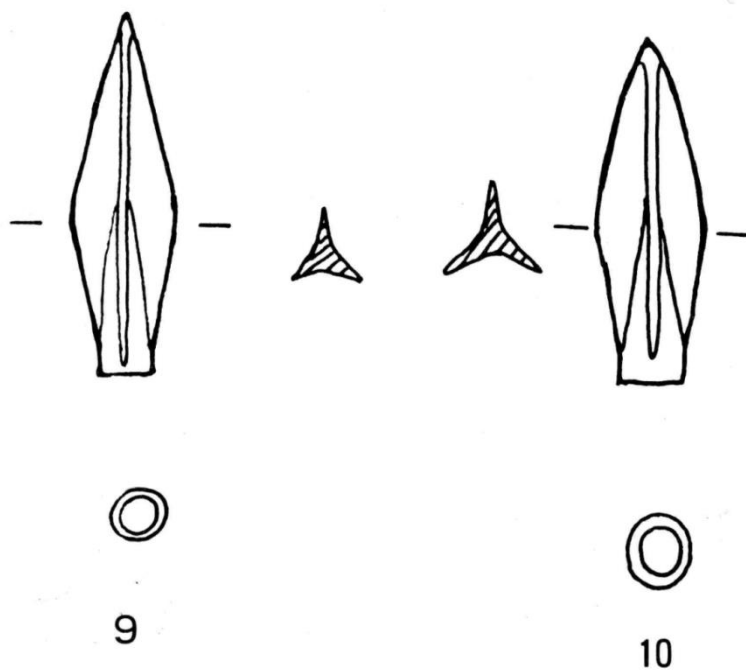


Figure 15: Achaemenid type arrowheads found in KL (Yukishima, 1992: 93, 94 Fig. 2: 9-10).



Figure 16: A button shaped bone ornament found in KL (Takahama, 1999: 178, Fig. 1a).



Figure 17: A bird head shaped equipment found in KL (Takahama, 1999: 178, Fig. 3a).

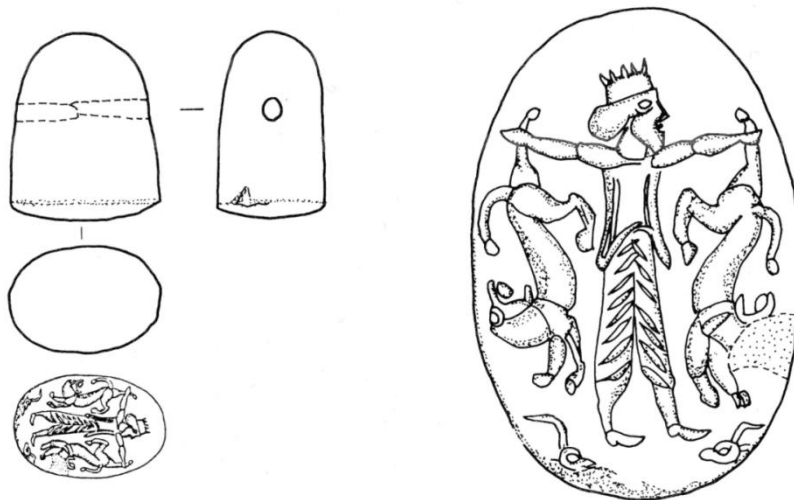


Figure 18: Achaemenid type stamp seal found in KL (Omura, 1994: 22, Fig. 1).



Kat.Nr.2

Figure 19: Hellenistic period coin found in KL (Oettel, 2000: 137, 144, Cat. no.:2).



Kat.Nr.3

Figure 20: Hellenistic period coin found in KL (Oettel, 2000: 137, 144, Cat. no.:3).

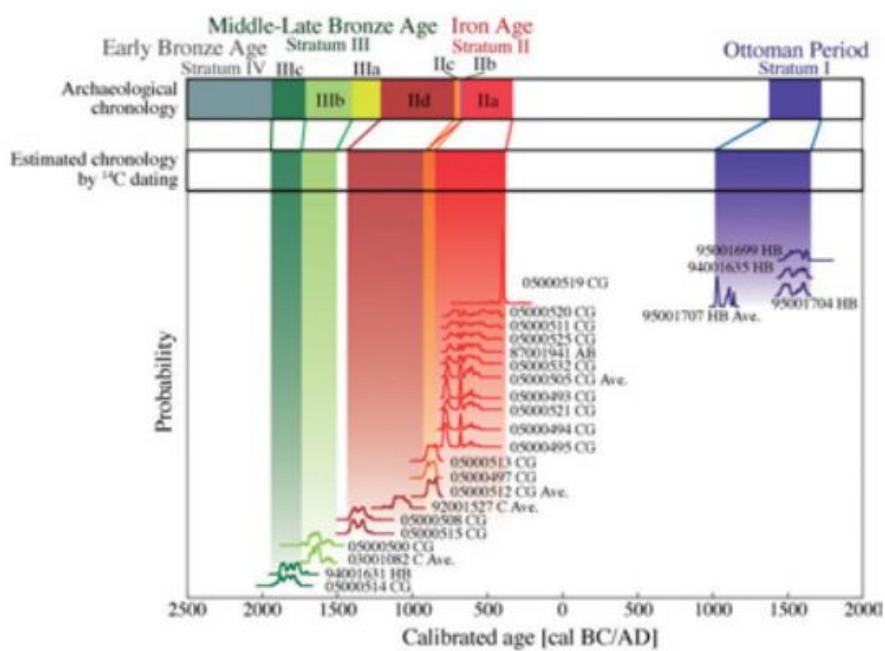


Figure 21: Estimated chronology by C14 dating (Omori & Nakamura, 2006: 266, Fig. 1).

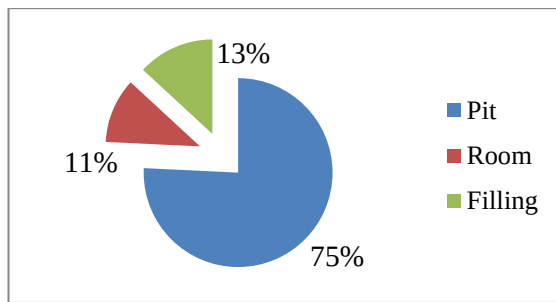


Figure 22: Contextual distribution of the LIA pottery.

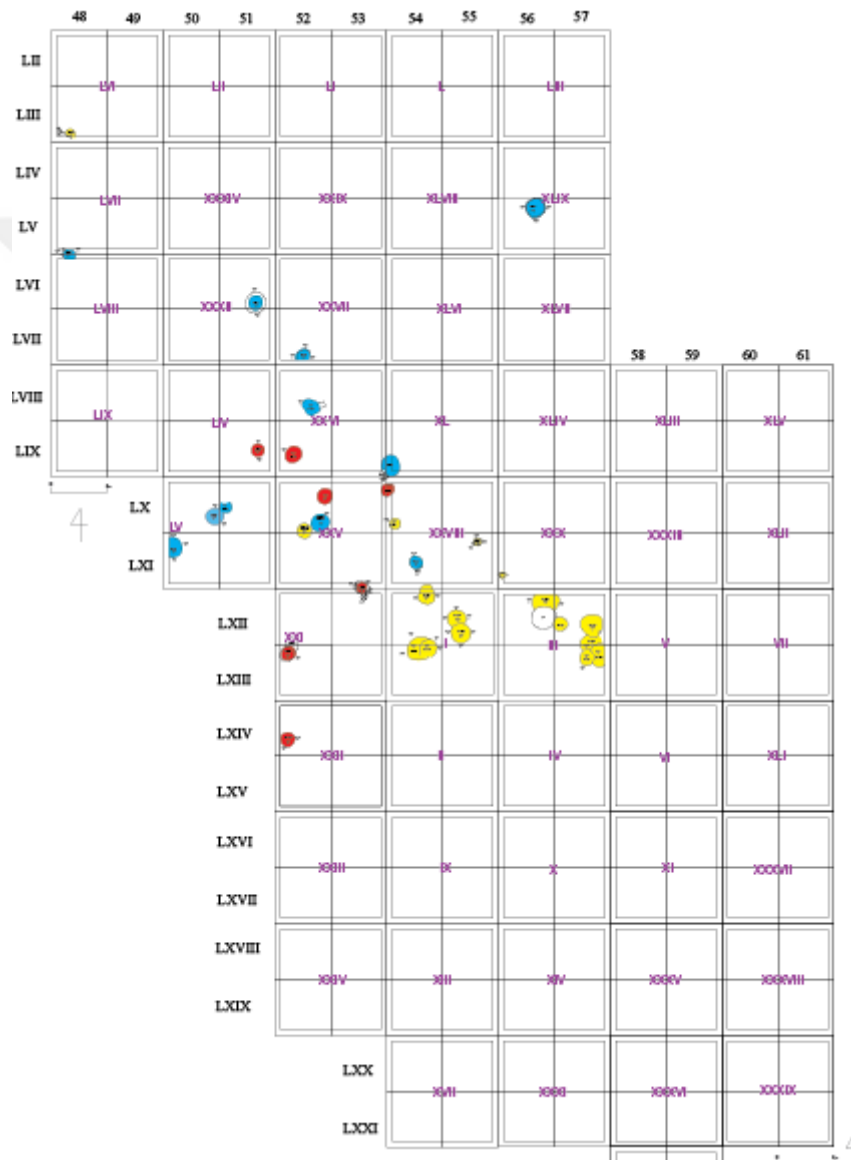


Figure 23: Distribution of pits in South Sector (yellow; LIA 3, blue; LIA 1, and red indefinite).

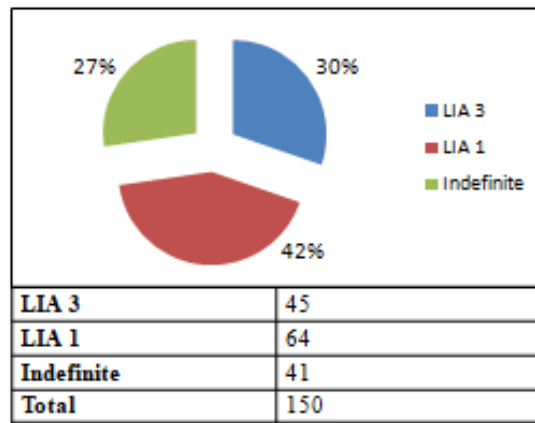


Figure 24: Diagram of stratigraphical distribution.

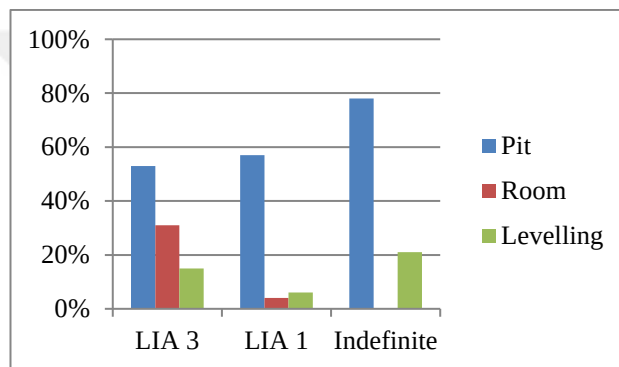


Figure 25: The stratigraphical and contextual distribution of the LIA pottery.



Figure 26: The ratio of size and the density of inclusions in a thin section (Orton & Hughes, 2013: 282, Fig. A.4).

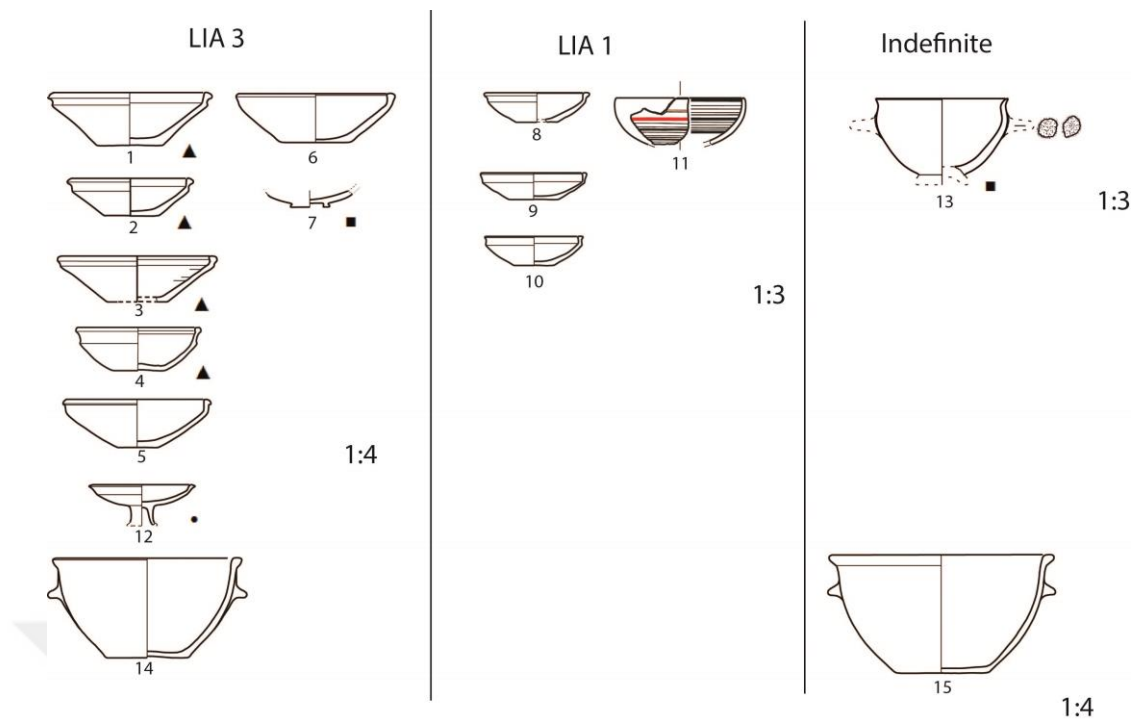
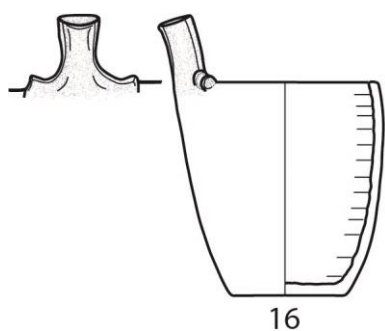


Figure 27: Open vessels; basin, footed cup, deep bowls, footed bowl.



Figure 28: Open vessels; basin, footed cup, deep bowls, footed bowl.

LIA 3



1:4



Figure 29: One handled deep vessel.

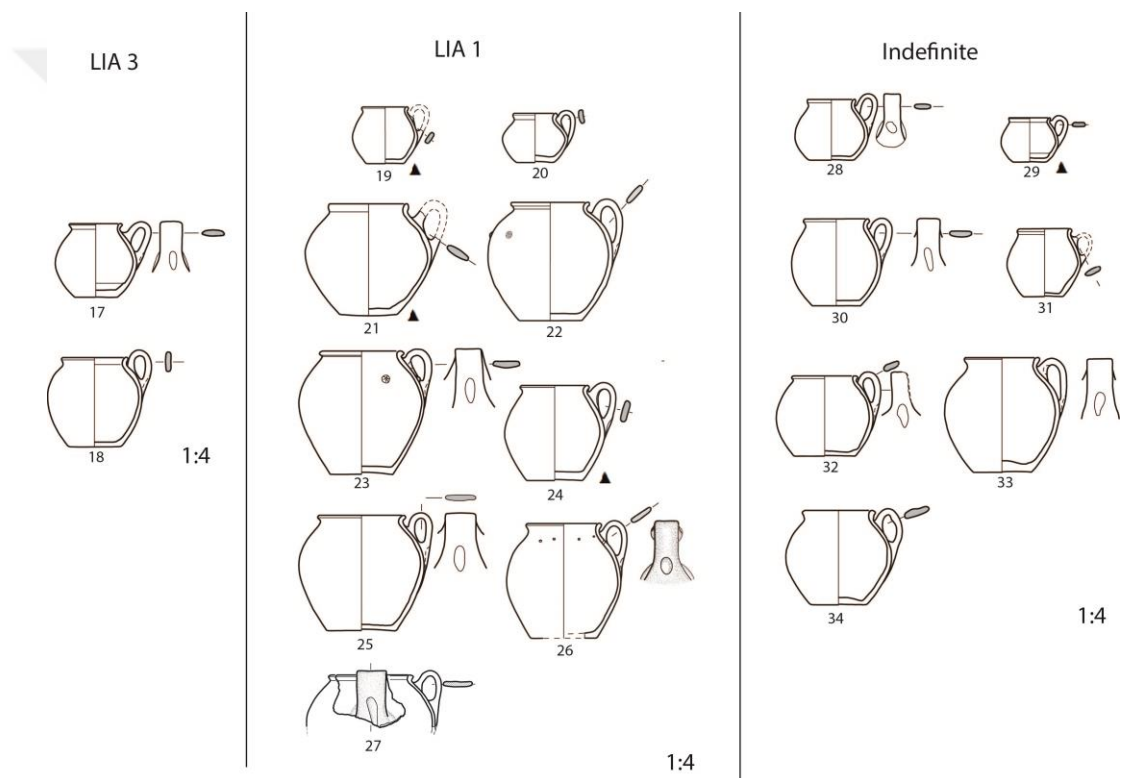


Figure 30: Drawings of cooking pots.

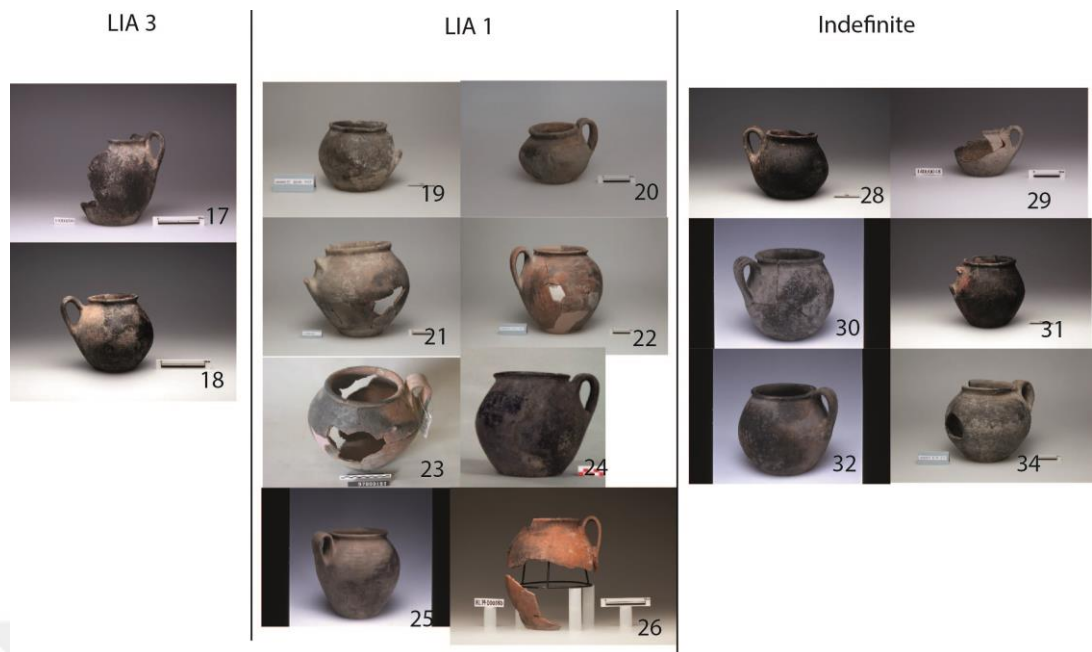


Figure 31: Photographs of cooking pots.

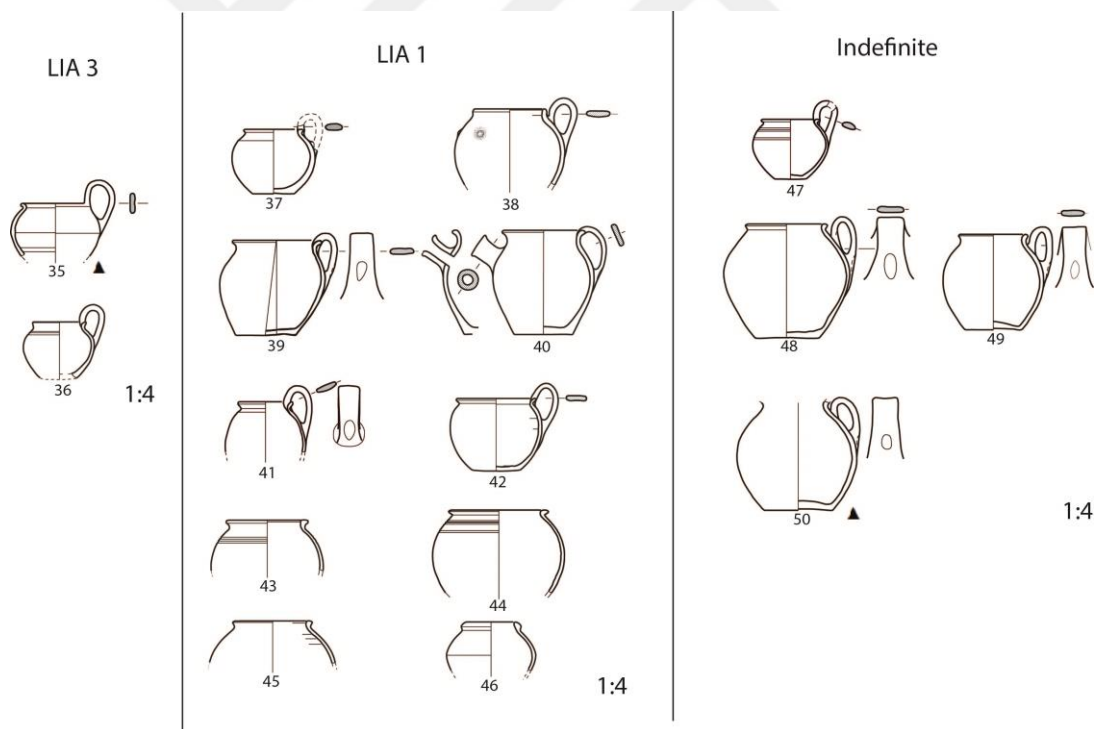


Figure 32: Drawings of cooking pots.

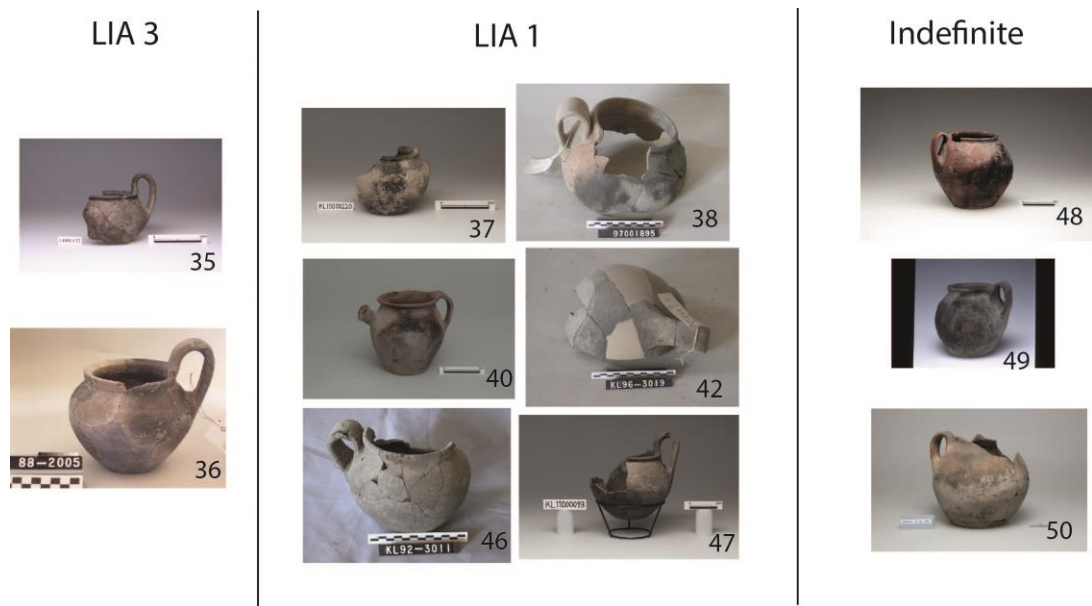


Figure 33: Photographs of cooking pots.

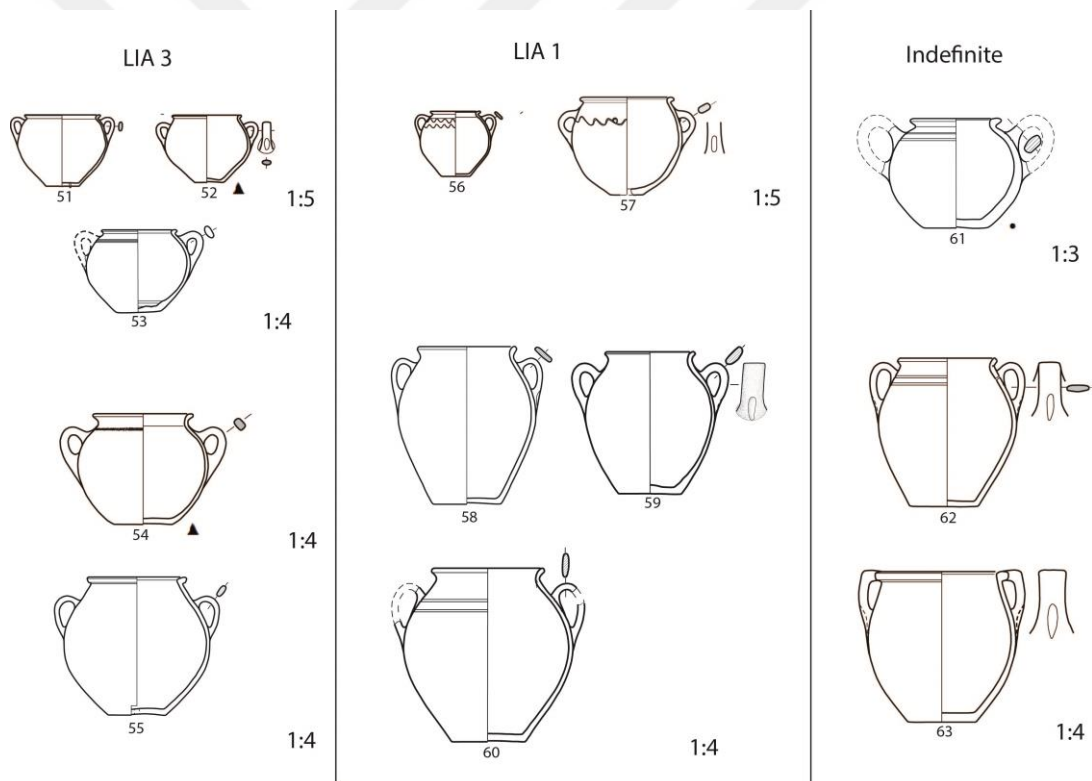


Figure 34: Drawings of two-handled pots without a neck.

