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Connecting crafting communities: reconstructing interactions between communities in and out of Cyprus in the early third millenium BC

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CONNECTING CRAFTING COMMUNITIES

Reconstructing interactions between communities in and out of Cyprus in the early third millenium BC

Maria Hadjigavriel

Connecting Crafting Communities
Reconstructing interactions in and out of Cyprus
in the early third millennium BC

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S·N·M·A·P

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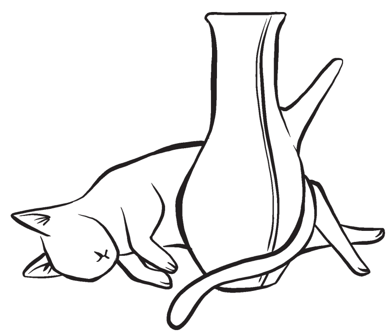
Για τον τατά μου, Μιχαλάκη Χατζηγαβριήλ



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This research would not be possible without the help of numerous people and institutions. First, I would like to thank my supervisor Professor Bleda Düring. His unwavering support and belief in me is a gift. Also my second supervisor, Professor Peter Akkermans has given me insightful feedback and advice throughout the years.

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My time as a fellow at the Cyprus Institute was pivotal for the methods employed in this research. I owe a great deal of gratitude to Dr. Maria Dikomitou-Eliadou for her supervision during my time there, all the help and discussions before and after that, and for everything she has taught me. I also thank Professor Thilo Rehren for the supervision, Dr. Jelena Živković for teaching me how to make ceramic thin sections, and Dr. Brunella Santarelli, Anna Maria Sdralia, Giulia Fogarizzu and Rafail Evzonas for their help and our time together in the lab.

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An Outgoing Mobility Grant from the Netherlands Institute for the Near East (NINO), allowed me to travel to the USA to study Anatolian pottery. I would like to thank Marianne Weldon at Bryn Mawr College for all her help while I was there, and Professor Aslı Özyar and Dr. Elif Ünlü for their trust and guidance.

I found community and support at the Faculty of Archaeology in Leiden University. I would like to extend my gratitude to Joanne Mol and Marjet de Ruyter for hiring me as a Teaching Assistant, and all of my colleagues at the Education Office. Also, Dennis Braekmans, Martina Revello Lami, Martin Berger, and many others have taken time to help me when I was stuck, and give me valuable feedback. Irini Sifogeorgakis allowed me to hold on to her microscope for some months, helping me tremendously. Ermina Emmanouel, Souzana Petri, Andreas Livadiotis, Tsveta Kodzhabasheva and Markos Kapsalis have provided illustrations, photographs and maps used in this study.

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Nothing would be possible without the support of my family. My parents, Marios and Stella, my grandparent Giorgos and Aliki, and my siblings, Nicos, Miranda, Eliza and Lambros, thank you for loving me through all the skins I shed.

Finally, I want to thank Markos, for loving me (and Manolis the cat), even when I am stuck in the third millennium BC for days on end.

This work is dedicated to the purest heart who is no longer with us, my uncle Michalakis Hadjigavriel.

Nederlandse samenvatting

De Laat Chalcolithische periode (ca. 2900–2400 v.Chr.) op Cyprus was een dynamische fase van grote sociale en materiële veranderingen, die de weg vrijmaakte voor de overgang naar de Bronstijd op het eiland. In deze periode nam Cyprus afstand van de eerdere ogenschijnlijke isolatie en verschenen er diverse aanwijzingen voor interactie met aangrenzende regio's. Deze sociaal-culturele veranderingen zijn vooral goed zichtbaar in het aardewerk, waarbij eerdere studies zich met name gericht hebben op de morfologische karakterisering van aardewerktypen uit dezelfde periode.

Deze studie kijkt naar verschillen in technologie en samenstelling van aardewerk binnen en tussen vier Laat Chalcolithische vindplaatsen in het zuidwesten en midden van Cyprus: Chlorakas-Palloures, Kissonerga-Mosphilia, Ambelikou-Agios Georghios en Politiko-Kokkinorotsos. Verschillende aardewerktypen zijn onderzocht met behulp van petrografische analyse en röntgenfluorescentiespectrometrie (energy-dispersive handheld XRF) om hun mineralogische, chemische en technologische eigenschappen te evalueren. Deze analytische gegevens zijn vervolgens geïntegreerd met contextuele informatie en een gedetailleerde macroscopische studie van alle geselecteerde monsters. Daarnaast werd een aardewerkassemblage uit Tarsus-Gözlükule in Anatolië macroscopisch onderzocht en in de studie opgenomen om mogelijke interactie tussen Cypriotische en Anatolische ambachtsgemeenschappen te verkennen.

Dit onderzoek heeft als doel de aardewerktechnologieën en hun mate van technologische variabiliteit op lokaal, regionaal en interregionaal niveau te bestuderen. Het richt zich ook op de organisatie van aardewerkproductie- en distributiepatronen, in het bijzonder het identificeren van mogelijke interactienetwerken tussen vindplaatsen binnen en buiten Cyprus tijdens de Laat Chalcolithische periode.

Curriculum Vitae

Maria Hadjigavriel was born in Nicosia in 1993. In 2012 she began her Bachelor Studies in History and Archaeology at the University of Cyprus, specializing in Archaeology. In 2019 she graduated with a Research Master of Arts degree Cum Laude from the Faculty of Archaeology of Leiden University, specializing in the Archaeology of the Mediterranean Region and the Near East. During her studies, Maria participated in excavations in Cyprus and pottery analysis training courses in the Netherlands. Her RMA thesis focused on interactions between communities in Late Chalcolithic Cyprus from a pottery technology perspective.

In 2019, Maria started her PhD studies at the University of Leiden, Faculty of Archaeology, under the supervision of Prof. dr. Bleda S. Düring and Prof. dr. Peter M.M.G. Akkermans. Maria investigated pottery technologies across Cyprus and in Tarsus in the early third millennium BC and how these can help us reconstruct interactions between crafting communities, within and outside the island. Throughout her PhD studies she was awarded several grants, such as scholarships for doctoral studies from the A.G. Leventis Foundation and the Sylvia Ioannou Foundation, fellowships at the Cyprus American Archaeological Research Institute (CAARI) and the Cyprus Institute, and a mobility grant from the Netherlands Institute for the Near East (NINO).

Maria is working as a Teaching Assistant/Education Officer at Leiden University, Faculty of Archaeology, and she is the co-director of the Chlorakas-Palloures excavation in Cyprus (www.palloures.eu).

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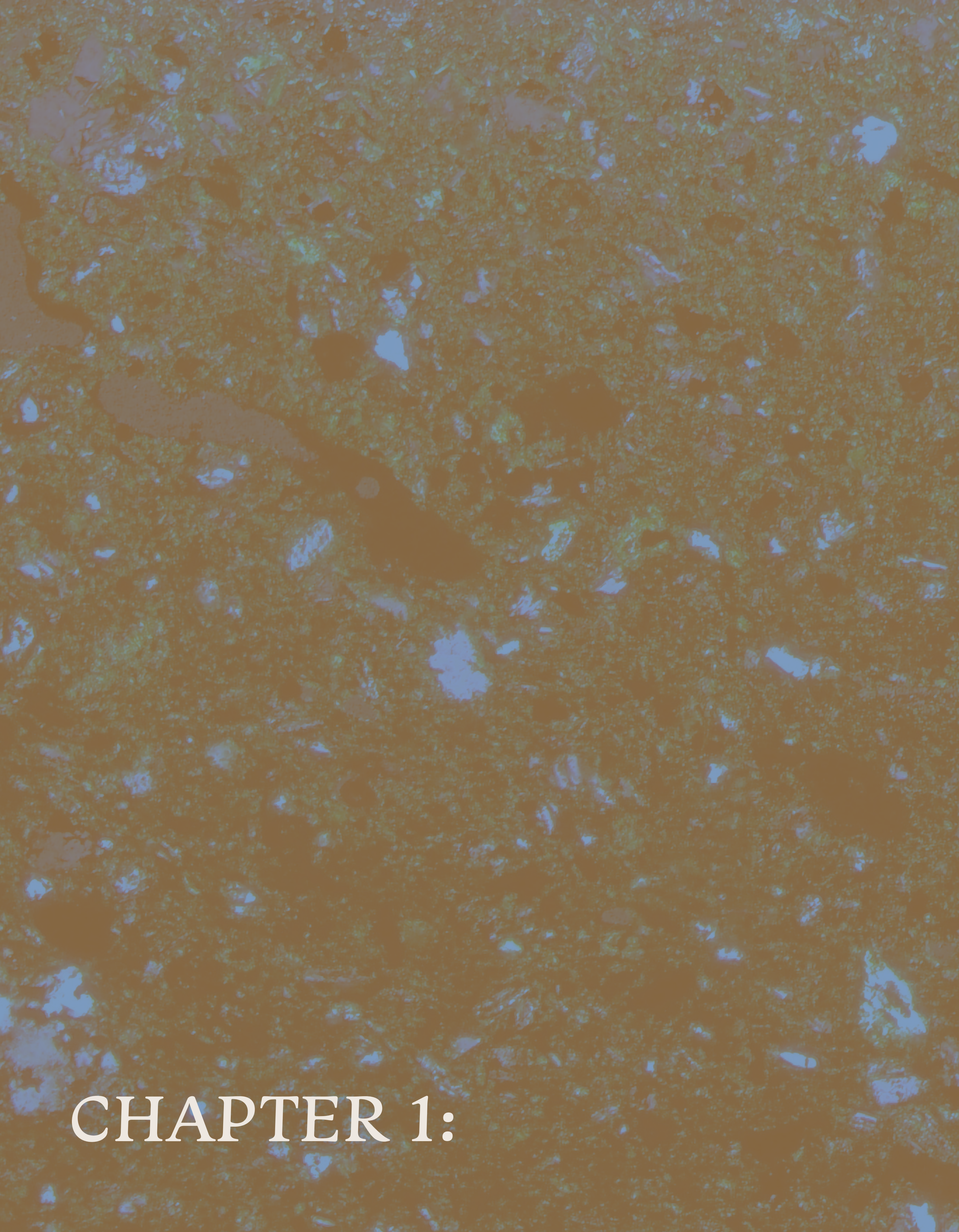
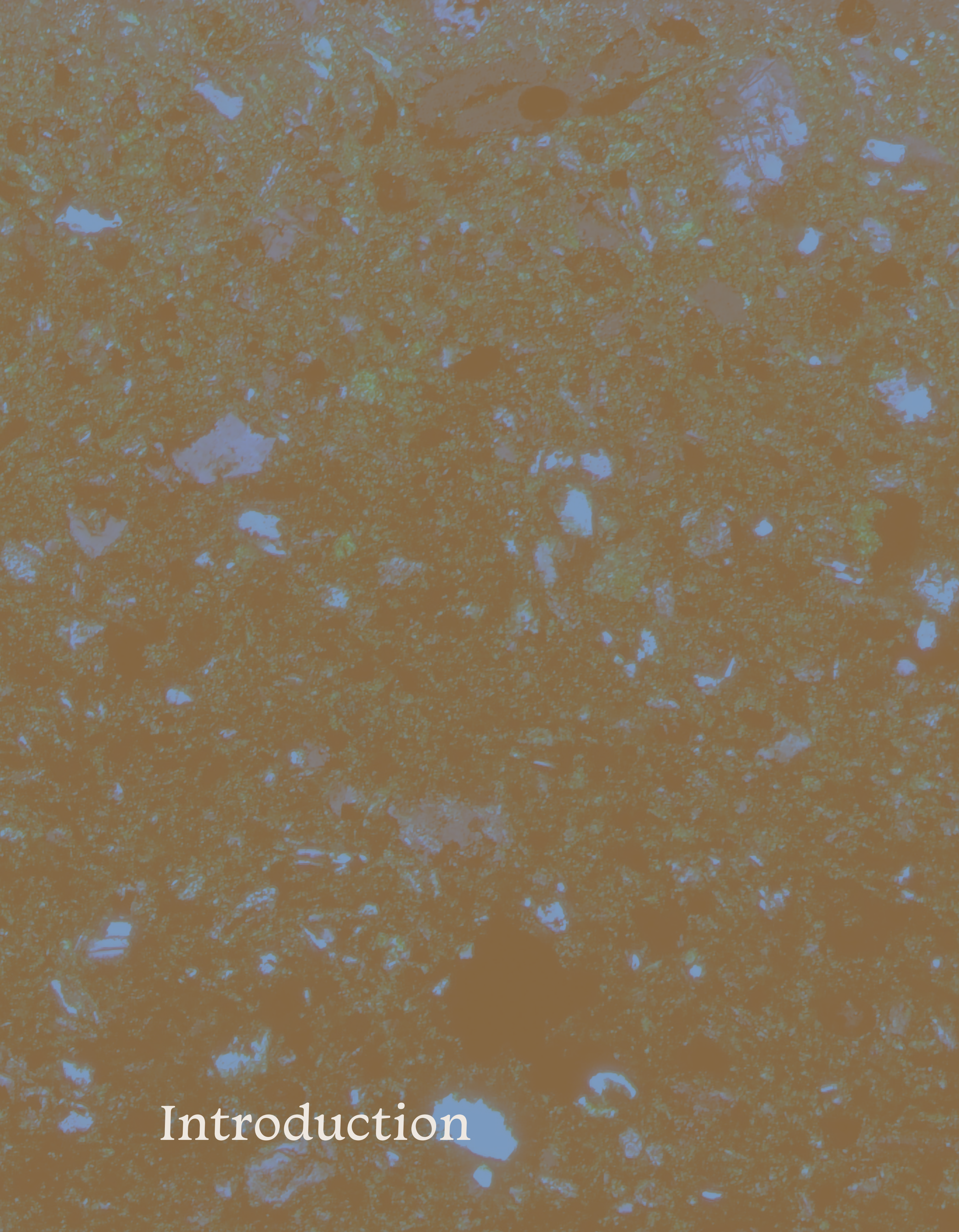


CHAPTER 1:



Introduction

CHAPTER 1 — Introduction

"The study of Cyprus' prehistoric and early historic past has been dominated by a tendency to see the island's social, economic, cultural and even artistic development as the results of migrations, invasions, colonization, diffusion, or other external factors, whether Near Eastern or Aegean (or both) in origin" (Knapp, 2008, p. 1). This statement still holds true, especially for the third millennium BC. This research aims to investigate how ceramic types and technologies changed in Cyprus during the Late Chalcolithic (ca. 2900-2400 BC) and what this can tell us about intra- and extra-insular interactions at the time. The focus is primarily on the interactions between communities within Cyprus, and secondarily with communities in Cilicia, Anatolia, and specifically the site of Tarsus-Gözlükule.

The issues outlined above are investigated through the analysis of two main groups of artefacts:

1. The main Cypriot pottery types in the Late Chalcolithic, with an emphasis on the characteristics that seem to have been influenced technologically by interactions with Anatolia.

2. All the known Cypriot pottery and other objects found in Anatolia and vice versa during the early third millennium BC.

1.1. Background and State of the Art

It has been argued that both insularity and connectivity are demonstrated throughout Cypriot prehistory. Due to its central location in the Eastern Mediterranean, Cyprus has frequently been part of networks of mobility, interaction, and exchange (Knapp, 2013, p. 35). This dual characteristic of being both isolated and interconnected is reflected in the material culture and technological changes observed on the island, particularly during the Late Chalcolithic period (ca. 2900-2400 BC). Traditionally, the Cypriot Chalcolithic has been viewed as a period of relative isolation. For the third millennium BC, researchers often place emphasis on the transition from the Late Chalcolithic to the Bronze Age, which is marked by the Philia Phase (ca. 2400-2350/2250 BC), a period characterized by several changes, such as novel pottery types and agricultural practices (Webb & Frankel, 2007). The Philia culture has often been reconstructed as representing migrants from the mainland, and debates centre on how these newcomers interacted with the local population. For example, in the 1960s, Dikaios (1962) argued for the peaceful migration of 'superior' Anatolian populations replacing the 'inferior' Cypriot culture. In the 1980s and 1990s, Held ascribed the 'delayed' emergence of Bronze Age on the island to 'cultural retardation' due to insularity, while Knapp and Manning attributed it to internal sociocultural evolution and competition (Held, 1989; Manning, 1993; Knapp, 1994).

According to Peltenburg, Chalcolithic culture was already changing when migrant populations arrived, and after some time of co-existence, the Philia culture eventually supplanted the Chalcolithic one. Following this line of thought, Bolger presented indications of complex regionalism, interactions and emerging complexity already in the Late Chalcolithic. Recently, Bolger and Peltenburg interpreted the emergence of the Early Bronze Age as the result of interactions between regional cultures and Anatolian migrants (Peltenburg, 2007; Bolger, 2013). Knapp suggested that the interactions between the Philia and the Chalcolithic cultures reflect hybridization processes, where foreigners and locals mingled, lived together, and influenced each other (Knapp, 2013). Conversely, Frankel and Webb have considered the Philia an entirely foreign phenomenon, a new culture that was brought to the island by Anatolian migrants, while suggesting that the Philia Phase extends backwards chronologically, overlapping with the Late Chalcolithic (Webb & Frankel, 2007). The nature and scale of cultural interactions between Cyprus and Anatolia thus remains contested and poorly understood.

1.2. Research Questions

This study contributes to this debate of how Cyprus was connected to other regions by employing an innovative approach to ceramic assemblages of the Chalcolithic. Pottery has been central when studying interactions between the island and the surrounding mainlands, as technological developments in pottery production during the Late Chalcolithic, such as red monochrome burnished surfaces and relief decoration, have been interpreted as extra-insular influences (Peltenburg, 2007; Bolger, 2007; 2013). Similarly, novel vessel shapes such as jugs with cut-away spouts, and surface treatments such as white-filled incised motifs, have been interpreted as reproductions of Anatolian ceramics during the Philia Phase (e.g. Webb & Frankel, 2007). Anatolia is prominent when discussing extra-insular interactions during the third millennium BC, due to the presence of Cypriot pottery in Cilicia, similarities in pottery production and other elements of the material record, while indicators for contacts with the Levant are scarce. So far, Cypriot Chalcolithic and Philia Phase pottery outside Cyprus has only been found in Cilicia, in Tarsus-*Gözlükule* and in the Antalya region, in Hacımusular Höyük (Goldman, 1956; Mellink, 1991; Özgen *et al.* 2021). This, in combination with its geographical proximity to the northern coast of Cyprus, makes Cilicia the ideal region for the assessment of extra-insular interactions in the third millennium BC.

This study explores the nature of connections between Late Chalcolithic communities within Cyprus and external interactions with Cilicia, through the lens of the exchange of ceramics and pottery technologies. The common denominator of previous studies on the reconstruction of interactions in the third millennium BC is that ceramic objects and technologies were perceived as self-evident proxies of trade or migration. Therefore, the emphasis was on the movement of ceramics and technologies, rather than on their production. This study, instead, combines technological and assemblage analysis, to investigate pottery production on different parts of the island, and how these might have been influenced by Anatolian pottery traditions. Through a critical examination of the evidence from Cilicia and Cyprus, it challenges the assumption that contacts were one directional.

The main research question is:

What can pottery assemblages of Cyprus tell us about the interactions between communities within the island and with communities in Anatolia in the early third millennium BC?

More specifically:

- How did pottery technology and organization of production in Cyprus develop during the Late Chalcolithic?
- To what extent were ceramics circulated and exchanged among population groups from different regions in Cyprus?
- To what extent were ceramics circulated and exchanged between Cyprus and Anatolia in the early third millennium BC?
- To what extend did pottery technologies and characteristics transfer from Cyprus to Anatolia and vice versa?

1.3. Theoretical Framework: Pottery as an Indicator for Interactions between Communities

This thesis presents a theoretical and methodological framework for the study of pottery and the reconstruction of interactions. First, how connectivity in Mediterranean and island archaeology has been studied is considered, along with the history of research for pottery production and technologies in Prehistoric Cyprus, and how interactions within and outside the island during the third millennium BC have been reconstructed. The significance of pottery in the archaeological record and the various approaches to its study, particularly the *chaîne opératoire* approach, are then presented, as they are central to this study. Building on several ethnoarchaeological and archaeological studies which focus on the role of pottery as a proxy for community interactions, a theoretical and methodological approach is constructed.

1.4. Dataset

The comparative analysis of pottery technology focusses on key-sites from Cyprus, dating between ca. 2900 and 2500 BC. These assemblages are analysed through macroscopic, mineralogical and compositional methods which include the use of ceramic thin section petrography, and chemical analysis with a handheld XRF (hhXRF). The focus is on Late Chalcolithic pottery from four sites in Cyprus: Chlorakas-*Palloures*, Kissonerga-*Mosphilia*, Ambelikou-*Agios Georghios*, and Politiko-*Kokkinorotsos*. These sites were selected based primarily on their geographic locations in order to facilitate a comprehensive investigation of interactions between communities on the island. Sampling of sites spread across the island was imperative to capture a broad spectrum of pottery styles and technological practices, reflecting the varied influences and exchanges occurring during this period. The relevant pottery types from each site are studied in detail to observe and record their morphological characteristics, focusing on several key aspects: clay procurement and preparation, vessel forming techniques, surface treatments, colours and decoration, and firing techniques. In addition, ceramic thin section petrography is employed to provide detailed mineralogical and technological characterizations of the chosen samples. This method allows for the identification of micro-morphological characteristics which may indicate the provenance or specific manufacture technologies used in the production of these ceramics. These methods are complemented by the chemical characterisation of the selected samples with a hhXRF, to cross-check and assess the results of the ceramic thin section petrography. Subsequently, a pottery dataset from Tarsus-*Gözlükule* is studied macroscopically, and it is paired with information on well-published studies on ceramic assemblages of the Philia Phase (ca. 2400-2350/2250 BC), in order to reconstruct interactions with Cilicia during the third millennium.

1.5. Methodology

This study integrates two levels of analysis:

a. a systematic overview of pottery technologies and intra-insular interactions and;

b. an investigation of extra-insular interactions, with a focus on what kind of pottery and other artefacts were found where (exports, imports, and ceramics showing technological influences).

a. Pottery Technology and Intra-Insular Interactions: Reconstructing the Exchange of Craft Technologies

Although the earliest known imported vessel in Cyprus have been retrieved in an Early to Middle Bronze Age context (ca. 2000-1650 BC), various scholars have proposed that the red and black burnished wares of the Late Chalcolithic might indicate much earlier relations with the coeval Red Black Burnished Wares of Anatolia (Bolger, 2007; 2013; Bolger *et al.,* 2014; Peltenburg, 2007; 2018). Additionally, the Philia Red Polished Ware, the principal ware of the Philia Phase, shows clear influences from Anatolian Early Bronze Age wares in its shapes/morphology and technological characteristics. To better understand these relations, this research will focus on pottery production technologies.

The above-mentioned wares from Cypriot and Anatolian sites are studied macroscopically and petrographically in order to identify possible similarities in raw materials, forming techniques, surface treatments, morphologies and styles in order to facilitate the reconstruction of interactions between ancient potters. Gosselain (2018), drawing upon various ethnographic studies, argued for three types of relations between potters, and that these can be traced in different aspects of the pottery production processes. First, clay extraction, processing, and firing are usually conducted on a communal basis. Similarities in clay preparation and firing may point towards cooperation networks and indicate casual interactions that take place in shared settings. Second, the shaping and roughing out of the vessel are processes that require specialized skills that are gradually acquired by learning from another potter. These motor habits are not usually visible on the final product, and result from long-term and direct face-to-face interactions between potters. Third, preforming, decoration, pre-firing, and post-firing are processes that are visible on the pot surfaces and the techniques can be reproduced by ephemeral/mediated interactions.

Building on various studies which are presented in Chapter 4, including the one by Gosselain, this study combines published data, macroscopic analysis, mineralogical and compositional analyses of ceramics (ceramic thin section petrography) and chemical/elemental analysis of ceramics (hhXRF) to investigate several aspects of pottery production technologies, envisioning the following three types of interaction:

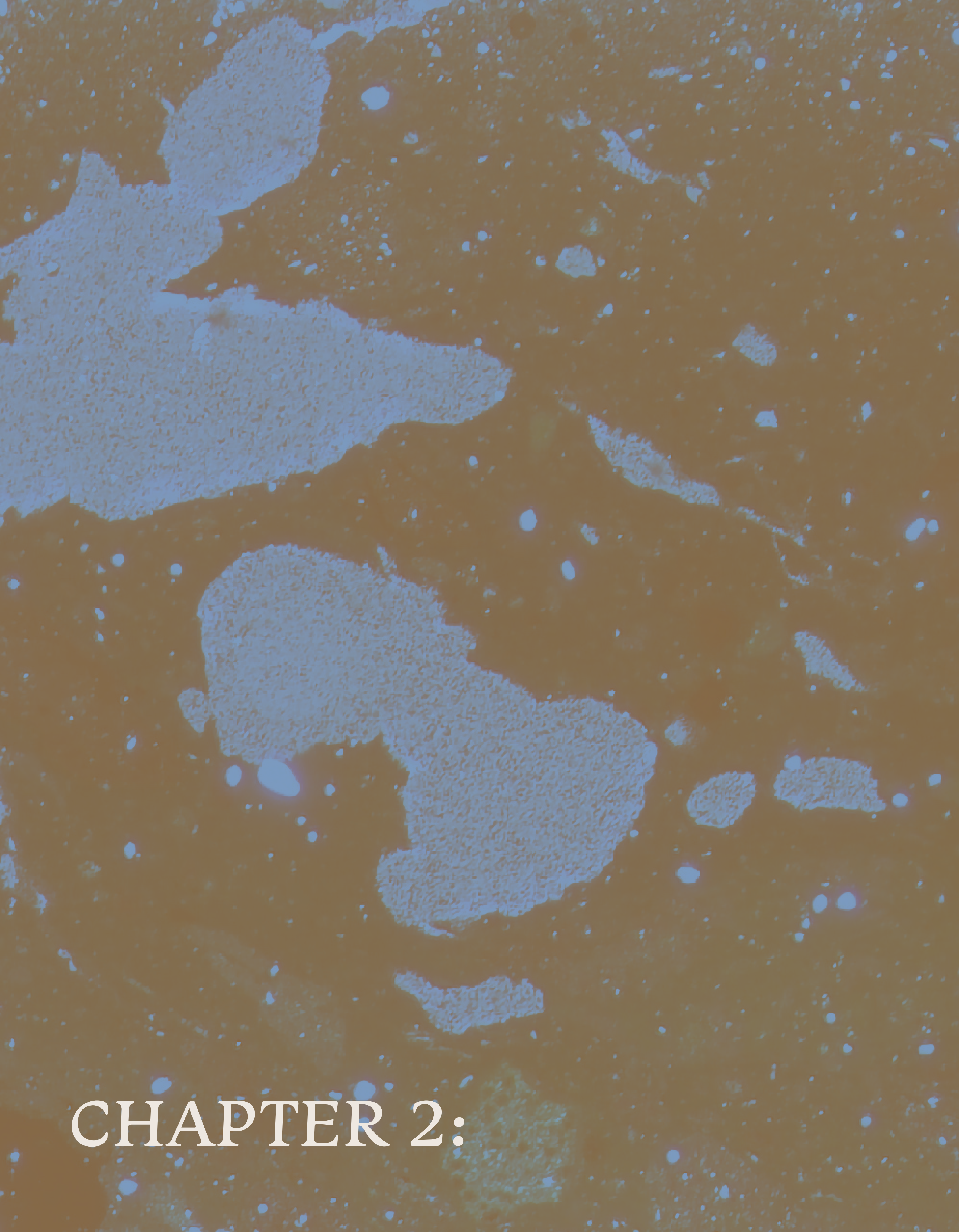
1. The pottery from Cyprus was subjected to a macroscopic analysis, leading to the selection of 81 samples for laboratory examinations. These samples represent the main Late Chalcolithic wares from each site, and the most common vessel types. This examination involves studying the mineralogy, composition, and technology of the samples using ceramic thin section petrography, while the chemical and elemental composition is analyzed with hhXRF. The resulting data are then subjected to Principal Component Analysis (PCA), a statistical analysis employed by archaeologists to reconstruct compositional groups within a dataset. By investigating clay procurement and preparation through these methods, and identifying clay sources, it becomes possible to determine whether the pottery was produced in the same region and whether there was an exchange of ceramics between different regions.
2. The study also explores vessel forming techniques, vessel shapes, and firing at the macro level through a morphological analysis conducted via macroscopic analysis, accompanied with data from thin section ceramic petrography, and published data. This examination can provide insights into long-term interactions and shared pottery technologies within and between communities, helping to understand whether potters were mobile between communities.
3. Lastly, the investigation of vessel shapes, surface treatments, and decoration through macroscopic analysis, ceramic thin section petrography, and published data reveals visible pottery characteristics that can be imitated. This suggests mediated interactions, indicating that people and objects circulated from one site to another.

b. Investigating Extra-Insular Interactions: Tracing the Exchange of Objects & Technologies

Currently known Anatolian objects imported into Cyprus during the time period in question are discussed, such as a copper axe found at Chlorakas-*Palloures* (During *et al.,* 2018; 2021). Overall, very few third millennium BC Cypriot sherds have been found outside the island, in Cilicia, and exports are quite rare. Such objects come from a handful of well stratified settlement contexts or burials. For this thesis, the data are compiled in a database, and include: the type of object, technological properties, morphological properties, archaeological context and possible provenance. Additionally, the pottery reference collection from the Tarsus-*Gözlükule* was studied macroscopically, to assess the main characteristics of the local pottery, but also to evaluate the assumed Cypriot imports. This is augmented with information from prior publications, to better reconstruct the interactions between Cyprus and Anatolia in the third millennium BC.

1.6. Structure

This study starts with an overview of the archaeology of Cyprus and Cilicia in the third millennium BC, which is presented in Chapter 2. The pottery from both regions is discussed in Chapter 3 with an emphasis on the pottery from the sites which are the most relevant for this research, to provide an in-depth understanding of pottery production and consumption practices in Cyprus and Cilicia during the third millennium BC. Subsequently, theories and methods on connectivity, insularity, cultural interactions, technological mobility, and pottery technologies as indicative for interactions are presented in Chapter 4, along with the theoretical and methodological framework developed for this thesis. The macroscopic analysis of pottery from Cyprus is presented in Chapter 5. The archaeometric analyses of the Cypriot dataset and the results are presented in Chapter 6. The dataset from Tarsus-*Gözlükule* is presented in Chapter 7, alongside the published data, and is compared to the Cypriot dataset, to investigate extra-insular interactions. Lastly, Chapter 8 presents the discussion and conclusions of this study.



CHAPTER 2:

Cyprus and Cilicia in the Third Millennium BC

Chapter 2 — Cyprus and Cilicia in the Third Millennium BC

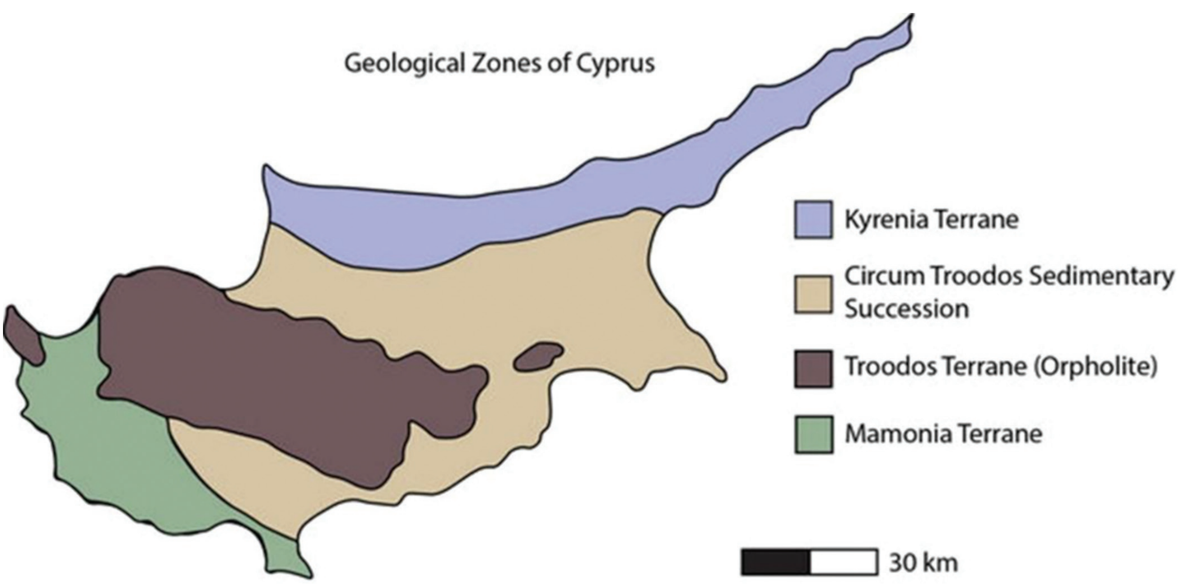
Prehistoric Cyprus and Cilicia, in Anatolia, have been studied extensively and are the focal points of numerous publications (e.g. Mellink, 1991; Bolger, 2007; 2013; Peltenburg, 2007; 2018; Webb & Frankel, 2007; Goldman, 1956; Sagona & Zimansky, 2009; Eslick, 2024). When it comes to the early third millennium BC, literature on both areas is filled with various regional characteristics, diverse periodization and chronologies, and a number of debates on topics like the nature of the Anatolian Trade Network or the emergence of the Bronze Age in Cyprus (e.g. Crewe 2023). This chapter is an attempt to navigate through the immense –and often contradictory, literature on the archaeology of Cyprus and Cilicia and to present a summary of the current state of scholarship. To do so, this chapter consists of three sections: a section focused on Cyprus in the third millennium BC, followed by a section focused on Cilicia in the same period, and finally, a section dealing with the current debates concerning the interactions between these two regions.

2.1. Cyprus in the Third Millennium BC

2.1.1. Geography and Environment

Cyprus is the third largest island in the Mediterranean Sea, after Sicily and Sardinia, with a territorial extent of 9521 km^2. It is located at the edge of eastern Mediterranean, in between Turkey, the Levantine coast and Egypt. It has been an island with no land connecting it to the neighbouring lands at least since the Pliocene (Stanley-Price, 1979, pp. 1-5; Held, 1989, pp. 66-69). Cyprus consists of four main geological terranes: the Troodos Ophiolite Complex, the Circum Troodos Sedimentary succession, the Kyrenia terrane, and the Mamonia terrane (Figure 1). Especially important is the Troodos Ophiolite Complex, since it contains immense copper deposits, a metal that played a crucial role in the economy of the island from the Bronze Age onwards (Kassianidou, 2014, p. 261; Zomeni, 2019, p. 23). A detailed overview of the island's geology is presented later in Chapter 6.

Figure 1: Geological Zones of Cyprus (reproduced from Geological Survey Department of Cyprus)



Although we lack detailed climate proxies, scholars have argued that climatic changes evident in the neighbouring mainlands also occurred in Cyprus (Stanley-Price, 1979, p. 9; Crewe, 2015, p. 135). Until recently, paleoclimatic reconstructions have been based on proxies from neighbouring areas (Brayshaw *et al.*, 2011; Clarke *et al.*, 2015, p. 14). However, recent research on the island has revealed local data on the paleoclimate: coring data have provided complete ^{14}C dated sequences of the Larnaca Salt Lakes from ca. 9000 BP onwards; while pollen and diatom analysis of radiocarbon dated marsh sediments have revealed the Akrotiri Marsh has responded to major climatic events in the past 5000 years (Devillers *et al.*, 2015; Hazell *et al.*, 2022; Chelazzi, 2023).

It is believed that the climate in the Mediterranean during the third millennium BC was dry, although it was accompanied by temporal rainfall increases, droughts, or floods (Broodbank, 2013, pp. 257, 264). Climate conditions appear to have been similar to today's Mediterranean climate, and they have been attributed to several factors such as landscape manipulation or changing solar radiation levels (Nocete *et al.,* 2005, p. 1566; Finné *et al.,* 2011, p. 3170; Butzer, 2005, p. 1798). Soil samples from Kalavassos-*Kokkinoyia* and Kalavassos-*Ayious* indicate potential climate changes at the end of the fifth millennium BC and the beginning of the fourth millennium BC (Todd & Croft, 2004, p. 216; Clarke *et al.*, 2015, p. 15). At present, freshwater sources on Cyprus stem from autumn or winter rainfall and snowfall in the mountains. Variabilities in rainfall can be extreme, and rivers, like the Pedieos River, are only active in rainy winters (Stanley-Price, 1979, p. 11; Knapp, 2013, p. 7). Scholars have argued that the archaeological record on Cyprus around 4000 BC is "*consistent with adaptation to more arid conditions, indicated by the regional climate proxies around this time*" (Clarke *et al.*, 2015, p. 15).

2.1.2. History of Research

2.1.2.1. Archaeology in Cyprus

Archaeological activity in Cyprus begun in the 20th century, and it has been influenced and restricted by the political, historical, and social circumstances ever since. The first fieldwork occurred in the 1860s, when the island was part of the Ottoman Empire. At the time, mainly foreigners, like Luigi Palma de Cesnola – the American consul, conducted large scale excavations and exported Cypriot antiquities selling them around the globe (Cesnola, 1877; Knapp, 2013, p. 20).

Towards the end of the 19th century, in 1878, Cyprus became a British colony. Conducting excavations without official permission was prohibited. From then onwards, only archaeological institutions, like the British Museum, were allowed to excavate on the island. In the early 20th century, an important project was the Swedish Cyprus Expedition, led by Einar Gjerstad, conducting fieldwork across the island from 1927 to 1931 (Gjerstad, 1934a). The significance of this project, besides the extensive fieldwork and the vast datasets it provided, lies in the introduction of the culture-historical approach, the confirmation of the existence of the Neolithic, and the establishment of the Bronze Age chronology. Also, the publications of its contributors, such as Furumark and Sjöqvist, allowed Cypriot archaeology to be embedded in the Mediterranean and Near Eastern archaeologies (Sjöqvist, 1940; Furumark, 1944).

A landmark in Cypriot Archaeology is the foundation of the Department of Antiquities in 1935, followed by the first Antiquities Law (Karageorghis, 1987, p. 4; Knapp, 2013, pp. 21-22). A few decades later, in 1960, Cyprus became an independent state and, since then, the Department of Antiquities has conducted countless excavations, while also regulating numerous foreign projects on the island. These include long-lasting French missions in Salamis, Khirokitia and Amathous, the German project in Tamassos, and recently Idalion, the Swedish Expedition at Hala Sultan Tekke and the British Lemba Archaeological Project in the Paphos region (Karageorghis *et al.*, 1999; Le Brun, 1994; Aupert

& Hellmann, 1984; Bucholz & Untiedt, 1996; Schmid & Horacek, 2018; Åström & Eriksson, 1989; Peltenburg, 1985, 1998, 2003). Since 1974, 36% of the island's territory is occupied by Turkish troops and is therefore officially inaccessible to research. As a result, the available archaeological data since 1974 come from the southern regions.

Lastly, an important step for Cypriot Archaeology was the foundation of the Archaeological Research Unit (ARU) of the University of Cyprus in 1991. This establishment plays a pivotal role in the education and training of several Cypriot archaeologists. For research, the Cypriot American Archaeological Research Institute (CAARI), which was founded in 1978, has also been important, along with the Science and Technology in Archaeology and Culture Research Centre (STARC) of the Cyprus Institute, which was founded in 2003. Overall, as Knapp noted, over the past five decades "*a widespread concern for the detailed description, classification and chronological ordering of the Cypriot archaeological record, together with a well-established tradition of publishing final reports, have resulted in a relatively complete publication record of Cypriot sites* "(Knapp, 2013, p. 30).

2.1.2.2. Archaeology of the Chalcolithic and the Early Bronze Age

The Chalcolithic Period in Cyprus was first identified by Porphyrios Dikaios, when he led the excavations of the site of Erimi-*Pamboula*, in 1933-1935. Hence, he initially named it the "Erimi Culture" (Dikaios, 1936, 1962; Bolger, 1985; 1988). Most of the evidence we have for the Chalcolithic comes from the Paphos district, mainly due to the work of the Lemba Archaeological Project (LAP) led by the late Edgar J. Peltenburg from the University of Edinburgh. The sites excavated by the LAP include the settlements of Kissonerga-*Mylouthkia*, Lemba-*Lakkous*, and Kissonerga-*Mosphilia*, and the cemeteries of Souskiou-*Laona* and Souskiou-*Vathyrkakas* (Peltenburg, 1985; 1998; 2003; 2006; Peltenburg *et al.*, 2019). Moreover, extensive surveys were conducted by LAP across the Paphos district (Bolger, 1987). Since 2015, another Chalcolithic site in the region, Chlorakas-*Palloures*, is under investigation by Leiden University, under the direction of Bleda S. Düring, along with Victor Klinkenberg and Maria Hadjigavriel (Düring *et al.* 2018; 2019).

More Chalcolithic sites in the Paphos district were found by the Polis Pyrgos Survey Project in the north-western coastal area of the island (Maliszewski, 2013). One site first identified by this survey project, Makounta-*Voules*, is currently being investigated by the Polis Region Archaeological Project, directed by Lisa Graham, Kathryn Grossman, Tate Paulette and Andrew McCarthy (Grossman *et al.*, 2018). In the south-eastern part of the island, in the Larnaca district, two Chalcolithic sites were excavated by Ian Todd and Joanne Clarke: Kalavassos-*Ayious* and Kalavassos-*Pamboules* (Todd & Croft, 2004; Clarke, 2004). In the central lowlands of the island there is only one excavated Chalcolithic site so far, Politiko-*Kokkinorotsos*, which was investigated by David Frankel and Jennifer Webb in 2006 and 2007 (Webb *et al.*, 2009a). Lastly, a number of Chalcolithic sites are known through surveys (Stanley-Price, 1979; Given & Knapp, 2003; Şevketoğlu, 2000; Georgiou, 2007), and small-scale excavations of sites such as Lapithos-*Alonia ton Plakon* (Gjerstad, 1934a, pp. 19-33), Karavas-*Yrisma* (Dikaios, 1936, p. 74), Kythrea-*Ayios Dhimitrianos* (Gjerstad, 1934a, pp. 277-301), Ayios Epiktitos-*Mezarlik* (Dikaios, 1936, p. 74), Ambelikou-*Agios Georghios*, Philia- *Drakos*, Kyra-*Alonia* and Nicosia-*Ayios Prodromos* (Dikaios, 1962, pp. 141-155, 1935, p. 12; Nicolaou, 1967, pp. 37-52).

The subsequent Philia Phase (ca.2400-2350/2250 BC), which chronologically marks the beginning of the Early Bronze Age, was also first identified by Porphyrios Dikaios, in the 1940s, when he excavated several tombs, mainly in the northern part of the island (Dikaios, 1962). In general, sites that are ascribed to the Philia Phase are few, most of them are poorly published, while well-documented sites are only known in the west, southwest and centre of the island (Dikomitou-Eliadou, 2012). Philia material comes mainly from tombs, while the first excavations to unearth Philia evidence from a settlement context were those at Kissonerga-*Mosphilia* (Peltenburg, 1998; Dikomitou-Eliadou, 2012). In Period 4 of Kissonerga-*Mosphilia* spurred annular pendants occur, characteristic finds of Philia contexts of central Cyprus (Peltenburg, 1991a, p. 19). Meanwhile, the contexts of Period 5 have provided a large number of Red Polished Philia Ware sherds, the most popular pottery ware of the Philia Phase (Peltenburg, 1998; Bolger & Webb, 2013). Philia artefacts have also been found in Kissonerga-*Skalia*, a Bronze Age settlement right next to Kissonerga-*Mosphilia*, currently excavated by Lindy Crewe, director of the Cypriot American Archaeological Research Institute (CAARI) (Crewe, 2010). Finally, maybe the most significant information concerning the Philia Phase comes from the settlement of Marki-*Alonia*. This site was excavated by David Frankel and Jennifer Webb from 1990 to 2000 and has yielded Philia material from stratified domestic contexts (Frankel & Webb 1996, 2006).

The origins of the Philia culture, as well as the nature of the transition from the Chalcolithic to the Philia Phase have been and are the topic of vivid debates. The Philia Phase has been described as a "*wholesale change in the island's material culture*" (Steel, 2004, p. 119), a change often attributed to the arrival of migrating populations from Anatolia (Frankel *et al.,* 1996; Webb & Frankel, 2007; Frankel, 2000). More information on the Philia debate is provided later in this chapter.

2.1.3. Chronology and Periodization

2.1.3.1. Chronology and Periodization of Prehistoric Cyprus

The chronology of Cyprus follows the broader three age system of Stone Age, Bronze Age and Iron Age. The Chalcolithic Period falls in between the Stone Age and the Bronze Age, while the Philia Phase marks the beginning of the latter. To begin with, since Palaeolithic evidence on the island is so far absent –despite some mentions of possible Middle or Upper Palaeolithic tools, the archaeology of the island begins with the Epipaleolithic phase (ca. 11000-9000 BC) (Knapp, 2013, p. 43). Subsequently, the Neolithic Period in Cyprus dates from ca. 9000 BC to ca. 4000 BC, followed by the Chalcolithic Period (ca. 4000/3900-2400 BC). The Chalcolithic is divided in three sub-periods: the Early Chalcolithic (ca. 4000/3900-3500 BC), the Middle Chalcolithic (ca. 3500-2900BC) and the Late Chalcolithic (ca. 2900-2400 BC). The subsequent Bronze Age starts with the Philia Phase (ca. 2400-2350/2250 BC), and ends with the Late Bronze Age or Late Cypriot Period (ca. 1650-1050 BC) (Knapp 2013, p. 27; Bolger & Webb, 2013, p. 39; Peltenburg, 2014, p. 253; Paraskeva, 2019). However, one must keep in mind that research has shown that there is definitely some overlap, although the amount of overlap is debated (e.g. Peltenburg 1998; Paraskeva, 2019). Therefore, the periodization used in this study is not absolute. This periodization, in more detail, is listed in Table 1 below.

Table 1: Time frame of Cypriot Prehistory (created by Maria Hadjigavriel after Knapp 2013, 27; Peltenburg, 2013; Peltenburg 2014, 253; Paraskeva, 2019)

CYPRIOT PREHISTORY TIME FRAME		
Epipaleolithic	Late Epipaleolithic	ca. 11000-9000 BC
Neolithic	Initial Aceramic Neolithic	ca. 9000-8500/8400 BC
	Early Aceramic Neolithic	ca. 8500/8400-7000/6800 BC
	Late Aceramic Neolithic	ca. 7000/6800-5200 BC
	Ceramic Neolithic	ca. 5200/5000-4500/4000 BC
Chalcolithic	Early Chalcolithic	ca. 4000/3900 BC
	Middle Chalcolithic	ca. 3500-2900 BC
	Late Chalcolithic	ca. 2900-2400 BC
Bronze Age	Philia Phase	ca. 2400-2350/2250 BC
	Early Cypriot	ca. 2400-2000/1850 BC
	Middle Cypriot	ca. 1850-1650 BC
	Late Cypriot	ca. 1650-1050 BC

One should keep in mind that chronology and periodization in prehistoric Cyprus are based primarily on pottery seriations and limited radiocarbon dates. Initially each period was characterised by a type-site, which then took on temporal significance. Therefore the Khirokitian Culture is a signifier for the Aceramic Chalcolithic, the Sotira Culture for the Ceramic Neolithic, and the Erimi Culture for the Chalcolithic (Knapp, 2013, p. 25). When studying Bronze Age material, Stewart (1962, pp. 208, 210-211) recognised issues with applying a tripartite issue. Since the markers that distinguish the chronological periods are arbitrary, chronological gaps are created, which are usually explained by assumptions of abandonment, migration, or colonization. Additionally, developments in the material record are explained as transitional periods (Knapp, 2013, pp. 25-26).

This thesis focuses on the Late Chalcolithic (ca. 2900-2400 BC), and the Philia Phase (ca. 2400-2350-2250 BC). When Dikaios first identified the Chalcolithic Period, he divided it in two sub-periods, Chalcolithic I and Chalcolithic II (Dikaios, 1936, pp. 1-2; 1962, pp. 184-189). Later on, the period was divided in three parts, into the Early, Middle and Late Chalcolithic, based on changes in the architecture and the pottery production (Steel, 2004, 13, pp. 83-118) These differences are discussed later in this chapter, and in Chapter 3.

The chronology and periodization of the subsequent Philia Phase has been the topic of a complicated debate. The recent excavations at Marki-*Alonia* have shown that it is definitely chronologically and culturally earlier than the subsequent Early Cypriot, and it is now considered as the start of the Early Bronze Age in Cyprus (Frankel & Webb, 2006; Webb & Frankel, 2013a). Marki-*Alonia* is the only settlement with a continuous stratigraphic succession from the later part of the Philia Phase to the Middle Cypriot, dating from ca. 2400 to ca. 1700 BC (Frankel & Webb, 2006, p. 35). In recent literature the Philia Phase is often referred to as Philia Early Cypriot Bronze Age (Bolger & Webb, 2013, p. 48). Since there are no dates for the beginning of the Philia facies, the end of the Late Chalcolithic – ca. 2400 BC based mainly on radiocarbon chronologies from Kissonerga-*Mosphilia*, functions as a *terminus ante quem* (Crewe, 2015, p. 133). Radiocarbon chronologies published in the ARCANE volume on Cyprus set the end of the Philia at ca. 2300/2250 BC, but Bayesian modelling indicated that the transition from the Philia to the Early Cypriot I-II is closer to ca. 2200 BC (Manning, 2013, p. 17; Paraskeva, 2019, p. 65). The end of the Philia Phase is possibly linked to several changes in the neighbouring regions such as the collapse of the Anatolian Trade Network (Şahoğlu, 2005, pp. 354-355), and an episode of drastic climate change that took place at ca. 2200 BC (Walker *et al.,* 2012, pp. 653-656; Manning, 2014, pp. 23-24; Crewe, 2015, p. 131). In the Tables 2 and 3 below, overviews of the main Chalcolithic and Philia sites are presented.

Table 2: Periodization, primary sites, and publications of the Chalcolithic(created by Maria Hadjigavriel after the publications mentioned in the table)

CHRONOLOGICAL PERIOD	APPROXIMATE BC DATES	MAIN SITES	MAIN SITES' PUBLICATIONS
Early Chalcolithic (EChal)	ca. 4000/3900-3600/3400 BC	Erimi-*Pamboula* *(period 1)*	Dikaios, 1936;1962; Bolger, 1988
		Kalavassos-*Ayious*	Clarke & Todd, 1993; Todd & Croft, 2004;
		Kalavassos-*Pamboules*	Clarke, 2004
		Ayios Epiktitos-*Vrisi*	Dikaios, 1936
		Kissonerga-*Mosphilia* *(period 2)*	Peltenburg, 1998
		Kissonerga-*Mylouthkia* *(Period 2)*	Peltenburg, 2003
		Maa-*Palaikastro*	Karageorghis & Demas, 1988
Middle Chalcolithic (MChal)	ca. 3600/3400-2900 BC	Agios Epiktitos-*Mezarlik*	Dikaios, 1936
		Lapithos-*Alonia ton Plakon* and Kythrea - *Agios Dhimitrianos*	Gjerstad et al., 1934
		Erimi-*Pamboula* *(Period II)*	Dikaios, 1936;1962; Bolger, 1988
		Lemba-*Lakkous* *(Period 2)*	Peltenburg, 1985
		Kissonerga-*Mosphilia* *(Period 3)*	Peltenburg, 1991; 1998
		Kissonerga-*Mylouthkia* *(Period 3)*	Peltenburg, 2003
		Makounta-*Mersinouthkia* or Makounta-*Voules*	Maliszewski, 2013 Grossman et al., 2018
		Souskiou-*Laona* and Souskiou-*Vathyrkakas*	Peltenburg, 2006; Peltenburg, Bolger & Crewe, 2019
		Chlorakas-*Palloures*	Düring et al., 2018; 2019; 2021
Late Chalcolithic (LChal)	ca. 2900-2400 BC	Lemba-*Lakkous* *(Period 3)*	Peltenburg, 1985
		Kissonerga-*Mosphilia* *(Period 4)*	Peltenburg, 1998
		Politiko-*Kokkinorotsos*	Webb et al., 2009
		Chlorakas-*Palloures*	Düring et al., 2018; 2019; 2021

Table 3: Periodization, primary sites, and publications of the Philia Phase (created by Maria Hadjigavriel after the publications mentioned in the table)

CHRONO-LOGICAL PERIOD	APPROXIMATE BC DATES	MAIN SITES	TYPE OF SITE	MAIN SITES' PUBLICATIONS
Philia Phase	ca. 2400-2350 /2250 BC	Marki-*Alonia*	Settlement	Frankel & Webb, 1996; 2006
		Marki-*Davari*	Cemetery	Frankel & Webb, 1996
		Kyra-*Alonia*	Settlement	Dikaios, 1962
		Philia-*Drakos B*	Settlement	Dikaios, 1962; Paraskeva, 2017
		Kissonerga-*Mosphilia* *(Period 5)*	Settlement	Peltenburg, 1998
		Kissonerga-*Skalia*	Settlement	Crewe, 2014; 2015
		Sotira-*Kaminoudhia A and B*	Cemetery	Dikaios, 1948; Webb & Frankel, 1999
		Bellapais-*Vounourouthkia*	Cemetery	Henessy et al., 1988; Webb & Frankel, 1999
		Dhenia-*Kafkala*	Cemetery	Nicolaou & Nicolaou, 1988
		Episkopi-*Bamboula*	Cemetery	Benson et al., 1973; Webb & Frankel, 1999
		Khrysilliou-*Ammos*	Cemetery	Dikaios, 1953; Webb & Frankel, 1999
		Marki-*Vounaros/Pappara*	Cemetery	Frankel, 1983; Webb & Frankel, 1999
		Kyra-*Kaminia*	Cemetery	Dikaios, 1962; Webb & Frankel, 1999
		Nicosia-*Ayia Paraskevi*	Cemetery	Kromholz, 1982
		Philia-*Laksia tou Kasinou*	Cemetery	Dikaios, 1962; Webb & Frankel, 1999
		Philia-*Vasiliko Kafkala*	Cemetery	Dikaios, 1962; Webb & Frankel, 1999
		Vasilia-*Kafkala and Klistra*	Cemetery	Stewart, 1957; Webb & Frankel, 1999
		Vasilia-*Loukkos Takhonas*	Cemetery	Karageorghis, 1960; Webb & Frankel, 1999
		Vasilia-*Alonia*	Cemetery	Karageorghis, 1960; Webb & Frankel, 1999

2.1.4. The Cypriot Archaeological Record in the Late Chalcolithic and the Philia Phase

The transitions from both the Neolithic to the Chalcolithic, and later from the Chalcolithic to the Philia Phase are often considered to have been abrupt, sudden, and accompanied by marked changes (Peltenburg, 2014, p. 252; Knapp, 2013, p. 195; Steel, 2004, p. 119). The start of the Chalcolithic occurs with the abandonment of several sites and the appearance of new ones. Throughout the Chalcolithic period curvilinear architecture was prevalent, pottery and figurine production innovations occured, increased social differentiation is observed, cemeteries emerge, and the beginning of copper metallurgy takes place (Knapp, 2013, pp. 195-197).

Similarly, the transition from the Chalcolithic to the Philia Phase coincides with innovations such as the replacement of curvilinear architecture with rectangular, and often multi-cellular architecture, the introduction of plough and equids, the re-introduction of cattle, numerous distinctive pottery types, various copper tools, weapons and ornaments, new mortuary practices and symbolic representations, occurring gradually throughout the Philia Phase and the Early Cypriot (Knapp, 2013, p. 263; Webb, 2002a; Frankel, 2000; Frankel & Webb, 1998; Webb & Frankel, 1999). Overall, from the Philia "*a distinctive material homogeneity is evident in all aspects of material culture, including metallurgy and textile technology, food preparation and consumption, personal ornamentation and pottery*" (Dikomitou-Eliadou, 2012, p. 29). An overview of the archaeological record of the Late Chalcolithic and the Philia Phase, including site distribution and architecture, subsistence strategies, material culture, and social organization is presented in this chapter, with the exception of pottery, which is discussed in Chapter 3.

2.1.4.1. Site Distribution and Architecture

With the beginning of the Chalcolithic period, most of the pre-existing Neolithic sites are abandoned and about 125 new ones are founded throughout this period (Peltenburg, 2014, p. 252; Knapp, 2013, p. 195). In the past, scholars have argued for a demographic shift towards the southern and western areas of the island. Nonetheless, one must keep in mind that this may reflect the visibility of the archaeological record, since the northern region of Cyprus has been inaccessible to research since 1974, and most of the extensive research projects focused on the Chalcolithic were conducted in the western district of Paphos (Knapp, 2013, p. 197; Peltenburg, 2014, p. 253).

As far as the Late Chalcolithic is concerned, most of the main well-investigated sites are situated in the western and southern regions, namely Lemba-*Lakkous*, Kissonerga-*Mosphilia*, Chlorakas-*Palloures*, Souskiou-*Laona* and Souskiou-*Vathyrkakas* (Peltenburg, 1985; 1998; Düring *et al.*, 2018; 2021; Peltenburg *et al.*, 2019). Another important site is Politiko-*Kokkinorotsos*, situated in the central lowlands, which has no evidence of permanent architecture and has been interpreted as an ephemeral hunting station (Webb *et al.*, 2009a).

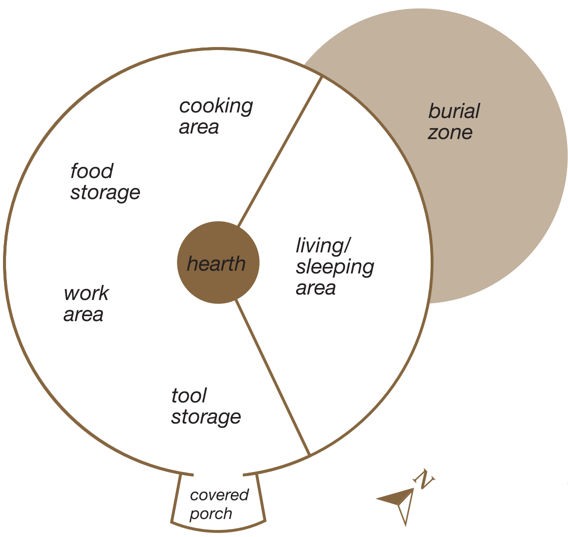


Figure 2: Schematic plan of a typical Chalcolithic house (after Steel, 2004, p. 88).

The prevalent architecture in settlements consists of curvilinear structures with stone foundations (Steel, 2004, p. 88; Knapp, 2013, p. 206; Peltenburg, 2014, pp. 256-257; Figure 2). One Late Chalcolithic structure worth mentioning is the so-called Pithos House from Kissonerga-*Mosphilia*. It is quite big in size, with a diameter of 8 meters and has provided significant finds. Among them, a cache of 47 stone tools, several conical stones, faience beads, triton shells, food preparation vessels, and at least 37 storage vessels with a total capacity of ca. 4000 litres. This building was destroyed by the end of the Late Chalcolithic (Peltenburg, 1998, pp. 38-43, pp. 252-254).

With the emergence of the Philia Phase, occupation in all the aforementioned sites ceases – with the exception of some Philia material culture in the late phases of Kissonerga-*Mosphilia* (Knapp, 2013, p. 277). Whether the Philia Phase overlapped with the Late Chalcolithic is not clear. Overall, sites ascribed to the Philia are few and most of them have been published poorly. The majority of them are cemeteries, while settlement material comes only from Kyra-*Alonia*, Period 5 of Kissonerga-*Mosphilia*, Kissonerga-*Skalia*, and Marki-*Alonia* (Webb & Frankel, 1999, pp. 7-8; Crewe, 2015, p. 131). Several of the sites ascribed to the Philia Phase are situated in close proximity to the copper ores of the foothills of Troodos mountains. In fact, various scholars have argued that the exploitation of new copper sources was one of the main driving forces for the emergence of the Philia culture (e.g. Webb, 2013a, p. 63; Crewe, 2015). Stewart argued that coastal sites may indicate that access to the coast for trade purposes was also important (Stewart, 1962, pp. 288-289; Webb & Frankel, 1999, pp. 7-8). Swiny (1997, p. 195) has suggested that arable land and water sources were also important motives for the establishment of settlement, highlighting the importance of copper accessibility in site hierarchy.

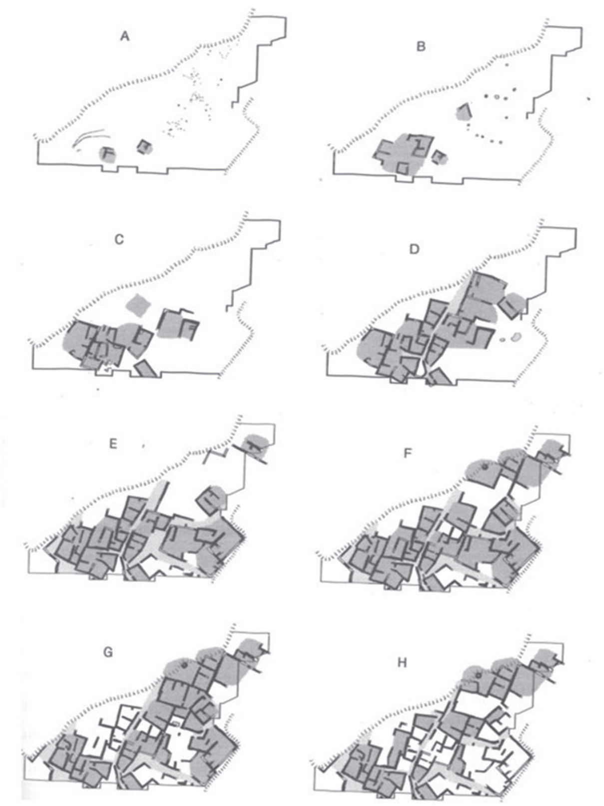


Figure 3: Schematic plan of Marki-Alonia over time (after Frankel & Webb, 2006)

Architecture in the Philia Phase is fundamentally different from Chalcolithic architecture both for construction techniques and design (Frankel, 2000, p. 175). Houses in the Chalcolithic are round and single-celled. On the other hand, in Marki-*Alonia*, the only substantially excavated settlement ascribed to the Philia Phase so far (Phases A and B), structures are rectilinear and multi-roomed, built of mudbrick on stone footings (Webb & Frankel, 2011, p. 31; Webb, 2013b, pp. 138-139). Moreover, hearths during the Chalcolithic are circular and placed in the centre of the structure, but the only preserved Philia hearth from Marki-*Alonia* is semi-circular and attached to a wall (Frankel, 2000, p. 171; Frankel & Webb, 2006, pp. 17-21).

2.1.4.2. Subsistence Strategies

Research has shown that Chalcolithic communities employed a dual subsistence strategy, combining both agropastoralism and hunting. People kept livestock and ate cereals such as emmer, barley and wheat, legumes such as lentils and chickpeas, and wild grasses and fruits such as olive, fig and grape, (Stanley-Price, 1979, pp. 75-77; Murray in Peltenburg, 1998, table II.I; Knapp, 2013, pp. 196, 217). Pig and ovicaprines were more commonly consumed in the Late Chalcolithic, while deer consumption, which was prominent in earlier periods, declines (Croft, 1991, pp. 71-93; Keswani, 1994, p. 264). Archaeobotanical data indicate several domesticated plants like emmer, bread wheat, einkorn, barley, lentil, chickpea, pea, vetch, and rye. Also, in Kissonerga-*Mylouthkia* and Kissonerga-*Mosphilia* there is evidence for possibly domesticated olive, grape, fig and pistachio (Murray, 1998, p. 216 Table 11.1; Colledge, 2003, p. 241-243).

In the Philia Phase, evidence indicates that communities also followed a mixed agropastoral economy (Knapp, 2013, p. 263). While according to the archaeological record, agriculture in the Chalcolithic was hoe-based, it has been argued the cattle/plough system is employed for the first time on the island during the Philia Phase, along with backed sickle blades, although evidence for this is limited (Webb, 2013b, p. 135). Also, new animal species such as donkey, cattle and novel breeds of sheep and goat are introduced (Webb, 2013b, p. 135; Crewe, 2015, p. 131). As mentioned above, pig was the most commonly consumed meat the Late Chalcolithic, but in Marki-*Alonia*, caprines comprise ca. 62% of the fauna remains, followed by cattle (ca. 24%), and then deer and pig (ca. 11%) (Webb & Frankel, 2011, p. 32). Finally, both archaeobotanical data and the ground stone repertoire from Marki-*Alonia* indicate an increase in cereal consumption (Webb, 2013b, pp. 135-136). Webb (2013b, p. 135), has argued that these changes in subsistence strategies suggest differences not only in dietary preferences, but also in animal-human relationships.

2.1.4.3. Metallurgy

Substantial copper metallurgy in Cyprus is attested only from the Philia Phase onwards, chronologically later than in Anatolia and the Levant, where metallurgy begins in the 6th-5th millennia BC (Rowan & Golden, 2009; Düring, 2011, p 255). Evidence for copper metallurgy in the previous periods is limited, while its beginning remains uncertain (Düring *et al.*, 2018, p. 12; 2021). The earliest copper items found on the island so far are two spiral ornaments, corded pieces of copper and a blade, found in Middle Chalcolithic contexts in Souskiou-*Laona* and Souskiou-*Vathyrkakas* (Crewe *et al.,* 2005, pp. 51, 65, fig. 16.2; Peltenburg, 2006, pp. 99-100 pl. 10.5). In Erimi-*Pamboula*, two needles and two unidentified metal artefacts probably also come from Middle Chalcolithic contexts (Bolger, 1985, pp. 180-186).

However, the number of finds increases during the Late Chalcolithic, even though metal artefacts are still rare. For example, a chisel and two possible parts of a blade have been found in Lemba-*Lakkous*, and six metal artefacts in Kissonerga-*Mosphilia* (Peltenburg, 2011, p. 4 table 1.1;

Knapp, 2013, p. 256). The circulation of metal object at the time is indicated from the existence of similar artefacts in different sites, such as a copper spiral and snake/spiral formed pendant that were found in Chlorakas-*Palloures* and have strong parallels at the Souskiou sites. Additionally, a spout of a Red-on-White vessel from Chlorakas-*Palloures*, depicts a snake very similar to the aforementioned copper snake/spiral ornaments, indicating the possible importance of these metal artefacts and a connection between the two locales (Düring *et al.,* 2018, p. 19; 2021; Figure 4).

Figure 4: The copper snake/spiral artefact and a spout depicting a snake from Chlorakas-Palloures, and the copper snake/spiral from Souskiou-Laona (after the Chlorakas-Palloures archive and Peltenburg et al., 2019).

Chlorakas-Palloures *Souskiou-Laona*

Furthermore, the excavations at Chlorakas-*Palloures* have unearthed the oldest copper axe found on the island, dating to ca. 2600 BC. This axe was found in a big storage jar, along with four hooks made of pig tusks and a stone axe. The jar was lying on the hearth of a Late Chalcolithic building (Düring *et al.,* 2018, p. 14; 2021; Figure 5). Subsequently, several other metal objects were found at Chlorakas-*Palloures,* including a pin and a snake-like spiral. A detailed overview on prior literature on metallurgy on the Chalcolithic and its connection to possible extra-insular interactions is presented later in this thesis, in Chapter 7.

Figure 5: The artefacts found in a jar in Chlorakas-Palloures, including the earliest copper axe (after Düring et al., 2018, p. 15).

2.1.4.4. Figurines, Symbolism, and Other Artefacts

During the Chalcolithic the most prevalent material for the production of figurines was picrolite, a soft green/blue stone. It can be found mainly in the southern region, along the Kouris and Dhiarizos Rivers, close to the Souskiou-*Laona*, Souskiou-*Vathyrkakas* and Erimi-*Pamboula* sites, but also in the Troodos mountains (Steel, 2004, p. 93). It has been suggested that the picrolite objects were produced at household level, but also in workshops at the Souskiou sites (Bolger et al. 2019; Bolger, 1994, pp. 14-15; Peltenburg *et al.*, 2019). Additionally, a connection between picrolite procurement and the earliest exploitation of copper ores has been proposed by Peltenburg, who argued that a decentralized production system of picrolite objects seems more probable than the circulation of finished artefacts via exchange networks (Peltenburg, 1982a, pp. 54-56; Steel, 2004, p. 5). Other preferred materials for the manufacture of figurines and ornaments were clay, limestone, faience, dentalium shell and bone (Croft *et al.,* 1998a, p. 189, pp. 192-193).

For figurines, there is a preference in representing the human body, a tendency which pre-existed in the Neolithic but evolved in the Chalcolithic. During the Middle Chalcolithic, a vast repertoire of representations is observed, made of clay, limestone, or picrolite, and occurring in various sizes (Steel, 2004, p. 99). One notable example is the so-called Lemba Lady, a 36 cm tall limestone anthropomorphic female figure found in Lemba-*Lakkous* (Figure 6). The anthropomorphic figurines of the Chalcolithic have been divided in four types: a cruciform representation in sitting position with elongated arms and neck (Figure 7); squatting figures; schematic figures with triangular bodies; and schematic plug-shaped figures. Several interpretations have been suggested concerning the symbolism of these figurines, like that they represent a matriarchical society, a mother-goddess or that they were used as cult objects (Steel, 2004, p. 101).

Figure 6: The Lemba Lady from Lemba-Lakkous (after cyprus-mail.com)

Figure 7: Cruciform picrolite figurines from Cyprus (after Cycladic Art Museum in Athens cycladic.gr)

By contrast, not much is known concerning figurine production and symbolism in the Philia Phase. Picrolite, shell and bone continued to be used, but with the employment of new technologies and production techniques (Frankel & Webb, 2006, p. 244, p. 261). Artefacts that are distinctive of the Philia Phase are annular pendants, pierced annular earrings and pendants from picrolite or shell and beads (Webb & Frankel, 1999). Additionally, in Marki-*Alonia*, clay spindle whorls and loom weights have been found, suggesting the use of a vertical warp-weighted loom for the first time in Cyprus (Webb & Frankel, 2011).

2.1.4.5. Mortuary Practices

Mortuary practices in the Chalcolithic are well attested. The most common burial type was a pit grave of ca. 0.2 metres wide and ca. 1-2 metres deep. In the settlements, burials would often be placed in close association with the buildings, but rarely inside them (Knapp, 2013, p. 217). In Kissonerga-*Mosphilia*, 73 burials were excavated, and have been categorized in five groups: burials in pits without capstones, pit graves with capstones, burials in pots, scoop graves, and –only in the Late Chalcolithic, chamber tombs (Peltenburg, 1998, pp. 64-92).

The earliest cemeteries in Cyprus occur in the Middle Chalcolithic, at Souskiou, in the south of the island. Four discrete cemeteries have been investigated at Souskiou, one at Souskiou-*Laona* and three at Souskiou-*Vathyrkakas*, all physically removed from the Souskiou-*Laona* settlement (Crewe *et al.,* 2005, p. 43). One should keep in mind that the Souskiou sites have complex stratigraphy, and relative chronological assessment based on pottery has shown that the Laona outcrop was used earlier, Vathyrkakas Cemetery 1 first occurred while Laona was still in use and was in use for longer, while neither was used in Period II, when intramural burials occur (Peltenburg et al., 2019, p. 324). The majority of the cemeteries consist of collective burials in shaft graves (Steel, 2004, pp. 95-98; Knapp, 2013, p. 221; Peltenburg, 2014, p. 258; Peltenburg *et al.*, 2019). Some tombs are quite elaborate.

Shaft tombs are used reused over many generations, some secondary burials and inhumations occur, and they can include a variety of grave goods (Crewe *et al.,* 2005, p. 43). In the Late Chalcolithic, the amount of grave goods decreases, but multiple interments and group burials increase. Also, multistage burial rites and possibly secondary treatment of the deceased are attested, while adults and children are buried together at Lemba-*Lakkous* and pot burials assosiated with infants occur in Kissonerga-*Mosphilia* (Peltenburg, 1985, pp. 70-73; Peltenburg, 1998, p. 72; Bolger, 2003, pp. 153-155; Crewe *et al.*, 2005, p. 45).

In the Philia Phase, mortuary contexts comprise the main component of the archaeological record. Among them are cemeteries which demonstrate high inter- and intra-site variability in comparison to the Chalcolithic cemeteries of Souskiou, such as Vasilia-*Kafkallia* and *Klistra*, Vasilia-*Loukkos Takhonas*, Vasilia-*Alonia*, Philia-*Laksia tou Kasinou*, Philia-*Vasiliko*, Philia-*Vasiliko/Kafkala*, Kyra-*Kaminia*, Khrysilliou-*Ammos*, and Deneia-*Kafkala* in the Ovgos Valley; Marki-*Alonia* and Nicosia-*Ayia Paraskevi* in the central plain; and Episkopi-*Bamboula*, Sotira-*Kaminoudhia A* and *B*, and Kissonerga-*Mosphilia* in the south and southwest (Webb & Frankel, 1999, pp. 7-13; Swiny, 1997, pp. 177-185; Knapp, 2013, p. 279).

Most of the Philia Phase burials are shallow circular pit graves, and visible funerary architecture, such as dromoi, rarely occurs, while chamber tombs occur in the whole island. Also pot burials occur in Marki-*Alonia* (Webb & Frankel, 1999, p. 8; 2006, pp. 283-285 Plate 64; Keswani, 2004; 2013). When it comes to the Early and Middle Cypriot periods, scholars have argued that funerary contexts functioned as an arena for status and identity negotiations, due to the increased visibility of cemeteries, complex rituals, funerary architecture and the deposition of metal objects (Webb & Frankel, 2007, pp. 197-198; Mina, 2014, p. 239). Additionally, Keswani has suggested that the treatment of the dead, the labour required to construct chamber tombs, and the grave goods, made it possible to immortalize the ancestors, the negotiation of social identities, and the forming of social alliances (Keswani, 2004, p. 81, p. 198; 2005, p. 342, p. 352, p. 359, n. 59).

2.1.4.6. Social Organisation

Social organisation in the Chalcolithic Period and the Philia Phase present some similarities. Societies were small-scale, with low-levels of social hierarchy and an agropastoral economy, but with more crafting in the Philia (Frankel, 2002, p. 173; 2005, p. 20). When interpreting social organisation within settlements, Knapp has argued for social differentiation and wealth, especially in Lemba-*Lakkous* and Kissonerga-*Mosphilia*, based on the existence of better-built and larger structures, wealthy inter-settlement burials, figurines, and the house-shaped clay vessel found in Kissonerga-*Mosphilia* (Knapp, 2013, pp. 245-250). The Pithos House in Late Chalcolithic Kissonerga-*Mosphilia* has been interpreted as evidence for social differentiation and higher social or political status of its residents, or as a storage building for the community (Peltenburg, 1998, p. 253; Steel, 2004, pp. 112-113). Possible indications of social differentiation are also evident in the Souskiou-*Laona* and Souskiou-*Vathyrkakas* cemeteries. Metal and faience objects, although rare, are often considered as prestige goods which might indicate social or economic superiority of some people.

In the Philia Phase, various innovations in the domestic sphere are evident. These include new technologies for textile production like low whorl spinning, the use of clay whorls and the vertical warp-weighted loom, new hearth and oven types and related cooking vessels (Muti, 2022). For example, when it comes to pottery production, Dikomitou-Eliadou (2012; 2013; 2014), who examined various pottery types from the Philia Phase by employing ceramic thin section petrography and chemical analysis, has suggested that both island-wide and regional interactions were in place, illustrated by the co-existence of pottery workshops of different scales, conforming to different modes and scales of production and catering to different needs.

According to Webb and Frankel, these innovations demonstrate drastic changes in modes of behaviour, values, beliefs and cultural practices (Webb & Frankel, 2007; Webb, 2013b). However it should be noted that recent studies have shown that many of these elements are not necessarily new and have demonstrated continuity with the Chalcolithic material record. For example Mutti (2022) emphasized the possible presence of spindle whorls and the potential for additional tools made from perishable materials during the Late Chalcolithic. She further demonstrated that both the possible Late Chalcolithic whorls and their Philia counterparts share similar characteristics.

At a larger scale, Stewart has argued that the apparent demographic shift to the north during the Philia Phase was the result of warfare and 'frontier feuds' (Stewart, 1962, p. 299). Additionally, the wealth of mortuary contexts in the north, such as the nine metal objects found beneath the plaster floor of the dromos of Vasilia-*Kafkala* Tomb 1 and thirteen metal items which come probably from the same site, indicate that at some point individuals started hoarding or caching metal wealth (Webb *et al.,* 2006, p. 277).

2.2. Cilicia in the Third Millennium BC

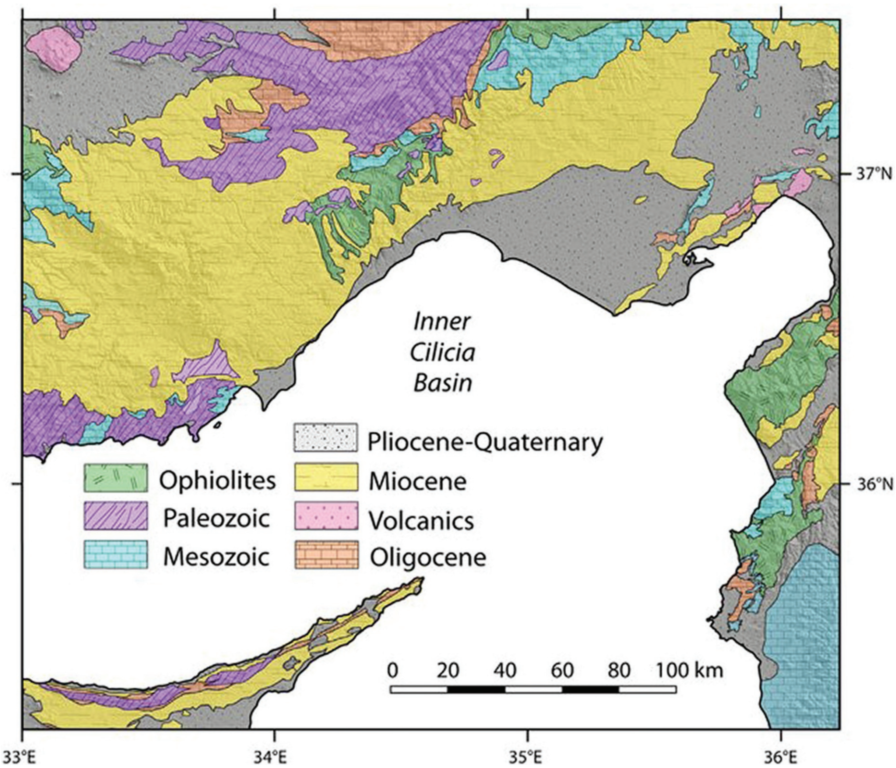
2.2.1. Geography and Environment

Anatolia, or Asia Minor, is a peninsula, with the Mediterranean Sea to the south, the Aegean to the west, and the Sea of Marmara and the Black Sea to the north, and covers ca. 450,000km^2. In terms of geography, there are six regions: the Marmara, the Mediterranean, the Central, the Black Sea, the Eastern and the South Eastern regions. Among them, four main morphological classes can be identified: coastal areas, highlands, mountains, and plateaus (Sagona & Zimansky, 2009, pp. 1-2).

Cilicia is located along the southeast coast of Anatolia. It is a large alluvial plain, covering approximately 8000 km, defined by the Taurus Mountains to the north, the Rough Cilicia mountainous region to the west, the Amanus Mountains to the east, separating Cilicia from the Amuq Plain, and the Mediterranean Sea to the south. It is separated into a western coastal part (Çukurova) and an eastern inland part (Yukarıova). Several rivers travers the plain: the Ceyhan, Seyhan, and Berdan Rivers from east to west, and the Göksu River in the Rough Cilicia mountainous region (Novák *et al.* 2017, p. 150).

Anatolia's geology is complex, as it was created by the coalition of several continental plates, seismic activity and effects of volcanism since the mid-Tertiary creating several folding zones with diverse landscapes. Cilicia specifically, is an alluvial plain created in the Holocene, deposited mainly by the Berdan and Seyhan Rivers. North of these, are Quaternary sediments consisting of travertine deposits running in northeast-southwest direction, creating the Taurus Mountain Range, which consist of terraces covered with caliche and alluvium. These terraces date back to the Pliocene-Pleistocene and are comprised of gravel, sand, silt, clay, and carbonates. Twelve formations are reported where gypsum are identified as the main components (Şahin *et al.*, 2003, pp. 13-15; Usta & Beyazcicek, 2006, pp. 12-15; Görür, 1973, pp. 228f., fig. 2; Figure 8).

Figure 8: Geological map of the Central Taurus Mountains and its surroundings. Simplified and redrawn from Blumenthal (1963) and Erentöz and Ternek (1962) (after Walsh-Kennedy et al., 2014, p. 19).



One could argue that the climate of Anatolia is characterised by extremes. Coastal Anatolia is mostly humid, and snow is rarely present, but the mountains in the eastern region are covered with snow most of the year. In general, four climate zones are observed in Anatolia today: high precipitation, mild winters and summers, along the Black Sea littoral; Mediterranean climate along the southern and western coasts; in the Marmara Region, the climate conditions are somewhere in between of those of the two aforementioned regions; and in central Anatolia the climate is drier than the rest of the country. Findings with sequences spanning the mid-late Holocene indicate drier and warmer conditions, following the Neolithic climatic optimum (Roberts *et al.*, 2011; Kuzucuoğlu *et al.*, 2011; Massa & Şahoğlu, 2015, p. 63). Additionally, simulations of prehistoric rainfall regimes indicate that coastal areas were 15-20% wetter and the central plateau 1-10% wetter than today for the period of ca. 7000 - 2500 BC (Roberts *et al.*, 2011, pp. 9-11 fig.4e). In terms of environmental conditions, nowadays Cilicia falls within the dry farming range when it comes to annual rainfall, it has hot and humid summers and humid but mild winters. The humidity is caused by the sea and restricted by the mountains surrounding Cilicia, rendering the plain very fertile for cultivation, allowing both dry-farming and irrigation agriculture (Novák *et al.*, 2017, p. 151).

In an attempt to reconstruct the vegetation of ancient Anatolia, van Zeist and Bottema (1991, p. 23) have identified nine broad vegetational zones in the Near East, most of which were present in Anatolia: EU-Mediterranean vegetation, montane forest, mixed broad-leaved and needle-leaved mountain woodland, cold deciduous broad-leaved mountain woodland, cold deciduous woodland, dwarf shrublands (steppe), subalpine and alpine vegetation, river valley vegetation, and open tree and shrub. This reconstruction is based mainly on palynological evidence. Ten pollen diagrams from Turkey are relevant to Late Quaternary and Holocene vegetation, mostly from the region west of Euphrates River. Studying these pollens show a transition from steppe to woodland between 11 000 and 9 000 years ago (Sagona & Zimansky, 2009, pp. 7-9).

2.2.2. History of Research

2.2.2.1. Archaeology in Anatolia

The archaeology of Anatolia, just like Cypriot archaeology, is situated in between the fields of Aegean/Mediterranean and Near Eastern archaeology. Therefore, Anatolia is often perceived as a bridge and crossroads, between the east and the west. This notion is evident in the relatively marginal role of Anatolian archaeology in western research and in the media (Yazıcıoğlu, 2007; Greaves, 2007; Özdoğan, 2007, p. 18). Its only in the 1960s that Anatolian archaeology started emerging as an entity of its own, even though research was conducted there well before that. As Machteld Mellink (1966, p. 115) wrote: *"Anatolia appears neither as an assemblage of oriental and classical colonies nor as a transit station but as a land with a character of its own. It is seen to have developed cultural characteristics which are native, tenacious, and of potential impact on both the east and the west".*

Many scientific excavations in Anatolia were conducted after the foundation of the Republic of Turkey, in the 1930s-60s (Fidan *et al.*, 2015, p. 60). However, the earliest archaeological projects occured in the Ottoman Period (1481-1922), when museums were established for the first time (Özgüner, 2015, p. 17). Among them is the Istanbul Archaeology Museum, which was founded in 1868. Osman Hamdi Bey, who was the Director of the Istanbul Archaeology Museum, excavated at Sidon, Lagina, Nemrut Dağ, Alabanda, Sidamara, and Tralles (Düring, 2011, p. 22). The first large scale excavation in Anatolia was carried out in 1834 by the French archaeologist Charles Texier at Boğazköy-*Hattuşa*, the capital of the Hittite Empire (Texier, 1839, p. 209). Subsequently, in 1865, Frank Calvert, a British expat, conducted initial excavations in Troy. Heinrich Schliemann, a German merchant visited the excavation and continued the research in the area from 1870 to 1890 (Jablonka, 2012, p. 851). In the subsequent 50 years, a large number of excavations were conducted, and museums and foreign research institutes were established (Üre, 2014, p. 3).

Until the First World War, Ottoman archaeology was conducted by a few people who were connected to the Istanbul Archaeology Museum (Düring, 2011, p. 23). In 1923, following the Turkish War of Independence, the Republic of Turkey was founded, with Mustafa Kemal, also known as Atatürk becoming the first president. In 1931, Mustafa Kemal established the Turkish History Committee (Türk Tarih Kurumu). The Turkish Archaeological Institute and the Istanbul Archaeological Institute were also founded in the same year.

With the fall of the Ottoman Empire, a need for a new national identity for the newly founded Turkish Republic emerged. So, the "Turkish History Thesis" was created (Atakuman, 2008, pp. 219-220). According to this thesis, the Turks were a civilised population whose civilization came to an end after adverse climatic episodes, resulting in migrations to several areas, including Anatolia. Therefore, civilizations like those of the Greeks and the Hittites, originated from these migrant populations, and were in essence Turkish. Most of the elements comprising this thesis were dropped soon enough, and the emphasis shifted to "*Anatolia as a cradle of civilization and to cultural continuity in Anatolia from the earliest Prehistory up to the modern era*" (Düring, 2011, p. 24). Mustafa Kemal encouraged the development of professional archaeology, by establishing archaeology departments in universities, employing Jewish German scholars who fled Germany to avoid Nazi prosecution, and funding Turkish archaeologists to study abroad. Besides Atatürk, another important figure of the 20th century was Hamit Koşay, who founded museums in Ankara and in 1945 and he became the director-general of the Department of Antiquities and Museums. He also acted as director for many excavations, including Ahlatlibel, Kumtepe, Pazarlı, and Alaca Höyük.

In between the foundation of the Turkish Republic and the Second World War, it has been estimated that approximately 100 excavations took place, the majority of which, were conducted by Turkish archaeologists (Arik, 1950, p. 60). Among those are the excavations of Alaca Höyük, Gavur Kalesi and Ahlatlibel (Davis, 2003). There were also numerous foreign expeditions, such as those at Alişar, Mersin-Yumuktepe, Tarsus-Gözlükule, Kusura, Kültepe-Kanesh, the excavations at Troy by Blegen, and the Amuq survey project along with its subsequent excavations (Whittemore, 1943; Arik, 1950; Joukowsky, 1986, p. 40). In 1934, Kurt Bittel published his book “Prähistorische Forschung in Kleinasien”, which set the basis for Prehistoric research in Turkey (Bittel, 1934). In the 1930s-50s several excavations were conducted, mainly at Roman and Classical sites, while a number of foreign research institutes were established, including the Dutch Institute in Istanbul (NIT) in 1958. Nowadays, archaeological practice and its legal framework are overseen by the Ministry of Culture and Tourism, and its Directorate-General of Monuments and Museums.

All prehistoric sites researched in Anatolia before the Second World War dated from the Late Chalcolithic (ca. 4000-3000 BC) onwards, while during the Second World War some Neolithic and Early Chalcolithic sites were excavated in the region south of the Taurus Mountains. This scarcity of earlier evidence led some archaeologists to believe that the Neolithic did not occur at all north of the Taurus Mountains, a position supported also by Bittel (1945, p. 15), and Lloyd (1956, pp. 53-54). The first substantial critique for this hypothesis was voiced in 1945 by Özgüç, who argued that a Chalcolithic phase can be observed in Central Anatolia (Özgüç 1945, p. 357; Düring, 2011, p. 26). Subsequently, from the 1950s onwards, more data on the Prehistory of Anatolia before ca. 3500 BC was unearthed, thanks to several research projects. For example, in 1951-52, Mellaart conducted a survey in the Konya plain, finding pre-Bronze Age assemblages. The most important excavations, whose results changed the image of Neolithic Anatolia substantially are those at Hacılar and Çatal Höyük by Mellaart, in 1957-60 and 1961-67 respectively, and those at Canhasan 1 and 3 by French, conducted in 1961-67 (Mellaart, 1967; 1970; French, 1998). Additionally, another important project which also played a pivotal role in the training of several Turkish archaeologists was that of Çayönü in southeast Anatolia, led by Braidwood and Çambel, of Chicago and Istanbul Universities respectively (Çambel, 1995; Düring, 2011, p. 27). Nowadays, there are numerous archaeological projects in Turkey, conducted by local and foreign archaeologists and more and more data regarding Anatolian Prehistory is becoming available.

The studies concerning the archaeology of Anatolia in the Early Bronze Age are based mainly on sites such as Alişar Höyük, Beycesultan, Demircihüyük, Tarsus-*Gözlükule*, and Troy, but also on evidence from Alaca Höyük, Horoztepe, Yortan, Aphrodisias-*Pekmez*, Bademağacı, Harmanören, Kanlıgeçit, Küllüoba, Liman Tepe, and Panaz Tepe (Düring, 2011, pp. 258-259). The term “Early Bronze Age” was used for the first time by Blegen in relation to Troy (Blegen *et al.*, 1950, p. 22). A few years later, after the excavations at Tarsus-*Gözlükule*, the Early Bronze Age was divided in three sub-periods: Early Bronze Age I, II and III, and was compared with the chronology of Mesopotamia (Goldmann, 1956). Moreover, Mellaart (1954, p. 189) used this periodization at the excavations of Beycesultan. According to Massa (2016) and Bachhuber (2008; 2015) the study of Anatolian Early Bronze Age archaeology remains dominated by a cultural-historical approach that emphasises classificatory studies.

2.2.2.2. Archaeology of Bronze Age Cilicia

Specifically in Cilicia, a number of explorations of the Graeco-Roman remains have been conducted, particularly in the 19th century. However, investigations of the prehistoric remains of Cilicia have been fewer in number and limited to more defined periods in the past. Most of the work on prehistoric Cilicia was conducted from the 1930s to the mid-1950s (Steadman, 1994, p. 36). In 1930, Einar Gjerstad conducted a survey of Cilicia and the surrounding regions following his excavations in Cyprus in 1926. Gjerstad reasoned that the prehistoric ceramic assemblage of Cilicia might have had close relations to that of Cyprus (1934b, p. 155). His survey encompassed approximately ten sites, including Tarsus, and his report provides a brief overview of the ceramic types recovered from these locations. Another early work that addresses Cilicia is Brown's article on the prehistoric relations between Anatolia, the Aegean and Cyprus, published in 1933, which included published data and a few sherds collected from various sites in Cilicia (Brown, 1933, p. 43).

After a brief survey of the Cilician plain in 1937, Garstang conducted excavations at several sites. While he focused primarily on Mersin, also known as Yümük Tepe, he also explored Kazanli Hüyük and Sirkeli, located between Mersin and Tarsus (Garstang 1938; 1939). The work at Kazanli Hüyük and Sirkeli consisted mainly of preliminary "soundings," whereas Mersin was the site of a full-scale excavation (Garstang 1953). In the 1950s a substantial survey was conducted by Seton-Williams, and Mellaart surveyed the Göksu Valley of Rough Cilicia (Seton-Williams, 1954; Mellaart, 1954). More recently, French has conducted the Göksu River Valley and the Bilkent University the Eastern Cilician Plain Survey (French, 1967; Steadman, 1994).

Some key-sites are Tarsus-*Gözlükule*, Mersin-*Yumuktepe*, Sirkeli Höyük, Kilisi Tepe, and Kinet Höyük (Goldman, 1956; Garstang, 1953; Garstang, 1937; Novák *et al.* 2017; Kozal & Novák, 2015; Gates *et al.* 2014; Lehmann, 2017; Eslick, 2021; 2024). Excavations at these sites are presented later in this chapter.

2.2.3. Chronology and Periodization

2.2.3.1. Chronology and Periodization of Prehistoric Anatolia

The chronology of Anatolia follows the broader three age system Stone Age, Bronze Age and Iron Age. Nevertheless, one needs to keep in mind that Anatolia is a vast geographic area with many regions which have their own chronologies. In general, the first archaeological traces in Anatolia are ascribed to the Palaeolithic Period. Evidence from the Palaeolithic is scarce, since good evidence for the Early Upper Palaeolithic (ca. 40000-26000 BC) come only from the Marmara Region and the Hatay, while the Late Upper Palaeolithic is absent (Otte, 2008, p. 907). The Epipaleolithic Period is ascribed to ca. 20000-10000 BC (Düring, 2011, pp. 31-32). The Neolithic follows from ca. 8500 to ca. 6000 BC, followed by the Chalcolithic (ca. 6000-3000 BC), the Early Bronze Age (ca. 3000-2000 BC) the Middle Bronze Age (ca. 2000-1600 BC), and the Late Bronze Age (ca. 1600-1200 BC). This periodization is presented in Table 4.

Table 4: Timeframe of Anatolian Prehistory (created by Maria Hadjigavriel after Düring 2011, 21-21; Yakar 2011, 60-78).

ANATOLIAN PREHISTORY TIME FRAME	
Early Upper Paleolithic	ca. 40000-26000 BC
Epipaleolithic	ca. 20000-10000 BC
Neolithic	
Aceramic Neolithic	ca. 8500-7000 BC
Ceramic Neolithic	ca. 7000-6000 BC
Chalcolithic	
Early Chalcolithic	ca. 6000-5500 BC
Middle Chalcolithic	ca. 5500-4000 BC
Late Chalcolithic	ca. 4000-3000 B
Bronze Age	
Early Bronze Age I	ca. 3000-2600 BC
Early Bronze Age II	ca. 2600-2300 BC
Early Bronze Age III	ca. 2300-2000 BC
Middle Bronze Age	ca. 2000-1600 BC
Late Bronze Age	ca. 1600-1200 BC

In Cilicia, a refined comparative stratigraphy and chronology of the region has been put together recently by a workgroup of researchers working in the area, as the result of three workshops led by Novák, covering from the Pottery Neolithic to the Medieval Period (Novák *et al.*, 2017, p. 182). For the purposes of this thesis, the Late Chalcolithic Period (ca. 4500-3000 BC) and the Early Bronze Age (ca. 3000-2000 BC) in Cilicia are particularly important and are presented in the table 5 below.

Table 5: Comparative stratigraphy of sites in Cilicia during the Late Chalcolithic and Early Bronze Age (created by Maria Hadjigavriel, simplified and re-drawn after Novák et al. 2017, p. 184)

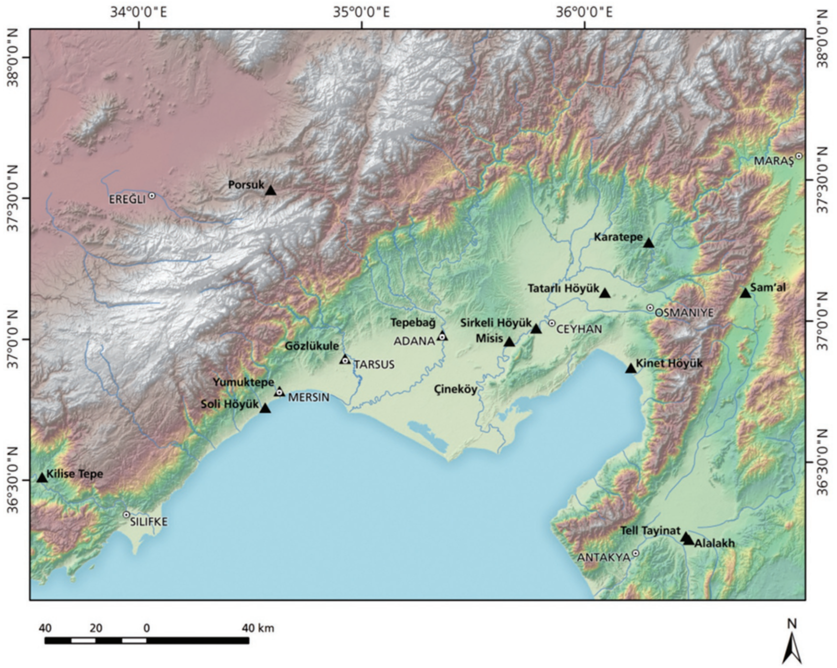
COMPARATIVE STRATIGRAPHY OF CILICIA DURING THE LATE CHALCOLITHIC AND THE EARLY BRONZE AGE					
Conventional Periodization	Dates (3)	Kilisi Tepe	Mersin-*Yumuktepe*	Tarsus-*Gözlükule*	Kinet Höyük
Late Chalcolithic	4500-3300 BC		XV-XIV	Goldman Chalcolithic	
EB Ia	3300-2900 BC		Hiatus (3800-2800 BC)	Goldman EB Ia	
EB Ib (1)	2900-2700 BC	V	XIII-XII	Goldman EB Ib	29-25
EB II (1,2)	2700-2400 BC			Goldman EB II	24
EB IIIa (1,2)	2400-2200 BC			Goldman EB IIIa	23-22
EB IIIb (1,2)	2200-2000 BC			Goldman EB IIIb	21-19

(1) According to the chronology proposed by Goldman and Mellink (cf. 1965; 1992)
(2) According to the traditional Levantine Chronology, cf. Orthmann et al. (2013, p. 584): EBII = EBIII, EBIIIa = EBIVa, and EBIIIb=EBIVb
(3) According to Middle Chronology of Manning et al. 2016

2.2.4. The Archaeological Record in the Early Bronze Age I and II

The Early Bronze Age of Anatolia has been mainly known through the excavations in Tarsus, Beycesultan, Karataş-*Semayük*, Demircihüyük, and Troy, but also through several other excavations and survey projects, being a diverse but well-investigated area (Fidan *et al.*, 2015, p. 82). Anatolia is an immense geographical area which was comprised by a variety of local characteristics during the Early Bronze Age. However, in order to provide the archaeological framework which is necessary for this study, this section focuses on the archaeology of Cilicia (Figure 9). An overview of the archaeological record of the Early Bronze Age I and II, including site distribution and architecture, subsistence strategies, material culture, and social organization is presented in this chapter, with the exception of pottery, which is discussed in detail in Chapter 3.

Figure 9: Map of Plain Cilicia with sites mentioned in the text, and some modern cities (© Susanne Rutishauser, Bern University; after Novák et al. 2017, p. 151).



2.2.4.1. Site Distribution and Architecture

Sagona and Zimansky (2009, p. 178), have argued that during Early Bronze Age (EB) I and II the socio-political system was primarily rural, with small villages and towns across Anatolia. Similarly, the EB I in Cilicia has been characterized as a 'proto-urban' period by Yakar, with villages of different sizes, some of which were surrounded by defensive walls. These communities relied on agriculture for subsistence but also had evidence of long-distance trade and craft specialization (Yakar, 1985, pp. 3-4). For this study, an overview of excavated sites is presented.

Tarsus-Gözlükule

Tarsus-*Gözlükule* is a mound that was first excavated in 1935-39 and 1947-49, under the direction of Hetty Goldman, of Bryn Mawr College. Since 2001, the site has been investigated by Boğaziçi University under the direction of Aslı Özyar. The EB I levels have revealed a large open area which Goldman identified as a street. To the west of this area is a stone-built wall, with two circular stone structures along its southern part (Goldman, 1956, p. 9). Clay constructions, such as hearths, bins, and benches, are located on the west of the street, along a clay wall. The largest of these hearths was placed on its own platform, and has been associated with an anthropomorphic clay figure found next to it (Goldman, 1956, p.10). Finally, a series of rooms with pisé walls have been revealed at the southern end of the street. One of these rooms has been considered large enough for being a domestic structure, while some others have been interpreted as storage facilities (Goldman, 1956, pp. 11-12).

In EB II levels, a substantial area with domestic and workshop structures has been revealed, as well as fortification walls. Domestic structures seem to have workshop structures attached to them, while the fortification walls have gates lined with towers and rooms (Goldman, 1956, p. 12).

Kilise Tepe

Kilise Tepe was excavated from 1994 to 1998 by the Silifke Museum and the British Institute at Ankara. Later on, Postgate, who was one of the leading excavators the first time, restarted the excavations from 2007 to 2013. The chronology of the site spans all the way to the Byzantine Period, and the Bronze and Iron Age levels are located to the north-western part of the mound (Postgate & Thomas, 2007; Postgate in Novák *et al.,* 2017). One level dates to the end of the EB II, Level Vg. This level—buried under a thick layer of destruction debris comprising ash, dark red soil, and mudbrick pieces—was the earliest archaeological phase. It revealed domestic structures, whose walls were plastered in a yellowish brown clay and red pigments occurred on parts of the floor (Şerifoğlu, 2019, pp. 70-71). This layer is followed by layer Vf, which is characterized as the Great Fire layer, as it documents great destruction by fire, and then Level Ve, which is the last level ascribed to the Bronze Age (Şerifoğlu, 2019, pp. 71-72).

Mersin-Yumuktepe

Mersin-*Yumuktepe* was first investigated by a British mission in 1947 (Garstang, 1953). In 1993 excavations started anew by Istanbul University and La Sapienza University of Rome first, and then Salento University, under the leadership of Sevin and Caneva. The site spans from the Neolithic to the Hittite, Roman and Medieval periods. For the EB levels at the site, a long hiatus of ca. 1000 years is observed between the Chalcolithic and the Bronze Age. At the beginning of the third millennium BC, a large EB II settlement with a huge fortification wall was built. The settlement was constructed of contiguous rectangular buildings, with mudbrick walls with stone foundations (Breniquet, 1995; Caneva & Köroğlu, 2010; Caneva & Sevin, 2004; Garstang, 1953; Caneva *et al.*, in Novak *et al.* 2017, pp. 156-159).

Kinet Höyük

Kinet Höyük is in the Iskenderun region and has been excavated by Gates of Bilkent University of Ankara, from 1992 to 2012, and then continued under the direction of Eslick. The latest excavations have recently been published in an edited volume (Eslick, 2024). As far as the Early Bronze Age levels are concerned, which are dated to ca. 2800-2000 BC, starting in EB II (Periods 29-25), they were revealed on the lower West Slope in Area M, and in two soundings north of the mound, in Areas V and Z (Gates, 2009; 2004; as cited in Eslick, 2021). However, EB sherds have been found over the whole site in later levels, suggesting that the EB town was extended over the whole mound and around the harbour to the north (Eslick, 2021, p. 73). The excavations have revealed a settlement with rectangular structures made of mudbrick, without stone foundations and a massive fortification wall encircling the settlement (Eslick *et al.* in Novák *et al.* 2017). Architecturally, the structures resemble those in Tarsus-*Gözlükule*, ascribing to a Cilician architectural tradition, although specific features of the layout may differ (Eslick, 2021, p. 73). In Periods 29, 27 and 26 the mound was enclosed in a fortification wall, but in Periods 28 and 25 domestic structures extend beyond the wall. The rooms that date to the EB seem to have been cleared and abandoned, as very few items are found in situ, mostly from fills used for levelling before rebuilding (Eslick, 2021, p. 74).

2.2.4.2. Subsistence Strategies

In Cilicia, excavations so far have provided limited information on the subsistence economy of the Early Bronze Age (Steadman, 1994, p. 21). However, Cilicia is comprised of fertile alluvial deposits which are perfect for agriculture. Surveys indicate that early inhabitants of the region avoided coastal areas, likely because they were swampy and unsuitable for settlement, and instead preferred the terraced alluvial plains (Mellaart, 1954, p. 177; Seton-Williams, 1954, pp. 121-23). Given that the coastal areas were hard to navigate and the alluvial plains offered a sufficient food supply, it is likely that the exploitation of marine resources such as fish and shellfish was minimal (Steadman, 1994, p.21). So far, there is no evidence of significant food imports into or exports out of Cilicia during prehistoric periods, implying that the region's carrying capacity was adequate for its prehistoric inhabitants. Hunting was also feasible, as equids and deer were native to the region (Steadman, 1994, p. 22).

2.2.4.3. Metallurgy

In Anatolia, the largest sulphide ore deposits are found in the metallogenic districts of Ergani Maden in the eastern Taurus Mountains, and in Küre and Murgul/Göktaş in the Black Sea region (Lehner & Yener, 2014, p. 531). The development of metallurgy in EB Cilicia follows the development of metallurgy in the rest of Anatolia, making an overview of metallurgical development in Anatolia required here. Overall, the repertoire of metal artifacts in EB I is similar to that of the Late Chalcolithic and Transitional Period into the EB, except for a variety of dagger types (Efe & Fidan, 2006; Fidan, 2006). Excavations at sites like Demircihöyük, Beycesultan, Iasos, Liman Tepe, Bakla Tepe, and Beşiktepe have revealed metal tools, weapons, and jewelry (Efe & Fidan, 2006; Keskin, 2011). Most evidence for EB I metals comes from coastal western Anatolia, particularly Liman Tepe, Bakla Tepe, Ephesus-Çukuriçi Höyük, Troy, and Milet. These sites yielded several objects such as crucible pieces, mould fragments, ore-preparation tools, and slags, indicating extensive metalworking activities (Müller-Karpe, 1994; Horejs, 2009; Horejs *et al.*, 2010; Keskin, 2011; Bachhuber, 2014; Fidan *et al.*, 2015).

In the EB II, there is a notable advancement in metal production and use (Fidan *et al.*, 2015). Tin bronze artifacts, especially weapons, appear for the first time, alongside an increase in gold, silver, and lead finds. Larger-scale mining and copper processing into ingots occurred near mines (Yalçın, 2013). Ingot molds were found at Küllüoba, Troy, Liman Tepe, Milet, Çukuriçi Höyük, and Aphrodisias (Müller-Karpe, 1994; Fidan, 2013). Later in the EB II, tin-bronze spread from Syria-Cilicia to inland western Anatolia, while other areas continued using arsenical bronze (Yalçın, 2013). Syro-Cilician metal objects, such as toggle pins, lead bottles, and daggers, were found at Demircihöyük, Küllüoba, and cemeteries at Demircihüyük-*Sarıket* and Bozüyük-*Küçükhöyük* (Seeher, 2000). Toggle pins were also found at Kaklık Mevkii, Harmanören, and Karataş-*Semayük* cemeteries (Fidan, 2012). Metalworking in Troy, Liman Tepe, Çeşme-*Bağlararası*, and other coastal sites continued from EB I with little change (Keskin, 2011).

In Cilicia, the EB I metalwork at Tarsus primarily consists of small utility objects, such as knives, sickles, awls, needles, and pins. A notable artifact from this period is a lead macehead, which is the earliest known metal example in Anatolia (Goldman, 1956, p. 256). In EB II, there is a greater variety of metalwork. This includes the appearance of toggle pins and a fragment of an early fibula, although fibulae do not become common until the Late Bronze Age. Cilicia seems to have been the region from where the toggle pin was introduced into Anatolia. It may have been a local development that later spread during the EB III to Central, Western, and Northwestern Anatolia, as well as to the Eastern Aegean, Cyprus, and the Levant (de Jesus, 1977, p. 195).

2.2.4.4. Anthropomorphic Figurines

Anthropomorphic figurines have been recovered from EB sites across Anatolia. Figurine production in Cilicia follows the same tendencies as figurine production in the rest of Anatolia. Figurines were made of fired clay, stone (such as marble, limestone or alabaster), bone, shell or metal (such as gold , silver and bronze) (Figure 10). The most popular figurine type is violin-shaped, with semi-circular lower body and a semi-circular head on an extended neck, occasionally with stump-like lumps on the upper body. Variants of this type are present across Anatolia (Atakuman, 2017, p. 86).

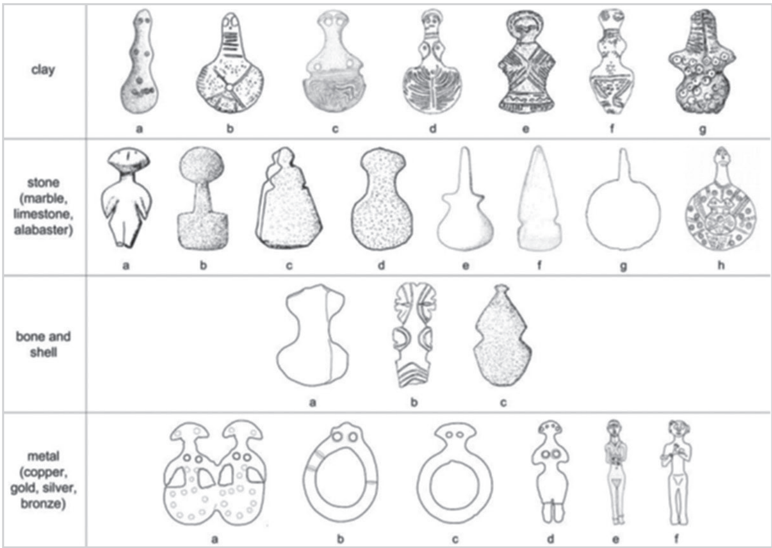


Figure 10: Comparison of Early Bronze Age figurines from Anatolia (not to scale) (after Atakuman, 2017, p. 91)

2.2.4.5. Mortuary Practices

Numerous cemeteries occurred in Anatolia in the EB II, with the emergence of several of them probably stretching back to the EB I. Among them are Babaköy, Bakla Tepe, Demircihüyük-*Sarıket*, Harmanören-*Göndürle* Höyük, Iasos, Ilıpınar, Kaklık-*Mevkii*, Karataş-*Semayük*, Küçükhüyük, and Yortan. Not all of them can be associated with a settlement, while the majority is located in western and northern Anatolia (Düring, 2011, p. 278). Most of the known EB cemeteries are in western, north-central and southeastern parts of Anatolia. When it comes to types of burials, five can be observed: earthen simple pits; roofed pits with structural roof and walls, which are accessible through the roof; cist tombs, earthen tombs with structural walls and roof; and ceramic containers like pithoi or other domestic jars used to bury people inside them (Rankin, 1997; Sagona & Zimansky, 2009, p. 212).

However, in Tarsus, only one extramural cemetery with earthen tombs and burials in ceramic containers has been found, but it dates to the Late Chalcolithic and not the EB (Goldman, 1956, pp. 6-7).

2.2.4.5. Social Organization

Initially, in the EB I, just like in the Chalcolithic, small settlements seem to be the norm, architecture is more or less comparable between sites, while pottery production is characterized by regional variations. However, during the latter part of EB II, several changes take place, leading towards urbanization. As mentioned above, Yakar identifies proto-urban and urban communities in Early Bronze II-III southern and southeastern Anatolia at several sites, including Tarsus (Yakar, 1985, pp. 4-5). Fortified upper towns occur, and an elite culture can be suggested by the production, consumption, and deposition of valuable goods, and by a preference for materials and artefacts arriving to Anatolia through long-distance exchange networks.

It has been argued that Anatolian communities created urban hierarchical societies later than those of the neighboring Syro-Mesopotamian region, something often perceived of in a negative way by Near Eastern archaeologists. On the other hand, Düring has argued that "*these are surely processes that are to be understood as local phenomena developing out of local conditions. Contact with more complex societies does not automatically result in their emulation*", and that "*the normative idea that urban life and social hierarchy are great achievements, and that people not living in this manner are culturally backward, is a modern teleological way of perceiving human societies*" (Düring, 2011, p. 298).

In Cilicia, the evidence from EB Tarsus indicates a community that had progressed well beyond a basic agricultural or pastoral subsistence model. There were significant trade connections, organized labour forces, and possibly both private and state-run markets operating within the settlement. Additionally, the excavations reveal architecture beyond domestic structures, including some potentially related to cultic practices, as well as clearly defensive constructions (Steadman, 1994, p. 86).

2.3. Cyprus and Anatolia ca.2900-2200 BC: A Debate of Interactions

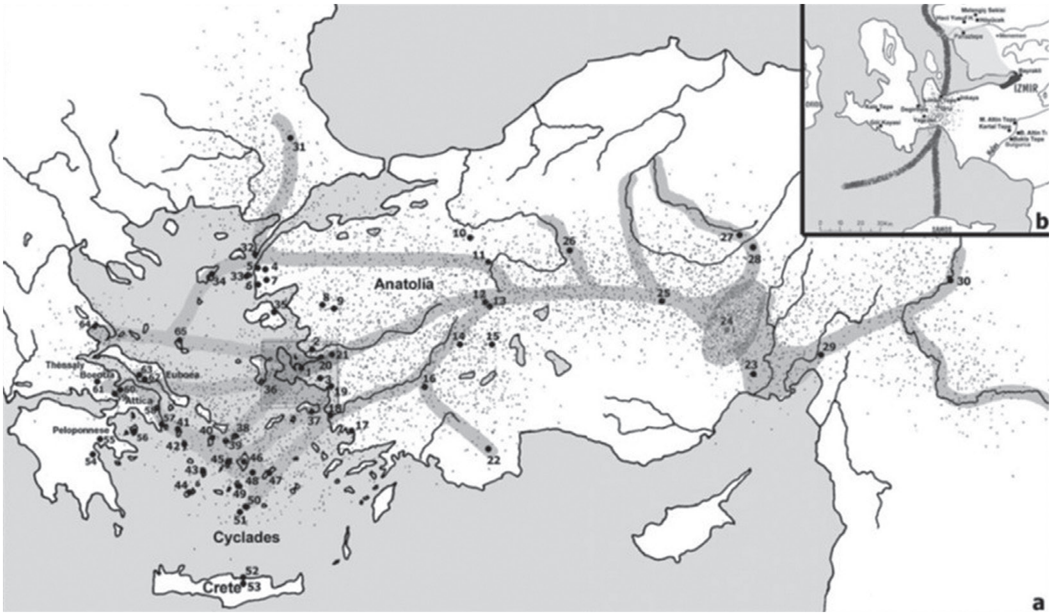
Generally, social change in both Cyprus and Anatolia has been examined through a migratory cultural-historical lens (Knapp, 2008, pp. 47-53, pp. 103-114, 2013, pp. 264-267; Kouka, 2009, p. 36; Bachhuber, 2014). The contacts between the two regions from ca.2700 to ca.2200 BC have often been studied from perspectives which consider the sharing of material culture elements as proof of migration, colonization, acculturation or hybridization (e.g. Knapp, 2013). In addition, Frankel and Webb have emphasized changes in the ways everyday tasks were carried out, arguing that populations moved to Cyprus along with their everyday practices, which can be traced in the archaeological record (Webb & Frankel, 2007).

2.3.1. Anatolia: The Anatolian Trade Network (ca. 2500-2000 BC)

The interactions between the regions of the eastern Mediterranean during the third millennium BC are evident in the archaeological record. At the end of EB II, a distinctive set of cultural features can be observed in several regions including the southeastern Anatolia, central and western Anatolia, the islands of the eastern Aegean, the Cyclades, and mainland Greece. These features signify a cultural change include large settlements with citadels, lower towns and fortifications, the first introduction of wheel-made pottery and the first appearance of novel pottery types like the tankard and the cut-away spouted jug, and the first examples of tin bronzes (Şahoğlu, 2005, p. 339).

Several theories have been put forward to describe these cultural features, including the “Caravan Trade Route” by Efe (2007). The most recent idea, which is quite similar to the “Caravan Trade Route”, and widely accepted is the ”Anatolian Trade Network” (ATN), suggested by Şahoğlu (2005; 2019), who states: that “*a sophisticated trade network was formed from Mesopotamia to Anatolia, extending to Cyprus (Philia culture), from coastal western Anatolia to the Cyclades (Kastri group) and to the Greek Mainland (Lefkandi I) and over Thrace into the Balkans*” (Şahoğlu, 2019, p. 115). Generally, it dates to ca. 2500-2200 BC (Şahoğlu, 2005, p. 344). Some of the regional centres were Kültepe, Alacahöyük, Acemhöyük, Karahöyük, Seyitömer, Küllüoba, Liman Tepe, Miletos and Troy (Şahoğlu 2019, pp. 115-116; Figure 11). The main economic focus of the ATN was the trade in metals, but also of other raw materials and products, such as ceramic vessels, resulting in exchange processes of not only finished goods, but also of technologies and ideas. Throughout Anatolia, a great metallurgical boom is observed, along with the imitation of metal vessels in pottery (skeumorphs). The exchange of copper, silver, tin, and several textiles is probable during the second half of the third millennium BC, and has been documented in the later Old Assyrian trade colonies archives from Kültepe (Barjamovic, 2011; Massa & Palmisano, 2018).

Figure 11: Map showing the extent of EB Anatolian Trade Network (after Şahoğlu 2005, pp. 342-3).



1-Liman Tepe	*12-Karaoğlan Mevkii*	*23-Tarsus-Gözlükule*	*34-Lemnos-Poliochni*	*45-Paros*	*56-Aegina*
2-Panaztepe	*13-Kaklık Mevkii*	*24-Kestel*	*35-Lesbos-Thermi*	*46-Naxos*	*57-Thorikos*
3-Bakla Tepe	*14-Beycesultan*	*25-Acemhöyük*	*36-Chios-Emborio*	*47-Amorgos*	*58-Raphina*
4-Troya	*15-Kusura*	*26-Polatlı*	*37-Samos-Heraion*	*48-Keros*	*59-Eutresis*
5-Kum Tepe	*16-Aphrodisias*	*27-Alişar*	*38-Mykonos*	*49-Ios*	*60-Thebes*
6-Beşik Tepe	*17-Iasos*	*28-Kültepe*	*39-Delos*	*50-Thera*	*61-Orchomenos*
7-Hanay Tepe	*18-Milet*	*29-Gedikli-Karahöyük*	*40-Syros*	*51-Christiana*	*62-Lefkandi*
8-Babaköy	*19-Efes*	*30-Titriş Höyük*	*41-Keos*	*52-Poros*	*63-Manika*
9-Yortan	*20-Bayraklı*	*31-Kanlıgeçit*	*42-Kythnos*	*53-Knossos*	*64-Pevkakia*
10-Demircihöyük	*21-Ulucak*	*32-Protesilas*	*43-Siphnos*	*54-Lerna*	*65-Skyros*
11-Küllüoba	*22-Karataş-Semayük*	*33-Imbroz-Yeni-bademli Höyük*	*44-Melos*	*55-Tiryns*	

The main artefact category which provides information on the ATN, besides metal, is pottery. Western Anatolia is in a key location for the ATN and all of the characteristic pottery types of this network are present there (Şahoğlu, 2019, pp. 122-123). The natural routes through central Anatolia would end up at harbor settlements in western Anatolia such as Liman Tepe, Troy, and Miletos. Moreover, the inhabitants of these coastal settlements would possess the skills necessary to navigate both maritime and land routes. This hypothesis is also suggested by the strong Anatolian influences in islands close to western Anatolia, like the Cyclades, but also in other areas such as Lefkandi I in mainland Greece (Broodbank, 2000; Kouka, 2000; Manning, 1995; Maran, 1998; Rutter, 1979; Sotirakopoulou, 1993; Wilson, 1999; Rambach, 2000). The decline of the ATN started from ca. 2200 BC, during the "4.2 ka BP event". While this climatic episode might not have affected the Anatolian communities directly, it definitely affected other regions involved in the ATN, such as the Aegean and Cyprus (Weiss, 2015; Crewe, 2023). Additionally, evidence of damage linked with collapse and re-organization occur at several sites in Anatolia, which can maybe be connected to this climatic event (Mass, 2014; Massa & Şahoğlu 2015).

2.3.2. History of Research: The Origins and Evolution of the Philia Debate

It has been argued that both insularity and connectivity are demonstrated throughout Cypriot prehistory. Cyprus, also because of its central location in the Eastern Mediterranean, has been frequently part of networks of mobility, interaction, and exchange (Knapp, 2013, p. 35). However, especially in Prehistory, Cyprus has been seen as culturally isolated, and as a "*particular regional entity from the outset*" (McCartney & Peltenburg 2000). By contrast, several researchers have argued that Cyprus was in constant – although sometimes irregular, contact with other areas. The most noteworthy evidence for this in Early Prehistory is the increase of imported obsidian in the Early Aceramic Neolithic (Clarke, 2003, p. 204; Moutsiou, 2018). Nevertheless, in the Later Aceramic Neolithic, contacts seem to decrease. Therefore, Cyprus is considered isolated until the mid-third millennium BC, when with the emergence of the Philia Phase, interactions with neighboring regions are clearly evident again in the form of novel pottery types, new agricultural practices and the development of metallurgy (Mellink, 1991, p. 167; Steel, 2004, p. 119; Bolger, 2013, p. 1).

Recently, this view has been challenged, since research indicates extra-insular interactions also in the Middle and Late Chalcolithic. Relevant evidence from the Middle Chalcolithic is scarce, consisting of small amounts of residual imported obsidian, and faience beads (Knapp, 2013, p. 206). In the Late Chalcolithic, imports include faience beads in Kissonerga-*Mosphilia*, and extra-insular contacts are suggested by aspects of pottery production, metal objects made of Anatolian ores, faience beads and annular pendants (Bolger, 2013; Peltenburg, 2018; Peltenburg *et al.*, 2019; Düring *et al.* 2021). A detailed overview of evidence of interaction between Cyprus and the mainlands from the Chalcolithic to the Philia Phase is provided in Chapter 7.

The nature and intensity of interactions between Cyprus and Anatolia in the third millennium BC has been the focal point of a long-standing debate among archaeologists. In general, the discussion concentrates on several innovations characterizing the Philia Phase (ca. 2400-2350/2250 BC), often attributed to the arrival of migrating populations from Anatolia (Webb & Frankel, 2007). The presence of migrant groups in Cyprus at the time has been widely argued, as researchers "*acknowledge that during the third millennium BC in Cyprus indigenous populations –whether eagerly, unwillingly, or inadvertently- shared their terrain with foreigners, and that the cultural changes that ensued profoundly reshaped the island's identity*" (Bolger, 2007, p. 167). Therefore, the emphasis is put on the nature of this transition and how migrant groups co-existed with local populations.

Initially, Myres (1914, pp. xxviii-xxix) suggested a migration event from the mainland, and Gjerstad (1926, pp. 299-302) agreed, highlighting similarities of Cypriot pottery with that of southwestern Anatolia. Subsequently, after several Neolithic and Chalcolithic excavations, and the excavation of the Bellapais-*Vounous B* cemetery, Dikaios argued for ceramic affinities between the Neolithic and the Chalcolithic and therefore "*the continuity of [indigenous] cultures*", while acknowledging a transitional period between the Chalcolithic and the Early Bronze Age (Dikaios, 1940, p.162, 167). Additionally, he noticed "anatolianising" vessel shapes, which according to him occurred because of close contact of the island with Anatolia (Dikaios, 1940, p. 168).

However, in the 1940s-1950s, Philia Phase assemblages were first excavated, and Dikaios changed his perspective, arguing that a peaceful migration of 'superior' Anatolian populations occurred replacing the 'inferior' Cypriot culture (Dikaios, 1962, p. 202). On the other hand, Stewart (1962, pp. 230, 241-242), after his excavation of Early Cypriot tombs at Bellapais-*Vounous A*, argued that the Philia pottery and metal actually reflect a regional variation. According to him the novel pottery characteristics, such as cut-away spouts on jugs, only has a 'generic resemblance' with Anatolian pottery (Stewart, 1962, pp. 274-275).

In the 1970s, Catling (1971, pp. 815, 819-20) suggested that refugees from EB II Anatolia where destruction took place, ended up in Cyprus and mingled with the indigenous people, bringing technological expertise with them. Studying Philia Phase pottery, Bolger (1983; 1991a) focused on Philia innovations such as flaring rims and flat bases, but noted that they don't occur in the same combinations as in Anatolian vessels, arguing for an introduction of Anatolian techniques. Peltenburg (1982) had also argued for the introduction of decorative practices like the white-filled incisions, from EB II Tarsus. Swiny (1986) argued for more innovations coming to the island from EB II southern Anatolia, and especially Tarsus, such as new types of pottery, gaming stones, rectilinear architecture, cattle, and spindle whorls. According to him these were the result of 'stimulus diffusion' and a probably "arrival of a few Cilician refuges" (Swiny, 1986, p. 40).

In the 1990s, discussions on social complexity influenced views on the Philia transition. Held credited the '*delayed'* occurrence of Bronze Age to 'cultural retardation' because of insularity, whereas Knapp and Manning saw internal sociocultural development and competition as the main factors (Held, 1989; Manning, 1993; Knapp, 1994). Knapp (1990; 1993; 1994) argued that the "Secondary Products Revolution package" and metallurgy were adopted by local populations on the island, while Manning (1993, p. 49) argued that Philia innovations like drinking sets associated with alcohol consumption, were first introduced by an 'existing emergent elite' in the north of the island due to their participation in the "Aegean-Anatolian-eastern Mediterranean world system". Peltenburg (1993, p. 20; 1994, p. 159; 1996, pp. 23-27) also attributed innovations to trade, along with influences from Anatolian migrants.

After excavating Marki-*Alonia*, Webb and Frankel (1999) reassessed all available Philia evidenced and suggested that it was a distinct cultural entity, with no strong continuity from the Late Chalcolithic, but an enculturation of the Chalcolithic culture by Anatolian migrants either from southwestern Anatolia or Cilicia, reflecting a "*focal migration of extended family groups into western [Northwestern] Cyprus from southwestern Anatolia*" (Webb and Frankel, 1999, p. 40). Since then, both Webb and Frankel have elaborated this idea, employing ethnicity and habitus (e.g., Frankel, 2000; 2005; Frankel and Webb, 2001; 2004; Webb, 2002b; Webb and Frankel, 2007; 2011; 2013a). More recently they have also argued for a well-organized colonization episode that introduced resources unavailable to Cyprus, focused on copper metallurgy and involved a '*transported landscape'* (Webb and Frankel, 2011, p. 30).

Therefore, a Philia migration became widely accepted, stimulating a debate on how these migrants interacted with the indigenous islanders. Knapp (2013, pp. 269-277), after discussing the Philia Phase novelties has suggested that these migrants could have come from anywhere in the Eastern Mediterranean, and the issue should be viewed within the framework of hybridization processes. Bolger (2007; 2013) and Peltenburg (2007; 2018) have argued that many of the Philia novelties already existed in the Late Chalcolithic. Kouka (2009) and Bachhuber (2014) have suggested small-scale movement of populations from Anatolia already the Late Chalcolithic. Additionally, Paraskeva has argued for the possibility of episodes of violence and adoption of technologies but not style, and emphasised the regionalism of the Late Chalcolithic which might have resulted in various regional responses to the arrival of migrants during the Philia (Paraskeva, 2015).

Recently, Muti (2022) highlighted the possible presence of spindle whorls and the potential for additional tools made from perishable materials during the Late Chalcolithic (LChal) period. Lastly, Laoutari (2023) studied pottery production, metal artefacts and mortuary practices across the island in the Prehistoric Bronze Age (ca. 2500-1750 BC) and has argued for various types of interactions within and outside the island, moving beyond the migration model.

2.3.3. Bridging the Gaps: The Anatolian Trade Network in Relation to the Philia Culture

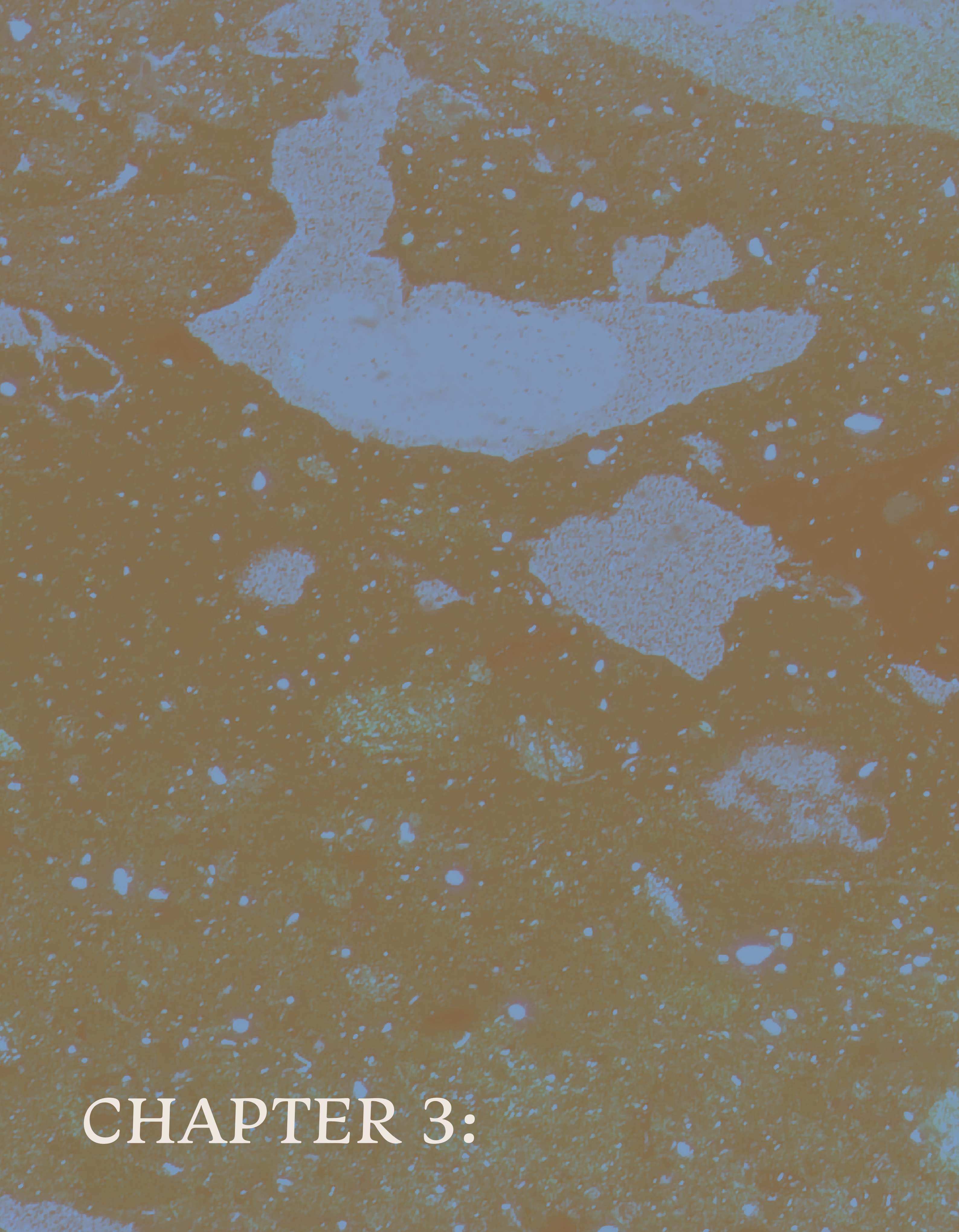
The Philia culture is in part contemporary to the Anatolian Trade Network (Şahoğlu, 2005; Webb *et al.,* 2006). According to Manning (2014, p. 24), "*the Philia transformation was a form of secondary or reactive development*" to the increased connectivity of the island within this exchange network. The mechanisms involved in this development must have been multiple and complicated. The Anatolian influences on the Philia material record seem to come from several areas within the extent of the Anatolian Trade Network (Manning, 2014, p. 24). This indicates multiple migration events, and "*rather contact stimulus, selected reception and emulation/hybridity from this wider zone"* (Manning, 2014, p. 24). These influences include annular pendants and pottery characteristics. Additionally, some scholars have argued that several of the Philia innovations seem to have closer connections to the Aegean or the Levant than to Anatolia (Kouka, 2009; Bolger, 2013; Keswani, 2004, p. 55).

How the Philia relates to the Anatolian Trade Network is a topic investigated by very few Anatolian prehistorians (Bachhuber, 2014, p. 139). Archaeologists working from the Anatolian perspective (predating Manning, 2013; 2014) had accepted the dates of around 2300 BC for the end of the Philia Phase. Hence, Cyprus would stop being part of the Anatolian Trade Network before its collapse. Following this line of thought, this supposed early exit of Cyprus from the exchange network has been cited as an explanation for the lack of characteristic pottery types, like the depas cups and tankards from the island (Bachhuber, 2014, p. 151; Şahoğlu, 2014). Nevertheless, other aspects of pottery production, like the surface treatment of the Red Philia Polished Ware, demonstrate clear Anatolian influences (Bachhuber, 2014, p. 143).

But why would population groups from Anatolia relocate to Cyprus? One explanation could be that the great development of agricultural, pastoral and metallurgical industries in Anatolia, led to demographic expansion and changes in the landscape, forcing some communities to relocate. Another scenario would be a relocation fuelled by the search for copper ores. However, this seems less likely since there is an abundance of copper ores within the Anatolian peninsula. In any case, the migrant groups would have maintained some social, ideological and exchange links with communities in Anatolia.

2.5. Concluding Summary

To conclude, this chapter has provided an overview of the archaeological record of the regions in question in the third millennium BC, except for pottery, which is presented in the following Chapter. Extensive research has been conducted on prehistoric Cyprus and Cilicia resulting in numerous publications. Particularly concerning the early third millennium BC, literature on both regions is abundant with regional peculiarities, varied periodization and chronologies, and numerous debates covering topics such as the Anatolian Trade Network's nature and the emergence of the Bronze Age in Cyprus. This chapter endeavoured to navigate through the vast and often conflicting literature on the archaeology of Cyprus and Anatolia, offering a summary of the present state of scholarship. This overview lays the foundation for understanding the archaeology of the regions in question and the current debates concerning their interactions, providing the research context for this thesis.



CHAPTER 3:

Pottery in Cyprus and Cilicia in the Third Millennium BC

Chapter 3 — Pottery in Cyprus and Cilicia in the Third Millennium BC

Pottery is an essential artefact category for this thesis, since it is the main indicator for interactions between Cyprus and Anatolia in the third millennium BC. In both regions, several developments in pottery technology, production and use occur in the third millennium BC, and some of these developments suggest increased contacts with neighbouring regions. These possible relations are the subject of ongoing debates among archaeologists. Although the earliest known imported vessel in Cyprus dates to Early to Middle Bronze Age contexts at the Vounous cemetery, scholars have proposed that the much earlier Cypriot red and black burnished wares of the Late Chalcolithic might also have been related to the coeval Red Black Burnished Ware of Anatolia and pottery from western Anatolia (Bolger, 2007; 2013; Peltenburg, 2007). Additionally, the Philia Red Polished Ware, the principal ware of the Philia, shows clear influences from Anatolian Early Bronze Age ceramics in shapes/morphology and technologies of production (Peltenburg, 2007; Webb & Frankel, 2007).

To move beyond the already investigated shapes and surface features of ceramics and how they compare, this thesis focuses on pottery production. Pottery from Cypriot sites is studied macroscopically and with archaeometric methods in order to identify possible technological similarities in raw materials, forming techniques, and surface treatments. A dataset from Anatolia is studied macroscopically, and all the above is paired with information from well-published pottery assemblages from Cilicia, and pottery from the Philia Phase in Cyprus. In this way interactions between ancient potters are reconstructed. First, an adequate understanding of pottery production and consumption in Cyprus and Cilicia in the third millennium BC is required. In this chapter, an overview of the pottery in the two regions is presented, followed by current debates and issues concerning the relations between them.

3.1. Pottery in Cyprus in the Third Millennium BC

3.1.1. Pottery Studies in Cyprus

In Cyprus, pottery is found in extremely large numbers at any site dating from the Ceramic Neolithic (ca. 5000-400/3900 BC) onwards (Steel, 2004, p. 63). Archaeological studies of prehistoric Cypriot pottery began in the early 20th century. In 1926, the first classification was published by the Swedish archaeologist Einar Gjerstad (1926), followed by the establishment of typologies and classifications of prehistoric pottery formed during the investigations conducted by the Swedish Cyprus Expedition. These were formed and published by the leaders of the expedition and Dikaios, and they were based mainly on assemblages from Sotira, Erimi and Khirokitia (Dikaios, 1962; Barlow *et al.,* 1991, p. 2).

Although in most areas of the eastern Mediterranean pottery wares were named after a time period (e.g. Late Minoan IA), the site of primary identification (e.g. Khirbet Kerak Ware) or their presumed users (e.g. Philistine), the majority of Cypriot wares are based on their physical attributes (e.g. Red-on-White Ware). Occasionally, the site of first identification is added, such as in the case of the Philia Red Polished Ware (Barlow *et al.,* 1991, p. 1). Although it has been argued that this is an adjustable system since it does not bind pottery geographically or chronologically, several problems have arisen over the years that concern both terminologies and chronology. For example, the establishment of solid chronological seriations is blocked by the lack of superimposed deposits and long-lived sequences (i.e. tell sites), the limited size of assemblages in terms of sherd number, and imbalances in the archaeological record (e.g. the Cypro-Geometric period is mostly known from funerary contexts) (Barlow *et al.,* 1991, p. 4).

Until the beginning of 1970s, issues concerning ancient ceramic technologies were not investigated much. In 1974 David Frankel published his PhD thesis on the spatial distribution of decorative patterns of the White Painted Ware, addressing the social dimensions of the production and distribution of this ware in the Middle Bronze Age (Frankel, 1974a). Subsequently, he studied whether regional differences could be reflected in clay composition using the method of optical emission spectroscopy for the first time on ancient Cypriot ceramics. In the 1980s, Richard Jones critically reviewed the applications of archaeological science to ancient Greek and Cypriot pottery and synthesized the results, in his book "Greek and Cypriot Pottery" (Jones, 1986). In the 1980s and 1990s, publications by several scholars focused on ceramic technologies (e.g. Bolger, 1988; Webb, 1994).

The first researcher to conduct analytical studies on the mineralogical characterization of ancient Cypriot pottery was Courtois (1970), who attempted to identify production centres based on whether clays were primarily igneous or sedimentary. The first substantial technological assessment of Middle Bronze Age pottery was conducted by Barlow, who examined whether ceramic fabrics could be used to reclassify Middle Cypriot Red Polished and White Painted and to define aspects of regional variations, using samples from Alambra-*Mouttes* (Barlow, 1985; 1991; 1994; 1996a; 1996b). Similar studies followed, like Knapp and Cherry's (1994) edited volume on provenience studies on Bronze Age Cyprus. Also, Hemsley (1992, after Dikomitou-Eliadou, 2012) studied pottery coming from the Middle Bronze Age cemeteries of Kalavassos-*Panayia* Church and Cinema Area for the hardness of fabrics. The first synthetic publication on pottery studies on Cyprus is that of the proceedings of "*Cypriot Ceramics: Reading the Prehistoric Record*" which included ethnological, theoretical, and analytical considerations (Barlow *et al.*, 1991). In this publication major concepts in the study of archaeological ceramics were applied to Cypriot material. From the late 1990s onwards, numerous publications of prehistoric sites included reports on the mineralogical and technological characteristics of pottery, such as Alambra-*Mouttes* (Barlow, 1996b), Sotira-*Kaminoudhia* (Vaughan, 2003), and Marki-*Alonia* (Dikomitou, 2007), and several researchers used ceramic thin section petrography and other archaeometric methods to study Cypriot pottery (e.g. Dikomitou-Eliadou, 2012; Graham, 2013). Additionally, Joanne Clarke has worked on Neolithic pottery and other artefacts, showcasing interaction within Cyprus (e.g. Clarke, 2003; 2010; Clarke & Goren 2015). Chalcolithic pottery, has mainly been macroscopically studied (see Bolger & Webb, 2013; Paraskeva, 2015; Hadjigavriel, 2021). Archaeometric studies have been limited, including mostly unpublished reports and student theses (e.g. Robertson, 1989), or brief studies in excavation reports (e.g. Bolger, 2019).

Ceramic thin section petrography studies have triggered a new wave in Cypriot archaeology. Nowadays, several archaeological projects in Cyprus employ analytical studies of ceramics, including a large range of chemical techniques such as neutron activation analysis, energy dispersive X-ray fluorescence, X-ray diffraction, and energy dispersive spectroscopy scanning electron microscopy, and optical microscopy for ceramic petrography (e.g. Gomez *et al.,* 1996; Bryan *et al.* 1997; Brodie, 1998; Stephen, 1998; Mantzourani & Liritzis, 2006; Tschegg *et al.*, 2008; Weisman, 1996; Xenophontos *et al.,* 2000; Vaughan, 2003; Dikomitou-Eliadou, 2007; 2012; Dikomitou-Eliadou *et al.*, 2013). These studies enlarge our understanding of ceramics, helping us understand formation processes, clay provenance and forming and firing technologies. However, traditional technological analysis (e.g. studies of the *chaîne opératoire*) remain important, since they provide a wealth of information. One of the limitations of archaeometric methods is that they cannot be employed on the totality of an assemblage since they are time consuming and costly. Therefore, the researcher needs to study the assemblage macroscopically first, in order to plan a successful sampling strategy. A mix of traditional and scientific methods of analysis results in the most adequate understanding of the material record, as it allows for both detail and effectiveness.

When it comes to ethnographic studies, the most substantial ethnographic studies of Cypriot potters have been done by London (2000; 2002; London & Father Dometios, 2015). Her work with traditional potters in villages like Agios Dhimitrios (Marathasa), Kaminaria and Konnos, has shed light on traditional pottery making on the island, many aspects of which are relevant for antiquity. For example, many of the potters she worked with produce pottery in the courtyards of their homes (London, 1989a; 1989b). This seems to be the case also in ancient Cyprus up until the Philia Phase and the Early Bronze Age, when pottery workshops are first attested in the archaeological record. Some examples of such specialized work spaces are in known from in Late Cypriot Athienou (Dothan & Ben-Tor, 1983), 14th century BC Sanidha (Todd *et al.*, 1991; Todd *et al.*, 1992), and Late Cypriot Morphou-*Toumba tou Skourou*, where deposits imply a production work space (Vermeule & Wolsky, 1990).

The pottery wares central for this research date to the Late Chalcolithic Period and the Philia Phase. The first classification of Chalcolithic pottery was published by Dikaios, after his excavations at Erimi-*Pamboula* in 1933-35. Wares were categorized according to fabric, finish, and shape (Dikaios, 1936, pp. 25-40). In the 1980s, Diane Bolger re-classified this material (Bolger, 1988). More publications of Chalcolithic assemblages followed by Jennifer Stewart, Diane Bolger and Jennifer Webb (Stewart, 1985, pp. 59-69; Bolger *et al.,* 1988, pp. 93-147; Webb *et al.,* 2009a). An up-to-date corpus of Cypriot pottery in the third millennium BC has been published by Diane Bolger and Jennifer Webb in the regional Associated Regional Chronologies for the Ancient Near East and the Eastern Mediterranean (ARCANE) volume on Cyprus, and Charalambos Paraskeva has re-evaluated Chalcolithic assemblages around the island for his PhD research (Bolger & Webb, 2013, pp. 39-127; Paraskeva, 2015; 2017).

Philia Phase pottery was also first identified by Porphyrios Dikaios. During excavations of burial contexts near the modern-day village of Philia in 1946, an assemblage of Early Bronze Age pottery was unearthed. Dikaios named it the “Philia Culture”, because he considered it to be older than the well-known Early Cypriot I pottery found at Vounous (Dikaios, 1962). By contrast, Stewart argued that this pottery was contemporary to the aforementioned Early Cypriot I assemblage (Stewart, 1962). The issue of contemporaneity – or not, of the Philia pottery with the Chalcolithic and the Early Bronze Age assemblages divided scholars for some decades. At first, Dikaios highlighted the innovative characteristics of the Philia Red Polished to claim that the local Cypriot Chalcolithic population groups were weakened when “*the Khirbet Kerak movement invades Cyprus” and that “little of the traditional culture survived*” (Dikaios, 1962, p. 202). Later, Hennessy suggested that Chalcolithic pottery elements developed into those of the Philia Phase, like the monochrome finishes (Hennessy, 1973, pp. 3-4). Currently, it is believed that the two pottery traditions overlapped, with local red burnished pottery evolving in the western part of the island during the Philia Phase, while in the north, unique pottery types were produced in one production centre and then distributed to the rest of the island (e.g., Stanley-Price, 1979, pp. 21-22; Karageorghis, 1982, p. 41; Knapp, 1990, p. 16; Bolger & Peltenburg, 2014, p. 187).

Since then, pottery ascribed to the Philia Phase has been found at several sites in the northern and central parts of the island, at Marki-*Alonia*, Sotira-*Kaminoudhia*, Kissonerga-*Skalia* and Kissonerga-*Mosphilia* Period 5. The best known corpus of Philia pottery is that of Marki-*Alonia*, published by Frankel and Webb (1996; 2006). Furthermore, Dikomitou-Eliadou has conducted macroscopic and petrographic analysis of Philia pottery from several sites for her PhD dissertation (Dikomitou-Eliadou, 2012). An overview of the pottery in the Philia Phase has been published in the Associated Regional Chronologies for the Ancient Near East and the Eastern Mediterranean (ARCANE) volume on Cyprus, by Bolger and Webb (2013).

3.1.2. Pottery in the Middle and Late Chalcolithic Periods (ca. 3600/3400-2400 BC)

Overall, it is believed that pottery in the Chalcolithic was made at the household level and a preference for local clays is observed, so fabric diversity "*cuts across shape or finish typologies*" (Peltenburg, 1991c, p. 10). All pottery is handmade, as wheel thrown pottery is attested in Cyprus only from the Late Bronze Age onwards. Eight major wares have been identified for this period by Bolger and Webb (2013): the Red on White Ware (RW), Red Monochrome Painted Ware (RMP), Dark Monochrome Ware (DM), Coarse Ware (CW), Spalled Ware (SW), Coarse Painted Wares (Monochrome and Patterned) (CPM and CPP), Red and Black Stroke-Burnished Ware (RB/B), and Red Monochrome Massive Ware (RMP massive) (Table 6).

The most popular shapes consist of platters, bowls, cups, goblets, trays, jars, flasks, bottles, lids, and barrels. Further, there are a few anthropomorphic and figurative vessels from funerary contexts (Bolger & Webb, 2013, pp. 41-44; Figure 12). More details on each ware are listed in Table 6. The construction of a cross-site typology of Chalcolithic pottery has been a challenging task, since the assemblages are characterised by regional variability, and various scholars have used different terms in their publications (Peltenburg, 1991c, p. 11; Bolger & Webb, 2013, p. 46).

The most popular pottery type in the Early and Middle Chalcolithic is the Red-on-White Ware (RW) (Figure 13). Its emergence can be traced back to the fifth millennium BC, that is the Cypriot Late Neolithic. Since then, it occurs in several styles and develops until the latter fourth millennium BC. During the Middle Chalcolithic, RW ceramics have medium hard fabrics, a buff to off-white slip, red to brown decoration in mainly geometric, linear and lattice motifs, and sometimes a light polish (Bolger and Webb 2013, 41). Compared to the Neolithic period, Chalcolithic RW vessels have more detailed decorative designs and occur in more diverse shapes (Bolger, 1991b, p. 170; Knapp, 2013, p. 195). Interestingly, incised and relief decoration are observed on zoomorphic and anthropomorphic vessels and the building model found in Kissonerga-*Mosphilia* (Bolger & Webb, 2013, p. 41). Additionally, RW pottery has been found in Tarsus-*Gözlükule*, in Cilicia (Goldman, 1956, p. 104, 112).

Table 6: : Overview of the main Chalcolithic wares (created by Maria Hadjigavriel after Bolger & Webb, 2013)

MAIN POTTERY WARES IN CHALCOLITHIC CYPRUS			
WARE	PERIOD	SHORT DESCRIPTION	VESSEL SHAPES
Red-on-White (RW)	MChal	Fabric: soft to medium hard; yellow to brown colours Surface: buff to off white slip with red painted decoration	Bowls; Spotted Bowls; Platters; Jars; Bottles; Lids; Anthropomorphic; Zoomorphic; Building Model
Red Monochrome Painted (RMP)	MChal	Fabric: soft to medium hard; yellow to brown colours Surface: red painted, sometimes unslipped	Bowls; Jars; Flasks; Platters; Barrels
Dark Monochrome (DM)	MChal	Fabric: soft Surface: painted brown	Small jar with relief knob; Lid
Coarse Ware (CW)	MChal LChal	Fabric: soft brown to black Surface: untreated or with a thin red wash on the exterior	Tray; Lid
Spalled Ware (SW)	LChal	Fabric: very hard, pinkish-buff with dark bluish-grey core Surface: often spalled, covered with dull red to grey or black slip, sometimes burnished or polished	Bowls; Jars; Flasks; Bottles;
Coarse Painted Ware (Monochrome) (CPW)	LChal	Fabric: medium hard, brown Surface: unslipped or self-slipped, covered with reddish-brown paint	Storage Jars
Coarse Painted Ware (Patterned) (CPW)	LChal	Fabric: dark brown medium hard Surface: thick cream-coloured slip and long thin cross-hatched strokes in reddish-brown paint	Storage Jars
Red and Black Stroke-Burnished Ware (RB/B)	LChal	Fabric: hard orange-pink to light red Surface: orange-pink to light red slip and highly burnished. Occasionally relief decoration	Bowls; Spouted Bowls; Jars; Spouted Jars; Flasks; Spouted Flasks; Platters; Cups
Red Monochrome Painted (Massive Ware (RMP massive)	LChal	Fabric: medium hard buff coloured Surface: similar to RMP, but lighter in colour and occasionally burnished on the exterior	Bowls; Spouted Bowls; Jars; Spouted Jars; Flasks; Barrel

Figure 12: Examples of popular vessel shapes in Chalcolithic Cyprus (created by Maria Hadjigavriel and Ermina Emmanouel after Bolger & Webb, 2013)

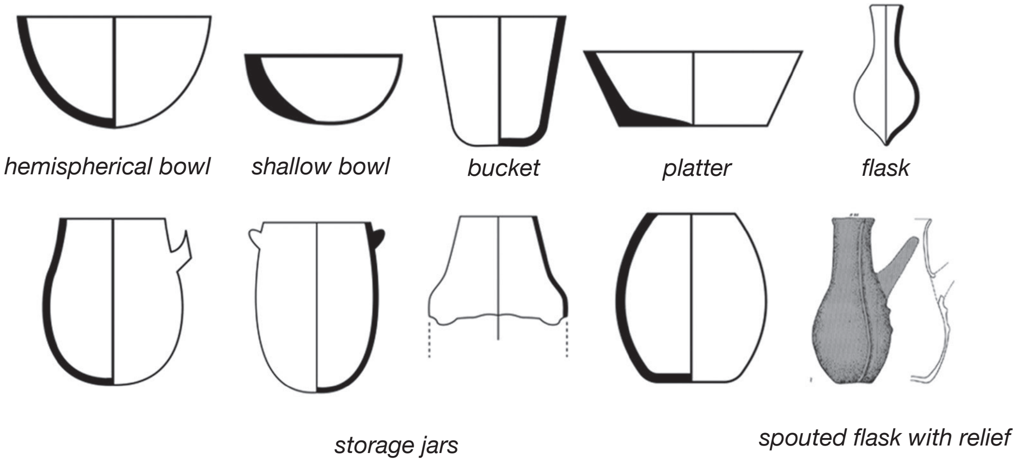
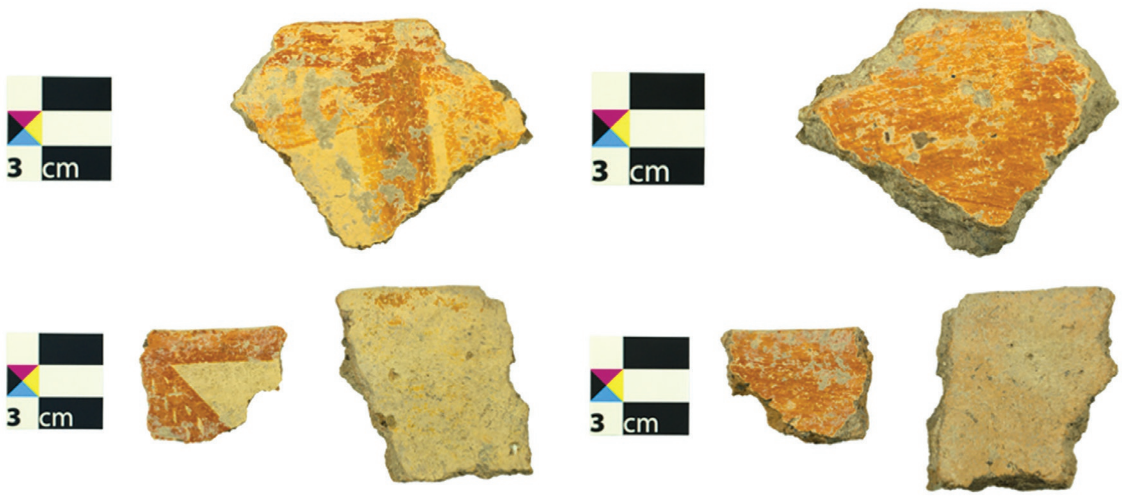


Figure 13: Red-on-White Ware sherds from Chlorakas-Palloures (photographs by Maria Hadjigavriel)



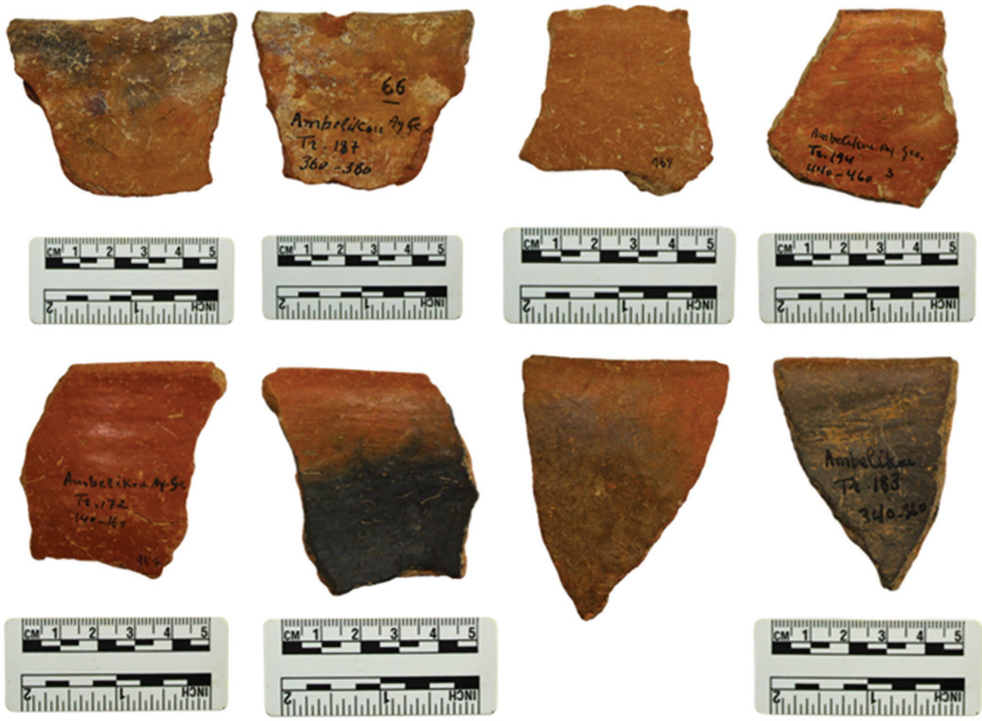
The RW remains predominant until the Late Chalcolithic, when it is replaced by red monochrome pottery wares. These have finer fabrics, thinner walls, and burnished surfaces (Bolger, 2013, p. 4; Bolger & Webb, 2013, p. 45; Bolger & Peltenburg, 2014, p. 188). Several additional changes in pottery production can be observed. When it comes to fabric composition, there is a shift from calcareous to non-calcareous clays; and the use of angular chert as temper in the western part of the island; a decrease of organic tempers; clays are more thoroughly levigated and the inclusions are more uniform, indicating an increasing standardization in paste preparation. Fabrics are harder and thinner. It appears that the vessels were fired in steadily raised temperatures of ca. 650-800 C°, in oxidising firing conditions. Cross sections indicate uniform homogeneous fabrics but often with an inner core with defuse or sharp margins, as expected in oxidising firing conditions. Surface treatment is also characterised by novel traits such as relief decoration, burnishing in – occasionally distinct, stokes, and blackened surfaces. Finally, there is an increased production of specific vessel shapes such as small bowls and platters (Wallace, 1995; Bolger, 2007, p. 174; Bolger & Webb, 2013, p. 45). Some novel shapes are introduced, like bowls with tab handles, jars, closed vessels with long narrow spouts for pouring, and one unique face pot from Lemba-*Lakkous* (Peltenburg, 1985, fig.62.5; Bolger & Peltenburg, 2014, p. 188).

In western Cyprus, the prevalent red monochrome ware is the Red and Black Stroke Burnished Ware (RB/B) (Figure 14). It is found in Late Chalcolithic contexts at Lemba-*Lakkous*, Kissonerga-*Mosphilia*, Chlorakas-*Palloures* and in small quantities at Makounta-*Voules* (Stewart, 1985; Bolger *et al.*, 1998; Hadjigavriel, 2019; 2021; Lisa Graham, personal communication). The fabric of RB/B is in shades of light red, orange or pink. The surfaces are of the same colours but highly burnished with often visible stroke marks, which occasionally lead to crazing – cracking of the burnished layer of the surface due to extreme burnishing. It occurs mainly in bowls, jars, flasks and bottles – which can have spouts, and platters (Steel, 2004, p. 113; Bolger & Webb, 2013, pp. 42-44; Hadjigavriel, 2019, p. 81-85). The production of this ware throughout the Late Chalcolithic is marked by an increased standardization in shape, vessel dimensions and fabric composition (Bolger & Webb, 2013, p. 45). Additionally, it has been suggested that this ware is indicative of experimentation with clays and slips, and maybe of a shift to a more specialised production than the household one (Wallace, 1995; Steel, 2004, p. 113).

Elsewhere in Cyprus, other variants of red monochrome burnished pottery are found. They are red and/or black burnished wares, made of local clays, with occasionally intentional reduction and relief decoration. For example, what Dikaios named Red Lustrous Ware (RL) and Black Red Lustrous Ware (RBL) have been found at several sites in the northern and central parts of the island such as Ambelikou-*Agios Georghios*, Philia-*Drakos B* and Kyra-*Alonia* (Dikaios, 1962, p. 111, p. 143, p. 154; Bolger, 2007, p. 173; Paraskeva, 2017; Figure 15). Also, similar types of pottery have been found at Politiko-*Kokkinorotsos*, labelled Fabrics A, B and D (Webb *et al.,* 2009a, p. 203). Bolger and Peltenburg have argued that all these wares belong to the same red monochrome burnished pottery tradition as the RB/B of western Cyprus (Peltenburg, 1991c; Bolger, 2007, p. 173; Bolger, 2013,p. 5; Bolger & Peltenburg, 2014, p. 188).

Figure 14: Red and Black Stroked-Burnished Ware sherd from Chlorakas-Palloures (photograph by Maria Hadjigavriel)

Figure 15: Red Lustrous Ware and Red Black Lustrous Ware from Ambelikou-Agios Georghios (photographs by Maria Hadjigavriel)



3.1.3. Pottery in the Philia Phase (ca. 2400-2350/2250 BC)

The Philia Phase is marked by the production of new types of pottery, mainly red monochrome, with apparent Anatolian influences in vessel shapes and surface treatment (Peltenburg, 1991c). Six major handmade wares have been identified for the Philia Phase: the Red Polished Philia Ware (RPP), Philia Red Slip Ware (PRS), White Painted (Philia) Ware (WPP), Coarse Ware (CW), Black Slip and Combed Ware (BSC), and Red Polished Coarse (Philia) Ware (RPCP) (Bolger & Webb, 2013, pp. 50-53). The most popular shapes consist of bowls (with or without spouts), jars (with or without spouts), jugs and juglets, bottles, storage vessels, cooking pots, and flasks. An overview of these wares and shapes is presented in Table 7.

Table 7: Overview of the main Philia Phase wares (created by Maria Hadjigavriel after Bolger & Webb, 2013)

MAIN POTTERY WARES IN THE PHILIA PHASE			
WARE	PERIOD	SHORT DESCRIPTION	VESSEL SHAPES
Red Polished Philia Ware (RPP)	Philia	Fabric: medium hard yellowish-brown with grey core Surface: red slip, highly polished. Occasionally incised decoration (sometimes filled with limestone), blackened surfaces and/or burnishing	Bowls; Spouted Bowls; Jars; Jugs; Spouted Jugs; Juglets; Flasks; Bottles; Pithoi; Baking Pans and Brazier; Composite/Cult vessels
Philia Red Slipped Ware (PRS)	Philia	Fabric: yellow-brown medium soft to medium hard Surface: matt to slightly lustrous flaking red slip. Occasionally visible burnishing strokes. Rarely incised decoration	Jugs; Juglets; Jars; Lamp; Dish; Bottles; Vat; Lids
White Painted (Philia) Ware (WPP)	Philia	Fabric: yellow-brown with thick dark core, medium soft to medium hard Surface: smoothed, often self-slipped, decorated with red to brow paint	Bowls; Spouted Bowls; Bowls with horned handles; Jugs; Lids; Composite/Cult vessels
Black Slip and Combed Ware (BSC)	Philia	Fabric: red-yellow-brown medium soft to medium hard Surface: Interior: often slipped, red-brown, matt or burnished Exterior: dark grey-brown-black decorated with parallel or criss-crossing red-brown bands	Jars
Red Polished Coarse (Philia) Ware (RPCP)	Philia	Fabric: brown with dark core, medium hard to hard Surface: red-brown with thin wash or matt or slightly lustrous slip and occasionally thick white coating	Jars; Pithoi; Cooking pots
Coarse Ware (CW)	Philia	Fabric: soft brown Surface: untreated	Used exclusively for an open-sided flat-based oval or circular “basin”

Figure 16: Cypriot Philia Period large jug with cut-away spout (https://ant.david-johnson.co.uk/catalogue/)

The most popular pottery type of the Philia Phase is the Philia Red Polished Ware (PRP), which has been found almost exclusively in the northern and central parts of Cyprus. Its fabrics are well-levigated, yellowish-brown in colour and medium hard, fine-textured, with thick grey cores and relatively thin walls. Surfaces are smoothed, red slipped and evenly polished. Occasionally, there is incised decoration filled with white limestone paste, black interiors and/or exteriors and irregular or band burnishing (Bolger & Webb, 2013, p. 60; Figure 16). The shapes repertoire is remarkably homogenous in all known Philia sites, and it was used mainly for serving and presentation vessels: mainly small jugs and bowls, juglets with flat bases, cut-away spouts and 'plugged' handles (Bolger & Webb, 2013, p. 60; Bolger & Peltenburg, 2014, pp. 189-190). Some of the most distinctive morphological shapes have been linked to alcohol consumption, just like it has also been argued for the RB/B thin bowls from the Pithos House in Kissonerga-*Mosphilia* (Manning, 1993; Webb & Frankel, 2013; Bolger & Peltenburg, 2014). It seems that it was manufactured in one area with production centres and from there, distributed to the rest of the island. "*Evidence suggests a cohesive community network that was gradually to be replaced by more regional forms of social interaction and commodity exchange and a technological profile of a ceramic tradition that was rooted either in the Ovgos Valley or in Lapithos, and continued to evolve technologically in the centuries to follow*" (Dikomitou-Eliadou & Zomeni 2017, p. 101).

Another red monochrome ware is the Philia Red Slip Ware (PRS), which is produced of coarser clays and occur in more rare vessel forms which, and in vessels that are, as Bolger and Webb (2013, p. 60) argued, "*loosely copy higher quality vessels or serve specific storage or industrial purposes*". By contrast, the Red Polished Coarse Philia Ware (RPCP) was used for storage vessels and cooking pots (Bolger & Webb, 2013, p. 60). The two remaining wares, the White Painted Philia Ware (WPP) and the Black Slip and Combed Ware (BSC) comprise 5% of the Philia Phase pottery at Marki-*Alonia*. Meanwhile, WPP is found in larger quantities in burial contexts at Marki-*Davari*, which indicated that maybe vessels of finer quality were preferred fine grave goods (Bolger & Webb, 2013, p. 61). In general, this ware occurs in a few shapes, such as bowls, open and closed vessels with flat bases; lids and pyxides (Stewart 1962, p. 359, Type IXAa fig. CLV.4). Vessels similar to the latter two have been found in Anatolia, the Cyclades (spool-shaped pyxides) and settlements in Early Minoan Crete (Stewart, 1962, pp. 189-194). The BSC is very rare in Philia sites, with small vessels being the most common shape type. Other shapes are one amphora found at Nicosia-*Ayia Paraskevi*, one pithos from Philia-*Vasiliko*, and a jug from Kyra-*Alonia* (Bolger & Webb, 2013, p. 61; Dikaios, 1962, p. 172 fig 83.9; ibid. 153, fig. 72).

3.2. Pottery in Cilicia in the Third Millennium BC

Archaeological research on Early Bronze Age in Anatolia is regionally fragmented with regionally specific sequences and scholars working on different areas using different terminologies and periodizations. Additionally, as Bachhuber (2008, pp. 2-4) and Massa (2016, pp. 29-30) noted, it is dominated by a culture-historical approach which centres on classificatory studies of material culture, most notably pottery. Indeed, the study and periodization of EB Anatolia has traditionally been based on pottery typology. This poses severe obstacles when one attempts to conduct a synthetic overview, since the EB is marked by several regional ceramic traditions which are difficult to correlate or cross-date (Yakar, 1985; Efe, 2006). Therefore, this section has drawn information mainly from the publications of sites in Cilicia (e.g. Goldman, 1956; Eslick, 2021; 2024) and some synthetic articles and volumes on Anatolian archaeology (e.g. Sagona & Zimansky, 2009; Düring, 2011; McMahon & Steadman, 2011; Fidan *et al.,* 2015; Ünlü, 2009; 2011; 2016; Steadman, 1994; 2011), providing an overview of pottery production in Cilicia, with an emphasis on the Tarsus-*Gözlükule* assemblage, which is also the most relevant site for this study.

3.2.1. Pottery in Tarsus-Gözlükule in the EB I and II

The start of the EB in Tarsus-*Gözlükule* is marked by the first appearance of the Red Gritty Ware and of the pitcher. Nevertheless, some continuation of the preceding Chalcolithic culture is evident in the presence of Chaff-Faced pottery traditions (Mellink, 1989, pp. 319-320; Ünlü, 2011, pp. 2-3). Importantly, the introduction of the potter's wheel in Tarsus happened in the Late Chalcolithic, therefore, some of the wares were made with the use of the potter's wheel, such as the Light Clay Ware (Mellink,1993, p. 499). In general, pottery production in EB Tarsus can be divided into two broad categories: handmade pottery and wheelmade pottery, even though most of the locally produced wares are still handmade. For the purposes of this study, emphasis is given to the handmade wares of EB I-II, which are made with the pinch and draw, coiling, and slab building techniques (Matson, 1956, p. 361). Some of the Chalcolithic wares, like the Chaff-Faced Painted Ware, continue well into the EB II, while chaff is used occasionally up until the Iron Age, indicating the continuation and persistence of local techniques (Goldman, 1956, p. 82).

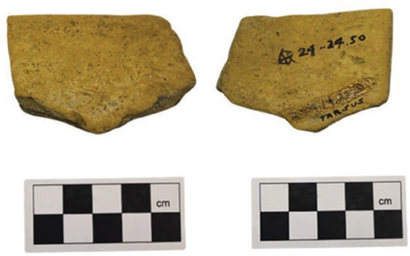
It should be noted that besides local pottery, some key imported wares have also been found at Tarsus-*Gözlükule*. For example, there is one Spiral Burnished Ware vessel which – according to Goldman, was imported from Syria. Most importantly though, two wares seem to be of Cypriot origin. The one is the Red-on-White Ware which Goldman calls Erimi ware, and the (Philia) Black Combed Slipped Ware, which Goldman calls Red and Black Streak-Burnished Ware (Goldman, 1956, pp. 112-113).

As far as pottery technology is concerned, Matson (1956, pp. 352-361), studied the pottery reference collection and produced a report on the potter's techniques in Tarsus from the Neolithic to the Middle Bronze Age. As he notes, one should keep in mind that this dataset is not necessarily representative of the overall assemblage, since it is too small for statical analysis and the selection of the sherds for export did not occur with variations of firing, texture, or colour distribution etc. (Matson, 1956, p.352). Ünlü's research added significantly to this, as it shed light on the production processes of the same assemblage (Ünlü, 2009).

3.2.1.1. The Chaff-Faced Wares

The Chaff-Faced Wares continue into the Bronze Age from the Chalcolithic. In EB I and II, the variety of the Light-Slipped Chaff-Faced Ware occurs. It is a handmade ware but it is often finished on the wheel, especially when making small bowls or jars. The fabric is buff, reddish, terracotta, or pink, and full of vegetable temper, mainly chaff. It low to medium fired. It is carefully slipped in orange, red or beige colours, with chaff-marks visible through the slip, and sometimes low-burnished. It occurs in a variety of bowls and jars. According to Goldman (1956, p. 105), at the beginning of EB II this ware represents 20% of the sherds recovered from the site, and it gradually disappears towards the end of the period. In addition to the standardized shapes of jars and bowls observed in EB I, there are also side-spouted pitchers featuring horizontal spouts, jars with small, finely crafted rims, and bowl rims delicately grooved (Goldman, 1956, pp. 82-83; Figure 17).

Figure 17: Light-Slipped Chaff-Faced Ware sherds from Tarsus-Gözlükule (photographs by Maria Hadjigavriel)



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sherd number: 2009.14.215

3.2.1.2. The Red Gritty Ware

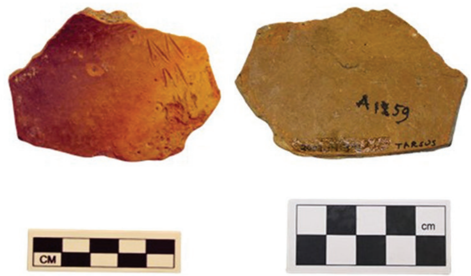
The most relevant ware for this study is the Red Gritty Ware and its variants, which correspods to Ünlü's petrographic fabric Local Fabric III (Ünlü, 2009, pp. 81-96). Along with Light Clay Ware and the Fine Spiral Banded Ware, they represent the most long-lasting pottery traditions at the site, spanning for the whole EB, continuing into the EB III when all other local fabrics disappear (Ünlü, 2011, p. 7). The Red Gritty Ware and its variants are all are handmade and comprise 60% of the total sherd count. It should be noted that Red Gritty Ware sherds were found in large quantities (45% of the count) also at Kinet Höyük (Eslick, 2021, p. 75). There, Eslick (2021, p. 78) notes that its closest parallel is the Ware 5 at Kedikli Karahöyük in the Ishlahiye Plain (Duru, 2010, pp. 136-137, 142-143).

The Red Gritty Ware is an utilitarian ware which occurs primarily in closed shapes like jars and pithoi (Ünlü, 2009, pp. 83-84). There are three varieties of the fabric: one with brick-red clay blended with sand and grits such as limestone; a similar clinky hard-fired fabric but with proportionately more sand than lime mixed with the clay, the colour varies from red to grey and all shades of brown; and a much finer fabric of an apricot-like colour. The surface is covered with a red to orange slipped and often burnished. It occurs in steep-walled cups with flaring sides, bowls, and pitchers with rising spouts (Goldman, 1956, p. 94-95, 97, 108-110; Figure 18). It occurs in several variations, outlined in the table below (Table 8).

According to Ünlü (2011, p. 7), the sudden occurrence of the Red Gritty Ware must signify an intrusive event in the potting traditions of Cilicia, also due to its novel manufacture techniques. Indeed, originally Goldman argued that this ware is related to the Stone Ware tradition of the Middle Euphrates region (Goldman, 1956, p. 97). Others have suggested that it originates from the Niğde-Konya area in south-central Anatolia (Mellink, 1989, p. 320; Mellaart, 1963, p. 232). Later on Mellink revised her views and proposed the Bolkarmaden zone in the Taurus Mountains as the origin of this ware instead, where it has been found at the EB II layers at Göltepe (Yener, 2021, pp. 80-81). In the same article she argued that the pitcher's origins and its distribution are closely related to a metallurgical tradition, which was initially developed in metal and then transferred into pottery (Mellink, 1993, p. 500). Additionally, it has also been argued that the Brittle Orange Ware from the İslahiye region and the Red Gritty Ware group are connected (Kühne, 1976, p. 56). However, there is a critical chronological problem in assigning the origin of the Red Gritty Ware to the Brittle Orange Ware, since the Red Gritty Ware occurs before the Brittle Orange Ware (Alkım, 1966, p. 43; 1967, p. 8; Braidwood & Braidwood, 1960, p. 351). The Red Gritty Ware has also been retrieved at Kinet Höyük and Mersin-Yumuktepe (Caneva *et al.*, in Novák *et al.*, 2017, p. 159; Eslick *et al.*, in Novák *et al.*, 2017, p. 178). More on this ware and its possible origin is presented later in this thesis (Chapter 7).

Figure 18: Red Gritty Ware sherds from Tarsus-Gözlükule (photographs by Maria Hadjigavriel)

sherd number: 2009.14.433



sherd number: 2009.14.391

sherd number: 2009.14.620

sherd number: 2009.14.655

Table 8 Overview of the Red Gritty Ware variations in EB I and II (created by Maria Hadjigavriel after Goldman, 1956)

RED GRITTY WARE VARIATIONS IN EB I AND II			
WARE	PERIOD	SHORT DESCRIPTION	VESSEL SHAPES
Red Gritty Ware *or* Sandy Ware *or* Plain and Burnished Red Gritty Ware	EB I-II	Fabric: three varieties ‣ brick-red clay mixed with sand and larger grits of which much is limestone. ‣ hard-fired but with proportionately more sand than lime mixed with the clay. It is clinky when struck. The firing sometimes turns the colour from red to grey and all shades of brown, usually, though not always, with a surviving tinge of red. ‣ much finer and has a more apricot colour. Surface treatment: red to orange slip, burnished. When its painted, there are stripes in white and dark, sometimes purplish red paint.	‣ Steep-walled cups with flaring sides ‣ Bowls ‣ Pitchers with rising spouts
Red Gritty Pithos Ware	EB I-II	Fabric: thicker variety of the Red Gritty Ware's fabric Surface: slipped with a slightly different shade of red, often pitted. In EB II a contrasting slip is now used in addition to red, usually confined to the rim and consists of simple incised angular patterns and punched circles.	‣ Storage jars ‣ Pithoi
Painted Red Gritty Ware	EB I	Fabric: same as Red Gritty Ware Surface treatment: same as Red Gritty Ware. Decoration: stripes in white and dark, sometimes purplish red paint.	Pitchers with rising spout
Red Gritty "Cross-Stich" Incised Ware	EB II	Fabric: brick-red or orange, well-levigated, no obvious lime inclusions, but stone sand and glittering particles as temper. Surface treatment: red-slipped exterior, untreated interior. Decoration: horizontal patterns of wavy lines, zigzags, cross-hatched zones, cross-hatched lozenges, and other variants.	Jars
Red Gritty Corrugated Ware	EB II	It seems to be a local imitation of the fine light clay ware of Syrian affiliation, for unlike the bulk of the red gritty sherds, these are wheelmade.	Bowls; Jars; Flasks; Bottles;
Red Gritty Combed Ware	EB II	Fabric: as a coarser and more irregular variety of the corrugated ware. Surface treatment: combed and incised surface	‣ Jars ‣ Bowls
Fine Red Gritty Ware with Incised and Plastic Ornament	EB II	Fabric: finer hard-fired gritty variety and often more pink than red in colour. Surface treatment and decoration: incision, rouletting and delicate plastic cord patterns.	‣ Jars ‣ Pitchers with rising spouts
Red Gritty Chevron Incised Ware	EB II	Fabric: same as Red Gritty Ware but with finer temper and occasionally light pink in colour. Surface treatment: tournette finished or wheelmade and smoothed on the inside. The outside surface and the interior of the neck is covered with a medium burnished slip varying in colour from dark brown or black to a bright orange or apricot shade. Decoration: chevrons.	‣ Jars ‣ Pitchers with rising spout

3.2.1.3. The Red or Black Burnished Wares

A variety of wares which are red and or black burnished, plain or with (white-filled) incised decoration occur in EBI-II in Cilicia. These are all handmade and occur in bowls, jars, cups and pitchers. The Plain Black Burnished Ware and the Black Burnished White-Filled Incised Ware have grey fabric, uniform in cross section with organic temper. They are black/grey burnished but unslipped, and sometimes brown, red or buff due to firing errors. The incised variation is decorated with incised white-filled vertical bands of chevrons interspersed with lozenges. In EB II, the decoration is mainly geometric. On the other hand, the Plain Red Burnished Ware and the Red Burnished Incised Ware have reddish-brown to buff fabric and are red slipped and highly burnished. When they are incised, the motifs are chevrons, bands of short dashes between enclosing lines, dotted bands, and lozenge motifs (Goldman, 1956, pp. 95-96, 108, 110, 112; Table 9; Figures 19 and 20). Similar pottery types have also been retrieved at Kinet Höyük (Eslick *et al.*, in Novák *et al.*, 2017, p. 178).

Figure 19: Plain Black Burnished Ware (above) and Black Burnished White-Filled Incised Ware sherds from Tarsus-Gözlükule (photographs by Maria Hadjigavriel)

Figure 20: Plain Red Burnished Ware (above) and Red Burnished Incised Ware sherds from Tarsus-Gözlükule (photographs by Maria Hadjigavriel)

sherd number: 2009.14.403

sherd number: 2009.14.387

sherd number: 2009.14.402

sherd number: 2009.14.390

Table 9: Overview of Red and Black Burnished Wares in EB I and II (created by Maria Hadjigavriel after Goldman, 1956)

RED OR BLACK BURNISHED WARES IN EBA I AND II			
WARE	PERIOD	SHORT DESCRIPTION	VESSEL SHAPES
Plain Black Burnished Ware	EB I-II	Fabric: grey to black, uniform in cross section, temper consists of grits, lime, mica, and organic. Surface treatment: burnished, unslipped. When the firing is not correct, brown, red, and buff in colour.	‣ Handle-less bowls ‣ Bowls with horizontal handles ‣ Steep-walled cups ‣ Jars
Black Burnished White-Filled Incised Ware	EB I	Fabric: the same as Plain Black Burnished Ware. Surface treatment: same as Plain Black Burnished Ware. In EB II, usually unslipped and burnished either to a highly lustrous or to a medium finish. Decoration: incised white-filled decoration of vertical bands of chevrons interspersed with lozenges. In EB II, mainly geometric.	‣ Steep-walled cups ‣ Bowls (in EB II)
Plain Red Burnished Ware	EB I	Fabric: reddish-brown to buff, temper consists of grits, lime, sand, chaff and shell. Surface treatment: red slipped and highly burnished	‣ Bowls ‣ Jars ‣ Cups ‣ Pitchers (one maybe from Cyprus)
Red Burnished Incised Ware	EB I-II	Fabric: same as Plain Red Burnished Ware but thick, heavy and more uniform, with moderate amounts of mica and grits. Surface treatment: slipped and highly lustrous and the bases are unslipped. There seems to be use of white filling but it is not consistent. Decoration: incised motifs: chevrons, bands of short dashes between enclosing lines, dotted bands, and lozenge motifs.	‣ Open bowls ‣ Steep-walled cups ‣ Pitches

3.2.1.4. Cooking Pots

Cooking pots in EB I-II Tarsus-*Gözlükule* are all handmade. First, there's the Hard Gritty Cooking Pot Ware, which has a reddish-brown fabric with grits, shell, lime, sand, chaff and mica, and the surfaces are brown, dull, slipped or smoothed. On the other hand there's the Soft Gritty Cooking Pot Ware which is also reddish-brown but it is not well-fired; it crumbles easily, and it is mostly slipped, occasionally burnished. They occur in jars, pans, pitchers, casseroles, cups and goblets. Lastly, the Light-Slipped Cooking Pot Ware occurs only in EB I and is similar to the Soft Gritty Cooking Pot Ware (Goldman, 1956, pp. 96-97, 110; Figure 21).

Figure 21: Cooking Pot sherds from Tarsus-Gözlükule (photographs by Maria Hadjigavriel)

sherd number: 2009.14.518

sherd number: 2009.14.322

sherd number: 2009.14.517

sherd number: 2009.14.514

3.2.1.5. The Light Clay Ware & the Fine Spiral Banded Ware

The Light Clay Wares and the Fine Spiral Banded Ware are wheelmade and low fired, without overall smooth glass formation. Therefore, vessel bodies are relatively porous. They are both wheelmade and together they comprise 30% of the total sherd count from Tarsus-*Gözlükule* (Ünlü, 2009, p. 65; 2011, p. 7). The surface of the Fine Spiral Banded Ware is wet-smoothed with a pared spiral band, created by removing the surface with a tool such as a brush, with the spiral beginning at the centre of the base. According to Goldman, this ware a transitional one between the chaff-faced varieties of the Chalcolithic and the Light Clay Bowls of the EBA II (Goldman, 1956, pp. 93-94). They occur mainly in open vessels such as bowls and goblets, and some jars and jugs in EBA II (Goldman, 1956, p. 106). Interestingly, the shapes and surface of bowls and goblets show strong affinities with the north Syrian/Amuq Simple Ware tradition (Ünlü, 2009, p. 66; Goldman, 1956, p. 107). This changes only in EB III, when tankards, depata and other standard western Anatolian shapes are being produced in these wares (Ünlü, 2009, pp. 66-67; 2011, p. 7).

The Light Clay Wares occur primarily in EBA II, and include Light Clay Bowls, the Light Clay Corrugated Ware, the Light Clay Reserve Slip Ware and the Light Clay Miniature Lug Ware (Table 10; Figure 22). To start with, the Light Clay Bowls are wheelmade and distinctive when it comes to surface treatment and shape. They date exclusively to EBA II and are a popular and standard ware. In terms of fabric, the clay colour varies from buff-yellow to pink and orange, with almost no visible temper. When visible, inclusions consist of sand, some organic matter, grits. They are self-slipped or slipped, in reddish colours. These bowls are usually plain hemispherical bowls, although a noteworthy variation is the bowls with two suspension holes and with rim pressed to shape a spout. Both are standard shapes manufactured in substantial amounts`(Goldman, 1956, pp. 105-106). Jugs with rising spouts, multiple pots and two-handled jars are also produced in the same fabric. Another type, the Light Clay Reserve Slip Ware also has similar fabric, but the slip is applied horizontally and regular bands are generated, by wiping or by removing it with a comb or brush-like tool to give a striped effect, particularly in the neck and shoulders of pitchers. The lower section of the pot is always plain slipped (Goldman, 1956, p. 107).

Alternatively, the Light Clay Miniature Lug Ware is distinguished by the fact that it occurs in small, and sometimes unpierced lugs which don't seem to have any practical use. The fabric is similar to the other varieties of Light Clay Wares, but the surface treatment is different: vessels are either burnished and decorated with purplish-red paint or covered with a thin purplish slip. It occurs in handle-less or two-handled jars with cylindrical neck, pitchers with rising spout, and some form of side-spouted vessel (Goldman, 1956, p. 107). Finally, the Light Clay Corrugated Ware has a very distinct fabric in buff, grey or pink colours with green ting and with sand, shell and fine grits used as temper. It is well fired, thin, and it occurs only in wheelmade jars and goblets (Goldman, 1956, p. 107).