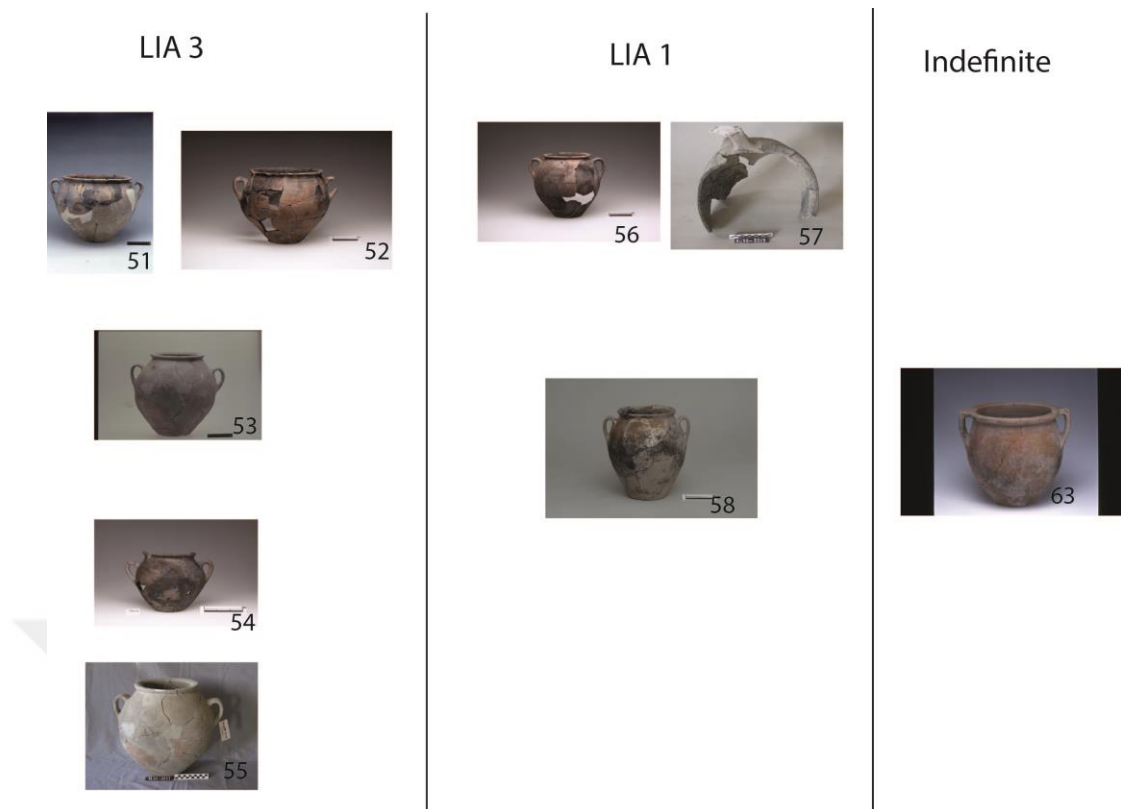


Figure 35: Photographs of two-handled pots without a neck.

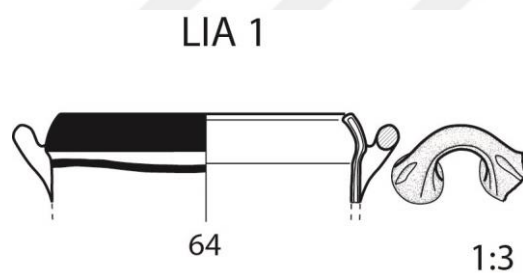


Figure 36: Drawings of two handled pot with horizontal handles.

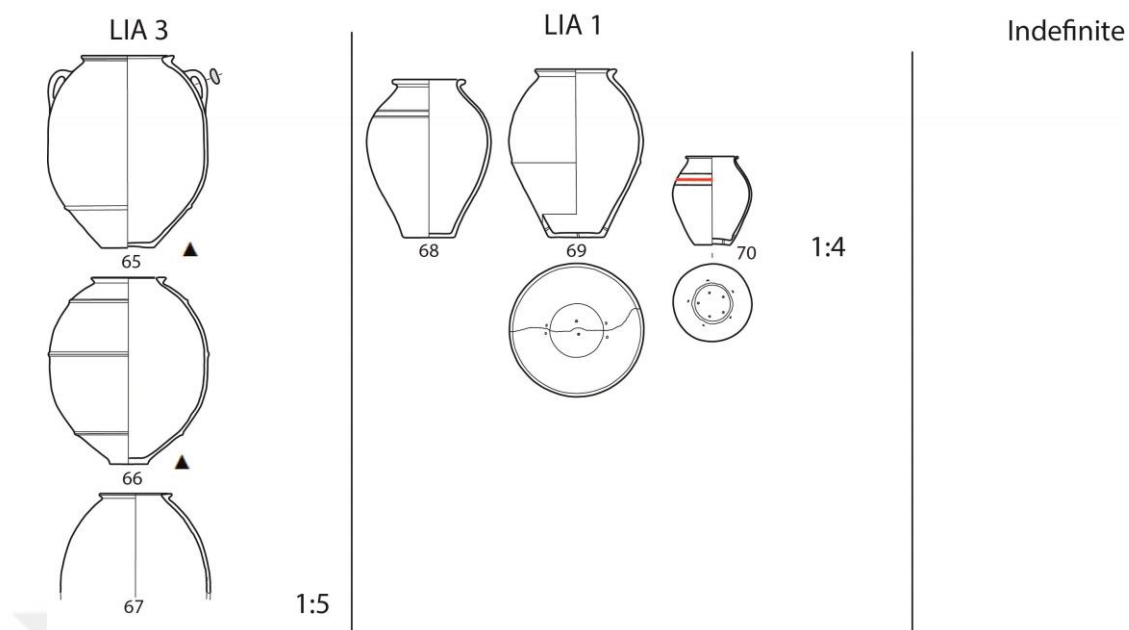


Figure 37: Large and deep vessels without a neck or handle (storage vessel).



Figure 38: Large and deep vessels without a neck or handle (storage vessel).

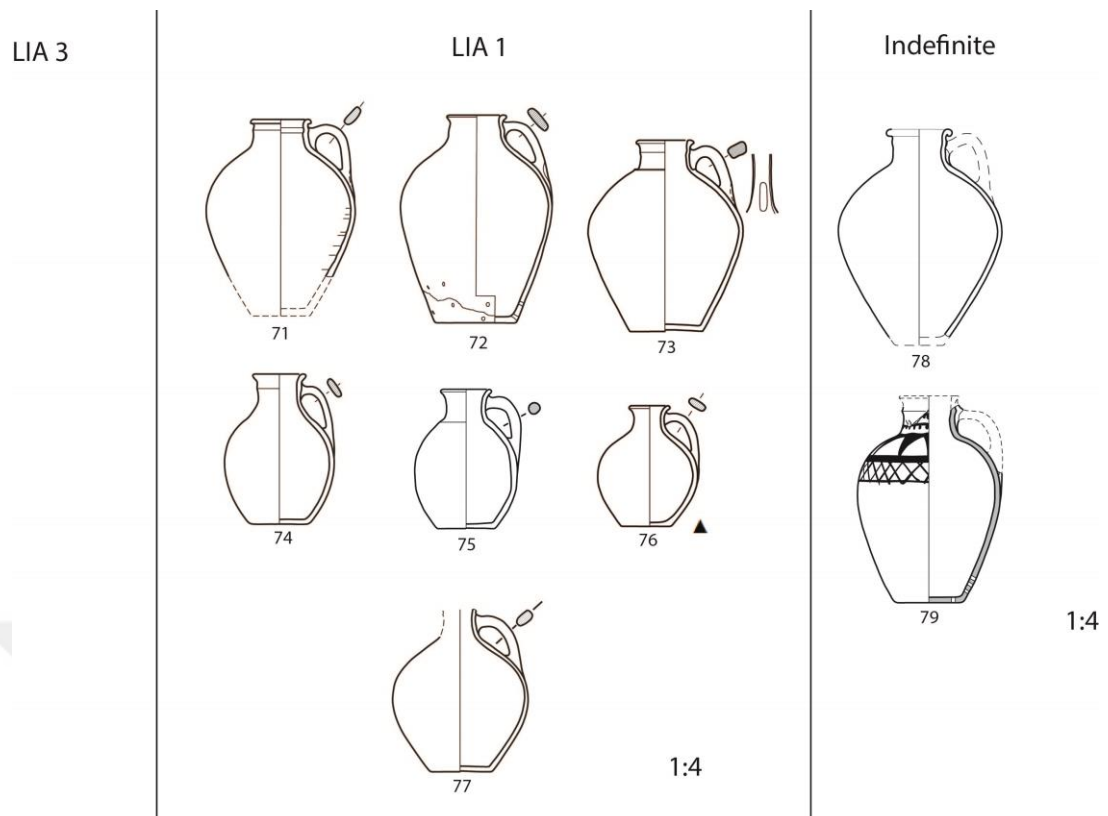


Figure 39: Drawings of one handled pot with a narrow neck.

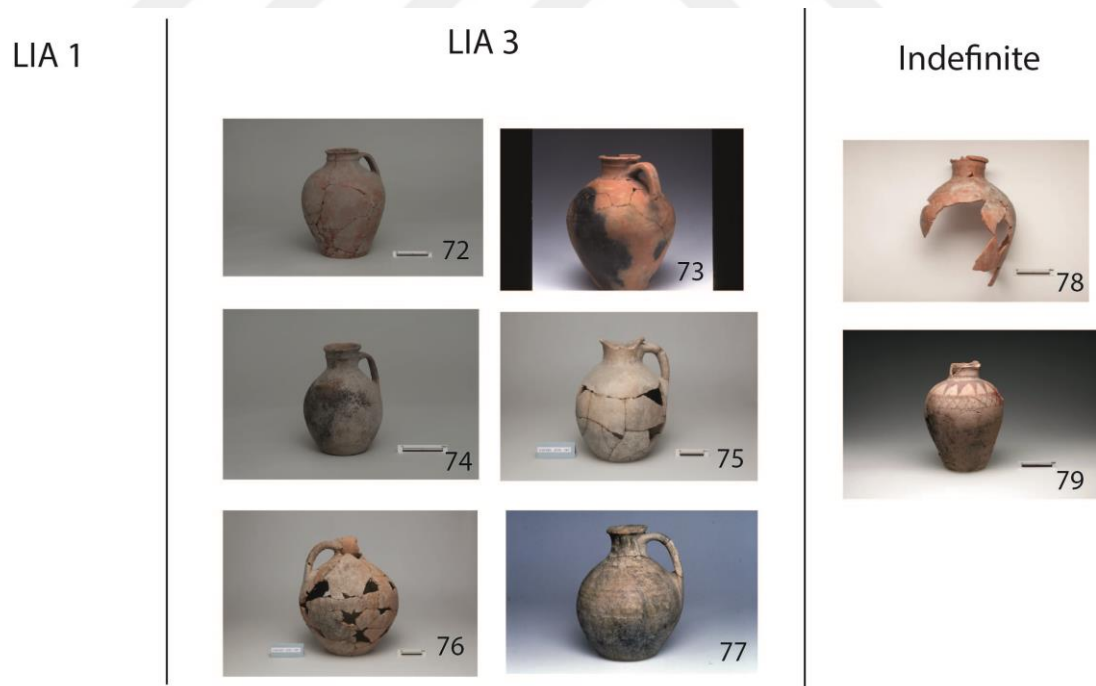


Figure 40: Photographs handled pot with a narrow neck.

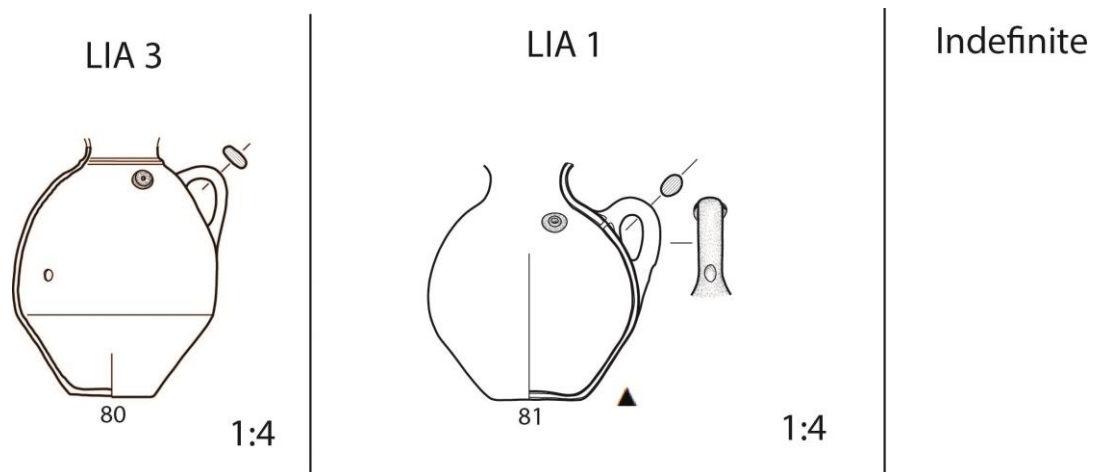


Figure 41: One handled pots with a globular body specified with an intentional hole on the upper body (churn).

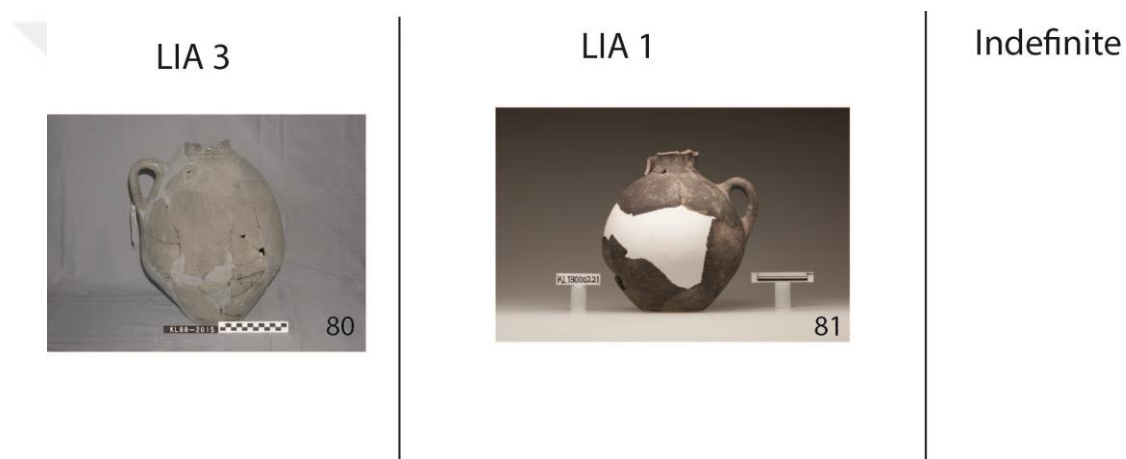


Figure 42: One handled pots with a globular body specified with an intentional hole on the upper body (churn).

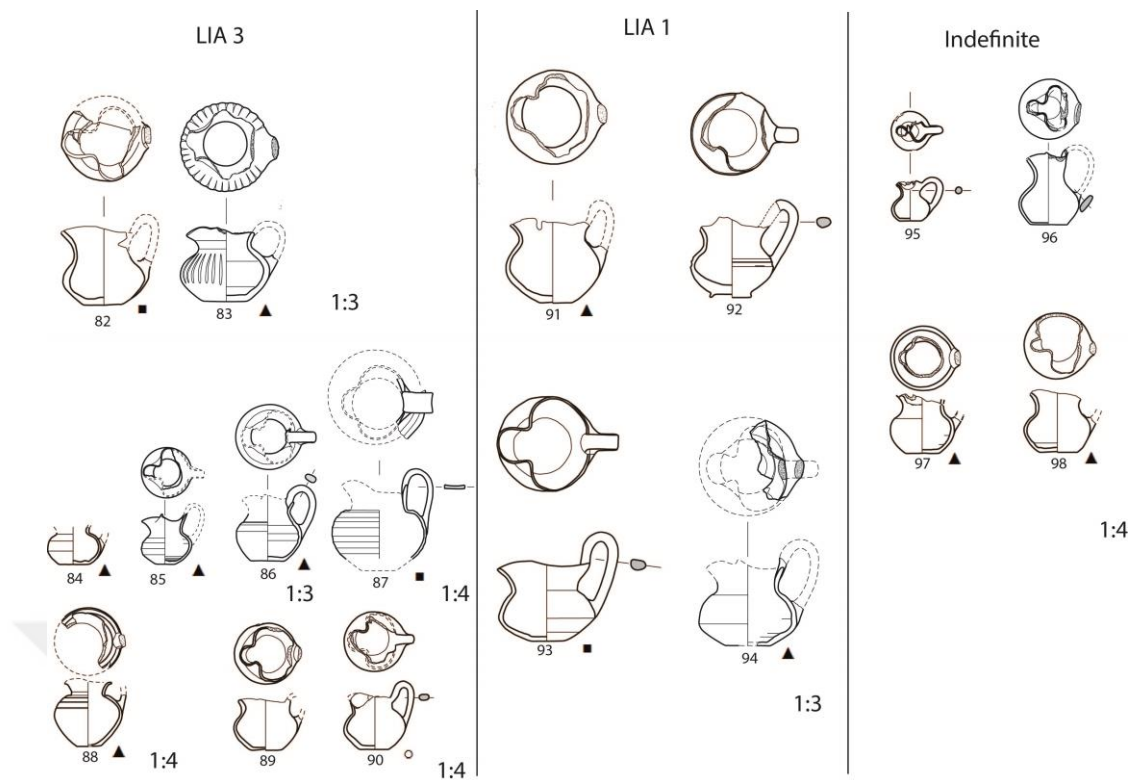


Figure 43: Drawings of trefoil-mouthed jugs.

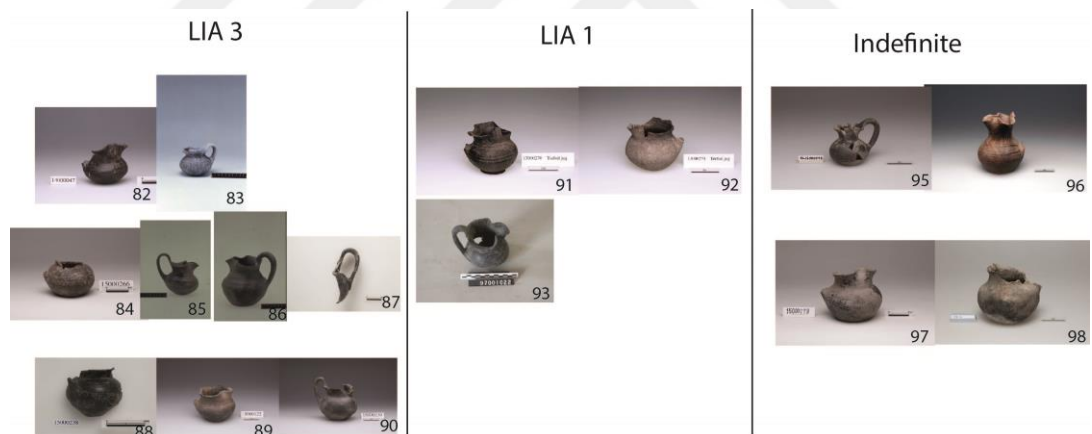


Figure 44: Photographs of trefoil-mouthed jugs.

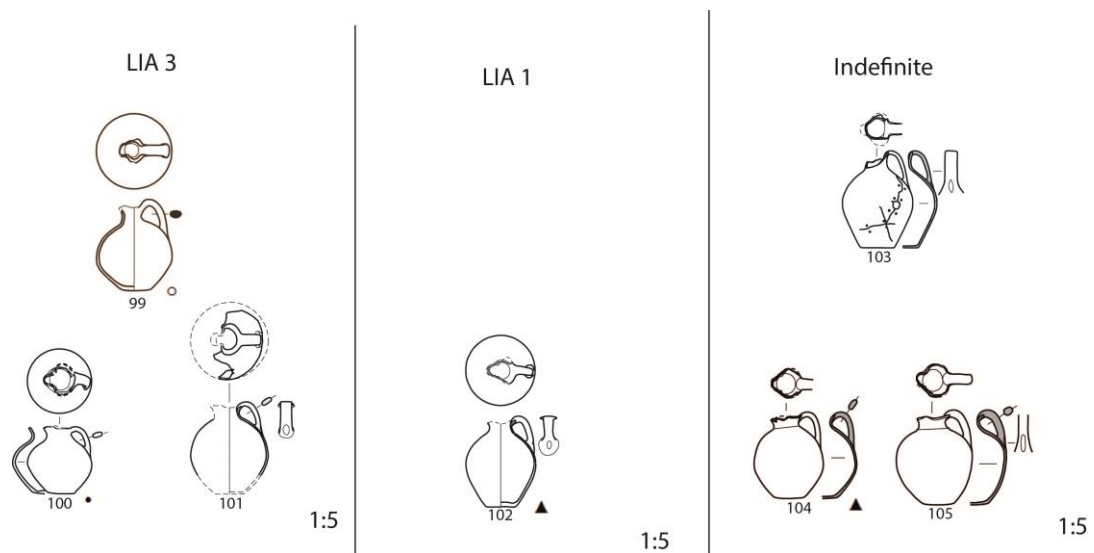


Figure 45: Drawings of trefoil-mouthed jugs.

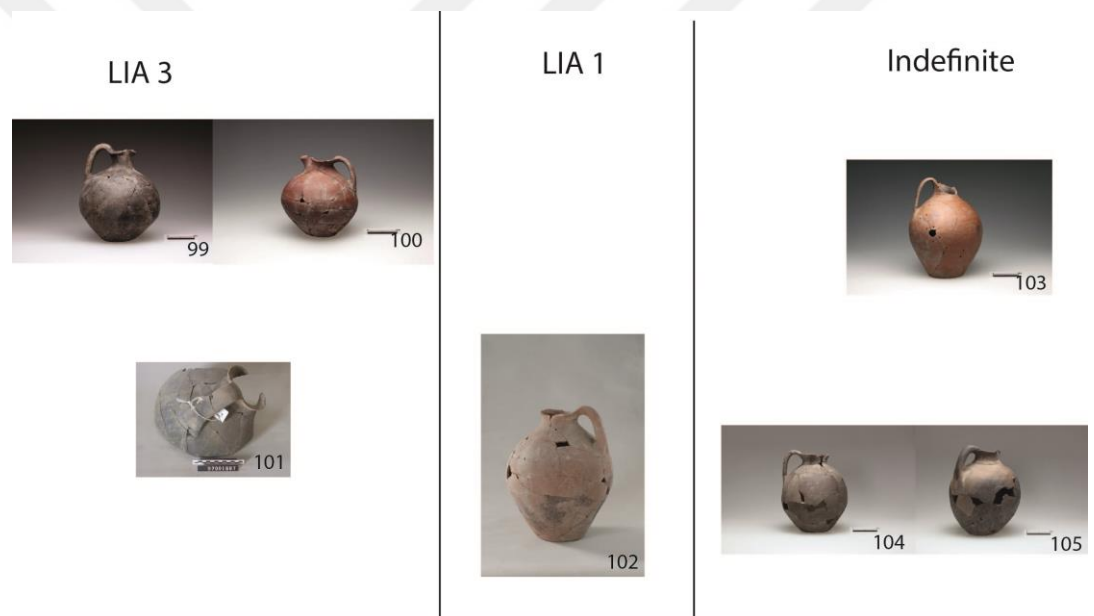


Figure 46: Photographs of trefoil-mouthed jugs.

LIA 3

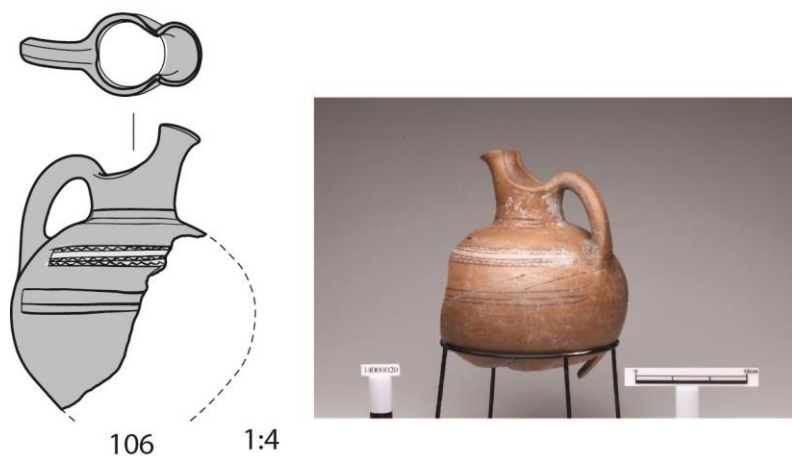


Figure 47: Spouted pitcher.

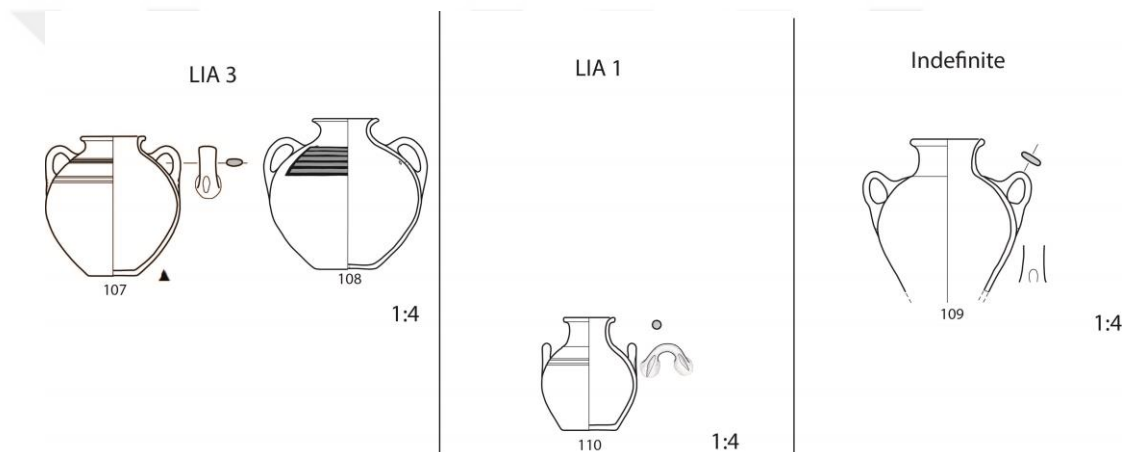


Figure 48: Drawings of two-handed pot with a narrow neck (amphora).