Figure 22: Light Clay Wares sherds from Tarsus-Gözlükule (photographs by Maria Hadjigavriel)

sherd number: 2009.14.372

sherd number: 2009.14.373

sherd number: 2009.14.412

sherd number: 2009.14.413

Table 10: Overview of the Light Clay Wares in EB I and II (created by Maria Hadjigavriel after Goldman, 1956)

LIGHT CLAY WARE VARIATIONS IN EB I AND II			
WARE	PERIOD	SHORT DESCRIPTION	VESSEL SHAPES
Intermediate Light Ware	EB I	Fabric: same as Light-Slipped Chaff-Faced Ware Surface treatment: similar to other Chaff-Faced Wares but with unusual decoration which resembles that of painted Syrian Bottles.	
Light Clay Bowls	EB I-II	Fabric: clay varies from from buff-yellow to pink and orange. At the beginning little and only fine temper is observed, probably fine sand. Later on, more sand, some organic matter, grits and lime are observable. Surface: wheel-marks in the slipped interior surface. The exterior is roughly smoothed with markings of scraping and paring. The slip may be a self-slip or a lighter slip applied to more reddish clay. *Other shapes* Fabric: similar to bowls. Surface treatment: the interior surface is the same as the bowls. The exterior is slipped, on reddish ware this is often a self-slip, but cream and white slips also occur. Decoration: incised strokes and punches, usually on the handles, inside rim or shoulder of pitchers.	‣ Plain hemispherical bowl ‣ Jars ‣ Jugs
Light Clay Corrugated Ware	EB II	Fabric: clay mainly green, but also grey, buff or pink, well levigated and sand, shell and fine grits as temper. Well-fired, hard and clinky.	‣ Jars ‣ Goblets
Light Clay Reserve Slip Ware	EB II	Fabric: same as Light Clay Bowls. Surface treatment: slip horizontally applied and then regular bands are produced. Lower part of the vessel always plain slipped.	‣ Jars ‣ Pitchers
Light Clay Miniature Lug Ware	EB II	Fabric: same as Light Clay Bowls, but thinner, with more sand temper and the clay is redder. Well-fired. Surface treatment: medium burnish and a painted decoration in purplish-red paint, or only a thin purplish slip. A darker glossy red paint occurs usually on a somewhat harder fabric; the execution is careless. Decoration: simple rim bands, rippling or wavy vertical lines, and an occasional amorphous vaguely quadruped design.	‣ Jars ‣ Pitchers with rising spout ‣ Some form of side-spouted vessel

3.3. Bridging the Gaps: Connections between Cypriot and Anatolian Pottery in the third Millennium BC

3.3.1. Investigating Interactions within and outside Cyprus in the Third Millennium BC

The ways the culture of islands and the interactions between islanders and other regions have been studied are vital for the understanding how archaeologists have dealt with prehistoric societies on Cyprus and contacts in the third millennium BC. As discussed in Chapter 2, for Cyprus in the third millennium BC, traditional approaches explain contacts with the mainland in terms of migration, colonization, and more recently, hybridization (e.g. Dikaios, 1962; Webb & Frankel, 2007; Kouka, 2009; Knapp, 2013). Conventionally, Cyprus is considered to have been relatively isolated in later Prehistory, with some periods of intense contact with the neighboring regions, namely during the Aceramic Neolithic and the Bronze Age. Other periods, with sparse indications of foreign contacts, have been interpreted as times of seclusion and cultural isolation. However, several scholars have argued that the apparent scarcity of interaction with the mainlands from ca. the seventh to the third millennia BC does not in fact indicate isolation but rather a choice to not incorporate or import foreign material culture elements (Clarke, 2003, p. 212-215; Broodbank, 2000, p. 20; Rainbird, 2007, p. 86; Bolger, 2013).

In the last decades, more and more evidence for extra-insular interactions in the Chalcolithic has accumulated: faience beads at Middle Chalcolithic burials at Souskiou-*Laona* and Souskiou-*Vathyrkakas*, and chlorite and faience found at Kissonerga-*Mosphilia* (Todd & Croft, 2004, p. 219; Peltenburg, 1991a, p. 109; Knapp 2013, 206). Imports found in Late Chalcolithic contexts include faience beads at Kissonerga-*Mosphilia*, and a copper axe at Chlorakas-*Palloures* and other metal objects from Kissonerga-Mosphilia and the Souskiou cemeteries (Peltenburg, 1998, pp. 193-194; 2003, pp. 93-95; Düring *et al.*, 2021; Kassianidou & Charalampous, 2019, pp. 285-286). Additionally, as stated before, arguments have been made that pottery technologies during the Late Chalcolithic could indicate extra-insular contacts (e.g. Bolger, 2007; 2013; Peltenburg, 2007; 2018). This topic is further elaborated in Chapter 6.

So far, theoretical frameworks on how interactions between communities occur and how these can be traced in the archaeological record, especially via pottery technology, have been discussed. However, how can we apply these to the study of Cyprus in the (early) third millennium? Dikomitou-Eliadou (2012, p. 68) has stated that "*In the study of the Cypriot Early and Middle Bronze Age, pottery is the only artefact type which is found in abundance in every contemporary site, providing the basis for inter-site comparisons and the development of broader island-wide arguments*". It is also essential that Cyprus is not treated as a single entity in Prehistory, since different traits can be seen in different regions (Peltenburg, 2013, p. 4). This is also the case in the Late Chalcolithic and the Philia Phase. However, the degrees and gradients of contact between the island's communities in Late Chalcolithic Cyprus require further investigation. Pottery technology is ideal to reconstruct the diverse relationships and developments of various regions (Frankel, 2009, p. 23). In order to investigate inter-insular interactions in the Chalcolithic, building upon the approaches presented above, a comparative study of pottery technology during the Late Chalcolithic is conducted.

3.3.2. Investigating Connections between Cypriot and Anatolian Pottery in the Third Millennium BC

As mentioned at the beginning of this chapter, the possible similarities between pottery in Cyprus and Anatolia in the third millennium BC have sparked a vivid debate among scholars. To begin with, the replacement of the Red-on-White Ware with red monochrome burnished wares in the Late Chalcolithic has been interpreted as the result of increased contacts with Anatolia and the Levant. Several archaeologists have suggested that these new developments in pottery technology on Cyprus were triggered by contacts with the nearby mainlands, especially Anatolia (Peltenburg, 1998, pp. 256-258; 2007, pp. 146-149; Bolger, 2007, pp. 164; Bolger *et al.*, 2014). According to Peltenburg, certain attributes of the Late Chalcolithic monochrome burnished wares found at Lemba-*Lakkous* and Kissonerga-*Mosphilia*, such as the red and black highly burnished surfaces, relief decoration and the emergence of spouted pouring pots, can be seen as the result of cognisance and emulation of pottery traditions of western Anatolia. Peltenburg claimed that parallels of these pottery characteristics can be seen at sites in the Aegean and western Anatolia, such as Thermi, Karataş, Aphrodisias, Demircihöyük, Beycesultan XVI and Troy II a-d (Peltenburg, 2007, pp. 146-149).

Bolger and Peltenburg have further suggested that the RB/B could be influenced by the Red Black Burnished Ware (hereafter RBBW) of the Kura-Araxes cultural horizon and the Khirbet Kerak Ware (hereafter KKW), its variant in the Levant, indicating extra-insular communication already during the Late Chalcolithic (Peltenburg, 2007, p. 154; Bolger, 2013, p. 5; Bolger & Webb, 2013, p. 46). Bolger has argued for a possible connection of these traditions with the RBBW of the Kura-Araxes cultural horizon, which extends from the Caucasus to Anatolia and the Levant. The basis for this argument is that the highly burnished red and/or black surface and relief decoration, which are the main diagnostic traits of RBBW, have not been attested on Cyprus before the Late Chalcolithic (Bolger, 2013, p. 4). The Kura-Araxes pottery comprises of numerous red and black burnished pottery traditions with shared characteristics of both technology and appearance (Wilkinson, 2014, p. 205; Figure 23). Even though one could claim that the red and/or black burnished pottery traditions from Chalcolithic Cyprus differ noticeably from this Kura-Araxes pottery tradition, there are some similarities in vessel shapes, forming techniques and surface treatment (Peltenburg, 2007, p. 154; Bolger, 2013, p. 5; Bolger & Webb, 2013, p. 46; Hadjigavriel, 2019, pp. 106-109). So far, the only existing comparative study of RBBW to the Cypriot assemblages is the one I conducted for my master's thesis (Hadjigavriel, 2019). Although the results were encouraging and the similarities between the two pottery traditions were verified and established, due to the small amount of the sample of Anatolian pottery (136 sherds from Tepecik, stored at Istanbul University), further research is required to establish whether the pottery traditions are actually related.

Figure 23: Examples of RBBW from Tepecik, eastern Anatolia (photographs by Maria Hadjigavriel)

On the other hand, the pottery from the Philia Phase can be more profoundly correlated with Anatolian pottery wares. The first to argued for “Anatolianising” traits of the Philia culture was Dikaios, who based his argument on the beak-spouted and handled pitcher vessel forms of PRP (Dikaios, 1961, pp. 13-15). For Dikaios, these traits suggested migration of Anatolian populations on the island, an interpretation which was drawing upon Mellaart’s argument for Indo-European invasions across Anatolia. Similar migration scenarios are present in more recent literature as well (Kouka, 2009, p. 36). By contrast, other scholars have interpreted the Philia phenomenon as the result of local developments and of stimulus diffusion (e.g. Knapp, 1990; Manning, 1993). The Philia Red Polished Ware (PRP) has been central to this debate, since it might have represented novel drinking behaviour connected to the production and consumption of alcohol (Manning, 1993, p. 45; Webb & Frankel, 2013, pp. 62, 70). As Bachhuber argued “alcohol consumption has been interpreted as one way for groups to consolidate and convert agricultural resources into a kind of social capital in contexts of hospitality and conviviality, something purportedly learned through contact with Anatolian communities” (Bachhuber, 2014, p. 143). The Philia pitchers were central to this discussion, although, as Mellink noted, they are not exact duplicates of known Anatolian ones. Variations between Cypriot and Anatolian forms, however, are comparable to variations between examples from different EB I–II sites and regions across Anatolia (Mellink, 1991, p. 73).

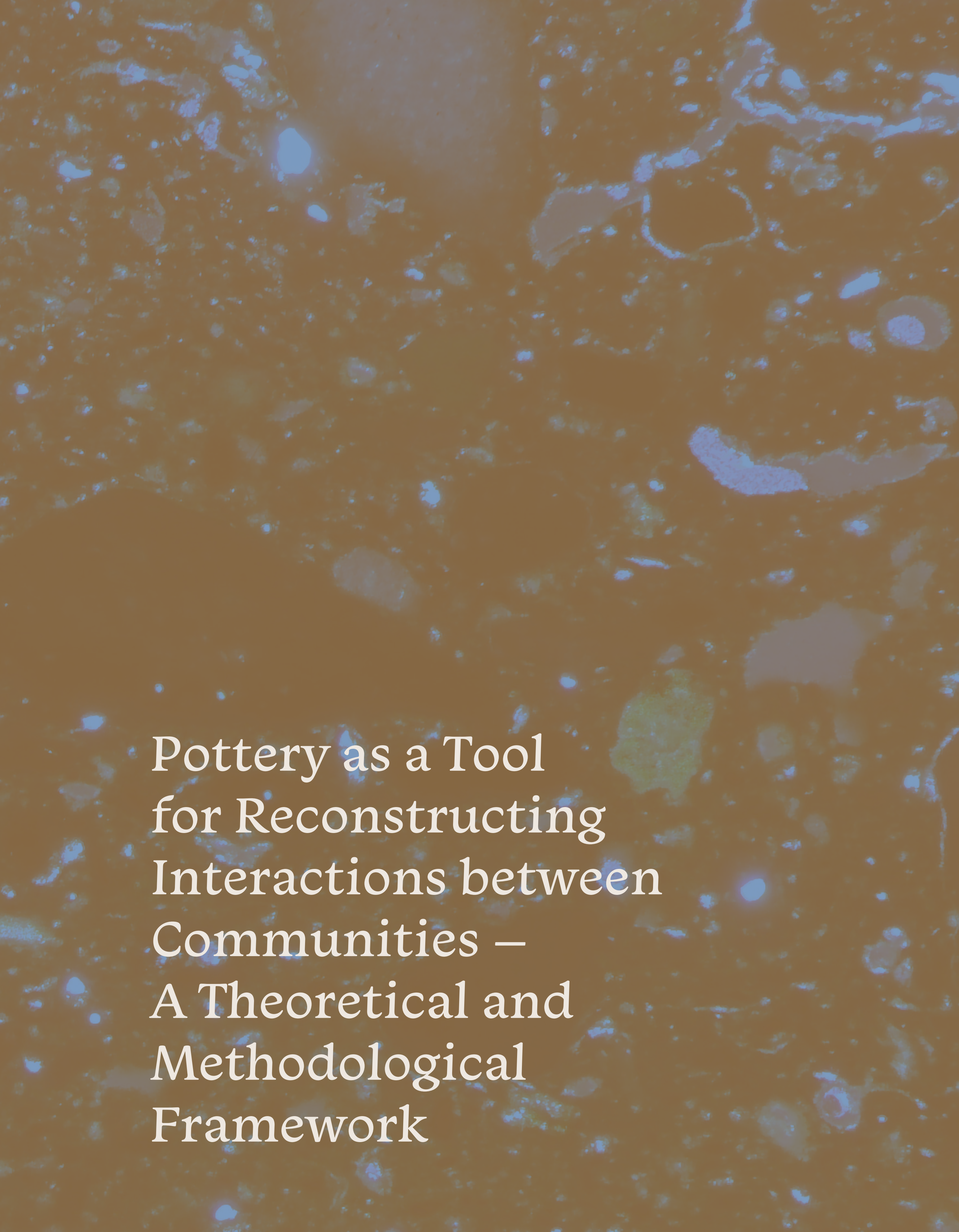
The high burnishing, polishing and firing which characterize Philia pottery have been taking place in Anatolian pottery production already since the Late Neolithic/Early Chalcolithic (Bachhuber, 2014, p. 143). In EB I and II, pottery production is characterized by several novelties such as increased experimentation with vessel forms and plastic decoration, attempts to recreate metallic shapes and surfaces, paying great attention to the presentation of vessels for pouring liquids (Lloyd & Mellaart, 1962, p. 117; Bachhuber, 2014, pp. 143-144).

In other words, the elaborate vessel shapes – especially the ones linked to alcohol consumption, the red and black monochrome slipped and burnished surfaces, and the relief and incised decoration were interpreted as "*Anatolianising*" features that were brought to the island by migrants from Anatolia. However, as seen above, several of these traits were already present in the Late Chalcolithic, therefore challenging views that see migration as the only way of transfer of pottery technology (e.g. Frankel, 2000; Webb & Frankel, 2007, pp. 200-201; for an overview of this debate see Chapter 2). Moreover, the excavations at Marki-*Alonia* have showed that there is no apparent distinction between potentially elite activities of Philia pottery use (e.g. a mortuary event) and non-elite ones, despite the fact that mortuary contexts are marked by an emphasis on alcohol consumption rather than eating (Webb & Frankel, 2007, p. 201; Webb & Frankel, 2008, p. 289). Finally, when it comes to pottery production in the two regions there is one significant difference: the ceramic wheel appears in Anatolia at the beginning of EBA III but is completely absent from Cyprus up until the Late Bronze Age (Mellink, 1991, p. 173). In any case, Bachhuber argued that both the Late Chalcolithic and the Philia pottery from Cyprus belong to "*a mosaic of broadly similar albeit localised ceramic traditions that should include western and southern Anatolia during EB I–II*" (Bachhuber, 2014, p. 143). One should keep in mind that the Philia Phase pottery production is much more than just drinking sets, and drinking vessels are already present in the Late Chalcolithic (Boger & Peltenburg, 2014). However, most of the literature dealing with interactions between Cyprus and Anatolia has indeed been focused on these drinking sets. A different and more nuanced approach is presented later in this thesis (Chapters 7 and 8).

3.4. Concluding Summary

To conclude, this chapter has provided an overview of the pottery production of the regions in question in the third millennium BC. In both regions, various advancements in pottery technology, production, and usage emerged during that time, hinting at potential increased interactions with neighbouring areas. These potential relationships have sparked ongoing debates among archaeologists. While the earliest imported vessels found in Cyprus date back to the Middle Bronze Age period at the Vounous cemetery, scholars have suggested that the Cypriot red and black burnished wares from the Late Chalcolithic might also be linked to contemporaneous pottery from Anatolia, and that there's a link between the Philia Phase pottery production and Anatolian populations on the island (e.g. Bolger, 2007; 2013; Peltenburg, 2007; Webb & Frankel, 2007). To address this, the main pottery wares from Cyprus and Cilicia are presented in this chapter, followed by a literature review on the possible technological similarities in pottery production between the two regions. This chapter sets the framework for Chapters 5-7, where pottery datasets from the two regions are analysed in detail and the issue of interactions between sites is tackled further.

CHAPTER 4:



Pottery as a Tool for Reconstructing Interactions between Communities – A Theoretical and Methodological Framework

Chapter 4 — Pottery as a Tool for Reconstructing Interactions between Communities – A Theoretical and Methodological Framework

This study attempts to shed light on interactions between Late Chalcolithic communities within Cyprus, and extra-insular contacts with Anatolia, particularly Cilicia, by investigating processes of exchange of objects and pottery technologies and their emulation. In order to form an adequate theoretical and methodological framework, theoretical concepts regarding how we study pottery and how we can reconstruct interactions in the archaeological record are discussed in this chapter. First, how connectivity in the Mediterranean and island archaeology has been investigated is presented, followed by the importance of pottery in the archaeological record and the various ways in which it can be studied are addressed, with an emphasis on the *chaîne opératoire* approach. Then, ways in which pottery can function as an indicator for interactions between communities are explored. Finally, the dataset, methodologies and theoretical frameworks applied for this thesis are presented.

4.1. Connectivity in the Mediterranean and Island Archaeology

In the Mediterranean, the notions of mobility and connectivity are pivotal in historical and archaeological studies, where several societies interacted, including the Mycenaeans, the Egyptians, the Romans, the Byzantines and the Ottomans (Knappett & Kiriatzi, 2016). Several scholars have argued that connectivity is a defining aspect of the Mediterranean through time (e.g. Horden & Purcell, 2000; Abulafia, 2011; Broodbank, 2013). However, not everyone agrees on whether the Mediterranean was connected or divided. Braudel (1972), for example, argued that the Mediterranean consisted of "*many seas*". Alternatively, Horden and Purcell (2000) view the Mediterranean as a whole, which includes many seascapes and micro-landscapes, from the Iron Age onwards.

In the early to mid-20th century, within the culture-historical approach, mobility of people was attributed a pivotal role in archaeological interpretations, while parallels between regions were attributed primarily to migration, colonisation or trade (e.g. Childe, 1929). Of these concepts, migration has been probably the oldest when it comes to explaining interactions. It can be defined as the coordinated movement of people to a place in order to settle down and as "*a behaviour that is typically performed by defined subgroups (often kin-recruited) with specific goals, targeted on known destinations and likely to use familiar routes*" (Anthony, 1990, pp. 895-896). Besides archaeology, migration has been researched by several other disciplines such as sociology, law, demography, and political sciences (Brettell & Hollifield, 2000, pp. 2-3). Several migration episodes have been recorded historically and archaeologically, sometimes accompanied with colonization. As a framework, it offers an opportunity to investigate issues of identity, since both migrants and local populations come in contact and re-evaluate their identities. However, one could argue that the concept of migration overlooks that mobility can happen at several scales, and it can be continuous and constant (Jones, 1997; Knapp, 2008, p. 48).

Processual archaeologists in the 1960s, favored endogenous factors, and rejected migration as an explanatory framework for cultural change (e.g. Binford & Binford, 1968). Subsequently, migration was gradually replaced by the concept of acculturation, which stems from socio-cultural anthropology. In archaeology, it is described as "*the comprehensive assimilation of new cultural elements from a dominant donor, with minor differences remaining between donor and recipient at the end of the process. This is opposed to more limited and selective emulation and adaptation of material culture and/or new cultural features within a tradition distinct from the donor*" (Smith, 1998, p. 258). Although widely used, the concept of acculturation has been criticized for its top-down approach, colonial background, and for overlooking the diversity of material culture and the dynamics of its distribution, as well as personal agency (Knapp, 2008, p. 55).

An more recent concept used as a theoretical framework to explain mobility and cultural change is hybridization. Hybridity is a term originating from Biology studies in the 19th century, to describe a cross between two distinct species of plants or animals. In archaeology, it is used to define so-called material cultures, particularly in colonial contexts, when describing the contacts between colonists and colonised. However, it has been applied to other cultural interactions, since it stems from the idea that every interaction between cultures can lead to processes of mixture and transformation of cultural elements (Knapp, 2008, p. 59). It is described as "*processes of interaction that create new social spaces to which new meanings are given*" (Young, 2003, p. 79).

As van Dommelen argued, if identity and culture are "*context dependent*" the contacts with non-local cultures affect the local ones, and new aspects of the local identity are created, which incorporate "*foreign*" characteristics interpreted according to the local perceptions. Consequently, cultural interactions can lead to a blend of cultural components which include appropriation and assimilation or rejection of foreign ingredients (van Dommelen 2005, pp. 116-118, pp. 136-137). If one accepts this argument, then hybridization offers an adequate framework for the understanding of cultural interactions and how groups perceive and assimilate cultural elements of other groups (Papastergiadis, 2005, pp. 42-48). Although supporters of this concept argue that it involves agency and accident, critics have argued that it neglects agency and promotes ideas of purity (Gosden, 2004, p. 158; Knapp, 2008, p. 59). Additionally, hybridity is strongly linked to imperialism, thus it can be asked whether it fits in the pre-modern world.

Nowadays, network thinking, a shift to post-colonial approaches and the incorporation of methods and techniques from other fields in archaeology, have led to new perspectives on mobility in archaeological contexts (e.g. Colledge & Conolly, 2007; Colledge *et al.,* 2013; van Dommelen & Knapp, 2010; Knappett, 2011). One of these is connectivity, which is defined as the capability to be connected or interconnected with someone or something. Therefore, it is an ambiguous concept appropriate to include all kinds of interactions between people, ideas and objects regardless of scale, intensity and direction of interaction. Another similar concept, which emerged in archaeological studies in the 2000s is globalization. In archaeology, it can be defined as increased connectivity and it describes several connectivities and networks between various regions, including trade, diffusion, migration and internationalism (Tomilson, 1999). It also involves the promotion of shared practices and values and the ever-increasing acknowledgment of differences. According to Hodos (2017, p. 4), its most defining characteristic is increasing connectivity as it encompasses "*processes of increasing connectivities that unfold and manifest as social awareness of those connectivities*".

When examining connectivity in the Mediterranean, one should take into account the field of Island Archaeology, which appeared in the 1970s-1980s, initially tackling themes such as dispersal, isolation, insularity, distance, configuration, adaptation and extinction (e.g. Evans, 1977; Cherry, 1981). Out of these, maybe the most fundamental theme is insularity, therefore the quality of being isolated due to living on islands or of being detached in perception and experience, as a result of historical, social or personal exigency (Knapp, 2008, p. 18). The Latin word 'insula' (= island) is the root of the English terms '*island'*, '*isolation'* and '*insularity'*. It is therefore understandable why islands have been traditionally considered isolated both geographically and culturally, "*living with their back to the sea*" (van Dommelen, 1998, p. 13). Also, due to their remoteness, they are often considered 'laboratories' where culturally distinct or 'strange' cultural developments occur, such as megalithic structures. This is what Parker Pearson (2004, p. 129) described as the "*Easter Island Syndrome*". However, islands have also been considered vital points of interaction for people from several places to come in contact via trade and other activities. According to Braudel, isolation is relative, as islands are often connected to the "*outside world*" (Braudel, 1972, p. 150). Consolidating both views, Renfrew suggested that islands are actually a paradox: the "*polarity… between isolation ("islands as laboratories") and interaction ("islands as reticulate networks)*" (Renfrew 2004, 276). Hence, islands can be both isolated but also actively involved in social, cultural, political and social networks (McKechnie, 2002, p. 129).

More recently, scholarship around island archaeology focusses on the agency of islanders, how they consciously formed their landscape and how they modified their identities through contacts with the outside world (e.g. Rainbird, 1999; Broodbank, 2000; Knapp, 2013). Also, insularity is increasingly viewed as a cultural construct (Clarke, 2003, p. 203). Finally, it has been observed that islanders often develop a strong sense of collective identity in which their insularity is included and functions as a way of contrasting themselves to foreign elements (Parker Pearson, 2004, p. 129; Broodbank, 2000, p. 33). This is where the theme of regionalism comes into play. In archaeology, regionalism is defined as the behaviour within distinct regions or cultural zones; or the ways to identify differences between diverse areas. In this context, islands are often treated as a "*bridge*" between different regional cultures. However, in Cypriot Archaeology, regionalism is the "*cultural differences which can be identified between different parts of the island, often using the major topographic divisions to provide a natural framework to establish 'culture areas'*" (Frankel, 2009, p. 15). This is especially true for the Late Chalcolithic in Cyprus, where research has focused more on the differences between different regions rather than similarities.

4.2. Studying Ancient Pottery: Style, Function, and Technology

Archaeological research is centred around artefacts, as they are the most substantial source of information we have about past societies (Gamble, 2008, p. 100). Pottery is a particularly important artefact type as it is usually found in vast amounts at archaeological sites, and it is used by people cross-culturally, allowing for extensive classifications and typologies. This importance is heightened when we are dealing with prehistoric communities (Arnold, 1985, p.1).

Pottery classification systems can be based on raw materials, clay composition, morphology, forming techniques, style, function, or period and context of occurrence (Rice, 1987, p. 274; Read, 2018, p. 1). These classifications can be created by studying the material macroscopically, via archaeometric methods, or even ethnographically. As Rice (1987, p. 274) defined it, the aim of classification is to create groups of similar members, while the groups themselves are different. The similarities uniting the members of a group should be reflecting something significant.

Initially, classifications were made primarily relying on macroscopic observations, mainly based on the style of the pottery. In most literature style is associated mainly with surface treatment and decoration, and it has functioned as the main tool to recognize and assign different assemblages, and to indicate when and where they occurred (Dikomitou Eliadou & Georgiou, 2023, p. 3). In a paper published in 1977, Sackett distinguished three ways style is investigated in archaeology: first, the "standard" approach of identifying when and where pottery was produced; second, the "content" approach which focuses on aesthetics and iconography; and lastly, the "ceramic sociology", which emphasizes deriving style from pottery data (Sackett, 1977, p. 369). However, style can also be defined as a combination of several artefact characteristics, like shape, size, decoration, and colour, which appear in combination, indicating certain stylistic rules and behaviours (Prezioso, 2021, p. 172). It is therefore indicative of distinct ways of action, expression and cognition, all specific to a place and time. Pots of similar style are more likely to be from the same region or time period, whereas differences in style can indicate differences in region of production and/or time of production. Based on these, in the culture-historical approach, morphological style of pottery has been vital in the creation of typologies used for relative dating, and in investigating interactions between different communities; "*it best reflects the principle that "like goes with the like*"" (Renfrew and Bahn, 2001, p. 121) (Dikomitou Eliadou & Georgiou, 2023, p. 2).

In the 1960s, within processual archaeology, this culture-historical approach was critiqued and instead, emphasis was placed on vessel function and the impact the environment has on pottery production and use. For example, Matson (1965, p. 203) introduced the concept of ceramic ecology, noting the defining importance of the raw materials and technologies available locally to potters. The main arguments for this shift supported that style reflects sets of rules that reoccur as norms and not as social practices. If they occurred as the latter, they should be more fluid and susceptible to change (Sanz & Fiore, 2014, p. 7105); and that the culture-historical approach ignores the importance of the environment for a society and how society might adapt to it (Renfrew & Bahn, 2001, p. 38). This approach distinguished style from function, considering the practical function of a vessel most important (McGuire, 1981, p. 14). Function denotes the artefact's practical use (Crilly, 2010). What processual researchers have in common is that they believed that material culture point at the ways in which humans adapt to the environment and the material conditions of the world around them, applying a functionalist perspective, where craft serves to fulfil a purpose (White, 1959, p. 8; Dikomitou Eliadou & Georgiou, 2023, p. 3). From a methodological point of view, this functionalist perspective encouraged the introduction and application of scientific techniques for the study of ancient artefacts, such as ceramic thin section petrography, residue analysis etc.

Additionally, processual archaeology focused on craftmanship and ethnoarchaeological studies. Ethnographic studies have contributed immensely to the studies of ceramics. Specifically, ceramic ethnography documents the production, distribution, use and discard of pottery in societies living today (Fowler, 2016, p. 470). By observing empirically how modern-day societies engage with pottery, the ceramic ethnographer creates "reference data", which the archaeologist can use to draw analogies with the archaeological record (David & Kramer, 2001). Even though the ethnographer and the archaeologist have different research questions, they both deal with investigating and explaining variations in pottery and potting practices, making "*the ethnographic present and the archaeological record… incommensurable, but compatible, domains*" (Fowler, 2016, p. 470). Ethnoarchaeology combines ethnographic method with archaeological research questions, as it is "*research that includes an ethnographic component and is carried out with the analogical needs of the archaeologist in mind*" (David & Kramer, 2001, p. 11). Ethnoarchaeological research has given us comparable data for every step of the ceramic production process, some of which will be presented in this thesis.

In the 1970s and 1980s many scholars dealt further with the relationship between artifact style and function. The first to introduce style as a non-functional component of objects which is not affected by technological restrictions was Binford (Binford, 1965; Conkey, 1990, pp. 8-10; Hegmon, 1992, p. 518). Meanwhile, Wobst interpreted style as a tool for "*information exchange*", and defined it as "*that part of the formal variability in material culture that can be related to the participation of artefacts in processes of information exchange*" (Wobst, 1977, p. 321). Around the same time as Wobst, another researcher who investigated style in a much more holistic manner was Sackett. According to him, style is a distinctive way of doing something in a specific spatial and time context, and it can be identified in the "adjunct form", like in the decoration of a pot, and in the "instrumental form", like the manufacturing and functioning of a pot (Sackett, 1977, p. 370; 1990, p. 33). Additionally, he developed a model in which he suggested that artisans tend to choose the ways of doing something particular to their social group, even if they have other options (Sackett, 1982; 1990). So, style is the expression of technological choices which are socially transmitted, creating a tradition (Sackett, 1977, p. 371). Similarly, Lechtman argued that style resides in all parts of an artefact, since it corresponds to material expression of cultural patterning (Lechtman, 1977, p. 5).

Over the years, the study of pottery technology in all of its aspects has gained momentum, and several institutions have been central in researching into these topics. The French school has coined the *chaîne opératoire* approach, which is explained in detail in the next section. In the Netherlands, Leiden University has been a hub for the archaeological study of ceramics since the 1980s, especially for the Near East and the Mediterranean. Researchers like Loe Jacobs and Olivier Nieuwenhuyse conducted rigorous research on pottery production and technology of the region (e.g. Connan *et al.*, 2004; Nieuwenhuyse, 2010; 2017). Today the Laboratory of Ceramic Studies has an extensive reference collection of ceramics and clays from West Asia, Africa, Europe and Meso-America, as well as various experimental reconstructions of vessels from different areas and time periods. This expertise is illustrated also by the Leiden Journal of Pottery Studies, which was published from 1983 to 2010, and covered various topics related to ceramic studies from ethnoarchaeology and experimental archaeology to ceramic thin section petrography and other archaeometric methods.

4.3. The *Chaîne Opératoire* Approach, Pottery Technology, Interactions Between Communities and Crafting as Social Practice

One of the most popular methodological framework archaeologists employ to study the pottery production process is that of the *chaîne opératoire*, which describes the process of production of an artefact including the collection of raw materials, and all the stages of its manufacture. As a term, it was coined by Leroi-Gourhan to define "*techniques (that) are at the same time gestures and tools, organized in sequence by a true syntax which gives the operational series both their stability and their flexibility*" (Leroi-Gourhan, 1964, p. 164). This approach is rooted in French cultural ethnography which focuses on the cultural aspects of material culture (Mauss 1947; Haudricourt 1964; Roux, 2016, p. 101). Therefore, a *chaîne opératoire* is a technical tradition defined as *"patterned ways of doing things that exist in identifiable form over extended periods of time"* (O'Brien *et al.*, 2010, p. 3797). Ethnoarchaeological studies have had a major impact on the study of the *chaîne opératoire* of pottery production in various societies. One should keep in mind that the *chaîne opératoire* approach can be applied to any type of artefact and it is widely used for the study of chipped stone tools.

For pottery, the *chaîne opératoire* comprises of the selection of raw materials, the preparation of clay, the shaping of the vessel, the decoration and surface treatment, the drying treatment, and the firing of the pots, occasionally followed by post-firing treatment (Roux, 2020, p. 17). The first step of every *chaîne opératoire* is the selection of raw materials. In this process, clay, water, and temper may be involved, although temper is not always present or necessary. Along with the selection of the clay, this phase includes the selection of tools, pigments, and fuel material (Miller, 2007, p. 108; Quinn, 2022, p. 211). Ethnographic studies have shown that raw materials are not selected randomly, but rather for their properties, availability of resources, and in the case of clay, technical properties like plasticity and shrink-swell capacity (Quinn, 2022, p. 211). An enduring ethnographic contribution to the study of this stage is Arnold's (1985; 2006) Ceramic Distance Threshold Model or Ceramic Resource Area Model, a predictive model of clay procurement strategies, which, based on how far potters from 117 modern-day communities travel, suggests maximum distances travelled by sedentary past communities to procure clay and temper. However, Arnold himself acknowledges that not all factors have been accounted for in this model, while Gosselain and Livingstone Smith (2005, 34), have summarized different factors influencing clay procurement for African communities, such as the local geology, settlement patterns, competition among potters and social interactions. According to Arnold's "Ceramic Resource Threshold Model", the threshold distances to clay sources can be up to 7km (Arnold, 2006, p. 8).

After the procurement of raw materials, comes the clay processing, transforming the raw material into workable clay. Even though this stage is not always necessary, not processing the clay is uncommon (Rice, 1987, pp. 118-124). Several techniques are employed, such as pounding or crushing the soil, cleaning, sorting, sieving, levigating and/or hydrating the clay, along with the preparation of temper and pigment, if applicable, resulting in endless clay recipes, which are influenced by the suitability of the clay, but also by social and other factors, such as the type of vessel one wants to produce (Gosselain & Livingstone Smith, 2005, p. 40-41; Miller, 2007, p. 108; Roux, 2016, p. 103).

Next, the potter starts the shaping of the vessel, also referred to as “primary forming” (Rye, 1981, p. 62), or “roughing out” (Courty & Roux, 1995). Forming techniques can be divided in two broad categories: techniques without rotative kinetic energy (RKE, i.e. the potter’s wheel), like pinching and drawing, coiling, slab building and moulding on one hand, and wheel-throwing and wheel forming on the other. Also, when using the coiling and wheel-formed techniques, rotative kinetic energy can also be used in parts of the process (Roux, 2016, p. 104; Figure 24).

Once the vessel is shaped, and had been left for some time to dry, finishing techniques such as smoothing wet surfaces, or burnishing and smoothing on leather-hard surfaces, take place (Roux, 2016, p. 104). Then follows the decoration and surface treatment, which have been the focus of many archaeological studies, as they are central to chronological and stylistic typologies. Two aspects of the decoration are focal: design and techniques (Rice, 1987, p. 249). Design is referred to the execution of elements (e.g. a line) into progressively bigger components (e.g. a motif) on the vessel’s surface. Various tools, and techniques, such as burnishing or grooving, generate the elements of the decoration. Further, decoration techniques can be divided into “low relief or one-dimensional” (e.g. slipping, painting, glaze), “negative relief or recessed” (e.g. incising, impressing), and “high relief or two-dimensional” (e.g. plastic and applied decoration) (Roux, 2016, p. 104).

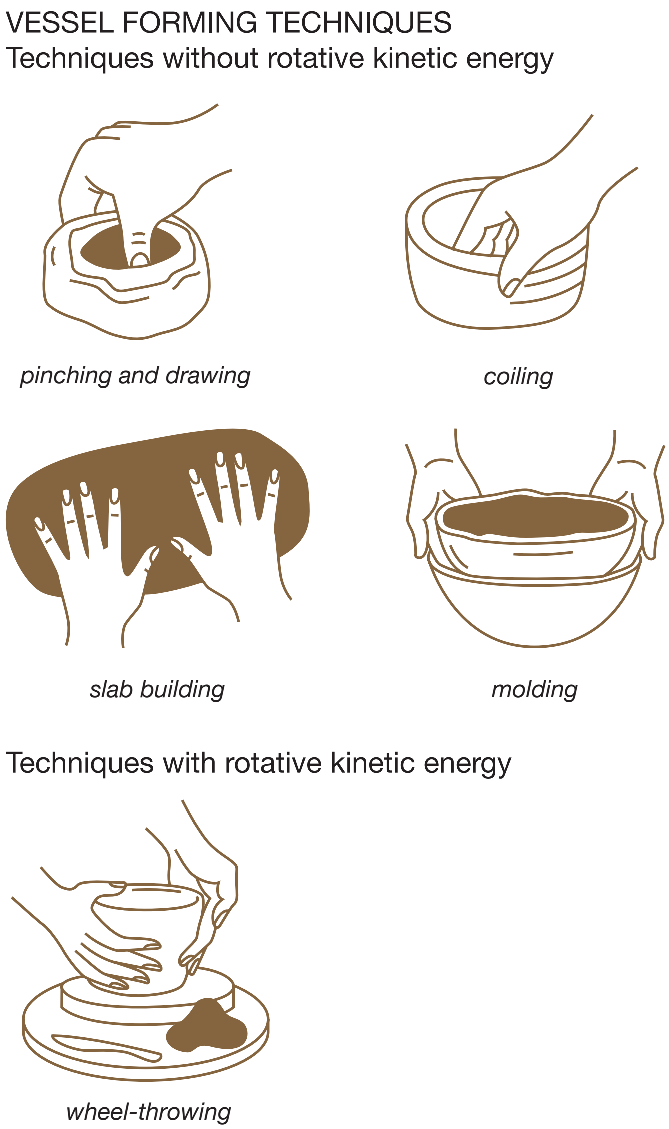


Figure 24: Vessel forming techniques with and without rotative kinetic energy (created by Maria Hadjigavriel)

Subsequently, the vessel needs to dry and then to be fired. Drying is the process during which residual moisture leaves the vessel via evaporation. Ethnographic research has shown that potters often stack vessels outside to dry slowly, but cover them with a cloth and put them in shade when the weather is warm to avoid uneven and fast drying. Similarly, they would store them in cold and drafty places if the weather was cold (Quinn, 2022, p. 264).

Firing is the final stage of the production process, which transforms the clay objects into ceramics. The chemical and physical changes that transform clay into pottery start occurring at about 500-600 ˚C (Rice, 1987, pp. 90-3). Archaeologists rely on estimations of firing temperatures as proxies for ancient firing procedures (Tite, 2008; Figure 25). Overall, firing is divided into two large categories: "open" firing, and kiln firing (Rice, 1987, pp. 152-163; Gosselain, 1992, pp. 152-163). "Open" firings "*are also referred to as clamp firing or bonfire firings, where the pots and the fuel are in immediate contact and are arranged in a stack on the ground or in a shallow depression"* (Orton *et al.* 1993, p. 135). On the other hand, in kiln firing "*the pottery and fuel are separate – the pots usually in a chamber which is heated by the hot gases and flames from the fuel*" (Orton *et al.*, 1993, p. 135).

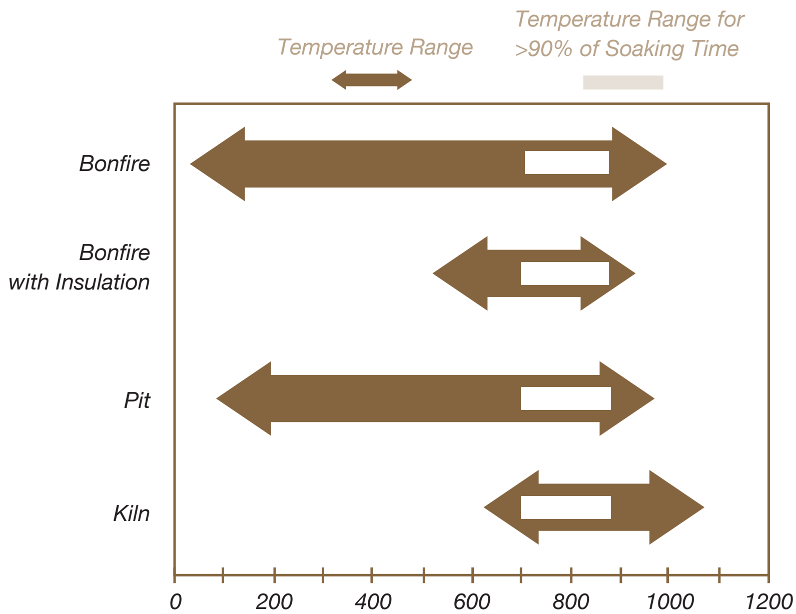


Figure 25: Range of firing temperatures and soaking times for firings in West Africa (after Fowler, 2016, p. 480)

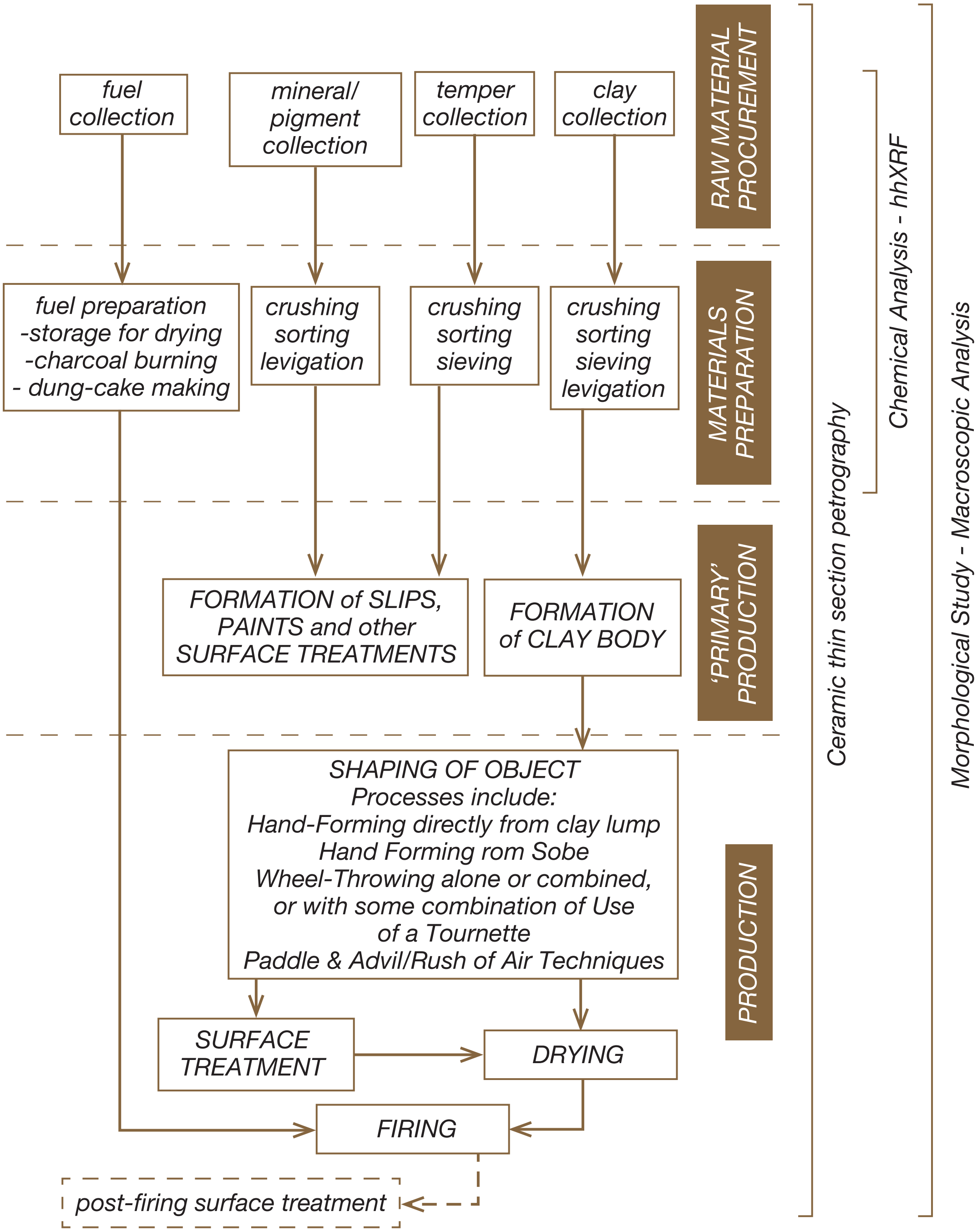
In prehistory, open firing was the most common. The typical method involves stacking the vessels over a layer of fuel and mixing additional fuel both around and inside the vessels, sometimes covering the entire stack with more fuel and/or a layer of waste sherds from previous firings. The fuel is usually ignited from below or one end of the stack, allowing it to burn through. One of the most notable features of open firing is the rapid increase in temperature during the initial phase, along with a brief duration. It can take only a few minutes to reach maximum temperature, allowing for the pots to be removed shortly thereafter (Rye, 1981, p. 102). However, some open firings can take nearly two hours to reach their peak, with the stack not being opened until eight to ten hours later (Orton *et al.*, 1993, p. 127).

Livingstone Smith (2001), investigated the characteristics of the various firing processes in terms of duration, maximum temperature, heating rate and soaking time. To do so he investigated various firing structures such as bonfires, bonfires with light insulation (a few sherds or metal basins), and bonfires with heavy insulation (complete sherd covering). When examining the duration of the firings, bonfires and bonfires with light insulation displayed average duration of below an hour, while average temperatures range between 600-900 ˚C (Livingstone Smith, 2001, pp. 998).

Any treatment of the vessel that happens after the firing is part of the post-firing stage. These may include polishing, incised decoration, added coating or smoking of the vessel to give it a blackened appearance. It is however often difficult to distinguish whether these stages occur before, during or after firing.

Several studies have combined ethnoarchaeological, experimental, macroscopic and petrographic data in order to reconstruct the *chaîne opératoire* of pottery production in various communities. Even though the specific steps, tools and techniques may differ, the main steps are usually the ones summarized above and illustrated in Figure 26.

Figure 26: Chart showing the different stages of a pottery production chaîne opératoire and methods of studying them in this thesis (created by Maria Hadjigavriel, after Miller, 2007, p. 108).



The *chaîne opératoire* has been developed withing the broader study of technologies of production. The technology used to produce a ceramic vessel is comprised of several specific technological choices. Technological choices can be affected by both functional and sociocultural factors. Lemonnier (1986, p. 149) has characterised technological choices as "*socially pertinent choices*" which govern the production of a finished artefact. A sequence of actions is chosen, leading to the creation of artefacts, whose physical and formal properties, such as raw materials, technology of production, shape, size, and surface treatment, are assessed to classify them into groups, including stylistic groups (Lemonnier, 1986, pp. 153-155). Functional factors affect these choices greatly, as an artefacts performance characteristics, including its compositional, microstructural, mechanical, thermal, typological or stylistic characteristics, can affect its functionality (Sillar & Tite, 2000). When we study an artefact's morphology, observing its shape, size and stylistic characteristics, we also identify the characteristics that contribute to the artefact's function (Eaton, 2000). For example, the form of an artefact can be a direct indication to its function (Kirch, 2015). Likewise, when we study the compositional and technological characteristics of an artefact via archaeometric methods, we can find indications of the artefact's function. For instance, clay composition of a ceramic vessel as studied via ceramic thin section petrography (inclusions, clay matrix and voids), determines its suitability as a cooking vessel (Whitbread, 2015, p. 28). However, technological choices also have cultural and social significance (Silar & Tite, 2000; Roux, 2019; 2020).

Conventionally, technology has been considered "*a distinctive sphere of materiality [which is] grounded [in] pragmatic behaviours separate from, underlying and implying upon politics, social organization, beliefs and value systems…built on a materialistic and rationalist edifice*" (Dobres, 2000, p. 10). This was famously argued by Marx and Engels (1970, p. 42), who suggested that humans are what they produce and how they produce it. In other words, people's experiences and understanding of their surroundings are influencing the artefacts they produce. Of course, not everyone is a producer, and there are many ways of being. However, anyone who has ever crafted a ceramic vessel or witnessed an artisan at work cannot deny that craftmanship is more than "motor habits" and directly linked to the maker's experiences and skills. In archaeology, Childe (1956, p. 1) was one of the first researchers to identify the social aspects of technology and argued that artefacts are "*concrete expressions and embodiments of human thoughts and ideas*". This led to the idea that "*pots equal people*", a notion that has dominated archaeological investigation for decades.

However, archaeology has moved beyond this "*pots equal people*" idea, with more focus on the technology of production and its social dimensions. To investigate technological style and its social dimensions, the role of artisans and how context is central. A useful framework is Bourdieu's "*habitus*", in which, the habitus is the system of tendencies and dispositions which humans assimilate though continuous unconscious practice without necessarily being aware of them (Bourdieu, 1977, pp. 72-87). This framework does not imply that the artisan is not capable of improvisation or able to adjust to new demands or situations. Artisans make choices that are culturally conditioned. It is generally accepted that learning a craft, such as pottery making, requires repetitive action and developing the corresponding habitus which potters employ at all stages of a *chaîne opératoire* (Albero Santacreu, 2014, pp. 194–244; Dietler & Herbich, 1998; Sillar & Tite, 2000). So pottery technology can be perceived as "*the objectified result of techniques*" (Dietler & Herbich, 1998, p. 246). Even though habitus is only one element of Bourdieu's model and was not meant to be applied to artisans, it is a key-concept when attempting to see human interactions via pottery production and use, as it can be used as a basis for a framework in which production processes can be linked to social identities (Ünlü, 2011, p. 5).

Several researchers have argued that the maker of an object has choices, like the kind of tools and techniques employed, which affect the end product and have meaning (Lemonnier, 1986, p. 154; van der Leeuw, 1993, p. 261; Pfaffenberger, 1992, pp. 496-498; Stark, 1999, p. 27). Similarly, Pfaffenberger (2001) coined the term "sociotechnical system", which describes the interdependence of social and technological sides of society (Dietler & Herbich, 1998, p. 237). According to this framework, technological processes can be considered systemic since they are formed according to existing knowledge and social parameters, but it also means that they are in constant "negotiation" with aspects of the social systems in which they belong, being shaped and altered accordingly (Lemonnier, 1989, p. 156; Pfaffenberger, 1988, p. 240).

To explore the relationship between technical traditions and social groups, researchers have tried to tackle the processes by which these various traditions evolve. As Roux (2019, p. 4) points out, these processes are connected to the transmission of technological know-how. Especially when it comes to studies on pottery technology, a popular concept among archaeologists is that of "communities of practice", which was conceptualized by Lave and Wenger while studying apprenticeship as a way of learning (Lave, 1991; Lave & Wenger, 1991). Essentially, communities of practice are groups of people who share common skills and ways of doing things, and exchange knowledge to better their craft (Wenger, 1998). In other words, they are social groups that share technical traditions, practicing together, and that common practice is what makes them a community. Such training might take place on a household or community level (Knappett, 2011; Knappet & Kiriatzi, 2016, p. 12; Roux, 2020, p. 18).

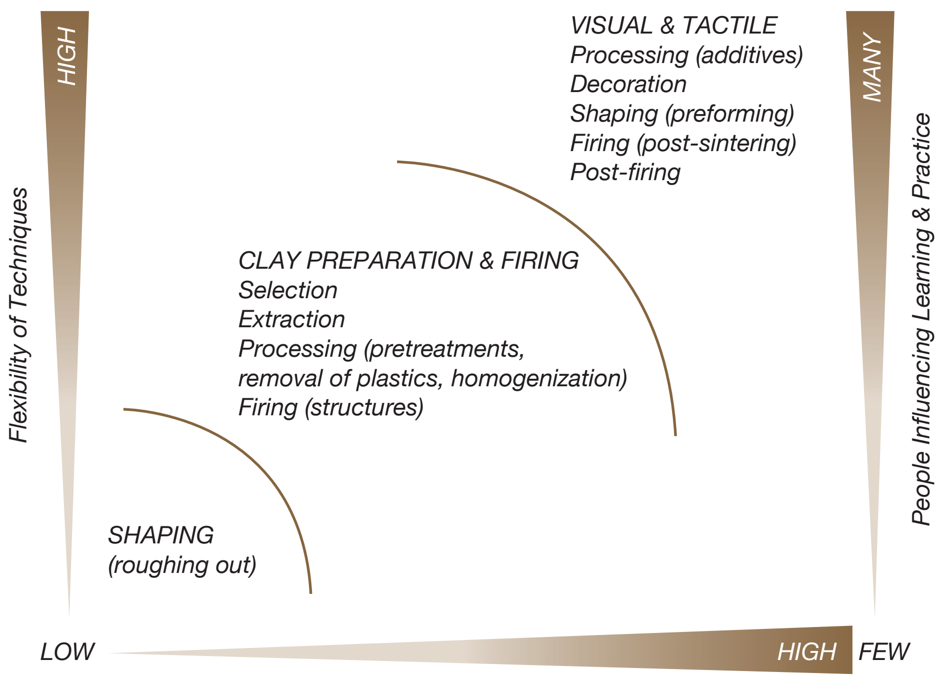
Based on the above, many studies have been based on the principle that similar pottery indicates interactions within or between sites, and thus social relationships (e.g. Coward, 2013; Borck *et al.*, 2015; Östborn & Gerding, 2014). However, as Knappet (2018, p. 16) maintains, only specific artefact characteristics, such as surface treatment and vessel forming techniques, can help us to investigate specific types of interactions within and between social groups. Gosselain (2008; 2018) and Roux (2020) have both argued that certain ceramic traits reflect particular types of interaction, both within and between crafting communities. Gosselain (2018, pp. 9-12), drawing upon several ethnographic studies conducted mainly in Africa, has developed a model identifying three types of interactions between artisans, traced in different stages of the *chaîne opératoire*.

First, Gosselain argues that casual interactions between potters can take place in shared practice settings like clay sources and firing places. There, potters from different communities of practice can observe and learn from each other when it comes to raw materials selection, clay processing recipes, tools and firing techniques. Therefore, similarities in raw materials, clay processing and firing can indicate this type of casual interaction. The selection and preparation of clay materials, and firing has been the topic of many investigations, revealing great variability between potting communities (e.g. Longacre, 1991; Neupert, 2000; Arnold, 2000; Livingstone Smith, 2000; Gosselain & Livingstone Smith, 2005; Gosselain, 1992). However, one must keep in mind that this classification, in which clay procurement and firing indicate the most generic level of interaction only works from a very local perspective, and not when inter-regional interactions are studied. It is also important to mention that this type of casual interaction is only possible where clay extraction and firing occur in shared locales. However, many potters have 'private' clay sources about which they are very secretive. Similarly, firing does not necessarily occur in shared locales. The collection of fuel for firing can be a huge task and sharing it requires a culture of collaboration.

The second claim is that mediated interactions, such as periodically coming in contact with other communities of practice and their products can be indicated by processes that are visible on the pots themselves, such as preforming, decoration, pre-firing and post-firing treatment. For example, a potter can imitate the decoration of an imported vessel and achieve a similar result using his own techniques (Gosselain, 2018, pp. 9-12). Finishing operations and surface treatment vary in relation to the cultural and functional factors. The same goes for decoration practices, whether they take place before or after firing. Since these processes are available to a broader category of potters, and they are easily transmittable, altered and appropriated, they are also less permanent and significant when it comes to reconstructing shared crafting communities (Gosselain, 2000, p. 191).

Finally, direct long-term face-to-face interactions between potters are most evident in the stages of the *chaîne opératoire* that require specialized skill and knowledge gradually acquired by learning in a community of practice. These are the forming and roughing out of the vessel, and gestures, tool handling or sensorial appreciation of the materials (Gosselain, 2018, pp. 9-12). A series of ethnographic examples have demonstrated that a vessel of the same size, shape and function can be formed with various techniques and methods, which can vary greatly from one group to another (e.g. Gallay, 2012; Gosselain, 2008; Gelbert, 2003). One could argue that the forming of vessels is the most stable aspect of the *chaîne opératoire* when it comes to the study of interactions, as they result from long repeated interactions with a tutor, and they don't change according to the consumer's demands as visible features of a vessel may, like the colour or decoration. Since the techniques associated with forming the vessel are the result of long-term apprenticeship and become part of the potter's motor habits, they are difficult to unlearn (Bourdieu, 1990, pp. 60-61; Gosselain, 1998, pp. 92-102; 2000, p. 192; Roux *et al.*, 2017; Roux, 2020, pp. 19-20). Gosselains' model is illustrated in the figure below (Figure 27). The model developed and used for this thesis is building on the aforementioned studies, and is presented at the end of this chapter.

Figure 27: Technical and social influences on pottery production based on African case studies (after Fowler, 2016, p. 482, using data from Gosselain, 2000).

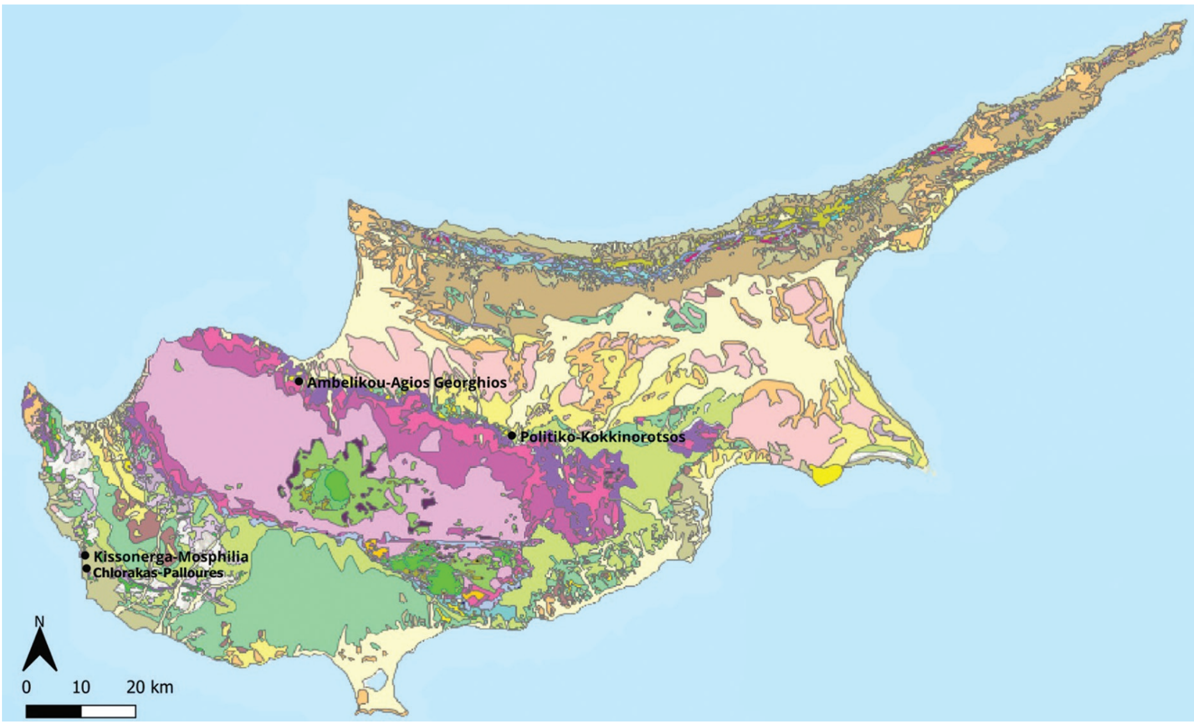


4.4. Dataset and Methodologies

4.4.1. Dataset

The main dataset for this study is comprised of Late Chalcolithic pottery from four sites in Cyprus: Chlorakas-*Palloures*, Kissonerga-*Mosphilia*, Ambelikou-*Agios Georghios*, and Politiko-*Kokkinorotsos*. These sites were selected based primarily on their location. Since the interactions between different communities across the island is the main topic of investigation of this research, sampling sites across the island was imperative (Figure 28).

Figure 28: Map indicating the sites selected for this study (created by Andreas Livadiotis)



In addition to this, specific criteria apply to the selection of each site. First, Chlorakas-*Palloures* is an ongoing excavation in which I am involved and I am very familiar with the material, so including it in this dataset was a natural decision. It is a substantial Chalcolithic settlement that is being excavated systematically and the pottery is processed by Dr. Charalampos Paraskeva and myself. Kissonerga-*Mosphilia,* another Chalcolithic settlement located close to Chlorakas-*Palloures*, is well-published, and the macroscopic similarities between pottery assemblages from both sites have been studied before (Hadjigavriel, 2019; 2021). Therefore, wares from this site have been included for comparative purposes.

When it comes to the northern part of the island, among the sites excavated prior to 1974 and with material accessible for research, Ambelikou-*Agios Georghios* has been selected as it dates exclusively to the Late Chalcolithic. The pottery has been published by the excavator, Dikaios, and other researchers (Dikaios, 1962; Peltenburg, 1991c; Gjerstad, 1980). The material is located in the Cyprus Museum in Nicosia, and could therefore be easily accessed. Finally, Politiko-*Kokkinorotsos* has been excavated in the late 2000s, it is well-published, and the pottery assemblage is well-catalogued and accessible (Webb *et al.*, 2009a). It is also situated in the Mesaoria plain in the centre of the island and it has been interpreted as seasonal hunting station. It can therefore give us a glimpse on pottery from its broader surrounding region.

These assemblages are first analysed macroscopically. Subsequently, pottery from all sites is sampled and studied mineralogically and chemically to investigate possible variations in raw materials, forming techniques, surface treatment and morphological style, in order to reconstruct interactions between ancient potters and their communities. A detailed overview of this dataset is provided in the following chapter. Finally, in order to tackle extra-insular interactions, a pottery dataset from Tarsus-*Gözlükule* is studied macroscopically and a literature review is conducted to sum up all known Anatolian imports/exports and technological influences in the Late Chalcolithic archaeological record, paired with information on well-published ceramic assemblages of the Philia Phase, from Marki-*Alonia* (Dikomitou Eliadou, 2012). Tarsus-*Gözlükule* has been selected due to its geographical proximity, the presence of Cypriot pottery in the assemblage, and accessibility to the reference collection, which is stored at Bryn Mawr College, in Philadelphia (USA).

4.4.2. Methodologies and Research Objectives

4.4.2.1. Morphological Study – Macroscopic analysis

Even though traditionally the typological and morphological study of pottery has been pivotal, one can say that over the past decades pottery typology and form studies have been neglected in favour of archaeometric analyses (Albero Santacreu *et al.*, 2016, p. 183). However, for this study, the morphological characterization of pottery is equally important to the mineralogical and chemical characterization. An overview of pottery studies in Cyprus and Cilicia is provided in Chapter 3. The macroscopic study of the pottery sherds selected is conducted using a calliper, a 10x magnifying lens and a x400 USB microscope (Veho, Discovery VMS004).

The relevant pottery types from each site are studied in detail, in order to observe and record morphological characteristics: clay procurement and preparation, vessel forming techniques, surface treatment, colour and decoration, and firing. Clear sections are made to observe the colour of the clay, the feel, the texture, and the colours, size, frequency and sorting of all visible inclusions. This is referred to as “macroscopic fabric” or “or macro-fabric” throughout the thesis. Studying the macroscopic fabric of a vessel, therefore the clay paste, is an essential first step in analysing vast datasets of material such as pottery. It can be defined as the systematic study of pottery fabrics with the help of a hand lens or a handheld microscope. It is a process that is empirical and finding standardized procedures for it in literature is a challenge, besides important contributions by Peacock (1970), Rice (1987) and Whitbread (1986). The most common process is for the archaeologist to first categorize pottery into wares “*giving a single description which covers the variation within the group rather than then describing every catalogued item in detail*” (Orton & Hughes, 2013, p. 155). Identifying a ware is based on several morphological characteristics (i.e. form, style, decoration), technological features (i.e. clay composition, surface treatment, vessel forming techniques, firing), the chronology and geographical location, and the function of the vessel. Usually surface treatment is the primary indicator of a ware, while clay composition plays a secondary role. For this study, even though the wares as defined by prior literature used, a detailed macroscopic analysis of the macrofabric is conducted, building on the methodology developed by Paraskeva during the Chlorakas-*Palloures* excavation. This methodology is outlined in detail in Chapter 5. Additionally, hardness, wall thickness, rim diameter and the shape of the vessel are also recorded.

4.4.2.2. Mineralogical and Compositional Analysis – Ceramic Thin Section Petrography

Even though scientific research into ancient ceramics was conducted sporadically in the 19th and the first half of the 20th century, it only became a coherent field in the 1950s, partially in the spirit of processual archaeology and its overall emphasis on sciences, and on the study of technology and craft (Tite, 2016, p. 8). From then onwards pottery studies expanded, drawing in more techniques. A very popular method at present is ceramic thin section petrography, conducted with an optical polarizing light microscope. Ceramic petrography is employed for ceramic compositional analysis, which is the detailed study of the material ancient ceramics are made of. Since clay forms naturally from the weathering of rocks, ceramic compositional analysis is built upon geology and the scientific study of rocks and sediments. Thin section ceramic petrography is an interdisciplinary method, combining principles and techniques from thin section petrography, soil micromorphology, sedimentology and sedimentary petrography. It is used to characterize the pottery according to the types of minerals it contains and other visual characteristics (Quinn, 2022, pp. 1-6, 13). In other words, thin section ceramic petrography is "*a form of ceramic compositional analysis that is concerned with the characterization and interpretation of ancient ceramic artefacts in 'thin section' under the microscope…It applies the techniques of optical mineralogy and thin section petrography to archaeological material in order to identify the types of mineral and rock 'inclusions' that they contain*" (Quinn, 2013, p. 4; 2022, p.13).

A ceramic thin section is a 3 μm slice of a vessel or sherd, fixed onto a glass microscope slide. These sections are studied with a polarizing microscope under magnifications of x25-400. Two types of lights are employed: plane polarized light (PPL) which is similar to regularly transmitted light; and crossed polars (XP), in which the light is polarized in two directions and interacts with the minerals of the thin section, producing optical effects that may help us identify them (Quinn, 2022, p. 13). By applying the techniques of optical mineralogy and thin section petrography to archaeological objects, we can recognize the rock and mineral inclusions in the clay matrix. To learn how to recognise these one must study geological examples and use several reference material. Methodologies from sedimentology and sedimentary petrography are employed, such as the description of particle shape and texture. Also, soil micromorphology methods are applied to describe the nature of the clay matrix (the clay overall, the "background"), and the voids (the empty spaces in thin section).

By comparing the mineral and rock inclusions identified in thin sections, with geological maps or soil samples from the areas of interest, the provenance of the pottery may be determined, making a method suitable for exploring trade, exchange and pottery distribution patterns. As Quinn noted: "*Thin section petrography is particularly well suited to the interpretation of ceramic provenance in that geological information about ceramic raw materials (rock type and mineral species of inclusions, type of clay deposit) can be readily interpreted under the microscope by a trained analyst and compared to knowledge of bedrock and superficial geology*" (Quinn, 2022, p. 167). Additionally, a thin section can give us information on the ceramic manufacture. For example, when the elongated inclusions are parallel to the vessel walls, they can indicate the use of a potter's wheel (Roux, 2019, pp. 154-186; Quinn, 2022, pp. 241) . Petrography can also provide data for finishing layers, like slip, paint or glaze, when they are visible in thin section, confirming their presence and application technique. When it comes to the drying stage of the *chaîne opératoire*, ring voids around aplastic inclusions may indicate clay shrinkage due to rapid and uneven drying (Quinn, 2022, p. 264). For estimating firing conditions, observing the colour of the clay matrix, its porosity, whether it sinters or vitrifies, whether specific minerals decompose or alter, can be very informative (Quinn, 2022, p. 266, 274-277). Overall, an advantage of this method is that it can simultaneously investigate ceramic provenance and technologies. As it is a visual approach, it is flexible and adjusts according to the material under study, and although it is a destructive technique, it is relatively inexpensive in comparison to other methods like isotope analysis (Degryse & Braekmans, 2016, p. 234; Quinn, 2022, pp. 13-17).

For this project, ceramic thin section petrography was employed for the mineralogical and technological characterization of the chosen samples, and for the identification of micro-morphological characteristics which may indicate their provenance or manufacture technology. Cross-sections were detached from 81 ceramics sherds and were prepared into thin sections. This process was conducted by me at the Science and Technology in Archaeology and Culture Research Center (STARC) of The Cyprus Institute, under the instructions and supervision of Dr. Maria Dikomitou-Eliadou and Dr. Jelena Živković, within the framework of PlaCe-ITN, a Horizon2020 project. The exact methodology applied for ceramic thin section petrography in this thesis is presented in Chapter 6.

4.4.2.3. Chemical/Elemental Analysis – hhXRF

X-ray fluorescence (XRF) technology has been widely taken-up in archaeological studies over the past decade, especially due to the development of hand-held instruments which can perform high-resolution and multi-element analysis in a non-destructive way. Especially handheld XRF (hhXRF) instruments have been used often in archaeological provenance studies (Foster *et al.*, 2011, p. 389). An encompassing definition of this technique is this: "*X-ray fluorescence spectrometers measure the energy level and intensity of secondary (fluorescent radiation) X-rays produced by primary X-rays striking the sample and creating vacancies in an inner shell of the atoms, which are then filled by lower-energy electrons from an outer shell. For producing quantitative results, the intensity of the primary X-rays must be high enough to produce sufficient secondary X-rays for statistical measurement, and therefore is different between major and trace elements in the sample*" (Tykot, 2016, p. 43).

One should keep in mind that the term hhXRF is used to describe various instruments. In general, hhXRF instruments are of small size, in a gun-shape and light weight, to facilitate portability, and their precision varies per device. They have been described as "point and shoot" instruments. Although this can be seen as an advantage, one needs to keep in mind that this method has several limitations. Despite the increasing use of hhXRF in archaeology, concerns have been raised concerning the precision, accuracy and sensitivity of the instruments (Holmqvist, 2016). Additionally, this method has various limitations, as it measures fewer elements and is less sensitive than destructive methods of analysis, such as SEM or NAA (Foster *et al.*, 2011, p. 389). As a result, and according to the accuracy and precision of the measurements, few elements are actually used for further analysis. Another limitation is that when employing hhXRF the analytical signal comes from the surface layer, meaning that any irregularity or layering on the surface affects the results. Therefore, flat clean freshly-cut surfaces of the fabric are preferable (Holmqvist, 2016). Finally, it focuses on a spot smaller than a few millimetres in diameter, which might be an issue when analysing heterogenous materials, such as ceramics, even if you take multiple measurements. On the other hand, the main advantages of handheld XRF its non-destructive in nature, which allows access to museum collections, that it is less expensive than other methods, and its capability for rapid analysis, which enables the analysis of large assemblages in a small amount of time. It is also more sensitive to peaks of interest than the stationery XRF (Foster *et al.*, 2011, pp. 389-390). According to Frahm and Doonan (2013, p. 1429), the most frequently cited reason for employing hhpXRF is that the analysis had to be performed on-site at museums, monuments or the field, along with its non-destructive nature.

HhXRF is often applied to obsidian and other rocks, paints and pigments, metal and glass objects. Soil and sediments are not analysed by hhXRF often because there are usually no issues with getting permissions for destructive analysis. For pottery, understanding the effects of grain size and mineralogy, surface morphology and post-deposition processes is crucial, given the limited elements hhXRF is able to measure accurately and precisely (Foster *et al.*, 2011, p. 389; Frahm, 2018, p. 12). Additionally, the intensity of the primary X-rays is not always enough to produce quantitative results, this is highly depended on the elements measured. The response to the primary X-rays is depended on the type of elements targeted and fluorescence happens at different depths in the sample for different elements. Therefore, hhXRF is often used as a complementary method, to test and validate hypotheses drawn from destructive analyses on the same dataset (e.g. ceramic petrography), and to evaluate instrument performance and compatibility with other methods (Frahm & Doonan, 2013, p. 1429).

For the hhXRF device to be calibrated, standard reference materials of known composition are used, which are measured often throughout the analytical process, to also estimate accuracy, precision and inter-method inconsistencies. The reference materials selected should have similar matrix characteristics and effects to the samples to be analysed (Holmqvist, 2016). The use of standard reference materials is also important because besides inter-method inconsistencies, hhXRF also shows inter-instrument accuracy issues. Along with the standard reference materials, appropriate software is also crucial (Tykot, 2016, p. 43).

Often, the data drawn from hhXRF analysis are used for Principal Component Analysis (PCA). PCA is employed by archaeologists to trace compositional groups within a dataset. This method can summarise the full set of variables by a smaller number of compound variables, determining the new variables based on correlations between the original variables (Shennan, 1997, pp. 269-270). Multidimensional datasets allow for highly-precise classifications of such groups and subgroups. However, one must keep in mind that these analyses encompass only a part of the object's chemical composition, as not all elements are included (Foster *et al.*, 2011, p. 391). Thus, the value of PCA analysis employed on hhXRF data from ceramics lies in the ability to interpret the data in meaningful ways in accordance to the archaeological questions, like the acquisition of raw materials or technological choices (Frahm, 2018, p. 13). For this project, the ceramic samples which were selected for ceramic thin section petrography were also analysed with a hhXRF. The analytical instrument employed was a Hitachi XMET 8000 handheld XRF analyser, and this was done at the Science and Technology in Archaeology and Culture Research Centre (STARC) of The Cyprus Institute, under the instructions and supervision of Dr. Maria Dikomitou-Eliadou. The workflow employed is presented in detail in Chapter 6.

4.4. Summing Up the Theoretical and Methodological Framework

This research aims to investigate what the development of pottery technology in Cyprus can tell us about interactions between communities within the island and with communities from Anatolia in the early third millennium BC. To do so, whether ceramic circulated within and outside Cyprus, how pottery technology evolved in the Late Chalcolithic and in comparison to the Philia Phase, whether different regions within Cyprus share technological traditions and to what extend pottery technologies transferred to Cyprus from Anatolia are investigated from a craft-centred perspective.

Pottery datasets from four Cypriot Late Chalcolithic sites, Chlorakas-*Palloures*, Kissonerga-*Mosphilia*, Ambelikou-*Agios Georghios* and Politiko-*Kokkinorotsos*, and one from Early Bronze Age Tarsus-*Gözlükule* in Anatolia are studied. To begin with, all the assemblages are studied macroscopically, and the pottery from Cyprus is also examined via ceramic thin section petrography and energy dispersive X-ray fluorescence (hhXRF) analysis. The aim of these analyses is to reconstruct several stages of pottery production at these sites, including clay procurement and preparation, vessel forming techniques, surface treatment, and firing. Building on the frameworks provided above by Gosselain (1998; 2000; 2018) and Roux (2020), where these different stages of the *chaîne opératoire* may be linked to various types of interaction by crafting communities, a methodological framework is constructed.

To begin with, pottery from the sites in Cyprus is analyzed macroscopically, in order to investigate the vessel forming techniques, surface treatment and decoration, vessel shapes and firing of the relevant pottery wares. Subsequently, 81 sherds are sampled for further study. The mineralogy, composition and technology of these samples is studied by employing ceramic thin section petrography, in order to investigate all stages of the *chaîne opératoire*. Additionally, their chemical/elemental composition is analysed with a hhXRF, and the retrieved data are subjected to PCA analysis, giving as an insight on clay procurement and preparation.

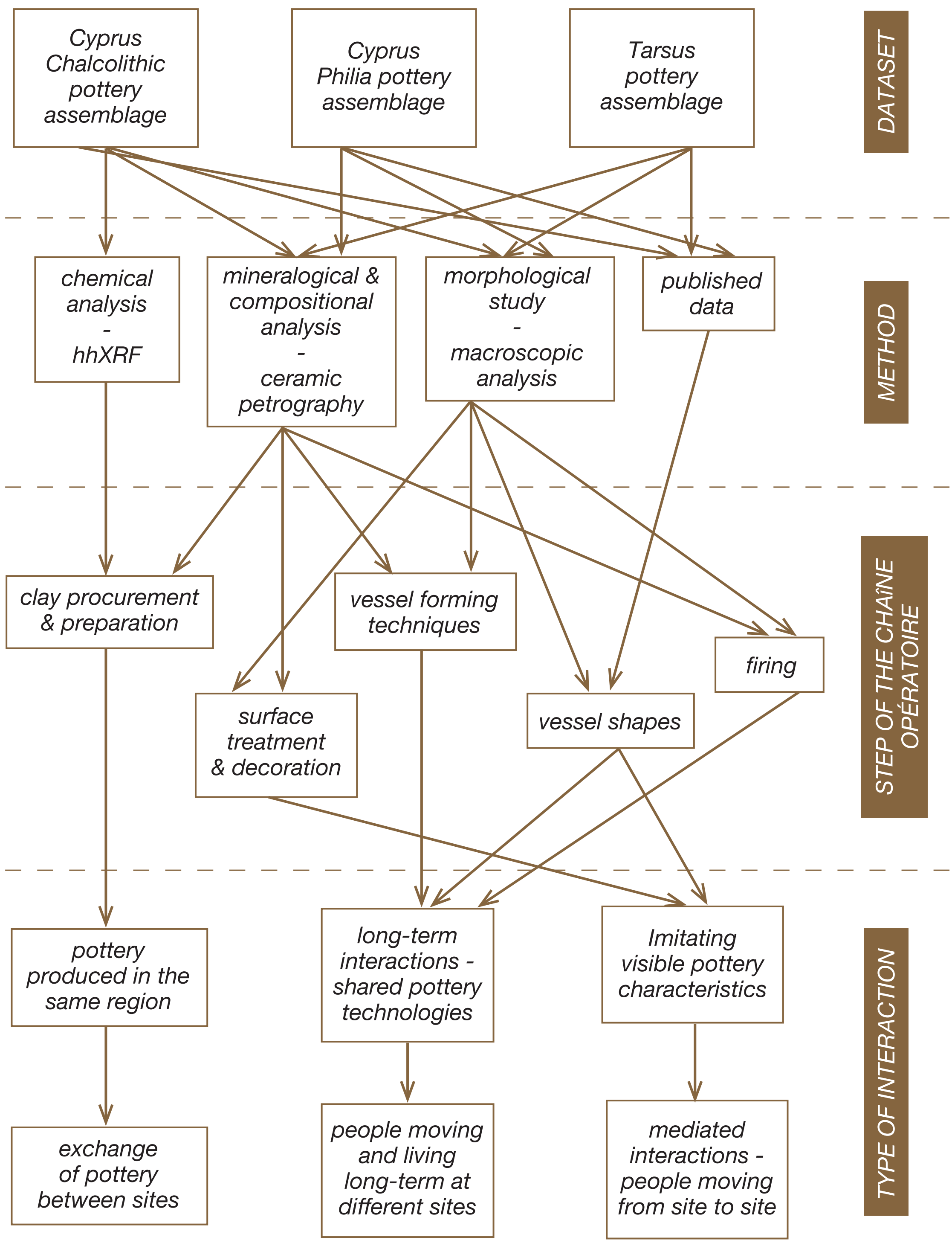
Clay procurement and preparation, investigated by the three methods mentioned above, can determine whether pottery was produced in the same region, and subsequently, whether pottery is exchanged between sites.

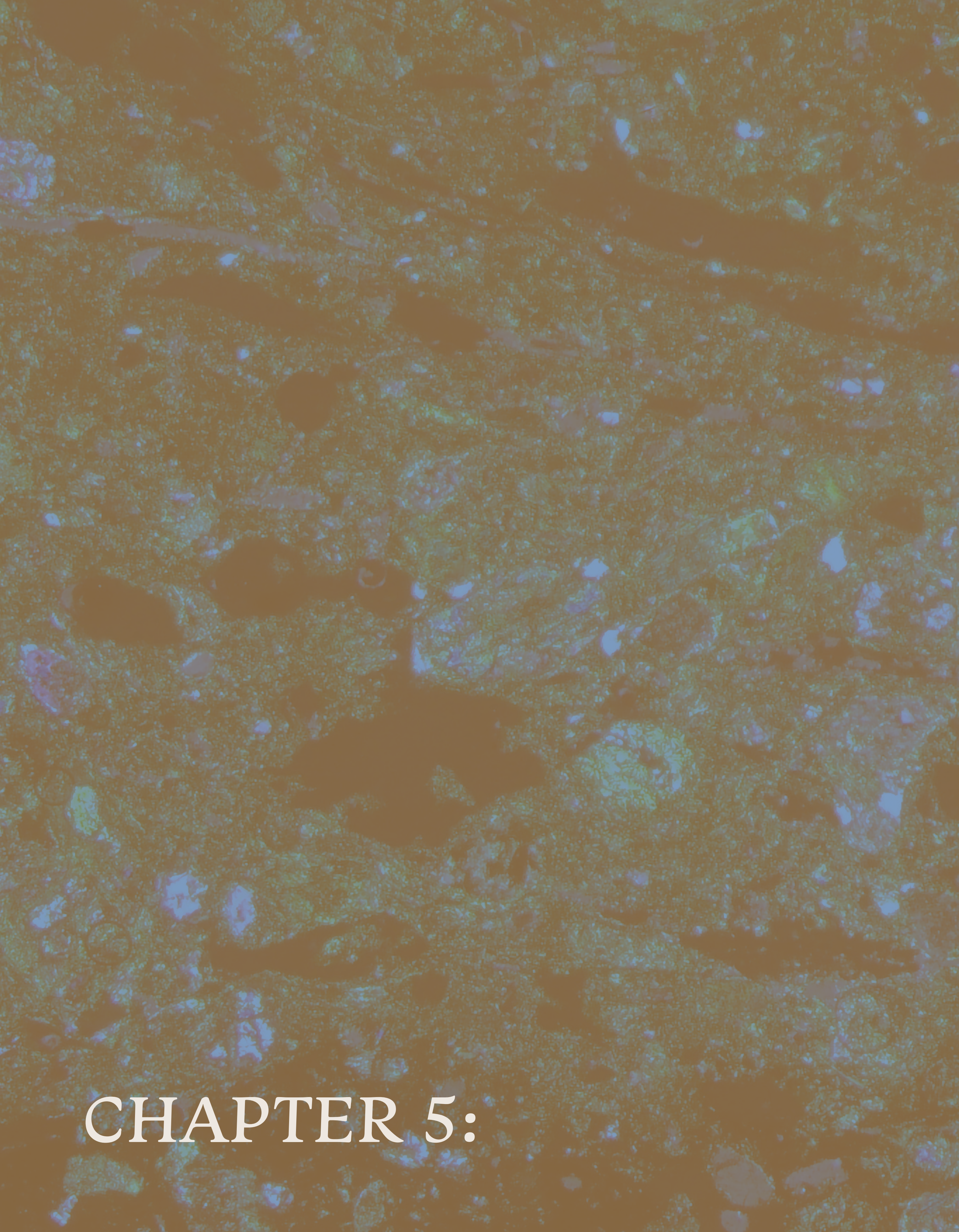
Vessel forming techniques, vessel shapes, and firing, investigated by the morphological study conducted via macroscopic analysis, the thin section ceramic petrography and the publications, can illustrate long-term interactions and shared pottery technologies within and between communities, indicating whether people moved and lived long-term in other communities.

Further, vessel shapes, surface treatment and decoration, investigated via the macroscopic analysis, ceramic thin section petrography and the published data, are visible pottery characteristics that can be imitated. Therefore, they indicate mediated interactions, where people would move from site to site and have at least seen what each community was producing.

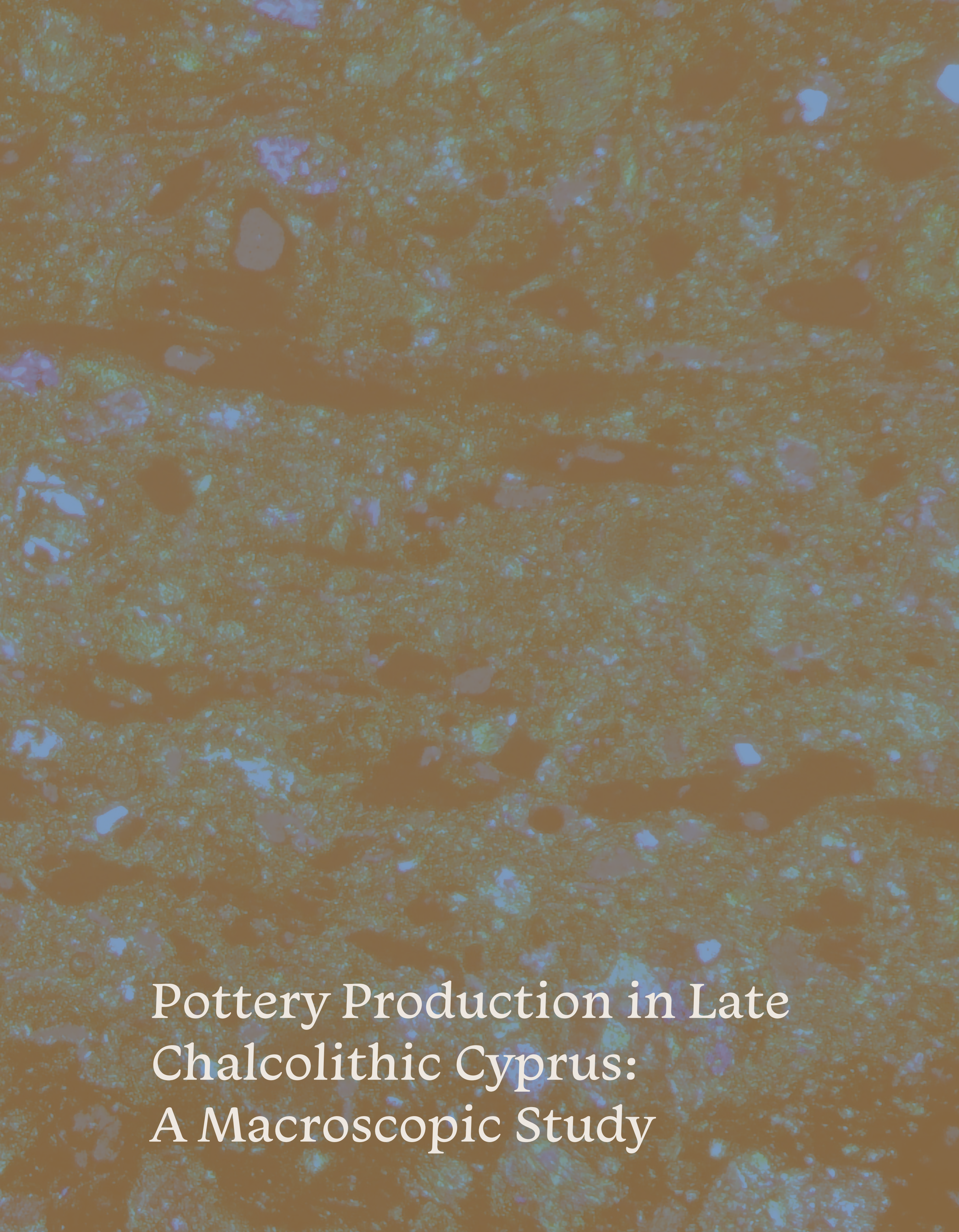
Finally, studies on the Tarsus-*Gözlükule* assemblage, both on a macroscopic and a microscopic level (Goldman, 1956; Mellink, 1991, Ünlü, 2009; 2011; 2016) are paired with the macroscopic analysis conducted here to tackle the issue of extra-insular interactions. An overview of the model employed in this thesis is presented in the diagram below (Figure 29).

Figure 29: Diagram showing the methodology of this study (created by Maria Hadjigavriel).





CHAPTER 5:



Pottery Production in Late Chalcolithic Cyprus: A Macroscopic Study

Chapter 5 — Pottery Production in Late Chalcolithic Cyprus: A Macroscopic Study

5.1. An Overview of the Assemblages

For this study, Late Chalcolithic pottery from four sites across Cyprus was studied macroscopically, namely: Chlorakas-*Palloures*, Kissonerga-*Mosphilia*, Ambelikou-*Agios Georghios* and Politiko-*Kokkinorotsos*. Then, a small sample was selected for compositional and technological study.

The main aims are to investigate:

1. Late Chalcolithic pottery production and technologies and their degree of variability at a local, regional, and inter-regional level.
2. The compositional and technological characterization of the dominant red and/or black pottery types selected, which represent the bulk of local production at each site.
3. The mode of organization of pottery production, since the Late Chalcolithic is a period of a marked increase in standardization in both vessel morphology and composition (Bolger & Webb, 2013, p. 45).

In this chapter, an overview of the sites and wares selected is presented, followed by the macroscopic analysis.

Comparing and constructing a multi-site typology of Late Chalcolithic pottery is a challenging task, since the assemblages are characterized by regional variability, and researchers have used different terminologies in their research and publications (Peltenburg, 1991c, p. 11; Bolger & Webb, 2013, p. 46). Different terms, classification criteria and methods have been used by pottery researchers, while the amounts of pottery from the sites vary considerably. Moreover, the currently known well-investigated Chalcolithic sites are unevenly spread across Cyprus, with the vast majority of them being along the west and south coasts of the island. Also, most sites in Cyprus do not have deep stratigraphy, so they are not multi-period sites (Frankel *et al.,* 2013a, p. 15). These sites have been excavated to different extents, by various projects and with diverse methodologies. Some of them are published in considerable detail (e.g., Kissonerga-*Mosphilia*), and some only in brief (e.g., Ambelikou-*Agios Georghios*). It should be noted that in this thesis, the following geographical distinction is followed: Chlorakas-*Palloures* and Kissonerga-*Mosphilia* are situated in western Cyprus; Ambelikou-*Agios Georghios* in northwestern Cyprus; and Politiko-*Kokkinorotsos* in central Cyprus. This division is in accordance with divisions made by previous studies of settlement distribution in Prehistoric Cyprus (Georgiou, 2007; Laoutari, 2023).

5.1.1. Western Cyprus: Chlorakas-Palloures and Kissonerga-Mosphilia

The Ktima Lowlands, an area north of the modern-day city of Paphos, is home to a cluster of prehistoric sites including the Chalcolithic Lemba-*Lakkous*, Kissonerga-*Mylouthkia*, and Chlorakas-*Palloures,* the later Kissonerga-*Skalia* and Kissonerga-*Ammoudhia,* which date up to the Middle Bronze Age, and the Late Bronze Age Maa-*Palaeokastro* (Peltenburg, 1985; 1998; Düring *et al.*, 2019; Crewe, 2014; Graham, 2013; Karageorghis, 1988; Figure 30). For this study, pottery from Chlorakas-*Palloures* and Kissonerga-*Mosphilia* has been analyzed.