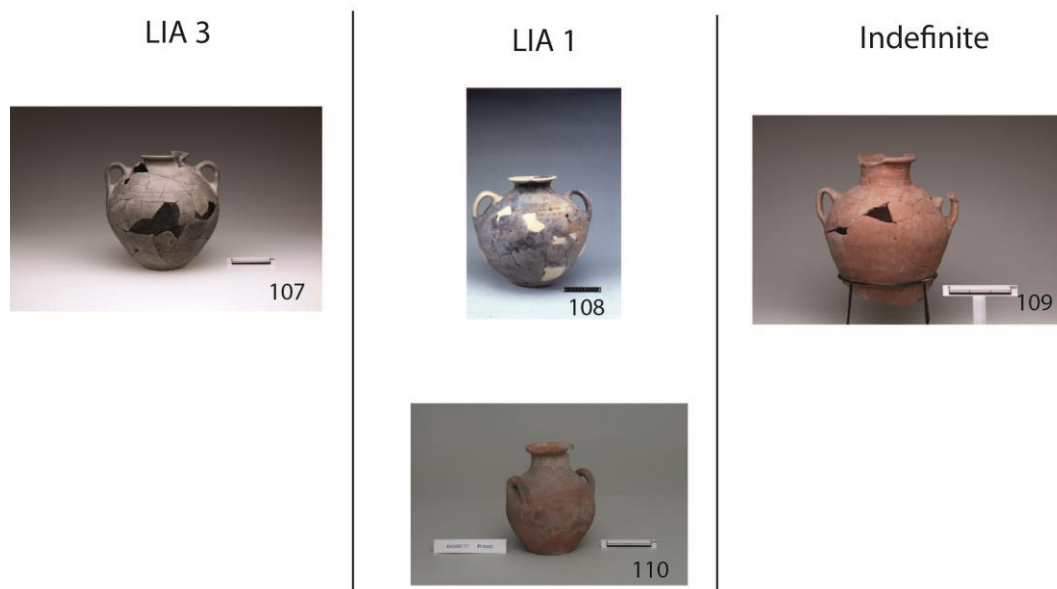


Figure 49: Photographs of two-handed pot with a narrow neck (amphora).

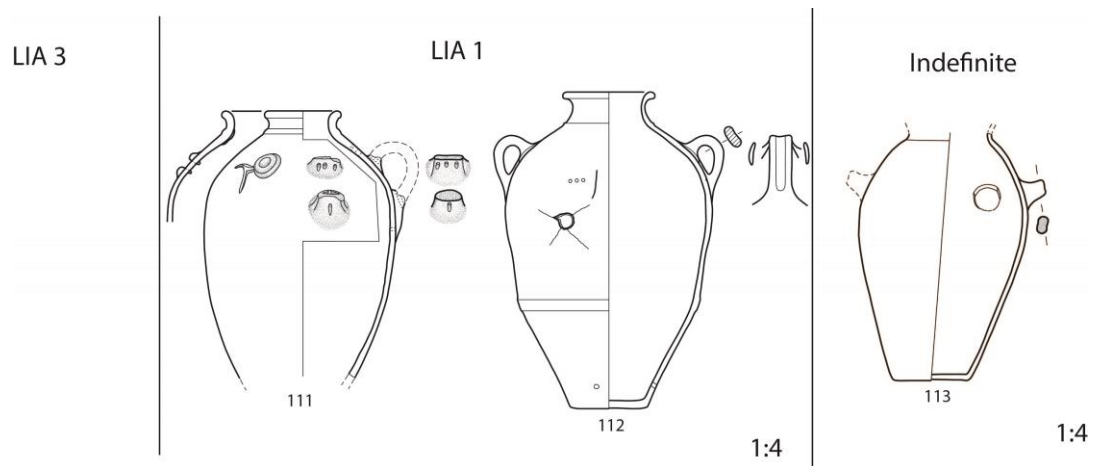


Figure 50: Pots with a narrow neck and a tall body (churn).



Figure 51: Pots with a narrow neck and a tall body (churn).

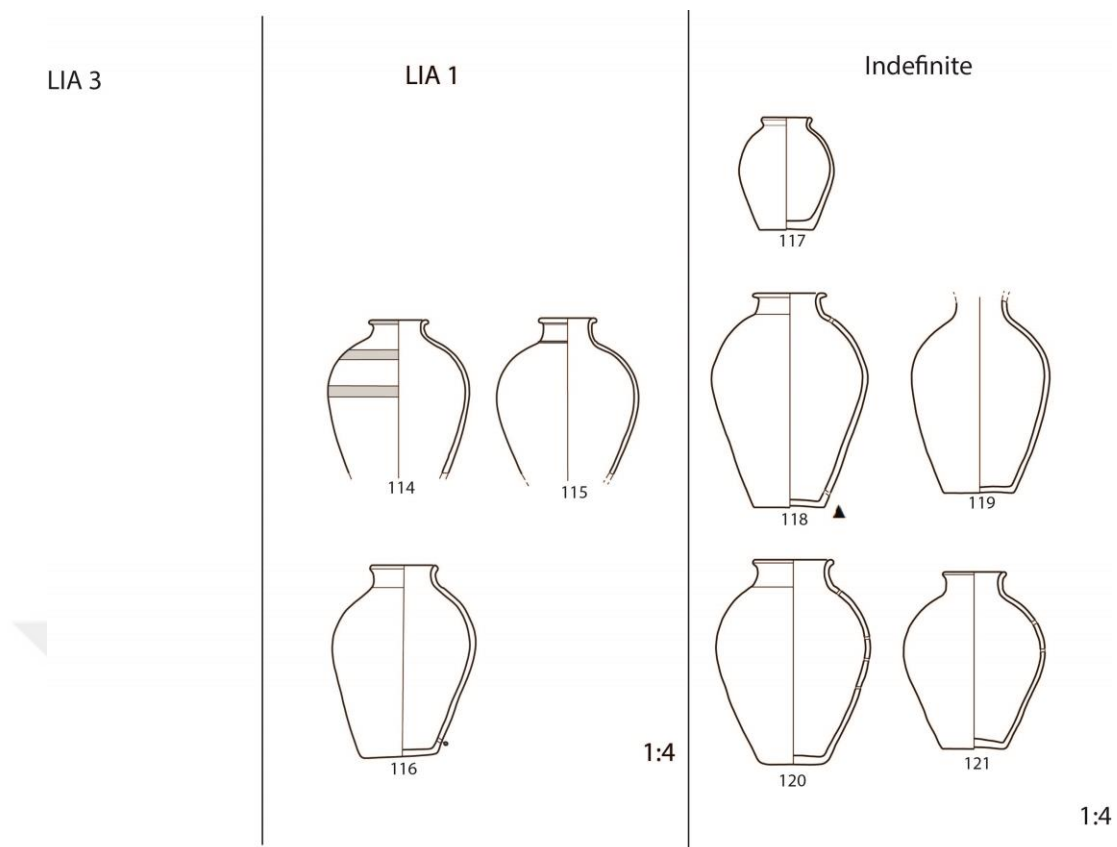


Figure 52: Drawings of deep and large vessels with a narrow neck.



Figure 53: Photographs of deep and large vessels with a narrow neck.

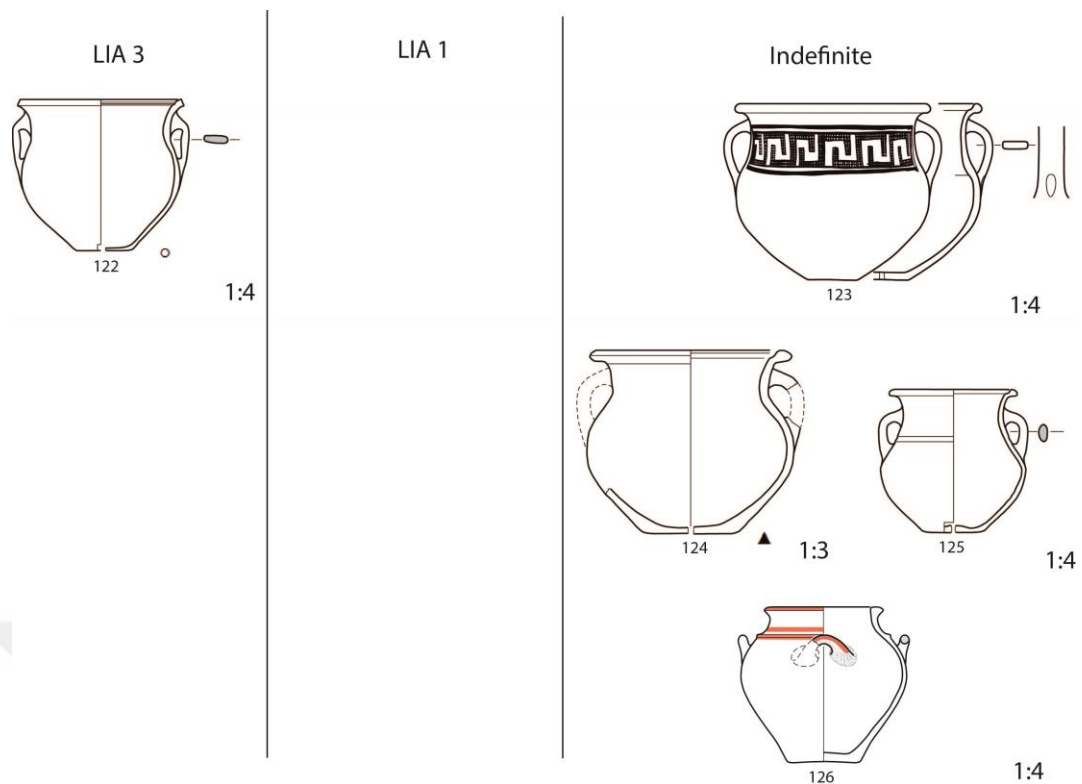


Figure 54: Drawings of kraters.



Figure 55: Photographs of kraters.

LIA 1

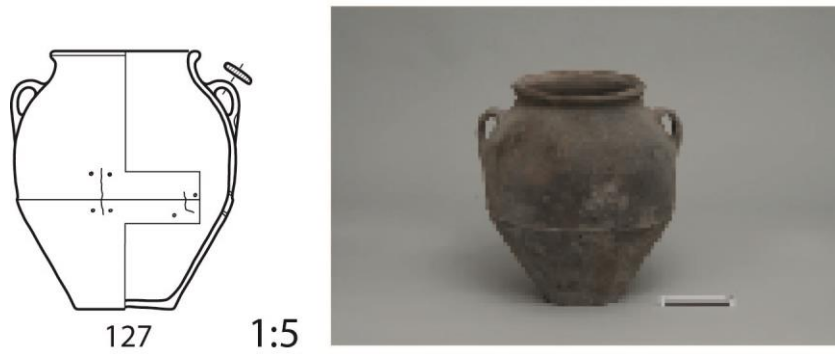


Figure 56: Large and deep vessel with a large neck and two handles.

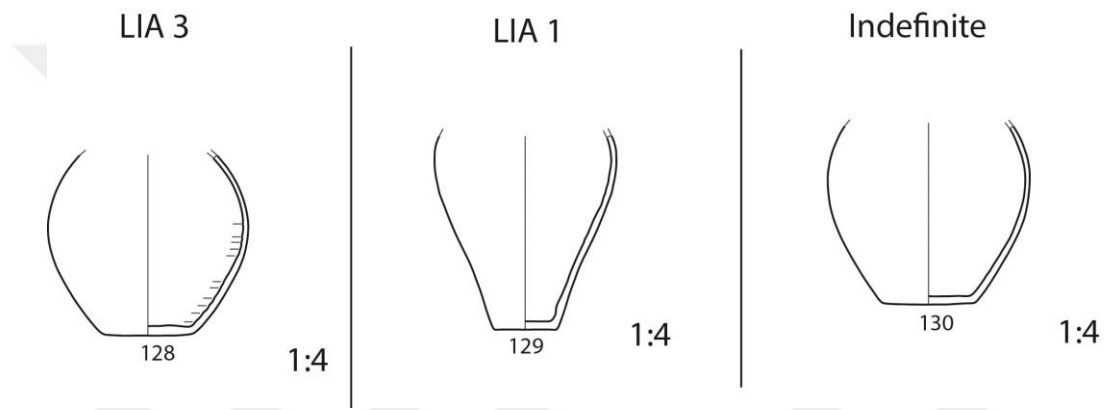


Figure 57: Unknown forms.

LIA 3

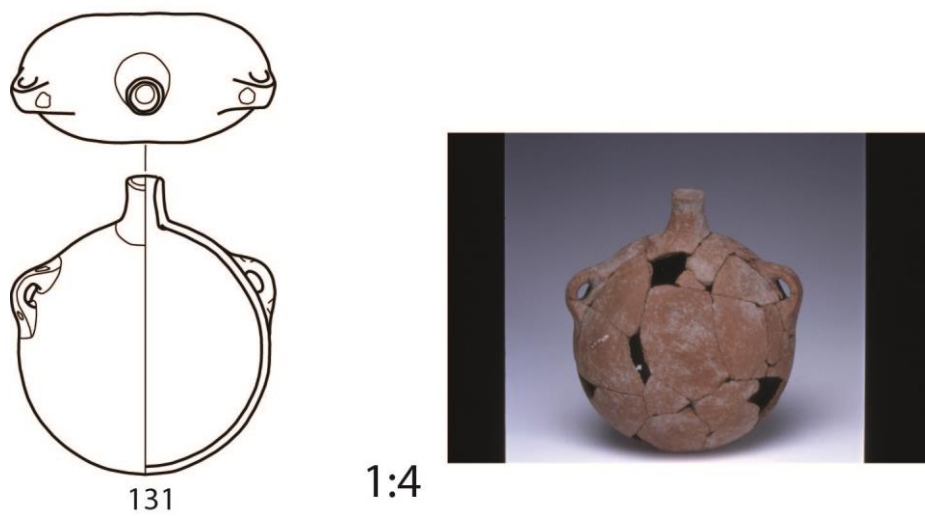


Figure 58: Pilgrim flask.

LIA 1

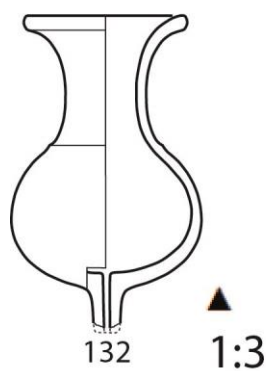


Figure 59: Gourd-shaped vessel.

LIA 1

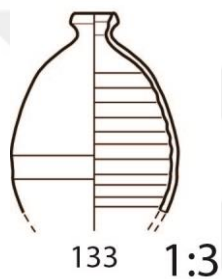


Figure 60: Alabastron.

LIA 1

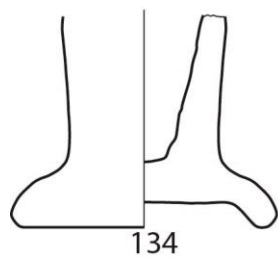


Figure 61: Pedestral.

Indefinite

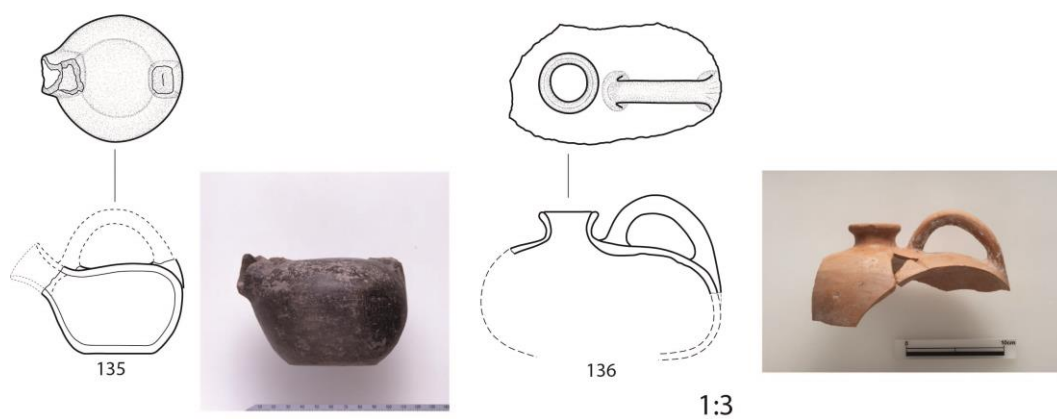


Figure 62: Ascós.

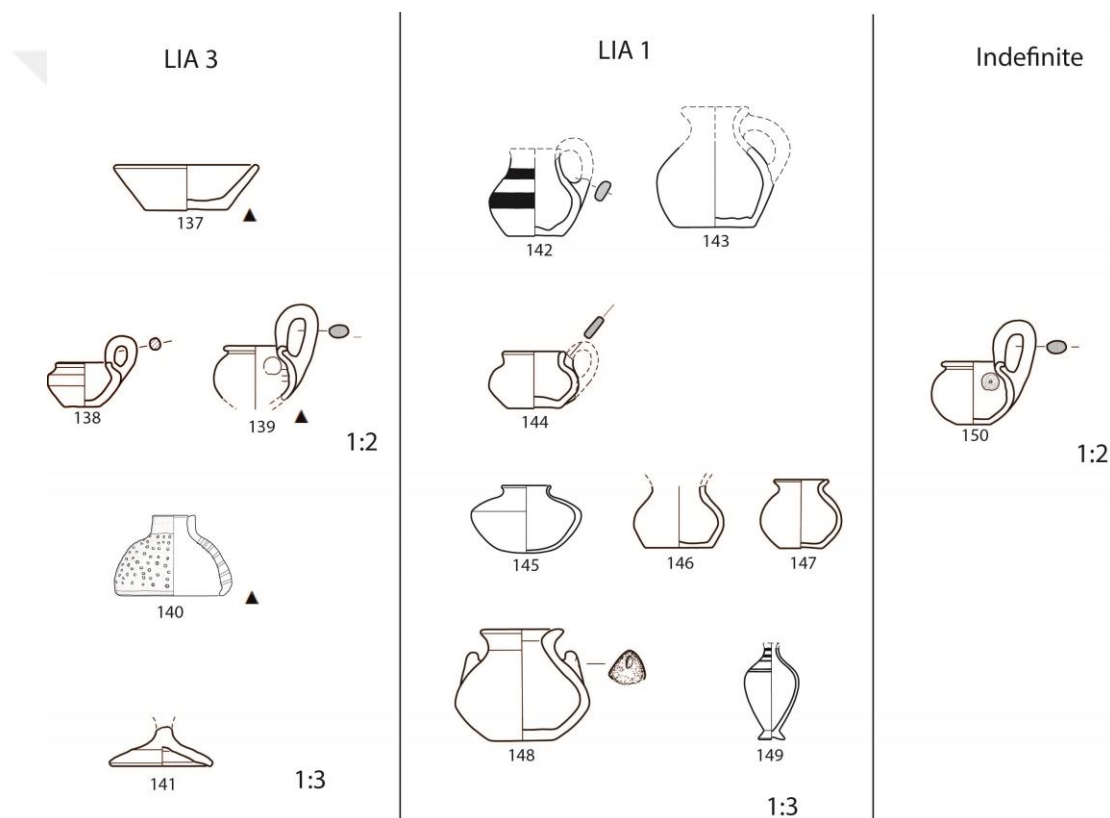


Figure 63: Drawings of miniature vessels.

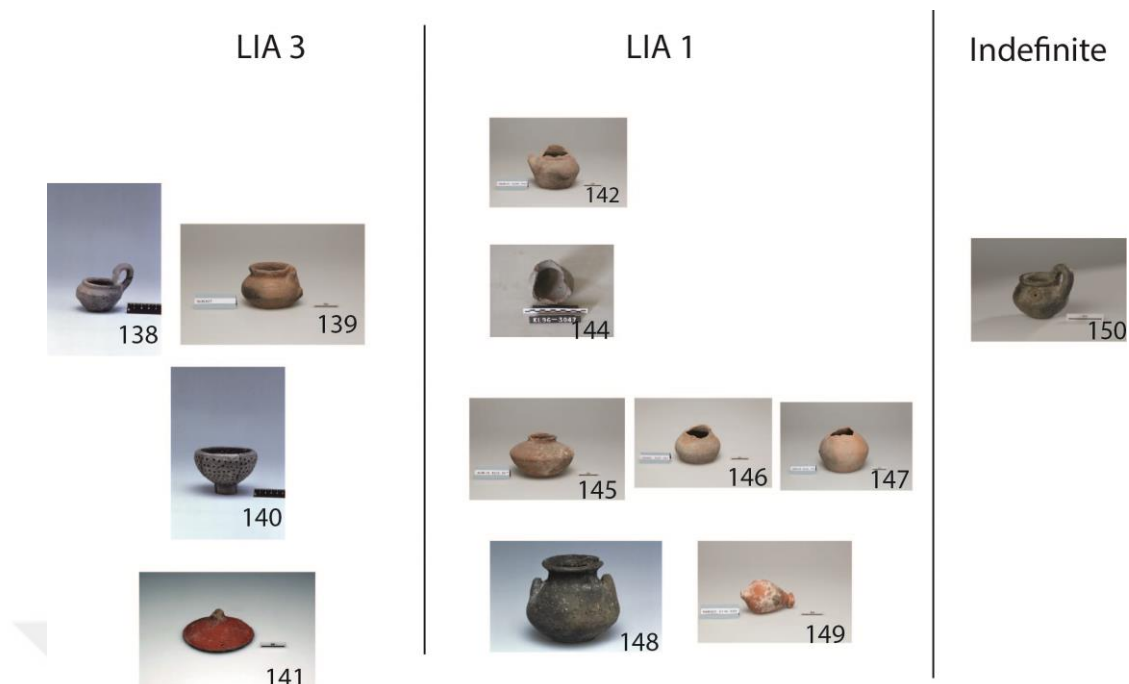


Figure 64: Photographs of miniature vessels.



Figure 65: Finger mark on the handle of a cooking pot.

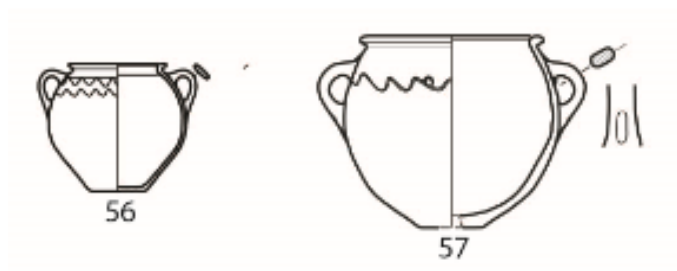


Figure 66: Wave line decorations.

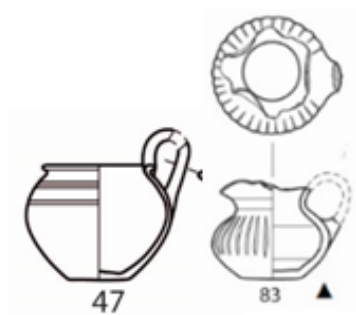


Figure 67: Horizontal and vertical grooves on the vessels.

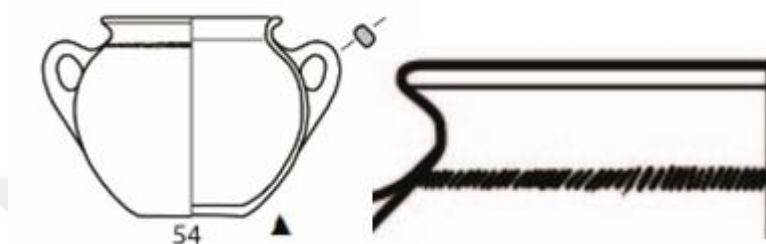


Figure 68: Slashes and its detailed view on the upper part of the vessel.

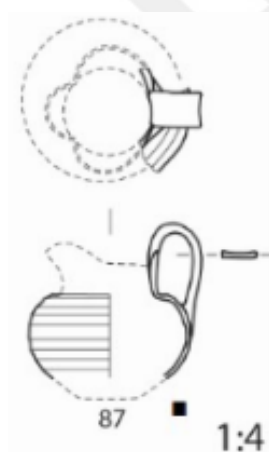


Figure 69: Facetted decoration on the trefoil mouthed jug.

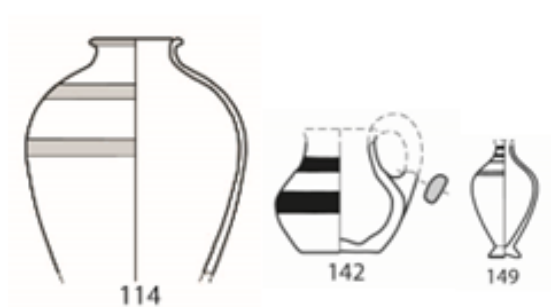


Figure 70: Monochrome painting in horizontal line design.

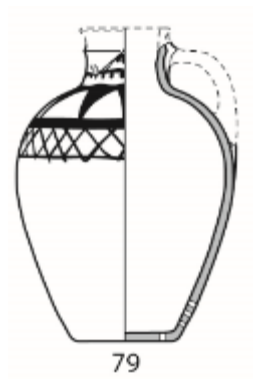


Figure 71: Monochrome painting in geometric design.

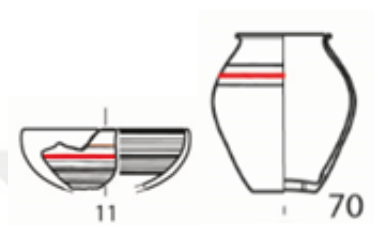


Figure 72: Bichrome painting in horizontal line design.

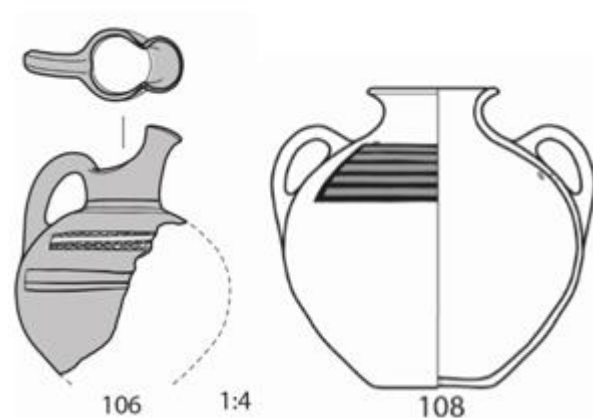


Figure 73: Panel technique painting.

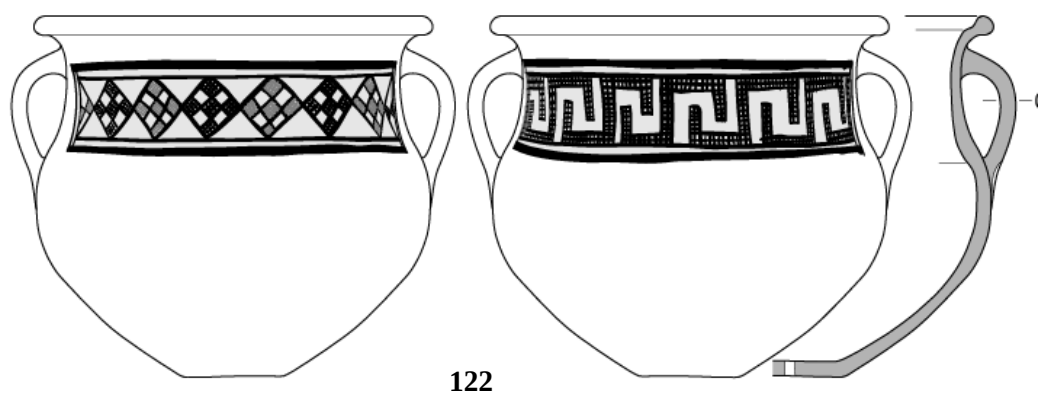


Figure 74: Trichrome painting in geometric design.

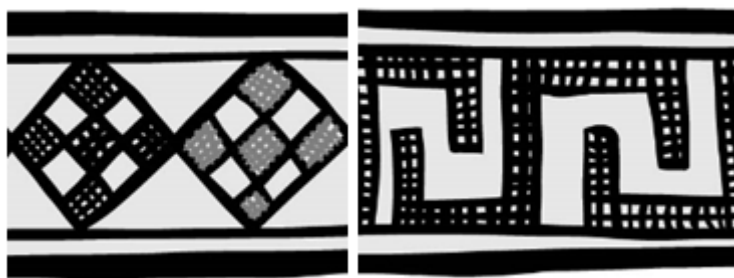


Figure 75: Close look to the geometric design on the neck of the krater.

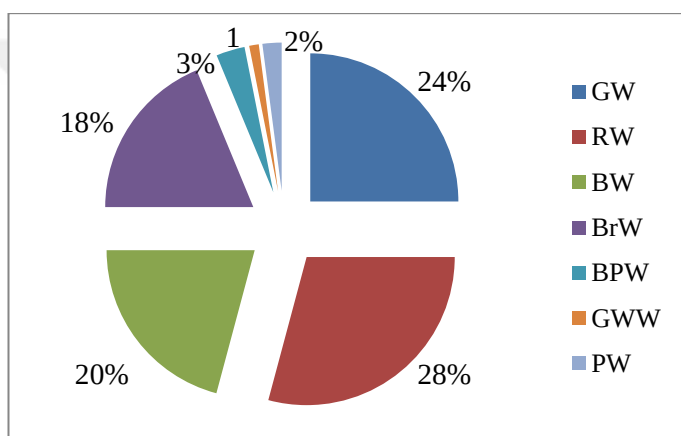


Figure 76: Distribution of ware types.

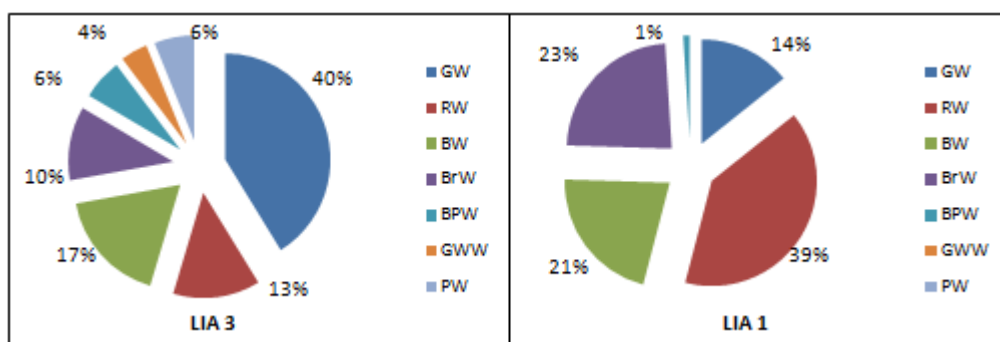


Figure 77: Stratigraphical distribution of ware types.

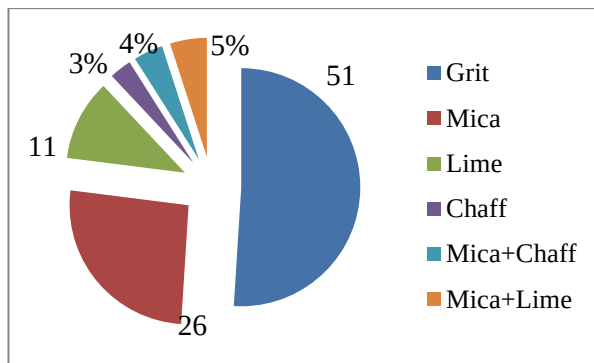


Figure 78: Distribution of inclusions of the LIA pottery.

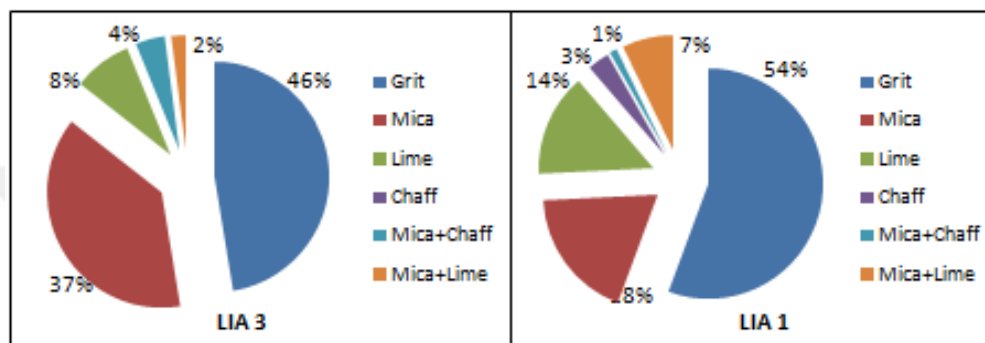


Figure 79: Stratigraphical distribution of inclusions.

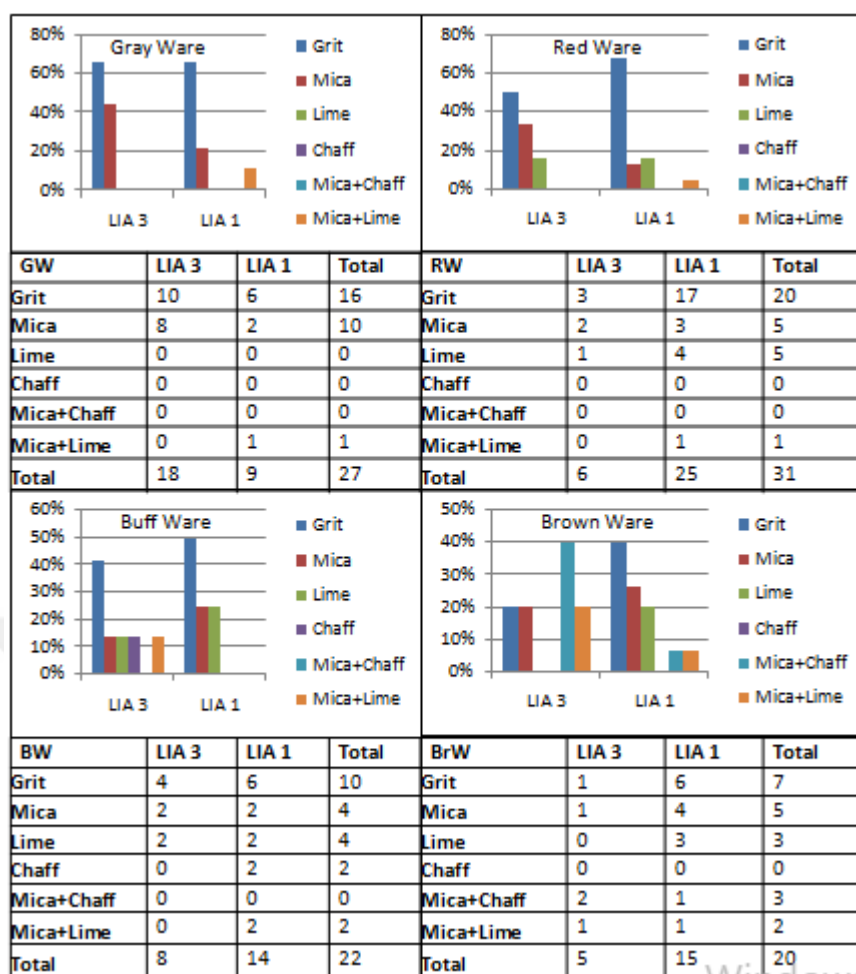


Figure 80: Correlation between ware types and inclusions.

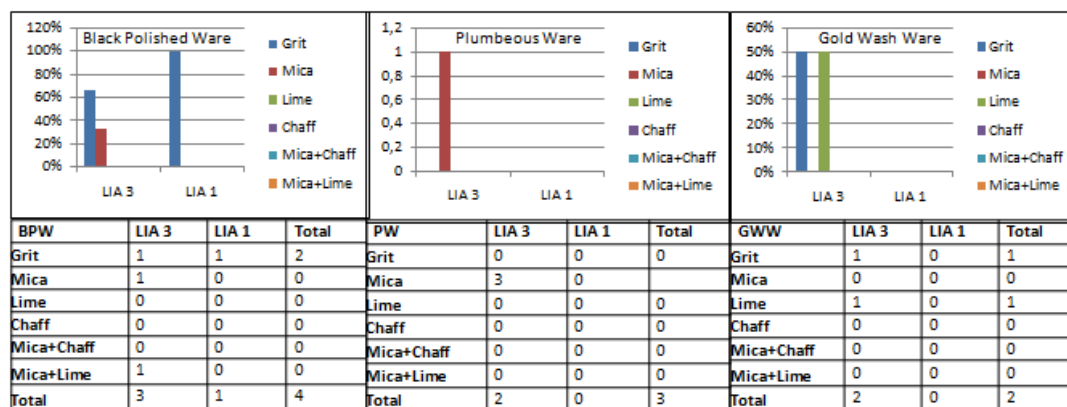


Figure 81: Correlation between ware types and inclusions.

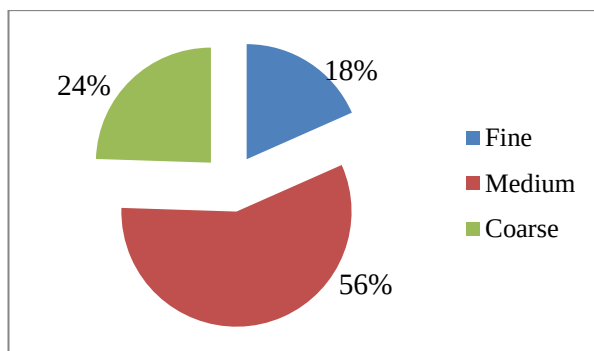


Figure 82: Distribution of clay.

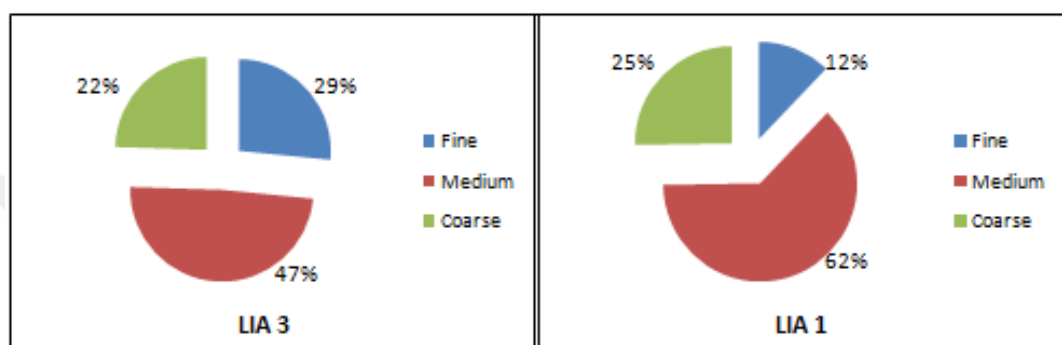


Figure 83: Stratigraphical distribution of clay.

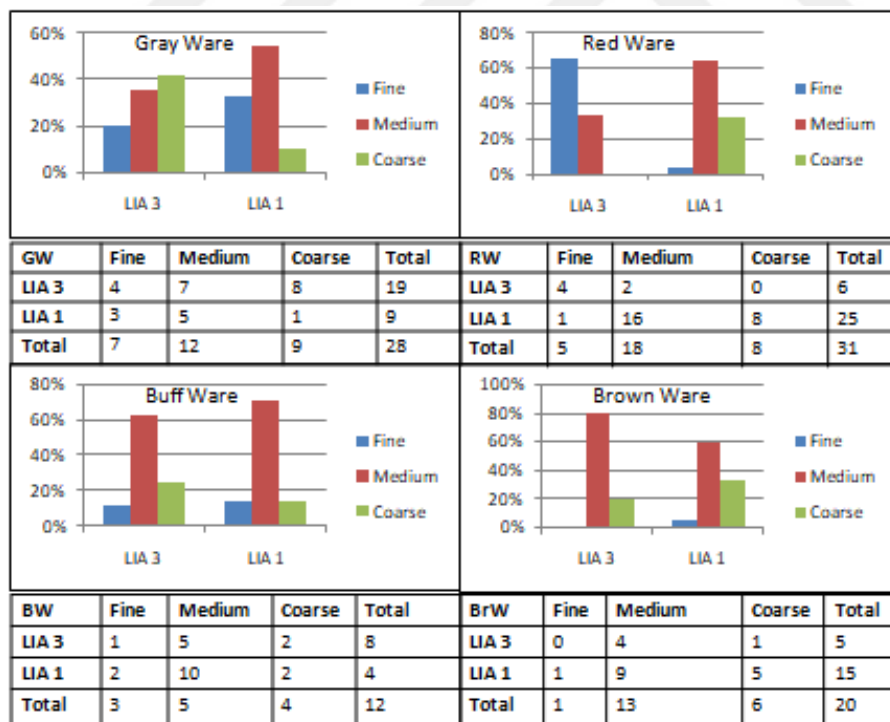


Figure 84: Correlation between ware types and clay.

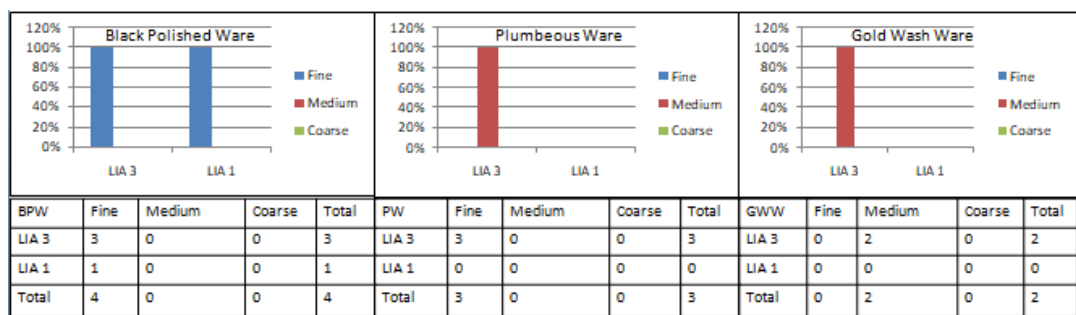


Figure 85: Correlation between ware types and clay.

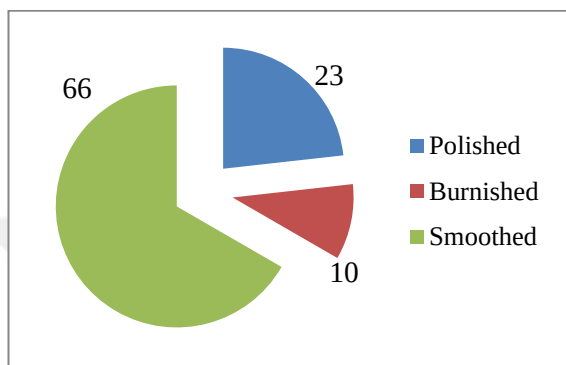


Figure 86: Distribution of surface treatment.

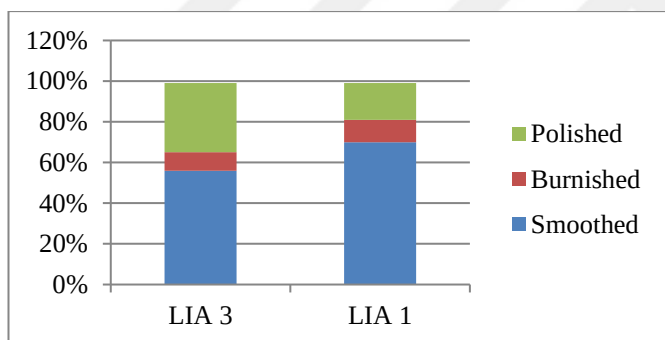


Figure 87: Stratigraphical distribution of surface treatment.



Figure 88: Correlation between ware types and surface treatment.



Figure 89: Correlation between ware types and surface treatment.

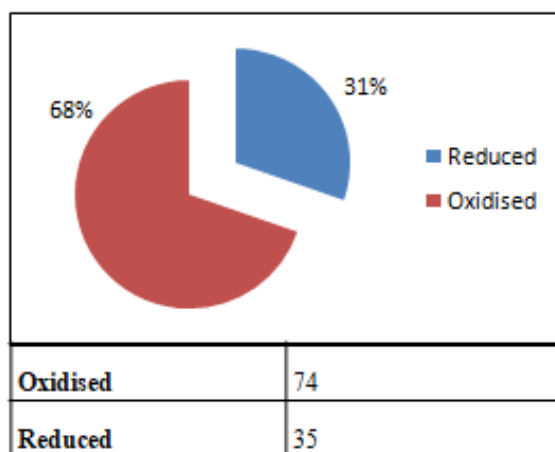


Figure 90: Distribution of firing technique of LIA pottery.

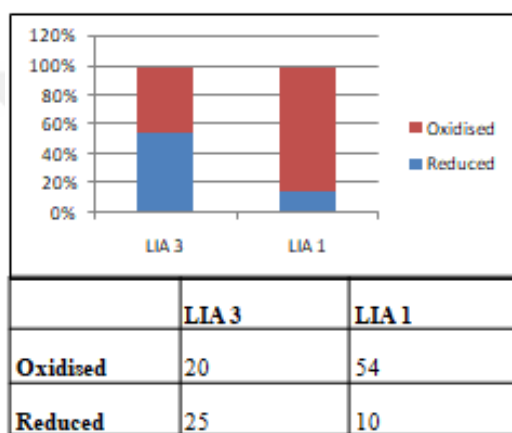


Figure 91: Stratigraphical distribution of firing technique.

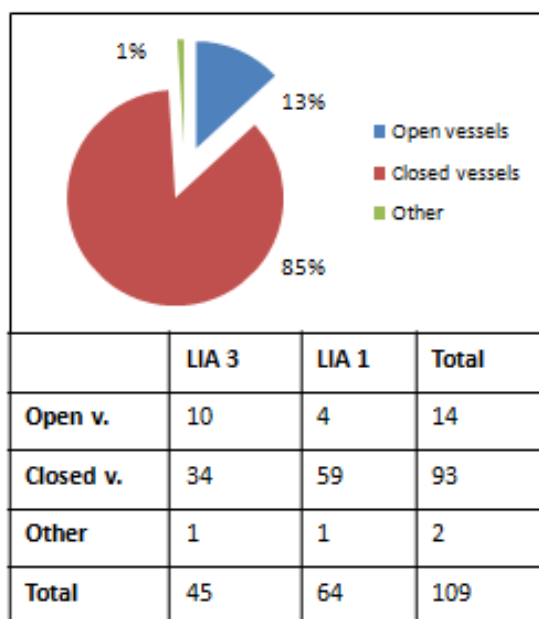


Figure 92: Stratigraphical distribution of open and closed vessels.

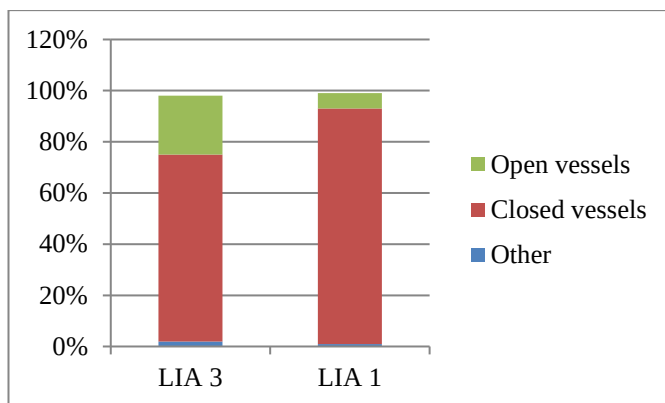


Figure 93: Stratigraphical distribution of open and closed vessels.

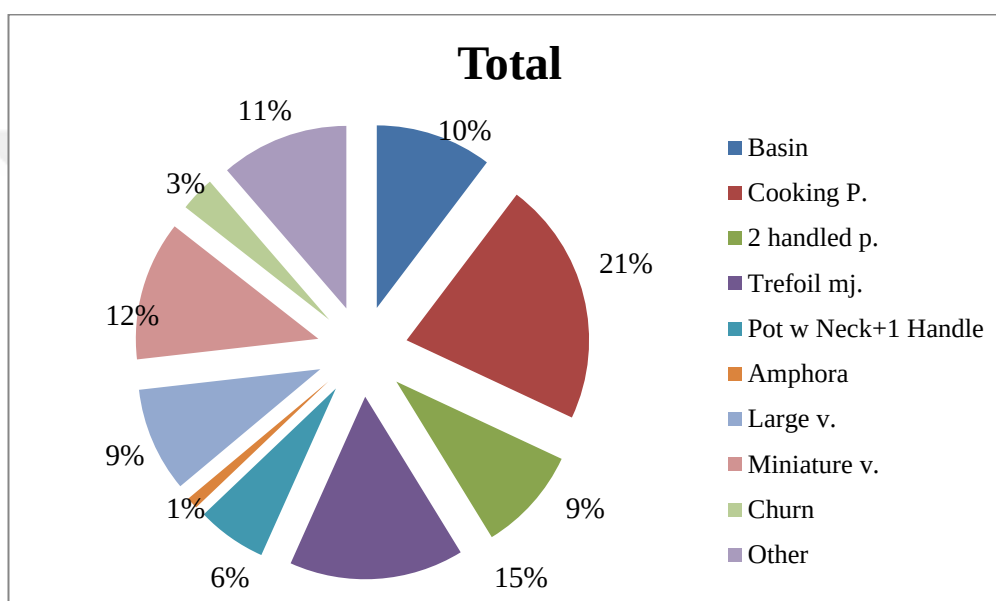


Figure 94: Forms of LIA period of KL.

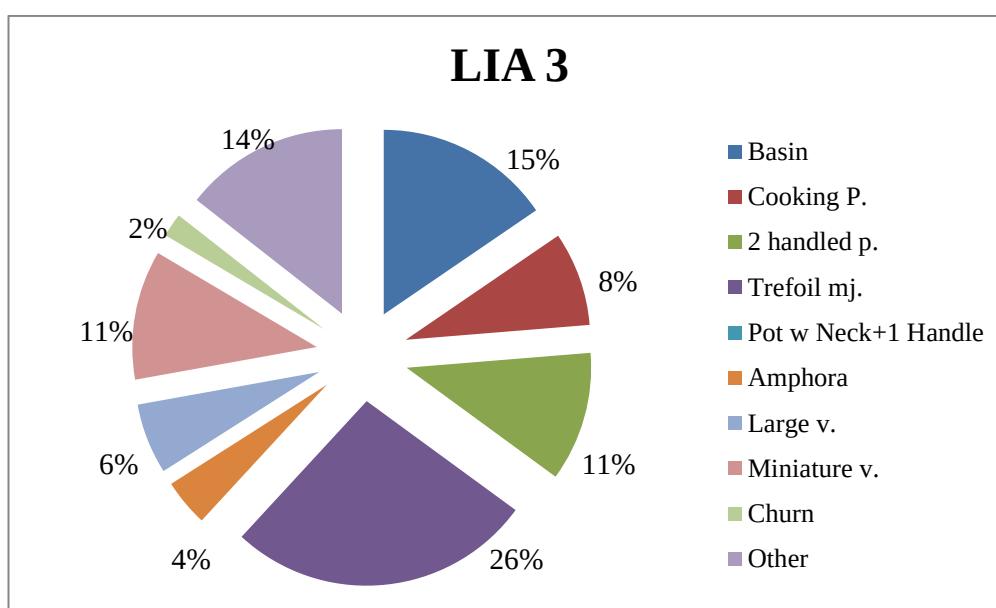


Figure 95: Form distribution of LIA 3.

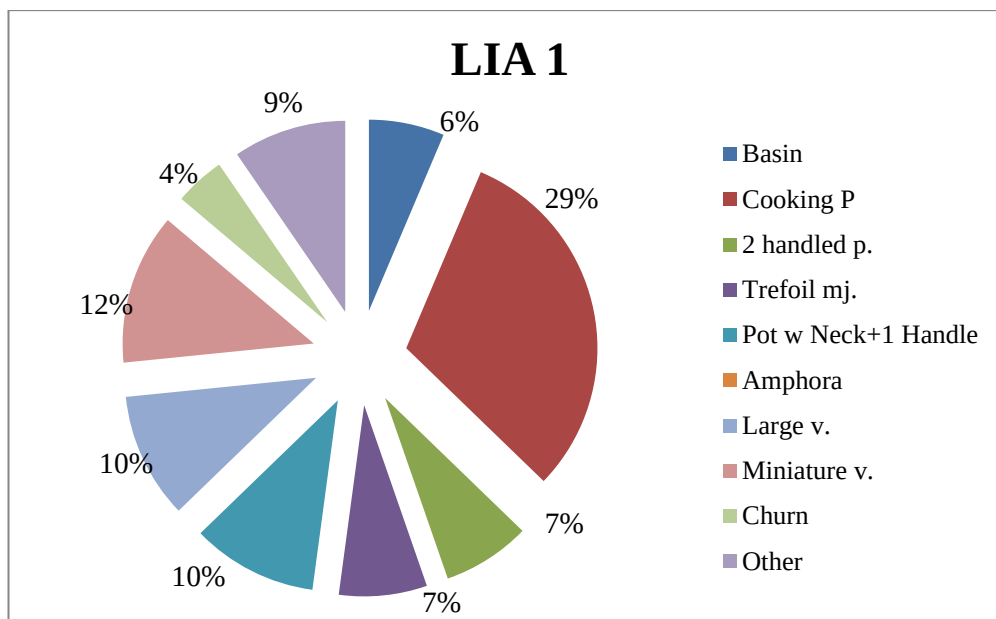


Figure 96: Form distribution of LIA 1.

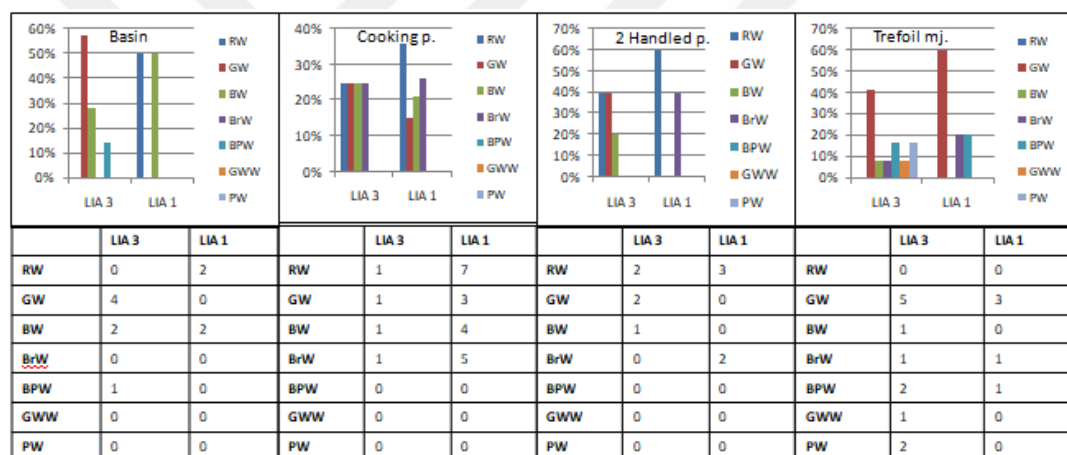


Figure 97: Correlation between form and ware types.