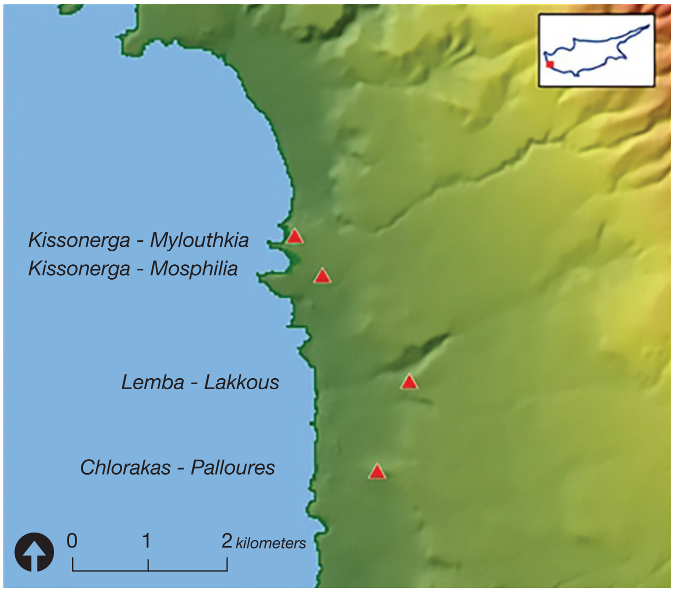


Figure 30: Overview of trenches at Chlorakas-Palloures (by Victor Klinkenberg)

To begin with, Chlorakas-*Palloures* is a settlement ascribed to both Middle Chalcolithic and Late Chalcolithic. It was first identified in the 1950s. For the Paphos District Survey it was investigated by Sophocles Hadjisavvas in 1975, and later by the Western Cyprus Survey in 1999 (Peltenburg 1979, p. 79; Düring *et al.* 2019). Excavations are being carried out by the Palloures Archaeological Project of Leiden University since 2015, under the direction of Bleda Düring. The first three years of excavation (2015-2017) took place in Plot 568, as a rescue mission. Meanwhile, in 2017, the Paphos Museum opened some trial trenches in adjacent Plot 355. Since 2019, both plots have been acquired by the Department of Antiquities of Cyprus and are now investigated by the Palloures Archaeological Project (Figure 31). Up to 2021, when sampling for this study took place, 21 trenches had been excavated, revealing 18 round houses, 15 burials, and vast amounts of pottery, chipped stone tools, ground stone and other artefacts (Düring *et al.* 2018; 2019; 2021). The pottery is being processed by Charalambos Paraskeva and Maria Hadjigavriel (Hadjigavriel 2019; 2021). Therefore, the macroscopic analysis of pottery from this site in this study concerns the totality of the assemblage recovered, as it has been studied during fieldwork seasons of 2015-2021.

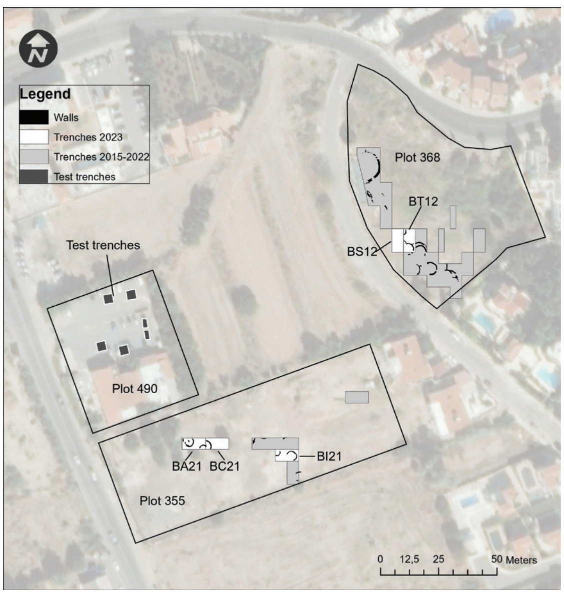


Figure 31: Overview of trenches at Chlorakas-Palloures (by Victor Klinkenberg)

This study includes the dominant ceramic types at Chlorakas-*Palloures* during the Late Chalcolithic. Samples from different Late Chalcolithic compounds/buildings within the settlement are included to investigate intra-site compositional and technological homogeneity or variability. Each ware is represented by multiple examples, including different vessel shapes, predominantly various types of bowls and storage jars. Since the excavation is ongoing, sub-periods of settlement occupation have not been finalised and the pottery analysis from various trenches has not been completed. As a result, the Late Chalcolithic is treated as a whole, and samples are taken from safely dated Late Chalcolithic contexts. The dominant Late Chalcolithic wares in the ceramic site assemblage, are the Red and Black Stroke-Burnished Ware (RB/B), Spalled Ware (SW), and Late Chalcolithic Red Monochrome Ware (LChalRM).

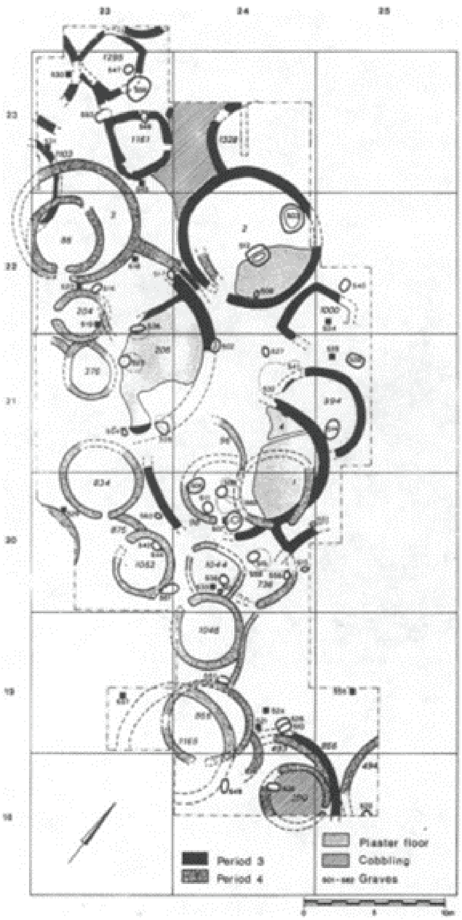


Figure 32: General plan of Kissonerga-Mosphilia in Periods 3 and 4 (after Peltenburg 1991, 22)

The second site in western Cyprus included in this study is Kissonerga-*Mosphilia.* It is first referred to in the literature in the 1950s and it was first surveyed in the 1970s (Stanley-Price, 1979, p. 143). From 1979 to 1992, it was systematically excavated by the Lemba Archaeological Project under the direction of the late Edgar Peltenburg (Peltenburg, 1998, p. lxii). Occupation at the site spans from the Late Neolithic to the Early Bronze Age: Period 1A-B is ascribed to the Neolithic, Period 2 to the Early Chalcolithic, Period 3 to the Middle Chalcolithic, Period 4 to the Late Chalcolithic and Period 5 to the Philia Phase. The excavations have revealed two main areas of activities, the Main Area, and the Upper Terrace. These are divided into 7 sequences: Sequence 1 to 6 at the Main area, and Sequence 7 at the Upper Terrace. These sequences comprise of buildings, activity areas and important finds such as the Ceremonial Area and the Pithos House (Peltenburg, 1998, pp. 6-7; Figure 32).

About 250 000 sherds have been recovered from Kissonerga-*Mosphilia*, half of which are from secure stratified contexts. Pottery processing was done according to stratigraphic sequences. In total, 20 wares were identified, which fall into three groups: monochrome, patterned and coarse (Bolger *et al*., 1998). When it comes to Period 4 (i.e. the Late Chalcolithic), the main ware is the RB/B with more than 35.000 sherds and several partial vessels (70% of the pottery retrieved), while SW accounts for 2800 sherds (ca. 6% of the pottery retrieved) (Bolger *et al.,* 1998, pp. 120-121). Both wares are macroscopically very similar to the respective wares from Chlorakas-*Palloures*. The pottery reference collection from Kissonerga-*Mosphilia* is stored at the Edgar Peltenburg Lemba Archaeological Research Centre, and it has been analysed for this study with permission from the Department of Antiquities of Cyprus and Diane Bolger.

When it comes to these two sites, my study has focused on two wares: the Red and Black Stroke-Burnished Ware (RB/B), which has been presented in Chapter 3, and the Spalled Ware (SW), which is a very hard pottery ware with pinkish-buff clay and dark inner core. Surfaces are often pock marked (spalled) and covered with a thinly applied dull red to grey-black and/or beige slip. Finally, only from Chlorakas-*Palloures*, the Late Chalcolithic Red Monochrome Fabric (LChalRM) is studied, a hard pottery ware with red/orange monochrome surfaces. It resembles a pottery type which is found in big quantities in the Polis region in northern Paphos, at sites like Makounta-*Voules*, and corresponds to what is referred to in the literature as Coarse Painted Monochrome (Maliszewski, 2013, p. 28; Lisa Graham after personal communication). At Chlorakas-*Palloures* it represents ca. 14% of the Late Chalcolithic pottery found at the site.

5.1.2. Northwestern Cyprus: Ambelikou-Agios Georghios

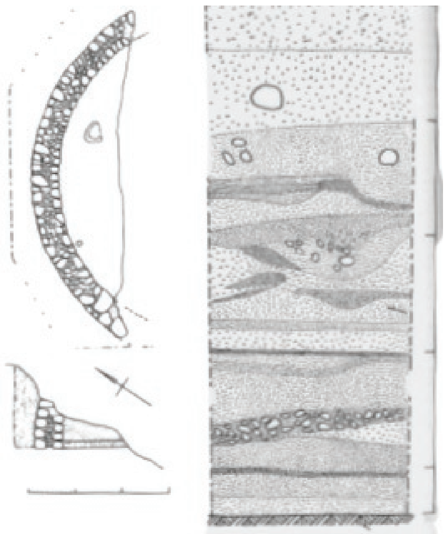


Figure 33: Architecture and section showing deposit at Ambelikou-Agios Georghios (Dikaios, 1962, p. 142)

Ambelikou-*Agios Georghios* is in the northern part of Nicosia District, west of the Agios Liontis River and close to the modern-day village of Ambelikou (VD823868 XXVII:9: West of 226 according to Stanley-Price 1979, 91 N. 2). It has been named after a church nearby dedicated to Agios Georghios, and it was partially exposed during the construction of a road in the 1940s (Dikaios, 1962, p. 141). The site was first reported by Anastasiou in 1942. In the same year, Dikaios conducted a trial excavation on behalf of the Department of Antiquities, comprised of only by one 2 x 2 m trench with depth of deposit 4.60 m, uncovering floors and debris layers. Later, in 1953, Dikaios excavated an area of 26m^2 where the modern road cuts the site and revealed part of a curvilinear stone structure (Dikaios, 1962, pp. 141-149; Stanley-Price, 1979, p. 91 N. 2; Figure 33). The excavations and the pottery were published by Dikaios (1962), while the pottery has been analysed by Gjerstad (1980), Peltenburg (1991c) and Paraskeva (2015).

When Dikaios excavated Ambelikou-*Agios Georghios*, he argued that the limited scale of the excavations prevented him from identifying phases of occupation, and thus he relied only on relative chronology based on pottery, dating the site primarily to the Late Chalcolithic (Dikaios, 1962, p. 147). During both the 1942 and the 1953 excavations, pottery and other artefacts were collected in spits of 20 cm, from the surface to bedrock. The finds of each layer were stored in wooden trays, which were named accordingly (e.g. Tray 170 1942 100-120 cm). Today at the Cyprus Museum, there are 31 trays, containing ca.3900 sherds along with flint, ground stone tools and animal bones (Figure 34).

In the publication of the site, Dikaios (1962, pp. 143-147) identified seven wares: Red Lustrous Ware, Red Black Lustrous Ware, Red-on-White Ware, Plain White Ware, Red Slip Ware, Black Polished Ware and Coarse Ware.

Figure 34: Overview of the Ambelikou-Agios Georghios material at the Cyprus Museum (by Maria Hadjigavriel)

AMBELIKOU-AGIOS GEORGHIOS ASSEMBLAGE DIVISION	
CONTEXT	TRAYS
Surface finds (1942 III22 III28)	Trays 196 and 195
440-460 cm	Trays 194 and 194A
420-440 cm	Trays 193 and 193A
400-420 cm	Trays 192 and 192A
380-400 cm	Trays 191, 191A, 190 and 189
360-380 cm	Trays 188, 187, 186 and 185
340-360 cm	Trays 184 and 183
320-340 cm	Trays 182 and 181
300-320 cm	Tray 180
280-300 cm	Tray 179
260-280 cm	Tray 178
240-260 cm	Tray 177
220-240 cm	Tray 176
200-220 cm	Tray 175
180-200 cm	Tray 174
160-180 cm	Tray 173
140-160 cm	Tray 172
120-140 cm	Tray 171
100-120 cm	Tray 170

For the purposes of this study, I have studied this assemblage macroscopically in the summer of 2021, with permission from the Department of Antiquities of Cyprus, and in the framework of the Parks Fellowship at the Cyprus American Archaeological Research Institute (CAARI). I studied the material again in February 2022 to conduct the sampling for archaeometric analysis. The assemblage was studied macroscopically using a 10x hand lens and a digital USB microscope. Both these tools helped me collect information about surface treatment and fabric of each sherd to identify the wares described by Dikaios, and to collect information on the technology of production. Every tray was studied separately, and data were input into a Microsoft Excel file. For every tray, pottery was sorted and ascribed to these categories: Abraded/Unclassified (BA/U); Late Pottery (Late); Red Lustrous Ware (RL); Red Black Lustrous Ware (RBL); Red Black Stroke-Burnished Ware (RB/B); Spalled Ware (SW); other Chalcolithic Wares (RW/RM); Coarse Ware (CW).

This analysis has showed that in a total of 3907 sherds, 24% of the pottery from Ambelikou-*Agios Georghios* is badly abraded/unclassified or belongs to later periods. This is to be expected given the type and time of the excavation. Of the Chalcolithic wares, RL and RBL are the most popular, comprising the 23% and 28% of the assemblage respectively. Finally, 3% seems to be possible imports from the Paphos Region, namely RB/B and SW (see Figures 35 and 36 below).

Figure 35: Overview of pottery at Ambelikou-Agios Georghios (created by Maria Hadjigavriel)

POTTERY AT AMBELIKOU-AGIOS GEORGHIOS

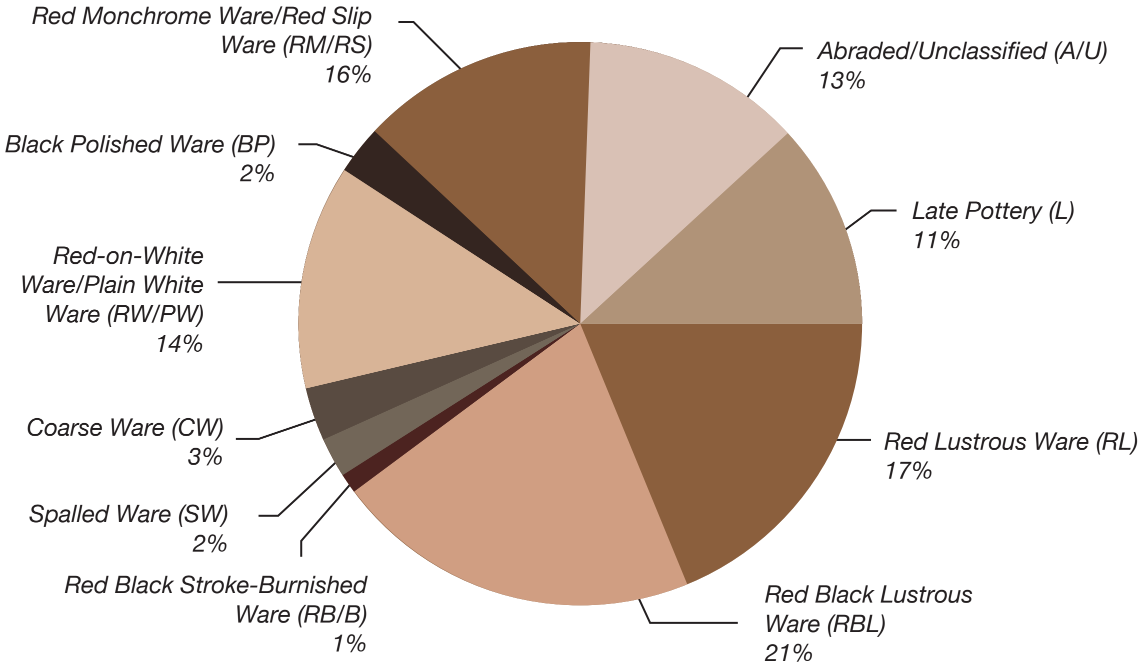
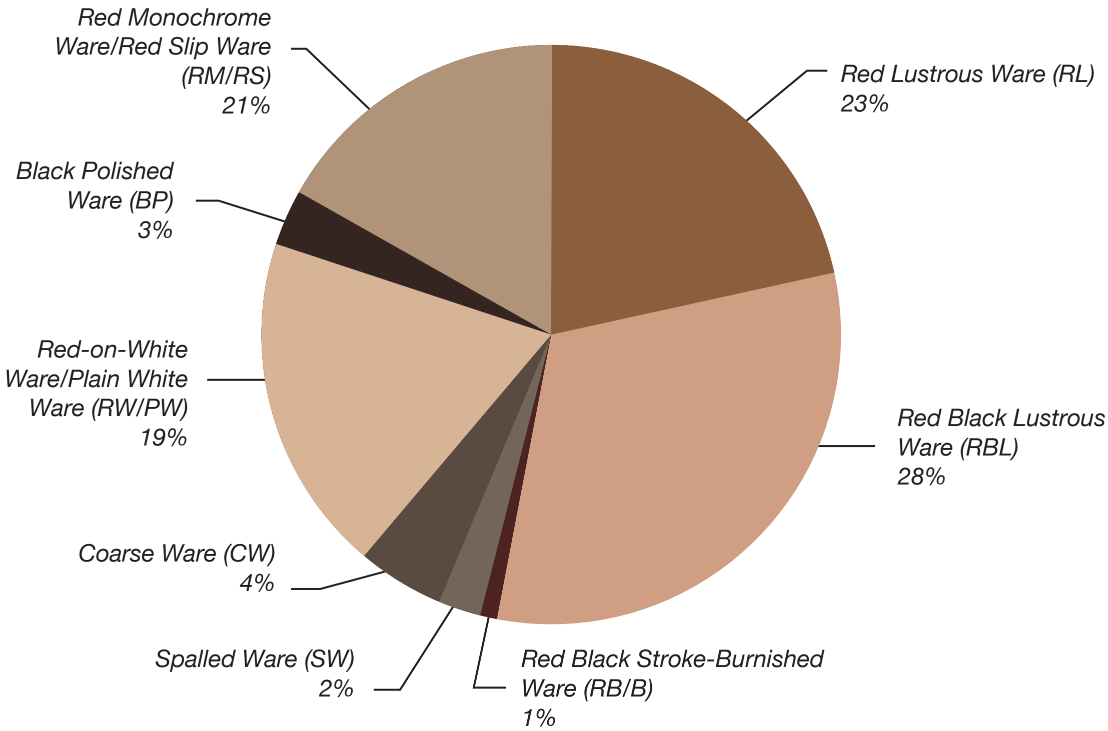


Figure 36: Overview of Chalcolithic wares at Ambelikou-Agios Georghios (created by Maria Hadjigavriel)

CHALCOLITHIC WARES AT AMBELIKOU-AGIOS GEORGHIOS



During this analysis it has been observed that wares which are ascribed to the Middle Chalcolithic, namely Red-on-White Ware, Plain White Ware and Red Monochrome/Red Slip occur in smaller quantities and mainly at the deepest layers. On the other hand, the presence of Late Chalcolithic wares such as the RL and RBL increases in the upper layers, at times reaching the 52% of the assemblage. Therefore, Dikaios' classification of the excavated layers at site primarily dating to the Late Chalcolithic is confirmed (Dikaios, 1962, pp. 147-148). Of the Chalcolithic wares four were selected for further analysis: RL and RBL because of they comprise most of the pottery production at the site; and RB/B and SW because they are possibly imports from the western part of the island. In addition to these, some sherds of CW were selected for analysis to cross-check local clays. Sherds that belong to the selected wares were catalogued in more detail. For every tray, besides their total numbers, the numbers of the following were recorded: body open; body closed; rim open; rim closed; base open; base closed; handle/lug/spout.

5.1.3. Central Cyprus: Politiko-Kokkinorotsos

Politiko-*Kokkinorotsos* is a small site west of the modern-day village Politiko, in a valley in central Cyprus. It is the only known Chalcolithic site in that area, dated to ca. 2880-2600 BC. It was first identified by the Sydney Cyprus Survey Project in the 1990s as Politiko-*Fournia* (Given & Knapp, 2003, pp. 192-7, SCY 200, CS 2907). In 2006 and 2007 it was excavated by David Frankel and Jennifer Webb of La Trobe University, revealing ca. 550 m² (Webb *et al.* 2009a; Frankel *et al.,* 2013b; Figure 37). First, in 2006, ten 1x2 m² trenches and two 1x3 m² trenches were opened. No structures were found besides a circular oven-pit with basal ash and hearth stones. Large quantities of bone and pottery were recovered and a radiocarbon sample of charcoal which gave the date of 2880-2610 cal BC. The excavation continued in 2007.

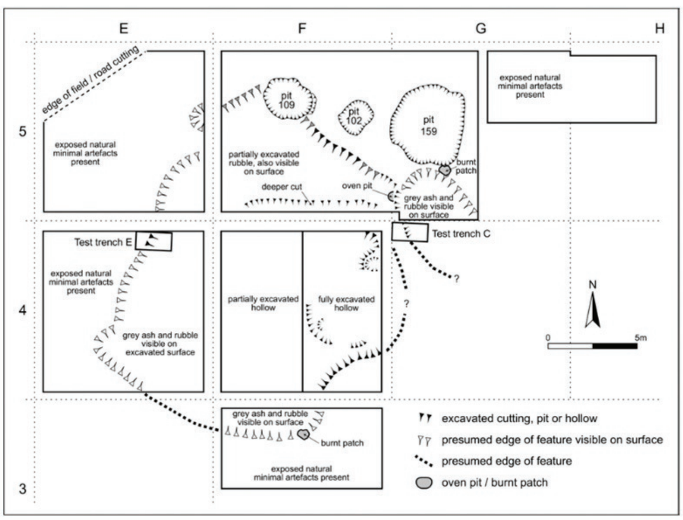


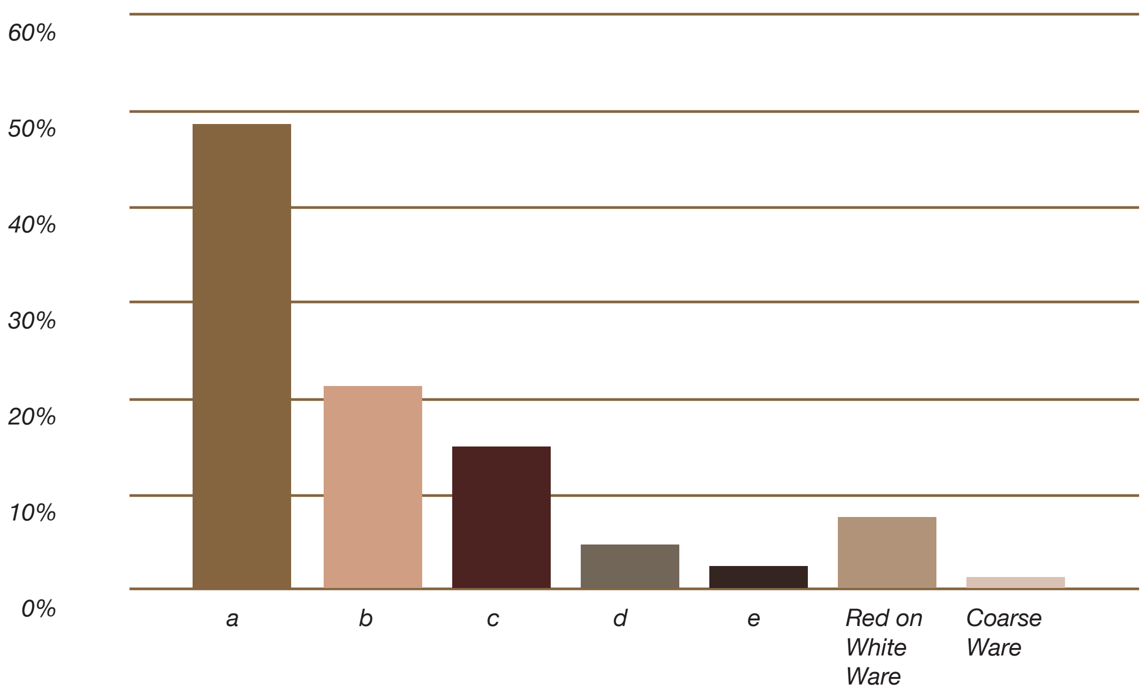
Figure 37: Plan of main area of excavations at Politiko-Kokkinorotsos (after Webb et al., 2009, p.194)

This excavation revealed a site of different character. Architecture, burials or activity areas are almost completely absent. Faunal remains of fallow deer in big quantities and chipped stone suits intensive meat exploitation, while the archaeobotanical remains and the ground stone tools indicate that domesticated plants were processed and consumed at the site. Therefore, the excavators have suggested that Politiko-*Kokkinorotsos* was a seasonal hunting station and not a permanent settlement (Webb *et al.,* 2009a, p. 189; Frankel *et al.*, 2013b, p. 94). Overall, because of the poor state of preservation at the site, it is impossible to reconstruct the size, location, or lifespan of the dwellings, or taphonomy of the finds. Therefore, in publications, the material from Politiko-*Kokkinorotsos* is treated as a single analytical entity (Webb *et al.,* 2009a, pp. 194-195).

At Politiko-*Kokkinorotsos*, 54.827 sherds were recovered, of which 1133 were kept as diagnostics. No complete vessels were found. As mentioned above, the spatial or temporal variability of the material cannot be distinguished. Webb (*et al.,* 2009a, p. 196) has distinguished seven distinct pottery varieties, which belong to three broad categories: Painted, Coarse and Unpainted. To begin with, the Painted variety is comprised primarily of the RW. Subsequently, the Coarse variety includes low-fired flat-based pans or trays, common in all Middle and Late Chalcolithic sites. Finally, the Unpainted varieties, namely Red Monochrome, Monochrome Black and Bichrome, are the most common (Figure 38). They have overlapping characteristics and they seem to belong to one pottery tradition. These Unpainted varieties are separated into five macroscopic fabrics, based on interior and exterior slip thickness and lustre, fabric texture and hardness, and the quantity of inclusions. For the purposes of this project Fabric A, Fabric B and Fabric D are studied, because of their large quantities but also their similarities to wares selected from other sites included in this study. These correspond to the Red Lustrous (RL) and Red Black Lustrous (RBL), as they have been presented in Chapter 3. Additionally, the Coarse variety (CW) is studied, to cross-check the local clays.

Figure 38: Table showing ware distribution at Politiko-Kokkinorotsos (created by Maria Hadjigavriel after Webb et al. 2009, p. 202)

DISTRIBUTION OF WARES IN THE BASIC SHERD COUNT AT POLITIKO-KOKKINOROTSOS



The 1133 diagnostic sherds from Politiko are stored at the Larnaca Museum storage units. They are all numbered (for example PK P967) and stored in boxes according to these numbers. They have been catalogued by Webb, who recorded Pottery Artefact Number, Ware, General Shape, Specific Shape, Extend of Preservation, and Excavation Context. In March 2022, consulting Webb's catalogue, I macroscopically studied the sherds ascribed to the wares of interest for this study. The methodology followed and tools used were the same as for the aforementioned three sites, and my study focused on the local variants of Red Lustrous Ware (RL) and Red Black Lustrous Ware (RBL), so Fabric A, Fabric B and Fabric D.

5.1.4. The Wares included in this study

For this study, three Late Chalcolithic red and/or black burnished wares from four sites across the island were selected for macroscopic analysis. Subsequently they were sampled for mineralogical, chemical, and microstructural characterisation, involving the use of optical polarising microscopy and handheld energy-dispersive X-ray fluorescence spectroscopy. These are the most ubiquitous wares in the Late Chalcolithic. They are comparable due to their monochrome red and/or black heavily burnished surfaces, their fine and hard fabrics, their occasional relief decoration, and the fact that they occur mainly in bowls and storage jars. These have been labelled Red Black Stroke-Burnished Ware (RB/B), the Red Lustrous Ware (RL) and the Red Black Lustrous Ware (RBL).

In addition, three more wares have been selected for analysis. To begin with, the Spalled Ware (SW), because it is a main Late Chalcolithic ware which occurs in three out of the four sites included in this study. It is a very hard pottery, and its main characteristics are its hardness and the white inclusions that are visible on the surface. Additionally, only from Chlorakas-*Palloures*, the Late Chalcolithic Red Monochrome Ware (LChalRM) was selected due to its high occurrence in storage jars and because, along with RB/B and SW, it is one of the main Late Chalcolithic wares of the site. However, it doesn't occur as commonly as RB/B and SW, and it is suspected that its imported from the Polis area (Charalambos Paraskeva after personal communication; Lisa Graham after personal communication). Finally, Coarse Ware (CW) has been sampled from Ambelikou-*Agios Georghios* and Politiko-*Kokkinorotsos*. CW is a red/brown coarse ware with almost no surface, which is usually found in domestic contexts and was probably produced locally. It occurs in low-fired flat-based pans or trays, that are common in all Middle Chalcolithic and Late Chalcolithic sites. Therefore, it is studied to cross-check local clays and whether these were used for any of the other wares.

By exploring the compositional and particularly the technological variability within and among these pottery types, an enhanced understanding of pottery technology and production in the Late Chalcolithic is obtained. Additionally, all these wares share some morphological and technological elements with subsequent Philia pottery types (e.g. Red Polished Philia Ware) but also with coeval pottery from Anatolia (e.g. Red Black Burnished Ware) and the Levant (e.g. Khirbet Kerak Ware). These stylistic similarities include highly burnished reduced surfaces and relief decoration, while the technological similarities include firing and forming techniques (Peltenburg, 2007; Bolger, 2007; 2013; Bolger & Peltenburg, 2014).

5.2. The Macroscopic Analysis

5.2.1. Clay Procurement and Preparation – The Macrofabrics

To begin with, to identify clay procurement and preparation, the macrofabrics have been identified. To do so, the following parameters have been recorded: the colour of the clay matrix, documented using a Munsell® CAPSURE Color Matching Tool; its texture (fine, medium, coarse); whether there is reduction and to what degree; hardness; and associated inclusions, identified with the help of a 10x magnification lens and a x400 USB microscope (Veho, Discovery VMS004). Inclusions where described according to their colour, size (small <3mm, medium 3–5mm, large >5mm), frequency in percentages according to the Wentworth Scale, and their sorting was categorized into well, fair, or poor, depending of both frequency and size. Voids have also been recorded. Visual charts for these parameters are presented in Appendix IV, while the terminology is explained in the Glossary in Appendix VII. As a result, six macrofabrics have been identified (Table 11).

Table 11: Overview of the macrofabric groups identified in this study (created by Maria Hadjigavriel)

MACRO-FABRIC GROUP NO.	WARES	SITES	HARD-NESS	REDUCTION - CORE	MATRIX COLOUR	INCL. COLOUR	INCL. FRE-QUENCY	INCL. SORT-ING	INCL. SIZE
1	RB/B	‣ Chlorakas-*Palloures* ‣ Kissonerga-*Mosphilia* ‣ Ambelikou-*Agios Georghios*	Hard	Reduced, diffused core margins or Reduced, no core	5YR 4/2 2.5YR 5/6 2.5Y 5/2 5YR 5/6 2.5YR 5/6 5YR 6/4	Beige Brown Grey Red Blue White	20%-30%	Poor	0.5-3.0 mm
2	SW	‣ Chlorakas-*Palloures* ‣ Kissonerga-*Mosphilia* ‣ Ambelikou-*Agios Georghios*	Very Hard	Reduced, diffused core margins or Reduced, no core	7.5YR 4/1 2.5Y 5.1 7.5YR 3/2 7.5R 5/3 2.5YR 5/4 5Y 5/1 5YR 6/3	Grey Orange Red Blue White	20%	Poor	0.5-3.0 mm
3	LChalRM	‣ Chlorakas-*Palloures*	Hard	Reduced, diffused core margins	7.5YR 5/2 7.5YR 5/3 5YR 5/4 10YR 4/3	Grey, Brown Orange White	20%	Poor	0.5-2.0 mm
4	RBL RL	‣ Politiko-*Kokkinorotsos*	Hard	Reduced, diffused core margins or Reduced, no core	7.5YR 5/3 7.5YR 5/4 2.5YR 5/6 7.5YR 5/2 5YR 5/4 2.5YR 4/4 7.5YR 5/3	Beige Brown Grey Red Orange White	10%-20%	Poor	0.5-1.0 mm
5	RBL RL	‣ Ambelikou-*Agios Georghios*	Hard	Reduced, diffused core margins or Reduced, no core	2.5YR 4/4 5YR 5/4 2.5YR 5/4 2.5YR 4/4 10R 5/6 2.5Y 5/2	Beige Brown Grey Orange Grey White	20%-30%	Poor	0.5-1.0 mm
6	CW	‣ Chlorakas-*Palloures* ‣ Kissonerga-*Mosphilia* ‣ Ambelikou-*Agios Georghios* ‣ Politiko-*Kokkinorotsos*	Very Soft	Oxidised, no core	7.5YR 5/2 7.5YR 5/3 5YR 5/4 10YR 4/3	Grey Brown Orange White	20%	Poor	0.5-2.0 mm

Macrofabric Group 1: Red/pink/orange clays with prominent red, blue and white inclusions

Sherds belonging to Macrofabric Group 1 are easily recognizable due to their bright pink to orange matrix colours, and the prominent blue inclusions (Figure 39). It is characterized by blue, grey and red inclusions, with the clay being the same bright orange/red colour as the surface. Sections are usually uniform but often with a central (sometimes somewhat irregular) or inner core (very rarely outer) with diffused or more often sharp core margins (see Appendices II and III). This indicates either a reduction phase during firing or the intentional prevention of oxidation of iron in the clay. Alternatively it could result from the duration of the oxidising phase in combination with the presence of organics that might have burned out (Orton & Hughes, 2013, pp. 152-154; Figure 13.1: 8, 10). All fragments were characterised as hard; and can barely be scratched by a fingernail, which in Mohs' hardness scale is placed between gypsum (2) and calcite (3) (Rice, 1987, p. 356, table 12.1; Orton & Hughes, 2003, p. 233). This group corresponds exclusively to the Red Black Stoke-Burnished Ware (RB/B), and has been found primarily in Chlorakas-*Palloures*, Kissonerga-*Mosphilia* with a few of these sherds in Ambelikou-*Agios Georghios*.

Figure 39: Macrofabric Group 1 sherd from Chlorakas-Palloures (photographs by Maria Hadjigavriel)

Macrofabric Group 2: Pink-buff clays with prominent large white inclusions along with red, blue and grey inclusions

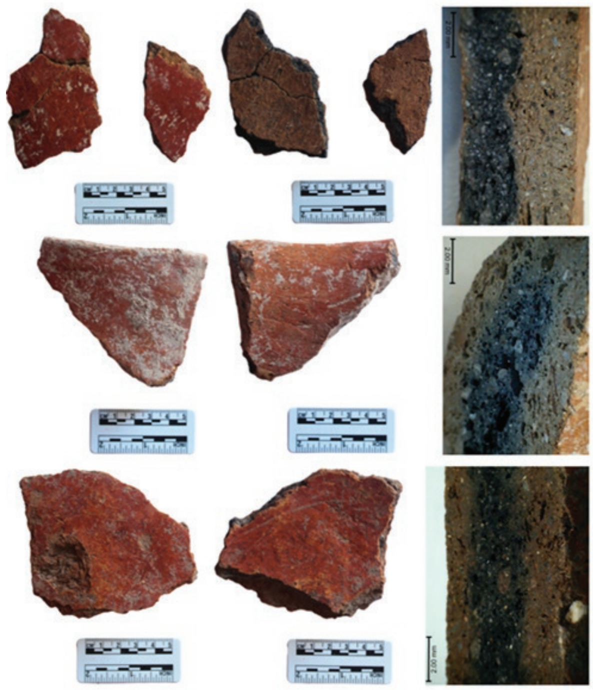
Sherds belonging to Macrofabric Group 2 have pink-buff colours. It contains the blue, grey and red inclusions present at Macrofabric Group 1 sherds, but it is dominated by often larger white inclusions (Figure 40). Sections are usually with an inner core with diffused margins, demonstrating either a reduction phase during firing or intentional prevention of oxidation of iron in the clay (Orton & Hughes, 2003, pp. 152-154; Figure 13.1: 8, 10). All fragments were documented as very hard, between calcite (3) and fluorite (4) (Rice, 1987, p. 356, table 12.1; Orton & Hughes, 2003, p. 233). This group corresponds exclusively to the Spalled Ware (SW) and it has been retrieved mainly in Chlorakas-*Palloures* and Kissonerga-*Mosphilia*, while a few sherds of this ware are known from Ambelikou-*Agios Georghios*.

Macrofabric Group 3: Dark brown clays with prominent black core and white inclusions

The Macrofabric Group 3 has dark brown clay colours and is characterized by a dark inner core, white inclusions and long voids that indicate the presence of organic matter. Inclusions include a high concentration of organic filler, specifically medium to large organics (straw or other organic materials), voids, sparse concentrations of white inclusions, and angular grey igneous filler (Figure 41). All fragments were documented as hard according to Mohs' hardness scale – (2) to (3) (Rice, 1987, p. 356, table 12.1; Orton & Hughes, 2003, p. 233). It has been found at Chlorakas-*Palloures*, and corresponds exclusively to the LChalRM ware.

Figure 40: Macrofabric Group 2 sherds from Chlorakas-Palloures and Kissonerga-Mosphilia (photographs

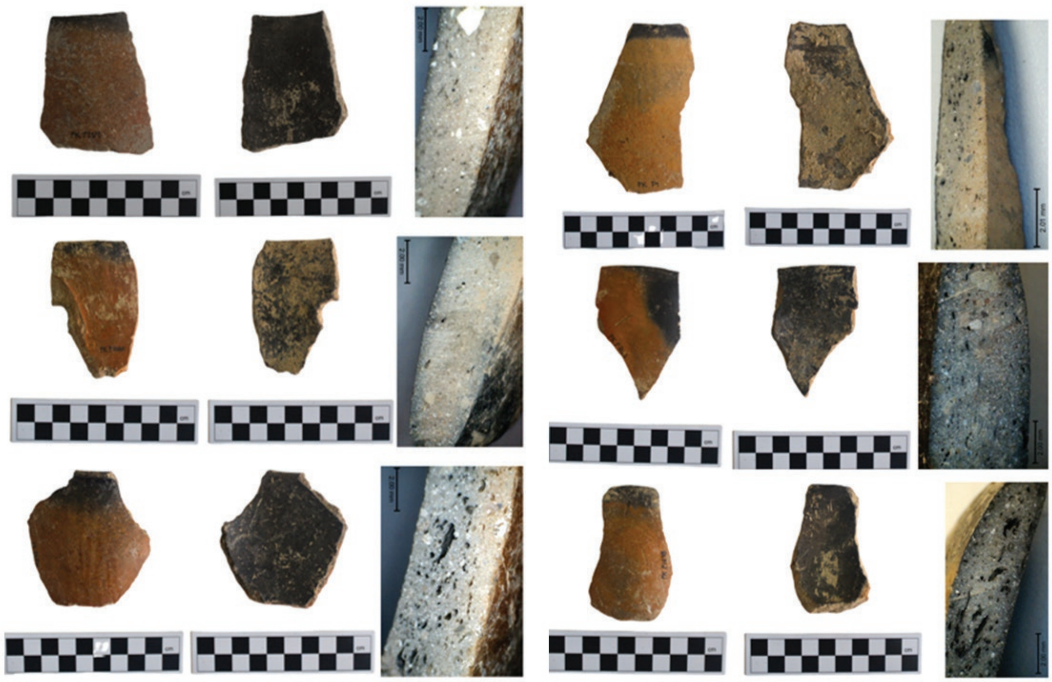
Figure 41: Macrofabric Group 3 sherds from Chlorakas-Palloures (photographs by Maria Hadjigavriel)



Macrofabric Group 4: Red/brown clays with prominent beige and brown inclusions

The sherds belonging to Macrofabric Group 4 have yellowish-red or brown clays, they are always reduced, and occasionally with a core with diffused core margins (Orton & Hughes, 2003, pp. 152-154; Figure 13.1: 8, 10; Figure 42). Inclusions can be beige, brown, grey, red, orange or white. All fragments were characterised as hard according to Mohs' hardness scale – (2) to (3) (Rice, 1987, p. 356, table 12.1; Orton & Hughes, 2003, p. 233). According to Webb, the fired sections are predominantly yellowish-red (5YR4/6, 5YR5/6) and brown (7.5YR5/4) (Webb *et al.,* 2009a, p. 198; Figure 19). Within this Macrofabric Group there is a variety which is very hard and well levigated with many small white and grey inclusions and small organics. It has been retrieved exclusively at Politiko-*Kokkinorotsos* and corresponds to the Red Lustrous Ware (RL) and the Red Black Lustrous Ware (RBL), or local Fabric A, Fabric B and Fabric D.

Figure 42: Macrofabric Group 4 sherds from Politiko-Kokkinorotsos (photographs by Maria Hadjigavriel)



Macrofabric Group 5: Orange/brown clays with small white and grey inclusions

Macrofabric Group 5 is characterized by the clay is light brown to red, with fine small inclusion of various colours, and tiny organic inclusions (Figure 43). White, grey, and red inclusions are occasionally present. Sections are usually with a central (sometimes somewhat irregular) with diffused or more often sharp margins, indicating either a reduction phase during firing (Orton & Hughes, 2003, pp. 152-154; Figure 13.1: 8, 10). In rare occasions, the sections are oxidised without a core. All fragments were characterised as hard according to Mohs' hardness scale – (2) to (3) (Rice, 1987, p. 356, table 12.1; Orton *et al.* 2003, p. 233). This group has been found exclusively in Ambelikou-*Agios Georghios*, and corresponds to the Red Lustrous Ware (RL) and the Red Black Lustrous Ware (RBL).

Figure 43: Macrofabric Group 5 sherds from Ambelikou-Agios Georghios (photographs by Maria Hadjigavriel)

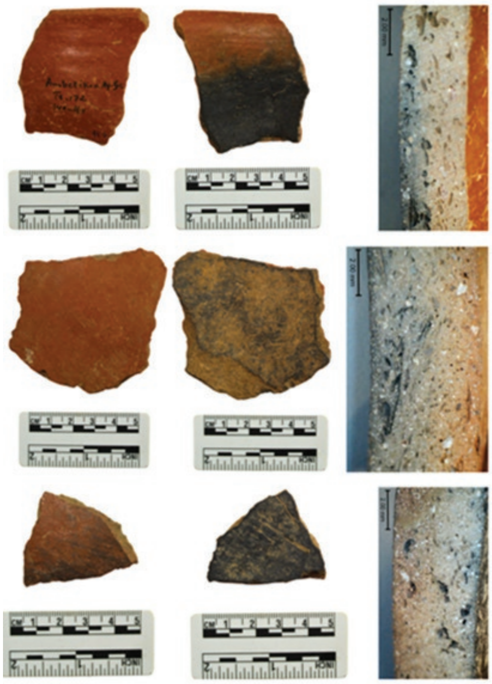


Figure 44: Macrofabric Group 6 sherds from Politiko-Kokkinorotsos (photographs by Maria Hadjigavriel)

Macrofabric Group 6: Brown clays with coarse large inclusions

Macrofabric Group 6 is the coarsest of the assemblage. The colour of the clay is light to dark brown, and is characterized by large inclusions. It has no core, and inclusions can be grey, brown, orange or white. Often, organic matter is visible (Figure 44). All fragments were documented as soft – Mohs scale (1) to (2) (Rice, 1987, p. 356, table 12.1; Orton *et al.* 2003, p. 233). It is the only Macrofabric Group that is present at all four sites and it corresponds exclusively to the Coarse Ware (CW).

5.2.2. Vessel Forming Techniques

Pottery in Late Chalcolithic Cyprus is exclusively handmade and most likely produced at household level, even though arguments for increased standardization of pottery production have been put forth (e.g. Wallace, 1995). Due to the nature of the datasets, which is comprised mostly of small sherds, a detailed reconstruction of vessel forming techniques at the four sites is not possible. However, the macroscopic analysis has confirmed that all wares are handmade and have been made with one (or a combination of) the following techniques: pinching; coiling; and slab-building. Usually, small vessels like bowls were made with the pinching technique, while larger vessels such as storage jars were made with coiling or slab-building.

5.2.2.1. Pinching

The pinching technique is one of the most common methods to form a vessel directly from a lump of clay. First, the potter forms a ball of clay, holds it in their palm and press downwards with their thump in the centre of the ball, while gradually pinching out the walls of the vessel, reaching the desired shape and wall thickness (Rye, 1981, p. 70). When examining vessels macroscopically, thumb marks on the inside of the vessel can be indicators of the pinching technique. This technique is preferred for smaller vessels such as bowls (Bolger & Shiels, 2003, p. 136).

5.2.2.2. Coiling

Coiling serves as a fundamental method for shaping pottery, wherein it is employed to establish the basic form of a vessel before further refinement through additional techniques. This process entails rolling out clay into elongated, sausage-like coils, which are then wound around like springs. Constructing a vessel using coils involves placing them around the circumference, applying pressure to merge them and incrementally raising the height. The potter would often apply some water between adding a new coil to ensure that merging will be successful (Souzana Petri, personal communication). When examining a coil-built vessels, coils can be visible due to variation in wall thickness and regular "corrugations" if the junctions were not smoohed (Rye, 1981, p. 62). Macroscopically, these coils can be visible, also in breaks that occur along their edges. This technique is preferred for bigger vessels such as storage jars (Bolger & Shiels, 2003, p. 136). Often, the potter would make the base of the vessel using the pinching technique, and then add coils to make the walls.

5.2.2.3. Slab-building

Slab-built vessels are made from flat sheets of clay merged together. The potter makes long flat slabs of clay by pushing it on a flat surface and flattening it with tools or just by hand. Then the desirable shapes are cut, for example a circle for the base and a rectangular for the walls, and then one merges them together like in the coiling technique. Similarly to the coiling technique, breaks in sherds often occur at the junctions of the slabs. This technique is difficult to recognize archaeologically, but it should be considered for large vessels (Souzana Petri, personal communication; Rye, 1981, p. 71).

5.2.3. Surface Treatment and Decoration

Surface treatment and decoration are visible attributes of a vessel and have been central for the construction of typologies but also in studies concerned with emulation of style. The assemblage studied for this project can be divided into the following broad categories of surface treatment: self-slipped, self-slipped and burnished, slipped and burnished, and with the addition of relief decoration. Mottling and reduced blackened surfaces are also a characteristic of the red and black surfaces, occurring during firing.

Slip is created by mixing water with clay until it reaches a liquid consistency, typically in a color that contrasts with the final vessel it's meant for. However, when the clay used to make the slip is the same as the clay used to produce the vessel, then the vessel is self-slipped, produced by wiping the vessel with a wet cloth (Orton & Hughes, 2013, p. 86). Burnishing can be defined as "*the effect of polishing the leather-hard surface of a pot was to align the clay mineral platelets parallel with the surface of the pot, giving it a sheen*" (Orton & Hughes, 2013, p. 90). Mottling is when irregular patches of distinct black color occur during firing, accidently or intentionally. Lastly, reduced blackened surfaces are surfaces that are uniform black and were probably created intentionally during the firing process.

5.2.3.1. Surface Treatment and Decoration of the Red Black Stroke-Burnished Ware (RB/B)

This ware has a distinct surface treatment and it can be recognised by its red to pink clay and surface colours (10R 5/6, 10R 6/6, 2.5YR 6/6, 5YR 4/2, 7.5YR 5/3) and the highly burnished and shiny surfaces, often with visible burnishing strokes (Figure 45). In both Chlorakas-*Palloures* and Kissonerga-*Mosphilia*, the surface is occasionally covered with a thin white-wash (ca. 3%). Due to its rarity, this variation is not included in this study. Sporadically, relief decoration in the form of knobs and lines occurs. Specifically, in Kissonerga-*Mosphilia*, three vessels and 43 sherds have relief decoration (Bolger *et al.*, 1998, p. 120). In Chlorakas-*Palloures*, about 15 sherds with relief decoration were recorded by the summer of 2021, when the macroscopic study and the sampling took place.

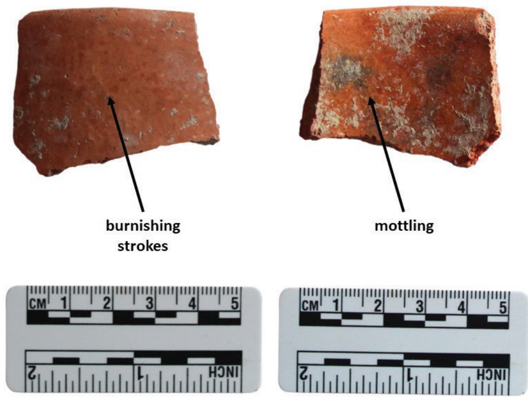


Figure 45: Surface treatments of RB/B sherds from Chlorakas-Palloures (photographs by Maria Hadjigavriel)

5.2.3.2. Surface Treatment and Decoration of the Spalled Ware (SW)

SW surfaces are often pock marked (spalled) and covered with a thinly applied dull red to grey-black and/or beige slip (7.5YR 5/2, 5YR 5/3, 2.5YR 5/4, 5YR 4/3). Only one SW sherd with relief decoration has been found in Kissonerga-*Mosphilia* and none in Chlorakas-*Palloures*, suggesting that this might be a more utilitarian ware than the RB/B (Bolger *et al.*, 1998, p. 121). In both sites, very rarely, the surface is covered with a thin white-wash in exceptional cases, a variation which has not been sampled. Often it is polished or burnished, with visible burnishing strokes like the RB/B (Figure 46).

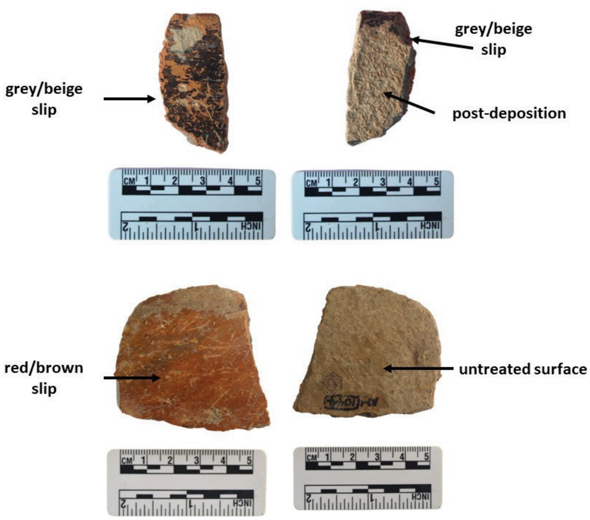


Figure 46: Surface treatments of SW sherds from Chlorakas-Palloures and Kissonerga-Mosphilia (photographs by Maria Hadjigavriel)

5.2.3.3. Surface Treatment and Decoration of the Late Chalcolithic Red Monochrome Ware (LChalRM)

Variations of this ware in the Chlorakas-*Palloures* assemblage concern mainly these surface treatments: red, orange, with blackened surfaces, plain white, Red-on-White with orange diagonally crossing parallel strokes. For the purposes of this study only the main variation is included, namely the one with a red surface (2.5YR 4/4, 5YR 5/4, 7.5YR 5/3). The interior is occasionally covered with a beige slip (7.5YR 4/3), otherwise it is left untreated (Figure 47).

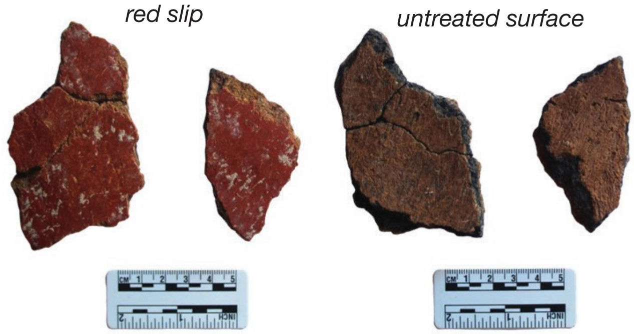


Figure 47: Surface treatments of LChalRM sherds from Chlorakas-Palloures (photographs by Maria Hadjigavriel)

5.2.3.4. Surface Treatment and Decoration of the Red Lustrous Ware (RL) and the Red Black Lustrous Ware (RBL)

RL sherds are red to orange in surface colours (10 R 4/4-5/6), and are medium to highly burnished. RBL sherds have surfaces that are blackened, usually uniformly on the interior side and irregularly on the exterior side (Dikaios, 1962, p. 143). Occasionally, RL sherds have randomly blackened spots on their surfaces (Figure 48). Therefore, the distinction between the two wares is based on the uniformity and regularity of the blackened surfaces, and not their complete absence.

In Politiko-*Kokkinorotsos*, the RBL has bichrome surface treatment with lustrous black interior and red-brown exterior, often with an irregular black band at the rim of the exterior side (Figure 49). It is worth noting that eleven of these sherds of have relief decoration. A few sherds have patterned burnishing or both relief decoration and patterned burnishing. According to Webb (*et al.*, 2009a, pp. 203-204), this variety can be considered as similar to the RBL from Ambelikou-*Agios Georghios*. RL at Politiko-*Kokkinorotsos* is described as Fabric B. It comprises the 25,5% of the assemblage. Surfaces are matt or lustrous red-brown on both the interior and exterior sides. Relief decoration also occurs (Figure 50). According to Webb (*et al.,* 2009a, pp. 203-204), this variety can be considered similar to the RL from Ambelikou-*Agios Georghios*.

Figure 48: Surface treatments of RL (right) and RBL (left) sherds from Ambelikou-Agios Georghios (photographs by Maria Hadjigavriel)

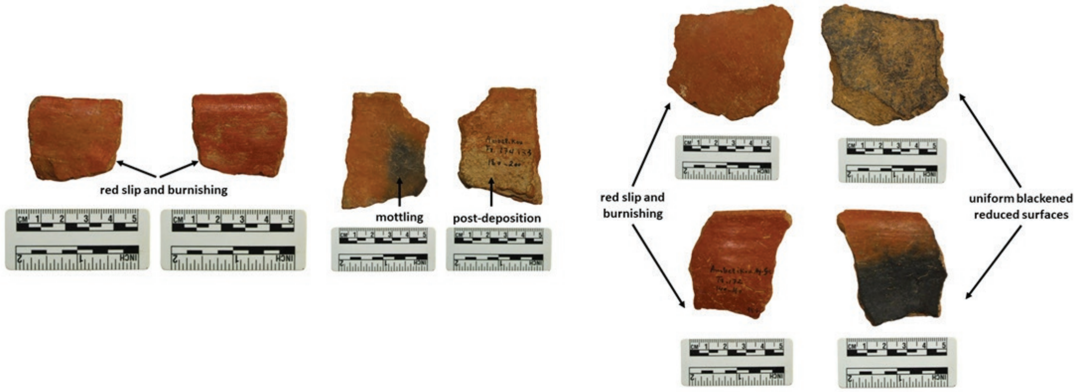


Figure 49: : Surface treatments of Fabrics A and D (RBL) sherds from Politiko-Kokkinorotsos (photographs by Maria Hadjigavriel)

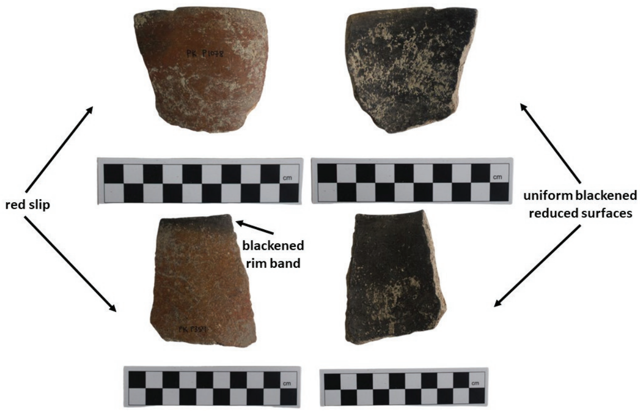
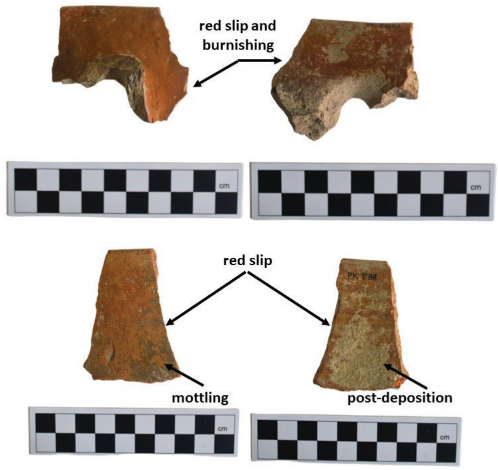


Figure 50: Surface treatments of Fabric B (RL) sherds from Politiko-Kokkinorotsos (photographs by Maria Hadjigavriel)



5.2.3.5. Surface Treatment and Decoration of the Coarse Ware (CW)

Coarse Ware (CW) from all sites has untreated surfaces, with often visible impressions of organic materials, maybe resulting from pressing the clay on baskets or other similar use surfaces (Figure 51).

Figure 51: Surface treatments of Coarse Ware (CW) sherds from Politiko-Kokkinorotsos (photographs by Maria Hadjigavriel)

5.2.4. Vessel Shapes

As already mentioned, the repertoire of Late Chalcolithic pottery is comprised mostly of several kinds of bowls and jars. Bowls were made with the pinching or the coil-building techniques, while larger jars were produced with the slab-building or the coil-building techniques (Bolger & Shiels, 2003, p. 136). Bases are mostly flat or concave, and several types of handles and lugs occur, modelled separately and then attached to the vessels. An overview of the vessel shapes occurring for each ware is presented in Table 12 below, while the most common types of bases and handles/lugs are presented in Figures 52 and 53.

5.2.4.1. Vessel Shapes of the Red Black Stroke-Burnished Ware (RB/B)

This production includes several types of bowls, jars, and spouted vessels, with relatively standardized morphologies: bowls can be categorized as hemibowls, deep, spouted, ovoid and conical. Jars can be categorized as holemouth jars and storage jars, occasionally with spouts. Platters and flasks also occur. For bowls, wall thickness varies from 0,4 to 0,9 cm and diameters from 6 to 17 cm, while for jars, wall thickness is somewhere between 0,5 to 1,5 cm and diameter from 5 to 15 cm.

5.2.4.2. Vessel Shapes of the Spalled Ware (SW)

The Spalled Ware occurs mainly in closed shapes such as holemouth and storage jars, flasks, and more rarely hemibowls and platters. Wall thickness varies from 0,5 to 1 cm and diameter from 6 to 11 cm. In Kissonerga-*Mosphilia*, closed forms outnumber open ones by 4:1, and in Chlorakas-*Palloures* a similar pattern is observed (Bolger *et al.,* 1998, p. 121; personal observations). All shapes are manufactured primarily with the coil-building technique.

5.2.4.3. Vessel Shapes of the Late Chalcolithic Red Monochrome Ware (LChalRM)

In Chlorakas-Palloures, the Late Chalcolithic Red Monochrome Ware occurs almost exclusively in large holemouth and storage jars, made with the coil-building or the slab-building technique. Less commonly, hemibowls and conical bowls also occur. There is one unique holemouth jar with three vertical handles. Wall thickness varies from 0,8 to 1,5 cm, and the diameter varies from 9 to 15 cm.

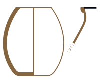
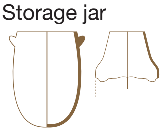
5.2.4.4. Vessel Shapes of the Red Lustrous Ware (RL) and Red Black Lustrous Ware (RBL)

In Ambelikou-*Agios Georghios,* both wares occurs in bowls, storage jars and spouted vessels, namely deep and shallow bowls, platters, buckets, holemouth jars, storage jars and spouted jugs. Wall thickness varies from 0,3 to 0,8 cm, and the diameter from 6 to 15 cm. In Politiko-*Kokkinorotsos*, the Fabric A (RBL) occurs mainly in deep spouted holemouth jars and small and medium-sized bowls. Some horn-shaped and cylindrical handles are associated with bowls and jars. Fabric D (RBL) occurs almost exclusively in closed vessels like holemouths with vertical loop and horn-shaped handles. Lastly, Fabric B (RL) occurs primarily in large storage jars with vertical loop, tab, or ledge handles. Less often, it also occurs in small bowls, holemouth jars, tubular-spouted vessels, horn-shaped handles. Wall thickness varies from 0,5 to 1 cm and rim diameter from 6 to 26 cm.

5.2.4.5. Vessel Shapes of the Coarse Ware (CW)

The Coarse Ware (CW) occurs only in low-walled flat-based trays or pans with no surface treatment and in rough flanged straw-impressed bases and body sherds, made with the slab-building technique (Webb *et al.,* 2009a, p. 200). Wall thickness varies from 1,1 to 2,5 cm.

Table 12: Table indicating the most popular vessel shapes per ware (created by Maria Hadjigavriel, with drawings by Ermina Emmanouel)

THE MOST COMMON VESSEL SHAPES PER WARE						
	Red Black Stroked-Burnished Ware (RB/B)	Spalled Ware (SW)	Late Chalcolithic Red Monochrome Ware (LChaRM)	Red Lustrous Ware (RL)	Red Black Lustrous Ware (RBL)	Coarse Ware (CW)
Hemibowl 	x	x	x	x	x	
Deep bowl 	x	x		x	x	
Ovoid bowl 	x			x	x	
Conical bowl 	x		x	x	x	
Spouted bowl 	x			x	x	
Holemouth jar 	x	x	x	x	x	
Storage jar 	x	x	x	x	x	
Spouted jar 	x	x	x	x	x	
Collared storage jar 		x	x	x	x	
Flask 	x	x		x	x	
Platter/tray 	x	x		x	x	x

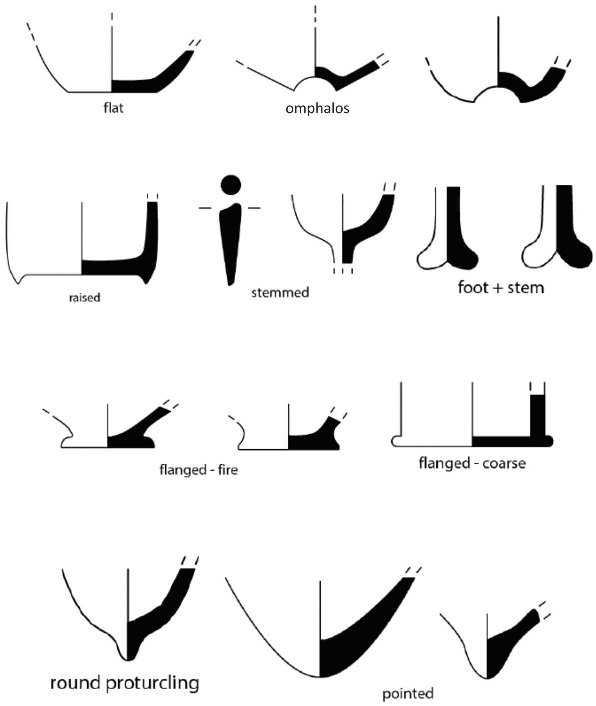


Figure 52: The most common base types in Late Chalcolithic Cyprus (created by Maria Hadjigavriel and Ermina Emmanouel)

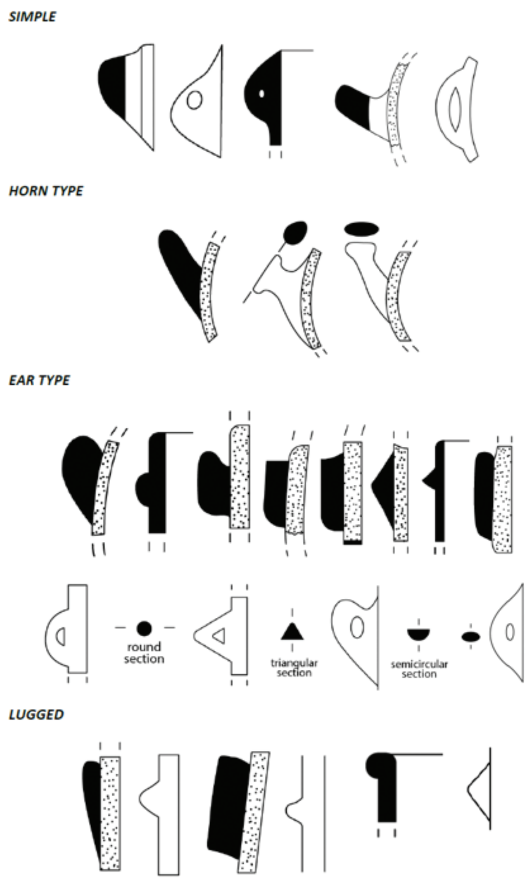


Figure 53: The most common handles and lugs types in Late Chalcolithic Cyprus (created by Maria Hadjigavriel and Ermina Emmanouel)

5.2.5. Firing

For the firing of Chalcolithic pottery, it has been suggested that open firing, pit firing, and bon-firing (so open fires in a pit or the ground surface) seem the more probable techniques, rather than kilns. It seems that Late Chalcolithic potters have learned how to reach higher temperatures and control firing better in comparison to the Middle Chalcolithic, when vessels are not that hard. Specifically, Middle Chalcolithic RW sherds range between soft and medium in hardness because they were possibly fired at open-firings of rather low temperatures. On the other hand, Late Chalcolithic pottery would be fired in steadily increasing temperatures reaching up to 600-800 °C (Charalambos Paraskeva after personal communication). Even though these temperatures do not seem that high, they are considered high for these types of firing techniques and succeeding a steady rise requires knowledge and expertise, and could indicate firing in insulated bonfires. Moreover, firing was used for aesthetic purposes in some of the wares analysed for this study. On RB/B vessels from all sites, blackened surfaces occur, which could be either accidental, by misfire, fire-flashing, incorrect position of the pots during firing, or imperfect control of oxygen flow and rapid increase of temperatures at the beginning of the firing process; or intentional by the intentional reversion of the atmosphere from oxidizing to reducing during fire (Stewart, 1985, p. 267; Bolger *et al.*, 1998, p. 145; Hadjigavriel, 2021, p. 88). During pottery processing at Chlorakas-*Palloures* we initially recorded the blackened surfaces. However, over the years we concluded that this is a characteristic of almost all of our RB/B sherds and an integral characteristic of the surface treatment of this ware.

The differences in firing are illustrated during macroscopic analysis. It is observed that RB/B and SW sherds often have a central core (sometimes somewhat irregular) or an inner core (very rarely outer) with diffused or more often sharp core margins. This indicates either a reduction phase during firing or intentional prevention of oxidation of iron in the clay, or it results from the duration of the oxidising phase in combination with the presence of organics that might have burned out. In general, LChalRM sherds are not as hard as RB/B and SW, but they all have a dark central or inner core.

In Ambelikou-*Agios Georghios* and Politiko-*Kokkinorotsos*, all RBL sherds have black lustrous interior surfaces and occasionally black exterior rims or blackened exterior surfaces, a result achieved deliberately by the “targeting” or the “black-top” techniques. Accidental blackening of surfaces can be distinguished by blackening done deliberately by the sooty deposit the first leaves behind on the surface (Stewart, 1985, p. 270). Most sherds have a central core with diffused or sharp core margins, evident in the macroscopic analysis and in thin section. The same applies to RL sherds from both sites. In general, it seems that potters in the north and central region of the island could control firing processes better, producing uniform black surfaces, in contrast to the potters in the Paphos region, where blackened surfaces are irregular (Figure 54). Whether this irregularity is intentional or not is difficult to determine. Lastly, all CW studies from all four sites are very soft, crumbly even, and not reduced at all, indicating that they were fired at very low temperatures. This is in accordance to the suggestion that pots of this ware were used a trays for food preparation and other activities rather than vessels that would be used for cooking.

(a)

(b)

Figure 54: RB/B sherd with irregular black exterior surface from Chlorakas-Palloures (a) and RBL with black uniform interior surface and exterior rim band from Politiko-Kokkinorotsos (b) (photographs by Maria Hadjigavriel)

5.3. Concluding Summary

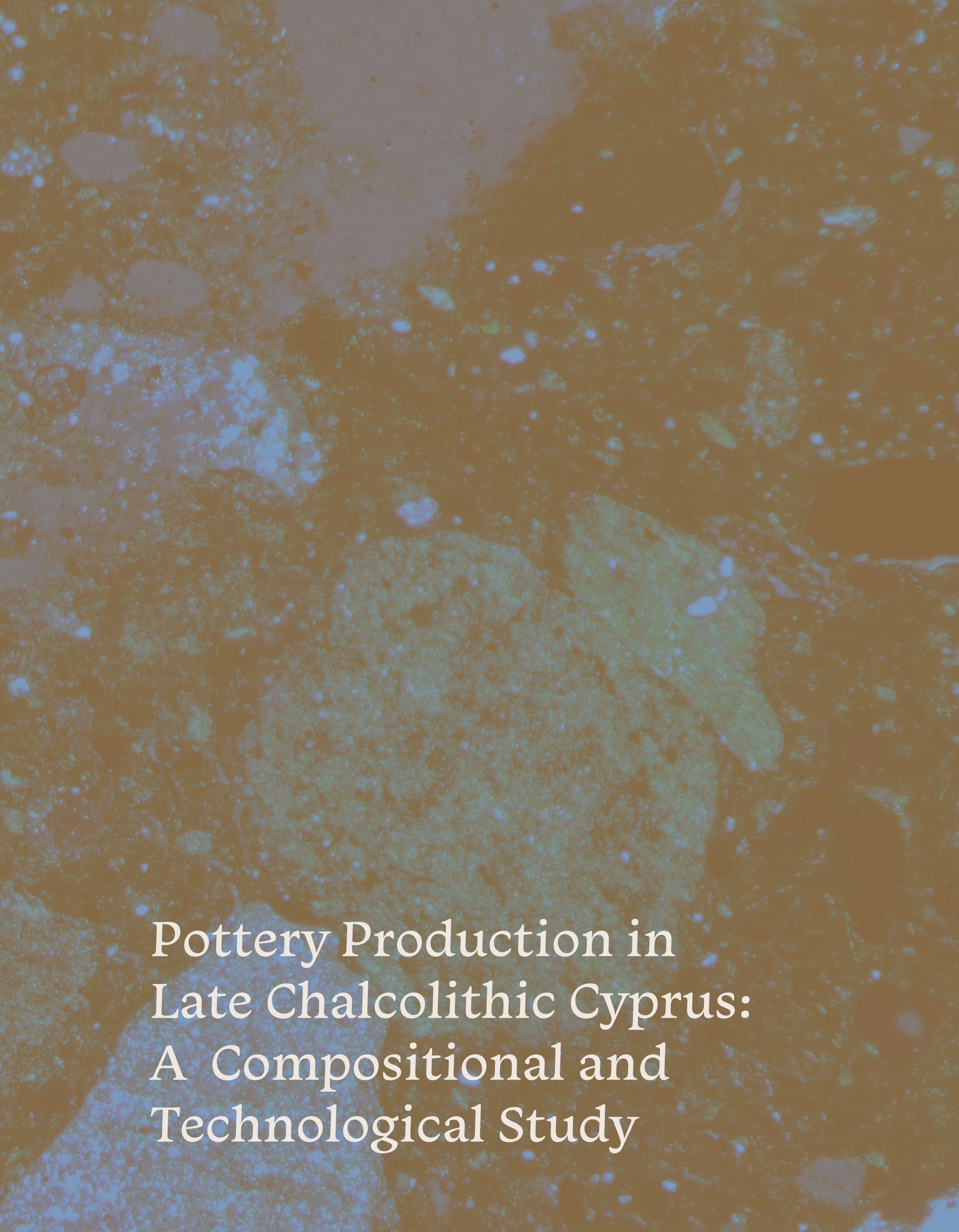
To conclude, this chapter provided an overview of the wares included in this study and the results of the macroscopic analysis. It has demonstrated that pottery production at Chlorakas-*Palloures* and Kissonerga-*Mosphilia* is extremely similar, with the Red Black Stroke-Burnished Ware and the Spalled Ware being undistinguishable between the two sites: they both belong to Macrofabric Groups 1 and 2 respectively, and have the same surface treatment and decoration, vessel forming techniques, vessel shapes and firing techniques. The Late Chalcolithic Red Monochrome Ware is represented by Macrofabric Group 3, and constitutes a different pottery production tradition than the other two aforementioned wares from Chlorakas-*Palloures*. On the other hand, in both Politiko-*Kokkinorotsos* and Ambelikou-*Agios Georghios*, we do not see a direct link between ware and macrofabric group: both Red Lustrous Ware and Red Black Lustrous Ware from Politiko-*Kokkinorotsos* belong to Macrofabric Group 4, and both of these wares from Ambelikou-Agios Georghios belong to Macrofabric Group 5. However, these wares from both sites have the same surface treatments and decorations, vessel forming techniques, vessel shapes and firing techniques. Lastly, the Coarse Ware variant from Politiko-*Kokkinorotsos* and Ambelikou-*Agios Georghios* have the same surface treatment and decoration, vessel forming techniques, vessel shapes and firing techniques. These results are outlined in the Table 13 below.

In order to further examine the assemblages and test the observations and conclusions made during the macroscopic analysis, 81 sherds have been sampled for further archaeometric analyses, in the form of ceramic thin section petrography and hhXRF. The sampling strategy and results of these analyses are presented in the following chapter.

Table 13: Overview of the results of the macroscopic analysis (created by Maria Hadjigavriel)

	Red Black Stroked-Burnished Ware (RB/B)	Late Chalcolithic Red Monochrome Ware (LChaRM)	Red Lustrous Ware (RL)	Red Black Lustrous Ware (RBL)	Spalled Ware (SW)	Coarse Ware (CW)
SITE & MACROFABRIC GROUP NO.						
Chlorakas-*Palloures*	1	3			2	
Kissonerga-*Mosphilia*	1				2	
Politiko-*Kokkinorotsos*			4	4		6
Ambelikou-*Agios Georghios*	1		5	5	2	6
SURFACE TREATMENT						
Red - highly burnished/lustre	x	x	x			
Red - highly burnished/lustre with irregular blackened surfaces	x	x	x			
Red - highly burnished/lustre and regularly blackened surfaces				x		
Grey - brown slip					x	
Relief decoration	x		x	x		
Untreated						x
FABRIC						
Soft						x
Hard	x	x	x	x		
Very Hard					x	
POPULAR SHAPES						
Bowls > jars	x			x		
Jars < bowls		x	x		x	
Trays						x

CHAPTER 6:



Pottery Production in Late Chalcolithic Cyprus: A Compositional and Technological Study

Chapter 6 — Pottery Production in Late Chalcolithic Cyprus: A Compositional and Technological Study

Following the macroscopic analysis presented in the previous chapter, 81 sherds from the four sites in question were sampled for further analysis, by employing ceramic thin section petrography and hhXRF. In this chapter the analytical methodology and research objectives are presented, followed by an overview of the geology of Cyprus and the results of the analyses. Finally, the conclusions drawn from these analyses regarding pottery production in Late Chalcolithic Cyprus are outlined.

6.1. Ceramic Thin Section Petrography

6.1.1. Analytical methodology and research objectives

Ceramic petrography was employed for the mineralogical characterization of the chosen samples, and for the identification of micro-morphological characteristics which may indicate their provenance or production technology. Sections were cut from the ceramics sherds and were prepared into thin slides that were attached to glass to create thin sections, whose average thickness doesn't surpass 30 microns. This process was conducted by me at the Science and Technology in Archaeology and Culture Research Center (STARC) of The Cyprus Institute, under the supervision of Dr. Maria Dikomitou-Eliadou and Dr. Jelena Živković, within the framework of short-term fellowship for PlaCe-ITN, a Horizon2020 Research and Innovation Programme (under the Marie Skłodowska-Curie grant agreement No 956410).

The thin sections were studied using a cross-polarising petrology microscope, which enables the study of inclusions under different optical conditions. The mineralogical composition of each sample was determined, via the identification of the inclusions in each thin section. The recording system used for this was developed by Dikomitou Eliadou (2012), and is based on that proposed by Whitbread (1995). The recording of petrographic information comprises of descriptions of the microstructure, groundmass, matrix, inclusions in fine and coarse fraction, amorphous and textural concentration features (acfs and tcfs), as defined by Whitbread (1995) (see Appendix II – Glossary). The shape, texture and degree of sorting of the mineral and rock inclusions were recorded, and references were made to the grain size, shape and distribution. The visual charts used for this were derived from Orton & Hughes (2003), and Quinn (2013), and are presented in Appendix III. Additionally, photomicrographs in cross- and plain-polarised transmitted light (XP ad PP), were taken to visually represent the fabrics and facilitate their comparison. The final images for publication were taken using a ZEISS Axiolab 5 microscope with an Axiocam 208 color camera at the STARC, The Cyprus Institute, and a Leica DM2700 P microscope with a Leica MC190 HD color camera at the Cyprus American Archaeological Research Institute (CAARI). Detailed descriptions of the fabric groups identified during this study are presented in Appendix IV.

Emphasis has been given to defining petrographic fabric groups within the samples, and the recording of any information concerning the several stages of the *chaîne opératoire* of each fabric's manufacture. It should be noted that in this study, when it comes to the petrographic descriptions, the term "fabric" "*refers to the arrangement, size, shape, frequency and composition of components of the ceramic material*" (Whitbread, 1995, p. 368). In this thesis, it also includes the mineralogical and chemical characteristics of each sample, and the characteristics related to the samples' microstructure. Fabric groups were defined, and there was an effort to recognize "core clusters" of samples that are identical or very similar (Plog & Steadman, 1989, p. 211). Mineralogical fabric groups were defined according to the presence or absence of constituents in the clay matrix of each sample, their density and mode of distribution. Samples which could not be assigned to any of the fabric groups were described as outliers and have been assigned their own fabrics.

The division of the samples into fabric groups and the recording of all visible information on their *chaîne opératoire* provided the basis for the identification of production centres, the presence or absence of imported pottery, the conduction of intra- and inter- site technological and compositional comparisons, and the identification of pottery technologies and their degree of variability at a local, regional, and inter-regional level. Therefore, the results of the petrographic analysis are compared to the results of the macroscopic analysis, facilitating an assessment of the established typological grouping of pottery wares and providing additional evidence to the technology of production of the wares in question.

6.1.2. The Geology of Cyprus

As discussed in Chapter 2, Cyprus is comprised of four main geological zones: the Troodos Ophiolite zone in the center of the island, the Kyrenia zone in the north, the Mamonia Complex zone in the west, and the Circum Troodos Sedimentary succession zone (Constantinou, 2002).

The Troodos Ophiolite is the most impressive geomorphological feature of Cyprus, forming its central component and extending over about 3, 200 km^2 (Zomeni, 2019, p. 23). In general, an ophiolite is a sequence of rock types, comprised of deep-sea sediments on top of basaltic pillow lavas, dykes, gabbro and ultramafic peridotite (Allaby, 2020). The Troodos is one of the most thoroughly studied ophiolites in the world. Additionally, the Troodos Ophiolite is of primary importance for the water supply of the island, with good aquifers, water-bearing permeable rocks, that feed perennial rivers transport around the Troodos and the plains. Several rivers flow from the Troodos massif into the sedimentary deposits of the surrounding valleys, creating alluvia that are ideal for clay extraction. Finally, the Troodos Ophiolites include the Cyprus-type massive sulphide copper ore deposits that have been of great importance for the island from the Bronze Age onwards.

Especially important for the Paphos region is the Mamonia Complex, which is situated in the southeast part of the island and it is comprised of igneous, sedimentary and metamorphic rocks, such as limestone, mudstone, quartzitic sandstone, marble, chist, amphibole, serpentine, pillow lavas and chert (Constantinou, 2002; Constantinou & Panagides, 2013, pp. 55-60). The Mamonia Complex is divided in two groups: the Upper Triassic – Lower Cretaceous Agios Photios group, and the Upper Triassic – Lower Cretaceous Dhiarizos group.

The Kyrenia zone in the north, covers the Pentadaktylos mountain range and the Karpas peninsula, and it is comprised of carbonates and sedimentary rocks, mainly limestone, sedimentary rocks like chert, and igneous and metamorphic rocks like dolomite and marble (Cyprus Geological Survey 2012; Ducloz, 1972; Constantinou, 2002; Constantinou & Panagides, 2013, pp. 61-74). Finally, the Circum Troodos Sedimentary Succession zone is an extensive zone of autochthonous sedimentary deposits, extending between the Kyrenia and Troodos ranges, comprised of bentonitic clays mélange, marl, volcaniclastics, chert, chalk, limestone, calcarenite, evaporite and clastic sediments (Constantinou, 2002; Constantinou & Panagides, 2013, pp. 75-89). A similar geological profile encircles the Troodos mountains, making it very difficult to pinpoint one source of ceramics from this zone (Dikomitou, 2012, p. 137).

Even though the geology of Cyprus has been studied thoroughly, when it comes to ceramic provenance we are faced with a difficult task. This is due to the categorization of the island into geological formations, the repetitive occurrence of multifaceted assemblages in almost all geological zones involving sedimentary, igneous and metamorphic rocks, and finally the similar geology around the Troodos.

When employing archaeometric methods for studying ancient pottery and defining their provenance, there are two basic assumptions: first, that pottery from specific areas has specific chemical composition, and differences between clay sources are larger than differences within the same clay source; and second, that the petrographic fabric groups with the highest frequency at a site represent the local production (Brodie, 1998, p. 11-12). To validate these hypotheses, a combination of data from various analyses and an overall assessment of the geology of the region is crucial.

6.1.3. Sampling Strategy and Overview of Samples

Due to the differences between the sites mentioned above, different sampling methods were followed per case. At Chlorakas-*Palloures*, samples were taken from residential contexts that are safely dated to the Late Chalcolithic, from Plots 568 and 355 (Figure 55). In total, 21 samples were selected from ten Late Chalcolithic round houses from eleven trenches in both plots. Middle Chalcolithic and Late Chalcolithic houses are circular, with stone foundations, flat roofs, and a central plastered hearth (Steel, 2004, p. 88; Peltenburg, 2014, pp. 256-257). In some cases Chalcolithic houses are semi-subterranean structures without stone foundations (Croft & Thomas, 2003, pp. 123-132). In Chlorakas-*Palloures* only two building of this type have been recovered so far, namely Buildings 13 and 14 (samples from this Buildings are not included in this study). Most of the pottery selected (14 samples), comes from two trenches that were thoroughly excavated in 2021, i.e., BI21 and BT13. BI21 is situated in Plot 355. Part of it was first excavated by the Paphos Museum during the rescue work in 2017. Subsequently the plot was confiscated and further excavations took place by the Palloures Archaeological Project.

BI21 was excavated in 2019, 2021, 2023 and 2024, and contains a large Late Chalcolithic building (Building 15), with in-situ pottery clusters. Although the centre of Building 15 is well-preserved, including the pot cluster, a plastered hearth and multiple layers of plastered floors and features; the rest is almost gone, due to ploughing and later pits. Only one small segment of the stone wall has been preserved. Samples for this study include sherds recovered during the 2021 season and sherds recovered during the 2017 rescue excavations, whose location has been georeferenced safely within the in-situ pottery clusters.

BT13 is situated in the southern part of Plot 568. It was first excavated in 2015, and excavations resumed in 2021. The samples included here were recovered during the 2021 season, from at least two Late Chalcolithic buildings situated within the trench (Building 18 and Building 22). Building 18 is a partially preserved round house in the northern profile of the trench, comprised of two wall segments, an entrance, a pivot stone and a large concentration of in-situ pottery and ground stone tools in the profile. Building 12 is preserved in adjacent trench BU13, but in BT13 only its wall collapse has been recovered so far.

The remaining samples have been selected from eight Late Chalcolithic buildings from seven trenches. Buildings 4, 5, 7, 8, and 12, in trenches BR10, BU12, BV13, BX14, and BU13 respectively, are regular round houses with stone foundations, mudbrick walls and plastered hearths. Building 1 from trenches BQ09 and BP09 is also a round house with stone foundations, but of monumental size. Its diameter is ca. 14 m and the preserved wall has ca. 1,5 m width. Lastly, in trench BO19, Units 6 and 9 have not been assigned a building number but features indicate a residential area. Therefore, in this study it is referred to as Building X.

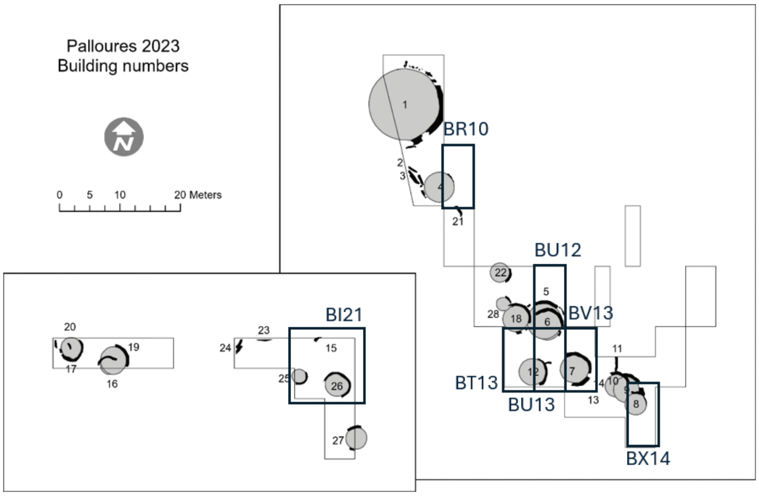


Figure 55: Overview of buildings from where samples were taken in Chlorakas-Palloures (created by Victor Klinkenberg and Maria Hadjigavriel)

Based on macroscopic studies of the pottery, It has been argued that maybe the communities of Kissonerga-*Mosphilia* and Chlorakas-*Palloures* shared clay sources and technological knowledge (Paraskeva, 2015; Hadjigavriel, 2021). Therefore, for this study, pottery from Kissonerga-*Mosphilia* has been sampled primarily to be compared with that of Chlorakas-*Palloures*. Diane Bolger selected six RB/B sherds and five SW sherds for analysis from *in situ* contexts associated with structures, which are safely dated to Period 4 (Late Chalcolithic). Specifically, two sherds come from Building 706, one sherd from Building 834, three sherds from Building 1044, three sherds from the pot spread in Building 1052, three sherds from the pot spread 1162 in Building 1052, and one sherd from Building 1165.

For Ambelikou-*Agios Georghios*, after the macroscopic analysis was conducted, 25 samples were selected for further analysis: namely seven sherds of RL, two sherds of RB/B, five SW, eight RBL, and three sherds of CW. Similarly, following the macroscopic analysis of the Politiko-*Kokkinorotsos* assemblage, 24 samples were selected for further analysis: seven sherds of Fabric A (RBL), seven sherds of Fabric B (RL), seven sherds of Fabric D (RBL) and three sherds of the Coarse Variety. At these sites, the context of the sherds was not taken under consideration.

For this project, 20 RB/B sherds have been sampled, of which nine are from Chlorakas-*Palloures* and six from Kissonerga-*Mosphilia*. All of them are bowls. In addition, two rim sherds from Ambelikou-*Agios Georgios* have been sampled due to their morphological and stylistic similarities to RB/B.

Subsequently, 17 SW sherds have been sampled: seven from Chlorakas-*Palloures*, (four rims from bowls, a rim of a jar and two jar body sherds); four jar body sherds, and one bowl body sherd from Kissonerga-*Mosphilia*; and five sherds from Ambelikou-*Agios Georghios* (one spout and four body sherds of closed vessels, likely jars). Finally, five LChalRM sherds from Chlorakas-*Palloures* have been sampled, four from jars, two body sherds and two rims, and one rim of a bowl.

From Ambelikou-*Agios Georgios,* in addition to the seven sherds possibly from the Paphos region mentioned above, seven RL, five RBL, and three CW sherds have been sampled. For the RL and RBL, eight are rims of bowls, one rim of jar, and three bowl body sherds. From Politiko-*Kokkinorotsos*, for this study, seven Fabric A sherds have been sampled, three rims of bowls, and four rims of jars. Also, seven Fabric D sherds have been sampled, three bowl rims and four jar rims. Finally, three CW sherds were sampled from Politiko-*Kokkinorotsos*. An overview of the samples is presented in Table 14 below and in Appendix IV. The macroscopic analysis of these 81 samples is presented in Appendix V.

Table 14: Overview of samples selected for archaeometric analysis (created by Maria Hadjigavriel)

OVERVIEW OF SAMPLES							
Ware - Shape - Vessel Part			Chlorakas-*Palloures*	Kissonerga-*Mosphilia*	Ambelikou-*Agios Georghios*	Politiko-*Kokkinorotsos*	Total sherds per ware
Red Black Stroked-Burnished Ware (RB/B)	Bowl	body	-	5	-	-	20 sherds
		rim	9	1	5	-	
Spalled Ware (SW)	Bowl	body	-	-	-	-	17 sherds
		rim	-	-	-	-	
	Jar	body	2	5	4	-	
		rim	5	-	-	-	
		spout	-	-	1	-	
Red Lustrous Ware (RL)	Bowl	body	-	-	1	-	14 sherds
		rim	-	-	5	1	
	Jar	body	-	-	-	-	
		rim	-	-	1	6	
Red Black Lustrous Ware (RBL)	Bowl	body	-	-	2	-	19 sherds
		rim	-	-	3	6	
	Jar	body	-	-	-	-	
		rim	-	-	-	8	
Late Chalcolithic Red Monochrome Ware (LChalRM)	Bowl	body	-	-	-	-	5 sherds
		rim	1	-	-	-	
	Jar	body	2	-	-	-	
		rim	2	-	-	-	
Coarse Ware (CW)	Pan or Tray	base	-	-	3	3	6 sherds
Total sherds per site			21 sherds	11 sherds	25 sherds	24 sherds	**81 sherds**

6.1.4. Petrographic examination of samples

As a result of the petrographic examination, the 81 ceramic samples were divided in seven different petrographic fabrics and four outliers (Table 15). An overview of these fabrics and the outliers is present in the Tables 16, 17 and 18 below. A detailed description of all seven fabrics can be found in Appendix VI.

Table 15: The identified petrographic fabrics, as defined by ceramic thin section petrography (created by Maria Hadjigavriel)

Fabric no.	Short fabric description	No. of samples	% of samples	Samples	Wares	Macrofabric Group	Site(s) represented
I	Fabric with dominant presence of argillaceous inclusions	9	11%	S25, S28, S29, S30, S31, S32, S47, S72, S73	RB/B	1	‣ Palloures *(6 samples)* ‣ Mosphilia *(1 sample)* ‣ Ambelikou *(2 samples)*
II	Fabric with dominant presence of argillaceous inclusions, common sandstone and few dolerite fragments	7	9%	S26, S27, S33, S46, S48, S50, S52	RB/B	1	‣ Palloures *(3 samples)* ‣ Mosphilia *(4 samples)*
III	Fabric with dominant presence of micritic limestone and chert	17	21%	S34, S35,S36, S37, S38, S39, S40, S51, S53, S54, S55, S56, S74, S75, S76, S77, S78	SW	2	‣ Palloures *(7 samples)* ‣ Mosphilia *(5 samples)* ‣ Ambelikou *(5 samples)*
IV	Fabric with dominant presence of amphibole, feldspars and quartz	5	6%	S41, S42, S43, S44, S45	LChalRM	3	‣ Palloures *(5 samples)*
V	Fabric with dominant presence of carbonates	10	12%	S4, S8, S11, S14, S15, S18, S19, S20, S21	RL,RBL	4	‣ Politiko *(10 samples)*
VI	Fabric with dominant presence of feldspars and dolerite	14	17%	S1, S2, S3, S5, S6, S7, S9, S12, S10, S13, S16, S17, S22, S23, S24	RL,RBL, CW	4 6	‣ Politiko *(14 samples)*
VII	Fabric with dominant presence of dolerite and basalt	15	19%	S57, S58, S59, S60, S61, S62, S63, S64, S65, S66, S67, S68, S69, S70, S81	RL,RBL, CW	5 6	‣ Ambelikou *(15 samples)*
Outlier 1	Fabric with dominant presence of red argillaceous inclusions	1	1.25%	S49	RB/B	1	‣ Mosphilia *(1 sample)*
Outlier 2	Fabric with dominant presence of igneous inclusions and chert	1	1.25%	S71	RBL	5	‣ Ambelikou *(1 sample)*
Outlier 3	Fabric with dominant presence of quartz, basalt and clinopyroxenes	1	1.25%	S79	CW	6	‣ Ambelikou *(1 sample)*
Outlier 4	Fabric with dominant presence of chert and orthopyroxenes	1	1.25%	S80	CW	6	‣ Ambelikou *(1 sample)*
Totals		81	100				

Table 16: Description of the seven main petrographic fabrics of this study (created by Maria Hadjigavriel)

Petrographic Fabric	Fabric I	Fabric II	Fabric III	Fabric IV	Fabric V	Fabric VI	Fabric VII
Sample (n=) (% of the overall sample)	9 (11%)	7 (9%)	17 (21%)	5 (6%)	10 (12%)	14 (17%)	15 (18%)
Sample codes	S25, S28, S29, S30, S31, S32, S47, S72, S73	S26, S27, S33, S46, S48, S50, S52	S34, S35, S36,S37, S38, S39, S40, S51, S53, S54, S55, S56, S74, S75, S76, S77, S78	S41, S42, S43, S44, S45	S4, S8, S11, S14, S15, S16, S18, S19, S20, S21	S1,S2, S3, S5, S6, S7, S9, S12, S10, S13, S17, S22, S23, S24	S57, S58, S59, S60, S61, S62, S63, S64, S65, S66, S67, S68, S69, S70, S81
Matrix (XP)	light to dark orange; moderately optically active to optically inactive	dark orange to dark brown; moderately optically active	dark yellow/orange to dark brown; moderately optically active	yellow to dark orange and dark brown/grey; moderately optically active	dark orange/red to dark grey/brown; moderately optically active	yellow to red/orange, and dark grey/brown; moderately optically active	dark orange/red to dark grey/brown; moderately optically active
Voids	rare meso planar voids parallel to the section's margins (<2%); rare macro vughs (<5%); dominant meso and micro vughs (<10%); randomly oriented; close- to double-spaced	some mega planar voids parallel or vertical to the section's margins (<5%); frequent meso and micro vughs (<10%); randomly oriented; close- to double-spaced	common to few planar voids, parallel to the section's margins (<5%); rare meso vughs (<2%); dominant micro vughs (<10%); randomly oriented; close- to double-spaced	common to few planar voids parallel to the section's margins (<10%); rare meso vughs (<2%); common micro vughs (<5%); randomly oriented; close-to double-spaced	rare to absent planar voids (<2%); rare macro vughs (<5%); common meso and micro-vughs (<10%); randomly oriented; singe to open-spaced	rare to absent planar voids (<2%); rare macro vughs (<2%); common meso and micro-vughs (<5%); randomly oriented; singe to open-spaced	rare to absent planar voids (<1%); rare macro vughs (<2%); common meso and micro-vughs (<5%); randomly oriented; singe to open-spaced

Table 17: Description of the seven main petrographic fabrics of this study (created by Maria Hadjigavriel)

Petro-graphic Fabric	Fabric I	Fabric II	Fabric III	Fabric IV	Fabric V	Fabric VI	Fabric VII
Grain size - *coarse fraction* - *fine fraction*	- from pebbles to fine sand - of fine sand & below	- from pebbles to fine sand - of fine sand & below	- from pebbles to fine sand - of fine sand & below	- from pebbles to fine sand - of fine sand & below	- from pebbles to fine sand - of fine sand & below	- from pebbles to fine sand - of fine sand & below	- from pebbles to fine sand - of fine sand & below
c:f:v *0.0625mm*	45:45:10	50:45:5	50:45:5	55:35:10	45:45:10	55:40:5	45:45:10
Inclusions	poorly sorted inclusions; bimodal grain-size distribution; dominant argillaceous inclusions (++); common chert & opaques(+); few monocrystalline quartz(-); rare sandstone, textural concentration features & feldspars (--)	poorly sorted inclusions; bimodal grain-size distribution; dominant argillaceous inclusions, chert & serpentinite (++); common sandstone, polycrystalline quartz & opaques(+); few siltstone, gabbro, basalt & micritic limestone(-)	poorly sorted inclusions; bimodal grain-size distribution; dominant micritic limestone, chert & argillaceous inclusions (++); common sandstone, polycrystalline quartz, opaques & serpentinite (+); few polycrystalline quartz, basalt and calcite (-)	well sorted inclusions; bimodal grain distribution; dominant amphiboles, feldspars, monocrystalline & polycrystalline quartz(++); common serpentinite, basalt, olivine, dolerite (+); few gabbro, sandstone, quartzite, opaques & mi critic limestone (-)	poorly sorted inclusions; bimodal grain distribution; dominant microfossils, mi critic limestone & feldspars(++); common serpentinite, opaques, basalt, polycrysta 11 i ne quartz(+); few sandstone & dolerite(-); rare olivine, orthopyroxenes & clinopyroxenes (--)	poorly sorted inclusions; bimodal grain distribution; dominant feldspar, polycrystalline quartz & dolerite (++); common serpenti n ite, biotite, monocrystalline quartz, opaques, clay pellets & orthopyroxenes (+), few basalt & clinopyroxenes (-); rare olivine, sandstone, micritic limestone & microfossils (--)	poorly sorted inclusions; bimodal grain distribution; dominant dolerite & basalt(++); common clinopyroxenes, feldspar, monocrystalline & polycrystalline quartz & opaques(+); few amphiboles & olivine(-); rare granitic rock
% (sub) rounded - % (sub) angular	60-40	50-50	50-50	40-60	30-70	60-40	60-40

Table 18: Description of the four outliers of this study (created by Maria Hadjigavriel)

Petro-graphic Fabric	Outlier 1: Fabric with dominant presence fo red argillaceous inclusions	Outlier 2: Fabric with dominant presence of igneous inclusions & chert	Outlier 3: Fabric with dominant presence of quartz, basalts & clinopyroxenes	Outlier 4: Fabric with dominant presence of radiolarian chert & orthopyroxenes
Sample (n=) (% of the overall sample)	1 (1%)	1 (1%)	1 (1%)	1 (1%)
Sample codes	S49	S71	S79	S80
Matrix (XP)	light to dark orange; moderately optically active	dark orange/red to dark grey/brown; moderately optically active	dark orange/red to dark grey/brown; moderately optically active	dark orange/red to dark grey/brown; moderately optically active
Voids	dominant mesa & micro vughs (<10%); some mesa planar voids, occasionally parallel to the section's margins (<5%); rare macro vughs (<2%); randomly oriented; close- to double-spaced	rare to absent planar voids (<1%); rare macro vughs (<2%) and common mesa & micro-vughs (<5%); randomly oriented; singe to open-spaced	rare to absent planar voids (<1%); rare macro vughs (<2%); common mesa & micro-vughs (<5%); randomly oriented; singe to open-spaced	rare to absent planar voids (<1%); rare macro vughs (<2%); common mesa & micro-vughs (<5%); randomly oriented; singe to open-spaced
Grain size *- coarse fraction* *- fine fraction*	- from pebbles to fine sand - of fine sand & below	- from pebbles to fine sand - of fine sand & below	- from pebbles to fine sand - of fine sand & below	- from pebbles to fine sand - of fine sand & below
c:f:v *0.0625mm*	60:35:5	45:45:10	45:45:10	65:25:10
Inclusions	poorly sorted inclusions; bimodal grain-size distribution; dominant red/brown argillaceous inclusions (++); common chert & opaques (+); few quartz (-); rare sandstone (--)	poorly sorted inclusions; bimodal grain-size distribution; dominant dolerite & radiolarian chert (++); common feldspars, sandstone, opaques & quartz (+); few olivine (-)	poorly sorted inclusions; bimodal grain-size distri-bution; dominant quartz, basalt & clinopyroxenes (++); common feldspar, dolerite & opaques(+); few olivine (-)	poorly sorted inclusions; bimodal grain-size distribution; dominant radiolarian chert, orthopyroxenes & micritic limestone (++); common quartz & opaques (+); few olivine (-)
% (sub) rounded - % (sub) angular	60-40	60-40	60-40	60-40

Fabric I: Fabric with dominant presence of argillaceous inclusions

Fabric I, accounts for 11% of the overall dataset (9 samples). Out of nine samples, six have been sampled from Chlorakas-*Palloures*, one from Kissonerga-*Mosphilia*, and two from Ambelikou-*Agios Georghios*, and all correspond to the RB/B ware. It is characterized by the dominant presence of argillaceous inclusions, coexisting with chert and sandstone. It should be noted that the term "argillaceous inclusions" is used following Whitbread (1986), who uses it to describe a broad range of argillaceous materials, including rock fragments and clay pellets. Here, they vary in composition and textural characteristics, even within the same thin section, so this term is preferred. Most are mudstone fragments, mostly grey ones with some visible unidentified constituents in very fine fraction. Some are partly oxidised presenting an area of colour transformation to brown or brownish-red. There are also some that are range to dark yellow, and a few are dark reddish-brown. Other inclusions are chert, opaques, and monocrystalline quartz. Rarely, sandstone containing iron oxides, quartz, opaque and/or mica, and small feldspar fragments occurs. Also, some rare textural concentration features are present in some of the samples. For example, in S25, there's a textural concentration feature 1.8 mm in long diameter, containing argillaceous material, quartz and small sedimentary rock fragments of grey/beige micritic texture with a darker brown fabric.

Overall this is a sedimentary-oriented fabric, with a relatively fine matrix. The clay matrix is thick and in red/dark red colours. There are no indications of clay refinement, considering the size of the inclusions. The argillaceous inclusions vary in colour due to the temperature and atmosphere during firing. Variation in firing conditions is also indicated by the fact that samples range from optically active to totally optically inactive and blackened (e.g. S25) (Figures 56, 57, 58, 59).

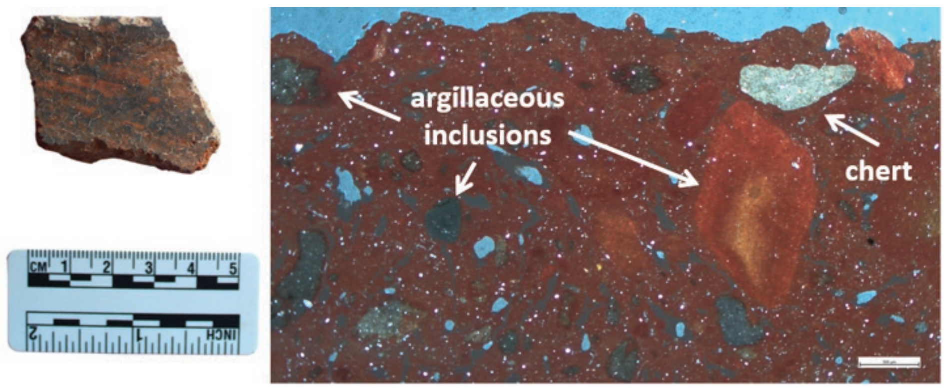


Figure 56: S31 – RB/B from Chlorakas-Palloures, assigned to Fabric I (photomicrograph taken under XP x2,5)

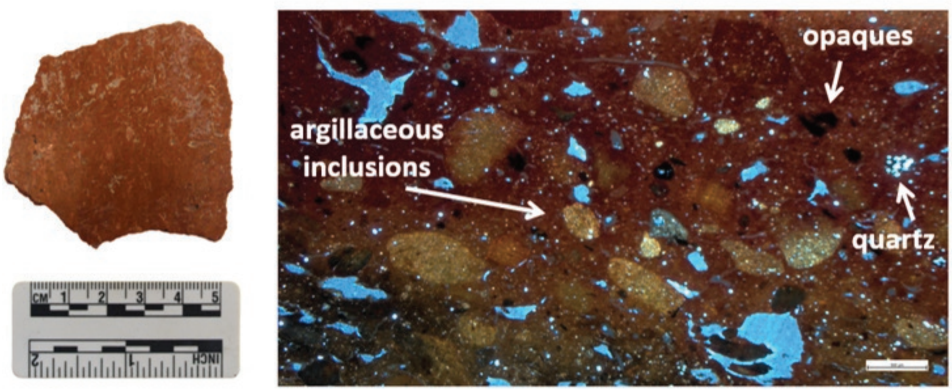


Figure 57: S47 – RB/B from Kissonerga-Mosphilia, assigned to Fabric I (photomicrograph taken under XP x2,5)

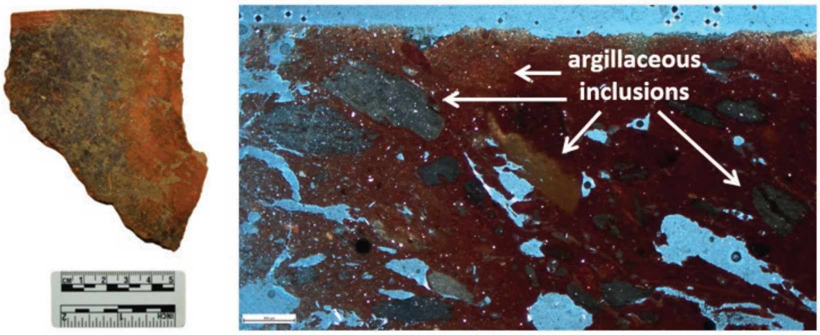


Figure 58: S73 – RB/B from Ambelikou-Agios Georghios, assigned to Fabric I (photomicrograph taken under XP x2,5)

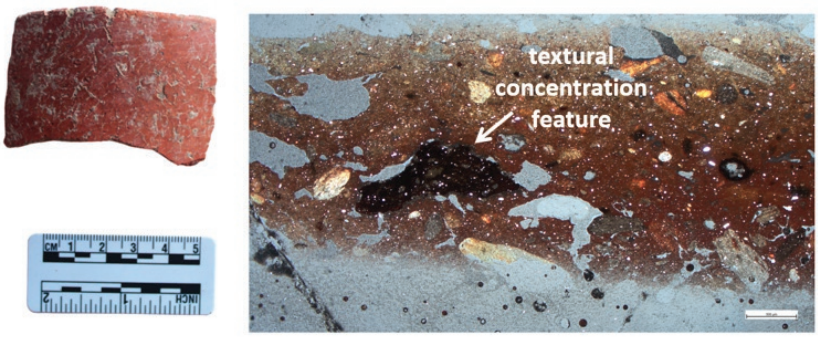
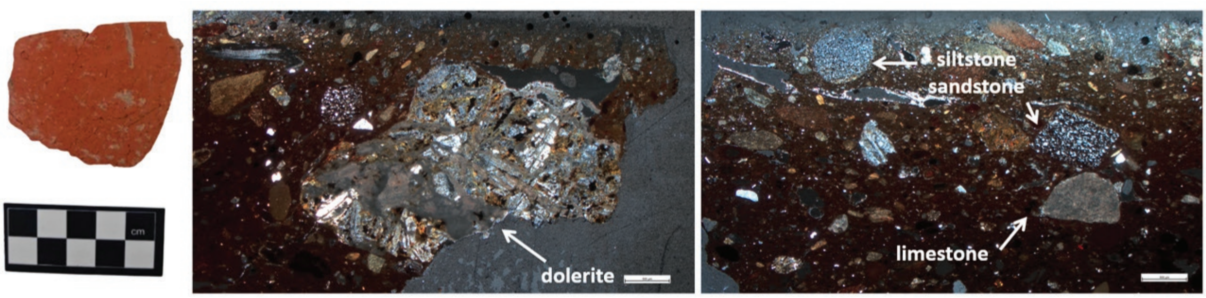


Figure 59: S25 – RB/B from Chlorakas-Palloures, assigned to Fabric I (photomicrograph taken under XP x2,5)

Fabric II: Fabric with dominant argillaceous inclusions, common sandstone and few dolerite fragments

Fabric Group II (7 samples, 9% of the overall sample), is dominated by argillaceous inclusions but also contains sandstone and dolerite. Samples derive from Chlorakas-*Palloures* and Kissonerga-*Mosphilia*, and all correspond to the RB/B ware. Just like in Fabric I, grey/blue, yellow and red argillaceous inclusions, these being mudstone fragments are dominating the matrix. Chert and serpentinite are also common inclusions, and polycrystalline quartz, opaques, siltstone, and sandstone have also been recorded (Figures 60 and 61). Overall this fabric is similar to Fabric I, but appears to derive from a different clay source since there is more mixing of various inclusions and the matrix is quite heterogeneous. The red/orange colour of serpentinite is due to the firing temperature, indicating firing above 650°C, since serpentinite changes colour in the range of 650°-750°C (Figure 62).

Figure 60: S26 – RB/B from Chlorakas-Palloures, assigned to Fabric II (photomicrographs taken under XP x2,5)



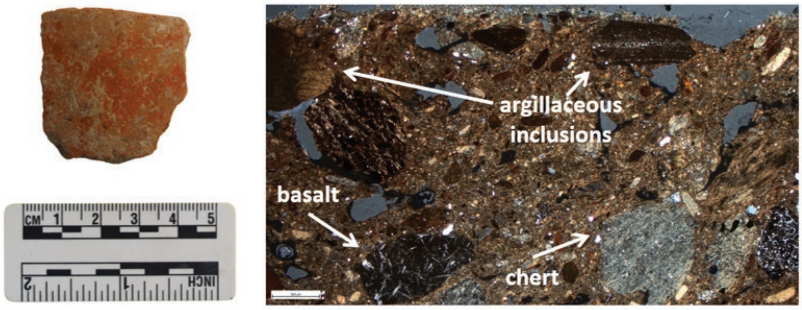


Figure 61: S46 – RB/B from Kissonerga-Mosphilia, assigned to Fabric II (photomicrographs taken under XP x2,5)

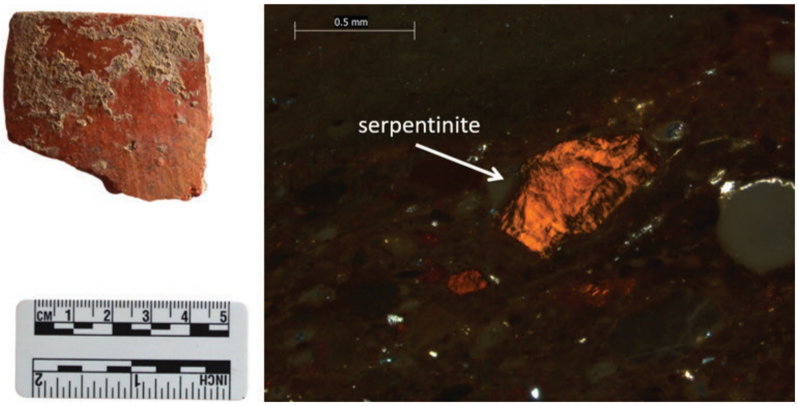


Figure 62: S33 - RB/B from Chlorakas-Palloures, assigned to Fabric II (photomicrograph taken under XP x5)

Fabric III: Fabric with dominant presence of micritic limestone and chert

Fabric III is defined by the dominant presence of micritic limestone, and chert. It is the largest fabric group within the sample, representing 21% (17 samples). All the samples correspond to the SW and derive from all sites except from Politiko-*Kokkinorotsos*. Micritic limestone fragments can be up to 5 mm in diameter, and contain microfossils, opaques and quartz grains in fine fraction, and occasionally, they contain iron oxides. Chert fragments are smaller, not exceeding 0.8 mm in diameter. Sandstone, serpentinite, monocrystalline quartz and opaques are also common inclusions of this fabric, along with a few fragments of basalt and some polycrystalline quartz grains. In fine fraction, argillaceous inclusions, opaques, quartz, mica, serpentinite and feldspars are observed (Figures 62, 63, 64). In some samples large calcite fragments are present. Overall, there seems to be hardly any refinement in this fabric group, and there are a lot of plant inclusions. Three samples (S36, S39, S40), are distinguished by the overly dominant presence of monocrystalline quartz in both coarse and fine fraction. However, this might be because of the lack of variability in the thin sections, and they are not different enough to be categorized as a different fabric group or sub-group.

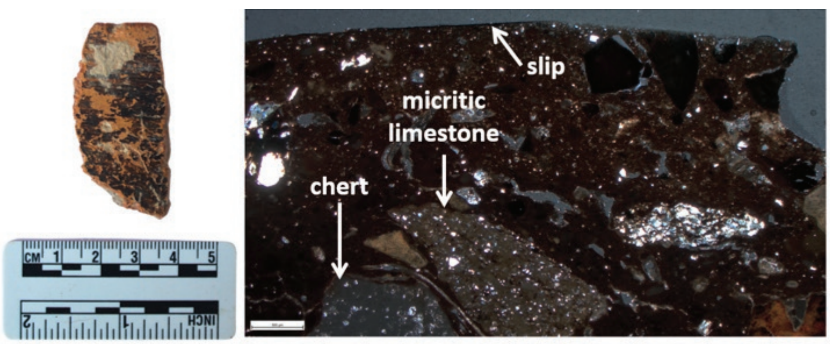


Figure 63: S37 - SW from Chlorakas-Palloures, assigned to Fabric III (photomicrographs taken under XP x2,5)

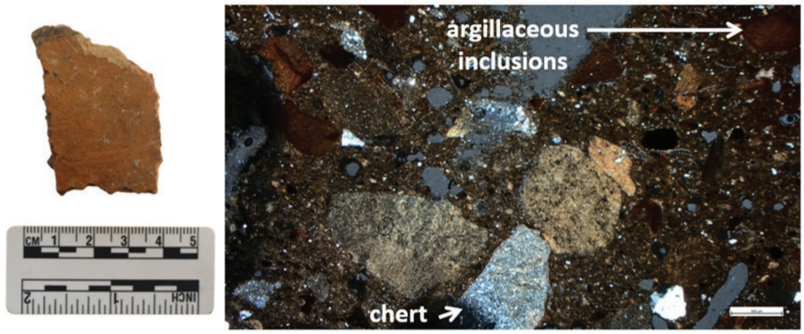


Figure 64: S51 - SW from Kissonerga-Mosphilia, assigned to Fabric III (photomicrographs taken under XP x2,5)

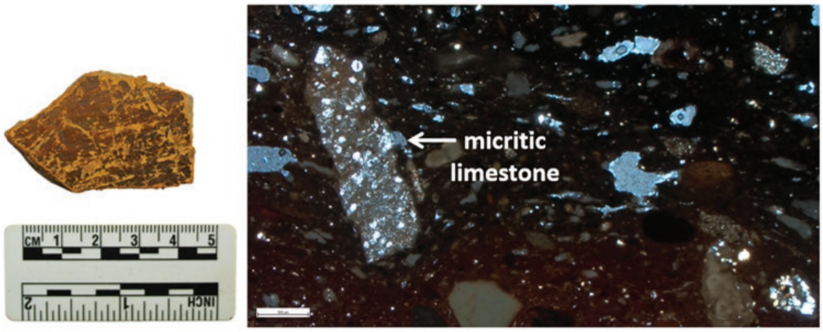


Figure 65: S77 - SW from Ambelikou-Agios Georghios, assigned to Fabric III (photomicrographs taken under XP x2,5)

Fabric IV: Fabric with dominant presence of amphiboles, feldspars, and quartz

Fabric IV is completely different from the first three fabric groups, as it is an amphibole-rich fabric dominated by feldspars and quartz (5 samples, 6% of the overall sample). All five samples have been sampled from Chlorakas-*Palloures* and correspond to the same macroscopically identified ware, the LChalRM. All samples are moderately optically active. The groundmass is homogenous throughout the fabric with a biscuit core in grey/black shades, that takes up the bulk of the section. Planar voids parallel to the section's margins are the most common (<10%), indicating the presence of organic inclusions in the clay.

Amphiboles dominate this fabric. Feldspars, mostly plagioclase, and quartz are also dominant, while serpentinite, olivine, dolerite and basalt are very common. Less commonly, gabbro fragments are present. The same goes for sandstone inclusions comprised of iron oxides, quartz, feldspars, opaques and/or mica. A few fragments of quartzite, opaques and micritic limestone are also observed. The characteristic red slip is visible in thin sections. Clay refinement seems to have taken place during the making of this fabric, as it seems less coarse than the other fabrics, as it appears to be more homogenous and better sorted (Figures 66, 67, 68, 69). There seems to be clay refinement in this fabric group and the moderately to well sorted inclusions indicate standardization of clay processing. Sample S43 seems to be a coarser version of the same fabric group.

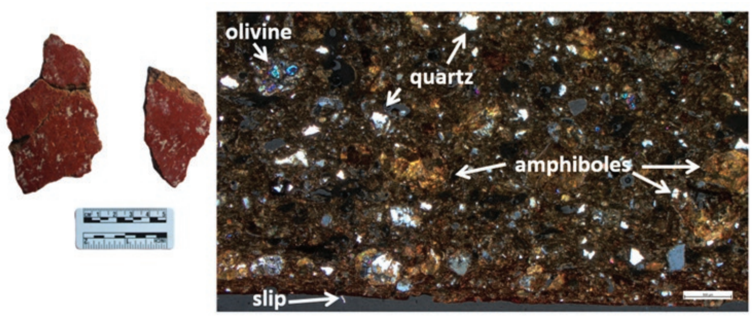


Figure 66: S41 - LChalRM from Chlorakas-Palloures, assigned to Fabric IV (photomicrographs taken under XP x2,5)

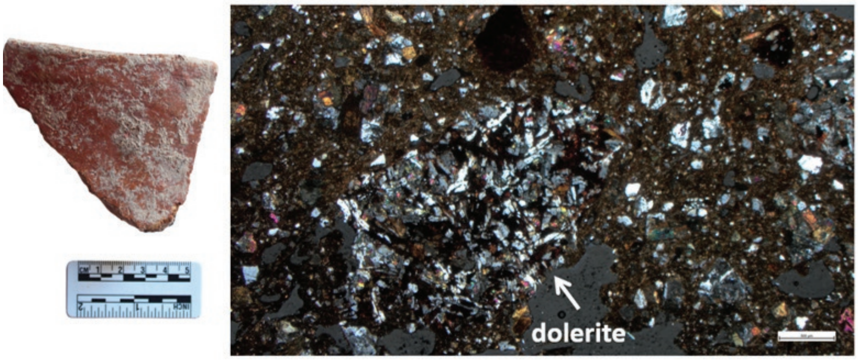


Figure 67: S43 - LChalRM from Chlorakas-Palloures, assigned to Fabric IV (photomicrographs taken under XP x2,5)

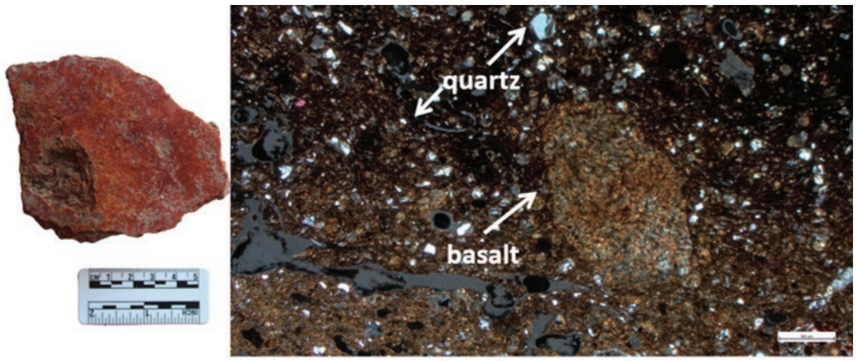


Figure 68: S44 - LChalRM from Chlorakas-Palloures, assigned to Fabric IV (photomicrographs taken under XP x2,5)

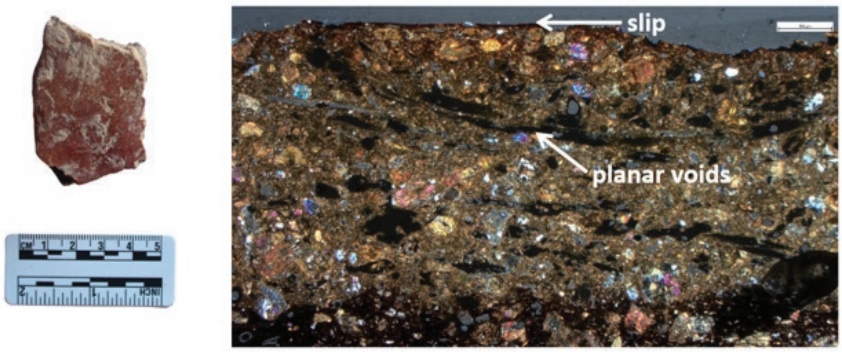


Figure 69: S45 - LChalRM from Chlorakas-Palloures, assigned to Fabric IV (photomicrographs taken under XP x2,5)

Fabric V: Fabric with dominant presence of carbonates

Fabric V is dominated by carbonates, microfossils, micritic limestone and feldspars (10 samples, 12% of the overall sample). All of the samples belonging to this Fabric Group have been sampled are from Politiko and they correspond to two macroscopically identified wares: RL and RBL. The microfossils are the dominant inclusion of this group. They are predominantly foraminifera, some open and some calcite-filled, but other types of bioclasts exist. The ones that are calcite-filled are often covered by opaques or iron oxides.

Micritic limestone, containing microfossils, opaques and quartz grains in fine fraction, and feldspars, mostly plagioclase are also dominant. Other common inclusions of this fabric are serpentinite, basalt, opaques and polycrystalline quartz, along with a few fragments of, sandstone, dolerite, olivine, and more rarely clinopyroxenes, and orthopyroxenes (Figures 70 and 71). As far as technology is concerned, the very well-preserved microfossils in this fabric, are indicative of its firing in temperatures that did not have an impact on carbonaceous materials. This seems to be the finest fabric of the overall sample.

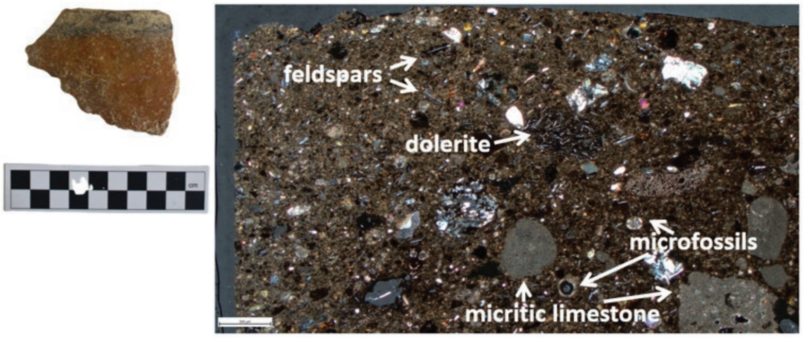


Figure 70: S4 - RBL from Politiko-Kokkinorotsos, assigned to Fabric V (photomicrographs taken under XP x2,5)

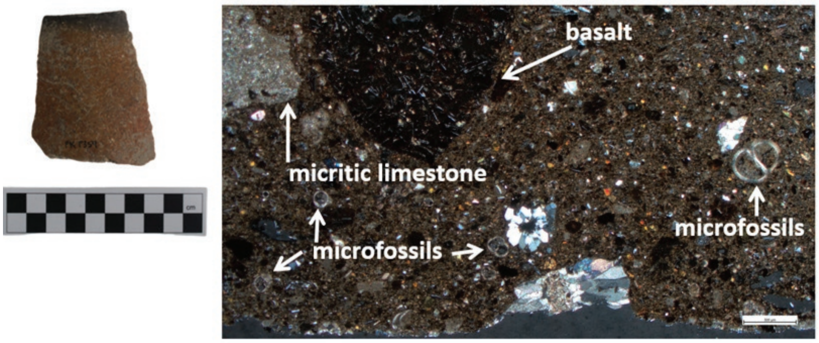


Figure 71: S8 - RBL from Politiko-Kokkinorotsos, assigned to Fabric V (photomicrographs taken under XP x2,5)

Fabric VI: Fabric with dominant presence of feldspars and dolerite

Fabric VI (14 samples, 17% of the overall sample), is dominated by feldspar, polycrystalline quartz and dolerite inclusions. All of the samples have been sampled from Politiko-*Kokkinorotsos* and correspond to three macroscopically identified wares: RL RBL, and CW. Dolerite fragments are often weathered in this fabric and occur in larger sizes, up to 3 mm in diameter. Monocrystalline quartz, serpentinite, biotite, clay pellets, opaques and orthopyroxenes are also observed. More rarely, olivine, basalt, clinopyroxenes, sandstone, micritic limestone and microfossils are also present. In fine fraction, feldspars, quartz, opaques, biotite, microfossils, mica and limestone are observed (Figures 72 and 73). Overall this is a microcrystalline calcareous matrix, less high-fired than Fabrics I, II and III.

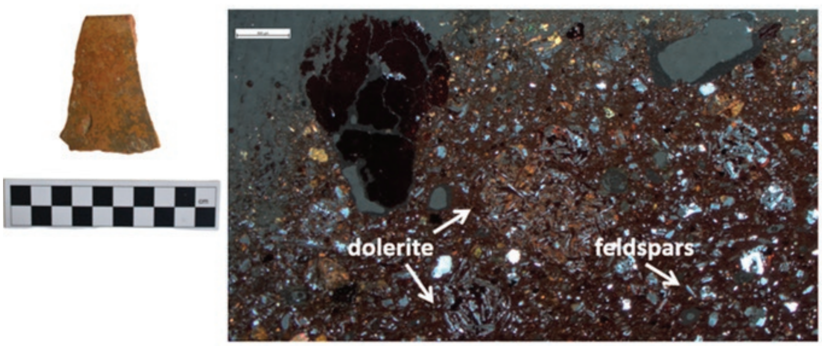


Figure 72: S3 - RL from Politiko-Kokkinorotsos, assigned to Fabric VI (photomicrographs taken under XP x2,5)

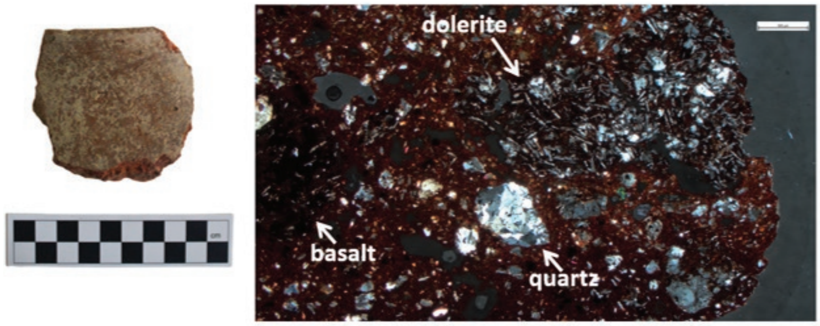


Figure 73: S6 - RL from Politiko-Kokkinorotsos, assigned to Fabric VI (photomicrographs taken under XP x2,5)

Fabric VII: Fabric with dominant presence of dolerite and basalt

Lastly, Fabric VII is the second largest fabric group of the sample (15 samples, 19% of the overall sample). All samples belonging to this group are from Ambelikou-*Agios Georghios* and they correspond to three macroscopically identified wares: RL, CW, and RBL. It is a fabric dominated by dolerite and basalt fragments. Clinopyroxenes and feldspars, mainly plagioclase, are present in large quantities. Quartz and opaques are also common, along with fewer amphibole grains and olivine (Figures 74, 75, and 76). Overall, there is no systemic processing of the clay at any stage of the chaîne opératoire. The mineral grains and rock fragments often seem weathered. The overwhelming presence of dolerite indicates that the clay source is situated up in the Troodos mountains.

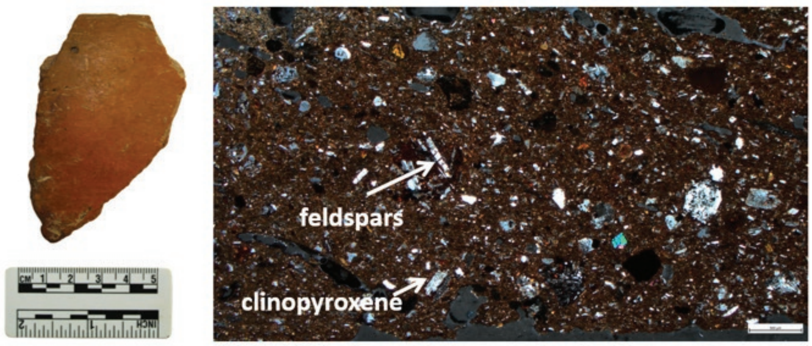


Figure 74: S58 - RL from Ambelikou-Agios Georghios, assigned to Fabric VII (photomicrograph taken under XP x2,5)

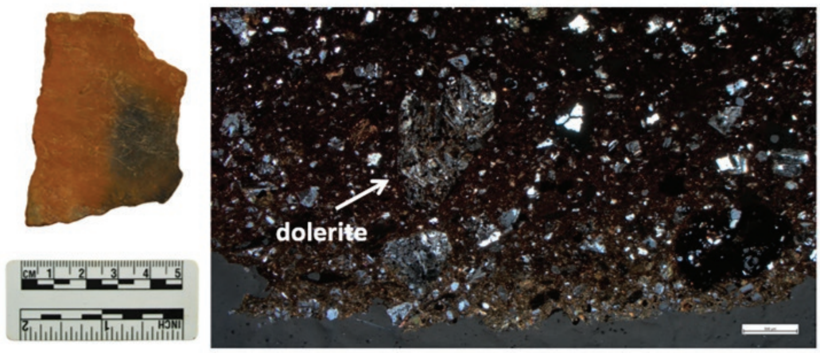


Figure 75: S61 - RBL from Ambelikou-Agios Georghios, assigned to Fabric VII (photomicrograph taken under XP x2,5)

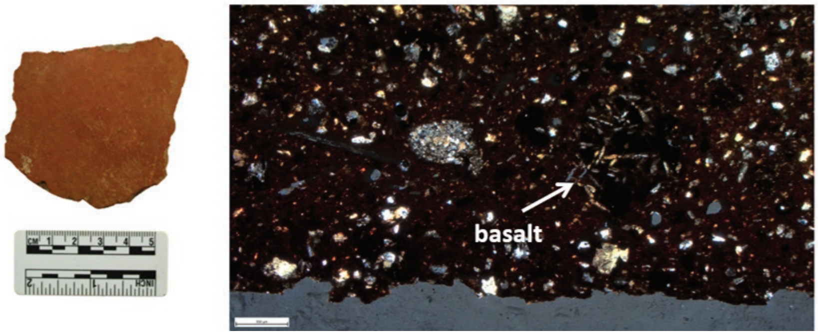


Figure 76: S65 - RL from Ambelikou-Agios Georghios, assigned to Fabric VII (photomicrograph taken under XP x2,5)

Outliers

In addition to the seven petrographic fabric groups, there are four outliers. These are samples that could not be assigned to any of the fabric groups and therefore they are classed as separate categories.

Outlier 1 – Fabric with dominant presence of red argillaceous inclusions

To begin with, S49 is an outlier that is extremely similar to Fabric I, but it is distinguished by the fact that argillaceous inclusions are exclusively of red to brown colour, with some visible microcracks and darker outlines (Figure 77). The sample is from Kissonerga-*Mosphilia* and corresponds to the macroscopically identified ware RB/B. Just like Fabric I, it is a sedimentary-oriented fabric, fine and pure, enriched with argillaceous inclusions and it is high-fired. The homogeneous size and distribution of the red argillaceous inclusions in this sample indicate that they have been added as temper in the clay mix. Interestingly, it is similar to a petrographic fabric of pithoi from Alassa, a Late Bronze Age site, identified by Nodarou (2017, Fabric Group 8, 9 and 10). Additionally, it also seems to be similar to Fabric IX, identified at Kissonerga-*Ammoudhia*, an Early-Middle Bronze Age site, by Graham (2013, p. 296-297, Appendix 4).

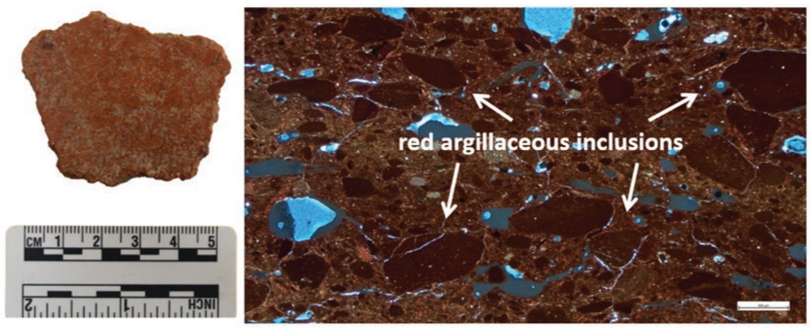


Figure 77: S49 - RB/B from Kissonerga-Mosphilia, assigned as an Outlier (photomicrograph taken under XP x2,5)

Outlier 2 – Fabric with dominant presence of igneous inclusions and chert

Outlier S71 was sampled from Ambelikou-*Agios Georghios*, and it corresponds to the RBL ware. This sample has close affinities to Fabric VII, but sedimentary inclusions, like chert and sandstone, are present as well (Figure 78).

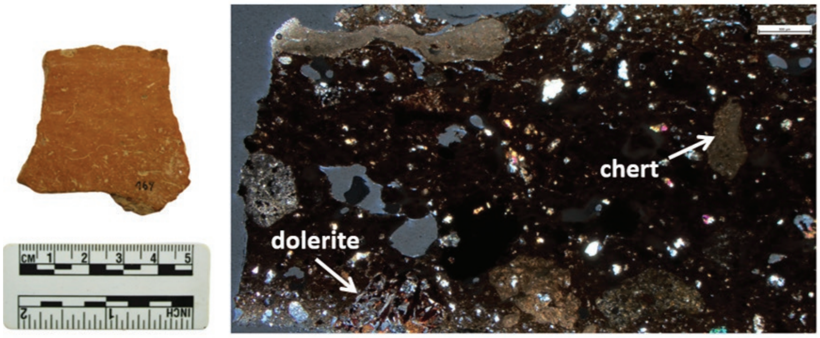


Figure 78: S71 - RL from Ambelikou-Agios Georghios, assigned as an Outlier (photomicrograph taken under XP x2,5)

Outlier 3 – Fabric with dominant presence of quartz, basalt and clinopyroxenes

Outlier S79, also sampled from Ambelikou-*Agios Georghios*, is dominated by the presence of basalt, clinopyroxenes and quartz (Figure 79). It corresponds to CW.

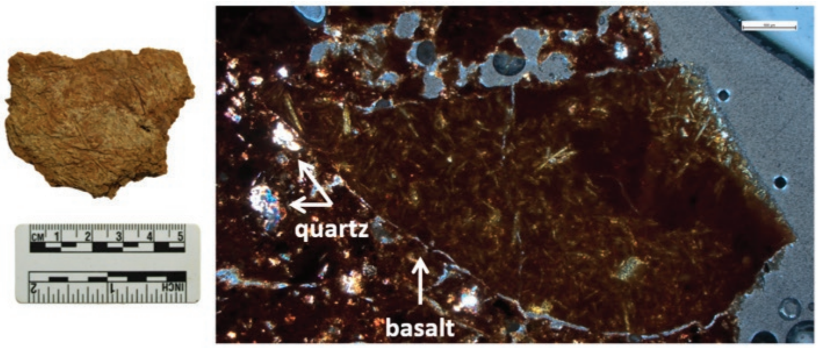


Figure 79: S79 - CW from Ambelikou-Agios Georghios, assigned as an Outlier (photomicrograph taken under XP x2,5)

Outlier 4 – Fabric with dominant presence of chert and orthopyroxenes

Finally, S80 is the fourth outlier of this dataset. It is also sampled from Ambelikou-*Agios Georghios* and corresponds to the CW. It is characterized by the dominant presence of radiolarian chert, orthopyroxenes and micritic limestone (Figure 80).

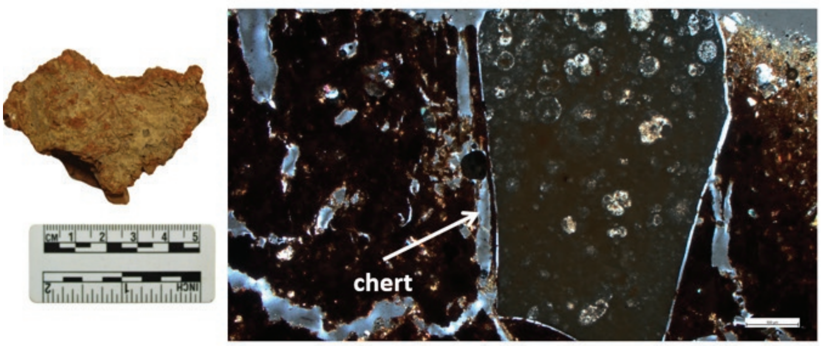


Figure 80: CW from Ambelikou-Agios Georghios, assigned as an Outlier (photomicrograph taken under XP x2,5)

6.2. The Chemical/Elemental Study of Samples – hhXRF

6.2.1 Analytical Methodology and Research Objectives

In addition to ceramic petrography, all 81 samples were also analysed with handheld X-ray fluorescence spectroscopy (hhXRF), to determine their bulk geochemical composition. As a method, it was chosen due to its cost-effectiveness, and the data selected were studied and interpreted carefully, keeping in mind the advantages and limitations of the method when studying a material category as heterogenous as ceramic assemblages (Hein *et al.*, 2021; Sorresso & Quinn, 2020; Holmqvist, 2016).

The analytical instrument employed was a Hitatchi XMET 8000 handheld XRF analyzer. The analyzer was always mounted on the ‘flex stand’ with a lead-linen box, in which samples were safely lying on the area of radiation, and were analysed without the need to hold the device. Analysis was conducted on a fresh section, exposing the fabric, which was as flat as possible. Areas with large inclusions or voids, the slip, paint layers and external post-depositional encrustations, were avoided as much as possible. The measurement spot diameter was approximately 9mm in size. Each sample reading lasted for 120 seconds using the proprietary “mining mode”, according to a combination of empirical calibrations and fundamental parameters. Three measurements were conducted for each sample. The elements Mg, Al, Si, P, K, Ca, Ti, V, Cr, Mn, Fe, Ni, Cu, Zn, Rb, Sr, Nb, Sb, Ba, and Pb were recorded in weight percent.

One reference sample, certified reference material SARM69 in the form of pressed-powder pellet, was analysed once at the beginning, once at the middle, and once at the end of each analytical day to cross-check the quality of the day and calibrate the measurements (Jacobson *et al.*, 2002). This reference sample was selected based on its matrix similarities to the analytical material. The results were averaged after calibration. Instrument calibration was conducted following the methodology developed at UCL Institute of Archaeology (Wilke, 2017; Sorresso & Quinn 2020). The raw data were exported into an Excel workbook for processing. Elements whose concentration of an element showed poor reproducibility or it was below the instrument’s detection level, and elements that are known to be affected by post-depositional alteration or whose associated values presented very poor reproducibility or/and their measured values presented >20% relative error when assessed with the analysis of the standard reference materials, were excluded (Frankel & Webb, 2012, p. 1382). Therefore, further statistical processing includes the sub-composition of 15 elements, which showed adequate accuracy and precision based on the analysis of the reference material SARM69, which was used to calibrate the measurements, and structured variation in the dataset. These are Si, Al, Ti, Cu, Zn, Fe, V, Mg, Mn, Ba, Sr, Ca, Ni, K, and Rb (Figure 81).

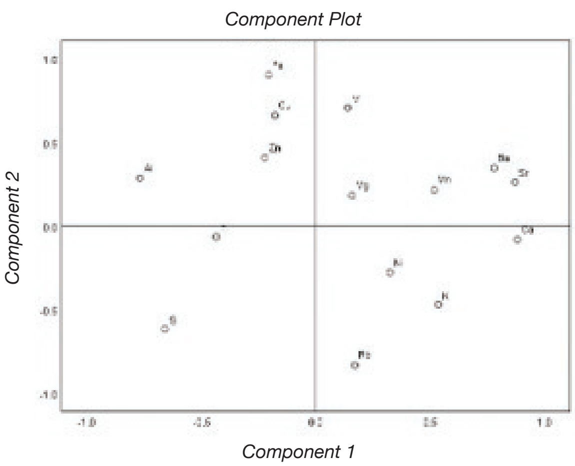


Figure 81: PCA component plot using the hhXRF dataset

The assessment of the generated elemental data and their interpretation were based mainly on group characteristics, involved a limited number of elements, therefore documenting only a small fraction of the dataset's compositional variability. The aim of this analysis was to test the correspondence between elemental and petrographic groupings, and between the typological and technological groupings, as defined by petrographic and macroscopic analysis respectively. To this end, Principal Component Analysis (PAC) was applied on this dataset using the IBM Statistics SPSS 29 statistical package, to explore patterns and asses data variation. The data used for PCA analysis are presented in Appendix VII.The first two principal components, accounting for 49.8% of the data variance, were considered the most appropriate for demonstrating meaningful patterns. Samples S19, S22, S31 and S33 were removed from the final PCA scatterplots, as these were distant outliers, impacting the positioning of all other samples in the scatterplots. These outliers can be explained by faulty instrument readings and not by compositional differentiation; petrographically S19 belongs to Fabric Group V, S22 belongs to Fabric Group VI, S31 belongs to Fabric Group 1, and S33 belong to Fabric Group II. By faulty instrument reading I mean that some elements were not measured consistently or at all. Finally, S49, S71, S79 and S80 were also removed, since petrographically they were categorized as outliers, therefore not contributing to the assessment of groupings and patterns of elemental data. Therefore, only 73 out of 81 samples were used for further statistical processing.

6.2.2. The Chemical/Elemental Data

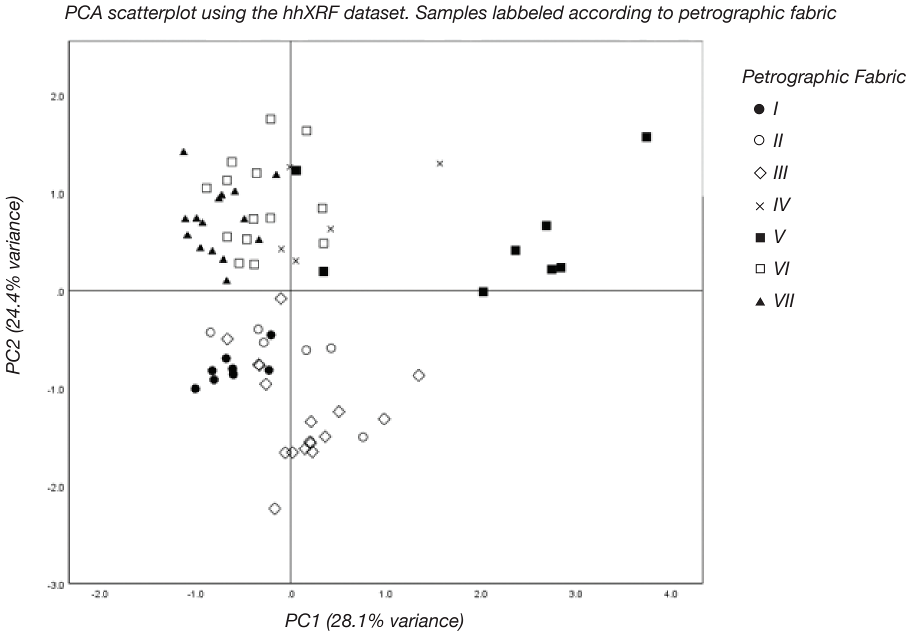
Overall, the hhXRF results confirm the categorizations made during both the macroscopic and petrographic analysis. When the samples are labelled according to the petrographic fabric, there is a clear differentiation between fabrics from western Cyprus and the rest, as products of distinct regional traditions, with raw materials deriving from their respective geological environments (Figures 82 and 83). To begin with, during the petrographic analysis it was established the Fabric Groups I, II and III have strong similarities, being sedimentary clay-based fabrics dominated by argillaceous inclusions, with the addition of micritic limestone and igneous components in Fabric III. Their strong correlations are verified in the elemental analysis, as they are situated close to each other and do not form distinct elemental groupings. Instead, they are scattered along the lower part of the horizontal axis (PC1). Fabric Groups I and II correspond exclusively to the macroscopic ware RB/B, while Fabric Group III corresponds only to SW sherds.

The higher K component in some Fabric Group III samples can be attributed to the fineness of the fabric, as the K content in ceramic composition can increase when sediment grain size decreases (Degryse & Braekmans, 2014, p. 194). In other words, a large inclusion in the "shoot area" can affect the results. Additionally, the two RB/B and five SW samples from Ambelikou-*Agios Georghios,* which petrographically were ascribed to Fabric Groups I and III respectively also belong to this cluster.

On the other hand, all five samples ascribed to petrographic Fabric Group IV and macroscopic ware LChalRM are situated along the upper part of the horizontal axis (PC1), apart from one sample with a higher V component which strays towards the right. This confirms the differentiation of these samples from those from the Ktima (i.e. Chlorakas-*Palloures* and Kissonerga-*Mosphilia*). This amphibole-rich fabric is situated in a cluster with samples that have been ascribed to Fabric Groups VI and VII. All three fabrics are dominated by igneous components like feldspars, dolerites and/or basalts and they correspond to the macroscopic wares RBL, RL and CW.

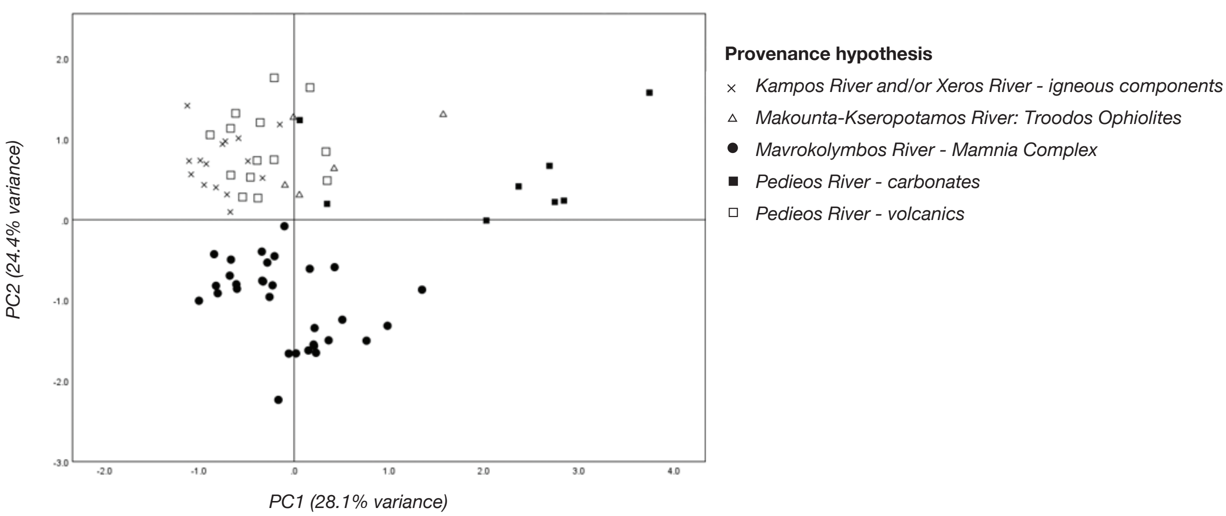
Almost all samples ascribed to Fabric Group V are situated in a distinct cluster in the eastern part of the scatterplot. This confirms the petrographic observations describing this as a fabric dominated by carbonates, as here we can see that the samples are high in Ca, Ba and Sr components. The position of two samples closer to the igneous cluster along the upper part of the vertical access (PC2) can be explained by the common presence of igneous components like feldspars and basalt in the fabric composition.

Figure 82: PCA scatterplot using the hhXRF dataset. Samples labelled according to petrographic fabric



In order to establish possible provenance detailed geological maps were consulted, in order to find the closest river to each of the sites, with the most similar geological components to each petrographic fabric. As a result, the following provenance hypotheses were established, after consulting the detailed Geological Maps of each area in question: clays for Fabrics I, II, and III were probably sourced along the Mavrokolymbos River, which belongs to the Mamonia Complex; Fabric IV from the Makounta-Kseropotamos Rivers, where Troodos Ophiolites are prevalent. Lastly, due to the fact that all the Fabric Group VI samples come from Politiko-*Kokkinorotsos* and all the Fabric Group VII come from Ambelikou-*Agios Georghios*, their provenance hypothesis is different, ascribing the Politiko material to the igneous deposits along the Pedieos River and the Ambelikou material to igneous deposits along the Kampos and/or Xeros Rivers. These are illustrated in the figure below. More details on the provenance hypotheses are provided later in this thesis.

Figure 83: PCA scatterplot using the hhXRF dataset. Samples labelled according to provenance hypothesis



6.3. Concluding Discussion: Integrating the Macroscopic, Petrographic, and Elemental Data

The results of the macroscopic, petrographic and chemical analyses of the data shed light on both the pottery production in the Late Chalcolithic in all four sites, but also on the interactions between these places. To begin with, all the petrographic fabrics described in this chapter show strong affinities to the macroscopic wares. The degree of fabric variability across the island is, as expected, quite high with mineralogical and technological differences between fabrics. This can be linked to observations made during the macroscopic analysis of the wares. The results regarding several aspects of the pottery production processes and in turn, the interactions between the different communities are presented here.

6.3.1. Clay Procurement and Preparation: Local Production and Exchange of Pottery between Communities

Clay provenance and preparation have been investigated macroscopically, petrographically and chemically, to identify local production and exchange of pottery between communities. The first three fabric groups (Fabric I, II and III) and the outlier S49 contain the same types of inclusions and they could be locally produced in the area of the Ktima Lowlands in the Paphos region, with raw materials selected from the same clay sources, in the same region. As already mentioned, to establish the origin of the materials, detailed geological maps were consulted to identify the closest rivers to each site with geological components similar to the petrographic fabric. Consequently, the following hypotheses regarding provenance were formulated: Clays for Fabrics I, II, and III likely originated from the Mavrokolymbos River within the Mamonia Complex. Fabric IV likely originated from the Makounta-Kseropotamos Rivers, known for the prevalence of Troodos Ophiolites. Notably, Fabric Group VI samples from Politiko-*Kokkinorotsos* and Fabric Group VII samples from Ambelikou-*Agios Georghios* had different provenance hypotheses. The Politiko material is suggested to have originated from igneous deposits along the Pedieos River, while the Ambelikou material is attributed to igneous deposits along the Kampos and/or Xeros Rivers. These hypotheses are explained further in this section.

Fabrics I and II are very similar in composition, containing almost the exact same inclusions. What differentiates them is the presence of dolerite, basalt and occasionally micritic limestone in Fabric II. Therefore, Fabric II could be from a nearby but different clay source, where igneous elements are more prevalent. Likewise, Fabric III is also characterized by the dominant presence of micritic limestone and chert, along with argillaceous inclusions. Igneous rocks like dolerite and basalt are also present. Interestingly, all the samples that belong to the macroscopically identified ware RB/B belong to the petrographic Fabrics I or II. This includes two samples that have been selected from Ambelikou-*Agios Georghios* (S72 and S73) (Figure 84). Similarly, all the samples that belong to the macroscopically identified ware SW belong to petrographic Fabric III, including the five sherds sampled from Ambelikou-*Agios Georghios* (S74, S75, S76, S77, S78) (Figure 85).

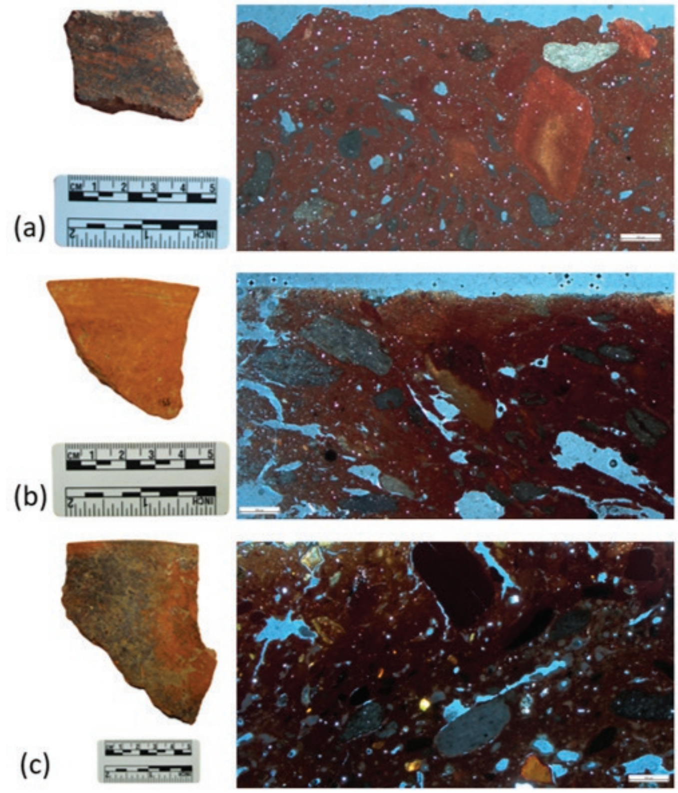


Figure 84: RB/B sherds that belong to Fabric I, from Chlorakas-Palloures (a), and Ambelikou-Agios Georghios (b, c) (photographs by Maria Hadjigavriel)

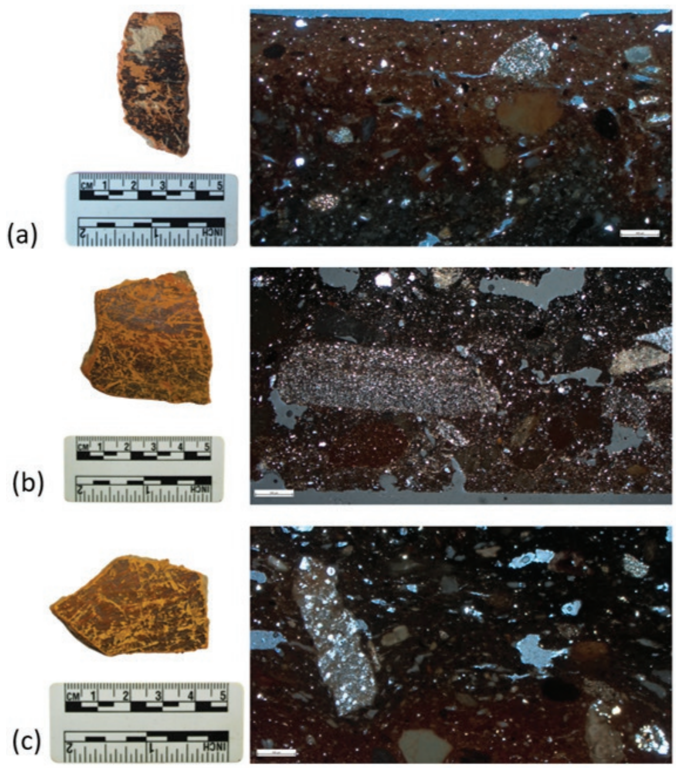


Figure 85: SW sherds that belong to Fabric III, from Chlorakas-Palloures (a), and Ambelikou-Agios Georghios (b, c) (photographs by Maria Hadjigavriel)

Therefore, the petrographic analysis has shown that RB/B was produced in two petrographic fabrics exclusively; Fabric I and Fabric II. They are very similar sedimentary fabrics with an abundance of argillaceous inclusions, differentiated by the presence of volcanic inclusions, like dolerite, in Fabric II. Similarly, SW from both sites has been produced in Fabric III, a micritic limestone and chert-rich fabric that is similar to the other two. The clay sources that seem more probable for the production of these fabrics are the ones from the Mamonia outcrops along the Mavrokolymbos River, which begins in the Lefkara, Kalogrea-Adana and Lapithos Formations, traverses a Harzburgite and Serpentinite Formation Group and the Mamonia Complex (GEOportal of Cyprus Geological Survey Department; Hydrological Map 2015; Figure 86). After consulting the geological maps of the area, the geological profile of the deposits along the Mavrokolymbos River are the closest match to the geological profile of these petrographic fabrics. The Mavrokolymbos River is situated ca. 4km north-east of Kissonerga-*Mosphilia* and ca. 8km north-east of Chlorakas-*Palloures*. This is consistent with Robertson's (1989) report on petrographic analysis of ceramics from Kissonerga-*Mosphilia*, who argued that the clays used at the site could have been collected from the Lower and Upper Pillow lava deposits near Mavrokolymbos and Marathounda. The presence of igneous components in Fabric II and Fabric III can be explained by the presence of igneous components along the western part of the region, along the Mavrokolymbos River.

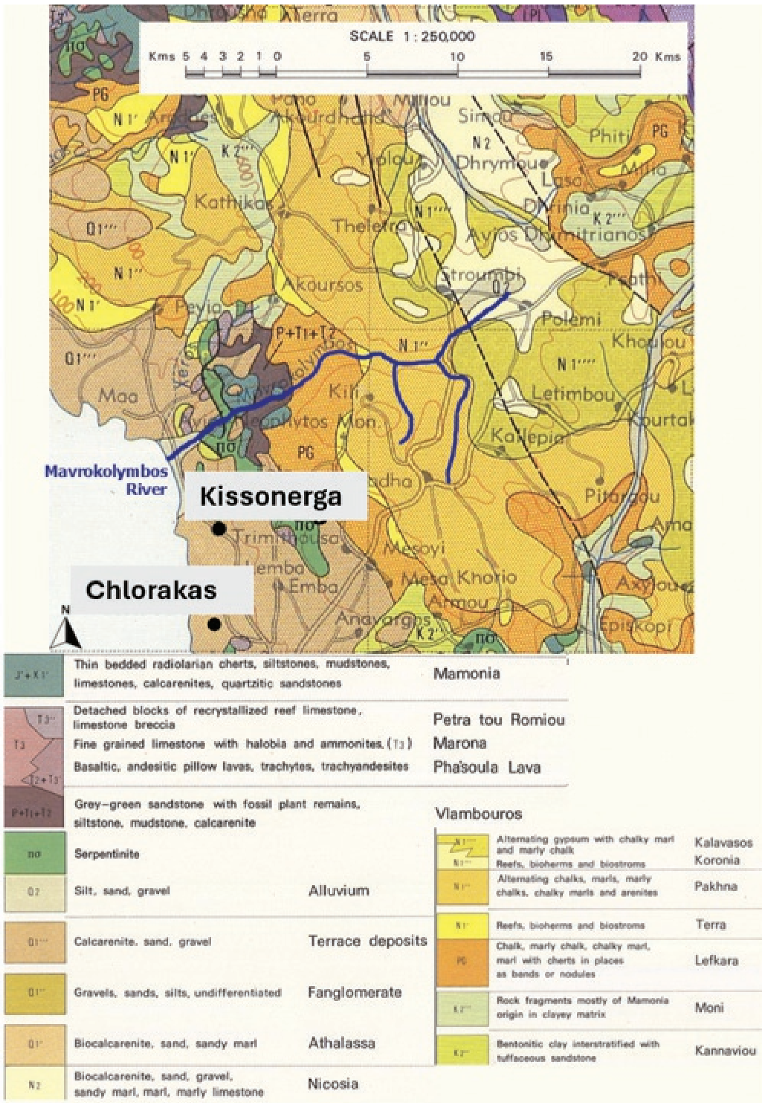
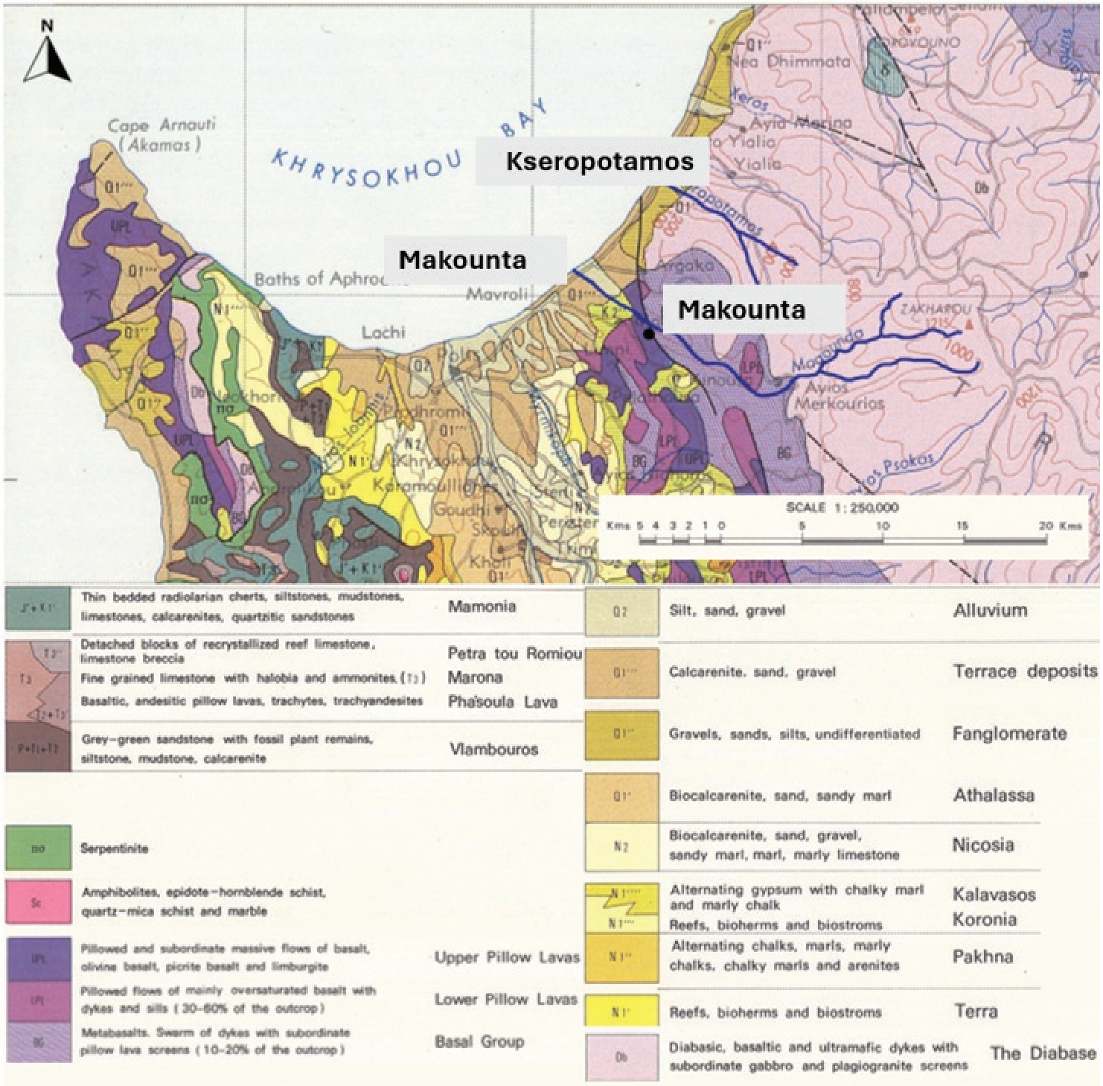


Figure 86: Geological map of the Ktima Lowlands, where Fabrics I, II, III occur (created by Markos Kapsalis and Maria Hadjigavriel after Pantazis, T. (1979). Geological Map of Cyprus Scale 1:250,000. Geological Survey Department Cyprus)

The elemental data from the hhXRF analysis of the sample confirms the petrographic analysis results. Overall, the evidence suggests two distinct clay preferences for the production of Red Black Stoked-Burnished Ware (RB/B) and the Spalled Ware (SW). Fabrics I and II were used exclusively for the production of RB/B, while Fabric II can be considered a more mixed variation of the clay used for Fabric I, with also igneous elements in the clay. Fabric III is used exclusively for the production of SW. In the case of Kissonerga-*Mosphilia*, the existence of a specific clay preference for the production of RB/B has already been suggested in the past based on macroscopic observations (Bolger *et al.* 1998). Overall, in terms of clay preparation, although distinct clay preferences can be recognized in the case of RB/B and SW, it seems that the potters did not process the clay much and evidence for intentional temper is lacking. It is worth mentioning that Sample 49, which is an RB/B sherd but has been categorized as an outlier due to the overwhelming presence of red argillaceous inclusions, resembles a petrographic fabric of pithoi from Alassa identified by Nodarou (2017, Fabric Group 8, 9 and 10). Additionally, it also seems to be similar to Fabric IX, identified at the Early-Middle Bronze Age site Kissonerga-*Ammoudhia* by Graham (2013, p. 296-297, Appendix 4). It might therefore reflect a pattern in the area that evolved later in the Bronze Age, or it might represent an import from the southern coast and the region of Erimi.

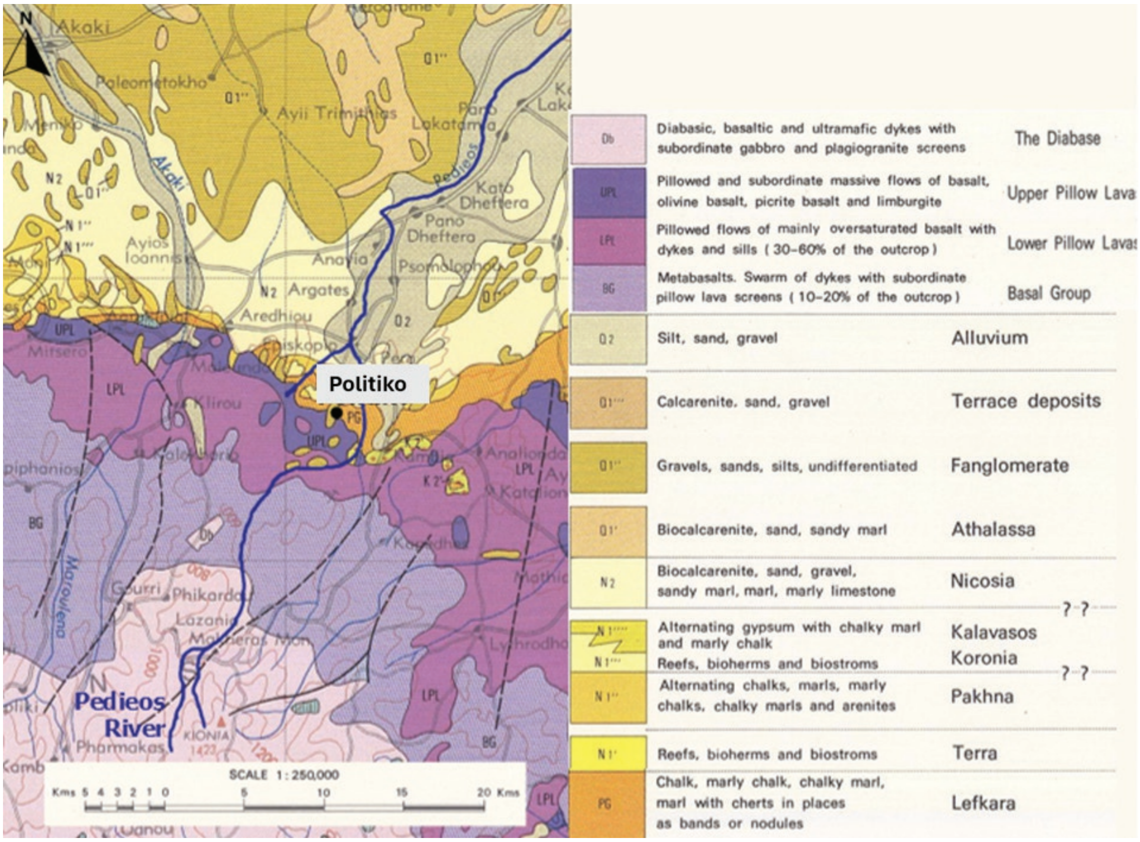
Interestingly, the third ware sampled from Chlorakas-*Palloures*, the LChalRM, does not seem to be of local origin. This has been already suggested during the macroscopic analysis and has been confirmed by the petrographic analysis. Petrographic Fabric IV is completely different than the aforementioned three (Fabric I, II, III). It is an amphibole-rich fabric with feldspars and quartz. The common presence of long planar voids indicates the presence of organic material in the clay paste. The presence of amphiboles and all the other igneous minerals and rocks in the matrix suggests a clay source in the foothills of the Troodos mountain range. Based on macroscopic observations, these sherds resemble the main Late Chalcolithic ware from the site of Makounta-*Voules,* but also Chalcolithic pottery occurring more widely in the Polis region and Akamas at sites like Androlykou and Kalo Chorio (Lisa Graham and Charalambos Paraskeva after personal communication). The Polis area is situated mainly on the Mamonia Complex, but very close to the northwestern borders of the Troodos. The Makounta-Kseropotamos Rivers begins from the foothills of Troodos, in the geological formation of Sheeted Dykes (Diabase), traversing the Upper and Lower Pillow Lavas and Basal Group, and the Mamonia Complex – including serpentinite (GEOportal of Cyprus Geological Survey Department; Hydrological Map 2015; Figure 87). Therefore, based on the petrographic analysis, the Polis area, could have been the production area of petrographic Fabric IV.

Figure 87: Geological map of the Polis region, a possible place of origin for Fabric IV (created by Markos Kapsalis and Maria Hadjigavriel after Pantazis, T. (1979). Geological Map of Cyprus Scale 1:250,000. Geological Survey Department Cyprus)



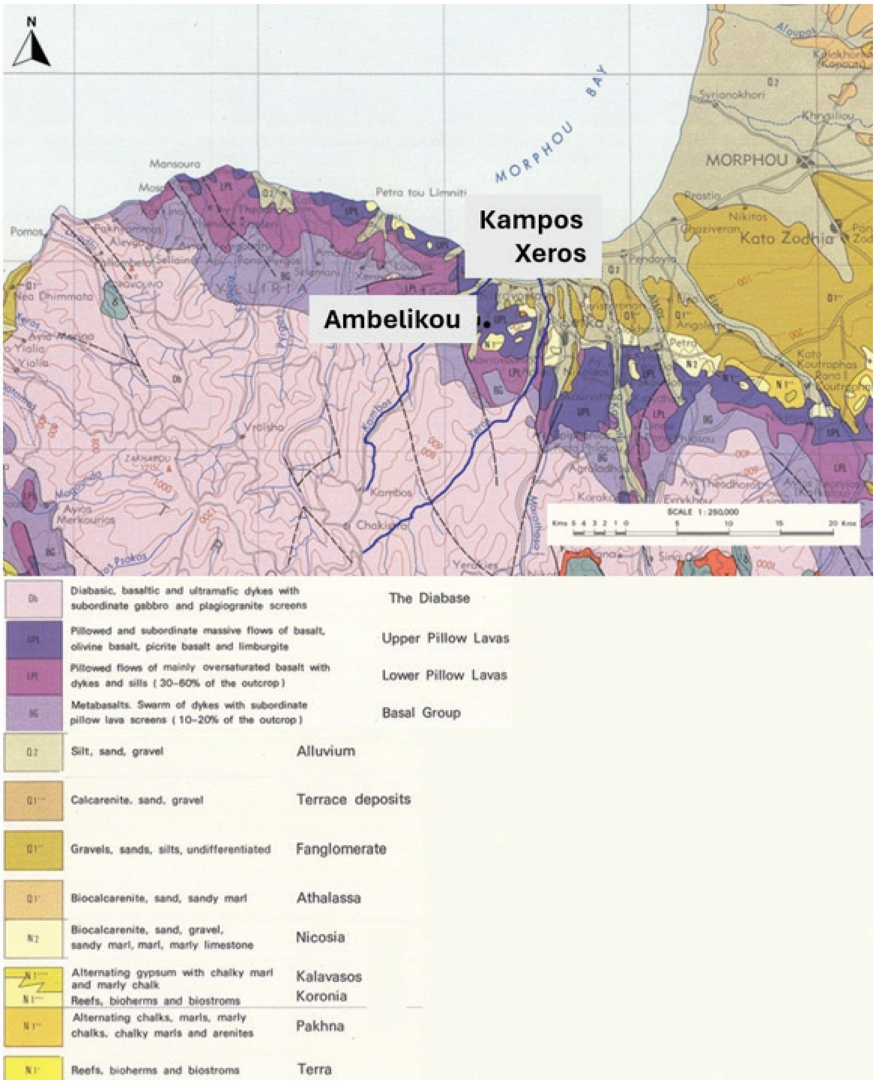
Moving away from western Cyprus and onto the Mesaoria Plain, all samples retrieved from the Politiko-*Kokkinorotsos* are ascribed to two petrographic fabrics: Fabric V and VI. Both fabrics contain similar types of inclusions but their main difference is the dominant present of calcite and microfossils in Fabric V. Foraminifera occur in calcareous chalk and limestone beds which are present across the island (Graham, 2013, p. 320; Cyprus Geological Department). On the other hand, Fabric IV is defined by the overwhelming presence of feldspar, polycrystalline quartz and dolerite. All the samples of this fabrics are RL or RBL, with three samples in Fabric VI being CW (S22, S23, S24). Overall, both of these petrographic fabrics contain the same types of inclusions and they could be locally produced in the area of Mesaoria plain, with materials retrieved from Pedieos river valley. This is the longest river in Cyprus, starting from the hilltops of Troodos, crossing the Mesaoria plain towards and through Nicosia. Even though the Mesaoria plain belongs to the Circum Troodos Sedimentary Succession, igneous and volcanic elements are carried by rivers from the Troodos Ophiolite (GEOportal of Cyprus Geological Survey Department; Hydrological Map 2015; Figure 88).

Figure 88: Geological map of the Politiko-Kokkinorotsos area, where Fabrics V and IV occur (created by Markos Kapsalis and Maria Hadjigavriel after Pantazis, T. (1979). Geological Map of Cyprus Scale 1:250,000. Geological Survey Department Cyprus)



Finally, in northwestern Cyprus, the overwhelming majority of samples from Ambelikou-*Agios Georghios* have been ascribed to Fabric VII. These include all the RL and RBL samples, and one CW sample. Therefore, the only samples that are not local are the ones sampled as RB/B and SW, and one RBL (S71) and two CW (S79, S80) that have been categorized as outliers. However, this fabric group and the tree aforementioned outliers from this site contain the same type of inclusions, dominated by igneous components, suggesting that they were produced locally with materials retrieved from the Kampos River or the Xeros River. These rivers are situated ca. 3km west and 5km east of the modern-day village of Ambelikou respectively. Both stem from the Troodos mountains, hence the overwhelming presence of igneous inclusions and volcanic rocks in their deposits as they travers alluvial deposits, Upper and Lower Pillow Lavas and Basal Formations, and the Apalos, Athalassa, Kakkaristra and Nicosia Formations (GEOportal of Cyprus Geological Survey Department; Hydrological Map 2015; Figure 89). This provenance hypothesis is in accordance with Robertson (1989), who after analysing five samples from this site concluded that the clays fit the local geology.

Figure 89: Geological map of the Ambelikou-Agios Georghios area, where Fabric VII occurs (created by Markos Kapsalis and Maria Hadjigavriel after Pantazis, T. (1979). Geological Map of Cyprus Scale 1:250,000. Geological Survey Department Cyprus)



6.3.2. Surface Treatment and Decoration, and Vessel Shapes: People Circulating Between Communities

Surface treatment and vessel shapes have been investigated to illustrate mediated interactions. What all the wares sampled in this study have in common, besides CW and SW, is that they are red and/or black monochrome and burnished. As already mentioned, all RB/B sampled for this study derive from three sites, Chlorakas-*Palloures*, Kissonerga-*Mosphilia* and Ambelikou-*Agios Georghios*, and are self-slipped, shiny, of red to pink and orange colours, and are highly burnished with often visible burnishing strokes. Since they are self-slipped, surface treatment is not evident in thin section. The SW sample is also quite homogenous when it comes to surface treatment, as all sherds are covered with a thinly applied dull red to grey-black and/or beige slip. The interior is often left untreated. Sometimes, the surfaces are pock marked (spalled), and burnishing strokes are visible just like the

RB/B sherds. The LChalRM sherds, all ascribed to Fabric IV, are the only ones that are covered with a thick layer of red slip, which is always visible in thin section (e.g. S45; Figure 90). The interior is often left untreated. RL and RBL sherds from both Ambelikou-*Agios Georghios* and Politiko-*Kokkinorotsos* are red to orange (10 R 4/4-5/6) and burnished, but not as much as RB/B. RBL sherds have surfaces that are blackened, usually uniformly on the interior side and along the rim or irregularly on the exterior side. In the case of CW, surfaces on both sides are always left untreated, while vegetal imprints are evident on one or both sides.

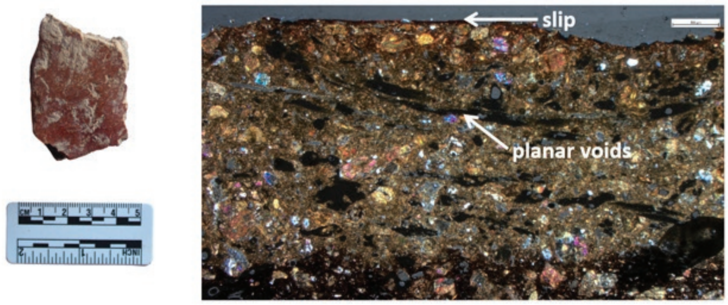
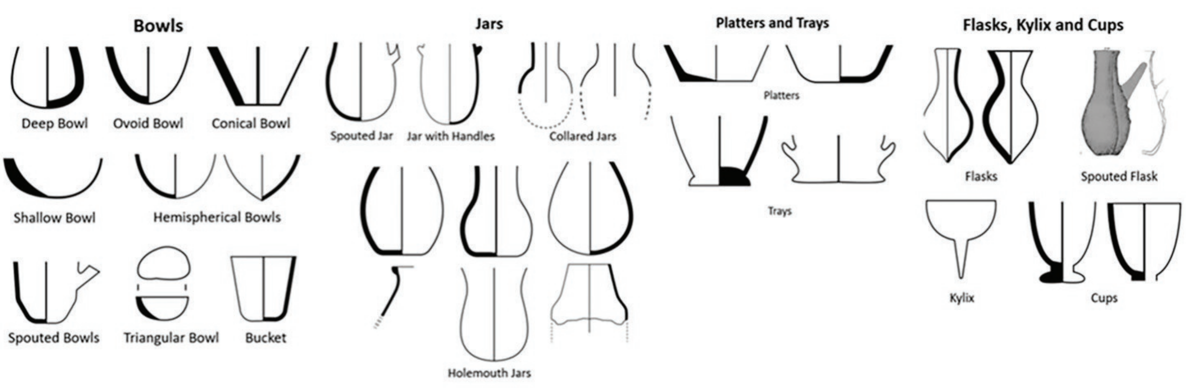


Figure 90: LChalRM S45 from Chlorakas-Palloures. The slip is visible along the outer margin of the thin section (created by Maria Hadjigavriel)

RB/B seems to have been preferred for bowls, and SW for jars (Stewart, 1985; Bolger *et al.*, 1998; Hadjigavriel, 2021; Figure 91). All but one of the LChalRM samples are from jars, a trend that is in accordance with the overall presence of this ware in Chlorakas-*Palloures*, where it occurs mostly in large storage jars. It is worth mentioning that S41 comes from a large storage jar with three vertical handles, which was found in situ and contained several artefacts, including a copper axe made of Anatolian ore (Düring *et al.* 2018; 2021; Figure 92). Even though its shape is unusual, petrographically, this sample shows no differences to the rest of Fabric IV. Further, both RL and RBL wares occur in bowls and jars, with no pattern emerging. All six CW samples are pans or trays. In general, one can say that the shapes repertoire of Late Chalcolithic domestic pottery is not elaborate, consisting mainly of several kinds of bowls and storage jars, sometimes spouted, jugs, and platters. Due to the small size of the sherds and also the limited amount of samples, no significant patterns have emerged in the macroscopic or the statistical analysis.

To conclude, similarities in both surface treatment, decoration, and vessel shapes repertoire between all four sites included in this study suggest that even through similar techniques are used across the island, distinct regional pottery traditions are in place. The closer links between Chlorakas-*Palloures* and Kissonerga-*Mosphilia* can be explained due to the geographical proximity of the settlements (ca. 10 km), while Politiko-*Kokkinorotsos* and Ambelikou-*Agios Georghios* also present stronger similarities with each other.

Figure 91: The repertoire of vessel shapes in Late Chalcolithic Cyprus – not in scale (created by Maria Hadjigavriel and Ermina Emmanouel)



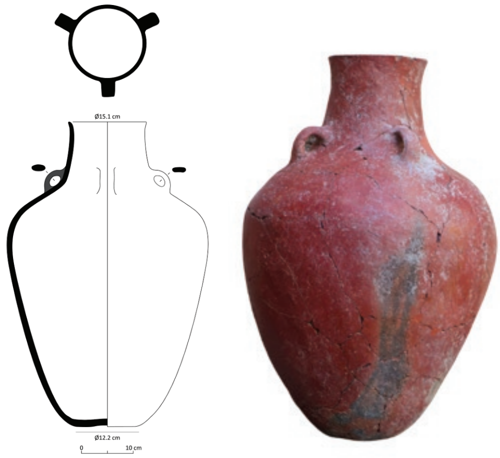


Figure 92: The jar containing a copper axe from Chlorakas-Palloures (S41) (after Düring et al. 2018 and the Palloures Project Archive)

6.3.3. Vessel Forming Techniques and Firing: Long-Term Interactions – People Relocating and Living at Different Communities

Regarding forming techniques, petrographic analysis supports the notion that Late Chalcolithic pottery was crafted using compressive methods without rotary kinetic energy (potter's wheel), such as pinching and drawing, coiling, and slab-building. Bolger and Shiels (2003, p. 136) proposed that at Kissonerga-*Mosphilia*, pinching and coiling, were employed for forming bowls, while coiling and slab-building techniques were used for creating large jars (Figure 93). Both macroscopic and petrographic analyses validate these assertions, suggesting these techniques were employed across all samples from the four sites. However, due to the limited quantity of sherds from all four sites, a comprehensive and detailed reconstruction of vessel forming techniques is not undertaken here.

Figure 93: Vessel forming techniques used in the Chalcolithic: vessels directly modelled from a lump of clay (upper) and vessels constructed with coiling (lower) (photographs by ©Souzana Petri)

Finally, regarding firing techniques, it has been proposed that for Chalcolithic pottery firing, pit firing and bon-firing (fires in a pit or on the ground surface) were more likely than kilns. Late Chalcolithic potters appeared to have developed the ability to achieve higher temperatures and better controlled firing compared to the Middle Chalcolithic period, resulting in harder vessels. Middle Chalcolithic RW sherds typically exhibit soft to medium hardness, suggesting they were possibly fired at low temperatures in open fires. In contrast, Late Chalcolithic pottery was fired at steadily rising high temperatures, reaching up to 600-800 °C. Although these temperatures may not seem high, they are considered significant for these firing techniques, requiring expertise and precision, indicating the possible use of insulated bonfires. Additionally, firing was used for aesthetic purposes in some wares analysed for this study.

Blackened surfaces on RB/B vessels from all sites may have occurred accidentally due to factors such as misfire, fire-flashing, incorrect pot positioning, or imperfect control of oxygen flow and temperature increase during firing. Alternatively, intentional blackening may have been achieved by deliberately altering the atmosphere from oxidizing to reducing during firing. Macroscopic analysis reveals differences in firing between RB/B and SW sherds, which are typically uniformly fired but may exhibit a central core with diffused or sharp margins, indicating a reduction phase during firing or intentional prevention of iron oxidation in the clay. LChalRM sherds are generally not as hard as RB/B and SW, but they commonly feature a dark central core, referred to as a “biscuit core.” These observations are confirmed by ceramic thin section petrography, where cores are often visible.