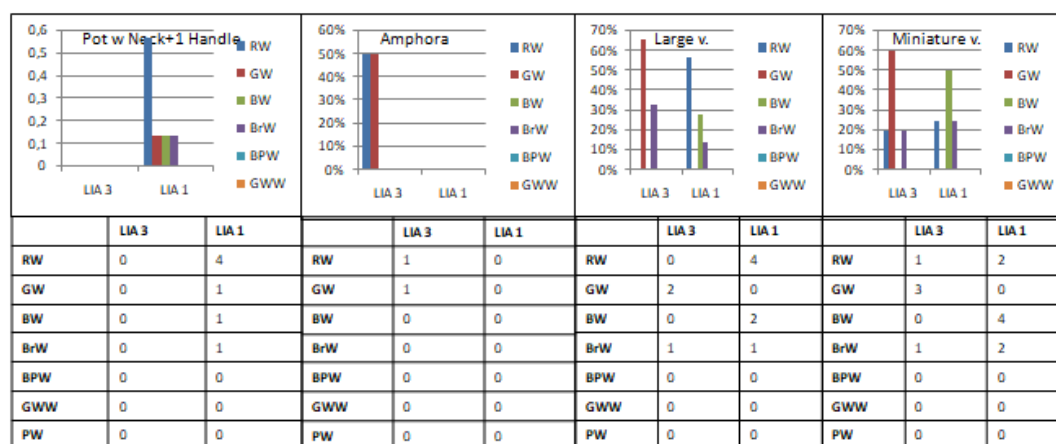


Figure 98: Correlation between form and ware types.

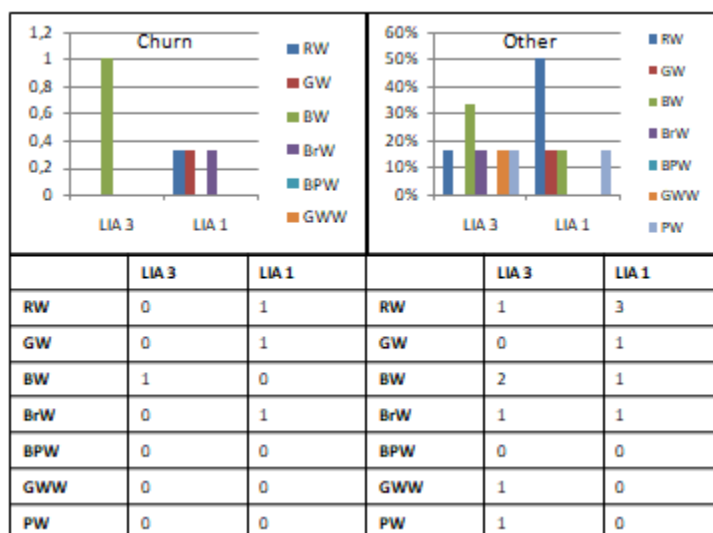


Figure 99: Correlation between form and ware types.

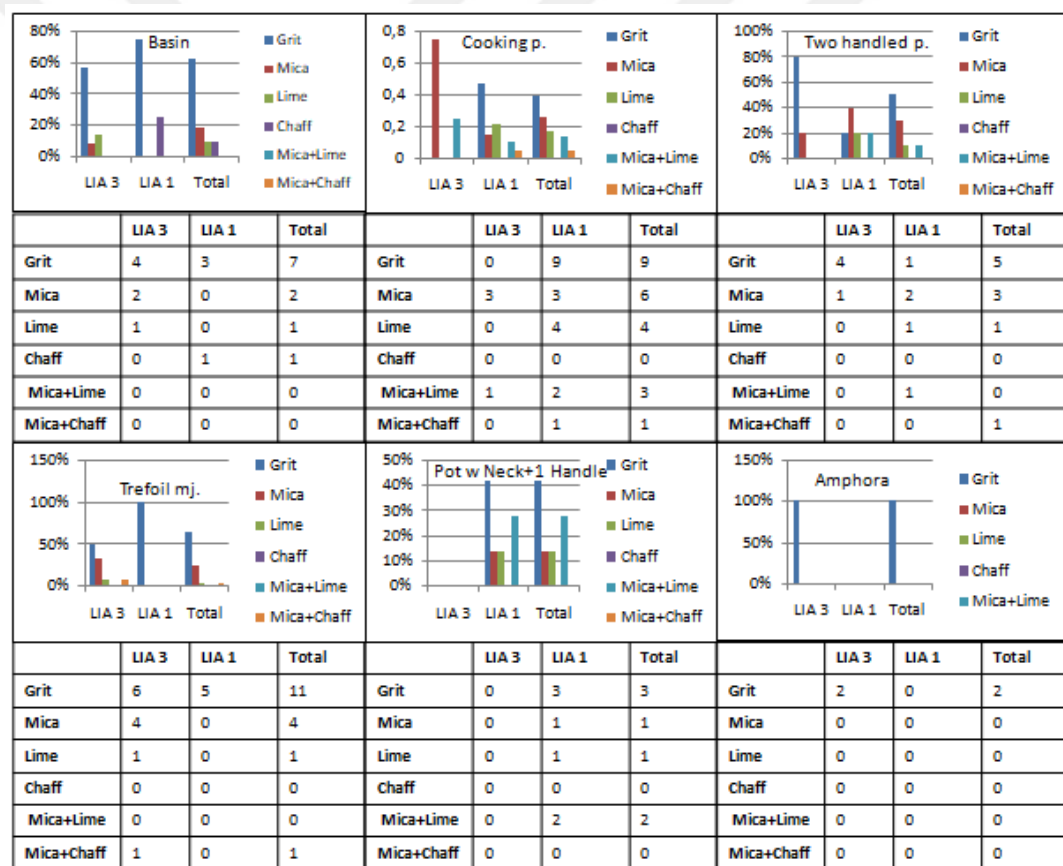


Figure 100: Correlation between form and inclusions.

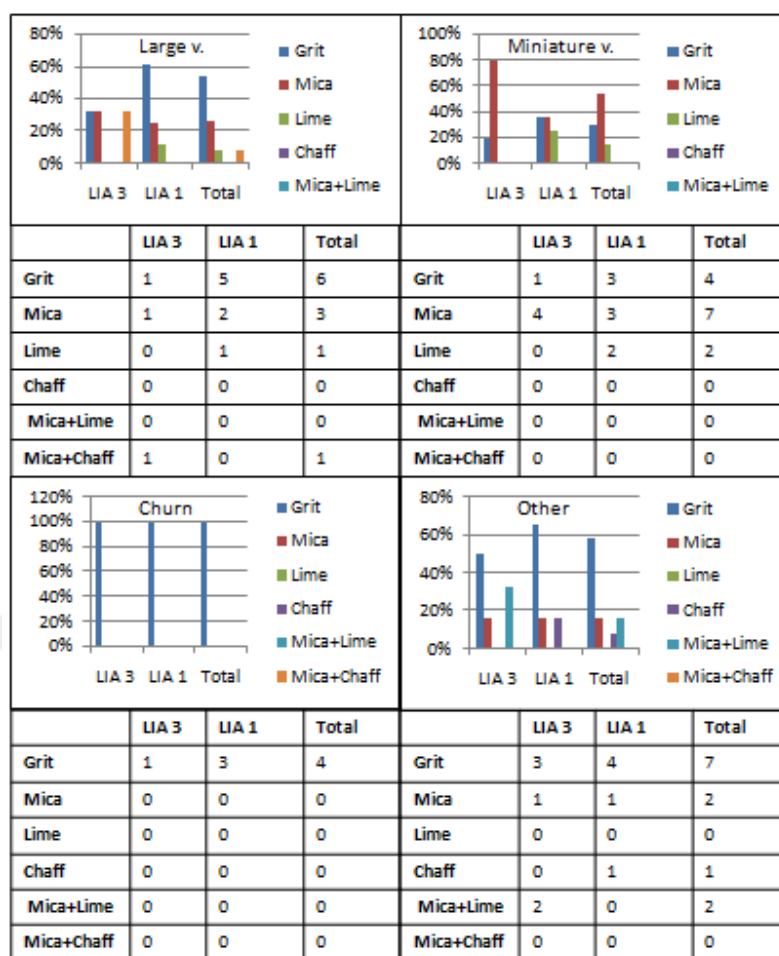


Figure 101: Correlation between form and inclusions.

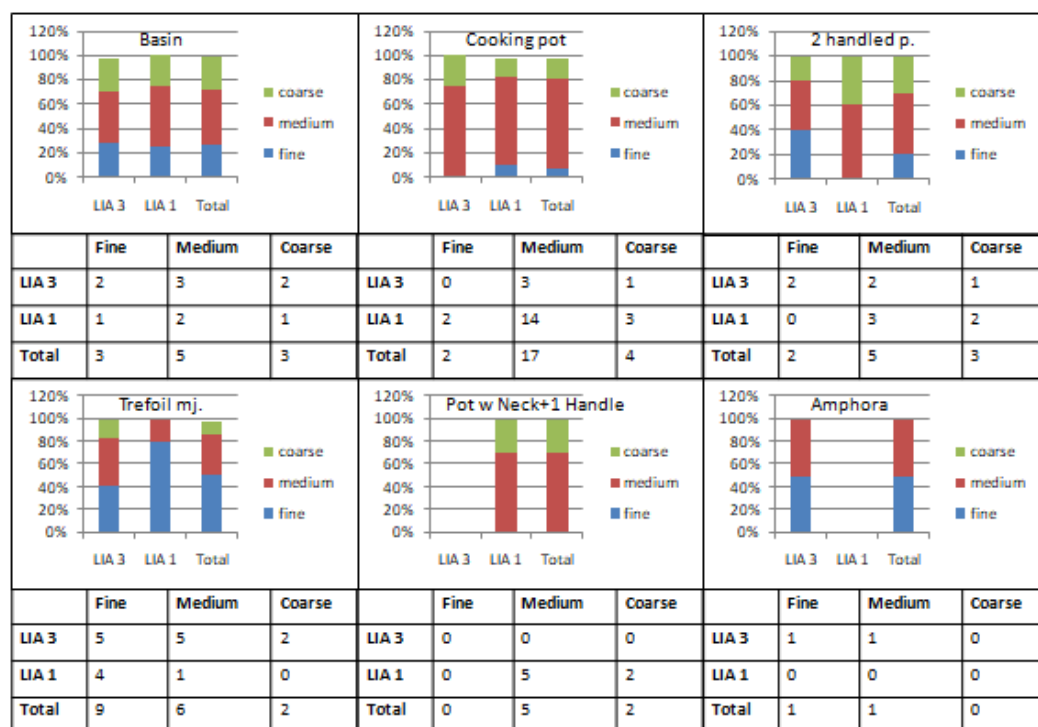


Figure 102: Correlation between form and clay.

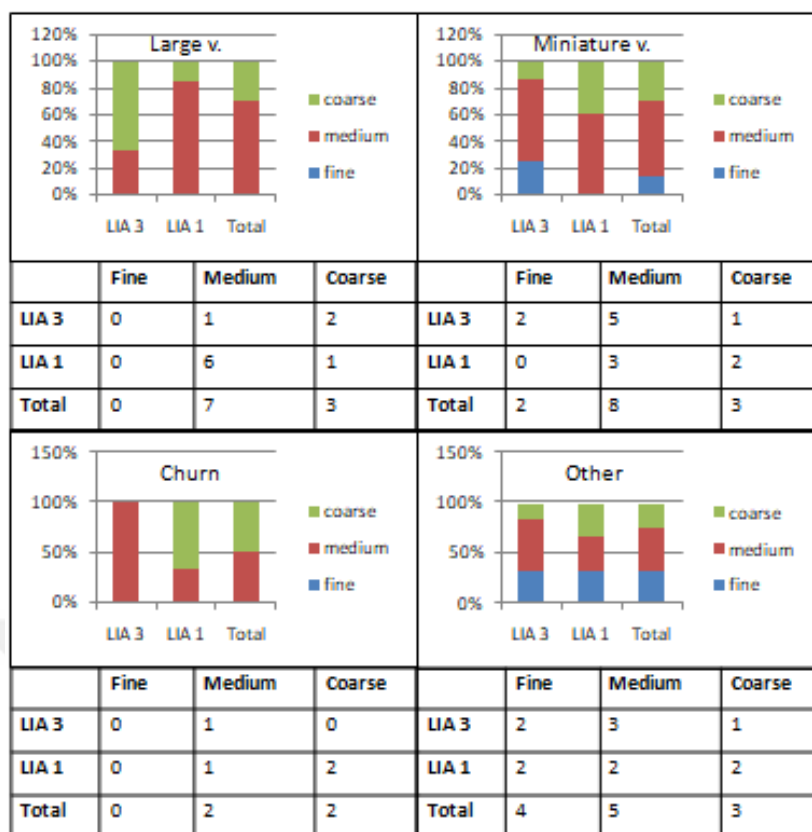


Figure 103: Correlation between form and clay.

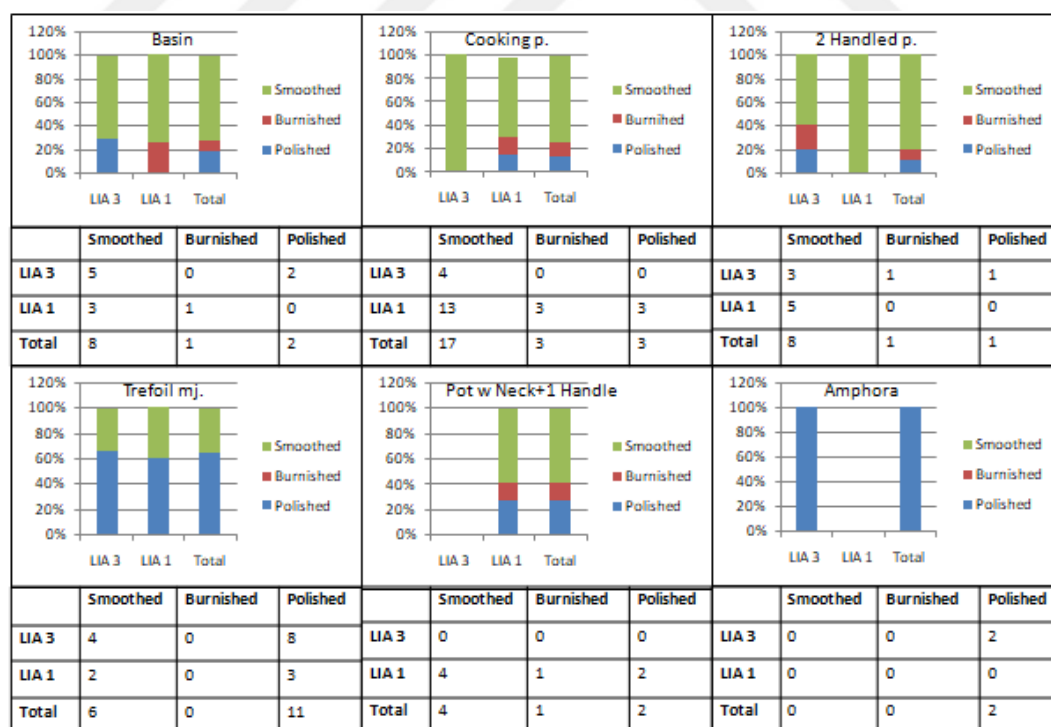


Figure 104: Correlation between form and surface treatment.

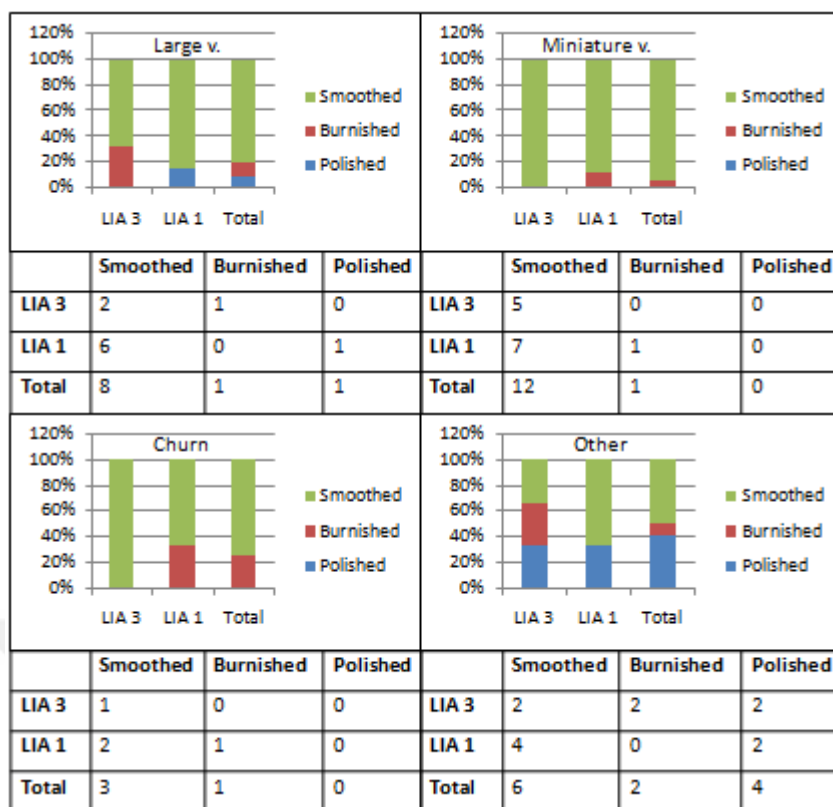


Figure 105: Correlation between form and surface treatment.

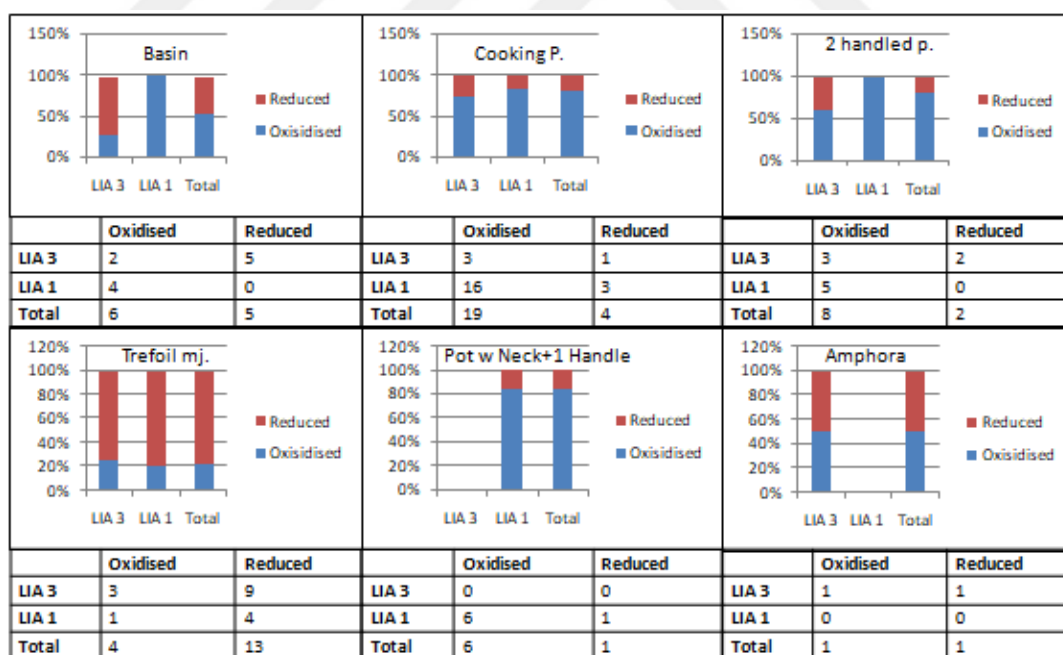


Figure 106: Correlation between form and firing technique.

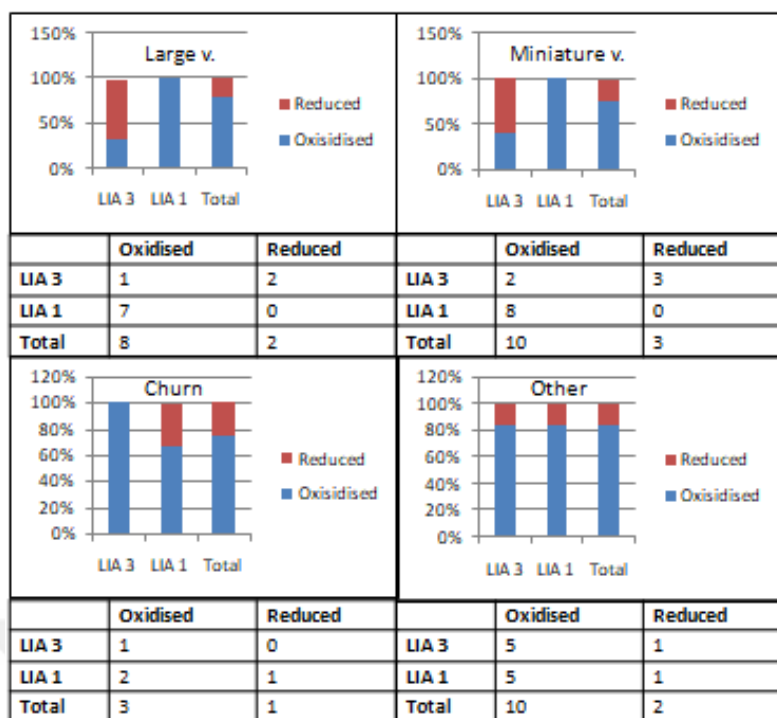


Figure 107: Correlation between form and firing technique.

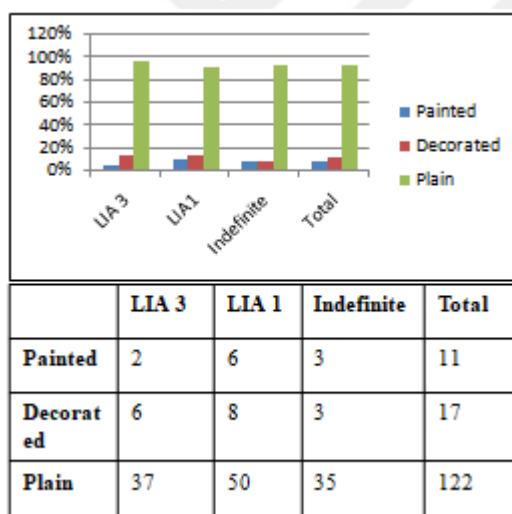


Figure 108: The ratio of painted, decorated and plain vessels.

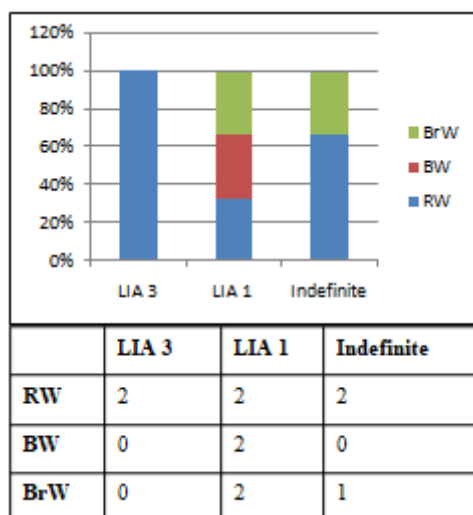


Figure 109: The correlation between ware and painted vessels.

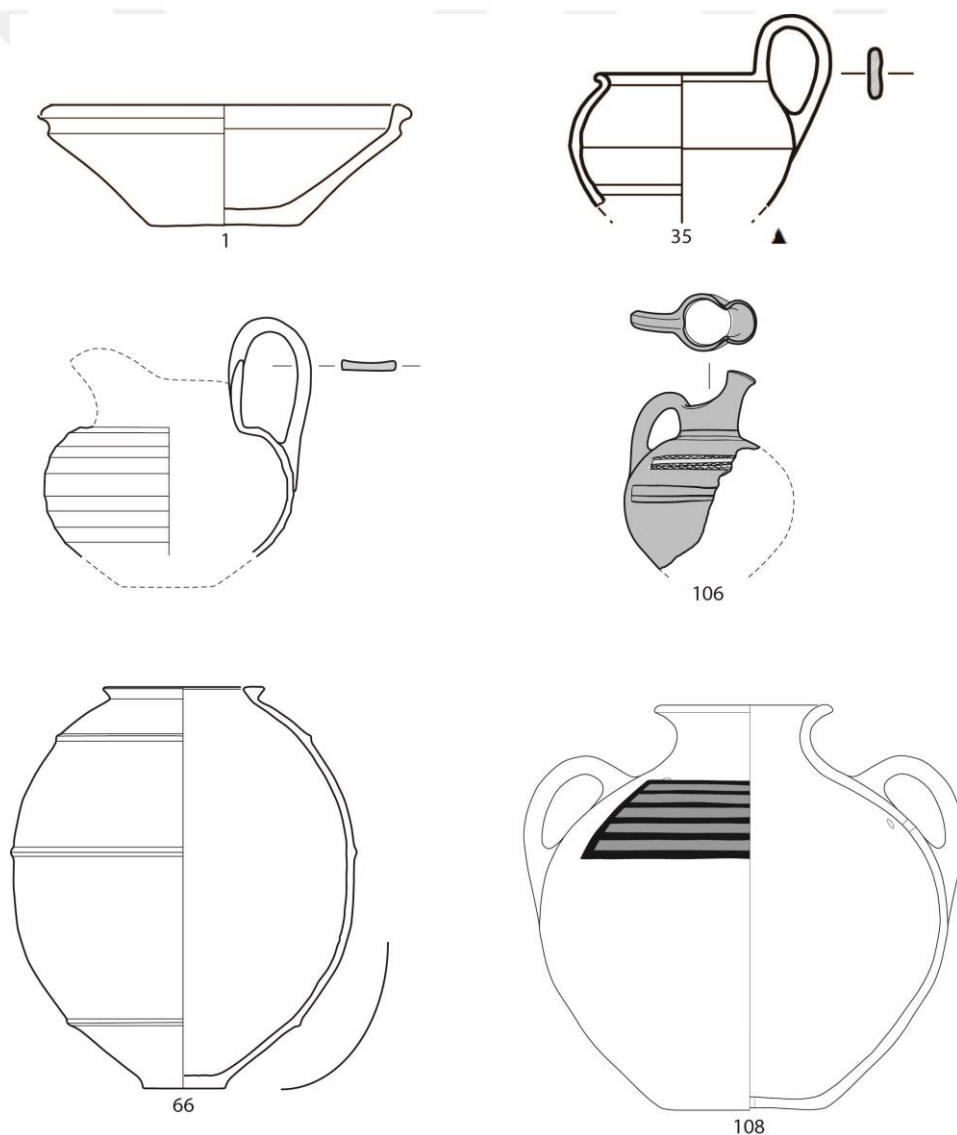


Figure 110: Typical forms of the LIA 3 phase.



Figure 111: Typical forms of the LIA 1 phase.

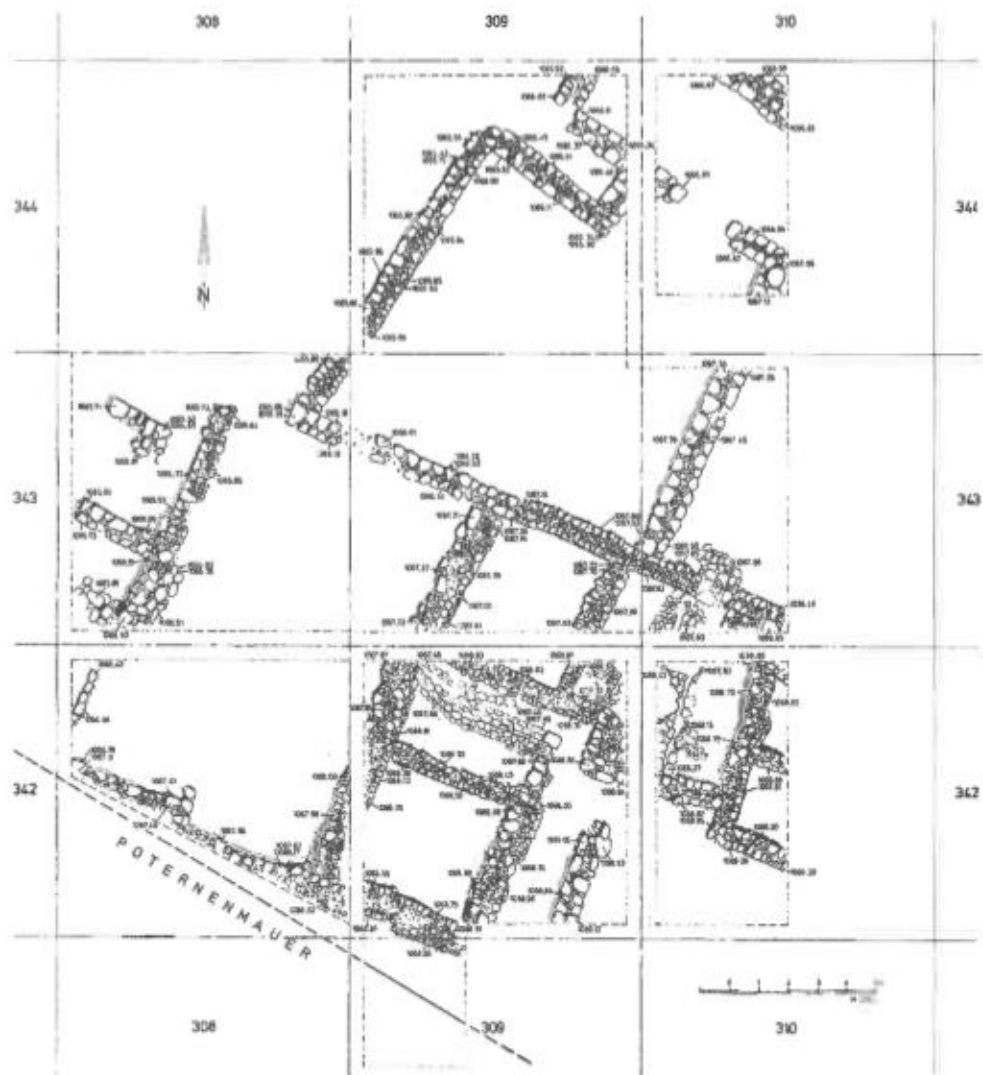


Figure 113: Monumental building from Northwest Slope in Boğazköy (Genz, 2007: 139, Fig. 3).

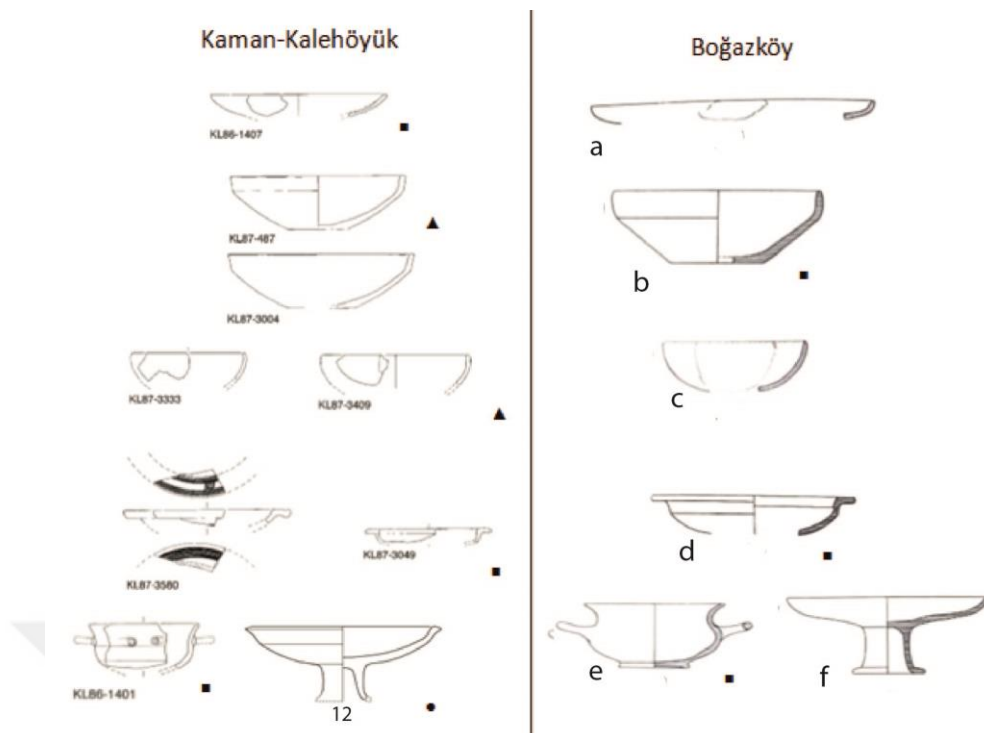


Figure 114: Open mouthed vessels from KL and Boğazköy (Bossert, 2000: 74, 92; Matsumura, 2005: 196).

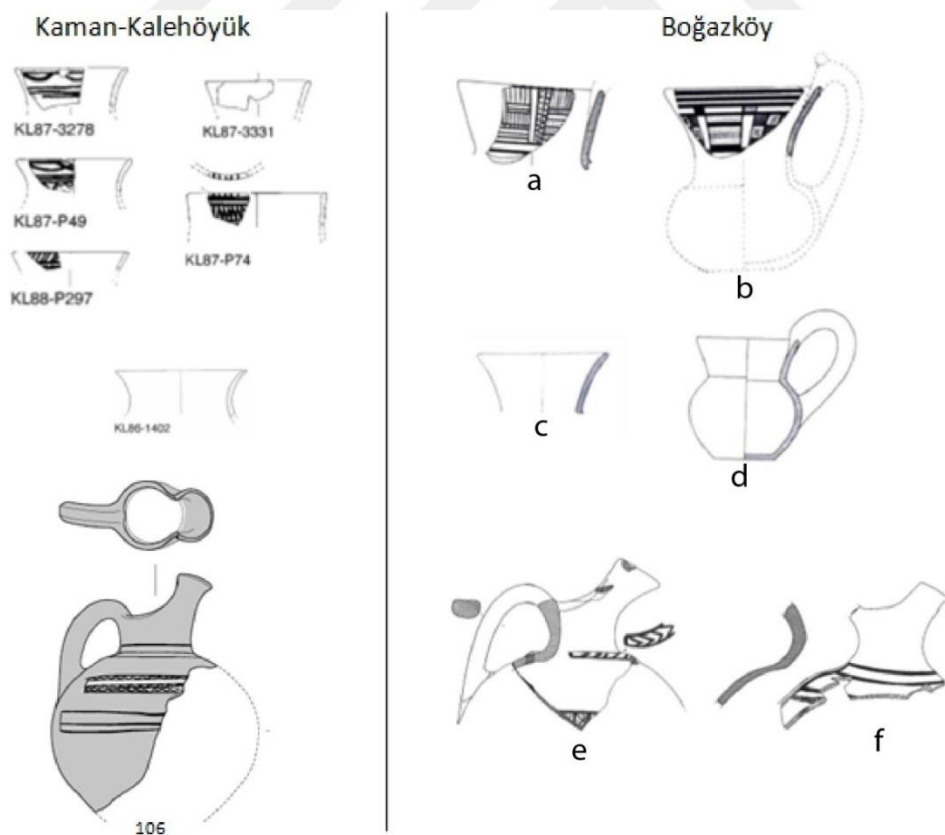


Figure 115: The round-mouthed jugs from KL (Matsumura, 2005: Pl. 221) and Boğazköy (Bossert, 2000: P. 45, 46) and spouted pitcher from KL and Boğazköy (Genz, 2007: 143, Fig. 6).

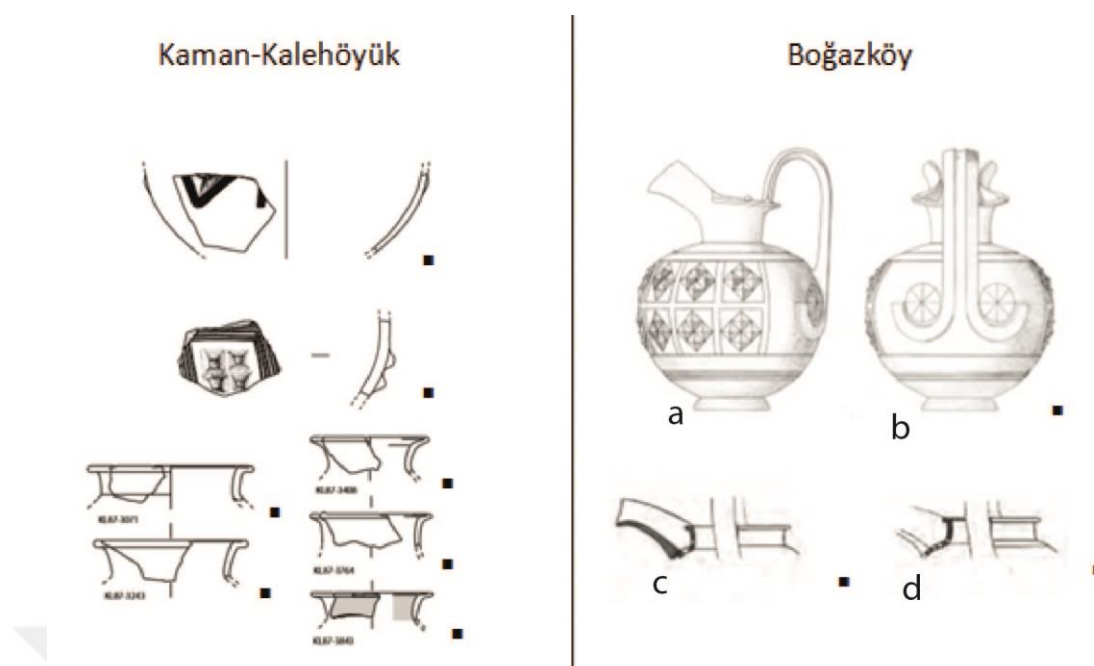


Figure 116: Black polished vessels from KL (Matsumura, 2008: 179, Fig.3, 4, 9) and Boğazköy (Bossert, 2000: Pl. 39, 43).

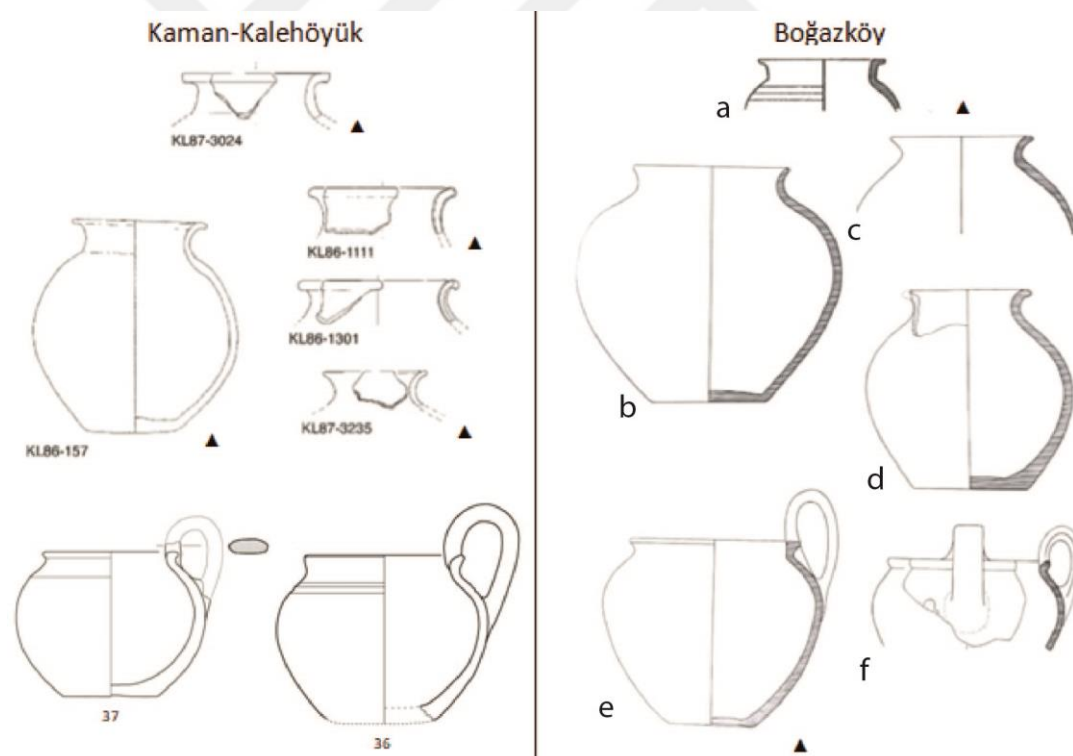


Figure 117: (Matsumura, 2005: Pl. 129; Bossert, 2000: Pl. 48, 51; Genz, 2007: 141, Fig. 5).



Figure 118: Amphorae from KL and Boğazköy (Bossert, 2000: Pl. 4).

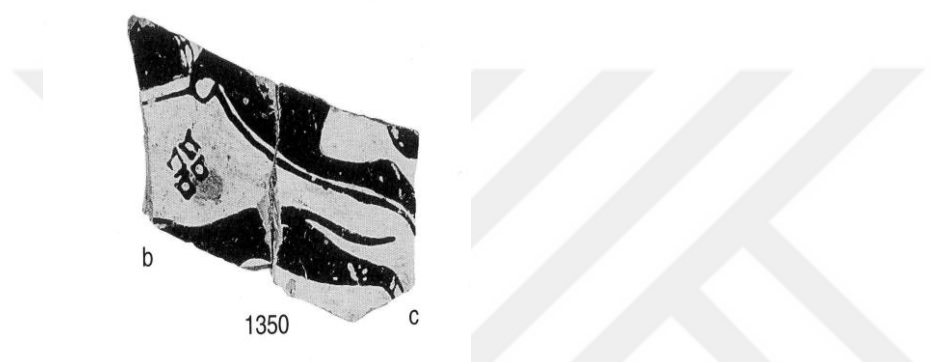


Figure 119: Orientalising style potsherds found in Boğazköy (Bossert, 2000: 143).



Figure 120: Imitation of an Ionian vessel found in Boğazköy (Bossert, 2000: Pl. 129).

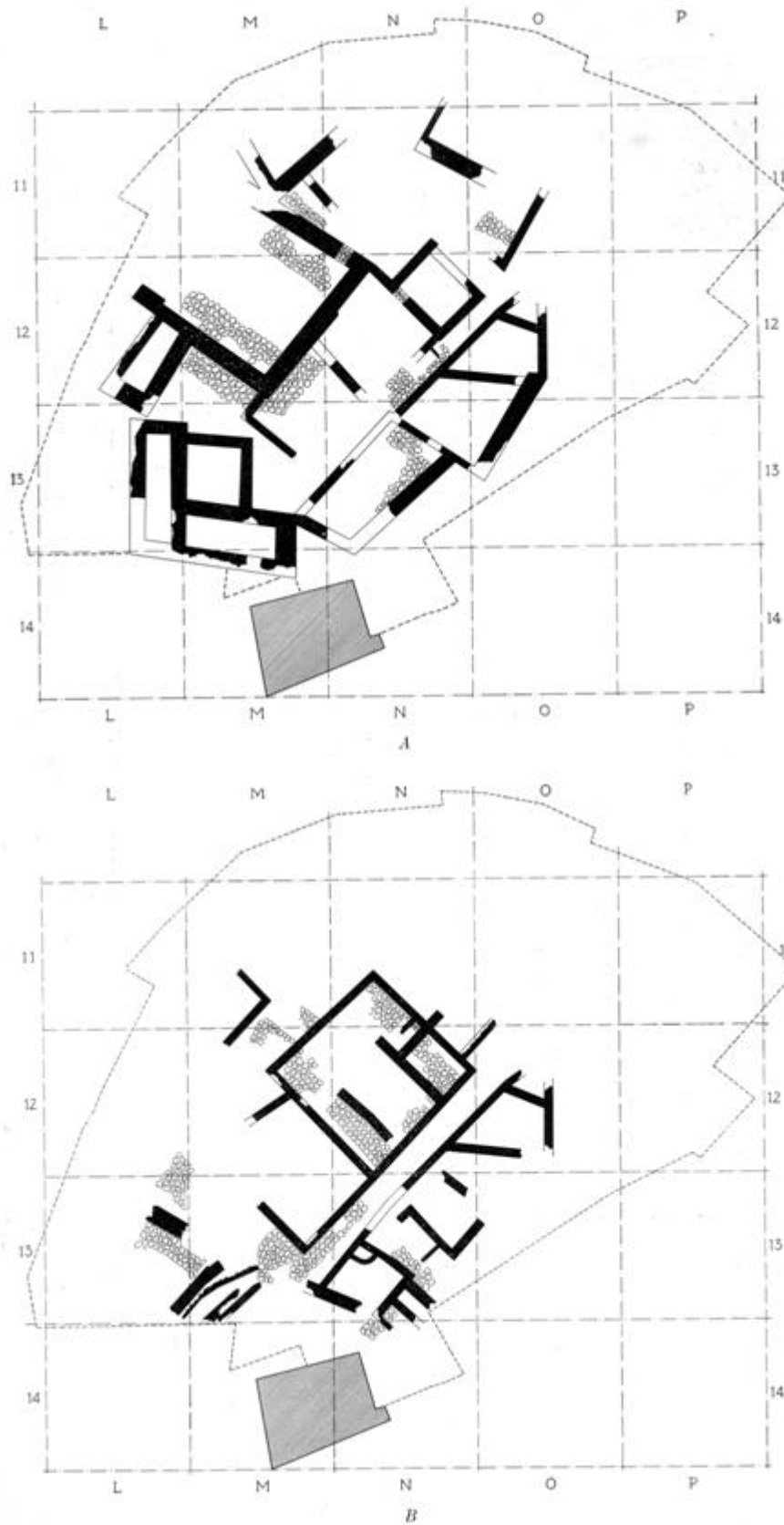


Figure 121: Plan of the level 2a-M (above) and 2b-M (below) consist of the tower of the level 2M or 3M (von der Osten, 1937: 3, Fig. 1).

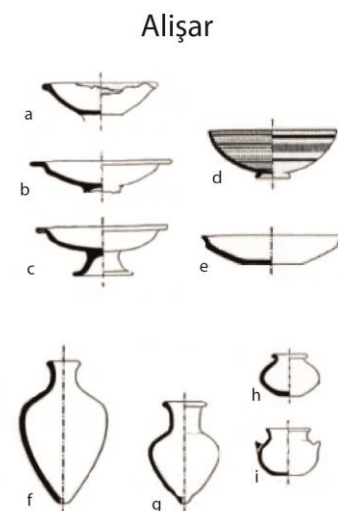
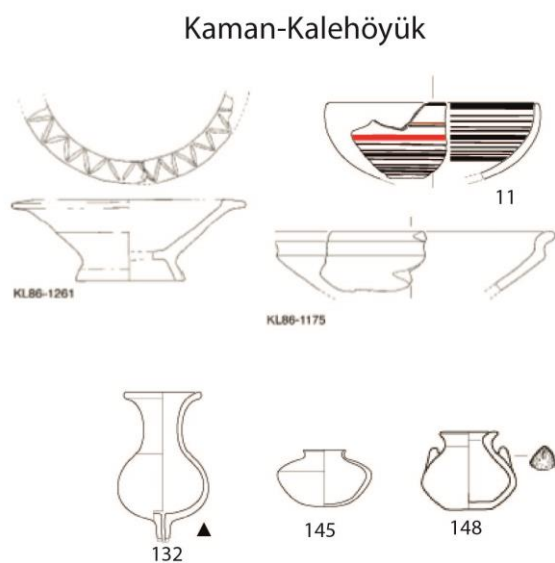


Figure 122: Common forms from KL and Alişar (von der Osten, 1937).

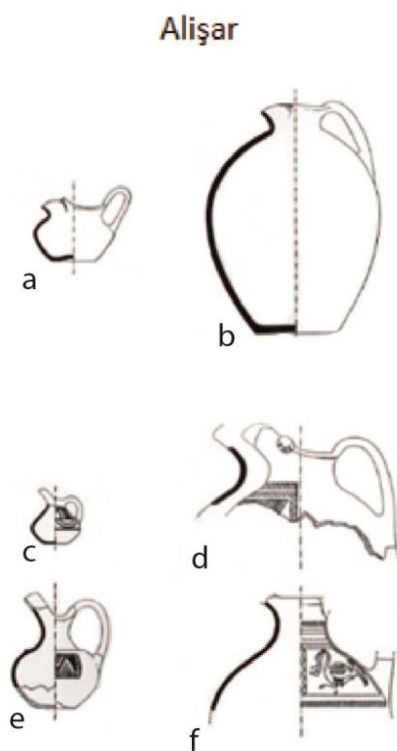
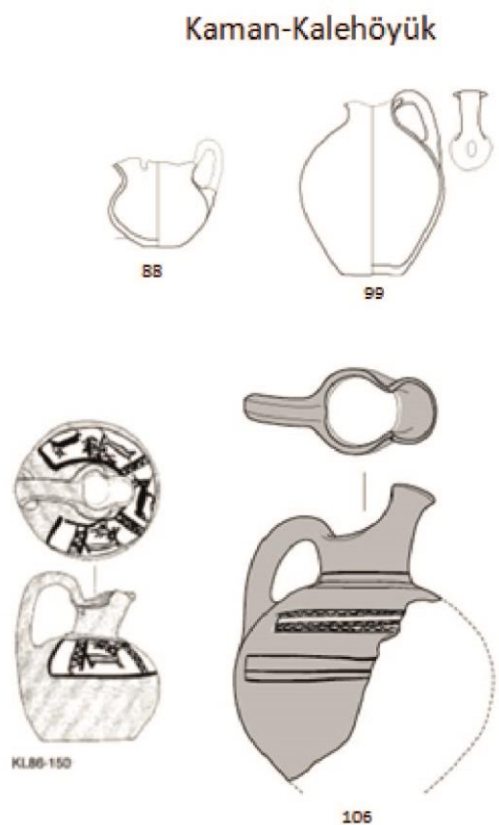


Figure 123: Common forms from KL and Alişar (von der Osten, 1937).

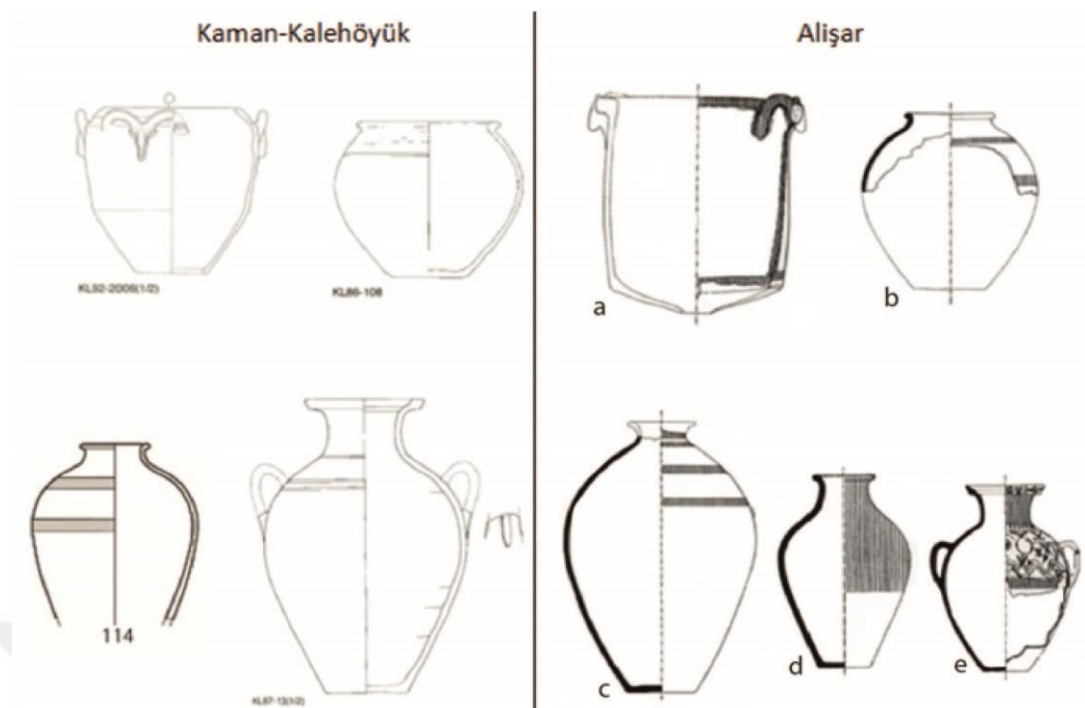


Figure 124: Common forms from KL and Alişar (von der Osten, 1937).

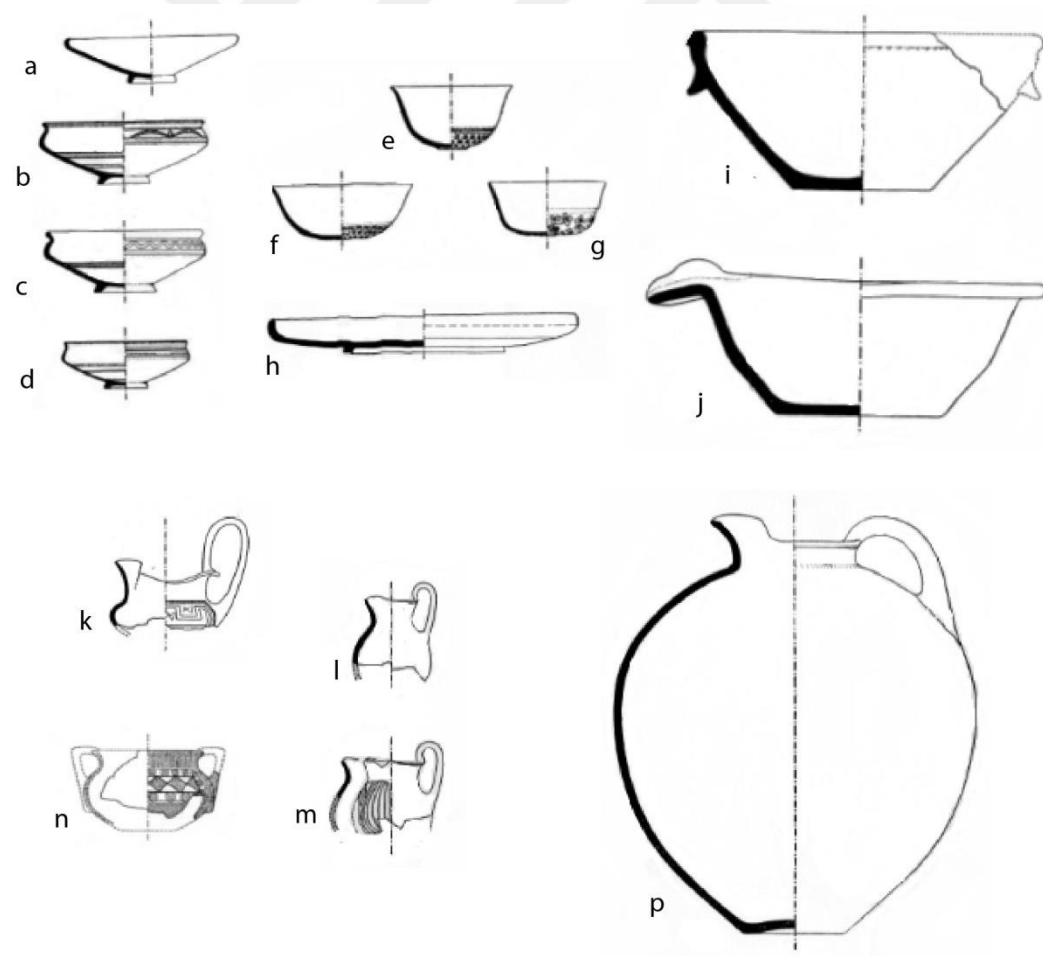


Figure 125: Many forms from Alişar not found in KL (von der Osten, 1937).