At Ambelikou-*Agios Georghios* and Politiko-*Kokkinorotsos*, RBL sherds typically have black lustrous interior surfaces and occasionally blackened exterior rims or surfaces, achieved deliberately through targeting or black-top techniques. Accidental blackening can be distinguished from intentional blackening by the sooty deposit left behind on the surface. Similarly, RL sherds from both sites often exhibit a central core with diffused or sharp margins, as also evident in thin section. Potters in the north-central region of the island appear to have had better control over firing processes, resulting in uniform black surfaces, while Ktima Lowlands potters produced irregular blackened surfaces. CW sherds from these sites indicate soft, crumbly sherds fired at very low temperatures, suggesting they were used as trays rather than cooking vessels. Overall, evidence suggests that we have various regionally distinct crafting communities in Late Chalcolithic Cyprus.

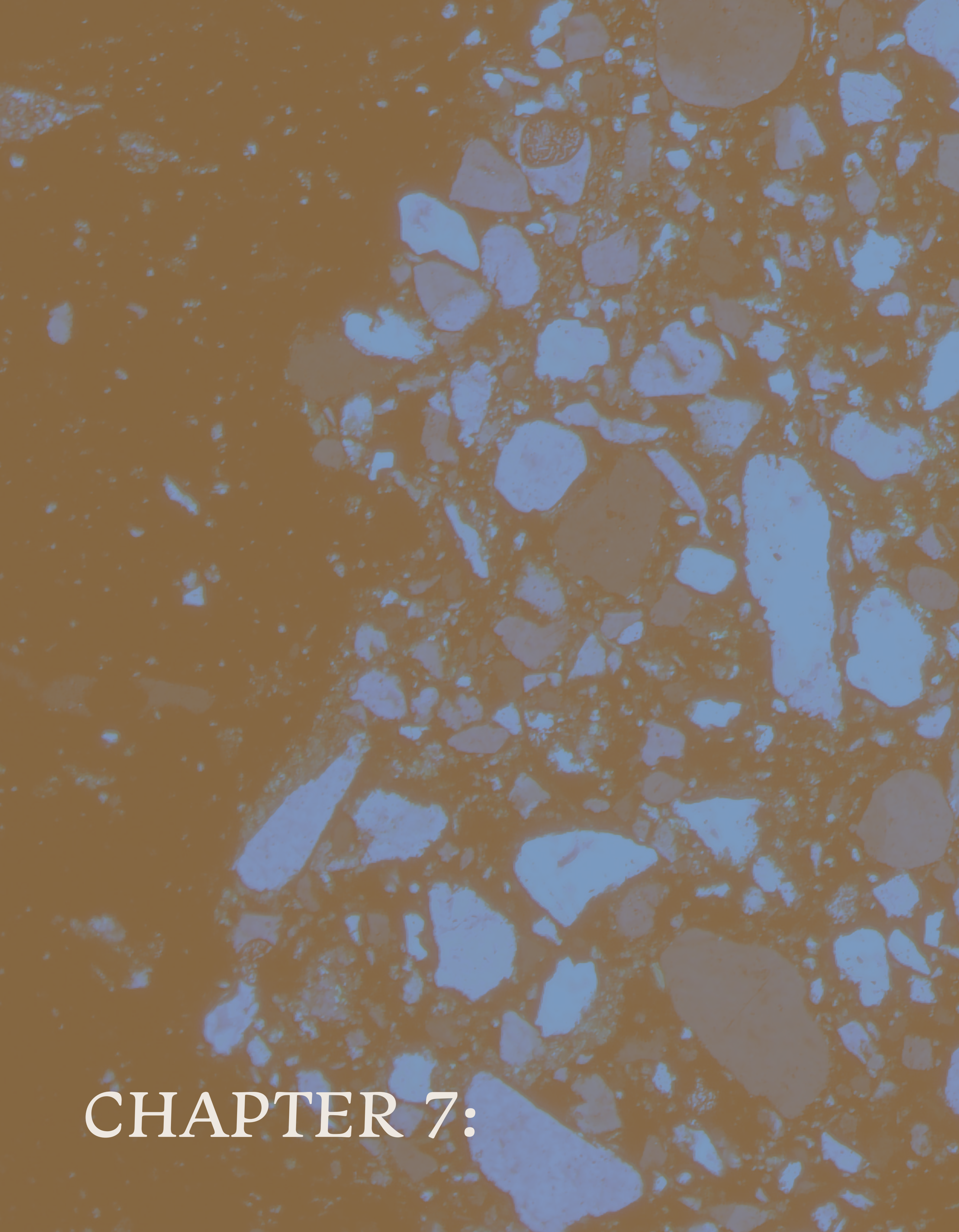
6.4. Concluding Summary

To conclude, this study has revealed a series of highly regional pottery production traditions, one shared between Chlorakas-*Palloures* and Kissonerga-*Mosphilia*, one at the Polis region, and one in each of the other sites. It can be argued that Chlorakas-*Palloures* and Kissonerga-*Mosphilia* seem to share pottery traditions, making the same wares, using the same clay sources, surface treatment and forming techniques, and have the same vessel shape repertoire. This is evident by the fact that all RB/B sherds sampled from these sites are ascribed to both Fabric I and Fabric II, and all SW sherds to Fabric III. RB/B and SW sherds from both sites cannot be distinguished, not petrographically, not in terms of surface treatment or shape or forming techniques. Therefore, the inhabitants of these two settlements would have long-term direct contacts with each other, with people, materials and technological knowledge circulating. This is no surprise given their close geographical proximity and contemporaneity. Additionally, the emergence of community specialization is proposed, suggesting that these two pottery wares might have been produced by one crafting community and then distributed to other sites. This suggestion is discussed further in Chapter 8.

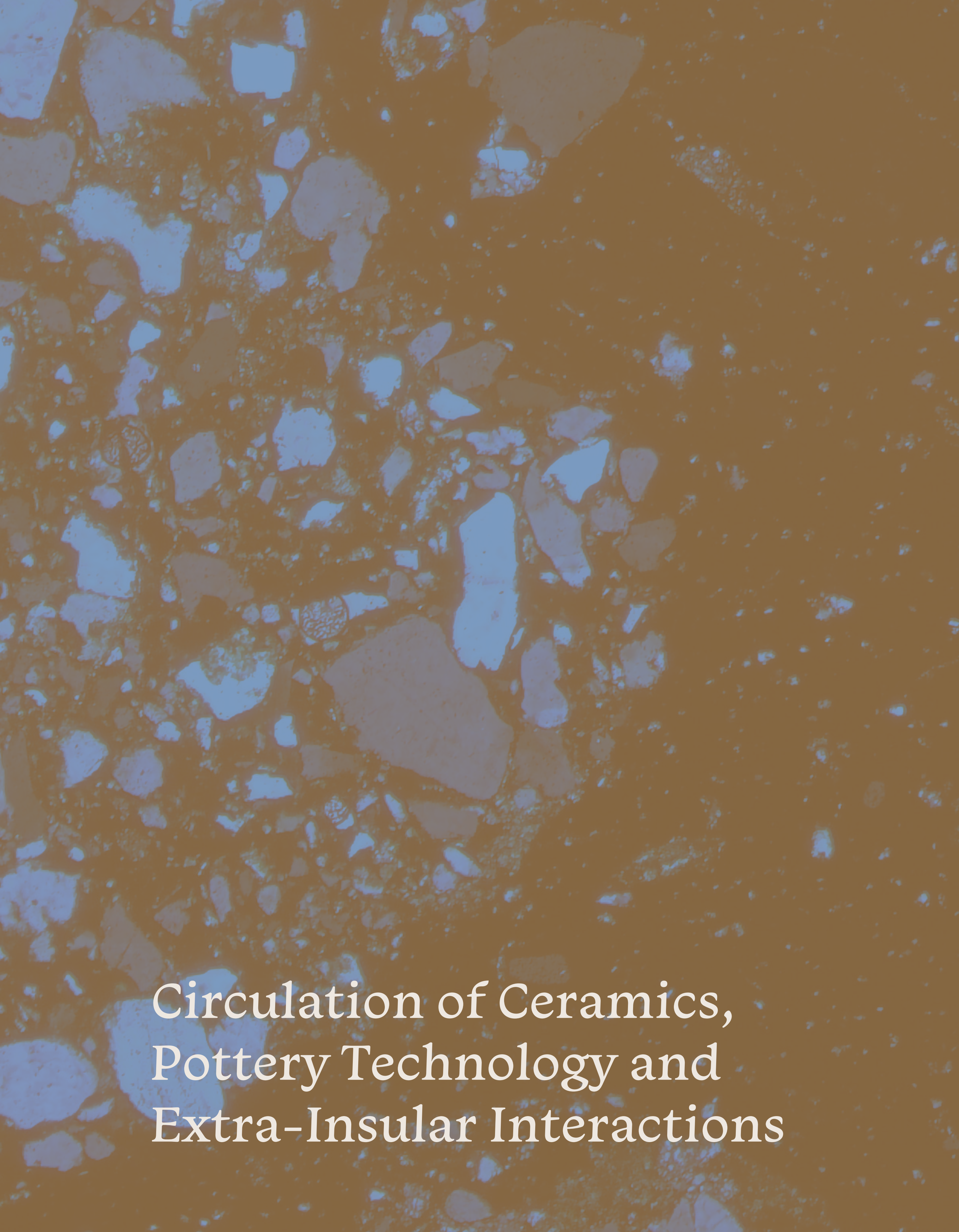
Additionally, the petrographic analysis suggests the preference of two types of clay for the production of RB/B and SW at both sites, supporting the argument for increased standardization of pottery production which had come forth previously, based on morphological and statistical studies (see Bolger & Webb, 2013; Wallace, 1995). Typically, a clay recipe requires clay, temper, and water. Temper typically refers to material intentionally added to a mixture for a specific purpose. However, evidence for tempering is lacking in both the macroscopic and the ceramic thin section petrography analyses. Therefore, I argue that for a preference of specific local clay sources along Mavrokolymbos River, clays rich in argillaceous inclusions for RB/B and rich in limestone for SW, rather than the intentional creation of clay recipes.

The ceramic petrography and the hhXRF analysis have confirmed the assumption that LChalRM was not produced in the Ktima Lowlands. Therefore, the presence of LChalRM sherdage in Chlorakas-*Palloures*, almost exclusively in the form of large storage jars, indicates that the settlement obtained significant part of its assemblages from other areas of the island. This is confirmed further by the presence of both RB/B and SW sherds at Ambelikou, which petrographically fit perfectly into Fabric I (S72, S73) and Fabric III (S74, S75, S76, S77, S78). Both of these Fabrics come from the Ktima Lowlands region.

On the other hand, Ambelikou-*Agios Georghios* and Politiko-*Kokkinorotsos* seem to represent different local ceramic traditions, with red and black monochrome vessels that are often thicker. The fact that Late Chalcolithic pottery from these sites can find its closest parallels in each other has been argued before based on morphological studies (Webb *et al.*, 2009; Hadjigavriel, 2019). Besides the Ktima Lowlands imports and two outliers, all sherds sampled from Ambelikou-*Agios Georghios* are ascribed to one petrographic fabric – Fabric VII, indicating local production of both RBL and RL wares. The outliers S79 and S80 are both CW sherds that were sampled to cross-check local clays. They have been categorized as outliers due to the overwhelming presence or absence of specific inclusions. However, they have affinities with petrographic Fabric VII, and their differences might be because of the much coarser nature of the ware. Similarly, all samples from Politiko-*Kokkinorotsos* are ascribed to two petrographic wares – Fabric V and VI, including sherds from both RL and RBL wares, and the three CW sherds.



CHAPTER 7:



Circulation of Ceramics, Pottery Technology and Extra-Insular Interactions

Chapter 7 — Circulation of Ceramics, Pottery Technology and Extra-Insular Interactions

This chapter aims to assess the degree and scale of interactions between Cyprus and Anatolia during the third millennium BC. To do so, an overview of the relevant literature, summarizing the known imported and exported objects during the Chalcolithic Period and the Philia Phase is presented. Subsequently, an assemblage of Early Bronze Age pottery from Tarsus-*Gözlükule*, Cilicia, is discussed. The reasons for selecting this specific dataset are twofold: first accessibility, and second the fact that it includes the only confirmed Cypriot Chalcolithic pottery found in Anatolia so far (Goldman, 1956; Mellink, 1991). In this study, the known Cypriot imports are assessed, and technological affinities between the Cilician pottery production and pottery production technologies in Cyprus during the Chalcolithic and the Philia Phase are evaluated. To do so, this assemblage has been studied macroscopically by the author and the observations were paired with publications (e.g. Goldman, 1956; Mellink, 1991; Ünlü, 2009; 2011), and petrographic data kindly provided by Dr. Elif Ünlü. Even though pottery from the Philia Phase has not been included in the petrographic and elemental study presented in Chapter 6, these data are included here in order to adequately assess the possible exchange of pottery technologies between the two regions, paired with publications on the Philia material culture (e.g. Dikomitou-Eliadou, 2012; Frankel & Webb, 1996; 2006; Bolger & Webb, 2013), and petrographic data kindly provided by Dr. Elif Ünlü.

7.1. Indications of Contacts between Cyprus and Anatolia up to the Philia Phase – A literature review

The relations between Cyprus and its neighbors in Prehistory have been heavily debated among scholars. The consensus is that the island was first colonized at the start of the Holocene somewhere between ca. 9000-7000 BC (Vigne *et al.*, 2012; Knapp, 2013; 2020). Subsequently, it gradually fell out of contact with nearby mainlands until another major colonization episode, that of the Philia Phase (ca. 2400-2350/2250 BC), signifying the beginning of the Bronze Age (Mellink, 1991; Webb & Frankel, 1999; Frankel, 2000; Bachhuber, 2015). This has been explained as the result of foreign populations looking for copper sources, refugees fleeing Anatolia or even shipping technology innovations (Broodbank, 2010, pp. 255-256; Knapp, 2018, p. 22). While the presence of Anatolian populations is largely agreed upon, how these groups interacted with local communities is still under investigation (for an overview see Chapter 2).

7.1.1. The Chalcolithic

The Chalcolithic is considered a period with less contacts with the mainlands in comparison to both the preceding Neolithic and the following Philia Phase. However, new research suggests that contacts were more common than previously thought.

7.1.1.1. Faience beads

To begin with, an undoubtedly imported artefact type are faience beads. Several faience beads have been recovered from Middle Chalcolithic contexts in Souskiou-*Vathyrkakas* and Souskiou-*Laona*, and from Late Chalcolithic contexts in Kissonerga-*Mosphilia* (Peltenburg 2006; Kassianidou & Charalambous, 2019; Croft *et al.,* 1998a, pp. 192-195). After analysing some of them with a handheld XRF, Kassianidou and Charalambous (2019) have concluded that at least five of them, which contain Tin (Sn) in their chemical composition, must have been imported. As far as provenance is concerned they might come from either the Levant or Anatolia (Peltenburg, 1987; Kassianidou & Charalambous, 2019; Dardeniz *et al.*, 2021). Therefore, these are not necessarily imported from Anatolia, as they could have been imported from Egypt or Mesopotamia.

7.1.1.2. Metal objects

Similarly, several metal objects which have been retrieved from Chalcolithic contexts seem to have been made from non-Cypriot ores (Kassianidou & Charalambous, 2019; Düring *et al.*, 2021). Metallurgy flourishes in Cyprus during the Bronze Age, when the Cypriot copper is exploited systematically for the first time. However, the origin of metallurgy on the island before that has been disputed. Some decades ago, Gale (1991) analysed four Cypriot ores and several metal objects from Middle Chalcolithic contexts: two chisels and one hook from Erimi-*Pamboula*, a hook from Kissonerga-*Mylouthkia*, and a chisel and a possible blade from Lemba-*Lakkous.* A copper axe from a Late Chalcolithic context from Kissonerga-*Mosphilia* was also included in Gale's dataset, even though its dating to the Chalcolithic was later questioned. These objects were analyzed with Instrumental Neutron Activation Analysis (INAA), while lead isotopes analysis was also conducted on two of these artefacts. Subsequently, the data obtained were compared with data from mines in Cyprus: the Troodos chromite mines, the Limni copper mine, and the Peristerka copper mine. Gale concluded that at least six of these objects were not made of Cypriot copper ores: "*We can be sure that none of the analysed Chalcolithic objects was made of native copper from the four Cypriot sources analysed… It is highly unlikely that there was even a source of native copper on Cyprus impure enough to match the Chalcolithic objects*" (Gale, 1991, pp. 50). Peltenburg (2011) contested these results and argued that crucibles and copper lumps were in fact evidence for indigenous metallurgy in Chalcolithic Cyprus. However, later, Kassianidou and Charalambous (2019, pp. 179-281) agreed with Gale and argued for technological differences between Middle Chalcolithic and Late Chalcolithic metal objects: Middle Chalcolithic metal objects, mainly ornaments, were made by cold working of copper wire and strip, while most of Late Chalcolithic objects seem to have been made of melted copper in moulds (Düring *et al.*, 2018).

More recently, lead isotope analysis on three metal objects from Chlorakas-*Palloures*, has shown that they were consistent with copper ores from the Taurus mountains in Anatolia (Düring *et al.,* 2021, pp. 677-680). Subsequently, the data resulting from the analysis of the objects from Chlorakas-*Palloures* were compared with the older data of lead isotope analyses on metal objects that were found in Pella (Jordan) and Agia Photia (Crete), and were previously thought to be of Cypriot origin. However, they showed the same composition as the Chlorakas-*Palloures* artefacts, showing the same provenance – the Taurus mountains in Anatolia (Philip *et al.*, 2003; Bourke, 2014; Düring *et al.*, 2021, pp. 678-680). An overview of the fifteen objects that have been found in Chalcolithic contexts and one of which can safely say that they were imported in Cyprus is presented below in Table 19 below.

Table 19: Overview of the possibly imported objects found in Chalcolithic contexts in Cyprus (created by Maria Hadjigavriel after the publications mentioned in the table)

IMPORTED OBJECTS FOUND IN CHALCOLITHIC CONTEXTS IN CYPRUS						
type of artefact	description	site	context-chronology	provenance	way of determining provenance	publication
Metal	Hook	Kissonerga-*Mylouthkia*	MChal - Pit F8	Not Cypriot	INAA	Gale, 1991
Metal	Chisel	Erimi-*Pamboula*	MChal - depth 2.2- 2.4 m	Not Cypriot	INAA	Gale, 1991
Metal	Hook	Erimi-*Pamboula*	MChal - unknown contexts, found in museum dataset	Not Cypriot	INAA	Gale, 1991
Metal	Chisel	Lemba-*Lakkous*	MChal - Building 3	Not Cypriot	INAA	Gale, 1991
Metal	Blade?	Lemba-*Lakkous*	MChal - Building 3	Not Cypriot	INAA	Gale, 1991
Faience	Faience bead (SVP 29/32)	Souskiou-*Vathyrkakas*	MChal -T omb 29	Not Cypriot	hand-held XRF	Kassianidou & Charalambous, 2019
Faience	Faience bead (78/4)	Souskiou-*Vathyrkakas*	MChal - Tomb 78	Not Cypriot	hand-held XRF	Kassianidou & Charalambous, 2019
Faience	Faience bead (78/5)	Souskiou-*Vathyrkakas*	MChal - Tomb 78	Not Cypriot	hand-held XRF	Kassianidou & Charalambous, 2019
Faience	Faience bead (78/6)	Souskiou-*Vathyrkakas*	MChal - Tomb 78	Not Cypriot	hand-held XRF	Kassianidou & Charalambous, 2019
Faience	Faience bead (399-3.5 beads 1, 2, and 3)	Souskiou-*Laona*	MChal - Tomb 158	Not Cypriot	hand-held XRF	Kassianidou & Charalambous, 2019
Metal	copper spiral	Chlorakas-*Palloures*	Mixed MChal/LChal context - BQ09 - Unit 31 - Lot 857	Anatolia	hand-held XRF & lead isotope analysis	During et al., 2021
Metal	copper snake/ spiral iform pendant	Chlorakas-*Palloures*	Mixed MChal/LChal context - BV13 - Unit 9 - Lot 700	Anatolia	hand-held XRF & lead isotope analysis	During et al., 2021
Metal	copper axe/ adze	Chlorakas-*Palloures*	LChal -Building 5 BU12 - Unit 19 - Lot 571	Anatolia	hand-held XRF & lead isotope analysis	During et al., 2021
Metal	Chisel (KM 2174)	Kissonerga-*Mosphilia*	LChal - Building 834	Not Cypriot	hand-held XRF	Kassianidou & Charalambous, 2019
Metal	Axe (KM 457)	Kissonerga-*Mosphilia*	LChal - deposits above tumble of Building 86	Not Cypriot	INAA & lead isotope analysis	Gale, 1991

7.1.1.3. Spurred annular pendants, earrings, and picrolite figurines

Another type of artefact that has been argued to be influenced by its Anatolian counterpart are the spurred annular pendants. Specifically, Peltenburg (2018) has argued that spurred annular pendants and a spiral earing from Late Chalcolithic contexts in Kissonerga-*Mosphilia* are imitating Anatolian ones (Croft *et al.* 1998b, p. 245). Such pendants occur in Philia graves in larger quantities, in settlement contexts in Marki-*Alonia*, and they are made of either picrolite or shell (Dikaios, 1962, pp. 174-5; Stewart, 1962, pp. 259-62; Hennessy *et al.*, 1988, pp. 15, 17, 62 & 70; Swiny *et al.*, 2003, pp. 236, 254, 276 & 588; Frankel & Webb, 2006, pp. 75, 77 & figure 6.33). Researchers have suggested that these are Cypriot versions of the "ring idols" known from Anatolia, modern-day Greece and the Balkans (Zimmermann, 2007; Kouka, 2009, p. 35; Keskin, 2011). In these regions the pendants are often made of metal and are comprised of a perforated bar attached to a ring, while in Cyprus they are made of shell, bone, or picrolite, and they can be described as a spur attached to a ring, with the perforation on the opposite side (Peltenburg, 2018, p. 461). Similarly, spiral earrings have been found in Philia funerary contexts, like Nicosia-*Ayia Paraskevi*, Vasilia, Deneia and Philia, and are primarily made of copper (Dikaios, 1962, pp. 158-9; Hennessy *et al.*, 1988, pp. 14-5, 17, 62, 70; Nicolaou & Nicolaou, 1988, p. 105, figure 17; Swiny *et al.*, 2003, pp. 376-9 & 382; Frankel & Webb, 2006, pp. 186-7, figure 5.26; Mina, 2014). However, in Anatolian and Aegean contexts such as a Baklatepe, Eskiyapar, Poliochni, and Troy, they are usually made of gold and with a series of parallel lobes (Massimino, 2019, plate 24). One should note that both of these types of artefacts occur almost exclusively in Philia contexts and the fact they occur in Late Chalcolithic contexts in Kissonerga-*Mosphilia* can be due to the possible existence of assemblages from both periods at the site, or overlap of the two periods (Peltenburg, 2018; Paraskeva, 2019).

It has also been argued that even three of the famous picrolite figurines might reproduce Anatolian types (Vagnetti, 1979; Winkelmann, 2020, p. 281). Specifically, these are three figurines made of picrolite, and seem to be mimicking Anatolian violin-shaped figurines, and have parallels at Beycesultan and Çiledir Höyük (Makowski, 2005; Türktüzün *et al.*, 2014; Tuncel & Şahoğlu, 2019; Sari, 2021).

7.1.1.4. Pottery

Finally, so far, no Anatolian or Levantine pottery has been found in Chalcolithic contexts. However, numerous studies have dealt with possible influences in pottery technology in the Late Chalcolithic, with an emphasis on the red and/or black burnished surfaces and relief decoration (e.g. Bolger, 2007; 2013; Peltenburg, 2007; 2018). Importantly, Middle Chalcolithic Cypriot pottery has been found in Tarsus-*Gözlükule*, in Cilicia: two sherds and a partial vessel identified as Red-on-White Ware (Goldman, 1956, pp. 20 & 130, figs. 263 & 347; Mellink, 1991, pp. 170-172). They were found in deposits dating to the EB II (ca. 2700-2400), which corresponds to the Late Chalcolithic on Cyprus.

7.1.2. The Philia Phase

In the subsequent Philia Phase metal artefacts are found in larger quantities, and in novel types including daggers, spearheads and ring ingots. Lead isotope analysis has showed that at least 15 metal objects from this period have been made by mixing metal from Cyprus, the Taurus mountains, and the Aegean, a practice that continues in the later periods as well (Stos-Gale & Gale, 2003; Webb *et al.*, 2006; pp. 271-3; Webb, 2018, pp. 10-11; Webb, 2022). Another type of imports from Anatolia during the Philia Phase are animals: new species of sheep and goats with twisted horns, probably wool-bearing, cattle, and donkey (Croft, 2006). It is believed that these animals were imported to facilitate new activities such as transport, ploughing or the production of wool, although the extent to which these activities were already taking place in the Philia Phase is contested. For example, as Düring (in press) maintains, even though it has been argued that ploughing started in the Philia Phase (Webb & Frankel, 2007), there is no evidence for this. On the contrary, the first iconographic evidence, from Vounous, dates about 400 years later, and the faunal evidence for traction are not conclusive, so this argument was later withdrawn (Croft, 2006, p. 271).

For Philia pottery production, the Anatolian influences are undisputed, and pottery characteristics have been considered one of the strongest indications for increased extra insular contacts. However, no Anatolian vessels have been recovered in Philia contexts so far, with the earliest imported ceramic, the so-called Vounous jar, dating to the Early Cypriot I/II (ca. 2350/2250-1850 BC) (Bolger, 2013, pp. 5-6). On the other hand, at least five Cypriot Black Slip and Combed Ware sherds and one jug with a cut-away spout dating to the Philia Phase have been recovered in Tarsus-*Gözlükule* (Goldman, 1956, pp. 20 & 130, figs. 263 & 347; Mellink, 1991, pp. 170-2; Webb & Frankel, 1999, p. 28). Just like the Cypriot Chalcolithic sherds found at this site, they belong to EB II contexts that cannot be dated safely, and they are analysed in detail later in this chapter. Finally, it should be noted that Philia pottery in EB sites in Anatolia has possibly been identified at Hacımusular Höyük, where a horned jar which resembles Philia White Painted jugs has been recovered from EB II levels (Özgen *et al.*, 2021, p. 628, fig. 21x). An overview of the Cypriot objects found in Anatolia in EB I-II contexts is presented in the Table 20 below.

Table 20: Overview of possibly Cypriot object found in Anatolia in contexts dating to EB I-II (created by Maria Hadjigavriel after the publications mentioned in the table)

CYPRIOT OBJECTS FOUND IN ANATOLIA IN CONTEXTS DATING TO EB I-EB II						
type of artefact	description	site	context-chronology	provenance	way of determining provenance	publication
Pottery	Red-on-White Ware sherd (MChal)	Tarsus-*Gözlükule*	Sherd number 2009.14.501 EB II deposits	Cyprus	Macroscopic analysis	Goldman, 1956 Mellink, 1991
Pottery	Red-on-White Ware sherd (MChal)	Tarsus-*Gözlükule*	Sherd number 2009.14.502 EB II deposits	Cyprus	Macroscopic analysis	Goldman, 1956 Mellink, 1991
Pottery	Red-on White Ware partial vessel (MChal)	Tarsus-*Gözlükule*	EB II deposits	Cyprus	Macroscopic analysis	Goldman, 1956 Mellink, 1991
Pottery	Black Slipped and Combed Ware sherd (Phila)	Tarsus-*Gözlükule*	Sherd number 2009.14.470 EB II deposits TAN, Room 107, Floor; Date: December 14, 1938; Meters: 16.11	Cyprus	Macroscopic analysis, ceramic petrography & XRD analysis	Goldman, 1956 Mellink, 1991 Ünlü, 2009
Pottery	Black Slipped and Combed Ware sherd (Phila)	Tarsus-*Gözlükule*	Sherd number 2009.14.471 EB II deposits Room 103, Floor; Date: December 10, 1938; Meters: 15.22 - 15.88	Cyprus	Macroscopic analysis, ceramic petrography & XRD analysis	Goldman, 1956 Mellink, 1991 Ünlü, 2009
Pottery	Black Slipped and Combed Ware sherd (Phila)	Tarsus-*Gözlükule*	Sherd number 2009.14.472 EB II deposits Meters: 14.40	Cyprus	Macroscopic analysis, ceramic petrography & XRD analysis	Goldman, 1956 Mellink, 1991 Ünlü, 2009
Pottery	Black Slipped and Combed Ware sherd (Phila)	Tarsus-*Gözlükule*	Sherd number 2009.14.473 EB II deposits Meters: 13.20	Cyprus	Macroscopic analysis, ceramic petrography & XRD analysis	Goldman, 1956 Mellink, 1991 Ünlü, 2009
Pottery	Black Slipped and Combed Ware sherd (Phila)	Tarsus-*Gözlükule*	Sherd number 2009.14.474 EB II deposits	Cyprus	Macroscopic analysis, ceramic petrography & XRD analysis	Goldman, 1956 Mellink, 1991 Ünlü, 2009
Pottery	Black Slipped and Combed Ware sherd (Phila)	Tarsus-*Gözlükule*	Sherd number 2009.14.475 EB II deposits TAL, Room 62, Floor; Date: April 20, 1938; Meters: 10.11	Cyprus	Macroscopic analysis, ceramic petrography & XRD analysis	Goldman, 1956 Mellink, 1991 Ünlü, 2009
Pottery	Philia jug with cut-away spout	Tarsus-*Gözlükule*	Pitcher 356 Sherd number 2009.14.506 EB II deposits	Cyprus	Macroscopic analysis	Goldman, 1956
Pottery	Horned jug	*Hacımusular Höyük*	EB II deposits	Cyprus	Macroscopic analysis	Özgen et al. 2021

7.2. The Tarsus-*Gözlükule* Assemblage – A Comparative Study to Assess Chalcolithic and Philia Connections

Tarsus-*Gözlükule* is a site close to modern-day Tarsus in Cilicia, south-eastern Turkey. It was first excavated by an American mission led by Hetty Goldman under the auspices of Bryn Mawr College in the 1930s and 1940s. The Bronze Age contexts were published in an edited volume in 1956, including a very detailed pottery catalogue compiled by Goldman, and an appendix on ceramic technology by Matson (Goldman, 1956; Matson, 1956). Since 2007, the site is being excavated by the Tarsus Regional Project led by Dr. Aslı Özyar of Boğaziçi University. However, these excavations have not worked on Early Bronze Age levels (Özyar *et al.*, 2010; 2017). Later on, the pottery unearthed during the American excavations was re-studied by Dr. Elif Ünlü during her PhD research (Ünlü, 2009). While Goldman categorized the pottery assemblage based on macroscopic observations of the clay matrix, surface treatment and shapes of the vessels, in Ünlü's work, mineralogical, morphological, and formal shape and decoration-related analyses were considered equally (Ünlü, 2009; 2011). The data presented here draw from Goldman's and Ünlü's work and do not include the findings of the current Tarsus Regional Project.

Hetty Goldman deposited the pottery reference collection from Tarsus-*Gözlükule* along with all the archives of her project to Bryn Mawr College. The Tarsus Archives is comprised of almost 2000 objects, including 450 sherds which are ascribed to the EB, and are stored in 33 boxes at the Special Collections of the Bryn Mawr College Library. For the purposes of this project the assemblage has been studied macroscopically in January 2023. For each sherd, when applicable, the following characteristics were recorded: Sherd number; Ware; Box; Provenance; Chronology; Context; Shape; Wall thickness; Diameter; Surface Treatment (exterior and interior); Hardness; Core; Fabric Colour; Feel; Texture; Macro-Traces; and Technique. The analysis of some of these sherds is presented in Appendix VIII. Subsequently, the sample's fabrics were studied macroscopically, using a 10x magnifying lens and a hand-held digital microscope. The aim of this analysis was to recognize and evaluate the Cypriot imports and obtain an understanding of the local pottery traditions in order to assess possible technological influences in Cyprus. The relevant wares for this study are the ones ascribed to the EB I and EB II, and represent 67.5% of the overall assemblage.

In the following sections the Cypriot imports are discussed, as well as some technological affinities of specific wares/sherds with Late Chalcolithic and Philia pottery from Cyprus. Before assessing technological similarities in pottery production between Tarsus-*Gözlükule* and Cyprus one must keep in mind the chronology and periodization of the two regions: the Middle and Late Chalcolithic periods in Cyprus correspond in part to EB I and EB II in Anatolia, while the Philia Phase corresponds to the beginning of EB III in Anatolia. However, one should always keep in mind that this collection comes from an old excavation and much of the material cannot be closely dated. Therefore, this study uses it to reflect on possibilities of exchange of material and pottery technologies between the two regions, and not as an absolute comparison.

7.2.1. Cypriot Imports

Tarsus-*Gözlükule* remains the only site in Anatolia where the presence of Cypriot Chalcolithic pottery is confirmed. As mentioned before, a possible Philia sherd has been recently recovered in Hacımusular Höyük (Özgen *et al.*, 2021, p. 628, fig. 21x). In Tarsus-*Gözlükule,* Goldman recognized two wares, the Middle Chalcolithic Red-on-White (RW) and the Philia Black Slip and Combed Ware (BSC), which in the publication is referred to as "Red and Black Streak-Burnished Ware", not to be confused with the Late Chalcolithic Red Black Stroked-Burnished Ware (RB/B) of the Paphos region (Goldman, 1956, p. 112-113).

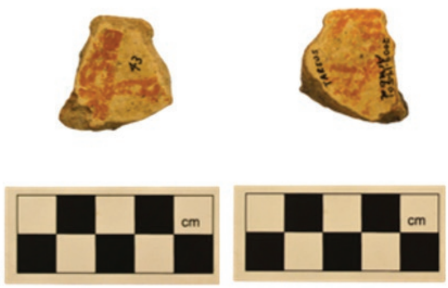
7.2.1.1. Red-on-White (RW) Sherds

In the Bryn Mawr's reference collection, two sherds are classified as Cypriot Red-on-White ware. Both are open sherds, as they are painted on both sides, one is a body and one is a straight thinning rounded rim, which is however too small to deduct the diameter of the vessel. Their macroscopic fabric it is beige to light yellow, oxidized, with diffused core margins. Both come from EB II deposits, but no further information is given in regards to their contexts, as they come from fill deposits. Even though these sherds are very small, as far as macroscopic observations go, they are definitely Cypriot RW. This has also been stated by Peltenburg (1982, pp. 95-96), though he highlighted that their exact provenance within the island is difficult to be determined.

Indeed, Goldman had identified two RW sherds and one RW partial vessel: "*The red-on-white slip ware comes from Cyprus where it is known as Erimi ware (379-380). It is characteristically thick, rather crumbly white fabric. The recognizable shapes are jar and bowl*" (Goldman, 1956, p. 112). Similarly, Mellink (1991, p. 170) describes two RW sherds: one rim of a bowl with lattice pattern in and out, ca. 0.7 cm thick, and one open body sherd, latticed on the exterior and red in the interior. These are sherds 2009.14.501 and 2009.14.502 respectively (Figure 94, (a), (b)).

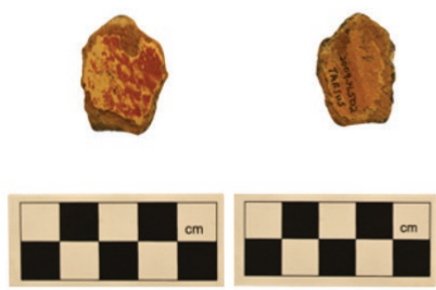
Figure 94: Red-on-White sherds from Tarsus-Gözlükule, 2009.14.501 (a) and 2009.14.502 (b), and from Chlorakas-Palloures (c) (photographs by Maria Hadjigavriel)

(a)



sherd number: 2009.14.501

(b)



sherd number: 2009.14.502

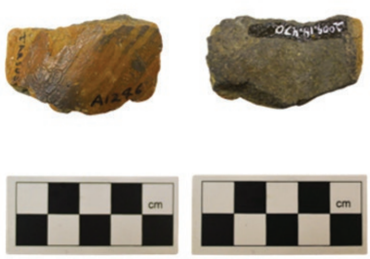
(c)

Red-on-White sherds from Chlorakas-Palloures

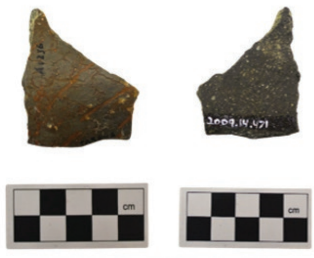
7.2.1.2. Philia Black Slip and Combed Ware (BSC) sherds

In the reference collection, there are six sherds that are categorized as Cypriot BSC of the Philia Phase (Figure 95). According to Goldman (1956, p. 112), BSC sherds in Tarsus have a dark fabric, quite heavy and highly burnished slip, and are black and red, with one or the other colour dominating. This surface treatment is characteristic of the ware, creating a burnished red-black streaked effect, although Goldman maintains that the burnishing is more irregular than that of sherds found in Cyprus (Goldman, 1956, p. 113). All of the six sherds here are body sherds, with five being of closed shapes and only one being an open body sherd. According to Goldman's (1956, p. 113) and Mellink's (1991, p. 171) observations regarding vessels shapes of BSC, with the most recognizable vessel shape is a long-necked bottle (about 15 sherds) and bowls occur less often (three or four sherds). All six sherds are quite thick, with the wall thickness ranging from 0.6 to 1.1 cm, and all have been fired in reduced atmosphere. They have all been recovered in EB II contexts, with many of them occurring around the second fortification wall, and the safest contexts being the floors of House 103-105-107, Level 15.22-15.88 (Goldman 1956, Plan 6, fig. 263:375-76; Mellink, 1991, p. 171). Even though it has been argued that BSC sherds from Tarsus might have affinities to the Late Chalcolithic RB/B (e.g. Mellink, 1991, p. 172), this is definitely not the case, at least when it comes to the six sherds studied here. On the contrary, they are extremely similar to BSC from sites Philia in northern Cyprus, like Kyra-*Alonia* (Figure 96).

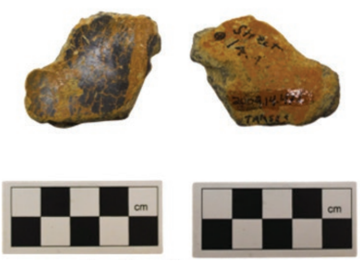
Figure 95: BSC sherd from Tarsus-Gözlükule (photographs by Maria Hadjigavriel)



sherd number: 2009.14.470

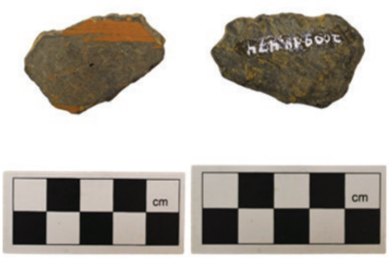


sherd number: 2009.14.471



sherd number: 2009.14.472

sherd number: 2009.14.473



sherd number: 2009.14.474

sherd number: 2009.14.475

Figure 96: Reconstructed BSC bowls from Kyra-Alonia (photographs by Maria Hadjigavriel)

Ceramic thin section petrography data are available for these sherds, since Ünlü had sampled two BSC sherds from the Tarsus-*Gözlükule* assemblage (referred to as Samples 40 and 41 in Ünlü, 2009). Even though, as she notes the two samples differ from each other, they are both petrographically consistent with Cypriot clays at the time, as these were described by Frankel and Webb (1996, p. 175-180), especially Sample 41 (Ünlü, 2009, p. 125). Specifically, Sample 40 is comprised of sedimentary components while Sample 41 includes igneous rocks. For Sample 40, ceramic petrography has shown that the dominant inclusions are limestone, shell, mudstones and quartz. On the other hand, Sample 41 is dominated by large calcite and shell fragments, along with some shale fragments and some big basalt inclusions. There are also free feldspars and quartz, while mudstones with quartz component are also visible. Both of the samples are calcareous (Ünlü, 2009, 254-255). These observations are confirmed by the XRD analysis which showed that both samples contain plagioclase feldspars and pyroxenes, quartz and micas. Nevertheless, in Sample 41 a wider range in alkali feldspars and mica types occurs. ESEM analysis showed that both samples are calcareous and of iron-rich clay (Ünlü, 2009, pp. 125-126).

One must note that Ünlü maintains that even though these samples differ from each other to some extent, they could have been broadly categorised into her petrographic Local Fabric III. What distinguishes them is their typology, indicating their Cypriot provenance (Ünlü, 2009, p. 126). Therefore, what verifies the Cypriot origin of these sherds is their typological features.

7.2.1.3. A Philia pitcher and Philia-like spout

Within the reference collection at Bryn Mawr, there is one spout which has been ascribed to the Red Slipped Polished Ware, a non-local ware. This spout type is quite common in the Philia vessel shapes repertoire. Additionally, a similar spout is observed on a pitcher mentioned in Goldman's publication, pitcher 356 which was ascribed to the Plain Red Burnished Ware of EB II but she noted that "*The pitcher (356) falls out of the general picture of Cilician shapes and is so close to the Cypriote style that it may very well be an imported piece*" (Goldman, 1956, p. 112). Even though we cannot verify the Cypriot origin of the pitcher or the spout, they are included here as possible Cypriot export (Figure 97).

Figure 97: Drawing of Philia Red Polished jugs from Agia Paraskevi (a), a Philia jug at the Metropolitan Museum of Art in New York (b), Pitcher 356 from Tarsus-Gözlükule (c) and sherd 2009.14.506 from Tarsus-Gözlükule (d) (after Bolger & Webb, 2013, p. 93 (a), www.metmuseum.org (b), Goldman, 1956, p. 262 (c) and photographs by Maria Hadjigavriel (d))

7.2.2. Pottery Technology Similarities between Cypriot Pottery and the Tarsus-Gözlükule Assemblage

This section focuses on broader similarities between Late Chalcolithic and Philia Cypriot pottery characteristics with wares and specific sherds included in the Tarsus-*Gözlükule* dataset under study. Once again, it is important to keep in mind that this collection originates from an old excavation, and much of the material cannot be precisely dated. Therefore, this study utilizes it to explore potential exchanges of materials and pottery technologies between the two regions rather than as an absolute basis for comparison.

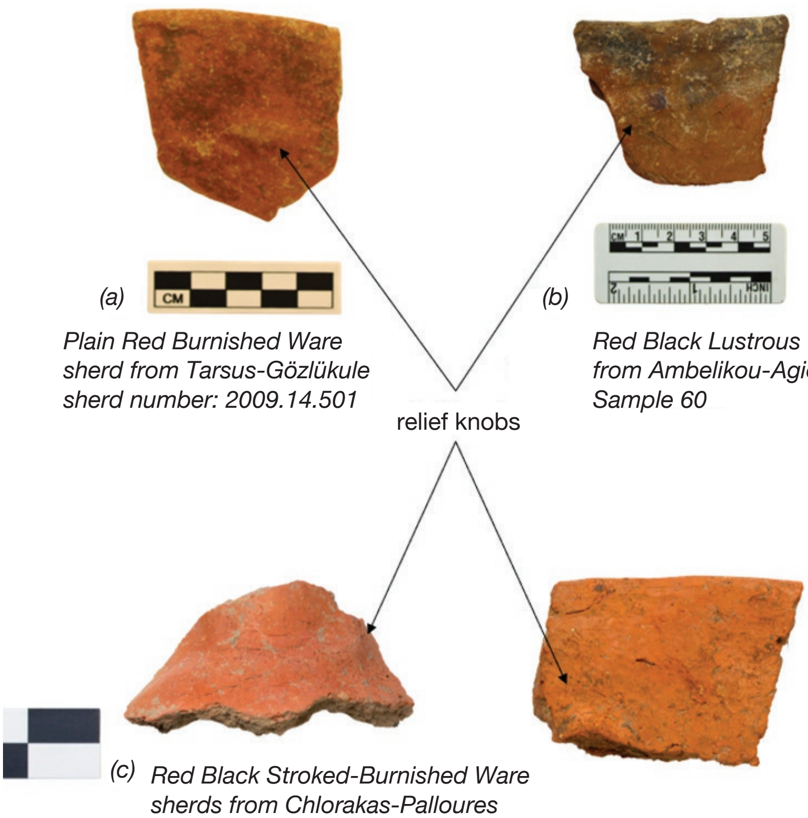
7.2.2.1. Surface treatment similarities between Tarsus and Late Chalcolithic Cypriot wares: Burnishing and relief decoration

Red and/or black monochrome burnished wares, occasionally with relief decoration, are dominant in the Late Chalcolithic of Cyprus. Precisely these characteristics have been employed in previous studies as indicators of contacts with both Anatolia and the Levant (i.e. Bolger, 2007; 2013; Peltenburg, 2007; 2018).

A ware from Tarsus-*Gözlükule* that has also these characteristics is the Plain Red Burnished Ware, a handmade calcareous ware which occurs in the EB I-II (Goldman, 1956, pp. 111-112; Matson, 1956, p. 354). Indeed, several sherds from the reference collection that have been ascribed to this ware resemble Cypriot red monochrome Late Chalcolithic pottery. The common characteristics are red monochrome highly burnished surfaces, often with visible burnishing streaks, and occasionally randomly mottled surfaces, relatively thin walls (0.4-0.8 cm) and finer macroscopic fabrics. Additionally, these characteristics also occur in Red Gritty sherds (Figure 98). Notably, one Plain Red Burnished sherd has a slight relief knob on the exterior and random mottling, resembling both Red Black Stroke-Burnished sherds sherds with relief decoration from the Ktima Lowlands sites and a Red Black Lustrous sherd with relief decoration from Ambelikou-*Agios Georghios* (Figure 99).

Figure 98: Plain Red Burnished Ware and Red Gritty Ware sherds from Tarsus- Gözlükule (left), and red burnished pottery from Late Chalcolithic Cyprus (right) (photographs by Maria Hadjigavriel)

Figure 99: Sherds with relief knob and/or mottled surface from Tarsus-Gözlükule (a), Ambelikou-Agios Georghios (b), and Chlorakas-Palloures (c and d) (photographs by Maria Hadjigavriel)



7.2.2.2. Red Gritty Ware from Tarsus and Late Chalcolithic Spalled Ware from Cyprus: A possible influence

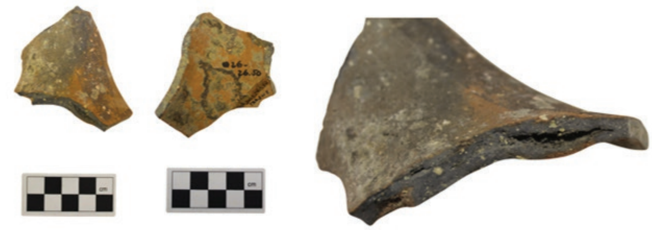
As already mentioned in previous chapters, Spalled Ware is a novel Late Chalcolithic pottery ware. Bolger (2019) attributes its beginning to the end of the Middle Chalcolithic. A thinly applied grey/black and/or beige slip covers the surfaces, which are often pock marked (spalled) and highly burnished with visible burnishing strokes. It is used primarily for closed vessels like jugs and jars (Bolger *et al.*, 1998; Bolger & Webb, 2013).

These characteristics are also evident in some Red Gritty Ware sherds in Bryn Mawr's reference collection: namely one Red Gritty Ware; two Red Gritty Ware-Fine; one Red Gritty Chevron Incised Ware; one Painted Red Gritty or Sandy Ware; and four Plain Red Gritty or Sandy 'Apricot' Ware. These sherds are all handmade, very hard, slipped on both sides when they are open vessels. The interior remains untreated for closed vessels (the majority of the sherds). All are body sherds apart from one straight constant rounded rim. Wall thickness varies from 0.2 to 0.6 cm. These are definitely not Cypriot imports, but do have some similarities in surface treatment: the thinly applied beige, red or grey slip and often "pocked" effect; macroscopic fabric: thoroughly fired grey core and visible large white inclusions; and general feel and high hardness (Figure 100).

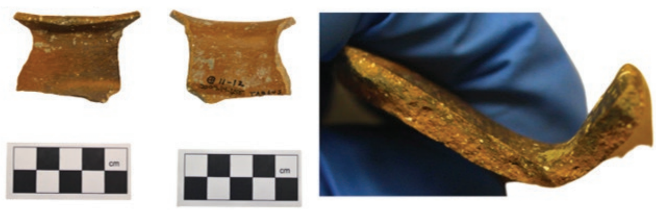
Petrographically, the Red Gritty Ware sherds correspond to Ünlü's petrographic Local Fabric III, which is one of the main fabric groups of EB Tarsus. This is an iron-rich fabric, not very calcareous, with quartz and feldspars dominating the matrix. It also includes some metamorphic elements like schist and quartzite, while sandstones siltstones, mudstones and shale are also present. Volcanic inclusions like basalt also occur (Ünlü, 2009, p. 81). It represents primarily handmade, utilitarian vessels, such as pitchers, pithoi, and cooking pots. All of the vessels belonging to this group are well-fired. Additionally, Ünlü has noted that "*Given the standardization of fabric, vessel shapes, high percentage distribution within the settlement, and its wide-spread occurrence within the region and beyond, Local Fabric III production seems to fall under "community specialization" in terms of production organization*" (Ünlü, 2009, p. 85). Here the term "community specialization" is used according to Costin, who defines it as "*autonomous individual or household-based production units, aggregated within a single community, producing for unrestricted regional consumption*" (Costin, 1991, p. 8).

The Cypriot Spalled Ware corresponds to petrographic Fabric III presented in this study (see Chapter 6 and Appendix VI). This is a fabric dominated by micritic limestone, chert and argillaceous inclusions, while sandstone, serpentinite, monocrystalline quartz and opaques are common, and a few fragments of polycrystalline quartz and basalt also occur. Therefore, these two petrographic fabrics are not similar or comparable to each other, with the only similarity in terms of clay properties being the fact that they both exhibit spalling at high temperatures. Therefore, these wares do not share petrographic fabrics and their similarities are only on a macroscopic basis. This indicates different clay sources and clay preparation processes, suggesting only possible mediated interactions between the crafting communities in question (Gosselain, 2018, pp. 9-12).

Figure 100: Red Gritty (Fine) Ware sherds from Tarsus-Gözlükule (a,b) and Spalled Ware sherds from Chlorakas-Palloures (photographs by Maria Hadjigavriel)



(a) Red Gritty Ware sherd from Tarsus-Gözlükule. Sherd number: 2009.14.442



(b) Red Gritty Fine Ware sherd from Tarsus-Gözlükule. Sherd number: 2009.14.655

(c) Spalled Ware sherd from Chlorakas-Palloures. Sample 37

(d) Spalled Ware sherd from Chlorakas-Palloures. Sample 36

7.2.2.3. Philia Red Polished Ware and pottery from Tarsus: Similarities in firing, surface treatment and forming techniques

As already mentioned in Chapter 3, the Philia Red Polished Ware is the most popular ware of the Philia Phase and its Anatolian influences have been characterized as apparent (Peltenburg, 1991c). It is distinguished by its smoothed red slipped evenly polished surfaces, occasionally with incised decoration that might be filled with white limestone paste or with black reduced surfaces, and its distinct yellow/brown fabric with thick grey core (Bolger & Webb, 2013, p.60).

Of the sherds within the Tarsus-*Gözlükule* assemblage that resemble this ware, six are ascribed to the Incised Red Burnished Ware, and one to the Red Slipped Polished Ware. The Incised Red Burnished Ware is a variant of the Plain Red Burnished Ware, characterized by its red slipped burnished surfaces, which vary from low burnish to very high lustrous. The incised variant is highly burnished and the slip is a light cherry-red colour. The bases stay untreated on both sides. According to Goldman, the incised decoration was done after the hardening of the clay and before the slipping and polishing, covering over the pattern. Often there are incised lines encircling the neck. Unlike its EB I variation and the Philia Red Polished Ware, there is no clear indication of white-filled decoration. The interior surfaces are left untreated. Interestingly, some sherds have traces of finger pressing on the interior surface (Figure 101).

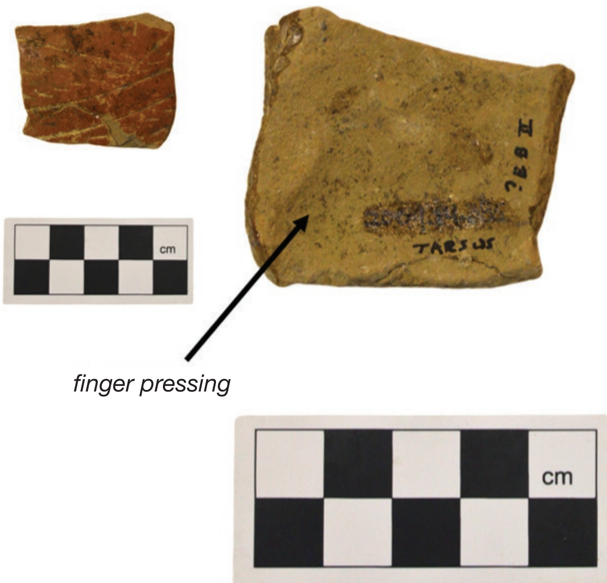


Figure 101: Sherd 2009.14.385, with evident finger pressing on the interior surface (photographs by Maria Hadjigavriel)

The macroscopic fabric of these sherds is soft, fine grained, and uniform in cross-section. They occur in pitchers that have pear-shaped or oval body, cylindrical neck, and profound trefoil spout. Only one open vessel, a bowl, has been ascribed to this ware (Goldman, 1956, p. 112). Of the six sherds ascribes to the Incised Red Burnished Ware, one is a handle of a closed vessel and the rest are closed body sherds (Figure 102). They all come from EB II contexts.

Figure 102: Incised Red Burnished Ware sherds from Tarsus-Gözlükule that resemble Philia pottery (photographs by Maria Hadjigavriel)

7.2.2.4. Cooking pots in EBA Tarsus and Philia Cooking Pots Type A

Even though several innovations in Philia pottery production have been explained as influences from Anatolia, some remain unexplored. One of them is the emergence of cooking pots made in a calcareous fabric, a phenomenon that does not continue on Cyprus after the Philia. In Marki-*Alonia*, these cooking pots are referred to as Philia Cooking Pots Type A, and included in the Red Polished Coarse Philia Ware (RPCP) (Frankel & Webb, 2006, pp. 135; Dikomitou-Eliadou, 2012, p. 158).

In EB I Tarsus-*Gözlükule*, cooking pots occur in the Hard Cooking Pot Ware, the Soft Gritty Cooking Pot Ware, and the Light Slipped Cooking Pot Ware. Hard Gritty Cooking Pot Ware is handmade, not well fired, and its macroscopic fabric is reddish brown with grits, shell, limestone, sand, mica and some chaff. The surface is dull, slipped or smoothed, and usually brown. It occurs in hole-mouth jars, jars with everted rims and pans. This ware is largely abandoned after the EB I (Goldman, 1956, p. 96). Soft Gritty Cooking Pot Ware is handmade, not very well fired, even crumby, with most of the core being dark, and it is usually slipped, sometimes burnished. Light Slipped Cooking Ware has the same macroscopic fabric as the Soft Gritty Cooking Pot Ware and it is always covered with a dull slip. These wares occur in amorphous types of casseroles and jars, and large one- or two-handled cups and bowls; and common kitchen pots, spoons and a thin-walled variety of jars with everted rims (Goldman, 1956, p. 97). In EB II these cooking pot wares merge into one ware, the Cooking Pot Ware, which occurs in bowls and casseroles with simple rims and horizontal or vertical handles (sometimes with ledge or lug handles), pitchers, small bowls and jars (Goldman, 1956, p. 110).

In Philia Phase Cyprus, cooking pots belong to the Red Polished Coarse (Philia) Ware. This is medium-hard to hard ware with brown fabric. The exterior surface can be red, brown, with a thin wash or matt or slightly lustrous slip, and sometimes a thick white coating, discoloured grey. Besides cooking pots, it also occurs in large storage jars and pithoi, and it is characterized by many small and medium white inclusions visible on both sides of the surface and in the macroscopic fabric (Bolger & Webb, 2013, p. 51).

7.2.2.4.1. Clay recipe and preparation

Macroscopically, sherds that belong to the Cilician cooking pot wares of EB I and II present the same small white and grey inclusions evenly distributed across their section as the Philia Cooking Pots Type A. Petrographically, Ünlü (2009, p. 81) has ascribed several cooking pots to the Local Fabric III, which is a not very calcareous fabric dominated by quartz and feldspars, along with schist, quartzite, sandstones, siltstones, mudstones, shale and volcanic inclusions, like basalt. For example Sample 4, a sherd that belongs to the Soft Gritty Cooking Pot Ware, is dominated by large mudstones which contain quartz and fossil. The calcareous inclusions also contain quartz infilling while quartz is present in fine fraction as well (Ünlü, 2009, p. 220; Figure 103).

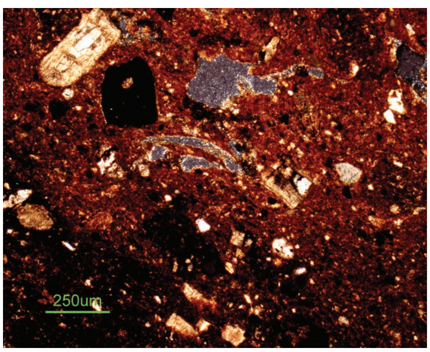


Figure 103: Sample 4 in Local Fabric III (photomicrograph taken under PPL, kindly provided by Dr. Elif Ünlü)

When assessing Philia pottery from Marki-*Alonia*, Dikomitou-Eliadou sampled thirty two cooking pots, which were exclusively ascribe to three petrographic fabrics: IV, V and VIII, indicating that only specific fabrics were preferred for their production. The majority of these samples (25) were ascribed to either Fabric IV or VIII, which are non-calcareous fabrics, rich in igneous inclusions such as biotite and monocrystalline and polycrystalline quartz and meta quartz (Dikomitou-Eliadou, 2012, p. 250-251). Interestingly, seven of these samples are made with fabric V, a calcareous fabric, dominated by micritic limestone, which is thought to have been added to the clay intentionally. However, in other regions, limestone or monocrystalline calcite are not commonly used in cooking pot fabrics (Arnold, 1985; Shoval *et al.*, 1993, p. 263, 271). This is because carbonate tempers don't have the optimal thermal properties for cooking pots, as they can cause defects and porosity (Shoval *et al.*, 1993, p. 269). On occasion, limestone would be used because it reduces the bulk thermal expansion of the vessel's body, and the porosity of calcareous fabrics (Tite & Kilikoglou, 2002, p. 1; Tite *et al.*, 2001, p. 322). All of the Cooking Pot Type A samples have been ascribed to calcareous fabric V, by Dikomitou-Eliadou (2012, p. 250), which is distinguished by their distinct small white and grey inclusions evenly distributed across their section.

Cooking pots made in fabric V are a unique Philia phenomenon since they ceased to be produced in the EC I-II period, and Dikomitou-Eliadou argued that this fabric was not locally made at Marki-*Alonia* but imported. In contrast, fabric IV was locally made and continued to be used for the production of cooking pots throughout the Early Cypriot and the Middle Cypriot, along with fabric VIII (Dikomitou-Eliadou, 2012, p. 255-256). So, for fabric V Dikomitou-Eliadou (2012, p. 251) wonders "*why then did the Philia potters use this relatively unsuitable temper material for cooking pot fabric Type A, and how did they manage to produce limestone enriched cooking pots that survived not only initial firing as part of their production sequence, but also repeated heating in later household activities*?". The latter part of this question can be answered by looking at technological solutions: Philia Cooking Pots of Type A seem to have been fired for at least six hours below 600°C, for the vessels to remain intact and to avoid decarbonising (Shoval *et al.*, 1993, p. 271). Other ways to restrain calcite decomposition, would be to quench the pot in cold water immediately after firing, or to wet the clay with sea water or to add salt (sodium chloride) to the clay (Rye, 1981, p. 33; Tite & Kilikoglou, 2002, p. 3; Tite *et al.*, 2001, p. 322). The latter would explain the white or grey coating on several cooking pots (Frankel & Webb, 2006, p. 101). It has been suggested that cooking pots were significantly standardised from the Early Cypriot III period onwards, but certain characteristics, such as the fact that the non- calcareous fabrics remain consistently dark coloured and coarse, remain the same from the Philia Phase (Frankel & Webb, 2006, p. 133; Dikomitou-Eliadou, 2012, p. 254). This is in accordance to the general assumption that non-calcareous volcanic clays have darker colours, and these colours aid at retaining heat, just like the carbon coating on the exterior surface of a vessel (Arnold, 1985, p. 23; Frankel & Webb, 2006, p. 135).

However, one explanation could also be that they Philia Cooking Pot Type A vessels are reproduced in a way similar to Anatolian cooking pots. Eleven sherds from the Tarsus-*Gözlükule* pottery reference collection at Bryn Mawr have been ascribed to cooking pot wares. Four of them are dated to the EB I: three are ascribed to the Light Slip Cooking Pot Ware and one to the Hard Gritty Cooking Pot Ware, a straight constant rounded rim of closed vessel. The rest are flaring thinning rounded rims of an open and a closed vessel, and one cut-away spout with the neck and handle of a jug. Two have completely untreated surfaces while two have a red/orange slip on the exterior surfaces. All of them are handmade and have an orange/light brown macroscopic fabric. The remaining seven sherds belong to EB II-III and have been ascribed to the general Cooking Pot category. Besides on closed body sherd, the rest are rims of five closed vessels, two of them with vertical handles, and one rim of an open vessel. The exterior is either untreated, reduced, or covered with an orange slip, and the interior is left untreated besides the one open vessel, whose interior surface is orange slipped. The diameter of all these vessels vary between 6-11 cm and the wall thickness between 0.4-1.3 cm. When examining the macroscopic fabric of these eleven sherds, three of them remind the Philia Cooking Pots Type A, with the distinct white and grey specs across the cross-section.

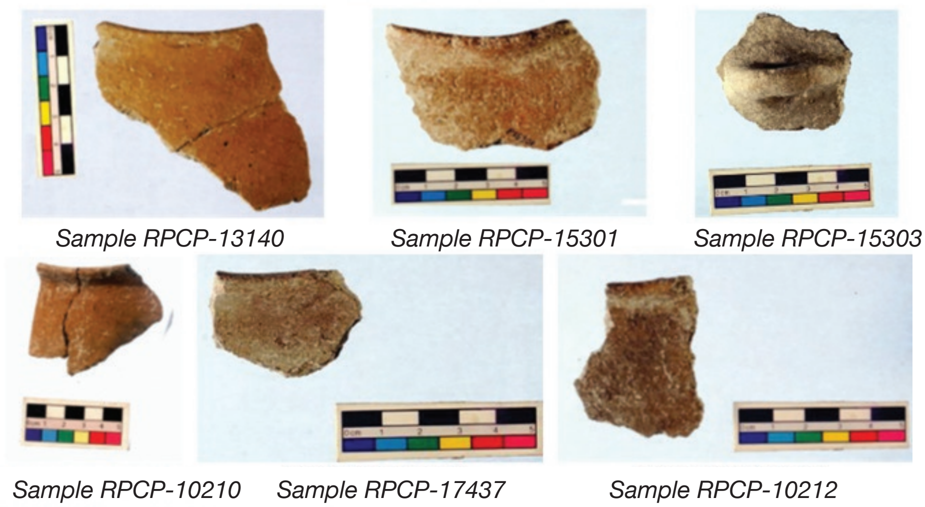
7.2.2.4.2. Surface treatment

The surface treatment of eleven aforementioned Cooking Pot Wares sherds from Bryn Mawr's reference collection is either untreated, reduced, or covered with an orange slipped exterior surface. The interior is left untreated besides the one open vessel, whose interior surface is orange slipped like the exterior one. Interestingly, the six cooking pot sherds from Marki-*Alonia* ascribed by Dikomitou-Eliadou (2012) to her petrographic Fabric V have either untreated exterior surface, or are covered with a thin dull orange or beige slip (Figure 104). Moreover, the thick white coating with grey discoloration due to the exposure to carbon observed in Philia cooking pots can also be observed in cooking pots from Tarsus-*Gözlükule*.

Figure 104: Cooking Pots from Tarsus-Gözlükule (up), and Cooking Pots from Marki-Alonia (down) (photographs by Maria Hadjigavriel and after Dikomitou-Eliadou, 2012)

EB I-II Tarsus-Gözlükule

Philia Phase Marki-Alonia



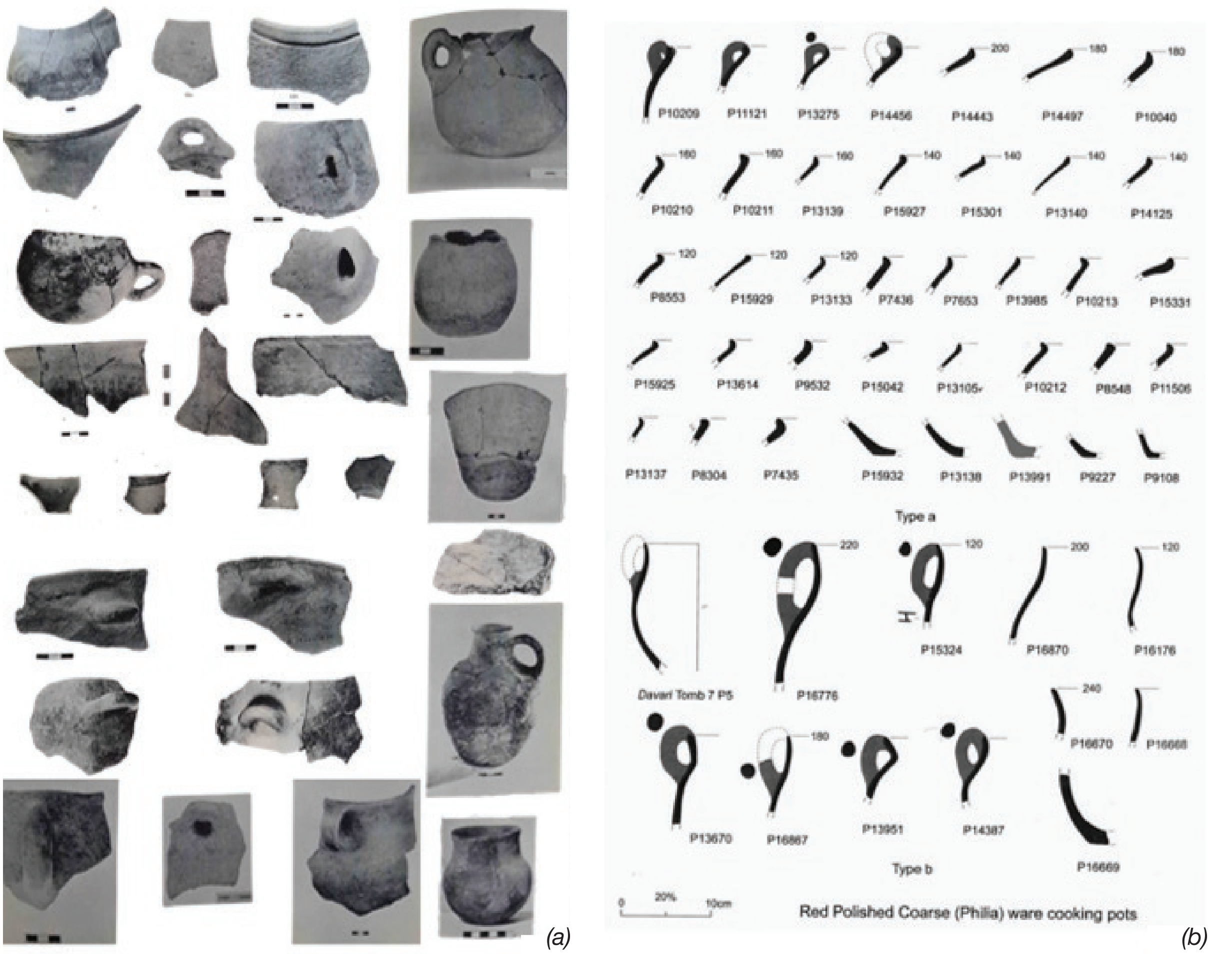
7.2.2.4.3. Forming techniques and vessel shapes repertoire of Cooking Pots

Among the pottery technology characteristics of the Philia wares, are the ‘plugged’ handles, a technique that is not present in the Late Chalcolithic (Bolger & Webb, 2013, p. 60; Bolger & Peltenburg, 2014, p. 189-190). Two sherds with ‘plugged’ handles are present in the Tarsus-*Gözlükule* assemblage at Bryn Mawr College: a Light Slip Cooking Pot Ware cut-away spout with the neck of the vessel and a vertical handle (2009.14.339), and a Cooking Pot closed body sherd with handle (2009.14.516) (Figure 105).

Figure 105: Sherds ascribed to Cooking Pot Wares from the Tarsus-Gözlükule assemblage whose forming techniques resemble Philia pottery forming techniques (photographs by Maria Hadjigavriel

Finally, the vessel shape repertoire of Philia cooking pots and the Tarsus-*Gözlükule* assemblage are quite similar, with a clear preference to close jars with one or two handles, including hole-mouthed jars, jars with everted rims; and pans and a couple of two-handled cups and bowls in Tarsus (Goldman, 1956, pp. 96-97; Frankel & Webb, 2006, Fig. 4.10; Figure 106). As mentioned already, the calcareous cooking pots made in Fabric V are produced and imported at Marki-*Alonia* during the Philia Phase but after that they disappear. Given their similarities with the Tarsus-*Gözlükule* cooking pot wares, I argue that potters in Cyprus tried to reproduce those vessels using local clays, but were maybe lacking the know-how or the material to make these pots durable enough to withstand the repeated high temperatures. In fact, the cooking pots made with Fabric IV and VIII, which continue into the EC and MC at the site are petrographically much closer to Ünlü’s Local Fabric III, with igneous components like feldspars dominating, even though, macroscopically the calcareous samples are more similar. So in time, the Cypriot communities saw that these fabrics were more durable and preferred them over Fabric V, while maintaining the shape repertoire and other techniques like the plugged handles.

Figure 106: Cooking pots shape repertoire in Tarsus-Gözlükule (a) and Marki-Alonia (b) (after Golman, 1956, pp. 243, 251-252 (a) and Frankel & Webb, 2006, Figure 4.10)



7.2.2.5. Red Gritty Ware, Philia Cooking Pots and Spalled Ware: a possible continuum?

The similarities between the Red Gritty Ware from Tarsus-*Gözlükule* and the Late Chalcolithic Spalled Ware have been illustrated earlier in this chapter, namely the thinly applied beige, red or grey slip and often “pocked” effect; the thoroughly fired clay with a grey core and visible large white inclusions; and their general feel and hardness. Likewise, the affinities between Philia Cooking Pots Type A and Red Gritty Ware variants ascribed to cooking pots, have also been pointed out: visible white specs on the macroscopic fabric, the untreated exterior surface, or covered with a thin beige or red slip, and the similar forming techniques and vessel shapes repertoire. However, a possible affinity of the Spalled Ware with the Philia Cooking Pots has yet to be explored.

To begin with, a similarity between the Spalled Ware and Philia Cooking Pots Type A is the use of limestone in the clay. It is defining characteristic for both wares, accounting for the spalled “pock mark” effect on the surfaces, and the white specs of various sizes visible in the macroscopic fabric. When examining the Late Chalcolithic pottery from Politiko-*Kokkinorotsos*, Webb categorized Red Black Lustrous Ware sherds that were very hard and had visible white inclusions as Fabric

D, describing it as quite similar to the Spalled Ware: "*a dense well levigated hard to very hard monochrome fabric with many small white and grey inclusions and small organics. Surfaces are well-smoothed, with a thin generally matt creamy–brown or pale red–brown slip*" (Webb *et al.*, 2009a, p. 199). Almost all of the Fabric D sherds sampled for this thesis have been ascribed to the petrographic Fabric V, with dominant presence of microfossils, micritic limestone and feldspars. In addition, feldspars, quartz polycrystalline and monocrystalline, and orthopyroxenes are present (see Chapter 5 and Appendix IV). The Spalled Wares sampled for this study, derive from the Ktima Lowlands sites, and were ascribed to the petrographic Fabric III, which is the hardest fabric of the sample and is dominated by the presence of micritic limestone and chert (see Chapter 5 and Appendix IV).

Interestingly, all of these inclusions are present in Dikomitou-Eliadou's Fabric V, the fabric used for Philia Cooking Pots Type A at Marki-*Alonia*, even though in different frequencies and with the presence of chert (Dikomitou-Eliadou, 2012, pp. 462-463). Moreover, it is a very hard fabric: "*This fabric is the hardest of the Marki sample*" (Dikomitou-Eliadou, 2012, p. 463). Therefore, in all three cases, we have very hard fabrics that are dominated by the presence of limestone. In the case of the Cooking Pots Type A ascribed to Fabric V, Dikomitou-Eliadou has argued that the limestone seems to be added to the clay artificially based on the frequency, density, homogeneous distribution and standard size mode across the thin sections (Dikomitou-Eliadou, 2012, p. 174).

The Cooking Pots from Tarsus-*Gözlükule* already presented above can be linked to Ünlü's petrographic Fabric III, which does not contain limestone. However, has similar properties with the macroscopic fabric, with visible white inclusions across the section, and it is very hard. I therefore argue that there is a possible connection between the Spalled Ware, the Fabric D of Politiko-*Kokkinorotsos*, and the Red Gritty Ware Cooking Pots from Tarsus-*Gözlükule*, as Cypriots tried to reproduce Anatolian Cooking Pots, using technologies of production they already had and adjusting their clays accordingly, as elaborated in the previous section.

7.3. Concluding Discussion: Consolidating Literature, Macroscopic Observations and Petrographic Data

The published data, in combination with the macroscopic analysis and the available petrographic data illuminate interactions between Cyprus and Anatolia in both the Late Chalcolithic and the Philia Phase. Even though Cypriot imports in Anatolia and vice versa are limited, they do occur, verifying the circulation of objects at some extent. Interestingly, in Cyprus these include mainly objects like ornaments and metal artefacts, while in Anatolia, they are utilitarian Cypriot pottery wares. This may be reflecting a lack of archaeological visibility, but it may also reflect what kind of objects people in these two regions were interested in exchanging. For example, faience and metal objects might have been considered as "exotic" or "prestige" objects by the Cypriots, while the presence of utilitarian pottery and mainly of closed vessels in Tarsus-*Gözlükule* might indicate that the inhabitants of the site were importing the content of these vessels. Indications regarding possible interactions in various aspects of pottery production processes, specifically in comparison to the pottery reference collection from Tarsus-*Gözlükule*, are summarised here.

7.3.1. Clay Procurement and Preparation: Local Production and Exchange of Pottery between Communities

First, the presence of two Middle Chalcolithic Red-on-White Ware sherds and six Philia Black Slipped and Combed Ware sherds at Tarsus-*Gözlükule* has been confirmed. The macroscopic analysis leaves no doubt that these are indeed Cypriot imports, and in the case of two Philia Black

Slipped and Combed Ware sherds, this is further confirmed by petrographic analysis (Ünlü, 2009, pp. 125-126). In addition, in Goldman's publication a Red-on-White Ware vessel (Goldman, 1956, p. 112 Vessel 379) and a Philia pitcher (Goldman, 1956, p. 112, Vessel 356) are presented, but these are not included here since they are not part of the reference collection and have therefore not been studied by the author. However, one spout (sherd 2009.14.506) in the pottery reference collection that resembles typical Philia spouts could be a Cypriot import, and is therefore included. The confirmation of these Cypriot objects in Tarsus-*Gözlükule* confirms that Cyprus was in touch with the mainland already in the Chalcolithic, probably through trade routes which involved the northern communities of the island, as in the Philia Phase.

The available petrographic evidence does not indicate the transfer of clay preferences and preparation methods between the two regions. Earlier in this chapter, the similarities between the Red Gritty Ware from Tarsus-*Gözlükule* and the Late Chalcolithic Spalled Ware from Cyprus were outlined. These include features such as the thinly applied beige, red, or grey slip with a characteristic "pocked" effect, thoroughly fired clay with a grey core and noticeable large white inclusions, and their overall texture and high hardness. Similarly, connections between Philia Cooking Pots Type A and Red Gritty Ware variants identified as cooking pots from Tarsus-*Gözlükule* have been highlighted. These connections encompass visible white specs on the macroscopic fabric, the untreated exterior surface or a surface covered with a thin beige or red slip, and similarities in forming techniques and in the vessel shapes repertoire. An argument has been put forth here for a connection between these three wares, and Fabric D from Politiko-*Kokkinorotsos*, based not only on morphological characteristics but also on the preference for clays rich in limestone inclusions. Interestingly, Ünlü has noted that the dominant presence of limestone in the clays is a unique trait of the Red Gritty Ware, which in the past has been interpreted as an influence from the Levant. However, the evidence from Cyprus indicated that the matter merits further investigation (Ünlü after personal communication). Based on the evidence presented, I suggest that a connection exists between the Spalled Ware, Fabric D from Politiko-*Kokkinorotsos*, and the Red Gritty Ware Cooking Pots found in Tarsus-*Gözlükule*. It appears that Cypriots endeavoured to emulate Anatolian Cooking Pots, leveraging their existing production technologies and adapting their clays accordingly, as discussed in the preceding section. Additionally, I suggest that we should not assume for the interactions to be one-directional, with the small island being influenced by the large mainland: a reversal of the above suggestion is also possible, where the Anatolian Cooking Pots were influenced by the Cypriot wares and not the other way around.

7.3.2. Surface Treatment and Decoration, and Vessel Shapes: Mediated Interactions – People Circulating between Communities

When it comes to surface treatment and decoration, several wares from Tarsus-*Gözlükule* have common characteristics with Cypriot wares. To start with, the distinct red monochrome highly burnished surfaces, with visible burnishing strokes and sometimes mottled surfaces of the Late Chalcolithic red monochrome pottery traditions are present in Cilician wares, such as the Plain Red Burnished Ware and its variants. The same goes for the occasional relief decoration, mostly in knobs.

Another Cypriot Late Chalcolithic ware which resembles a Cilician pottery type is the Spalled Ware, whose thinly applied beige, red or grey slip and "pocked" effect can be observed in some Red Gritty Ware sherds from Tarsus-*Gözlükule*. Both the macroscopic and petrographic similarities between the clays of the Late Chalcolithic Spalled Ware and Fabric D of Politiko-*Kokkinorotsos*, with the Philia Cooking Pots Type A of Marki-*Alonia*, and the Red Gritty Ware and Cooking Pots of Tarsus-*Gözlükule,* along with morphological similarities, suggest that people of these communities were in touch with each other, circulate and mimic aspects of each other's pottery production throughout the early third millennium BC.

Similarly, the smoothed red slipped and polished surfaces, with sometimes incised decoration that might be filled with limestone paste of the Philia Red Polished, can be observed on the Cilician Red Burnished and Red Polished wares. The same goes for the Cooking Pots of the Philia Phase, which find close parallels in terms of macroscopic fabric, surface treatment, forming techniques like the plugged handles, and vessel shapes repertoire in the Cilician Red Gritty Ware and Cooking Pots.

In conclusion, the similarities observed in surface treatment and decoration in the two regions examined in this study imply mediated interactions among the communities. It suggests that individuals and objects circulated throughout the island, contributing to the exchange of cultural practices and artistic influences.

7.3.3. Vessel Forming Techniques, Vessel Shapes, and Firing: Long-Term Interactions – People Moving and Living at Different Communities

Similarities in vessel forming techniques are considered the most reliable indication of direct long-term interactions as they are learned after a long period of training, with the student mimicking and eventually adopting the motor habits of the teacher. With that in mind, the fact that Cilician forming techniques such as the “plugged” handles occur in Cyprus for the first time during the Philia Phase strengths the argument for people moving and living long-term with different communities at this time.

This is also reflected in the vessel shapes repertoire of certain wares, like Cooking Pots occurring in hole-mouthed jars and jars with everted rims in both Cyprus and Tarsus-*Gözlükule*. Nonetheless, many typical Anatolian vessel types are missing from the Cypriot archaeological record, like the depas, the tankards and the Syrian bottles (Fidan *et al.,* 2015; Massa 2016; Novák *et al.*, 2017). Similarly, several Philia vessel shapes, like the bowls with downturned handles, neck juglets or deep spouted bowls, are not present in Anatolia. However, the deep spouted bowl is already produced in Cyprus during the Late Chalcolithic (Bolger & Webb, 2013; Düring, 2024). One of the most important differences in pottery production between the two regions is the absence of wheelmade pottery in Cyprus. As presented previously in this thesis, wheelmade pottery is present in Tarsus-*Gözlükule* already in the EB and it is employed for specific wares such the Light Clay Ware, coexisting with handmade pottery types. On the other hand, wheelmade pottery production is completely absent from Cyprus until the Late Bronze Age. Therefore, the technological knowledge of how to make wheelmade pottery either doesn’t reach Cyprus earlier, or Cypriots make a deliberate choice to not use this new technology and insist on their handmade vessel forming techniques. Given that indications for contacts are established, I would argue for the latter.

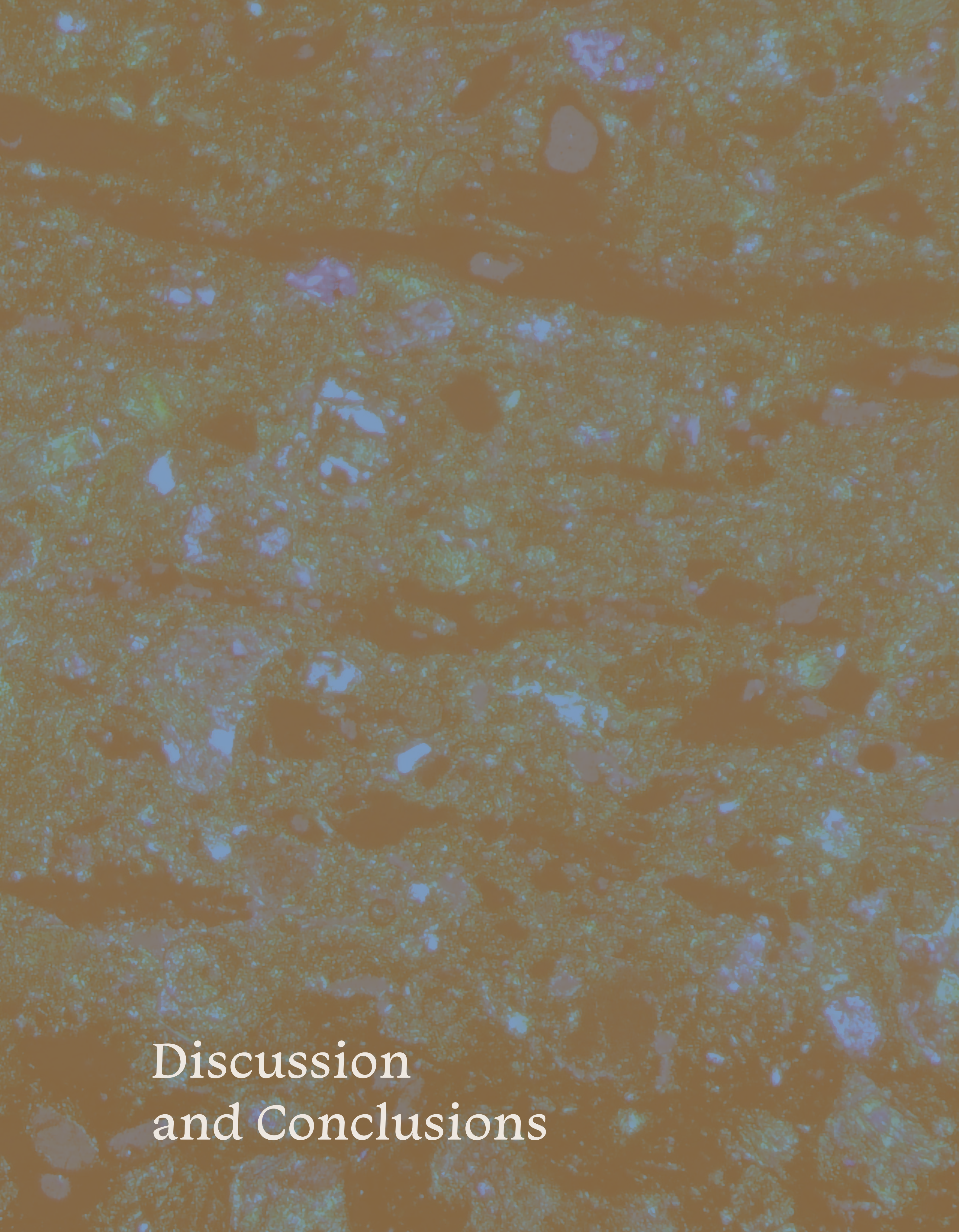
Finally, regarding firing, there is no doubt that the Late Chalcolithic wares in Cyprus are fired at higher temperatures than in the Middle Chalcolithic, and that potters can control firing better achieving red and black surfaces, whether those are uniform or irregular (mottling). This bichrome appearance of Late Chalcolithic vessels has been put forward as a parallel with Anatolian and Levantine coeval wares, and as a prime indicator of interactions between the regions in question (e.g. Bolger, 2013; Hadjigavriel, 2019; Crewe, 2023). Similarities between the firing and the resulting appearance of pottery types from Tarsus-*Gözlükule* and Cypriot wares such as Spalled Ware from the Ktima Lowlands and Fabric D from Politiko-*Kokkinorotsos* have been illustrated in this chapter, indicating technological advancement when it comes to firing, as a result of possible influences and transfer of technological know-how from Anatolia to Cyprus.

7.4. Concluding Summary

To conclude, the discovery of Cypriot pottery in Tarsus-*Gözlükule* and other sites such as Hacımusular Höyük provides confirmation that Cyprus was interconnected with the mainland as early as the Chalcolithic period, likely facilitated by trade routes that involved the northern communities of the island, as seen in the Philia Phase. Furthermore, the observed similarities in surface treatment and decoration between the two regions examined in this study suggest mediated interactions among communities. It implies that individuals and objects moved between the two regions, facilitating the exchange of cultural practices and artistic influences. This interconnectedness likely played a significant role in shaping the material culture and artistic expressions of both regions during the examined period. Similarities are also observed in firing techniques. However, evidence for vessel forming techniques transferring from one region to the other are limited, with significance differences in the vessel shapes repertoire and a complete absence of wheelmade pottery on Cyprus.

I argue that the persistence of handmade pottery traditions and the differences in vessel shapes' repertoire contradicts the argument for a large scale Anatolian migration during the Philia Phase, as one would expect that migrant populations would bring all their technological know-how and not only parts of them. Even though migration has been argued, one cannot suggest that people migrate and bring their pottery production technologies with them intact. We do not see the exchange of a "package" but of specific technological traits, apparent in specific wares and assemblages. This is in accordance with Mellink's observation, that the Philia pottery assemblages are "*selectively Anatolianising, not Anatolian*" (Mellink, 1991, p. 173). Therefore, the transition from the Chalcolithic to the Philia Phase would be a long process, stimulated by continuous interactions with Anatolia and not a sudden surge of migration, and it would occur in a regional scale rather than as an island-wide phenomenon. This argument is developed further in the next Chapter, where the conclusions of this thesis are presented.

CHAPTER 8:



Discussion and Conclusions

Chapter 8 — Discussion and Conclusions

The objective of this thesis has been to explore the development of ceramics and pottery technologies in Cyprus during the Late Chalcolithic period (ca. 2900-2400 BC) and the Philia Phase (ca. 2400-2350/2250 BC), and to reconstruct intra- and extra-insular interactions in the ceramic assemblages of that period. The primary focus is on the interactions among potter communities within Cyprus, with a secondary emphasis on connections with crafting communities in southern Anatolia, particularly at Tarsus-*Gözlükule*. The examination of the aforementioned issues involved the analysis of two main categories of artifacts: an investigation into the predominant pottery types in Late Chalcolithic Cyprus, with a specific emphasis on technological characteristics influenced by interactions with Anatolia; and a comprehensive inspection of all known Cypriot pottery and other objects discovered in Anatolia, and vice versa.

To do so, the main Late Chalcolithic wares from four sites across Cyprus, Chlorakas-*Palloures*, Kissonerga-*Mosphilia*, Ambelikou-*Agios Georghios,* and Politiko-*Kokkinorotsos*, have been studied macroscopically, to establish their morphology and typology. Subsequently, 81 sherds have been sampled for mineralogical and compositional analysis via thin section ceramic petrography, and chemical/elemental analysis via hhXRF. These were paired with published data to reconstruct aspects of pottery production: clay procurement and preparation, vessel forming techniques, surface treatment and decoration, and vessel shapes and firing. In doing so, this study reconstructs different types of interactions between crafting communities: the exchange of pottery between sites, people relocating and living long-term at different sites, and mediated interactions – people and objects circulating from site to site.

Subsequently, the pottery reference collection from Tarsus-*Gözlükule* (Cilicia), stored at Bryn Mawr College has been studied to evaluate the known Cypriot imports at the site and to assess technological similarities between Cilician pottery production and the pottery production technologies in Cyprus during the Chalcolithic and the Philia Phase. I have conducted a macroscopic study of this assemblage, aligning observations with references from publications (e.g. Goldman, 1956; Mellink, 1991; Ünlü, 2009; 2011; Dikomitou-Eliadou, 2012), and petrographic data kindly provided by Dr.. Elif Ünlü.

8.1. Addressing the Research Questions

The main research question of this project is: *What can pottery assemblages of Cyprus tell us about the interactions between communities within the island and with communities in Anatolia in the early third millennium BC?* This is followed by sub-questions which are addressed in depth in this section.

8.1.1. How did pottery technology in Cyprus develop during the Late Chalcolithic?

As mentioned already in earlier chapters, pottery production in Cyprus starts in the Ceramic Neolithic (ca. 5200-4000 BC) with the Red-on-White Ware (RW) being the most popular pottery type across the island up until the end of the Middle Chalcolithic, even though a monochrome pottery traditions are also present. The RW was produced locally and at a household level, and it is undoubtedly one ceramic tradition, with common characteristics when it comes to the firing, surface treatment and decoration, and vessel shapes repertoire, regardless of where it was produced, while regional variations concern mainly decoration motifs (Clarke, 2003, p. 205). However, in the Late Chalcolithic, the production of Red-on-White pottery decreases, and it is replaced by red and/or black monochrome wares. The main variants are the Red and Black Stroked-Burnished Ware (RB/B), occurring in large numbers in western Cyprus; and the Red Lustrous Ware (RL), and the Red and Black Ware (RBL), occurring in the northern and central regions of the island. A red monochrome type is also present in northern Paphos in the Polis area, which is referred to as Coarse Painted Monochrome in the literature (Maliszewski, 2013, p. 28). In this study it is referred to as Late Chalcolithic Red Monochrome Ware (LChalRM).

In order to investigate how pottery technology developed during the Late Chalcolithic, the aforementioned wares along with the novel Spalled Ware (SW) and some Coarse Ware (CW) sherds have been examined first macroscopically. These sites are Chlorakas-*Palloures*, Kissonerga-*Mosphilia*, Ambelikou-*Agios Georghios* and Politiko-*Kokkinorotsos*. Additionally, a compositional and technological study was conducted to illustrate the composition and technology of the dominant wares at each site; Late Chalcolithic pottery composition and technologies and their scales of variability at a local, regional, and inter-regional level; and the mode of organization of pottery production.

The findings from the macroscopic, petrographic, and chemical analyses offer insights into both the pottery production practices during the Late Chalcolithic period across all four sites and the interactions between sites. The petrographic fabrics resulting from this study exhibit significant resemblances to the macroscopic wares. As anticipated, there is a considerable level of fabric variability across the island, characterized by mineralogical and technological distinctions between fabrics, which align with observations made during the macroscopic analysis of the wares. The ensuing discussion presents results pertaining to various aspects of pottery production processes and, consequently, sheds light on the interactions among different communities.

8.1.1.1. Clay procurement and preparation

To begin with, an examination of clay provenance and clay preparation methods has been undertaken through macroscopic, petrographic, and chemical analyses. The aim was to discern both the local production dynamics and the exchange patterns of pottery among different communities.

For clay procurement, all evidence points to local clay sources being used. The clays for the three petrographic Fabrics that correspond to the main wares of the Ktima Lowlands sites, Chlorakas-*Palloures* and Kissonerga-*Mosphilia*, namely Fabrics I, II and III, seem to be selected from the same clay source. The most likely clay sources for the production of these fabrics appear to be situated in the Mamonia outcrops along the Mavrokolymbos River, which is located approximately 4km northeast of Kissonerga and about 8km northeast of Chlorakas. The Mavrokolymbos Formation is predominantly comprised of red, green and grey radiolarian mudstones, along with siltstones and sandstones, while the Mamonia Melange includes red siltstone and radiolarite sequences and serpentinite. Both the petrographic and elemental data indicate that individuals were willing to travel considerable distances to procure specific clays tailored to their preferences for distinct types of pottery. This aligns with Arnold's Ceramic Resource Threshold Model according to which any clay source within 7 km from the site is considered local (Arnold, 2006, p. 8). Another possibility is that of community specialization, with these wares being made at a settlement closer to Mavrokolymbos River, like Kissonerga-*Mosphilia* and then being distributed to the wider region. This possibility is discussed further later in this chapter.

The Red and Black Stroke-Burnished Ware (RB/B) was exclusively produced in two distinct petrographic fabrics, namely Fabric I and Fabric II, which share a common foundation of sedimentary clay and exhibit a notable abundance of argillaceous inclusions. The key distinguishing factor lies in the presence of volcanic inclusions, such as dolerite, which are characteristic of Fabric II. Similarly, Spalled Ware (SW) samples from both Chlorakas-*Palloures* and Kissonerga-*Mosphilia* have been manufactured using exclusively the petrographic Fabric III, characterized by a composition rich in micritic limestone and chert, along with argillaceous inclusions. The fact that Fabric I and Fabric II correspond exclusively to the Red and Black Stroke-Burnished Ware (RB/B), and Fabric III to the Spalled Ware (SW) indicates that specific clays were preferred for these two wares, while other clay sources might have been used for other wares at the time. This has been argued in the past for the RB/B production at both sites, but only on the basis of macroscopic observations (Bolger *et al.*, 1998; Hadjigavriel, 2019; 2021).

While distinct clay preferences can be identified in the case of RB/B and SW, it appears that the potters did not extensively process the clay, as evidence of intentional temper is minimal. Importantly, the development of clay preferences for specific wares is in contrast to the Middle Chalcolithic pottery production, when, at least in the case of Chlorakas-*Palloures*, there is no correlation between petrographic fabrics and wares (Vogiatzopoulos, 2023). Overall, the results of this study point towards community specialization, where specific pottery types, the Red Black Stroked-Burnished (RB/B) and the Spalled Ware (SW), could be produced by one crafting community and then be distributed to the nearby settlements.

A strong correlation between petrographic fabric and ware is also evident for the Late Chalcolithic Red Monochrome Ware (LChalRM), which is exclusively produced in Fabric IV. Even though these sherds have only been sampled from Chlorakas-*Palloures*, both the ceramic thin section petrography and the hhXRF analysis confirm the macroscopic assumption that this ware was not produced on site. Petrographic Fabric IV stands out as markedly distinct from the previously mentioned fabrics (Fabric I, II, III), as it is an amphibole-rich fabric containing feldspars and quartz. The prevalence of amphiboles and other igneous minerals and rocks in the matrix points to a clay source located in the foothills of the Troodos mountain range.

Macroscopic observations indicate that these sherds bear a clear resemblance to the primary Late Chalcolithic ware found in the Polis region and Akamas at sites like Makounta-*Voules*, Androlykou and Kalo Chorio (Charalambos Paraskeva after personal communication). While the Polis area is mainly situated on the Mamonia Complex, it is in close proximity to the northwestern borders of the Troodos. The outcrops of the Makounta-Kseropotamos Rivers, originating in the foothills of Troodos within the geological formation, could be the clay source for this fabric (GEOportal of Cyprus Geological Survey Department; Hydrological Map 2015). However, since no other wares have been sampled from this site, one cannot argue for a specific clay preference corresponding only to this ware.

When it comes to the other two sites included in this study, Ambelikou-*Agios Georghios* and Politiko-*Kokkinorotsos*, no correlation between petrographic fabric and ware is observed. The preponderance of samples from Ambelikou-*Agios Georghios* has been attributed to Fabric VII, encompassing all Red Lustrous Ware and Red Black Lustrous Ware samples, and one Coarse Ware sample., The only exceptions are those identified as Red and Black Stroke-Burnished Ware and Spalled Ware, along with one Red Black Lustrous Ware sample (S71) and two Coarse Ware samples (S79, S80), which have been designated as outliers. However, it is noteworthy that the petrographic Fabric VII and the aforementioned outliers S71, S79 and S80 from the site share a commonality in their inclusion types, predominantly consisting of igneous components. This similarity suggests that they were likely locally produced, utilizing materials sourced from the Kampos River or the Xeros River valleys (GEOportal of Cyprus Geological Survey Department; Hydrological Map 2015). The two rivers are approximately situated 3km west and 5km east of the modern-day village of Ambelikou, respectively.

Finally, all samples obtained from Politiko-*Kokkinorotsos* are attributed to two distinct petrographic fabrics: Fabric V and VI. While both fabrics have similar types of inclusions, their primary difference lies in the prevalent presence of calcite and microfossils in Fabric V. In general, the similarities between these petrographic fabrics is indicative of the possibility of local production in the Mesaoria plain area. Materials for these fabrics could likely have been sourced from the Pedieos River valley (GEOportal of Cyprus Geological Survey Department; Hydrological Map 2015).

8.1.1.2. Surface treatment and decoration

What all the wares included in this study have in common, except the Spalled Ware and the Coarse Ware, is their highly burnished red monochrome surfaces, with occasional irregularly or uniformly blackened surfaces. All Red and Black Stroke-Burnished Ware pottery examined in this study is self-slipped, the clay and surface colour ranges from red to pink and bright orange, and the ceramics are highly burnished, often revealing visible burnishing strokes. Given the self-slipped nature of this pottery, surface treatment is not usually apparent in thin section analysis. The Late Chalcolithic Red Monochrome Ware sherds stand given their substantial layer of red slip. This distinctive feature is consistently visible in thin section analysis. The Red Lustrous Ware and the Red Black Lustrous Ware sherds from both Ambelikou-*Agios Georghios* and Politiko-*Kokkinorotsos* are red to orange in colour, and their burnishing is not as intense as the on of the Red and Black Stroke-Burnished Ware.

The Spalled Ware (SW) sample exhibits a consistent surface treatment across all sherds, characterized by a thinly applied, dull red to grey-black, and/or beige slip. The interior of this pottery type is often left untreated. Occasionally, the surfaces have pockmarks (spalled areas), and burnishing strokes, akin to those observed on Red and Black Stroke-Burnished sherds, are visible. Finally, all Coarse Ware sherds have untreated surfaces on both sides, with visible vegetal imprints.

8.1.1.3. Vessel forming techniques and shapes

Both the macroscopic analysis and the ceramic thin section petrography suggest that Late Chalcolithic pottery was handmade. Bolger and Shiels (2003, p. 136) have suggested that in Kissonerga-*Mosphilia*, the forming of bowls involved the use of pinching and drawing techniques, while the production of large jars employed coiling and slab-building techniques. This observation seems to applicable to all four sites included in this study.

When it comes to the vessel shapes repertoire, a preference for simple bowls and jars is evident at all four sites. In Chlorakas-*Palloures* and Kissonerga-*Mosphilia*, the Red and Black Stroke-Burnished Wares appears to be the preferred choice for various types bowls, including spouted ones, while the Spalled Ware is commonly used for jars, small jugs and flasks. The majority of Late Chalcolithic Red Monochrome sherds and vessels in Chlorakas-*Palloures* are holemouth and storage jars. At Ambelikou-*Agios Georghios* and Politiko-*Kokkinorotsos*, the Red Lustrous Ware and the Red Black Lustrous Ware are utilized for both bowls and jars, with no discernible pattern emerging. The six Coarse Ware samples from these samples are either pans or trays. In general, the Late Chalcolithic pottery repertoire consists mainly of various bowl types, storage jars (sometimes spouted), jugs, and platters.

8.1.1.4. Firing

Regarding the firing techniques used in Chalcolithic pottery, it has been proposed that open firing and pit firing are more likely than the use of kilns. Late Chalcolithic potters seem to have acquired knowledge on achieving higher temperatures and better control over the firing process compared to the Middle Chalcolithic, resulting in vessels with increased hardness. Middle Chalcolithic Red-on-White Ware sherds, ranging from soft to medium hardness, may suggest firing at open-firings with relatively low temperatures. In contrast, Late Chalcolithic pottery is believed to be fired at steadily rising high temperatures, reaching up to 600-800 °C (Charalambos Paraskeva after personal communication). While these temperatures might not seem exceptionally high, they are considered elevated for the mentioned firing techniques, requiring specialized knowledge. This is further supported by the very hard nature of the Spalled Ware.

Additionally, firing has been employed for aesthetic purposes in many of the wares studied. For instance, Red and Black Stroke-Burnished vessels exhibit irregularly blackened surfaces, which could result from accidental factors like misfires, fire-flashing, incorrect positioning of pots during firing, or imperfect control of oxygen flow and rapid temperature increase at the start of firing. Alternatively, blackening effects could be intentional, achieved by deliberately changing the atmosphere from oxidizing to reducing during the firing process (Stewart, 1985, p. 267; Bolger *et al.*, 1998, p. 145; Hadjigavriel, 2021, p. 88). At Chlorakas-*Palloures*, analysis over the years led to the conclusion that reduction spots are characteristic of almost all sherds of this ware.

In Ambelikou-*Agios Georghios* and Politiko-*Kokkinorotsos*, all Red Black Lustrous sherds exhibit intentionally achieved uniform black lustrous interior surfaces, with occasional black exterior rims or entirely blackened exterior surfaces. This effect is accomplished through deliberate techniques known as “targeting” or the “black-top” methods, where the black colour was achieved by a variation of chemical effects on the clay during firing. Interestingly, Bolger (2019) has observed black-topped bowls in Middle Chalcolithic tombs at Souskiou (e.g. T.146). It’s important to differentiate intentional blackening from accidental occurrences, and one distinguishing factor is the sooty deposit left behind on the surface, as outlined by Stewart (1985, p. 270). Therefore, it appears that potters in the north-central region of the island had better control over firing processes, resulting in uniform black surfaces. In contrast, the Ktima Lowlands potters produced pottery with irregularly blackened surfaces. The uniform black surfaces and blackened rims of the Red Black Lustrous Ware, especially in Politiko-*Kokkinorotsos*, suggest that pottery was fired in bonfires with isolation, where the rise of temperature is more controlled. Therefore, different “schools” of firing within Chalcolithic Cyprus are observed.

8.1.1.5. Summing up the evolution of pottery technology in the Late Chalcolithic: variability at a local, regional, and inter-regional level, and organization of production

This study has distinguished distinct and highly regional pottery production traditions. Notably, one pottery production tradition is shared between Chlorakas-*Palloures* and Kissonerga-*Mosphilia*, another is found in northern Paphos, and the remaining two are unique to each of the other two sites.

The evidence suggests that Chlorakas-*Palloures* and Kissonerga-*Mosphilia* share pottery traditions, crafting the same wares with commonalities in clay sources, surface treatments, forming techniques, and vessel shape repertoire. Consequently, it can be inferred that the residents of these two settlements maintained long-term, direct contacts with each other, facilitating the circulation of people, materials, and technological knowledge. This is unsurprising, given their close geographical proximity and contemporaneous existence. Furthermore, the petrographic analysis indicates the presence of two distinct clay preferences for the production of the Red and Black Stroke-Burnished

Ware (RB/B) and the Spalled Ware (SW) at both sites. This supports the argument for an increased standardization of pottery production, as previously suggested on the basis of morphological and statistical studies (e.g. Bolger & Webb, 2013; Wallace, 1995), but also puts forward the suggestion for possible community specialization, where one crafting community makes these specific types of pottery. According to Costin (1991, p. 8) the term "*community specialization*" refers to independent individual or household-based units engaged in the production of pottery. These units operate autonomously but are part of a larger community. Their production is oriented towards meeting regional demand without restrictions, suggesting a decentralized approach to manufacturing within the community. Therefore, in this case, pottery would still be produced on a household level, but only by members of one crafting community. Then, these vessels would be exchanged within other sites. Given the fact that the most probable clay sources for the production of these wares are along the Mavrokolymbos River, I would argue that these wares are produced at a site closer to Mavrokolymbos River, for example at Kissonerga-*Mosphilia,* and are then distributed to Chlorakas-*Palloures*.

On the other hand, the macroscopic observations, the ceramic thin section petrography and the hhXRF analysis, all suggest that the Late Chalcolithic Red Monochrome Ware (LChalRM) does not belong to the pottery production of Chlorakas-*Palloures*, but probably to that of northern Paphos, specifically the Polis region.

Likewise, Ambelikou-*Agios Georghios* and Politiko-*Kokkinorotsos* appear to represent two distinct local ceramic traditions, utilising different raw materials. Both traditions feature red and black monochrome vessels that are often thicker than the ones found in the Paphos region. Even though the two sites do not belong to the same pottery tradition, that pottery from these sites closely parallels each other has been previously argued on the basis of morphological studies (see Webb *et al.*, 2009a; Hadjigavriel, 2019). In Ambelikou-*Agios Georghios*, all sherds, excluding the Ktima Lowlands imports and two outliers, are attributed to a single petrographic fabric, Fabric VII. This suggests local production of both RBL and RL wares. Similarly, all samples from Politiko-*Kokkinorotsos* are assigned to two petrographic fabrics—Fabric V and VI—encompassing sherds from both Red Lustrous Ware and Red Black Lustrous Ware, along with the three Coarse Ware sherds. It's noteworthy that Politiko-*Kokkinorotsos* is categorized not as a settlement but as a seasonal hunting station, where people would reside in temporary structures during specific times of the year (*Webb et al.,* 2009a). Considering this, pottery production at Politiko-*Kokkinorotsos* may reflect the broader pottery production practices in the Mesaoria region or even the northern area of Karpasia, where sites like Vasilia flourished during the Bronze Age.

8.1.2. To what extent were ceramics circulated and exchanged among population groups from different regions in Cyprus?

The macroscopic analysis, ceramic thin section petrography and chemical analysis via hhXRF conducted for this study indicate that pottery was exchanged from site to site within Cyprus (Figure 107). To begin with, when macroscopically examining the pottery from Ambelikou-*Agios Georghios*, several sherds seem to belong to the Ktima Lowlands wares of Red and Black Stroke-Burnished Ware (RB/B) and Spalled Ware (SW), representing 3% of the overall Chalcolithic pottery retrieved from the site, as indicated by the macroscopic analysis of the whole assemblage, illustrated in Chapter 5. Two RB/B sherds (S72 and S73) and five SW sherds (S74, S75, S76, S77, S78) were sampled for further analysis. Both the ceramic thin section petrography and the chemical analysis confirmed their provenance from the Paphos region: S72 and S73 were assigned to petrographic Fabric I which corresponds exclusively to the Red and Black Stroke-Burnished Ware; and all the Spalled Ware sherds were ascribed to Fabric III, along with all the other Spalled Ware sherds sampled from Chlorakas-*Palloures* and Kissonerga-*Mosphilia*.

Moreover, as mentioned already, both the petrographic and the chemical analysis support the macroscopic observation that LChalRM was not produced at Chlorakas-*Palloures* but imported from a different region, probably the Polis region in northern Paphos. The fact that the majority of LChalRM sherdage and vessels at Chlorakas-*Palloures* are large holemouth and storage jars suggests that what was in fact imported was the content of these jars. It's noteworthy to mention that one LChalRM sample (S41) originates from a large storage jar with three vertical handles, which was discovered in its original position and contained various artifacts, including a copper axe made from Anatolian ores (Düring *et al.* 2018; 2021). Despite its unconventional vessel shape, the petrographic analysis reveals no discernible differences from the rest of Fabric IV.

Finally, it is worth mentioning that at Chlorakas-*Palloures*, 1.2% of the Late Chalcolithic pottery processed so far belongs to Late Chalcolithic red monochrome wares from other regions, including northern and central Cyprus, from sites like Ambelikou-*Agios Georghios* and Politiko-*Kokkinorotsos*, but also sites on the south of the island, like Erimi-*Pamboula* (personal observations). A few such sherds were also recorded at Kissonerga-*Mosphilia* (Bolger *et al.*, 1998, p. 95).

Figure 107: Production and circulation of pottery in Late Chalcolithic Cyprus as demonstrated in this study (by Maria Hadjigavriel)

	Spalled Ware (SW)	*		Red Black Stroked Burnished Ware (RB/B)	#	 Red Lustrous Ware (RL) and Red Black Lustrous Ware (RBL)	°
	Late Chalcolithic Red Monochrome Ware (LChalRM)	+		Fabric A, Fabric B and Fabric D	§		

8.1.3. To what extent were ceramics circulated and exchanged between Cyprus and Anatolia in the early third millennium BC?

As illustrated in Chapter 6, the occurrence of Cypriot imports in Anatolia and vice versa, albeit limited, confirms a certain degree of object circulation between the two regions. Notably, imports in Cyprus consist mainly of objects such as ornaments and metal artifacts. In Anatolia, on the other hand, the imports consist of Cypriot ceramics. This pattern might be influenced by both the archaeological visibility and the preferences of people in these regions regarding the types of objects they were inclined to exchange.

Specifically in Tarsus-*Gözlükule*, two small Red-on-White sherds and one bowl, several Philia Black Slipped and Combed Ware sherds, and a possible Philia pitcher and spout have been retrieved (Goldman, 1956, p. 112; personal observations). In addition to these, one possible Philia White Painted horned jug has recently been found at Hacımusular Höyük (Özgen *et al.*, 2021, p. 628, fig. 21x). It should be noted that at both sites, Cypriot pottery has been retrieved from contexts dating to the EB II, which corresponds to ca. 2700-2600 BC at both settlements (Novák *et al.* 2017, p. 162; Özgen *et al.*, 2021, p. 608). Interestingly, this corresponds to the Cypriot Late Chalcolithic (Knapp, 2013, p. 27; Peltenburg, 2014, p. 253).

Notably, even though, as presented in Chapter 7, Anatolian imports such as faience ornaments and metal objects occur in Cypriot Chalcolithic and Philia Phase contexts, no Anatolian pottery has been retrieved on Cyprus so far. This might have to do with the kinds of objects that were exchanged between the regions. However, it might have to do more with archaeological visibility: the northern part of the island, where interactions between the island and Anatolia would be expected to be more evident due to geographical proximity, has been inaccessible to research since 1974. Additionally, the current political situation does not encourage thorough discussions and cooperation between Cypriot and Turkish archaeologists, rendering recognizing imported material record even more difficult.

8.1.4. To what extend did pottery technologies and characteristics transfer from Anatolia to Cyprus and vice versa?

When examining pottery technologies in Cyprus and Anatolia throughout the early third millennium BC, several aspects of the *chaîne opératoire* seem to have common characteristics. This study investigated pottery assemblages from four sites across Cyprus, by employing macroscopic analysis, ceramic thin section petrography, and chemical analysis (hhXRF), in order to reconstruct interactions between crafting communities in the Late Chalcolithic, by investigating different steps of the *chaîne opératoire*. In sum, examining the clay procurement and preparation can indicate local productions and the exchange of pottery between sites; examining vessel forming techniques and shapes, and firing can illustrate long-term interactions and shared pottery technologies; and comparing vessel shapes, surface treatment and decoration can reconstruct mediated interactions, where objects would circulate from site to site. By including the reference collection of EB pottery from Tarsus-*Gözlükule*, which has been studied macroscopically and paired with published data on ceramic thin section petrography, interactions between Cilicia and Cyprus in the third millennium BC are investigated. Additionally, published data on Philia Phase assemblages from Cyprus are also included, to assess these interactions in a more *longue durée* perspective.

8.1.4.1. Clay procurement and preparation

The available petrographic evidence does not provide indications of the transfer of clay recipes between the two regions. However, similarities in clay preparation and firing procedures have been highlighted throughout Chapter 6. Notably, these similarities are observed in the Late Chalcolithic Spalled Ware, the Philia Cooking Pots Type A, and the Red Gritty Ware and Cooking Pots from Tarsus-*Gözlükule*. The fact that in terms of clay composition, only the Red Gritty Ware seems to be comparable to Cypriot wares is interesting, since the Red Gritty Ware is a novel tradition in EB I-II Tarsus-*Gözlükule*. As mentioned in Chapter 6, Goldman has suggested that this ware was inspired by the Stone Ware of the Middle Euphrates region, Mellaart and Mellink that it originates from the Niğde-Konya in south-central Anatolia, and later Mellink suggested that it came from the Bolkarmaden zone in the Taurus Mountains, and sites like Göltepe (Goldman, 1956, p. 97; Mellaart, 1963, p. 232; Yener, 2021, pp. 80-81; Mellink, 1989, p. 320; 1993, p. 500).

8.1.4.2. Surface treatment and decoration

In terms of surface treatment and decoration, various wares from Tarsus-*Gözlükule* share common characteristics with Cypriot wares. Specifically, the distinctive red monochrome highly burnished surfaces, featuring visible burnishing strokes and occasionally mottled surfaces, typical of the Late Chalcolithic red monochrome pottery traditions, are also observed in Cilician wares like the Plain Red Burnished Ware and its variants. Similarly, the presence of occasional relief decoration, primarily in the form of knobs, is noted in both regions (Peltenburg, 2007; Bolger & Peltenburg, 2014).

A Cypriot Late Chalcolithic ware that shares similarities with a Cilician pottery type is the Spalled Ware. The thinly applied beige, red, or grey slip, along with the “pocked” effect observed in some Red Gritty Ware sherds from Tarsus-*Gözlükule*, mirrors the characteristics of the Late Chalcolithic Spalled Ware. Both the macroscopic and petrographic similarities between the clays of the Late Chalcolithic Spalled Ware and Fabric D of Politiko-*Kokkinorotsos*, in addition to the Philia Cooking Pots Type A of Marki-*Alonia*, and the Red Gritty Ware and Cooking Pots of Tarsus-*Gözlükule*, along with morphological resemblances, suggest that communities in these regions were in contact with each other, at least at a level of mediated interactions, with people circulating between the two regions, maybe through well-established trade routes. This interaction likely involved the circulation and imitation of aspects of each other’s pottery production throughout the early third millennium BC.

Likewise, the smoothed red slipped and polished surfaces, occasionally featuring incised decoration that may be filled with limestone paste, characteristic of the Philia Red Polished Ware, can also be identified on Cilician Red Burnished and Red Polished wares. A similar resemblance is observed in the Cooking Pots of the Philia Phase, which closely parallel the Cilician Red Gritty Ware and Cooking Pots in terms of macroscopic fabric, surface treatment, forming techniques (such as plugged handles), and the repertoire of vessel shapes.

8.1.4.3. Vessel shapes and vessel forming techniques

The presence of similar vessel forming techniques is considered a reliable indication of direct, long-term interactions, as these techniques are learned over an extended period, with the student mimicking and eventually adopting the motor habits of the teacher. In this context, the introduction of Cilician forming techniques, such as the use of “plugged” handles, in Cyprus during the Philia Phase strengthens the argument for potters moving and residing long-term within their communities.

However, it is essential to note that while wheel-made pottery was already being produced in Tarsus-*Gözlükule* during the Early Bronze Age, the majority of the local production was still handmade, indicating two different potting traditions (Ünlü, 2011, p. 16). In contrast, the earliest instances of wheelmade pottery in Cyprus appear much later, during the Late Bronze Age.

The shared vessel shapes repertoire of certain wares, such as Cooking Pots occurring in hole-mouthed jars and jars with everted rims, indicates similarities between Cyprus and Tarsus-*Gözlükule*. However, it's important to note that many typical Anatolian vessel types, like the depas, tankards, and Syrian bottles, are absent from the Cypriot archaeological record (Fidan *et al.*, 2015; Massa 2016; Novák *et al.*, 2017). Similarly, several vessel shapes typical of the Philia Phase, such as bowls with downturned handles, neck juglets, or deep spouted bowls, are not found in Anatolia. However, the deep spouted bowl is already produced in Cyprus during the Late Chalcolithic (Bolger & Webb, 2013; Düring, 2024). This suggests both shared and distinct aspects in the vessel shape repertoires between these regions during the relevant periods.

8.1.4.4. Firing

Similarities in firing techniques and resulting pottery appearances occur between Tarsus-*Gözlükule* and Cypriot wares, such as Spalled Ware from the Ktima Lowlands and Fabric D from Politiko-*Kokkinorotsos*, these support the notion of technological advancement in firing processes. This advancement may have resulted from influences and the transfer of technological know-how from Anatolia to Cyprus, highlighting the interconnectedness and exchange of knowledge between these regions during this period.

The evidence suggests that Late Chalcolithic wares in Cyprus were fired at higher temperatures compared to those of the Middle Chalcolithic period. Additionally, the macroscopic study of the Tarsus-*Gözlükule* pottery reference collection has led to observations regarding similarities between Red Gritty Ware and Spalled Ware and Fabric D from Late Chalcolithic Cyprus, and the Philia Cooking Pots Type A from the Philia Phase. Specifically, in terms of firing, the pottery wares mentioned above share a high hardness and "spalled" limestone visible on the surface.

Finally, potters in Cyprus demonstrated improved control over firing, achieving red and black surfaces, whether uniform or exhibiting irregular mottling. This bichrome appearance of Late Chalcolithic vessels has been identified as a similarity with contemporaneous wares from Anatolia and the Levant, indicating interactions between these regions. The uniform black interior surfaces and blackened rims of the Red Black Lustrous Wares from Politiko-*Kokkinorotsos* resemble surfaces from coeval wares from Tarsus-*Gözlükule*. As already mentioned, Politiko-*Kokkinorotsos* has been interpreted as a seasonal hunting station, which might reflect the pottery traditions of the wider area of Mesaoria or the northern area of Karpasia (Webb *et al*, 2009a, p. 205; Crewe, 2023, p 188). In the north of Cyprus, sites like Vasilia thrived during the Bronze Age and have been suggested as the beginning of trade routes to Anatolia. It would therefore make sense for the inhabitants of this region to be in closer contact with population groups in Anatolia and for technological knowledge of intricate pottery production steps, like firing, to be transferred between the two regions, already in the Chalcolithic.

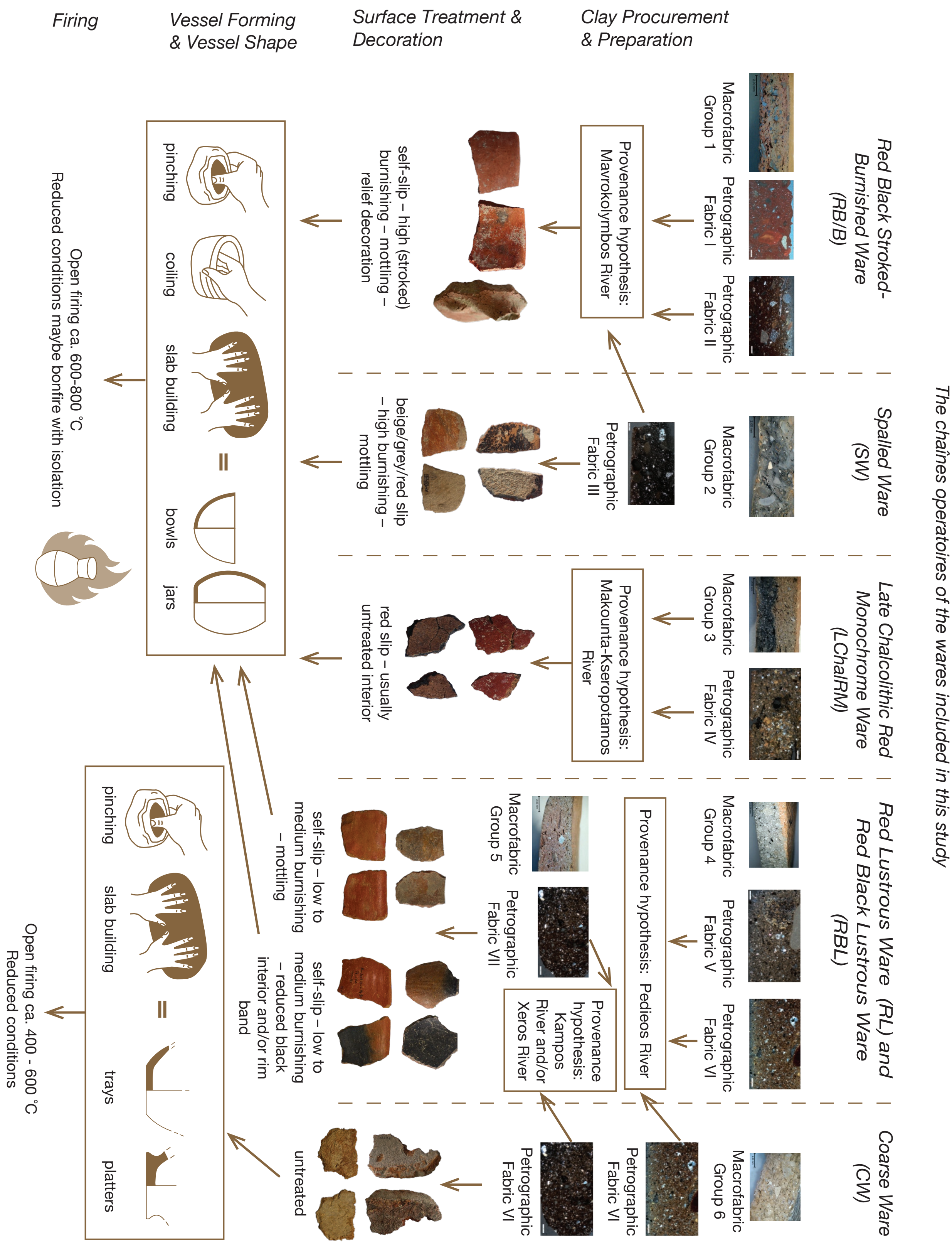
8.2. Conclusions

To conclude, this thesis has attempted to illustrate interactions between communities within Cyprus and between communities on the island and Anatolia, in the early third millennium BC, by studying and comparing key pottery assemblages and their technologies of production. To do so, a literature review has been paired with macroscopic analysis of pottery assemblages; mineralogical and compositional analysis via ceramic thin section petrography; and chemical analysis via hhXRF.

This thesis has illustrated the regional nature of pottery production in the Late Chalcolithic Cyprus, by distinguishing four different pottery production traditions with distinct *chaînes opératoires*: one in western Cyprus shared between Chlorakas-*Palloures* and Kissonerga-*Mosphilia*; one in northern Paphos, in the Polis region; one at Ambelikou-*Agios Georghios*; and one at Politiko-*Kokkinorotsos* (Figure 108). These regions would be in contact with each other, as pottery from western Cyprus has been found in Ambelikou-*Agios Georghios* and vice versa, and pottery from northern Paphos has been found at Chlorakas-*Palloures*. Similarities in vessel forming techniques and vessel shapes, as well as in surface treatment and firing, indicate both mediated interactions with people and objects.

The majority of the pottery types studied here, namely the Red and Black Stroke-Burnished Ware, the Red Lustrous Ware and the Red Black Lustrous Ware, belong to a wider red monochrome tradition that characterizes pottery production during the Late Chalcolithic (Peltenburg, 1991c; 2007; Bolger, 2007; 2013). However, they develop differently, exhibiting distinct local and regional characteristics. The western Cyprus pottery types, the Red and Black Stroke-Burnished Ware and the Spalled Ware, are quite distinct, harder, with finer walls and intense burnishing. On the other hand, the Red Lustrous Ware and Red Black Lustrous Ware of Ambelikou-*Agios Georghios* and Politiko-*Kokkinorotsos* are thicker, not as burnished, the blackened surfaces are more uniform indicating better control of the firing processes, and even though they belong to two different pottery traditions, they find their closest parallels to each other (Webb *et al.*, 2009a, p. 205).

Figure 108: The chaînes opératoires of the wares included in this study (created by Maria Hadjigavriel)



The results of this thesis indicate that the Late Chalcolithic pottery production has more in common with the subsequent Philia Phase pottery production, than with the previous Middle Chalcolithic pottery production. In the Philia Phase, a shift in labour and organization of production towards craft specialization has been argued for Marki-Alonia (Frankel & Webb, 2001; Dikomitou-Eliadou, 2012). Furthermore, according to Dikomitou and Zomeni (2017, p. 101), when examining pottery production in the Philia Phase, the evidence indicates the existence of a cohesive community network that, over time, underwent a transformation towards more regional forms of social interaction and commodity exchange, while the technological profile of the ceramic tradition seems to have its roots either in the Ovgos Valley or in Lapithos. This suggest a well-established network of interaction among these communities during the Philia Phase (Dikomitou-Eliadou, 2012, p. 268). When it comes to Late Chalcolithic pottery production, increased specialization and maybe a slightly larger scale of production is observed at a local level, with clay recipes being developed for specific wares (RB/B and SW) and shared vessel shapes repertoires between sites. On this basis, a shift from household production to community production in the Ktima Lowlands is proposed, signifying a change in the organization of production and labor beyond the household level. In general, the emergence of craft specialization is often associated with the emergence of elites and even urbanization, while ceramic craft specialization is often thought to be emerging alongside social, political, and demographic changes (Rice et al., 1981, p. 227). As already discussed in Chapter 2, social differentiation and complexity have been argued for the Late Chalcolithic (e.g. Peltenburg et al., 1998; Steel, 2004, pp. 112-113; Knapp, 2013, pp. 245-250). The results of this thesis suggest that pottery production evolved along with these changes in social organization, taking a step from household production to community specialization, creating and maintaining networks of interactions between Late Chalcolithic communities.

Regarding extra-insular interactions, in this project the pottery from Tarsus-Gözlükule serves as an assemblage for considering general possibilities of shared technologies and visual referents. Both Peltenburg (e.g. 2007; 2018) and Bolger (e.g. 2007; 2013) have long argued that the highly burnished surfaces, the relief decoration and the preference of small bowls and pouring vessels are the result of increasing extra-insular contacts, particularly with western Anatolia. Meanwhile, Webb (*et al.*, 2009a, p. 205) has maintained that the presence of these elements at Ambelikou-*Agios Georghios* and Politiko-*Kokkinorotsos* points towards indigenous developments. Here, I argue that in terms of morphological characteristics and firing, the pottery from Politiko-*Kokkinorotsos* is the most similar to the pottery of Tarsus-*Gözlükule*. Given that the presence of Cypriot pottery at Tarsus-*Gözlükule* and Hacımusular Höyük in EB II levels confirm the interactions between the island and Cilicia at the time, geographical proximity, and the fact that Politiko-*Kokkinorotsos*, as a special purpose site rather than a settlement, might reflect the pottery production of a wider area in the Mesaoria plain and even up north in Karpasia, I argue that it is possible that Anatolian pottery technologies arrived on the island via the north coast first, and this first influences are evident in the Politiko-*Kokkinorotsos* pottery assemblages. Moreover, the presence of Cypriot imports in EB II Tarsus corroborates suggestions for an earlier start of the Philia Phase. Understanding the rates at which innovations are introduced and adopted, as well as the pace at which divergence develops or is erased, is crucial for gaining a comprehensive insight into the ways settlements and regions evolve different patterns of relationships. This perspective is essential for fully appreciating and explaining the complex dynamics that shape the interactions and developments within and between various communities (Frankel, 2009, p. 23).

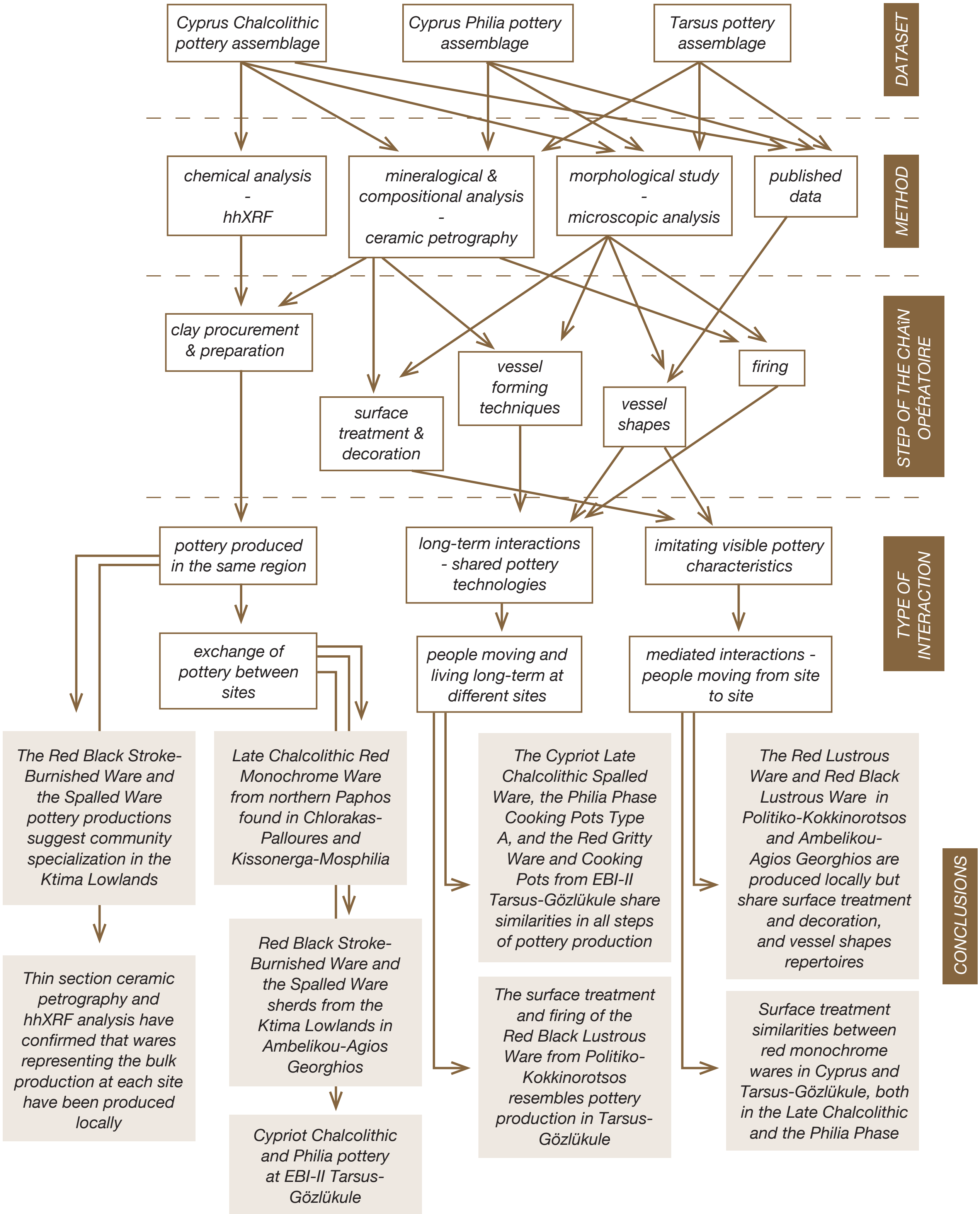
In a recent paper, Crewe has argued for changes in Cypriot material culture in the third millennium being a result of the Cypriot communities to align themselves with wider phenomena of connectivity in the surrounding regions, namely the Early Transcaucasian Culture and the Anatolian Trade Network, while highlighting that this does not render Cypriots passive recipients, but illustrates that "*they responded proactively to a dynamic situation*" (Crewe, 2023, pp. 182). The active role of Cypriots has also been highlighted by Bolger: "*local and regional variations in the reception of foreign cultural elements…suggesting that the island's relations with its neighbours were often the result* *of deliberate choices by Cypriot communities to engage – or refuse to engage – in external world systems*" (Bolger, 2013, p. 1). As Laoutari (2023, p. 267) stated "*Central to these processes were people living within communities, situated in landscapes with different affordances, and organising themselves in multiple and overlapping social groups, engaged in diverse activities that span from their proximate environment to long-distance unfamiliar encounters*".

This thesis supports these arguments through a substantial study of pottery production in Cyprus in the Late Chalcolithic, which was influenced by extra-insular contacts. These interactions were already in place throughout the Chalcolithic, while only selective foreign elements were adopted and adapted in the various regions. For example, the controlled firing and bichrome red-black surfaces of Anatolian pottery are mirrored in the pottery production of Politiko-*Kokkinorotsos*, but relief decoration and intense burnishing are much more prevalent in western Cyprus. One should keep in mind that, just like in the Philia Phase, it can be assumed that in the Late Chalcolithic communities in the northern part of Cyprus would have been more in contact with Anatolia due to their geographical proximity. Since the northern part of the island is inaccessible to research since 1974, Politiko-*Kokkinorotsos*, which was a hunting station that might reflect the pottery production of the wider Mesaoria region, can be our "window" into crafting communities that would reside in the north and have more interactions with their Cilician neighbours.

I contend that the above arguments, along with the persistence of handmade pottery traditions and the differences in vessel shapes' repertoire contradict the argument for an Anatolian migration during the Philia Phase. Instead of the transfer of complete cultural package by migrants, what we observe is the exchange of specific technological traits evident in particular wares and assemblages. Moreover, continuity in ceramic production between the Late Chalcolithic and the Philia is evident in the red and/or black burnished surfaces, and morphological characteristics such as everted rims, and flat and concave (omphalos) bases (Boger & Webb, 2013, pp. 81, 83; Bolger *et al.*, 1998, 99; Dikaios, 1962, pp. 137, 145, 154, figs.64, 68, 72). Therefore, the transition from the Chalcolithic to the Philia Phase would likely be a gradual process, driven by ongoing interactions with Anatolia rather than a sudden influx of migration. Furthermore, it would occur on a regional scale rather than as a widespread phenomenon across the entire island, where the novel Philia Phase elements would find their way among pre-existing social relationships and modes of interaction, with various social responses across the island.

In conclusion, for the purposes of these research, ceramic assemblages from Late Chalcolithic Cyprus were studied systematically, employing macroscopic, ceramic thin section petrography and chemical/elemental (hhXRF) analyses. Additionally, the reference pottery collection from the EB I-II Tarsus-*Gözlükule* was studied macroscopically. The various stages of the *chaîne opératoire* were investigated, to reconstruct different types of interaction between crafting communities within and outside the island. The conclusions of this thesis are outlined in Figure 109 below.

Figure 109: Diagram illustrating the methodological and theoretical framework of this thesis, along with the conclusions (created by Maria Hadjigavriel)



8.3. Prospects for Further Research

This thesis has endeavoured to illustrate the interactions between communities within Cyprus and between communities on the island and Anatolia during the early third millennium BC. This was achieved through a comprehensive study and comparison of key pottery assemblages and their production technologies. However, several steps can be taken to elaborate and investigate this topic further.

To begin with, what this thesis makes clear is that it is essential to study the Middle Chalcolithic, the Late Chalcolithic, and the Philia Phase as a continuum rather than as isolated separate periods. Taking a *longue durée* approach to the third millennium BC provides a more comprehensive understanding of the emergence of the Philia Phase and the relationships between Cyprus and its neighbouring regions during both the Late Chalcolithic and the Early Bronze Age. Additionally, it enables the observation of regional changes over an extended period, facilitating a deeper comprehension of social transformations and interactions. To do so, studies which integrate macroscopic analysis, ceramic thin section petrography and other methods to study pottery production at Middle Chalcolithic, Late Chalcolithic and Philia Phase sites is imperative. Subsequently, further cooperation among specialists is needed in order to facilitate understanding and comparison of different ceramic assemblages over time and space across the island. Moreover, a multi-analytical investigation into the mineralogical, chemical, and micro-paleontological characteristics of distinct geological regions in Cyprus would allow pinpointing the origin of raw materials used in ceramic production, aiding in the differentiation between locally sourced and imported vessels at archaeological sites.

For investigating the relationship between the island and Anatolia at the time, more comparative studies are needed, systematically studying Anatolian assemblages, comparing them with Cypriot ones, and assessing possible imports/exports. Especially the connections between Philia cooking pots and Anatolian wares, which have been illuminated in this study, merit further research. Finally, the current political status quo on Cyprus hinders our understanding of the material record, as the northern part of the island is inaccessible to research. More importantly, it limits interactions and exchange of knowledge not only between archaeologists trained in Cypriot archaeology and those trained in Anatolian archaeology, but also between Greek-speaking Cypriot archaeologists and Turkish-speaking Cypriot archaeologists. May we one day be able to work with each other, and study our island as a whole, together.

Bibliography

Abulafia, D. (2011). *The Great Sea: A History of the Mediterranean*. Oxford University Press.

Albero Santacreu, D. (2014). *Materiality, Techniques and Society in Pottery Production*. De Gruyter Open.

Albero Santacreu, D., Calvo Trias, M., & García Rosselló, J. (2016). Formal Analysis and Typological Classification in the Study of Ancient Pottery. In A. Hunt (Ed.), *The Oxford Handbook of Archaeological Ceramic Analysis* (pp. 181-199). Oxford University Press.

Alkım, U.B. (1966). İslahiye Bölgesi Araştırmaları ve Gedikli Hüyük Kazısı. *Türk Arkeoloji Dergisi* 15, 39–48

Anthony, D. (1990). Migration in Archaeology: The Baby and the Bathwater*. American Anthropologist, 92*, 895-914.

Arik, R.O. (1950)*. Les Fouilles Archaeologiques en Turquie*. Milli Eğitim Basımevi.

Arnold, D.E. (1985). *Ceramic theory and cultural process*. Cambridge University Press.

Arnold, D. E. (2000). Does the standardisation of ceramic pastes really mean specialisation? *Journal of Archaeological Method and Theory, 7*(4), 333-375.

Arnold, D. E. (2006). The Threshold Model for Ceramic Resources: A Refinement. In D. Gheorghiu (Ed.), *Ceramic Studies: Papers on the Social and Cultural Significance of Ceramics and Europe and Eurasia from Prehistoric to Historic Times* (pp. 3-9). Archaeopress(BAR International Series).

Åström, P. & Eriksson, K.O. (1989). *Hala Sultan Tekke 9: Trenches 1972-1987*. Paul Åströms Förlag (Studies in Mediterranean Archaeology 45, 9).

Atakuman, Ç. (2008). Cradle or Crucible: Anatolia and the Archaeology in the Early Years of the Turkish Republic (1923-1938). *Journal of Social Archaeology, 8*(2), 214-235.

Atakuman, Ç. (2017). Figurines of the Anatolian Early Bronze Age: the assemblage from Koçumbeli-Ankara. *Anatolian Studies, 67*, 85-108.

Aupert, P. & Hellmann, M.C. (1984). *Amathonte I, Testimonia I, Auteurs Anciens, Monnayage, Voyageurs, Fouilles, origines, Géographie*. Éditions Recherche sur les Civilisations (Κυπριακαί Σπουδαί 4).

Bachhuber, C. (2008). *Sumptuary Behaviour in Early Bronze Age Anatolia: The Royal Tombs of Alacahöyük and the Treasure Deposits of Troy* [Unpublished doctoral dissertation]. University of Oxford.

Bachhuber, C. (2014). The Anatolian Context of Philia Material Culture in Cyprus. In A.B. Knapp & P. v. Dommellen (Eds,), *The Cambridge Prehistory of the Bronze and Iron Age Mediterranean* (pp.139-156). Cambridge University Press.

Bachhuber, C. (2015). *Citadel and Cemetery in Early Bronze Age Anatolia*. Equinox (Monographs in Mediterranean Archaeology 13)

Barjamovic G. (2011). *A Historical Geography of Anatolia in the Old Assyrian Colony Period*. Museum Tusculanum Press.

Barlow, J. A. (1985). Middle Cypriot Settlement Evidence. A Perspective on the Chronological Foundations. *Report of the Department of Antiquities Cyprus, 1985*, 47-54.

Barlow, J.A. (1991). New light on Red Polished ware. In J.A. Barlow, D. Bolger & B. Kling (Eds.), *Cypriot Ceramics: Reading the Prehistoric Record* (pp. 51-56). University of Pennsylvania Press.

Barlow, J.A. (1994) Notes on decoration of Red Polished ware. *Report of the Department of Antiquities Cyprus, 1994,* 45-51.

Barlow, J. A. (1996a). Chapter F: Pottery. In J.E. Coleman, J.A. Barlow, M.K. Mogelonsky & K.W. Schaar (Eds.), *Alambra*. *A Middle Bronze Age Settlement in Cyprus. Archaeological investigations by Cornell University 1974-1985* (pp. 237-323). Paul Åströms Förlag (Studies in Mediterranean Archaeology 118).

Barlow, J. A. (1996b). Appendix 6: Technical Studies of Alambra Pottery. In J.E. Coleman, J.A. Barlow, M.K. Mogelonsky & K.W. Schaar (Eds.), *Alambra*. *A Middle Bronze Age Settlement in Cyprus. Archaeological investigations by Cornell University 1974-1985* (pp. 437-446). Paul Åströms Förlag (Studies in Mediterranean Archaeology 118).

Barlow, J., Bolger, D. & Kling, B. (1991). *Cypriot Ceramics: Reading the Prehistoric Record*. University of Pennsylvania.

Binford, L. (1965). Archaeological systematics and the study of culture process. *American Antiquity, 31*, 203–210.

Binford, S. & Binford, L.R. (1968). *New Perspectives in Archaeology*. Aldine.

Bittel, K. (1934). *Prähistorische Forschung in Kleinasien*. Istanbuler Forschungen.

Bittel, K. (1945). *Grundzüge der Vor – und Frühgeschichte Kleinasiens*. Ernst Wasmuth.

Blegen, C., Caskey, J.L. & Rawson, M. (1950). *Troy I: General Introduction, The First and Second Settlements*. Princeton University Press.

Blumenthal, M. (1963). *Geological Map of Turkey, Konya-sheet, 1:500,000*. Institute of Mineral Resources and Exploration, Ankara, Turkey.

Bolger, D. (1983). Khrysiliou-Ammos, Nicosia-Ayia Paraskevi and the Philia culture of Cyprus. *Report of the Department of Antiquities Cyprus, 1983*, 60–73.

Bolger, D. (1985). *Erimi-Pamboula: A Study of the Site in Light of Recent Evidence* [Unpublished doctoral dissertation]. University of Cincinnati.

Bolger, D. (1987). Is There A Western Cyprus? A Chalcolithic Viewpoint. In D.W. Rupp (Ed.), *Western Cyprus: Connections* (pp. 69-81). Paul Åströms Förlag (Studies in Mediterranean Archaeology 77).

Bolger, D. (1988). *Erimi-Pamboula: A Chalcolithic Settlement in Cyprus*. Archaeopress (British Archaeological Reports, International Series 443).

Bolger, D. (1991a). Early Red Polished ware and the origin of the "Philia culture". In J.A. Barlow, D.L. Bolger & B. Kling (Eds.), *Cypriot Ceramics: Reading the Prehistoric Record* (pp. 29-35). The Philadelphia University Museum.

Bolger, D. (1991b). The Evolution of the Chalcolithic Painted Style. *Bulletin of the American Schools of Oriental Research, 282/283*, 81-93.

Bolger, D. (1994). Engendering Cypriot Archaeology: Women's Roles and Statuses Before the Bronze Age*. Opuscula Atheniensia, 20*, 9-17.

Bolger, D. (2003). *Gender in Ancient Cyprus: Narratives of Social Change on a Mediterranean Island*. Altamira Press.

Bolger, D. (2007). Cultural Interactions in third Millennium BC Cyprus: Evidence of Ceramics. In S. Antoniadou & A. Pace (Eds.), *Mediterranean Crossroads* (pp. 164-188). Pierides Foundation.

Bolger, D. (2013). Matter of Choice: Cypriot Interactions With the Levantine Mainland During the Late 4th-third Millennium BC. *Levant, 45*,(1), 1-18.

Bolger, D. (2019). Chapter 10. Chalcolithic pottery. In E. Peltenburg, D. Bolger & L. Crewe (Eds.), *Figurine Makers of Prehistoric Cyprus. Settlement and Cemeteries at Souskiou* (pp. 165-206). Oxbow Books.

Bolger, D. & Shiels, J. (2003). The Pottery. In E. Peltenburg (Ed.), *The Colonisation and Settlement of Cyprus. Investigations at Kissonerga-Mylouthkia 1976-1996* (pp. 133-168). Paul Åströms Förlag.

Bolger, D. & Webb, J. (2013). Ceramics. In E. Peltenburg (Ed.), *Associated Regional Chronologies for the Ancient Near East and the Eastern Mediterranean ARCANE II Cyprus* (pp. 39-127). Brepols Publishers.

Bolger, D. & Peltenburg, E. (2014). Material and Social Transformations in third Millennium Cyprus: Evidence of Ceramics. In J. Webb (Ed.), *Structure, Measurement and Meaning. Studies on Prehistoric Cyprus in Honour of David Frankel* (pp. 187-197). Paul Åströms Förlag (Studies in Mediterranean Archaeology 143).

Bolger, D., Maguire, L., Quye, A., Ritson, S. & Stephen, F.M.K. (1998). The Pottery. In Peltenburg, E. (Ed.), *Lemba Archaeological Project II.1A Excavations at Kissonerga-Mosphilia 1979-1992* (pp. 93-147). Paul Åströms Förlag (Studies in Mediterranean Archaeology 70, 2).

Bolger, D., Greenberg, R., Kroll, S. & Palumbi, G. (2014). Red-Black Burnished Pottery of Western Asia and Cyprus. In M. Lebeau (Ed.), *Associated Regional Chronologies for the Ancient Near East and the Eastern Mediterranean ARCANE INTEREGIONAL I Ceramics* (pp. 149-169). Brepols Publishers.

Borck, L., Mills, B.J., Peeples, M.A. & Clark, J.J. (2015). Are social networks survival networks? An example from the late pre-Hispanic US Southwest. *Journal of Archaeological Method and Theory, 22*, 33-57.

Bourdieu, P. (1977). *Outline of a Theory of Practice*. Cambridge University Press.

Bourdieu, P. (1990). *The Logic of Practice*. Stanford University Press.

Bourke, S. J. (2014). Taking an axe to Cypriot Prehistory: Jordan and Cyprus in the Early Bronze Age*. Akkadica Supplementum, 12*, 71-94.

Braidwood, R & Braidwood, L. (1960). *Excavations in the Plain of Antioch, Vol. 1: The Earlier Assemblages, Phases A–J.* University of Chicago (Oriental Institute Publications 61).

Braudel, F. (1972). *The Mediterranean and the Mediterranean World in the Age of Philip II*. Harper & Row.

Brayshaw, D.J., Rambeau, C.M.C. & Smith, S.J. (2011). Changes in Mediterranean Climate during the Holocene: Insights from Global and Regional Climate Modelling. *Holocene, 21*(1), 15-31.

Breniquet, C. (1995). La stratigraphie des niveaux préhistoriques de Mersin et l'évolution culturelle en Cilicie, *Anatolia Antiqua*, *3*, 1–31.

Brettell, C.B. & Hollifield, J.F. (Eds.), (2000). *Migration Theory: Talking Across Disciplines*. Routledge.

Brodie, N. J. (1998). Chemical Characterisation of Early and Middle Iron Age Cypriot Ceramics: A Review. *Report of the Department of Antiquities Cyprus, 1998*, 17-28.

Broodbank, C. (2000). *An Island Archaeology of the Early Cyclades.* Cambridge University Press.

Broodbank, C. (2010). 'Ships a-sail from over the rim of the sea': Voyaging, sailing and the making of Mediterranean societies c. 3500-500 BC. In A. Anderson, J. Barret & K. Boyle (Eds*.), The global origins and development of seafaring* (pp. 249-64). McDonald Institute for Archaeological Research.

Broodbank, C. (2013)*. The Making of the Middle Sea: A History of the Mediterranean from the Beginning to the Emergence of the Classical World*. Thames & Hudson.

Brown, T.B. (1933). Anatolian Relations with the Aegean before 2400 B.C. *Liverpool Annals of Archaeology and Anthropology, XX*, 43-64.

Bryan, N. D., French, E.B., Hoffman, S.M.A. & Robinson, V.J. (1997). Pottery Sources in Bronze Age Cyprus: A Provenance Study by Neutron Activation. *Report of the Department of Antiquities Cyprus, 1997*, 31-61.

Butzer, K.W. (2005). Environmental History in the Mediterranean World: Cross-Disciplinary Investigation of Cause-and-Effect for Degradation and Soil Erosion. *Journal of Archaeological Science, 32*(12), 1773-1800.

Çambel, H. (1995). *Readings in Prehistory: Studies Presented to Halet Çambel*. Graphics Yayınları.

Caneva, I. & Köroğlu, G. (2010): *Yumuktepe: A Journey Through Nine Thousand Years*. Eye Yayınları.

Caneva, I. & Sevin, V. (2004). *Mersin-Yumuktepe: A Reappraisal*. Congedo.

Catling, H. (1971). Cyprus in the Early Bronze Age. In E.S. Edwards, C.J. Gadd & N.G.L. Hammond (Eds.), *Cambridge Ancient History Vol. I, Part 2* (pp. 808-823). Cambridge University Press.

Cesnola, L.P. (1877). *Cyprus, its Ancient Cities, Tombs and Temples: A Narrative of Researches and Excavations during Ten Years' Residence as American Consul in that Island*. Murray.

Chelazzi, F. (2023). A multi-proxy approach to human-environment-climate coevolution in prehistoric and protohistoric Cyprus. InT. Bürge & L. Recht (Eds.), *Dynamics and Developments of Social Structures and Networks in Prehistoric and Protohistoric Cyprus* (pp. 73-87). Routledge.

Cherry, J.F. (1981). Pattern and Process in the Earliest Colonization of the Mediterranean Islands. *Proceedings of the Prehistoric Society, 47*, 41-68.

Childe, V.G. (1929). *The Most Ancient East: The Oriental Prelude to European Prehistory*. Kegan Paul.

Childe, V.G. (1956). *Society and Knowledge*. Harper Brothers.

Clarke, J. (2003). Insularity and Identity in Prehistoric Cyprus, In J. Guilaine & A. Le Brun (Eds.) *Le Néolithique de Chypre: Actes du Colloque International Organise Par Le Département des Antiquités de Chypre et l' École Français d' Athènes Nicosie 17-19 Mai 2001* (pp. 203-218). École Français d' Athènes (Bulletin de Correspondace Héllenique Supplément 43).

Clarke, J. (2004). Excavations at Kalavassos-Kokkinoyia and Kalavassos Pamboules 2002-3. *Report of the Department of Antiquities Cyprus, 2004*, 51-71.

Clarke, J. (2010). Contextualising Neolithic Cyprus: Preliminary Investigations into Connections Between Cyprus and the Near East in the Later Neolithic. In D. Bolger & L.C. Maguire (Eds.), *The Development of Pre-State Communities in the Ancient Near East. Studies in Honour of Edgar Peltenburg* (pp. 197-206). Oxbow.

Clarke, J. & Goren, Y. (2015). Ceramic Neolithic pottery in Cyprus—origin, technology and possible implications for social structure and identity. *Levant*, *47(*3), 233-254.

Clarke, J., Brooks, N., Banning, E.B., Bar-Matthews, M., Campbell, S., Clare, L., Cremaschi, M., di Lernia, S., Drake, N., Gallinaro, M., Manning, S., Nicoll, K., Philip, G., Rosen, S., Schoop, U., Tafuri, M.A., Weninger, B. & Zerboni, A. (2015). Climatic Changes and Social Transformations in the Near East and North Africa During the 'Long' 4th Millennium BC: A Comparative Study of Environmental and Archaeological Evidence. *Quaternary Science Reviews, 136*, 1-26.

Colledge, S. (2003). The Charred Plant Remains in Three of the Pits. In E. Peltenburg (Ed.), *Lemba Archaeological Project III:1 The Colonisation and Settlement of Cyprus: Investigations at Kissonerga-Mylouthkia 1976-1996* (pp. 239-246). Paul Åströms Förlag (Studies in Mediterranean Archaeology 70, 4).

Colledge, S. & Conolly J.W. (Eds.) (2007). *The Origins and Spread of Domestic Plants in Southwest Asia and Europe*. Left Coast Press.

Colledge, S., Conolly, J., Dobney, D., Manning, K., & Shennan, S. (2013). *Origins and Spread of Domestic Animals in Southwest Asia and Europe.* Walnut Greek (CA): Left Coast Press.

Conkey, M.W. (1990). Experimenting with Style in Archaeology: Some Historical and Theoretical Issues. In M.W. Conkey & C.A. Hastorf (Eds.), *The Uses of Style in Archaeology* (pp. 5-17). Cambridge University Press.

Connan, J. Nieuwenhuyse, O. & Jacobs, L. (2004). Bitumen in Early Ceramic Art: Bitumen-Painted Ceramics from Late Neolithic Tell Sabi Abyad (Syria). *Archaeometry*, *46*(1), 115-124.

Constantinou, G., (2002). *Η γεωλογία της Κύπρου [The Geology of Cyprus].* Department of Geological Surveys, Ministry of Agriculture, Natural Resources and Environment, Republic of Cyprus.

Constantinou, G. & Panagides, I. (2013). *Cyprus and Geology. Science – Environment – Culture*. Bank of Cyprus Cultural Foundation.

Costin, C.L. (1991). Craft Specialization: Issues in Defining, Documenting, and Explaining the Organization of Production. *Archaeological Method and Theory*, 3, pp. 1-56.

Courtois, L. (1970) Note préliminaire sur l'origine des differents fabriques de la poterie du Chypriote Récent. *Report of the Department of Antiquities Cyprus, 1970*, 81-85.

Courty, M.-A. & Roux, V. (1995). Identification of Wheel Throwing on the Basis of Ceramic Surface Features and Micro-Fabrics. *Journal of Archaeological Science ,22*, 17–50.

Coward, F. (2013). Grounding the net: Social networks, material culture and geography in the Epipalaeolithic and Early Neolithic of the Near East (□ 21,000-6,000 cal BCE). In C. Knappet (Ed.), *Network analysis in archaeology: New regional approaches to interaction* (pp. 247-280). Oxford University Press.

Crewe, L. (2010). Third Season of Excavation at Kissonerga Skalia Bronze Age Settlement. *Bulletin of the Council for British Research in the Levant*, 5, 69-71.

Crewe, L. (2014). A Reappearing Early Bronze Age in Western Cyprus. In J. Webb (Ed.), *Structure, Measurement and Meaning. Studies on Prehistoric Cyprus in Honour of David Frankel* (pp. 137-150). Paul Åströms Förlag (Studies in Mediterranean Archaeology 143).

Crewe, L. (2015). Expanding and Shrinking of Interaction: Cyprus c. 2200 BC. In H.H. Meller, H.W. Arz, R. Jung & R. Risch (Eds). *2200 BC – A Climatic Breakdown As A Cause for the Collapse of the Old World?* (pp. 131-148). Löhnert-Druck (Tangungen des Landesmuseums für Vorgeschichte Halle 12/1).

Crewe, L. (2023). The lustrous monochrome wares of early third millennium Cyprus within the wider regional context of the Early Transcaucasian Phenomenon. In I. Voskos, D, Kloukinas & E. Mantzourani (Eds.), *Prehistoric Lifeways in Cyprus from the Early Holocene to the Middle Bronze Age* (pp. 181-192). Paul Åströms Förlag (Studies in Mediterranean Archaeology 155)

Crewe, L., Lorentz, C. Peltenburg, E. & Spanou, S. (2005). Treatments of the Dead: Preliminary Report of Investigations at Souskiou Laona Chalcolithic Cemetery 2001-2004*. Report of the Department of Antiquities Cyprus, 2005*, 41-67.

Crilly, N. (2010). The roles that artefacts play: technical, social and aesthetic functions. *Design Studies 31*, 311–344.

Croft, P. (1991). Man and Beast in Chalcolithic Cyprus. *Bulletin of the American Schools of Oriental Research, 282/283*, 63-79.

Croft, P. (2006). Animal bones. In D. Frankel & J. M. Webb (Eds.), *Marki Alonia. An Early and Middle Bronze Age town in Cyprus. Excavations 1995-2000* (pp. 263-81). Paul Åströms Förlag.

Croft, P. & Thomas, G. (2003). Buildings. In E. Peltenburg (Ed.), *Lemba Archaeological Project III:1 The Colonisation and Settlement of Cyprus: Investigations at Kissonerga-Mylouthkia 1976-1996* (pp. 117-132). Paul Åströms Förlag (Studies in Mediterranean Archaeology 70, 4).

Croft, P., Peltenburg, E. & Tite, M. (1998a). Other artefacts. in E. Peltenburg (ed), *Lemba Archaeological Project Excavations at Kissonerga-Mosphilia 1979–1992* (pp. 188-201). Paul Åströms Förlag (Studies in Mediterranean Archaeology 70,2).

Croft, P., Peltenburg, E., Tite, M. & Wilthew, P. (1998b). Other artefacts. In E. Peltenburg (Ed.), *Excavations at Kissonerga-Mosphilia, 1979-1992. Lemba Archaeological II.1B.* (pp. 231-48). University of Edinburgh.

Dardeniz, G., Yıldırım, T., Yıldırım, C., & Çiftçi, E. (2021). Techniques of blue, green, and white faience bead production used at the early bronze age central anatolian site of Resuloğlu (Turkey). *Archaeometry*, *63*(2), 327-42.

David, N. & Kramer, C. (2001). *Ethnoarchaeology in Action*. Cambridge University Press.

Davis, J.L. (2003). A Foreign School of Archaeology and the Politics of Archaeological Practice: Anatolia 1922. *Journal of Mediterranean Archaeology, 16*(2), 145-172.

Degryse, P. & Braekmans, D. (2014). Elemental and Isotopic Analysis of Ancient Ceramics and Glass. *Treatise on Geochemistry*, 14, 191-207.

Degryse, P. & Braekmans, D. (2016). Petrography. In A. Hunt (Ed.), *The Oxford Handbook of Archaeological Ceramic Analysis* (pp. 233-265). Oxford University Press.

Devillers, M., Brown, M. & Morhange, C. (2015). Paleo-environmental evolution of the Larnaca Salt Lakes (Cyprus) and the relationship to second millennium BC settlement. *Journal of Archaeological Science: Reports, 1*, 73–80.

De Jesus, P.S. (1977). *The Development of Prehistoric Mining and Metallurgy in Anatolia.* [Unpublished PhD dissertation]. University College London.

Dietler, M. & Herbich, I. (1998). Habitus, Techniques, Style: An Integrated Approach to the Social Understanding of Material Culture and Boundaries. In M. T. Stark (Ed.), *The Archaeology of Social Boundaries* (pp. 232-263). Smithsonian Institution Press.

Dikaios, P. (1935). Some Neolithic Sites on Cyprus. *Report of the Department of Antiquities Cyprus, 1935*, 11-13.

Dikaios, P. (1936). The Excavations at Erimi 1933-1935 Final Report. *Report of the Department of Antiquities Cyprus, 1936*, 1-81.

Dikaios, P. (1940), The excavations at Vounous-Bellapais in Cyprus, 1931–2. *Archaeologia, 88*, 1–174.

Dikaios, P. (1961). *A Guide to the Cyprus Museum*. The Nicosia Printing Works, Chr. Nicolaou & Sons Ltd.

Dikaios, P. (1962). The Stone Age. In P. Dikaios & J.R. Stewart (Eds.), *The Stone Age and the Early Bronze Age in Cyprus* (pp. 1-204). Swedish Cyprus Expedition (Swedish Cyprus Expedition IV:1A).

Dikomitou-Eliadou, M. (2007). Analysis of Clays and Fabrics. In D. Frankel & J. Webb (Eds.), *The Bronze Age Cemeteries at Deneia in Cyprus* (pp. 107-122). Paul Åströms Förlag (Studies in Mediterranean Archaeology 132).

Dikomitou-Eliadou, M. (2012). *Ceramic Production, Distribution, and Social Interaction: An Analytical Approach to the Study of Early and Middle Bronze Age Pottery from Cyprus* [Unpublished doctoral dissertation]. University College London.

Dikomitou-Eliadou, M. (2013). Interactive communities at the dawn of the Cypriot Bronze Age: an interdisciplinary approach to Philia phase ceramic variability. In A.B. Knapp, J.M. Webb & A. McCarthy (Eds.), *J.R.B. Stewart An Archaeological Legacy* (pp. 23-32). Paul Åströms Förlag.

Dikomitou-Eliadou, M. (2014). Rescaling perspectives: local and island-wide ceramic production in Early and Middle Bronze. In J.M. Webb (Ed.), *Structure, Measurement and Meaning: Studies in Prehistoric Cyprus in Honour of David Frankel* (pp. 199-211). Paul Åströms Förlag.

Dikomitou-Eliadou, M. & Zomeni, Z. (2017). From North to South: Red Polished Fyllia (Philia) Pottery Production and Distribution Patterns at the Beginning of the Cypriot Bronze Age. In D. Pilides & M. Mina (Eds.), *Four Decades of Hiatus in Archaeological Research in Cyprus: Towards Restoring the Balance* (pp. 92-103). Verlag Holzhausen GmbH, 92- 103 (Κυπριακά- Forschungen zum Antiken Zypern Vol. 2).

Dikomitou Eliadou, M. & Georgiou, A. (2023). Stylistic and Functional Analysis. In *Reference Module in Social Sciences*. Elsevier.

Dikomitou-Eliadou, M., Kiriatzi, E. & Vionis, A.K. (2013). Appendix IV. Petrographic Analysis of Late Cypriot Cooking Pots and Late Minoan Pottery from Pyla-Kokkinokremos. In V. Karageorghis & A. Kanta (Eds.), *Pyla-Kokkinokremos. A Late 13th Century BC Fortified Settlement in Cyprus. Excavations 2010-2011* (pp. 189-196). Paul Åström Förlag (Studies in Mediterranean Archaeology 141).

Dobres, M.A. (2000). *Technology and Social Agency Outlining a Practice Framework for Archaeology*. Blackwell.

Dothan, T. & Ben-Tor, A. (1983). Excavations at Athienou, Cyprus 1971-1972. *Qedem*, *16*, III-147.

Ducloz, C. (1972). *The geology of the Bellapais-Kythrea area of the central Kyrenia range*. Department of Geological Surveys, Ministry of Agriculture, Natural Resources and Environment, Republic of Cyprus (Bulletin of the Geological Survey Department 6).

Düring, B. S. (2011). *The Prehistory of Asia Minor: From Complex Hunter Gatherers to Early Urban Societies*. Cambridge University Press.

Düring, B. S. (in press). (Re)Connecting Cyprus: Exchange Networks and Society in the Third Millennium BCE.

Düring, B. S., Klinkenberg, V., Paraskeva, C., Kassianidou, V., Souter, E., Croft, P. & Charalambous, A. (2018). Metal Artefacts in Chalcolithic Cyprus: New Data from Western Cyprus. *Mediterranean Archaeology and Archaeometry, 18*(1), 11-25.

Düring, B.S., Klinkenberg, V., Sonnemann, T., Paraskeva, C., Croft, P. & Souter, E. (2019). Excavations at Chlorakas-Palloures: New Light on Chalcolithic Cyprus. *Report of the Department of Antiquities New Series, 2018*, 467-490.

Düring, B.S., De Ceuster, S., Degryse, P. & Kassianidou, V. (2021). Transformative copper metallurgy in Chalcolithic Cyprus: a reappraisal. *Antiquity*, *95*(381), 670-685.

Duru, R. (2010). *Gedikli Karahöyük Vol. II: The Results of the Excavations directed by Prof. Dr. U. Bahadır Alkım in the Years 1964-1967*. Türk Tarih Kurumu Yayınları.

Eaton, A. W. (2020). Artifacts and their functions. In S.A. Carter & I. Gaskell (Eds.), *The Oxford Handbook of History and Material Culture* (pp. 36-51). Oxford University Press.

Efe, T. (2006). Anatolische Wurzeln – Troia und die frühe Bronzezeit im Westen Kleinasiens. In M. O. Korfmann (Ed.), *Troia: Archäologie eines Siedlungshügels und seiner Landschaft* (pp. 15-28). Philipp von Zabern.

Efe, T. (2007). The Theories of the 'Great Caravan Route' between Cilicia and Troy: The Early Bronze Age III Period in Inland Western Anatolia. *Anatolian Studies, 57*, 47–64.

Efe, T. & Fidan, E. (2006). Pre-Middle Bronze Metal Objects from Inland Western Anatolia: A Typological and Chronological Evaluation. *Anatolia Antiqua, 14*, 15–43

Erentöz, C. & Ternek, Z. (1962). *Geological Maps of Turkey, 1:500,000 Adana Sheet*. Prepared and published by the Institute of Mineral Research and Exploration (MTA), Ankara. Printed by the Turkish Geodetical Survey.

Eslick, C. (2021). The Early Bronze Age at Kinet Höyük in Eastern Cilicia. An Overview. *Anatolica, 27*, 71-93.

Eslick, C. (2024). *Kinet Höyük 2 The Early Bronze Age and Earlier Occupations*. Zero Kitap.

Evans, J.D. (1977). Island Archaeology in the Mediterranean: Problems and Opportunities. *World Archaeology*, *9*, 12-26.

Fidan, E. (2006). Waffen aus Metall vor der Mittleren Bronzezeit im Inland Westanatoliens. *Colloquium Anatolicum, 5*, 91–106.

Fidan, E. (2012). İç Kuzeybatı Anadolu İlk Tunç Çağı Gözlü Süs İğneleri (Toggle Pin). *Colloquium Anatolicum, 11*, 179–204.

Fidan, E. (2013). Küllüoba İlk Tunç Çağı Metal Eser Kalıpları. In P. Ayter, Ş. Demirci & A.M. Özer (Eds.), ODTÜ III. *Arkeometri Çalısţayı, Türkiye Arkeolojisinde Metal: Arkeolojik ve Arkeometrik Çalısmţalar* (pp. 249-259). ODTÜ Arkeometri Anabilim Dalı.

Fidan, E., Sari D. & Türkteki, M. (2015). An Overview of the Western Anatolia Early Bronze Age. *European Journal of Archaeology, 18*(1), 60-89.

Finné M., Holmgren, K., Sundqvist, H.S., Weiberg, E. & Lindblom, M. (2011). Climate in the Eastern Mediterranean, and Adjacent Regions, during the Past 6000 Years - A Review. *Journal of Archaeological Science, 38*, 3153-3173.

Foster, N., Grave, P., Vickery, N. & Kealhofer, L. (2011). Non-destructive analysis using PXRF: methodology and application to archaeological ceramics. *X-Ray Spectrometry*, 40, 389-398.

Fowler, K. (2016). Ethnography. In A. Hunt (Ed.), *The Oxford Handbook of Archaeological Ceramic Analysis* (pp. 469-486). Oxford University Press.

Frahm, E. (2018). Ceramic studies using portable XRF: From experimental tempered ceramics to imports and imitations at Tell Mozan, Syria. *Journal of Archaeological Science, 90*, 12-38.

Frahm, E. & Doonan, R.C.P. (2013). The technological versus methodological revolution of portable XRF in archaeology. *Journal of Archaeological Science, 40*, 1425-1434.

Frankel, D. (1974a). *Middle Cypriot White Painted Pottery. An Analytical Study of the Decoration*. Paul Åströms Förlag (Studies in Mediterranean Archaeology 42).

Frankel, D. (1974b). Inter-site relationships in the Middle Bronze Age of Cyprus. *World Archaeology, 6*(1), 190-208.

Frankel, D. (1983). *Corpus of Cypriot Antiquities 7: Early and Middle Bronze Age Material in the Ashmolean Museum Oxford*. Paul Åströms Förlag (Studies in Mediterranean Archaeology 20, 7).

Frankel, D. (2000). Migration and Ethnicity in Prehistoric Cyprus: Technology as Habitus. *European Journal of Archaeology, 3*, 167-187.

Frankel, D. (2002). Social Stratification, Gender and Ethnicity in Third Millennium Cyprus. In D. Bolger & N. Serwint (Eds.), *Engendering Aphrodite. Women and Society in Ancient Cyprus* (pp. 171-179). American School of Oriental Research (Cyprus American Archaeological Research Institute Monograph 3).

Frankel, D. (2005). Becoming Bronze Age: Acculturation and Enculturation in Third Millennium BC Cyprus. In J. Clarke (Ed.), *Archaeological Perspectives on the Transmission and Transformation of Culture in the Eastern Mediterranean* (pp. 18-24). Oxbow Books (Levant Supplementary Series 2).

Frankel, D. (2009). What Do We Mean By Regionalism?. In I. Hein (Ed.), *The Formation of Cyprus in the 2nd Millennium BC. Studies in Regionalism During the Middle and Late Bronze Ages* (pp. 15-25). Österreichishe Akademie der Wissenschaften.

Frankel, D. & Webb, J. (1996). *Marki Alonia An Early and Middle Bronze Age Town In Cyprus: Excavations 1990-1994*. Åströms Förlag (Studies in Mediterranean Archaeology 127, 1).

Frankel, D. & Webb, J. (1998). Three Faces of Identity: Ethnicity, Community, and Status in the Cypriot Bronze Age. *Mediterranean Archaeology, 11*, 1-12.

Frankel, D. & Webb, J. (Eds.). (2001a). Excavations at Marki-Alonia 2000. *Report of the Department of Antiquities, 2001*, 15- 44.

Frankel, D. & Webb, J. (2001b). Population, Households, and Ceramic Consumption in a Prehistoric Cypriot Village. *Journal of Field Archaeology, 28*(1/2), 115-129.

Frankel, D. and Webb, J. (2004). An Early Bronze Age shell pendant from Cyprus. *Bulletin of the American Schools of Oriental Research, 336*,.1–9.

Frankel, D., & Webb J. (Eds.). (2006). *Marki Alonia An Early and Middle Bronze Age Settlement In Cyprus: Excavations 1995-2000*. Åströms Förlag(Studies in Mediterranean Archaeology 127, 2).

Frankel, D. & Webb, J. (2012). Pottery production and distribution in prehistoric Bronze Age Cyprus. An application of pXRF analysis. *Journal of Archaeological Science, 39,* 1380-1387.

Frankel, D., Webb J. & Eslick, C. (1996). Anatolia and Cyprus in the Third millennium BCE. A Speculative Model of Interaction. In G. Bunnens (Ed.), *Cultural Interaction in the Ancient Near East* (pp. 37-50). Peeters (Abr Nahrain Supplement 5).

Frankel, D., Keswani, P., Papaconstantinou, D., Peltenburg, E. & Webb, J. (2013a). Stratigraphy in a Non-Tell Archaeological Environment. In E. Peltenburg (Ed.), *Associated Regional Chronologies for the Ancient Near East and the Eastern Mediterranean ARCANE II Cyprus* (pp. 15-38). Brepols Publishers.

Frankel, D., Webb, J. & Pike-Tay, A. (2013b). Seasonality and Site Function in Chalcolithic Cyprus. *European Journal of Archaeology, 16*(1), 94-115.

French, D.H. (1967). Prehistoric Sites in Northwest Anatolia: I. The İznik Area. *Anatolian Studies, 17*, 49-100.

French, D.H. (1998). *Canhasan Sites I: Stratigraphy and Structures*. British Institute at Ankara.

Furumark, A. (1944). The Mycenean IIIC Pottery and its Relation to Cypriot Fabrics. *Opuscula Archaeologica, 3*, 194-265.

Gale, N.H. (1991). Metals and Metallurgy in the Chalcolithic Period. *Bulletin of the American Schools of Oriental Research, 282/283*, 37–61.

Gallay, A. (2012). *Potières du Sahel: A la découverte des traditions céramiques de la boucle du Niger*. Infolio.

Gamble, C. (2008). *Archaeology. The Basics*. Routledge.

Garstang, J. (1937). Explorations in Cilicia: The Neilson Expedition: Preliminary Report. *Liverpool Annals of Archaeology and Anthropology,* 24, 52–64.

Garstang, J. (1938). Explorations in Cilicia. The Neilson Expedition: Preliminary Report II (concluded). *Liverpool Annals of Archaeology and Anthropology, XXV, 1-2*, 12-23.

Garstang, J. (1939). Explorations in Cilicia. The Neilson Expedition: Fourth Interim Report. Parts I and II (concluded). Excavations at Mersin: 193839. *Liverpool Annals of Archaeology and Anthropology, XXVI, 12*, 38-50.

Garstang, J. (1953). *Prehistoric Mersin: Yümük Tepe in Southern Turkey: The Neilson Expedition in Cilicia*. Clarendon Press.

Gates, M.-H., C. Gates, Redford, S. & Asa-Eger, A. (2014): Excavations at Kinet Höyük and Hisn Al-Tinat. In: A. Özfırat &Ç. Uygun (Eds.), *Hatay Arkeolojik Kazı ve Araştırmaları* (pp. 157–171). Mustafa Kemal Üniversitesi.

Gelbert, A. (2003). *Traditions céramiques et emprunts techniques dans la vallée du fleuve Sénégal. Ceramic traditions and technical borrowings in the Senegal River Valley*. Editions de la Maison des sciences de l'homme, Editions Epistèmes.

Georgiou, G. (2007). *The Topography of Human Settlement in Cyprus in the Early and Middle Bronze Ages (*Η Τοπογραφία της Ανθρώπινης Εγκατάστασης στην Κύπρο κατά την Πρώιμη και Μέση Χαλκοκρατία*)* [Unpublished doctoral dissertation]. University of Cyprus.

Given, M. & Knapp, A.B. (2003). *The Sydney Cyprus Survey Project: Social Approaches to Regional Archaeological Survey*. Cotsen Institute of Archaeology (Monumenta Archaeologica 21).

Gjerstad, E. (1926). *Studies in Prehistoric Cyprus*. Uppsala Universitets Arsskrift.

Gjerstad, E. (1934a). *The Swedish Cyprus Expedition I: Finds and Results of the Excavations in Cyprus 1927-1931*. Swedish Cyprus Expedition.

Gjerstad E. (1934b) Cilician Studies. *Revue Archéologique Series 6, No. 3*, 155-205.

Gjerstad, E. (1980). The Origin and Chronology of the Early Bronze Age in Cyprus. *Report of the Department of Antiquities, 1980*, 1-16.

Goldman, H. (Ed.). (1956). *Excavations at Gözlükule, Tarsus from the Neolithic Through the Bronze Age*. Princeton University Press.

Gomez, B., Rautman, M.L., Neff, H. & Glascock, M.D. (1996). Clays Used in the Manufacture of Cypriot Red Slip Pottery and Related Ceramics. *Report of the Department of Antiquities Cyprus, 1996*, 69-82.

Görür, N. (1973). Karaisah Kirectasi'nin (Miyosen) Sedimantolojisi. *Bulletin of the Geological Society of Turkey, 5*(22), 227-232.

Gosden, C. (2004). *Archaeology and Colonialism: Culture Contact from 5000 BC to the Present*. Cambridge University Press.

Gosden, C. (2005). What do objects want? *Journal of Archaeological Method and Theory, 12*(3), 193–211.

Gosselain, O.P. (1992). Bonfire of the enquiries. Pottery firing temperatures in archaeology: What for? *Journal of Archaeological Science*, *19*, 243–259.

Gosselain, O.P. (1998). Social and Technical Identity in a Clay Crystal Ball. In M. T. Stark (Ed.), *The Archaeology of Social Boundaries* (pp. 78-106). Smithsonian Institution Press.

Gosselain, O.P. (2000). Materializing Identities: An African Perspective. *Journal of Archaeological Method and Theory, 7*, 187-217.

Gosselain, O.P. (2008). Mother Bella was not a Bella. Inherited and transformed traditions in Southwestern Niger. In M. Stark, B. Bower, & L. Horne (Eds.), *Cultural transmission and material culture. Breaking down boundaries* (pp. 150–177). Arizona University Press.

Gosselain, O.P. (2018). Pottery Chaînes Opératoires as Historical Documents. In *Oxford Research Encyclopaedia of African History*. DOI: 10.1093/acrefore/9780190277734.013.208

Gosselain, O.P., & Livingstone Smith, A. (2005). The source clay selection and processing practices in sub-Saharan Africa. In A. Livingstone Smith, D. Bosquet, & R. Martineau (Eds.), *Pottery manufacturing processes: Reconstruction and interpretation* (pp. 33–48). Archaeopress (BAR international Series 1349).

Graham, L. (2013). *The Necropolis of Kissonerga-Ammoudhia: Techniques of Ceramic Production in Early-Middle Bronze Age Western Cyprus* [Unpublished doctoral thesis]. University of Edinburgh.

Greaves, A. (2007). Trans-Anatolia: Examining Turkey as a Bridge between East and West. In A. Fletcher & A. Greaves (Eds.), *Trans-Anatolia: Proceedings of a Conference Held at the British Museum 31 March to 1 April 2006* (pp. 1-15). British Institute at Ankara (Anatolian Studies 57).

Grossman, K., Paulette, T., Graham, L. & McCarthy, A. (2018). *Prehistoric Archaeology in the Polis Region: Survey and Geophysics at Makounta-Voules and Stroumpi-Pigi-Agios Andronikos, Cyprus*, paper presented at the 11th International Congress on the Archaeology of the Ancient Near East ICAANE, Munich.

Hadjigavriel, M. (2019). *Connectivity Through Pottery Horizons: Tracing Interactions in Late Chalcolithic Cyprus* [Unpublished master dissertation]. Leiden University.

Hadjigavriel, M. (2021). A Tale of Red and Black: Reconstructing Transfer of Knowledge in Late Chalcolithic Cyprus. *Archaeological Review from Cambridge, 35*(2), 80-97.

Haudricourt, A.G. (1964). La technologie, science humaine. *La Pensée*, *115*, 28–35.

Hazell, C.J., Pound, M.J. & Hocking, E.P. (2022). Response of the Akrotiri Marsh, island of Cyprus, to Bronze Age climate change. *Palaeogeography, Palaeoclimatology, Palaeoecology, 587*, *110788*, 1-14.

Hegmon, M. (1992). Archaeological Research on Style. *Annual Review of Anthropology, 21*, 517-536.

Hein, A., Dobosz, A., Day, P.M., & Kilikoglou, V. (2021). Portable ED-XRF as a tool for optimizing sampling strategy: The case study of a Hellenistic amphora assemblage from Paphos (Cyprus). *Journal of Archaeological Science, 133,* 105436.

Held, S.O. (1989). *Early Prehistoric Island Archaeology in Cyprus: Configurations of Formative Culture Growth from the Pleistocene/Holocene Boundary to the Mid-third Millennium BC* [Unpublished doctoral dissertation]. University College London.

Hennessy, J.B. (1973). Cyprus in the Early Bronze Age. *Australian Journal of Archaeology, 1*, 1-9.

Hennessy, J.B., Eriksson, K.O. & Kehrberg, I.C. (1988). *Ayia Paraskevi and Vasilia: Excavations by J.R.B. Stewart*. Paul Åströms Förlag (Studies in Mediterranean Archaeology 82).

Hodos, T., 2017. Globalisation. Some Basics. An Introduction to The Routledge Handbook of Archaeology and Globalisation. In T. Hodos (Ed.), *The Routledge Handbook of Archaeology and Globalisation* (pp. 3-11). Routledge (Routledge Handbooks).

Holmqvist, E. (2016). Handheld Portable Energy-Dispersive X-Ray Fluorescence Spectrometry (pXRF). In A. Hunt (Ed.), *The Oxford Handbook of Archaeological Ceramic Analysis* (pp. 363-381). Oxford Archaeology Press.

Horden, P. & Purcell, N. (2000). *The Corrupting Sea: A Study of Mediterranean History*. Blackwell.

Horejs, B. (2009). Metalworkers at the Çukuriçi Höyük? An Early Bronze Age Mould and a Near Eastern Weight from Western Anatolia. *Universitaetsforschungen zur Praehistorischen Archaeologie: Metals and Societies, 169*, 358–368.

Horejs, B., Mehofer, M. & Pernicka, E. (2010). Metallhandweker im Frühen 3. Jt. v. Chr. Neue Ergebnisse vom Çukuriçi Höyük. İstanbuler Mitteilungen, *60*, 7–37.

Jablonka, P. (2012). Troy. In E.H. Cline (Ed.), *The Oxford Handbook of Bronze Age Aegean* (pp. 850-862). Oxford University Press (Oxford Handbooks).

Jacobson, L, van der Westhuizen, W.A. & Oosthuysen, J. (2002). SARM 69 Ceramic-1: a new pottery certified reference material for inter- and intra-laboratory calibration. In E. Jerem & K.T. Biró (Eds.), *Proceedings of the 31st International Symposium on Archaeometry, Budapest, 26 April - 3 May 1998* (pp. 585-586). Archaeopress (BAR International Series 1043 (II)).

Jones, R. (1986). *Greek and Cypriot Pottery. A Review of Scientific Studies*. The British School at Athens (Fitch Laboratory Occasional Paper 1).

Jones, S. (1997). *The Archaeology of Ethnicity. Constructing Identities in the Past and Present*. Routledge.

Joukowsky, M.S. (1986). *Prehistoric Aphrodisias I: An Account of the Excavation and Artefact Studies*. Brown University Press.

Karageorghis, V. (1982). *Cyprus from the Bronze Age to the Romans*. Thames and Hudson.

Karageorghis, V. (1987). *The Archaeology of Cyprus: The Ninety Years After Myres.* Thirteenth J.L. Myres Memorial Lecture. Leopard's Head Press.

Karageorghis, V. (1988). *Excavations at Maa-Palaeokastro 1979-1986*. Department of Antiquities of Cyprus.

Karageorghis, V., Marangou, A. & Yon, M. (1999). *Excavating at Salamis in Cyprus 1952- 1974*. A.G. Leventis Foundation..

Kassianidou, V. (2014). Cypriot Copper for the Iron Age World of the Eastern Mediterranean. In J. Webb (Ed.), *Structure, Measurement and Meaning. Studies in Prehistoric Cyprus in Honour of David Frankel* (pp. 261-271). Paul Åströms Förlag (Studies in Mediterranean Archaeology 143).

Kassianidou, V., & Charalambous, A. (2019). Chemical analyses of copper objects and faience beads using portable x-ray fluorescence. In E. J. Peltenburg, D. Bolger, & L. Crewe (Eds.), *Figurine makers of prehistoric Cyprus. Settlement and cemeteries at Souskiou* (pp. 279-86). Oxbow.

Keskin, L. (2011). Metalworking in Western Anatolian Coastal Region during the third Millennium BC. In V. Şahoğlu & P. Sotirakopoulou (Eds.), *Across The Cyclades and Western Anatolia during the third Millennium BC* (pp. 144–52). Sabancı University Sakıp Sabancı Museum.

Keswani, P.S. (1994). The Social Context of Animal Husbandry in Early Agricultural Societies: Ethnographic Insights and an Archaeological Example from Cyprus. *Journal of Anthropological Archaeology, 13*, 255-277.

Keswani, P.S. (2004). *Mortuary Ritual and Society in Bronze Age Cyprus*. Equinox (Monographs in Mediterranean Archaeology).

Keswani, P.S. (2013). Burial practices in third Millennium Cyprus: A chronological overview. In E. Peltenburg (Ed.), *Associated Regional Chronologies for the Ancient Near East and Eastern Mediterranean (ARCANE) Vol. II. Cyprus* (pp. 161-229).: Brepols.

Kirch, P.V. (2015). Ceramics in Archaeology. In J. Wright (Ed.), *International Encyclopedia of the Social and Behavioral Sciences* (pp. 323-326). Elsevier.

Knapp, A.B. (1990). Production, Location and Integration in Bronze Age Cyprus. *Current Anthropology, 31*, 147-176.

Knapp, A.B. (1993). Social complexity: incipience, emergence and development on prehistoric Cyprus. *Bulletin of the American Schools of Oriental Research, 292*, 85–106.