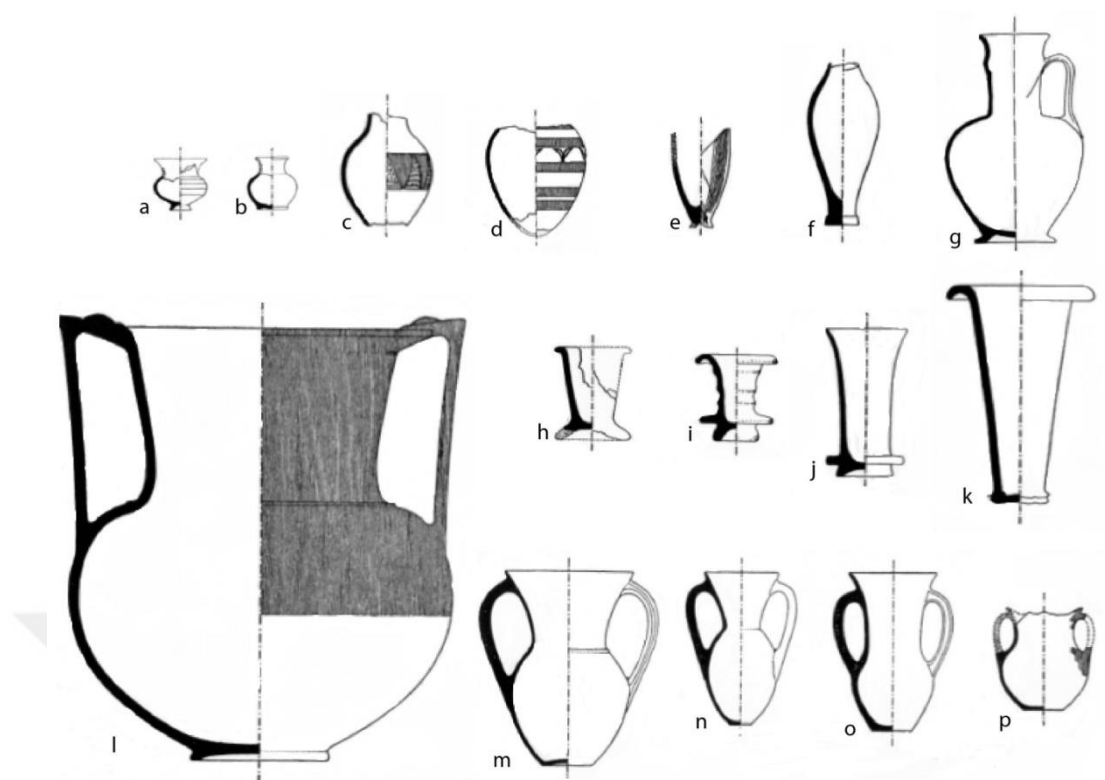
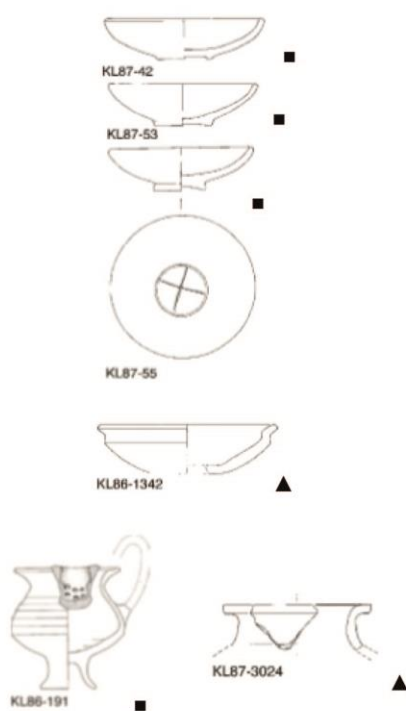


Figure 126: Many forms from Alişar not found in KL (von der Osten, 1937).



Figure 127: The city plan of YHSS-5(Voigt, 2011: 1083, Fig. 50.5a).

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Gordion

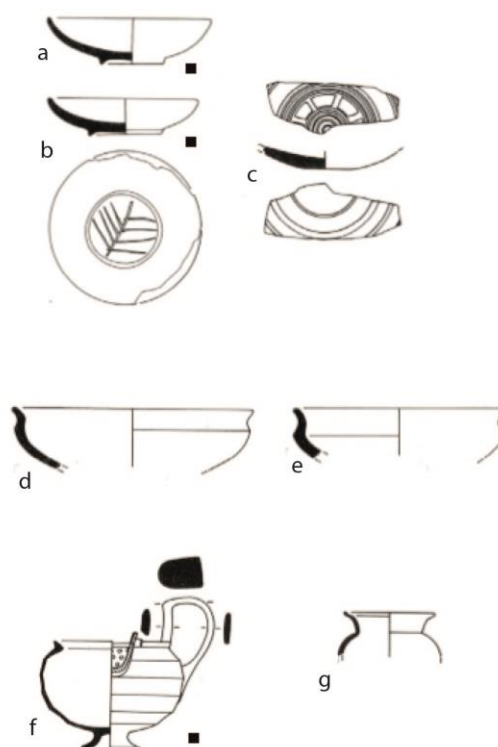
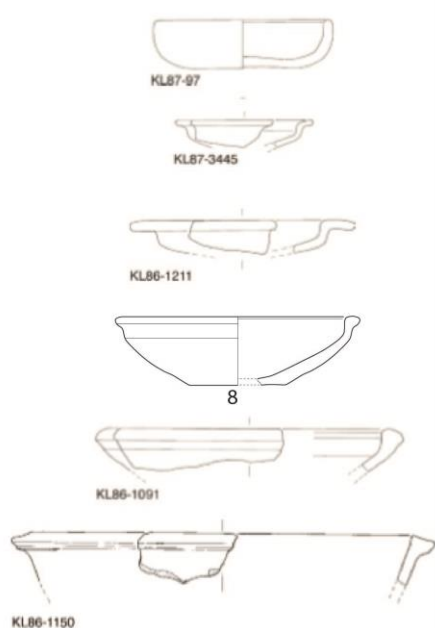


Figure 128: Common forms from KL (LIA 3) and Gordion (YHSS-5) (Henrickson 1993: Fig. 16, 17; Henrickson, 1994: 127, Fig. 10.7).

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Gordion

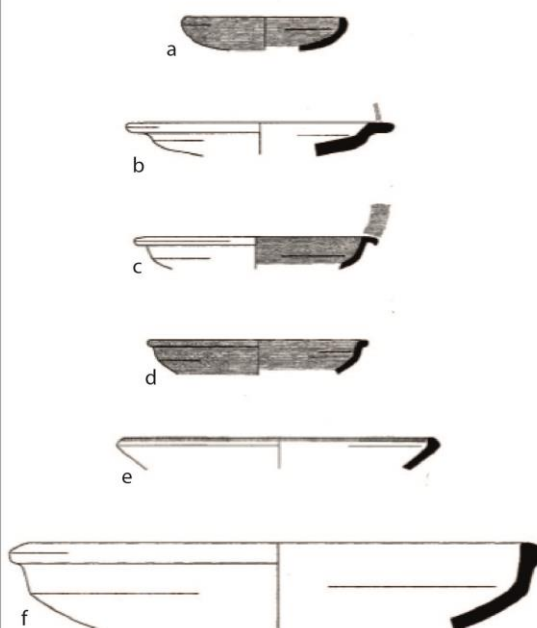
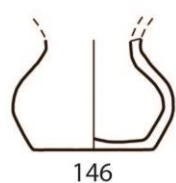


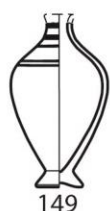
Figure 129: Common forms in KL (LIA 1) and Gordion (YHSS-4) (Toteva, 2010; 168-170, Pl. 1-4, Matsumura, 2005: Pl.203-232).

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Gordion



146



149



a



b



c



d

Figure 130: Common forms from KL (LIA 1) and Gordion (YHSS-4) (b and c; Voigt et al.1997: Fig. 30; d; Henrickson, 1994: 129, Fig. 10.9).



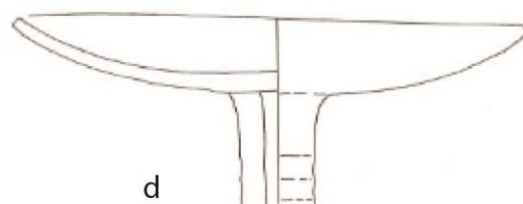
a



b



c



d



e



f



g



h

Figure 131: Typical Middle Phrygian (YHSS-5) pottery found in Gordion (a, b, c, and f; Henrickson, 1993: Fig. 16, d and h; Henrickson, 2005: Fig. 10-7; g; Henrickson, 1994: 127, 10.7).

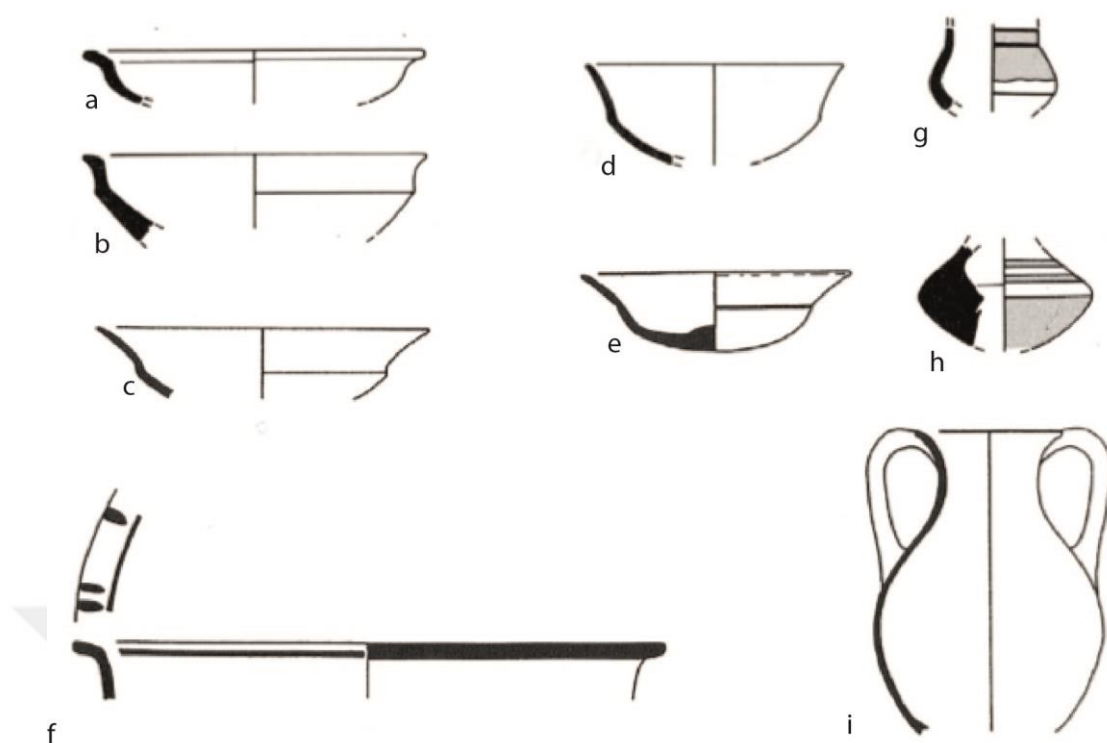


Figure 132: Typical Late Phrygian (YHSS-4) forms found in Gordion and not shared with KL (e-i; Voigt et al.1997: Fig. 30; g-h; Henrickson, 1994: 129, Fig. 10.9).

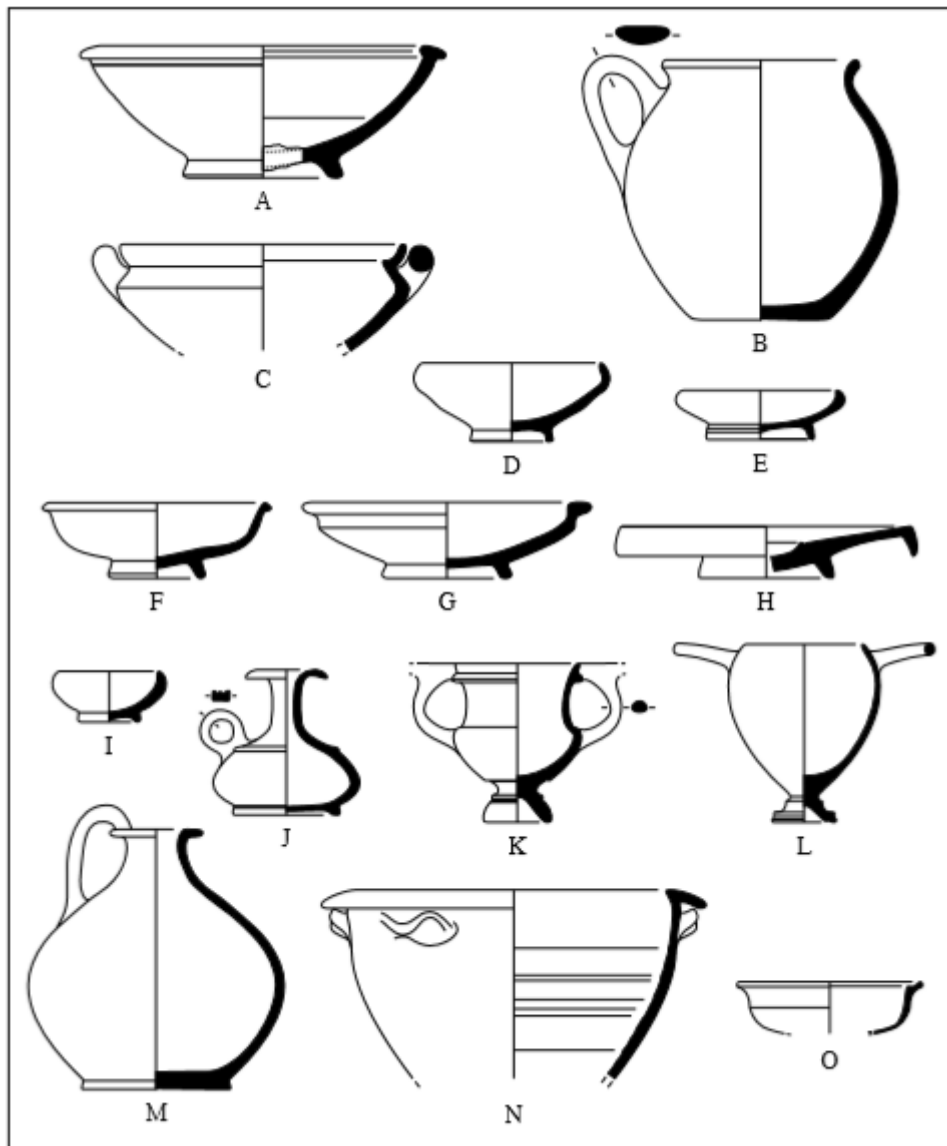


Figure 133: Typical Early Hellenistic forms found in Gordion and not shared with KL (Stewart, 2010: Fig. 41).

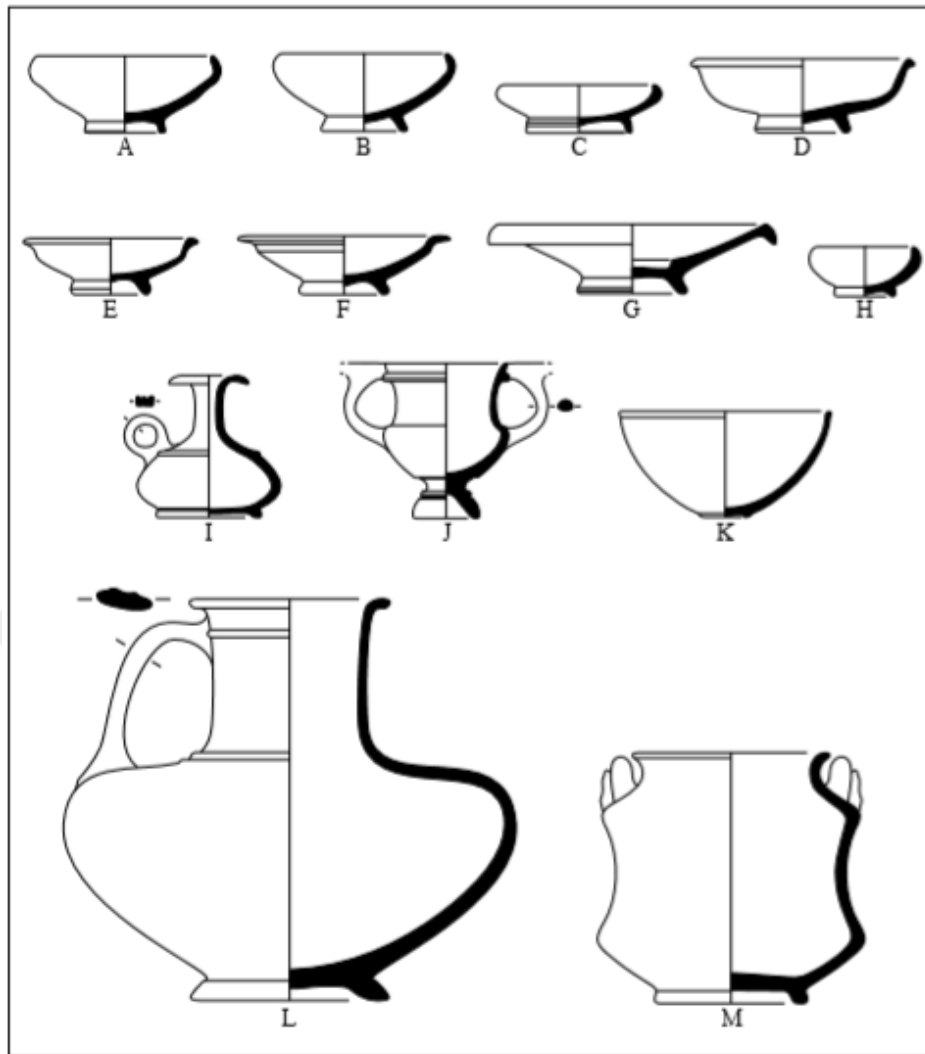


Figure 134: Typical Middle Hellenistic forms found in Gordion and not shared with KL (Stewart, 2010: Fig. 97).

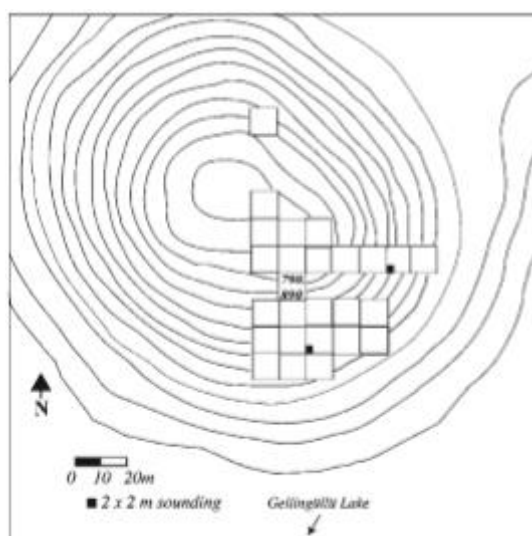


Figure 135: The Location of Upper South Slope Trenches in the plan of Çadır Höyük (Ross, 2010: 79, Fig. 1).

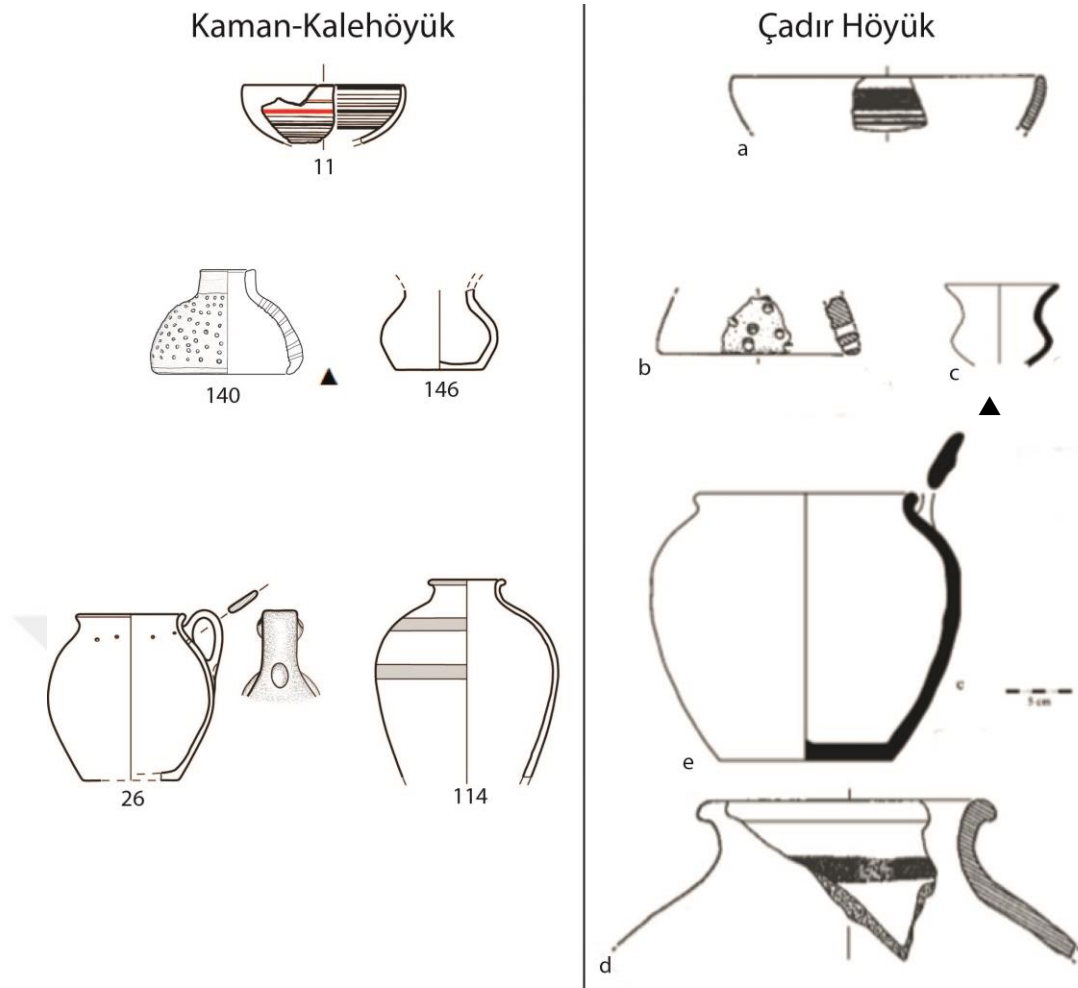


Figure 136: Common forms from Çadır Höyük and KL (c, e; Ross, 2010: 86, Fig. 14: f, h, k; a, b, d; (Genz, 2001: 170, Fig. 4; b; Genz, 2001: 167, Fig. 1:12).

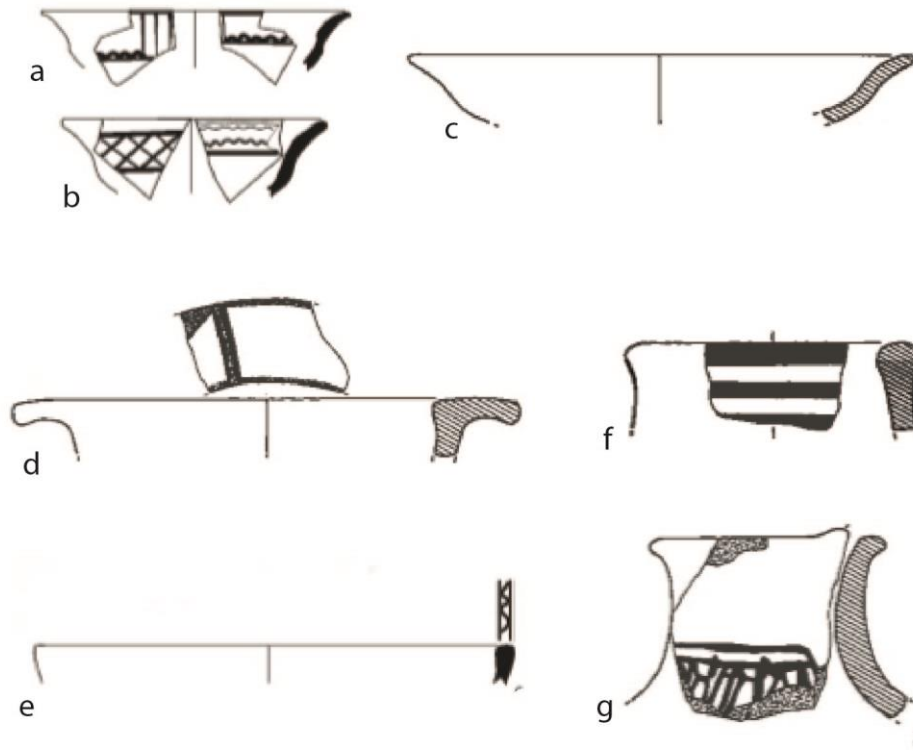


Figure 137: Forms found in Çadır but are not seen in KL (a, b, and e; Ross, 2010: 86, Fig. 14; c, d, f, and g; (Genz, 2001: 170, Fig. 4:2,4,6,8).

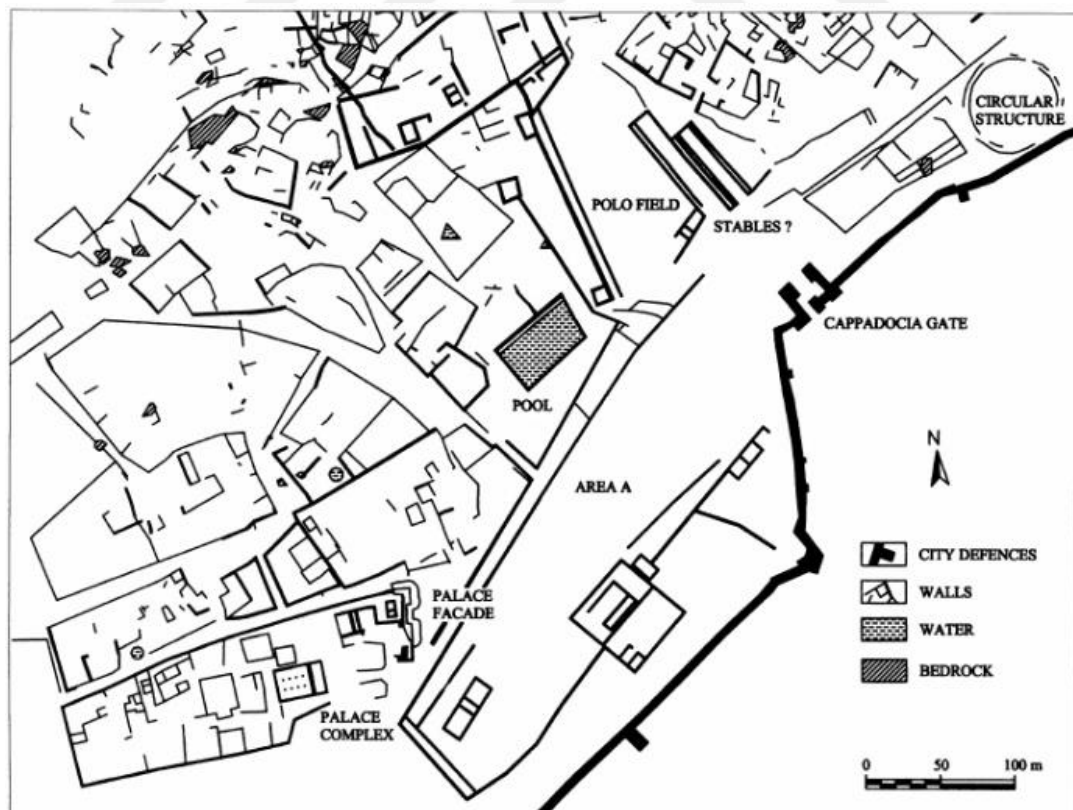
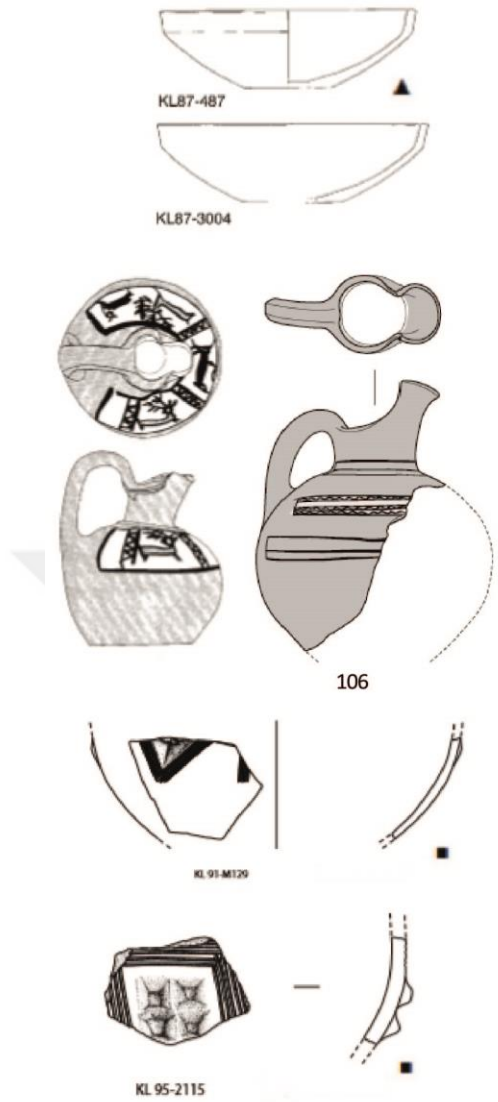


Figure 138: The city plan of Kerkenes (Summers, 2000: 62, Fig. 6).

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Kerkenes

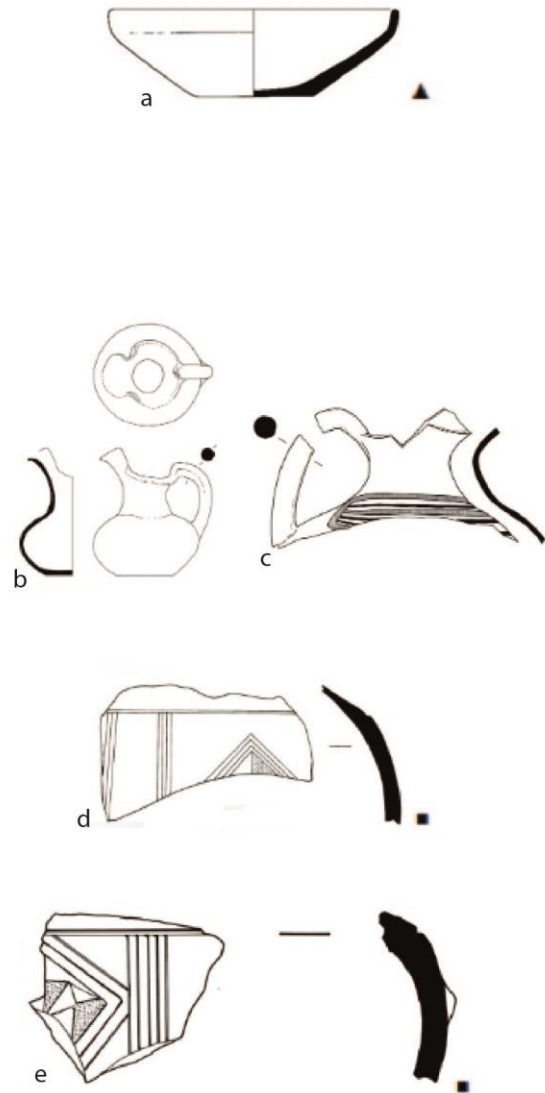
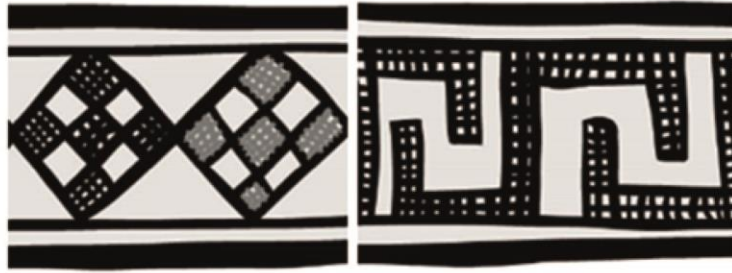


Figure 139: Common forms from KL and Kerkenes
(<http://www.kerkenes.metu.edu.tr/kerk1/07finds/InPottery/index.html>).

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Kerkenes

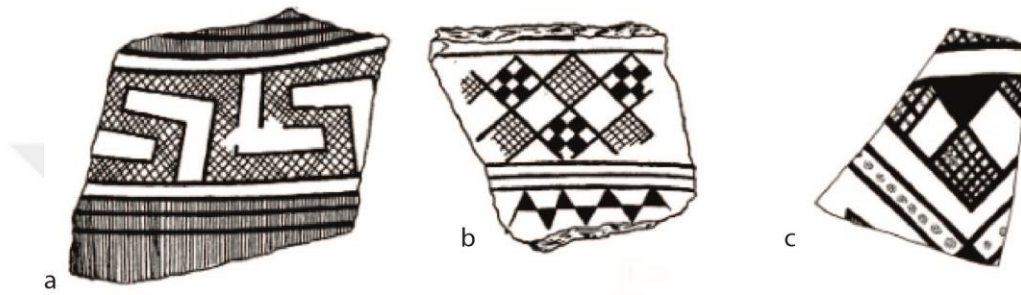


Figure 140: Similar painted decorations from KL and Kerkenes (<http://www.kerkenes.metu.edu.tr/kerk1/07finds/InPottery/index.html>).

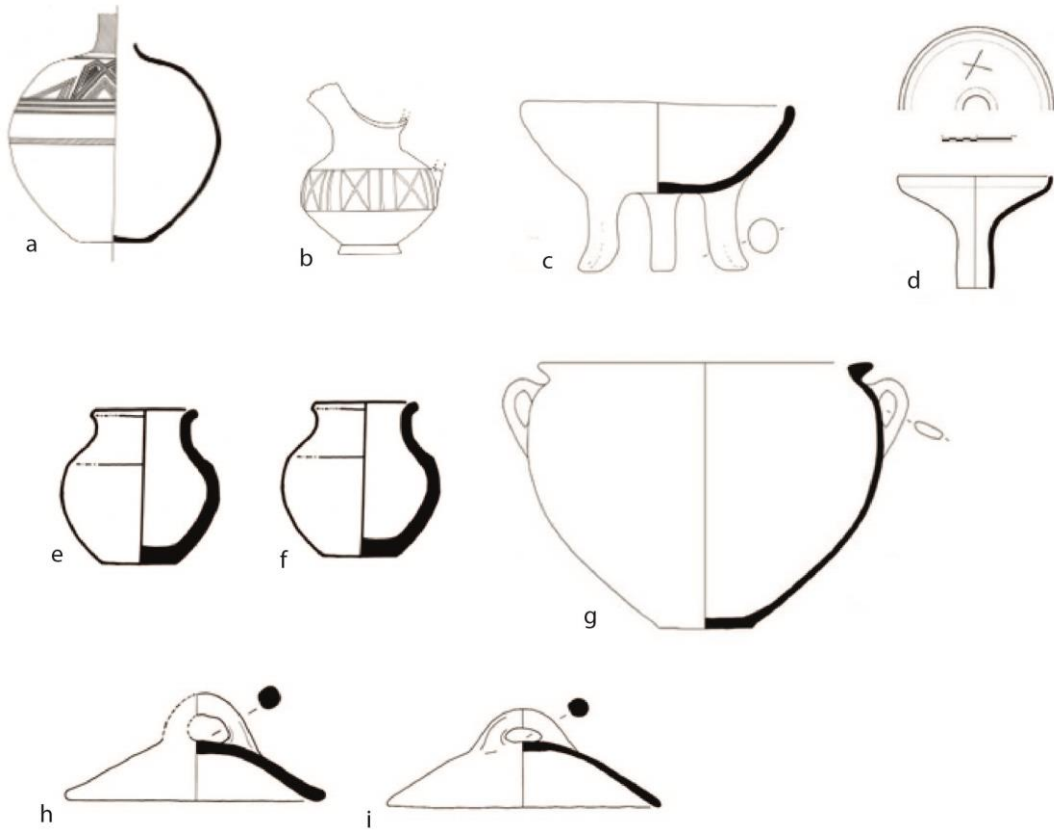


Figure 141: Different forms found in Kerkenes and not shared with KL (<http://www.kerkenes.metu.edu.tr/kerk1/07finds/InPottery/index.html>).



Figure 142: Pits from a modern village near Oymağaç (Yılmaz, 2015: 73, Fig. 15a-b).



Figure 143: Restorable potsherds from a pit in Yanık Tepe (Summers, 2012: 293, Fig. 6).



Figure 144: *In situ* pottery found in an Early Iron Age pit in Oymaağaç (Yılmaz, 2015: 72, Fig. 14).



Figure 145: A pit full of pottery found in Building M in Gordion (Edwards, 1959: Pl. 65).



Figure 146: So-called “Ritual Dinner” pottery found in a pit in Sardis (Hanfmann, 1983: Fig. 145, 146).



Figure 147: Group 1, pits with intentionally broken vessels.



Figure 148: Group 2, pits with arranged complete pots.



Figure 149: Group 3, pits with one or two vessels.

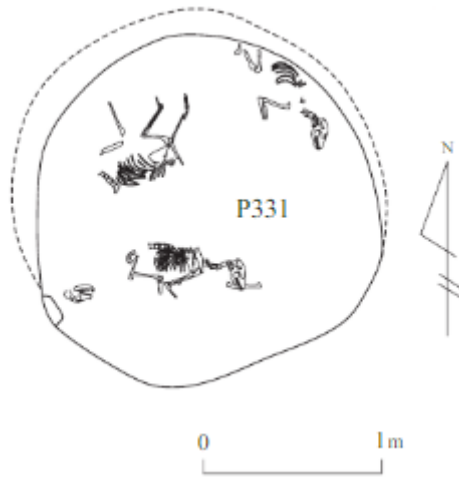


Figure 150: Drawings of P331 with dog skeletons inside (Matsumura, 2007: 101, Fig. 9).



Figure 151: Smaller pots deposited inside the bigger ones in P775.

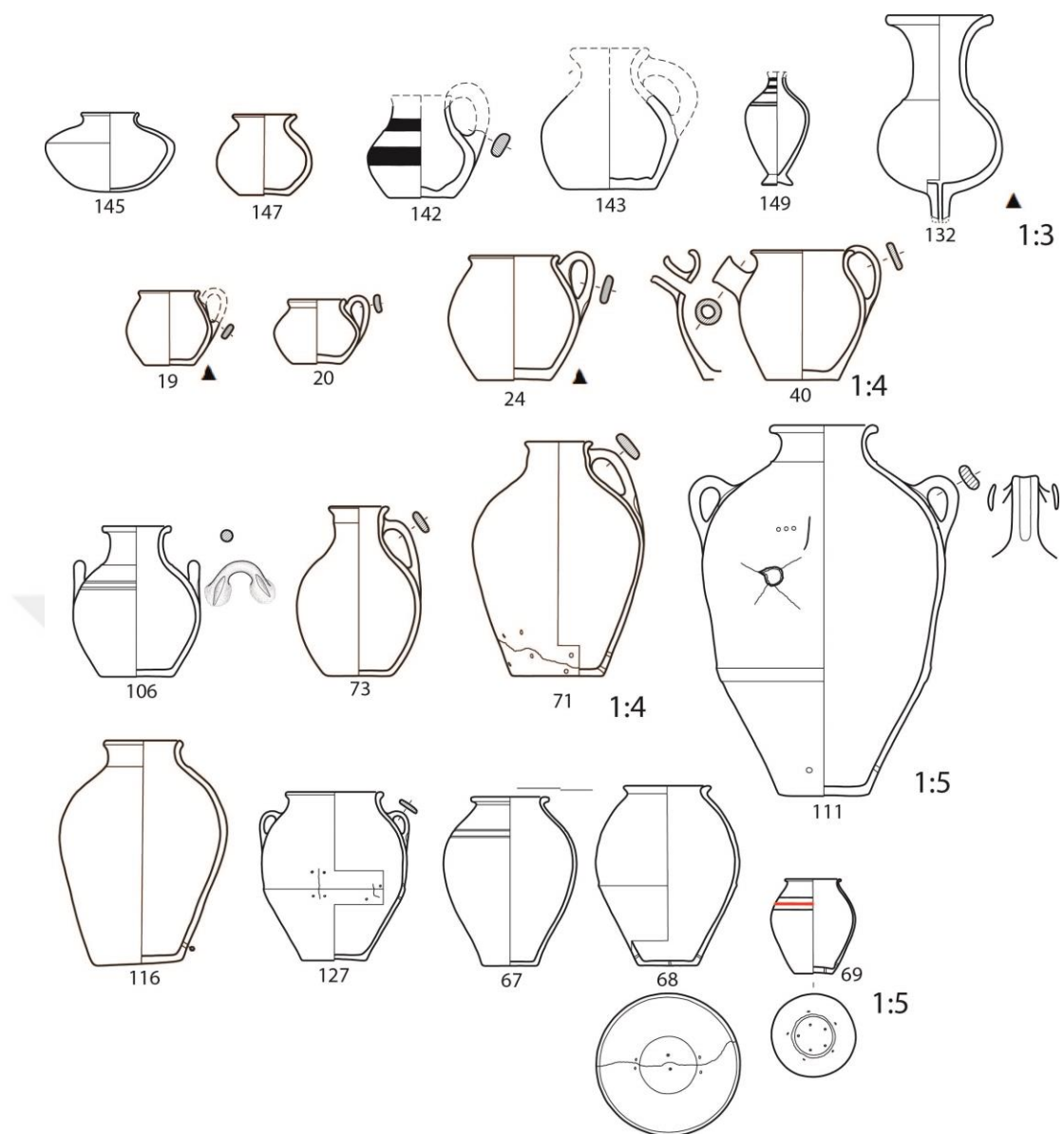


Figure 152: Vessels found in P775.

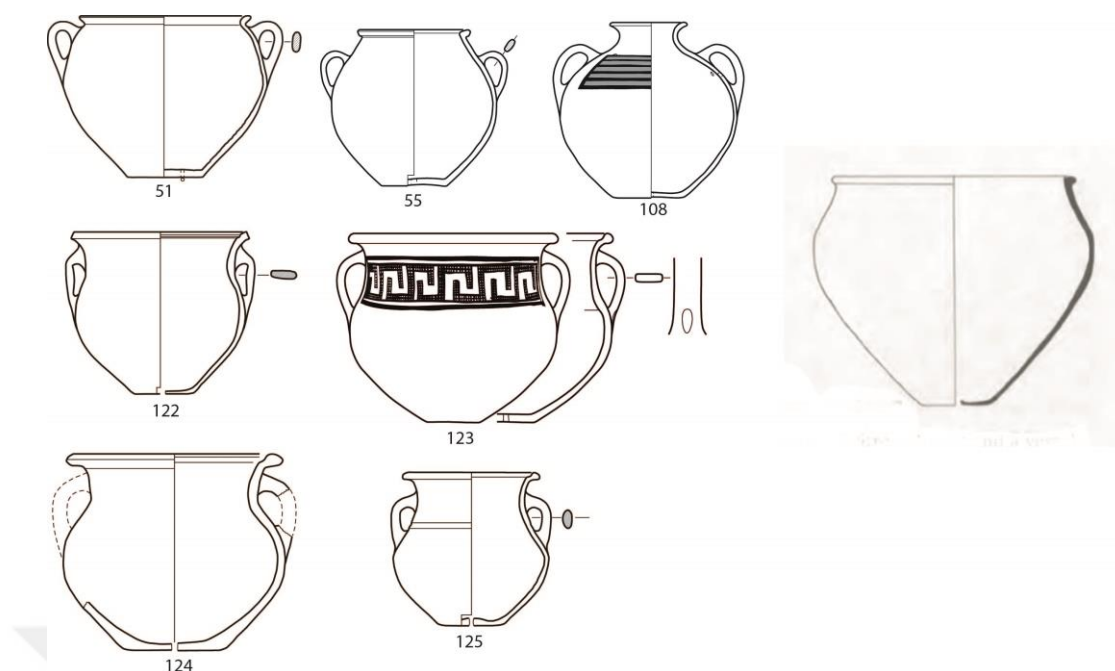


Figure 153: Beer production vessels from KL and Tell Bazi, in Northern Syria (at the right) (Zarnkow et al., 2011: 47, Fig. 4.1).

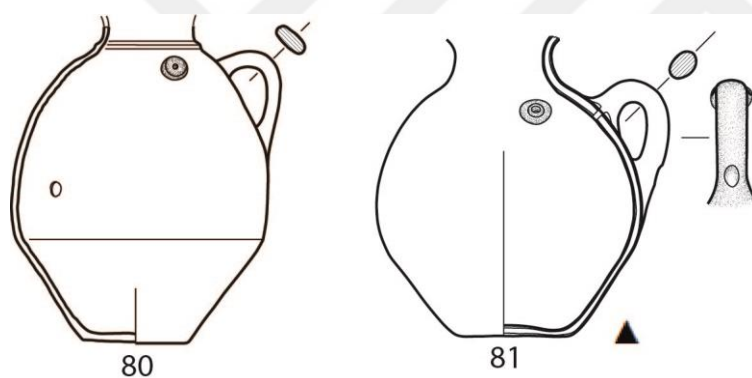


Figure 154: Milk processing vessels from KL and modern Cappadocia (a) (Powroznik, 2008: 229, Fig 1.2; 230 Fig. 3).

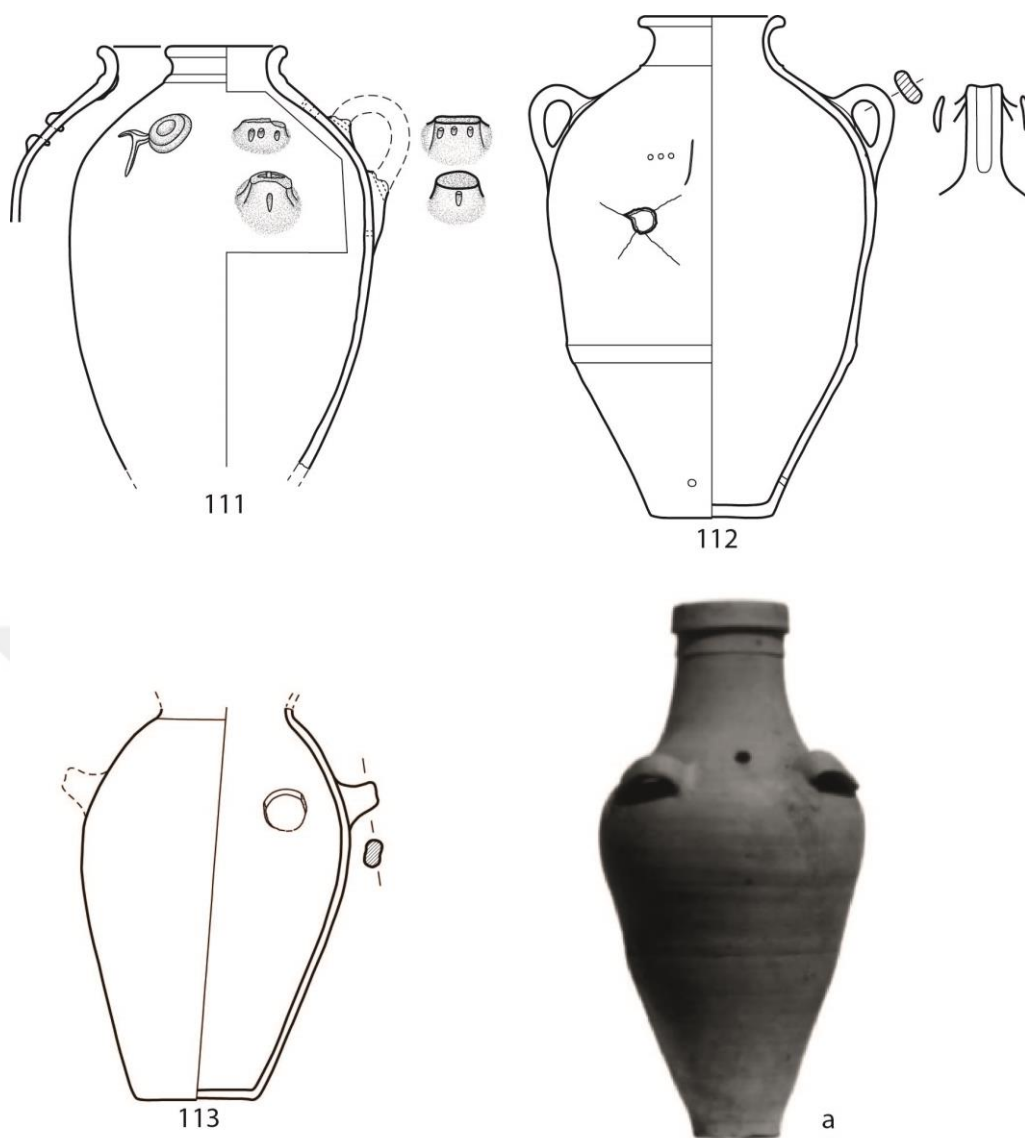


Figure 155: Milk processing vessels from KL and modern Cappadocia (a) (Powroznik, 2008: 229, Fig 1.2; 230 Fig. 3).

Pasargadae



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Figure 156: Amphora with two holes on the bottom from Pasargadae and gourd shaped vessels with a hole from KL (Stronach, 1978: Pl. 172, 258: Fig. 114).

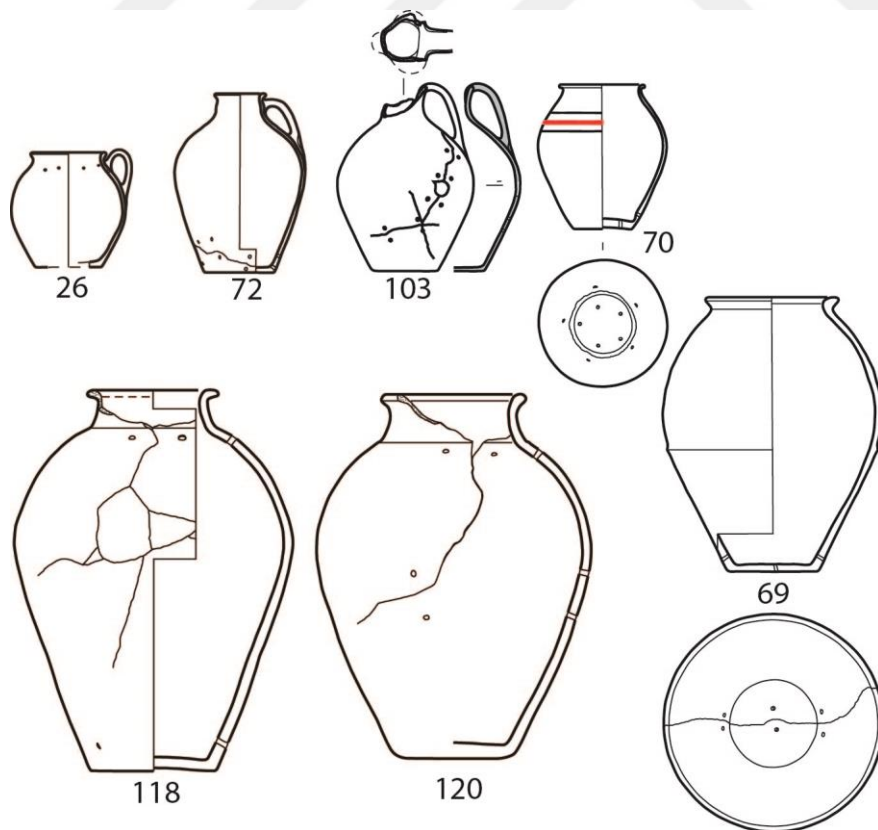


Figure 157: Various repaired vessels in different forms.

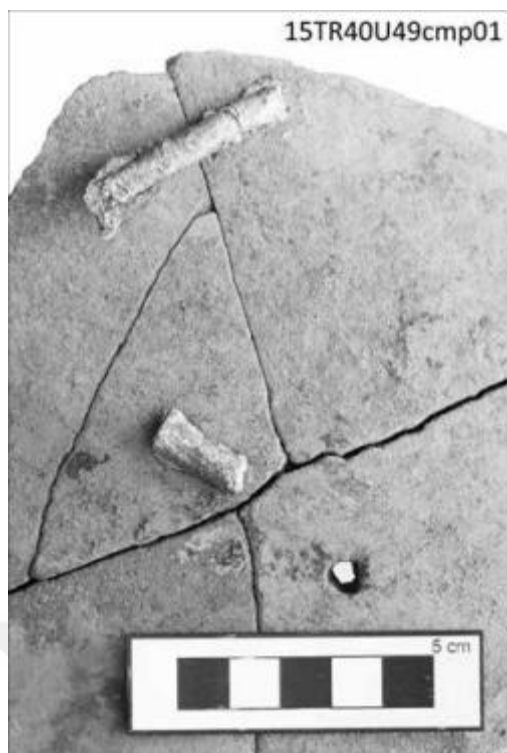


Figure 158: A lead clip from Kerkenes (Branting et al., 2016: 190: Fig.7).