Knapp, A.B. (1994). Emergence, Development and Decline on Bronze Age Cyprus. In C. Mathers & S. Stoddart (Eds.), *Development and Decline in the Mediterranean Bronze Age* (pp. 271-304). John Collis Publications (Sheffield Archaeological Monograph 8).

Knapp, A.B. (2008). *Prehistoric and Protohistoric Cyprus. Identity, Insularity, and Connectivity*. Oxford University Press.

Knapp, A.B. (2013). *The Archaeology of Cyprus: From Earliest Prehistory to the Bronze Age*. Cambridge University Press.

Knapp , A. B. (2018). *Seafaring and seafarers in the bronze age eastern Mediterranean*. Sidestone Press.

Knapp, A. B. (2020). Maritime narratives of Prehistoric Cyprus: Seafaring as everyday practice. *Journal of Maritime Archaeology, 15(4)*, 415-50.

Knapp, A. B. & Cherry, J. F. (1994). *Provenience Studies and Bronze Age Cyprus: Production, Exchange and Politico-Economic Change. Prehistory* (Press Monographs in World Archaeology 21).

Knappett, C. (2011). *An Archaeology of Interaction: Network Perspectives on Material Culture and Society*. Oxford University Press.

Knappett, C. & Kiriatzi, V. (2016). Technological Mobilities: Perspectives from the Eastern Mediterranean -An introduction. In E. Kiriatzi & C. Knappet (Eds.), *Human Mobility and Technological Transfer in the Prehistoric Mediterranean* (pp. 1-17). Cambridge University Press.

Kouka, O. (2000). *Siedlungsorganisation in der Nord- und Ostägäis während der Frühbronzezeit (3. Jt. V.Chr.)*. Marie Leidorf Verlag (Internationale Archäologie 58).

Kouka, O. (2009). Cross-Cultural Links and Elite-Identities: The Eastern Aegean/Western Anatolia and Cyprus from the Early Third to the Early Second Millennium BC. In V. Karageorghis & O. Kouka (Eds.), *Cyprus and the East Aegean: Intercultural Contacts from 3000 to 500 BC* (pp. 31-47). Leventis Foundation.

Kozal, E.& Novák M. (2013). Sirkeli Höyük: A Bronze and Iron Age Urban Settlement in Plain Cilicia. In Ü. Yalcın (Ed*.) Anatolian Metal, Vol. 6* (pp. 229–238). Der Anschnitt Beiheft 25.

Kühne, H. (1976). Die Keramik vom Tell Chuēra und ihre Beziehungen zu Funden aus Syrien-Palästina, der Türkei und dem Iraq. Mann (Vorderasiatische Forschungen der Max Freiherr von Oppenheim-Stiftung 1).

Kuzucuoğlu, C., Döfler, W., Kunesch S. & Goupille, F. (2011). Mid- to late-Holocene Change in Central Turkey: The Tecer Lake Record. *The Holocene, 21*, 173-188.

Laoutari, R. (2023). *There is an Island: Social dynamics and connectivity in Prehistoric Bronze Age Cyprus*. [Unpublished PhD dissertation]. University of Cambridge.

Lave, J. (1991). Situating Learning in Communities of Practice. In L. Resnick, B. Levine, M. John, & S. Teasley (Eds.), *Perspectives on Socially Shared Cognition* (pp. 63-82). American Psychological Association.

Lave, J. & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge University Press.

Le Brun, A. (Ed.), (1994). *Fouilles Récents à Khirokitia (Chypre) 4.* Éditions Recherche sur les Civilisations.

Lechtman, H. (1977). Style in Technology: Some Early Thoughts. In H. Lechtman & R. S. Merrill (Eds.), *Material Culture: Styles, Organization, and Dynamics of Technology* (pp. 3-20). West Publishing Co.

Lehmann, G. (2017). The Late Bronze Age–Iron Age Transition and the Problem of the Sea Peoples Phenomenon in Cilicia. In: P.M. Fischer &T. Bürge (Eds.), '*Sea Peoples' Up-to-Date: New Research on Transformation in the Eastern Mediterranean in the 13th– 11th Centuries BCE* (pp. 229-256). Austrian Academy of Science Press.

Lemonnier, P. (1986). The study of material culture today: toward an anthropology of technical systems. *Journal of Anthropological Archaeology, 5*(2), 147–186.

Lemonnier, P. (1989). Bark Capes, Arrowheads and Concorde: On Social Representations of Technology. In I. Hodder (Ed.), *The Meaning of Things: Material Culture and Symbolic Expression* (pp. 156- 71). Unwin Hyman.

Leroi-Gourhan, A. (1964). *La Geste et La Parole I: Technique et Langage*. Albin Michel.

Livingstone Smith, A. (2000). Processing clay for pottery in northern Cameroon: Social and technical requirements. *Archaeometry, 42*(1), 21–42.

Livingstone Smith, A. (2001). Bonfire II: The Return of Pottery Firing Temperatures. *Journal of Archaeological Science, 28,* 991–1003.

Lloyd, S. (1956). *Early Anatolia*. Penguin Books.

Lloyd, S., & Mellaart, J. (1962). *Beycesultan Volume I: The Chalcolithic and Early Bronze Age Levels*. The British Institute of Archaeology at Ankara.

London, G. (1989a). On Fig Leaves, Itinerant Potters, and Pottery Production Locations. In P. E. McGovern & M. R. Notis (Eds.) *Cyprus in Cross-craft and Cross-cultural Interactions in Ceramics* (pp. 65-80). American Ceramic Society (Ceramics and Civilization 4).

London, G. (1989b). Past Present: The Village Potters in Cyprus. *Biblical Archaeologist, 50*, 219-29.

London, G. (2000). Continuity and Change in Cypriot Pottery Production. *Near Eastern Archaeology, 63*(2), 102 – 110.

London. G. (2002). Women Potters and Craft Specialaization in a Pre-Market Cypriot Economy. In D. Bolger & N. Serwint (Eds.), *Engendering Aphrodite: Women and Society in Ancient Cyprus* (pp. 265-280). American Schools of Oriental Research.

London, G. & Father Dometios. (2015). Heritage Collection of Traditional Pottery in Ayios Demetrios, Cyprus. *Journal of Eastern Mediterranean Archaeology and Heritage Studies, 3*(3), 207-233.

Longacre, W. A. (1991). Sources of ceramic variability among the Kalinga of Northern Luzon. In W. A. Longacre (Ed.), *Ceramic Ethnoarchaeology* (pp. 95–110). The University of Arizona Press.

Makowski, M. (2005). Anthropomorphic figurines of Early Bronze Age Anatolia. *Archeologia*, *56*, 7-30.

Maliszewski, D. (2013). *Chalcolithic and Bronze Age Pottery from the Field Survey in Northwestern Cyprus, 1992-1999*. Archaeopress (British Archaeological Reports International Series 2547).

Manning, S.W. (1993). Prestige, Distinction and Competition: Anatomy of Socio-Economic Complexity in the 4th-2nd Millennium B.C.E. Cyprus. *Bulletin of American School of Oriental Research, 292*, 35-58.

Manning, S.W. (1995). *Absolute Chronology of the Aegean Early Bronze Age: Archaeology, Radiocarbon and History*. Sheffield Academic Press.

Manning, S.W. (2013). Cyprus at 2200 BC: Rethinking the Chronology of the Cypriot Early Bronze Age. In A.B. Knapp, J. Webb & A. McCarthy (Eds.), *J.R.B. Stewart An Archaeological Legacy* (pp. 1-22). Paul Åströms Förlag (Studies in Mediterranean Archaeology 139).

Manning, S.W. (2014). Timing and Gaps in the Early History of Cyprus and its Copper Trade. What this Might Tell Us. In J. Webb (Ed.), *Structure, Measurement and Meaning. Studies in Prehistoric Cyprus in Honour of David Frankel* (pp. 23-41). Paul Åströms Förlag (Studies in Mediterranean Archaeology 143).

Mantzourani, E. & Liritzis, I. (2006). Chemical Analysis of Pottery Samples from Late Neolithic Kantou-Kouphovounos and Sotira-Tepes. *Report of the Department of Antiquities Cyprus, 2006*, 63-76.

Maran, J. (1998). *Kulturwandel auf dem griechischen Festland und den Kykladen in späten 3. Jahrtausend v. Chr*. Habelt.

Marx, K. & Engels, F. (1970)*. The German Ideology*. International Publishers.

Massa, M. (2016). *Networks Before Empires: Cultural Transfers in West and Central Anatolia in the Early Bronze Age* [Unpublished doctoral dissertation]. University College London.

Massa, M. & Şahoğlu, V. (2015). The 4.2 ka BP Climatic Event in West and Central Anatolia: Combining Palaeo-climatic Proxies and Archaeological Data. In H. Meller, H. W. Arz, R. Jung & R. Risch (Eds.), *2200 BC – A Climatic Breakdown as a Cause for the Collapse of the Old World?* (pp. 61-78). Löhnert-Druck (Tangungen des Landesmuseums für Vorgeschichte Halle 12, 1).

Massa, M. & Palmisano, A. (2018). Change and Continuity in the Long-Distance Exchange Networks Between Western/Central Anatolia, Northern Levant and Northern Mesopotamia, c.3200–1600 BCE. *Journal of Anthropological Archaeology, 49*, 65-87.

Massimino, M. G. M. (2019*). A tale of production, circulation and consumption: Metals in Anatolia during the Late Chalcolithic and Early Bronze Age*. Unpublished PhD thesis, Durham University.

Matson, F.R. (1956). Appendix : Techniques of the Early Bronze Age Potters at Tarsus. In Goldman, H. (Ed.), *Excavations at Gözlü Kule, Tarsus II: From the Neolithic through the Bronze Age* (pp. 352-361). Princeton University Press.

Matson, F.R. (1965). *Ceramics and Man.* Aldine (Viking Fund Publications in Anthropology 41).

Mauss, M. (1947). *Manuel d'ethnographie*. Payot.

McCartney, C. & Peltenburg, E. (2000). The Colonization of Cyprus: Questions of Origins and Isolation. *Neolithics, 1*(100), 8-11.

McGuire, R. (1981). A consideration of style in archaeology. *Atlatl* 2, 13–29.

McKechnie, R. (2002). Islands of Indifference. In W.H. Waldren & J.A. Ensenyat (Eds.)*, World Islands in Prehistory. V Deia International Conference of Prehistory* (pp. 127-134). Archaeopress (British Archaeological Reports International Series 1095).

McMahon, G. & Steadman, S. (Eds.). (2011). *The Oxford Handbook of Ancient Anatolia (10,000-323 BCE)*. Oxford University Press (Oxford Handbooks).

Mellaart, J. (1954). Preliminary Report on a Survey of Pre-Classical Remains in Southern Turkey. *Anatolian Studies, 4*, 175–240.

Mellaart, J. (1963). Early Cultures of the South Anatolian Plateau, II: The Late Chalcolithic and Early Bronze Ages in the Konya Plain. *Anatolian Studies, 13*, 199–236.

Mellaart, J. (1967). *Çatal Höyük: A Neolithic Town in Anatolia*. Thames and Hudson.

Mellaart, J. (1970). *Excavations at Hacılar*. Edinburgh University Press.

Mellink, M.J. (1965). Anatolian Archaeology. In R.W. Ehrich (Ed.), *Chronologies in Old World Archaeology* (pp. 101-131). University of Chicago Press.

Mellink, M.J. (1966). Anatolia: Old and New Perspectives. *Proceedings of the Philosophical Society, 100*(2), 111-129.

Mellink, M.J. (1989). Anatolia and Foreign Relations of Tarsus in the Early Bronze Age. In K. Emre, M. Mellink, B. Hruda & N. Özgüç (Eds.), *Anatolia and the Near East. Studies in the Honor of Tahsin Özgüç* (pp. 319–332)*.* Türk Tarih Kurumu.

Mellink, M.J. (1991). Anatolian Contacts with Chalcolithic Cyprus. *Bulletin of the American Schools of Oriental Research, 282-283*, 167-175.

Mellink, M. (1992). Anatolian Chronology. In R.W. Ehrich (Ed.), *Chronologies in Old World Archaeology I, II* (pp. 171–184, 207–220)*.* University of Chicago Press.

Mellink, M.J. (1993). The Anatolian South Coast in the Early Bronze Age: The Cilician Perspective. In M. Frangipane, H. Hauptmann, M. Liverani, P. Matthiae, & M. J. Mellink (Eds.), *Between the Rivers and Over the Mountains: Archaeologica Anatolica et Mesopotamica: Alba Palmieri Dedicata* (pp. 495–508). Dipartimento di Scienze Storiche Archeologiche e Antropologiche dell'Antichità, Università di Roma "La Sapienza."

Miller, H. M.-L. (2007). *Archaeological approaches to technology*. Academic Press.

Mina, M. (2014). Forging Identities: Metallurgical Technology and Embodied Experiences in the Philia

Period. In J.M. Webb (Ed.), *Structure, Measurement and Meaning: Studies on Prehistoric Cyprus in Honour of David Frankel* (pp. 229-243). Åströms Förlag, (Studies in Mediterranean Archaeology 143).

Moutsiou, T. (2018). The obsidian evidence for trans-maritime interactions in the Eastern Mediterranean: The view from Aceramic Neolithic Cyprus. *Journal of Mediterranean Archaeology, 31*(2), 232-251.

Müller-Karpe, M. (1994). *Anatolisches Metallhandwerk*. Wachholtz Verlag.

Murray, M. A. (1998). Archaeobotanical Report. In E. Peltenburg (Ed.), *Lemba Archaeological Project II.1A Excavations at Kissonerga-Mosphilia 1979-1992* (pp. 215-223). Paul Åströms Förlag (Studies in Mediterranean Archaeology 70, 2).

Muti, G. (2022). Through the eye of a needle. A textile perspective on the Chalcolithic–Bronze Age transition in Cyprus. *Near Eastern Archaeology, 85(1),* 24–32.

Myres, J.L. (1914). *Handbook of the Cesnola Collection of Antiquities from Cyprus*. Metropolitan Museum of Art.

Neupert, M. A. (2000). Clays of contention: An ethnoarchaeological study of factionalism and clay composition. *Journal of Archaeological Method and Theory*, *7*(3), 249–272.

Nicolaou, K. (1967). The Distribution of Settlements in Bronze Age Cyprus. *Kypriakai Spoudhai, 31*, 37-52.

Nicolaou, I., & Nicolaou, K. (1988). The Dhenia "Kafkalla" and "Mali" tombs. *Report of the Department of Antiquities Cyprus*, 71-140.

Nieuwenhuyse, O. (2010). A Household Affair? Pottery Production in the Burnit Village at Late Neolithic Tell Sabi Abyad. In D. Bolger & L.C. Maguire (Eds.), *Development of Pre-State Communities in the Ancient Near East* (pp. 97-105). Oxbow Books.

Nieuwenhuyse, O. (2017). The Initial Pottery Neolithic at Tell Sabi Abyad, Northern Syria. In A. Tsuneki, O. Nieuwenhuyse & S. Campbell (Eds.), *The Emergence of Pottery in West Asia* (pp. 17-26). Oxbow Books.

Nocete, F., Álex, E., Nieto, J.M., Sáez, R. & Bayona, M.R. (2005). An Archaeological Approach to Regional Environmental Pollution in the South-Western Iberian Peninsula Related to Third millennium BC Mining and Metallurgy. *Journal of Archaeological Science, 32*(10), 1566-1576.

Nodarou, E. (2017), Appendix X. An Analytical Study of the Pithoi from Alassa. In P. Keswani, S. Hadjisavvas & A. Jacobs (Eds.), *Alassa: Excavations at the Late Bronze Age Sites of Pano Mantilaris and Paliotaverna 1984-2000* (pp. 629-642). Department of Antiquities Cyprus.

Novák, M., D'Agata, A.L., Caneva, I., Eslick, C., Gates, C., Gates, M.-H., Girginer, K. S., Oyman-Girginer, Ö., Jean, É., Köroğlu, G., Kozal, E., Kulemann-Ossen, S., Lehmann, G., Özyar, A., Ozaydın, T., Postgate, J. N., Şahin, F., Ünlü, E., Yağcı, R. & Meier, D.Y. (2017). A Comparative Stratigraphy of Cilicia. *Altorientalische Forschungen, 44*(2), pp. 150-186.

O'Brien, M. J., Lyman, R. L., Mesoudi, A. & Vanpool, T. L. (2010). Cultural traits as units of analysis. *Philosophical Transactions of the Royal Society B Biological Sciences, 365*(1559), 3797-3806.

Orthmann, W. al-Maqdissi, M., & Matthiae, P. (2013). *Archéologie et histoire de la Syrie. Vol. 1: La Syrie de l'époque néolithique à l'âge du fer*. Harrassowitz.

Orton, C. & Hughes, M. (2013). *Pottery in Archaeology.* Cambridge University Press.

Orton, C., Tyers, P. & Vince, A., (1993). *Pottery in archaeology*. Cambridge University Press.

Östborn, P. & Gerding, H. (2014). Network analysis of archaeological data: a systematic approach. *Journal of Archaeological Science, 46*, 75-88.

Özdoğan, M. (2007). Amidst Mesopotamia-centric and Euro-centric Approaches: The Changing Role of the Anatolian Peninsula between the East and the West. In A. *Fletcher* & A. Greaves (Eds.), *Trans-Anatolia: Proceedings of a Conference Held at the British Museum 31 March to 1 April 2006* (pp. 17-24). British Institute at Ankara (Anatolian Studies 57).

Özgen, I, Baughan, E. P., & Ünlü, E. (2021). Hacımusular Höyük in the Early Bronze Age*. American Journal of Archaeology, 125*(4), 603-38.

Özgüç, T. (1945). Öntarihte Anadolu Kronolojisi. *Belleten, 9*, 341-360.

Özgüner, N.P. (2015). *Archaeological Entanglements: People, Places, and Politics of Archaeology in Turkey* [Unpublished doctoral dissertation]. Boston University.

Özyar, A., Ünlü, E., Kaschau, G., Person, C. & Duvarci, S. (2010). Tarsus-Gözlükule 2008 Yılı Kazısı. In Y. Hazirlayanlar, H. Dönmez, C. Keskin, K. Uygulama & N. Çeliktaş (Eds), *31 Kazı Sonuçları Toplantıları 1. Cilt 25-29 Mayıs 2009* (pp. 265-284). İsmail Aygül Ofset Matbaacılık.

Özyar, A., Ünlü, E., Vokaer A. & Pancaroğlu, E. (2017). Recent Fieldwork at Tarsus-Gözlükule. In S. R. Steadman & G. McMahon (Eds.), The Archaeology of Anatolia: Recent Discoveries (2015-2016) (pp. 197-216). Cambridge Scholars Publishing.

Pantazis, T. (1979). *Geological Map of Cyprus Scale 1:250,000*. Geological Survey Department Cyprus.

Papastergiadis, N. (2005). Hybridity and Ambivalence: Places and Flows in Contemporary Art and Culture. *Theory, Culture and Society, 22*, 39-64.

Paraskeva, C. (2015). *Chronology, Topography and Social Change: A Multi-Linear Perspective on the Chalcolithic to Bronze Age Transition in Cyprus Volumes 1-2* [Unpublished doctoral dissertation]. University of Edinburg.

Paraskeva, C. (2017). Disentangling Past Narratives: A Reconsideration of Fyllia (Philia) Drakos Sites B and C. In D. Pilides & M. Mina (Eds.), *Four Decades of Hiatus in Archaeological Research in Cyprus: Towards Restoring the Balance* (pp. 72-91). Verlag Holzhausen GmbH.

Paraskeva, C. (2019). The Middle Chalcolithic to Middle Bronze Age chronology of Cyprus. In C. Kearns & S. W. Manning (Eds.), *New directions in Cypriot archaeology* (pp. 45-74). Cornell University Press.

Parker Pearson, M. (2004). Island Prehistories: A View of Orkney from South Uist. In J.F. Cherry, C. Scarre & S. Shennan (Eds.), *Explaining Social Change: Studies in Honour of Colin Renfrew* (pp. 127-140). McDonald Institute for Archaeological Research.

Peacock, D. P. S. (1970). The scientific analysis of ancient ceramics: A review. *World Archaeology, 1*(3), 375–389. https://doi.org/10.1080/00438243.1970.9979454

Peltenburg, E. (1979). The Prehistory of West Cyprus: Ktima Lowlands. Investigations of 1976-1978. *Report of the Department of Antiquities Cyprus, 1979*, 69-99.

Peltenburg, E. (1982a). Early Copperwork in Cyprus and the Exploitation of Picrolite: Evidence from the Lemba Archaeological Project. In J.D. Muhly, R. Maddin & V. Karageorghis (Eds.), *Early Metallurgy in Cyprus 4000-500 BC* (pp. 41-62). Pierides Foundation.

Peltenburg, E. (1982b). *Recent Developments in the Later Prehistory of Cyprus*. Paul Åströms Förlag.

Peltenburg, E. (Ed.) (1985). *Lemba Archaeological Project I Excavations at Lemba Lakkous 1976-1983*. Paul Åströms Förlag (Studies in Mediterranean Archaeology 70, 1).

Peltenburg, E. (1987). Early faience: Recent studies, origins, and relations with glass. In M. Bimson, & E. C. Freestone (Eds.), *Early vitreous materials* (pp. 5-29). The British Museum.

Peltenburg, E. (1991a). Kissonerga-Mosphilia: A Major Chalcolithic Site in Cyprus. *Bulletin of the American Schools of Oriental Research, 282/283*, 17-35.

Peltenburg, E. (1991b). *Lemba Archaeological Project II:2 A Ceremonial Area at Kissonerga*. Paul Åströms Förlag (Studies in Mediterranean Archaeology 70, 3).

Peltenburg, E. (1991c). Towards a Definition of the Late Chalcolithic in Cyprus: The Monochrome Pottery Debate. In J. Barlow, D. Bolger, & B. Kling (Eds.), *Cypriot Ceramics: Reading the Prehistoric Record* (pp. 9-20). University of Pennsylvania.

Peltenburg, E.(1993). Settlement discontinuity and resistance to complexity in Cyprus, ca. 4500–2500 BC. *Bulletin of the American Schools of Oriental Research, 292,* 9–23.

Peltenburg, E. (1994). Constructing authority: the Vounous enclosure model. *Opuscula Atheniensia, 20,* 157–162.

Peltenburg, E. (1996). From isolation to state formation in Cyprus, c. 3500–1500 BC. In V. Karageorghis & D. Michaelides (Eds.), *The Development of the Cypriot Economy* (pp. 17-44). University of Cyprus and Bank of Cyprus.

Peltenburg, E. (Ed.) (1998). *Lemba Archaeological Project II.1A Excavations at Kissonerga-Mosphilia 1979-1992*. Paul Åströms Förlag (Studies in Mediterranean Archaeology 70, 2).

Peltenburg, E. (Ed.) (2003). *Lemba Archaeological Project III:1 The Colonisation and Settlement of Cyprus: Investigations at Kissonerga-Mylouthkia* 1976-1996. Paul Åströms Förlag (Studies in Mediterranean Archaeology 70, 4).

Peltenburg, E. (Ed.) (2006). *The Chalcolithic Cemetery at Souskiou-Vathyrkakas, Cyprus. Investigations of Four Missions from 1950 to 1997*. Department of Antiquities Cyprus.

Peltenburg, E. (2007). East Mediterranean Interactions in the third Millennium BC. In S. Antoniadou & A. Pace (Eds.), *Mediterranean Crossroads* (pp. 141-160). Pierides Foundation.

Peltenburg, E. (2011). Cypriot Chalcolithic metalwork. In P. P. Betancourt & S. C. Ferrence (Eds.), *Metallurgy: Understanding how, learning why. Studies in honor of James D. Muhly* (pp. 3-10). INSTAP.

Peltenburg, E. (Ed.). (2013). *Associated Regional Chronologies for the Ancient Near East and the Eastern Mediterranean ARCANE II Cyprus*. Brepols Publishers.

Peltenburg, E. (2014). Cyprus During the Chalcolithic Period. In A. E. Killebrew & M. Steiner (Eds.), *The Oxford Handbook of the Archaeology of the Levant c. 8000-332 BCE* (pp. 252-266). Oxford University Press.

Peltenburg, E. (2018). The Entry of Cyprus Into the Circum-Aegean World and the Growth of Regionalism on the Island. In S. Dietz, F. Mavridis, Ž. Tankosić, & T. Takaoğlu (Eds.), *Communities in Transition: The Circum-Aegean Area in the 5th and 4th Millennia BC* (pp. 458-467). Oxbow Books.

Peltenburg, E., Bolger, D. & Crewe, L. (Eds.) (2019). *Figurine Makers of Prehistoric Cyprus: Settlement and Cemeteries at Souskiou*. Oxbow Books.

Pfaffenberger, B. (1988). Fetishized Objects and Humanized Nature: Toward an Anthropology of Technology. *Man*, *23*(2), 236–52.

Pfaffenberger, B. (1992). Social Anthropology of Technology. *Annual Review of Anthropology, 21*, 491–516.

Pfaffenberger, B. (2001). Symbols Do Not Create Meanings Activities Do: (Or Why Symbolic Anthropology Needs the Anthropology of Technology). In M.B. Schiffer (Ed.). *Perspectives on the Anthropology of Technology* (pp. 77-86). University of Arizona Press.

Philip, G., Clogg, P.W. Dungworth, D. & Stos, S. (2003). Copper Metallurgy in the Jordan Valley from the Third to the First Millennia BC: Chemical Metalographic and Lead Isotope Analyses of Artefacts from Pella. *Levant, 35*, 71–100.

Plog, F. & Steadman, U. (1989). Productive specialisation, Archaeometry, and interpretation. In: Bronitsky, G. (Ed.), *Pottery technology. Ideas and approaches* (pp. 207-215). Westview Press.

Postgate, J.N. & Thomas, D.C. (2007). *Excavations at Kilise Tepe, 1994–98: From Bronze Age to Byzantine in Western Cilicia*. British Institute at Ankara (BIAA Monograph 30).

Prezioso, E. (2021). Fleeing from categories: monstrous artefacts and style in archaeology. In C. Nirta & A. Pavoni (Eds.), *Monstrous Ontologies. Politics, Ethics, Materiality* (pp. 169-192). Vernon Press.

Quinn, P.S. (2013). *Ceramic Petrography. The Interpretation of Archaeological Pottery & Related Artefacts in Thin Section.* Archaeopress.

Quinn, P.S. (2022). *Thin Section Petrography, Geochemistry and Scanning Electron Microscopy of Archaeological Ceramics*. Archaeopress.

Rainbird, P. (1999). Islands Out of Time: Towards a Critique of Island Archaeology. *Journal of Mediterranean Archaeology, 12*(216-234), 259-260.

Rainbird, P. (2007). *The Archaeology of Islands*. Cambridge University Press.

Rambach, J. (2000)*. Kykladen I: Die Frü hebronzezeit. Grab-und Siedlungsbefunde*. Verlag Dr. Rudolf Habelt.

Rankin, M. (1997). *Burials and Social Structures in Early Bronze Age Anatolia* [Unpublished masters dissertation]. University of Melbourne.

Read, D. W. (2018). Archaeological classification. In S.L. López Varela (Ed.), *The Encyclopedia of Archaeological Sciences* (pp. 1-4). John Wiley & Sons.

Renfrew, C. (2004). Islands Out of Time? Towards an Analytical Framework. In S.M. Fitzpatrick (Ed.), *Voyages of Discovery: The Archaeology of Islands* (pp. 275-294). Praeger.

Renfrew, C. & Bahn, P. (2001). *Archaeology: Theories, Methods and Practice*. Thames and Hudson Ltd.

Rice, P. M. (1987). *Pottery analysis. A sourcebook*. University of Chicago Press.

Rice, P. M., Adams, W. Y., Ball, J. W., Davis, W. M., Earle, T., Fry, R. E., Hodder, I., Joesink-Mandeville, L. R. V., Kolb, C. C., Nishimura, M., Kojo, Y., Dorado, M. R., Stark, B. L., & Van Der Leeuw, S. E. (1981). Evolution of Specialized Pottery Production: A Trial Model [and Comments and Reply]. *Current Anthropology, 22(3),* 219–240.

Roberts, N., Brayshaw, D.J., Kuzucuoğlu, C., Perez, R. & Sadori, L. (2011). The mid-Holocene Climatic Transition in the Mediterranean: Causes and Consequences. *The Holocene, 21*, 3-13.

Robertson, A. (1989). *Thin-section report on Chalcolithic pottery from the Lemba Archaeological Project* [Unpublished report]. University of Edinburgh.

Roux, V. (2016). Ceramic Manufacture: The Chaîne Opératoire Approach. In A.M.W. Hunt (Ed.), *The Oxford Handbook of Archaeological Ceramic Analysis* (pp. 101-113). Oxford University Press.

Roux, V. (2019). *Ceramics and Society. A Technological Approach to Assemblages*. Springer.

Roux, V. (2020). Chaine Opératoire, Technological Networks and Social Interpretations*. CPAG, 30*, 15-34.

Roux, V., Bril, B., Cauliez, J., Goujon, A.-L., Lara, C., Manen, C., de Saulieu, G., & Zangato, E. (2017). Persisting technological boundaries: Social interactions, cognitive correlations and polarization. *Journal of Anthropological Archaeology*, *48*, 320–335.

Rutter, J.B. (1979). *Ceramic Change in the Aegean Early Bronze Age. The Kastri Group, Lefkandi I and Lerna IV: A Theory Concerning the Origin of Early Helladic III Ceramics*. Institute of Archaeology University of Carolina.

Rowan, Y.M. & Golden, J. (2009). The Chalcolithic Period of the Southern Levant: A Synthetic Review. *Journal of World Prehistory, 22*, 1-92.

Rye, O.S. (1981). *Pottery Technology. Principles and Reconstruction*. Taraxacum.

Sackett, J.R. (1977). The Meaning of Style in Archaeology: A General Model. *American Antiquity, 42*(3), 369-380.

Sackett, J.R. (1982). Approaches to Style in Lithic Archaeology. *Journal of Anthropological Archaeology, 1*(1), 59-112.

Sackett, J.R. (1990). Style and Ethnicity in Archaeology: The Case for Isochrestism. In M.W. Conkey & C. A. Hastorf (Eds.), *The Uses of Style in Archaeology* (pp. 32-43). Cambridge University Press.

Sagona, A.G. & Zimansky, P. (2009). *Ancient Turkey*. Routledge (Routledge World Archaeology).

Şahin, S., Bdke, N. Yalcin, N. & Mengeloglu, K. (2003). *icel Hi Jeolojik Ozellikleri Adana*. Maden Tetkik Arama Genel Mudurlugu, Dogu Akdeniz Bolge Mudurlugu

Şahoğlu, V. (2005). The Anatolian Trade Network and the Izmir Region During the Early Bronze Age. *Oxford Journal of Archaeology, 24*, 339-361.

Şahoğlu, V. (2014). The Depas and the Tankard Vessels. In M. Lebeau (Ed.), *Associated Regional Chronologies for the Ancient Near East and the Eastern Mediterranean ARCANE INTEREGIONAL I CERAMICS* (pp. 289-311). Brepols.

Şahoğlu, V. (2019). The Early Bronze Age Anatolian Trade Network and Its Role on the Transformation of the Anatolian and Aegean Communities. In V. Şahoğlu, M. Şevketoğlu & Y.H. Erbil (Eds.), *Connecting Cultures: Trade and Interconnections in the Ancient Near East from the Beginning until the End of the Roman Period* (pp. 115-131). Ankara Üniversitesi (Anatolia Supplement Series I.4).

Sanz, I.D. & Fiore D. (2014). Style: its role in the archaeology of art. In C. Smith (Ed.), *Encyclopedia of Global Archaeology* (pp.7104-7111). Springer.

Sari, D. (2021). The figurine/idol types of western Anatolia in the Early Bronze Age and their relationship with cultural regions. In L. K. Harrison, A. N. Bilgen, & A. Kapuci (Eds.), *The Early Bronze Age in Western Anatolia* (pp. 97-109). SUNY Press.

Schmid, S.G., & Horacek, S.G. (2018). Idalion. In S.G. Schmid & S.G. Horacek (Eds.), *"I Don't Know What Am I Myself, It Is So Very Difficult to Explain." Max Ohnefalsch-Richter (1850–1917) Und Die Archäologie Zyperns*. Logos Verlag Berlin (Studia Cyprologica Berolinensia 1).

Seeher, J. (2000). *Die Bronzezeitlichen Nekropole von Demircihöyük-Sariket*. Ernst Wasmuth Verlag.

Şerifoğlu, T. E. (2019). Kilise Tepe in Rough Cilicia before the Late Bronze Age: An Overview of the Architecture, Pottery Traditions and Cultural Contacts. *Adalya, 22*, 69-100.

Seton-Williams, M.V. (1954). Cilician Survey. *Anatolian Studies, 4*, 121–174.

Şevketoğlu, M. (2000). *Archaeological Field Survey of the Neolithic and Chalcolithic Settlement Sites in Kyrenia District, North Cyprus. Systematic Surface Collection and the Interpretation of Artefact Scatters*. Archaeopress (British Archaeological Reports International Series 834).

Shennan, S. (1997). *Quantifying Archaeology*. Edinburgh University Press.

Shoval, S. Gaft, M., Beck, P., & Kirsh, Y. (1993). Thermal behaviour of limestone and monocrystalline calcite tempers during firing and their use in ancient vessels. *Journal of Thermal Analysis, 40*, 263-273.

Sillar, B. &. Tite, M.S. (2000). The Challenge of 'Technological Choices' for Materials Science Approaches in Archaeology. *Archaeometry, 42*(1), 2-20.

Sjöqvist, E. (1940). *Problems of the Late Cypriote Bronze Age*. Swedish Cyprus Expedition.

Smith, S.T. (1998). Nubia and Egypt: Interaction, Acculturation, and Secondary State Formation from the Third to the First Millennium BC. In J.G. Cusick (Ed.), *Studies in Culture Contact: Interaction, Culture Change and Archaeology* (pp. 256-287). Southern Illinois University Press (Centre for Archaeological Investigations Occasional Paper 25).

Sorresso, D.C. & Quinn, P.S. (2020). Re-examining shell-tempered Chickasaw pottery in post-contact Mississippi, USA. *Journal of Archaeological Science: Reports, 32*, 102415.

Sotirakopoulou, P. (1993). The Chronology of the Kastri Group Reconsidered. *The Annual of the British School at Athens, 88*, 5–20.

Stanley-Price, N.P. (1979). *Early Prehistoric Settlement in Cyprus 6500-3000 BC*. Archaeopress (British Archaeological Reports International Series S65).

Stark, M. T. (1999). Social Dimensions of Technical Choice in Kalinga Ceramic Traditions. In . E. S. Chilton (Ed.), *Material Meanings: Critical Approaches to the Interpretation of Material Culture* (pp. 24-43). University of Utah.

Steadman, S. (1994*). Isolation vs. interaction: Prehistoric Cilicia and its role in the Near Eastern world system* [Unpublished PhD dissertation]. University of California, Berkeley.

Steadman, S. (2011). The Early Bronze Age on the Plateau. In G. McMahon & S. Steadman (Eds.), *The Oxford Handbook of Ancient Anatolia (10,000-323 BCE)* (pp. 230-260). Oxford University Press (Oxford Handbooks).

Steel, L. (2004). *Cyprus Before History: From the Earliest Settlers to the End of Bronze Age*. Duckworth.

Stephen, F. M. K. (1998). Red Polished (Philia) Ware Analysis. In Peltenburg, E. (Ed.), *Lemba Archaeological Project II.1A Excavations at Kissonerga-Mosphilia 1979-1992* (pp. 141-144). Paul Åströms Förlag (Studies in Mediterranean Archaeology 70, 2).

Stewart, J.D. (1985). Ceramics. In E. Peltenburg (Ed.), *Lemba Archaeological Project I Excavations at Lemba Lakkous 1976-1983* (pp. 59-69, 154-160, 249-270). Paul Åströms Förlag (Studies in Mediterranean Archaeology 70, 1).

Stewart, J. R. (1957). The Melbourne Cyprus Expedition, 1955. *University of Melbourne Gazette, 13*,

Stewart, J.R. (1962). The Early Cypriote Bronze Age. In P. Dikaios & J.R. Stewart (Eds.), *The Stone Age and the Early Bronze Age in Cyprus* (pp. 205-401). Swedish Cyprus Expedition (Swedish Cyprus Expedition IV:1A).

Stos-Gale, Z. & Gale, N. (2003). Lead Isotopic and Other Isotopic Research in the Aegean. In K. Foster & R. Laffineur (Eds.), *Metron. Measuring the Aegean Bronze Age* (pp. 83-100). Liege University Press.

Swiny, S. (1986). The Philia Culture and its foreign relations. In V. Karageorghis (Ed.), *Acts of the International Archaeological Symposium: Cyprus between Orient and Occident* (pp. 29-44). Department of Antiquities Cyprus.

Swiny, S. (1997). The Early Bronze Age. In T. Papadopoulos (Ed.), *A History of Cyprus I* (pp. 171-212). Archbishop Makarios III Foundation.

Swiny, S., Rupp, G. & Herscher, E. (Eds.) (2003). *Sotira Kaminoudhia: An Early Bronze Age Site in Cyprus*. American School of Oriental Research (American School of Oriental Research Archaeological Reports 8. Cyprus American Archaeological Research Institute Monograph 4).

Texier, C. (1839). *Description de l'Asie Mineure : Faite Par Ordre du Gouvernement Français en 1833–1837 I.* Didot Frères.

Tite, M.S. (2008). Ceramic Production, Provenance and Use – A review. *Archaeometry*, *50*(2), 216-231.

Tite, M.S. (2016). History of Scientific Research. In A.M. W Hunt (Ed.), *The Oxford Handbook of Archaeological Ceramic Analysis* (pp. 7-15). Oxford University Press.

Tite, M. & Kilikoglou, V. (2002). Do we understand cooking pots and is there an ideal cooking pot? In V. Kilikoglou, A. Hein & Y. Maniatis (Eds.). *Modern Trends in scientific studies on ancient ceramics. Papers presented at the 5th European meeting on ancient ceramics, Athens 1999* (pp. 1-8). Archaeopress (BAR International series 1011).

Tite, M. S., Kilikoglou, V. & Vekinis, G. (2001). Review article. Strength, toughness and thermal shock resistance of ancient ceramics, and their influence on technological choice. *Archaeometry*, *43*(3), 301-324.

Todd, I.A. (1987). *Excavations at Kalavassos-Tenta I. Vasilikos Valley Project 6*. Paul Åströms Förlag (Studies in Mediterranean Archaeology 71,6).

Todd, I.A. (2001). Kalavassos-Tenta revisited. In S. Swiny (Ed.), *The Earliest Prehistory of Cyprus. From Colonization to Exploitation* (pp. 95-107). American Schools of Oriental Research (Cyprus American Archaeological Research Institute Monograph 2).

Todd, I.A. & Croft, P. (2004). *Excavations at Kalavassos-Ayious. Vasilikos Valley Project 8*. Paul Åströms Förlag (Studies in Mediterranean Archaeology 71, 8).

Todd, I.A., Hadjicosti, M., Xenophontos, E. & Herscher, E. (1991). Excavations at Sanidha 1990. *Report of the Department of Antiquities, Cyprus, 1991*, 37-74.

Todd, I.A., Pilides, E., Hadjicosti, M. & Smith, J.S. (1992). Excavations at Sanidha 1991. *Report of the Department of Antiquities, Cyprus*, *1992*, 75-112.

Tomilson, J. (1999). *Globalization and Culture*. University of Chicago Press.

Tschegg, C., Hein, I. & Ntaflos, T. (2008). State of the Art Multi-Analytical Geoscientific Approach to Identify Cypriot Bichrome Wheelmade Ware Reproduction in the Eastern Nile delta (Egypt). *Journal of Archaeological Science, 35*, 1134-1147.

Tuncel, R., & Şahoğlu, V. (2019). Third-millenium BC anthropomorphic figurines of western Anatolia, A comparative view. Towards a better understanding of the origins and meanings of Cycladic figurines. In M. Marthari, C. Renfrew & M. J. Boyd (Eds.), *Beyond the Cyclades. Early Cycladic sculpture in context from mainland Greece, the North and East Aegean* (pp. 250-64). Oxbow Books.

Türktüzün, M., Ünan, S., & Ünal, S. (2014). Çiledir Höyük erken tunç çağı bulgulari (early bronze age II findiungs at Çiledir Höyük). *Türk Arkeloji Bilim Adamlar Arkeoji Dergesi (TÜBA-AR), 17*, 49-72.

Tykot, R.H. (2016). Using Nondestructive Portable X-ray Fluorescence Spectrometers on Stone, Ceramics, Metals, and Other Materials in Museums: Advantages and Limitations. *Applied Spectroscopy*, *70*(1), 42-56.

Ünlü, E. (2009). *Technological and Stylistic Evaluation of the Early Bronze Age Pottery at Tarsus-Gözlükule, Turkey: Pottery Production and its Interaction with Economic, Social, and Cultural Spheres* [Unpublished doctoral dissertation]. University of Pennsylvania.

Ünlü, E. (2011). A Tale of Two Potting Traditions: Technological Assessment of the Light Clay and the Red Gritty Ware Types at Tarsus-Gözlükule (Cilicia-Turkey) at the Beginning of the Third Millennium B.C. *Bulletin of American School of Oriental Research*, 362, 1-20.

Ünlü, E. (2016). The Handle Wagging the Cup. Formal Aspects of Alcohol Consumption in the Transfer of Ideology: Anatolia and the Aegean Towards the End of the Third Millennium BC. *Oxford Journal of Archaeology, 35*(4), 345-358.

Üre, P. (2014). *Byzantine Heritage, Archaeology, and Politics Between Russia and the Ottoman Empire: Russian Archaeological Institute in Constantinople (1894-1914)* [Unpublished doctoral dissertation]. London School of Economics and Political Science.

Usta, D. & Beyazcicek, H. (2006). *Adana ilinin Jeolojisi.* In Maden Tetkik Arama Genel Mudurlugu, Dogu Akdeniz Bolge Mudurlugu, Adana.

Vagnetti, L. (1979). Two steatite figurines of Anatolian type in Chalcolithic Cyprus. *Report of the Department of Antiquities Cyprus,* 112-114.

van der Leeuw, S. (1993). Giving the potter a choice. Conceptual aspects of pottery techniques. In P. Lemonnier (Ed.), *Technological Choices: Transformation in material cultures since the Neolithic* (pp. 238-288). Routledge.

van Dommelen, P. (1998). *On Colonial Grounds: A Comparative Study of Colonialism and Rural Settlement in the First Millennium BC West Central Sardinia*. Faculty of Archaeology Leiden University.

van Dommelen, P. (2005). Colonial Interactions and Hybrid Practices: Phoenician and Carthaginian Settlement in the Ancient Mediterranean. In G.J. Stein (Ed.), *The Archaeology of Colonial Encounters* (pp. 109-141). School of American Research Press.

van Dommelen, P. & Knapp, A.B. (2010). *Material Connections in the Ancient Mediterranean: Mobility, Materiality and Identity*. Cambridge University Press.

Van Zeist, W. & Bottema, S. (1991). *Late Quaternary Vegetation of the Near East*. L. Reichert (TübingerAtlas des Vorderen Orients A 18).

Vaughan, S., (2003). Chapter 5: Petrographic analysis of pottery from Sotira. In S. Swiny, G. Rapp & E. Herscher (Eds.), *Sotira Kaminoudhia. An Early Bronze Age site in Cyprus* (pp. 211-219). American Schools of Oriental Research Archaeological Reports (CAARI Monograph Series, Volume 4).

Vermeule, E. T. & Wolsky, F. Z. (1990). *Toumba tou Skourou. A Bronze Age Potters' Quarter on Morphou Bay in Cyprus*. Harvard University Museum of Fine Arts (Boston Cyprus Expedition).

Vigne, J.-D., Briois, F., Zazzo, A., Willcox, G., Cucchi, T., Thiébault, S., Carrère, I., Franel, Y., Touquet, R., Martin, C., Moreau, C., Comby, C., & Guilaine, J. (2012). First wave of cultivators spread to Cyprus at least 10,600 y ago. *Proceedings of The National Academy of Sciences, 109*(22), 8445.

Vogiatzopoulos, S. (2023). *Chalcolithic Pottery "on the rocks". Petrography of Red-on-White, Plain White and Red Monochrome wares from Chlorakas-Palloures, Cyprus: A Pilot Study* [Unpublished master dissertation]. Leiden University.

Walker, M.J.C., Berkelhammer, M., Björk, S., Cwynar, L.C., Fisher, D.A., Long, A.J., Lowe, J.J., Newham, R.M., Rasmussen, S.O. & Weiss, H. (2012). Formal Subdivision of the Holocene Series/

Epoch: A Discussion Paper by a Working Group of INTIMATE (Integration of Ice-Core, Marine and Terrestrial Records) and the Subcommission on Quaternary Stratigraphy (International Commission on Stratigraphy). *Journal of Quaternary Science, 27*, 649-659.

Wallace, S. (1995). *Recognising Change in Systems of Prehistoric Ceramic Production: A Statistical Approach to Identifying Standardisation in Ceramic Attributes, Applied at Kissonerga-Mosphilia Cyprus* [Unpublished master dissertation]. University of Edinburgh.

Walsh-Kennedy, S., Aksu, A.E., Hall, J., Hiscott, R.N., Yaltırak, C. & Çifçi, G. (2014). Source to sink: The development of the latest Messinian to Pliocene–Quaternary Cilicia and Adana Basins and their linkages with the onland Mut Basin, eastern Mediterranean. Tectonophysics (2014), http://dx.doi.org/10.1016/j.tecto.2014.01.019

Webb, J. (1994). Techniques of Pottery Manufacture at Marki Alonia. *Archaeologia Cypria, III*, 12–21.

Webb, J. (2002a). New Evidence for the Origins of Textile Production in Bronze Age Cyprus. *Antiquity, 76*, 364-371.

Webb, J. (2002b). Engendering the built environment: household and community in prehistoric Bronze Age Cyprus. In D. Bolger & N. Serwint (Eds.), *Engendering Aphrodite: Women and Society in Ancient Cyprus* (pp.87-101). American Schools of Oriental Research.

Webb, J. (2013a). The Mantle of Vasilia': Have Stewart's Views on the Centrality of the Copper Trade in Prehistoric Bronze Age Cyprus Stood the Test of Time?. In A.B. Knapp, J. Webb, & C. McCarthy (Eds.), *J.R.B. Stewart: An Archaeological Legacy* (pp. 59-71). Paul Åströms Förlag (Studies in Mediterranean Archaeology 139).

Webb, J. (2013b). Changing Technological and Social Environments in the Second Half of the Third Millennium BC. In D. Frankel & J. Webb (Eds.), *Archaeology in Environment and Technology: Intersections and Transformations* (pp. 135-148). Routledge.

Webb, J. (2018). Shifting centres: Site location and resource procurement on the North Coast of Cyprus over the longue durée of the Prehistoric Bronze Age. *Land, 7*(2), 64. http://www.mdpi.com/2073-445X/7/2/64

Webb, J. M. (2022). Cyprus's external connections in the prehistoric Bronze Age. In S. W. Manning (Ed.), *Critical approaches to Cypriot and wider Mediterranean archaeology* (pp. 27-42). Equinox

Webb, J. & Frankel, D. (1999). Characterizing the Philia Facies: Material Culture, Chronology, and the Origin of the Bronze Age in Cyprus. *American Journal of Archaeology, 103*(1), 3-43.

Webb, J. & Frankel, D. (2007). Identifying Population Movements by Everyday Practice: The Case of third Millennium Cyprus. In S. Antoniadou & A. Pace (Eds.), *Mediterranean Crossroads* (pp. 189-216). Pierides Foundation.

Webb, J. & Frankel, D. (2008). Fine Ware Ceramics, Consumption and Commensality: Mechanisms of Horizontal and Vertical Integration in Early Bronze Age Cyprus. In L.A. Hitchcock, R. Laiffineur & J. Crowley (Eds.), *Dais. The Aegean Feast* (pp. 287-296). Université de Liège and University of Texas (Aegaeum 29).

Webb, J. & Frankel, D. (2011). Hearth and Home as Identifiers of Community in Mid-Third Millennium Cyprus. In V. Karageorghis & O. Kouka (Eds.), *On Cooking Pots, Drinking Cups, Loomweights and Ethnicity in Bronze Age Cyprus and Neighbouring Regions* (pp. 29-42). A.G. Leventis Foundation.

Webb, J. & Frankel, D. (2013a). Cultural Regionalism and Divergent Social Trajectories in Early Bronze Age Cyprus. *American Journal of Archaeology, 117*, 59-81.

Webb, J. & Frankel, D. (2013b). Cultural regionalism and divergent social trajectories in Early Bronze Age Cyprus. *American Journal of Archaeology, 117(1),* 59–81.

Webb, J., Frankel, D., Stos, Z.S. & Gale, N. (2006). Early Bronze Age Metal Trade in the Eastern Mediterranean. New Compositional and Lead Isotope Evidence from Cyprus. *Oxford Journal of Archaeology, 25*(3), 261-288.

Webb, J., Frankel, D., Croft, P. & McCartney, C. (2009a). Excavations at Politiko-Kokkinorotsos. A Chalcolithic Hunting Station in Cyprus. *Proceedings of the Prehistoric Society, 75*, 189-237.

Webb, J., Frankel, D., Eriksson, K.O. & Hennessy, J.B. (2009b). The Bronze Age Cemeteries at Karmi Palealona and Lapatsa in Cyprus. Excavations by J.R.B. Stewart. Sävedalen: Paul Åströms Förlag (Studies in Mediterranean Archaeology 136).

Wenger, E. (1998). *Communities of Practice. Learning, Meaning, and Identity*. Cambridge University Press.

Weisman, R. M. (1996). Appendix 7: Petrographic Analyses of Pottery from Alambra. In J.E. Coleman, J.A. Barlow, M.K. Mogelonsky & K.W. Schaar (Eds.), *Alambra. A Middle Bronze Age Settlement in Cyprus. Archaeological investigations by Cornell University 1974-1985* (pp. 447-473). Paul Åströms Förlag (Studies in Mediterranean Archaeology 118).

Weiss, H. (2015). Megadrought, Collapse and Resilience in Late third Millennium BC Mesopotamia. In H. Meller, H. W. Arz, R. Jung & R. Risch (Eds.), *2200 BC – A Climatic Breakdown as a Cause for the Collapse of the Old World?* (pp. 35-52). Löhnert-Druck (Tangungen des Landesmuseums für Vorgeschichte Halle 12/1).

Whitbread, I. K. (1986). The characterisation of argillaceous inclusions in ceramic thin sections. *Archaeometry*, *28*(1), 79-88.

Whitbread, I.K. (1995). *Greek Transport Amphorae A Petrological and Archaeological Study*. The British School at Athens (Fitch Laboratory Occasional Paper 4).

Whitbread, I.K. (2015). Materials choices in utilitarian pottery: Kitchen wares in the Berbati valley, Greece. In M. Spataro & A. Villing (Eds.), *Ceramics, Cuisine and Culture* (pp. 28–36). Oxbow Books.

White, L. A. (1959). *The Evolution of Culture.* McGraw-Hill.

Wilke, D. (2017). Some updated quality concerns on non-destructive geochemical analysis with XRF spectrometry. *Advances in Applied Sciences Research, 8*, 90-94.

Wilkinson, T. (2014). The Early Transcaucasian Phenomenon in Structural-Systemic Perspective: Cuisine, Craft and Economy. *Paléorient, 40*(2), 203-229.

Wilson, D.E. (1999*). Keos IX. Ayia Irini: Periods I–III, the Neolithic and Early Bronze Age Settlements. Part 1: Pottery and Small Finds*. Philipp von Zabem Verlag.

Winkelmann, C. (2020). *The Neolithic and Chalcolithic figurines of Cyprus*. Zaphon.

Whittemore, T. (1943). Archaeology During the Republic in Turkey. *American Journal of Archaeology, 47*(2), 164-170.

Wobst, M.H. (1977). Stylistic Behavior and Information Exchange. In C.E. Cleland (Ed.), *Papers for the Director: Research Essays in Honor of James B. Griffin* (pp. 317-342). University of Michigan and Museum of Anthropology (Anthropological Papers 61).

Xenophontos, C., Pilides, D. & Malpas, J.G. (2000). Appendix 1. Petrographic Analysis of Late Bronze Age Pithoi from Cyprus. In D. Pilides (Ed.), *Pithoi of the Late Bronze Age in Cyprus. Types from the Major Sites of the Period* (pp. 167-181). Department of Antiquities of Cyprus.

Yakar, J. (1985). *The Later Prehistory of Anatolia: The Late Chalcolithic and Early Bronze Age*. Archaeopress (British Archaeological Reports International Series 268).

Yakar, J. (2011). Anatolian Chronology and Terminology. In G. McMahon & S. Steadman (Eds.), *The Oxford Handbook of Ancient Anatolia (10,000-323 BCE)* (pp. 56-94). Oxford University Press (Oxford Handbooks).

Yalçın, Ü. (2013). Anadolu Madenciliği. In P. Ayter, Ş. Demirci & A.M. Özer (Eds*.), ODTÜ III. Arkeometri Çalısţayı, Türkiye, Arkeolojisinde Metal: Arkeolojik ve 12 Arkeometrik Çalısmţalar* (pp. 17-28). ODTÜ Arkeometri Anabilim Dalı.

Yazıcıoğlu, G.B. (2007). Archaeological Politics of Anatolia: Imaginative Identity of an Imaginative Geography. In L.M. Popova, C.W. Hartley & A.T. Smith (Eds.), *Social Orders and Social Landscapes* (pp. 218-250). Cambridge Scholars Publishing.

Yener, K.A. (Ed.). (2021). *Göltepe Excavations. Tin Production at an Early Bronze Age Mining Town in the Central Taurus Mountains, Turkey*. INSTAP Academic Press (Prehistory Monographs 64).

Young, R. (2003). *Postcolonialism. A Very Short Introduction*. Oxford University Press.

Zimmermann, T. (2007). Anatolia and the Balkans, once again - Ring-shaped idols from Western Asia and a critical reassessment of some ‘Early Bronze Age’ items from Ikiztepe, Turkey. *Oxford Journal of Archaeology, 26*(1), 25-33.

Zomeni, Z. (2019). From Stone to Object: The Geology of Cyprus. In R.B. Halbertsma & D. Pilides (Eds.), *Cyprus A Dynamic Island* (pp. 23-28). Sidestone Press.

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Appendix I: Abbreviations

MChal = Middle Chalcolithic

LChal = Late Chalcolithic

EB = Early Bronze Age

CP = Chlorakas-*Palloures*

KM = Kissonerga-*Mosphilia*

AG = Ambelikou-*Agios Georghios*

PK = Politiko-*Kokkinorotsos*

RB/B = Red and Black Stroke-Burnished Ware

SW = Spalled Ware

LChalRM = Late Chalcolithic Red Monochrome Ware

RL = Red Lustrous Ware

RBL = Red Black Lustrous Ware

CW = Coarse Ware

S = Sample

XP = cross polarizing light

PL = plane polarizing light

Appendix II: Glossary

This glossary is comprised according to the following publications:

- Allaby, M. (2020). *A Dictionary of Geology and Earth Sciences*. Oxford University Press (5th Edition).
- Encyclopedia Britannica. (https://www.britannica.com/science/. Last accessed 02 January 2024).
- Quinn, P.S. (2022). *Thin section petrography, geochemistry & scanning electron microscopy of archaeological ceramics*. Archaeopress.
- Whitbread, I.K. (1986). The characterisation of argillaceous inclusions in ceramic thin section. *Archaeometry, 28*(1), 79-88.

Amphibole: any of a group of common rock-forming silicate minerals. They found principally in metamorphic and igneous rocks. They occur in many metamorphic rocks, especially those derived from mafic igneous rocks and siliceous dolomites (after Allaby, 2020).

Argillaceous inclusions: a term used to describe argillaceous rock fragments like mudstones, grog, clay pellets and clay temper (after Whitbread 1986).

Basalt: extrusive dark-coloured, fine-grained, igneous (volcanic) rock that is low in silica content, and comparatively rich in iron and magnesium, composed of plagioclase feldspar, pyroxene, and magnetite, with or without olivine. Basalts are divided into two main types, alkali basalts and tholeiites, with the tholeiites being subdivided into olivine tholeiites, tholeiites, and quartz tholeiites. (after Allaby, 2020).

Bioclast: fragment of biological origin (such as a shell fragment or fossil) occurring in sedimentary rock (after Allaby, 2020).

Biotite: a silicate mineral in the mica group. It is abundant in metamorphic rocks (both regional and contact), in pegmatites, and also in granites and other intrusive igneous rocks (after Allaby, 2020;).

Calcite: the most common form of natural calcium carbonate (CaCO3), a widely distributed mineral known for the beautiful development and great variety of its crystals (after Allaby, 2020; Dietrich, R. (2023, October 25). calcite. Encyclopedia Britannica. https://www.britannica.com/science/calcite).

Chert: a sedimentary rock consisting almost entirely of silica (SiO2) (after Allaby, 2020).

Clinopyroxenes: monoclinic pyroxenes. Pyroxene is any of a group of important rock-forming silicate minerals of variable composition, among which calcium-, magnesium-, and iron-rich varieties predominate (after Allaby, 2020; Simmons, W. B. (2014, April 7). pyroxene. Encyclopedia Britannica. https://www.britannica.com/science/pyroxene).

Dolerite (or diabase): A dark-coloured, medium-grained igneous rock which contains plagioclase feldspar of labradorite composition and pyroxene of augite or titanaugite composition as essential minerals, and magnetite, titanomagnetite, or ilmenite as accessory minerals. Dolerites are the medium-grained equivalents of basalts and, like the basalts, can be divided into alkali and tholeiitic types (see also alkali basalt; tholeiite). Dolerites are commonly found in shallow level intrusions such as dykes, sills, or plugs (Allaby, 2020).

Feldspar: any of a group of aluminosilicate minerals that contain calcium, sodium, or potassium. Feldspars make up more than half of Earth's crust (after Allaby, 2020; Dietrich, R. (2023, October 6). feldspar. Encyclopedia Britannica. https://www.britannica.com/science/feldspar).

Foraminifera: amoeba-like, single-celled protists (very simple micro-organisms). They have been called 'armoured amoebae' because they secrete a tiny shell (or 'test') usually between 0.5-1 mm long (after Allaby, 2020).

Granite/granitic rock: light-coloured coarse- or medium-grained intrusive igneous rock that is rich in quartz and feldspar; it is the most common plutonic rock of the Earth's crust. It can be formed by partial melting of old continental crust, on a local scale by in situ replacement of continental crust (granitization), by fractional crystallization of basalt magma, or by a combination of these processes. (after Allaby, 2020; Britannica, T. Editors of Encyclopaedia (2023, December 15). granite. Encyclopedia Britannica. https://www.britannica.com/science/granite).

Groundmass: see Matrix

Igneous rock: any of various crystalline or glassy rocks formed by the cooling and solidification of molten earth material (magma). Igneous rocks constitute one of the three principal classes of rocks, the others being metamorphic and sedimentary (after Allaby, 2020; Jahns, R. H. and Kudo, . Albert M. (2023, December 22). igneous rock. Encyclopedia Britannica. https://www.britannica.com/science/igneous-rock).

Inclusions: one of the main components of a fabric in thin section. The isolated particulate bodies within the matrix (after Quinn, 2022, p. 47).

Gabbro: any of several medium- or coarse-grained igneous rocks that consist primarily of plagioclase feldspar and pyroxene. Essentially, gabbro is the intrusive (plutonic) equivalent of basalt, but whereas basalt is often remarkably homogeneous in mineralogy and composition, gabbros are exceedingly variable. Gabbros result from the slow crystallization of magmas of basaltic compositions (after Allaby, 2020; Britannica, T. Editors of Encyclopaedia (2014, February 17). gabbro. Encyclopedia Britannica. https://www.britannica.com/science/gabbro).

Inclusions grain size: it can be defined using the Udden-Wentworth scale from sedimentary geology, which is composed of different 'grades' of particles, including silt (0.002–0.0625 mm) and sand (0.0625–2.0 mm). Fine-grained ceramics have a greater proportion of silt- and fine sand-sized inclusions and coarse-grained ceramics have relatively more coarse sand sized particles (after Quinn, 2022, pp. 52-55).

Limestone: sedimentary rock composed mainly of calcium carbonate ($CaCO_3$), usually in the form of calcite or aragonite. It may contain considerable amounts of magnesium carbonate (dolomite) as well; minor constituents also commonly present include clay, iron carbonate, feldspar, pyrite, and quartz (after Allaby, 2020; Britannica, T. Editors of Encyclopaedia (2023, December 8). limestone. Encyclopedia Britannica. https://www.britannica.com/science/limestone).

Matrix (or groundmass): one of the main components of a fabric in thin section. The dominant amorphous brown material, the "background". It essentially the clay. "*Clay is a mineralogical term that encompasses a diverse group of naturally occurring hydrous aluminium silicates (Al_2O_3-$2SiO_2$-$2H_2O$) that derive from the chemical weathering of rocks containing alumina-rich silicate minerals, such as feldspar and mica*" (Quinn, 2022, p. 47).

Metamorphic rock: any of a class of rocks that result from the alteration of preexisting rocks in response to changing environmental conditions, such as variations in temperature, pressure, and mechanical stress, and the addition or subtraction of chemical components. The preexisting rocks may be igneous, sedimentary, or other metamorphic rocks (after Allaby, 2020; Selverstone, J. and Fyfe,. William S. (2023, December 23). metamorphic rock. Encyclopedia Britannica.

https://www.britannica.com/science/metamorphic-rock).

Mica: mica, any of a group of hydrous potassium, aluminum silicate minerals. It is a type of phyllosilicate, exhibiting a two-dimensional sheet or layer structure. Among the principal rock-forming minerals, micas are found in all three major rock varieties—igneous, sedimentary, and metamorphic (after Allaby, 2020; Dietrich, R. (2023, September 15). mica. Encyclopedia Britannica. https://www.britannica.com/science/mica).

Microfossil: a fossil smaller than 0.5 mm in size, that can only be studied under a microscope. It typically can be studied only microscopically and that may be either a fragment of a larger organism or an entire minute organism (after Allaby, 2020).

Micritic limestone: limestones with less than 10% grains are termed micritic limestones, according to the Leighton–Pendexter classification (after Allaby, 2020).

Olivine: any member of a group of common magnesium, iron silicate minerals. Major rock-forming mineral group belonging to the nesosilicates (after Allaby, 2020; Simmons, W. B. and Tilley, . Cecil Edgar (2023, September 22). olivine. Encyclopedia Britannica. https://www.britannica.com/science/olivine).

Orthopyroxene: orthorhombic pyroxene. Pyroxene is any of a group of important rock-forming silicate minerals of variable composition, among which calcium-, magnesium-, and iron-rich varieties predominate (after Allaby, 2020; Simmons, W. B. (2014, April 7). pyroxene. Encyclopedia Britannica. https://www.britannica.com/science/pyroxene).

Opaque: a term used to describe minerals that do not transmit light in thin section, appearing black in both PP and XP light (e.g. pyrite) (after Allaby, 2020).

Plagioclase feldspar: the name of a group of feldspar minerals that form a solid solution series ranging from pure albite, Na(AlSi3O8), to pure anorthite, Ca(Al2Si2O8) (after Allaby, 2020).

Planar voids: thin and elongated voids (after Quinn, 2022, p.86).

Pyroxene: any of a group of important rock-forming silicate minerals of variable composition, among which calcium-, magnesium-, and iron-rich varieties predominate (after Allaby, 2020; Simmons, W. B. (2014, April 7). pyroxene. Encyclopedia Britannica. https://www.britannica.com/science/pyroxene).

Quartz: a widely distributed mineral of many varieties that consists primarily of silica, or silicon dioxide (SiO2). Quartz is the second most abundant mineral in Earth's continental crust, after feldspar. In thin section it can be monocrystalline or polycrystalline (after Allaby, 2020; Britannica, T. Editors of Encyclopaedia (2023, December 27). quartz. Encyclopedia Britannica.

https://www.britannica.com/science/quartz).

Quartzite: sandstone that has been converted into a solid quartz rock. Unlike sandstones, quartzites are free from pores and have a smooth fracture (after Allaby, 2020; Britannica, T. Editors of Encyclopaedia (2021, February 11). quartzite. Encyclopedia Britannica.

https://www.britannica.com/science/quartzite).

Radiolarian chert/radiolarite: a siliceous fine-grained chert-like rock that is composed predominantly of the microscopic remains of radiolarians. Radiolarites varies greatly in color (from white to black), but most often manifests as gray, brown, grayish brown and light green to rusty red; its color is an expression of trace elements present in the rock, and both red and green are most often related to traces of iron (in its oxidized and reduced forms respectively) (after Allaby, 2020; https://www.alexstrekeisen.it/english/sedi/radiolarite.php).

Sandstone: Sedimentary rock type, formed of a lithified sand, comprising grains between 63 µm and 1000 µm in size, bound together with a mud matrix and a mineral cement formed during burial diagenesis. The main constituents are quartz, feldspar, mica, and general rock particles, although the proportions of these may vary widely (after Allaby, 2020).

Sedimentary rock: rock formed at or near Earth's surface by the accumulation and lithification of sediment (detrital rock) or by the precipitation from solution at normal surface temperatures (chemical rock). Sedimentary rocks are the most common rocks exposed on Earth's surface but are only a minor constituent of the entire crust, which is dominated by igneous and metamorphic rocks (after Allaby, 2020; Beck, K. Charles , Haaf, . Ernst ten , Schwab, . Frederick L. , Bissell, . Harold J. , Folk, . Robert Louis and Crook, . Keith A.W. (2023, December 14). sedimentary rock. Encyclopedia Britannica. https://www.britannica.com/science/sedimentary-rock).

Serpentinite: altered rock formed from an ultrabasic precursor by low temperature and water interaction. Such rocks are compact, variously coloured, and may have considerable ornamental value. They consist mainly of hydroxyl-bearing magnesium silicates formed from original olivine and pyroxenes (after Allaby, 2020).

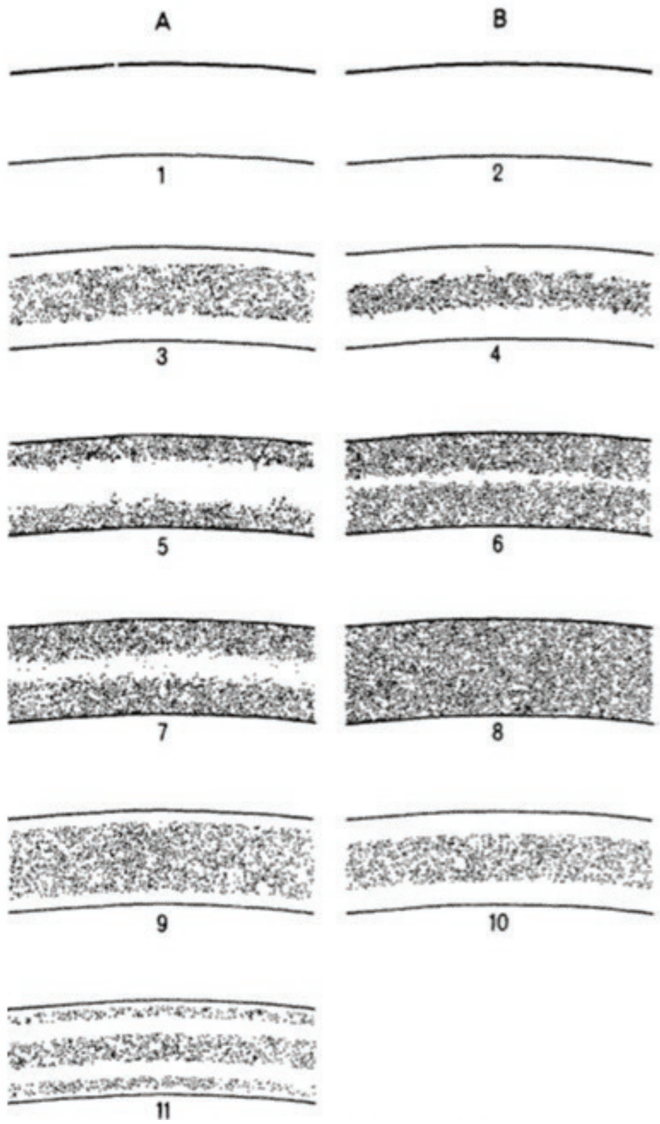
Siltstone : a lithified, nonfissile mudrock. In order for a rock to be named a siltstone, it must contain over 50% silt-sized material. Comprising grains range between 4 µm and 62.5 µm in size. (after Allaby, 2020).

Vesicles: spherical voids (after Quinn, 2022, p.86).

Voids: one of the main components of a fabric in thin section. Holes where no matrix or inclusions occur (after Quinn, 2022, p.47).

Vughs: voids of amorphous shape (after Quinn, 2022, p.86).

Appendix III: Visual Charts Used for Ceramic Analysis



1. Oxidised, organics not originally present; no core

2. Oxidised, orgsnics may or may not have been originally present; no core

3-4. Oxidised, organics originally present; diffuse core margins

5. Reduced, organics not originally present; diffuse core margins

6. Reduced, organics not originally present; black or grey may extend completely through the wall leaving no 'core'

7. Reduced, organics originally present; diffuse core margins

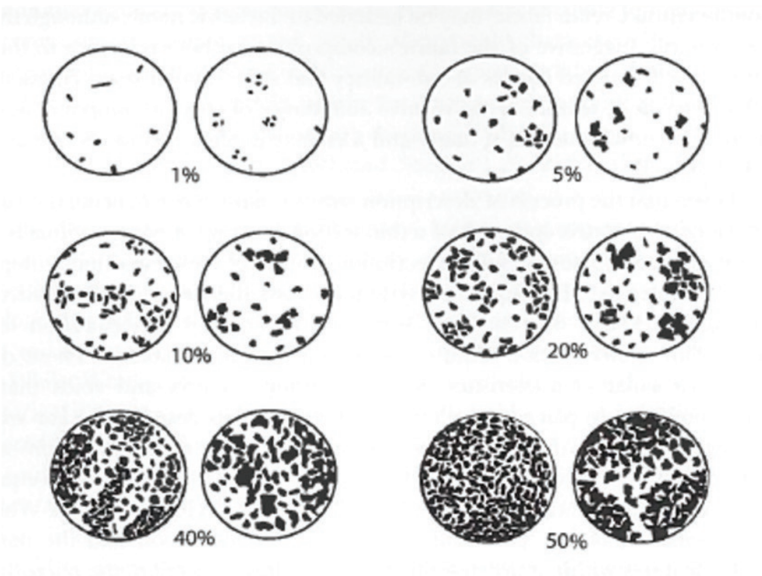
8. Reduced, organics may or may not have been originally present; no core

9-10. Reduced, cooled rapidly in air; sharp core margins

11. Reduced, cooled rapidly in air; reduced and cooled rapidly in air again; sharp core margins, 'double core'

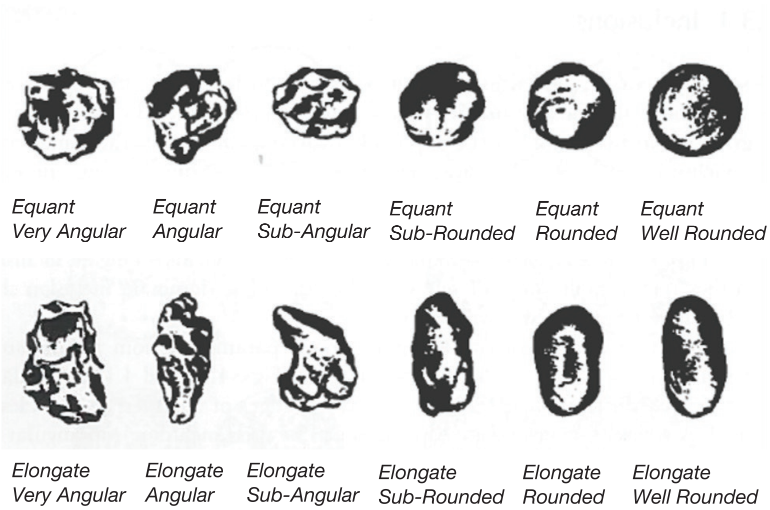
(drawing by Winifred Munford, from Rye 1981, fig.104)

Stylised cross sections comparing variations in the appearance of firing cores in fine-textured clays (Column A) and coarse-textured clays (Column B). After Orton and Hughes 1993, 154



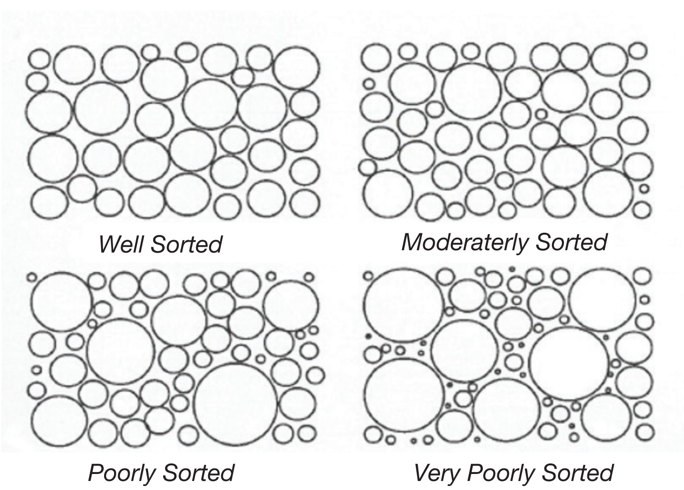
Comparison chart for the visual estimation of percentage area. The circles represent fields of view down the microscope with a specific percentage area of particles. They can be used to visually estimate the abundance of inclusions or voids in archaeological ceramic thin sections.

After Quinn 2013, 82



Categories for the description of shape and roundness/angularity in clastic sedimentary grains. These can be applied to the description of inclusions in archaeological ceramic thin sections.

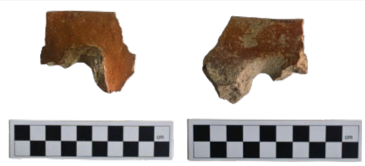
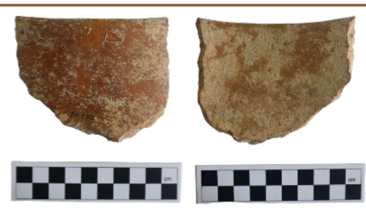
After Quinn 2013, 84

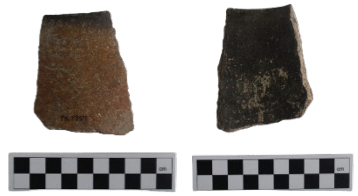
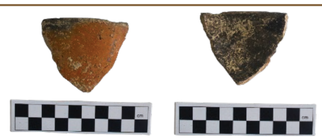


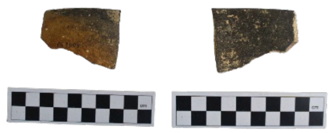
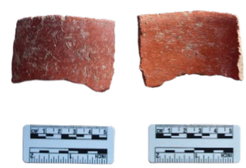
Comparison chart for estimating the degree of sorting in clastic sediments and sedimentary rocks. These can be applied to the description of inclusions in archaeological ceramic thin sections.

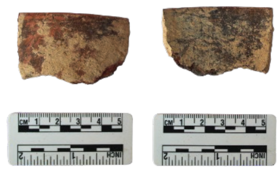
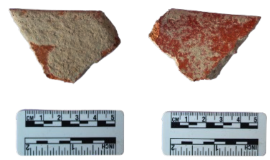
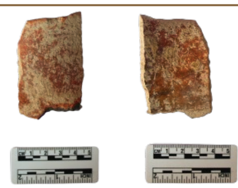
Quinn 2013, 87

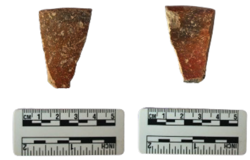
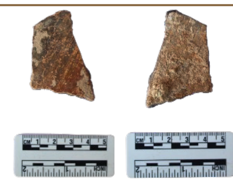
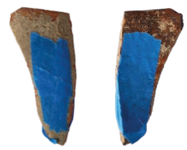
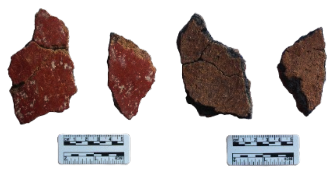
Appendix IV: Overview of the Samples Selected for Mineralogical, Compositional and Chemical/Elemental Analysis

Sample Code	Ware	Context	Shape	Photographs
		Politiko-Kokkinorotsos		
S1	RL	86	bowl – straight thinning rounded rim	
S2	RL	115	jar - straight constant rounded rim	
S3	RL	E1	hole-mouth jar - slightly flaring thinning rounded rim	
S4	RL	118	jar - straight thinning pointed rim	
S5	RL	174	jar with spout - flaring constant rounded rim	
S6	RL	10	hole-mouth jar - flaring thinning rounded rim	
S7	RL	10	hole-mouth jar - straight constant rounded rim	

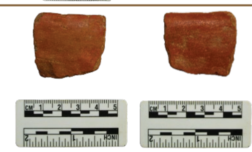
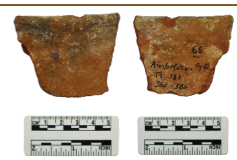
S8	RBL	37	hole-mouth jar - straight thinning rounded rim	
S9	RBL	198	bowl - straight thinning pointed rim	
S10	RBL	53	bowl - straight constant rounded rim	
S11	RBL	71	bowl - straight thinning pointed rim	
S12	RBL	198	jar with spout - straight thinning rounded rim	
S13	RBL	125	jar - flaring constant rounded rim	
S14	RBL	113	jar - straight constant rounded rim	
S15	RBL	B1	jar - straight thinning rounded rim	
S16	RBL	198	bowl - straight thinning rounded rim	

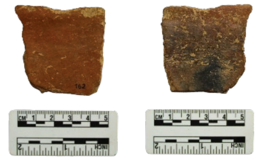
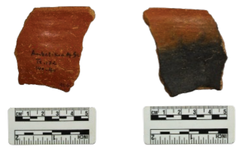
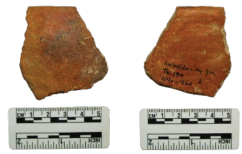
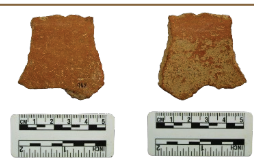
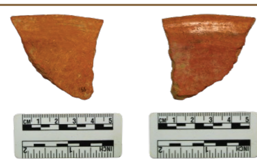
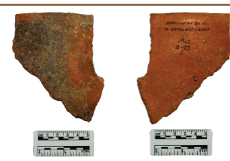
S17	RBL	62	bowl - straight thinning rounded rim	
S18	RBL	198	jar - straight constant rounded rim	
S19	RBL	11	bowl - straight thinning pointed rim	
S20	RBL	198	bowl - straight thinning pointed rim	
S21	RBL	198	bowl - straight thinning pointed rim	
S22	CW	2	pan/tray – base	
S23	CW	71	pan/tray – base	
S24	CW	67	pan/tray – base	
		Chlorakas-Palloures		
S25	RB/B	BI21-Unit 3-Lot 1641 Building 15	bowl - straight constant rounded rim	
S26	RB/B	BU13-Unit 34-Lot 1413 Building 12	bowl - flaring constant rounded rim	

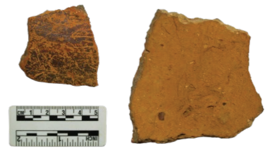
S27	RB/B	BI21-Unit 3-Lot 1596 Building 15	bowl - straight constant rounded rim	
S28	RB/B	BQ09-Unit 31-Lot 851 Building 1	bowl - straight thinning pointed rim	
S29	RB/B	BI21-Unit 3-Lot 1641 Building 15	bowl - straight thinning rounded rim	
S30	RB/B	BX14-Unit 4-Lot 210 Building 8	bowl - straight constant rounded rim	
S31	RB/B	BI21-Unit 15-Lot 1726 Building 15	bowl - flaring thinning pointed rim	
S32	RB/B	BT13-Unit12-Lot 1772 Building 18	bowl - slightly flaring thinning pointed rim	
S33	RB/B	BT13-Unit 11-Lot 1976 Building 12	bowl - straight constant rounded rim	
S34	SW	BT13-Unit 11-Lot 1960 Building 12	jar - closed body sherd	
S35	SW	BI21-Unit 3-Lot 1641 Building 15	bowl - flaring constant rounded rim	

S36	SW	BI21-Unit 3-Lot 1641 Building 15	bowl - straight constant rounded rim	
S37	SW	BO19-Unit 6-Lot 1665 Building X	bowl - flaring thinning rounded rim	
S38	SW	BI21-Unit 3-Lot 1637 Building 15	jar - straight constant rounded rim	
S39	SW	BI21-Unit 9-Lot 2034 Building 15	jar - closed body sherd	
S40	SW	BT13-Unit 5-Lot 1781 Building 18	bowl - straight constant rounded rim	
S41	LChalRM	BU12-Unit 14-Lot 572 Building 5	jar - closed body sherd	
S42	LChalRM	BO19-Unit 2-Lot 1448 Building X	jar - flaring thinning rounded rim	
S43	LChalRM	BR10-Unit 9-Lot 510 Building 4	bowl - straight constant rounded rim	
S44	LChalRM	BT13-Unit 19-Lot 1996 Building 18	jar - open body sherd	
S45	LChalRM	BT13-Unit 14-Lot 1786 Building 18	jar - flaring thinning rounded rim	

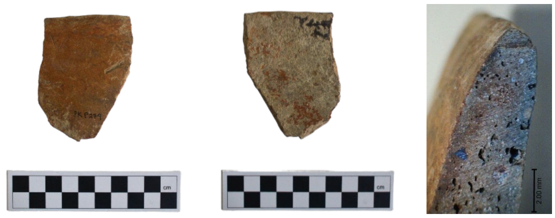
Kissonerga-Mosphilia				
S46	RB/B	KM 1175 in situ deposit, fill associated with structure 1052	bowl – straight constant rounded rim	
S47	RB/B	KM 1138 in situ deposit, fill associated with structure 834	bowl – open body sherd	
S48	RB/B	KM 471 in situ deposit, pit associated with structure 706	bowl – open body sherd	
S49	RB/B	KM 471 in situ deposit, pit associated with structure 706	bowl – open body sherd	
S50	RB/B	KM 1044 in situ deposit, building structure 1044	bowl – open body sherd	
S51	SW	KM 1339 in situ deposit, associated with structure 1165	bowl – open body sherd	
S52	RB/B	KM 1044 in situ deposit, building structure 1044	jar – closed body sherd	
S53	SW	KM 1162 in situ deposit pot spread associated with structure 1052	jar – closed body sherd	
S54	SW	KM 1044 in situ deposit, building structure 1044	jar – closed body sherd	

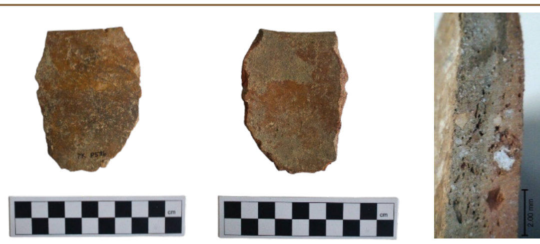
S55	SW	KM 1162 in situ deposit pot spread associated with structure 1052	jar – closed body sherd	
S56	SW	KM 1162 in situ deposit pot spread associated with structure 1052	jar - closed body sherd	
		Ambelikou-Agios Georghios		
S57	RL	Tray 194A	bowl - straight constant rounded rim	
S58	RL	Tray 192A	bowl - straight thinning pointed rim	
S59	RL	Tray 185	bowl - straight constant rounded rim	
S60	RL	Tray 187	jar - constant flaring rounded rim	
S61	RL	Tray 174	bowl - constant flaring rounded rim	
S62	RL	Tray 172	bowl - open body sherd	
S63	RL	Tray 175	bowl - straight thinning rounded rim	
S64	RBL	Tray 184	bowl - straight thinning rounded rim	

S65	RBL	Tray 187	bowl - open body sherd	
S66	RBL	Tray 171 – 162	bowl - flaring thinning pointed rim	
S67	RBL	Tray 183	bowl - open body sherd	
S68	RBL	Tray 172	bowl - slightly flaring thinning rounded rim	
S69	RBL	Tray 184	bowl - straight thinning rounded rim	
S70	RBL	Tray 194A	bowl - straight thinning rounded rim	
S71	RBL	Tray 171 – 169	bowl - straight thinning pointed rim	
S72	RB/B	Tray 171 – 165	bowl - straight constant pointed rim	
S73	RB/B	Tray 195	bowl - straight constant rounded rim	
S74	SW	Tray 171	jar - closed body sherd	

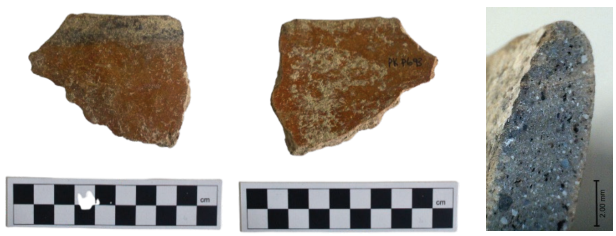
S75	SW	Tray 171	jar - closed body sherd	
S76	SW	Tray 173	jar - closed body sherd	
S77	SW	Tray 170	jar - closed body sherd	
S78	SW	Tray 170	Spout	
S79	CW	Tray 176	pan/tray - base	
S80	CW	Tray 177	pan/tray - base	
S81	CW	Tray 176	pan/tray - base	

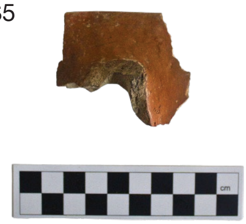
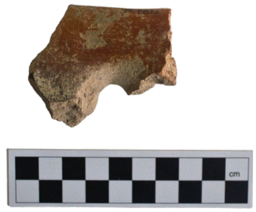
Appendix V: Macroscopic Study of Samples Selected for Mineralogical, Compositional and Chemical/Elemental Analysis

Sample No.	S1 
Ware	B – RL
Context	PK 86
Shape	bowl - straight thinning rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior brown/orange (5YR 5/4). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.7 cm
Rim diameter	24 cm

Sample No.	S2 
Ware	B – RL
Context	115
Shape	jar - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior brown/orange (2.5YR 5/4). Irregularly blacked spots on the exterior. Medium lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.5 cm
Rim diameter	11 cm

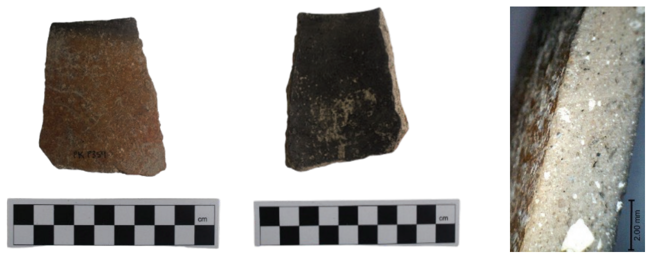
Sample No.	S3 
Ware	B – RL
Context	E1
Shape	hole-mouth jar - slightly flaring thinning rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior orange (5YR 5/4). Irregularly blacked spots on the exterior. Medium lustre. Crust on the exterior.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.7 cm
Rim diameter	9 cm

Sample No.	S4 
Ware	B – RL
Context	118
Shape	jar - straight thinning pointed rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior brown/orange (5YR 5/4). Black rim on the exterior. Medium lustre.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.6 cm
Rim diameter	20 cm

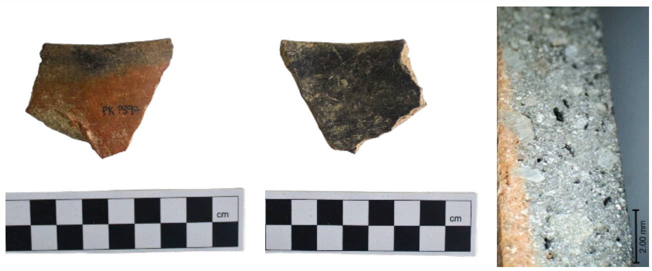
Sample No.	S5   
Ware	B – RL
Context	174
Shape	jar with spout - flaring constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior brown/orange (5YR 5/4). Medium lustre. Crust on the interior.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	1 cm
Rim diameter	12 cm

Sample No.	S6   
Ware	B – RL
Context	10
Shape	hole-mouth jar - flaring thinning rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior red (2.5YR 4/4). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.7 cm
Rim diameter	12 cm

Sample No.	S7 
Ware	B – RL
Context	10
Shape	hole-mouth jar - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior red (2.5YR 5/6). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.8 cm
Rim diameter	23 cm

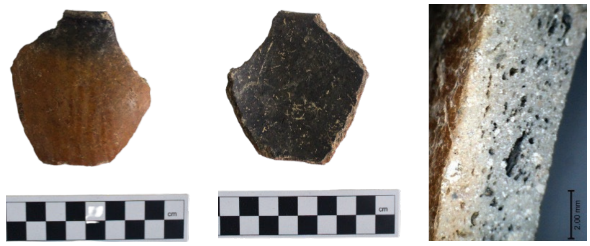
Sample No.	S8 
Ware	A – RBL
Context	37
Shape	hole-mouth jar - straight thinning rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior orange (7.5YR 5/4) with black rim (5Y 4/1). Interior black (5YR 4/1). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.5 cm
Rim diameter	11 cm

Sample No.	S9 
Ware	A – RBL
Context	198
Shape	bowl - straight thinning pointed rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior red (2.5YR 5/4) with a black spot close to the rim. Interior black (10YR 4/1). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.6 cm
Rim diameter	15 cm

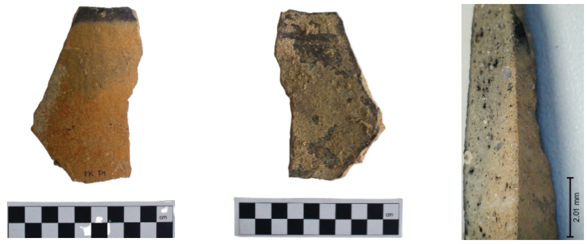
Sample No.	S10 
Ware	A – RBL
Context	53
Shape	bowl - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior red/orange (5YR 5/4) with black rim. Interior black (10YR 4/1). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.6 cm
Rim diameter	11 cm

Sample No.	S11   
Ware	A – RBL
Context	71
Shape	bowl - straight thinning pointed rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior red/orange (5YR 5/4). Interior black (10YR 5/2). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.6 cm
Rim diameter	10 cm

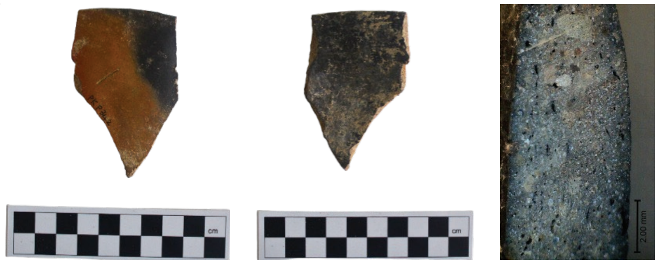
Sample No.	S12   
Ware	A – RBL
Context	198
Shape	jar with spout - straight thinning rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior orange (5YR 5/4), black along the rim. Interior black (5YR 3/1). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.6 cm
Rim diameter	11 cm

Sample No.	S13 
Ware	A – RBL
Context	125
Shape	jar - flaring constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior orange (5YR 5/4), black along the rim. Interior black (7.5R 3/1). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.5 cm
Rim diameter	6 cm

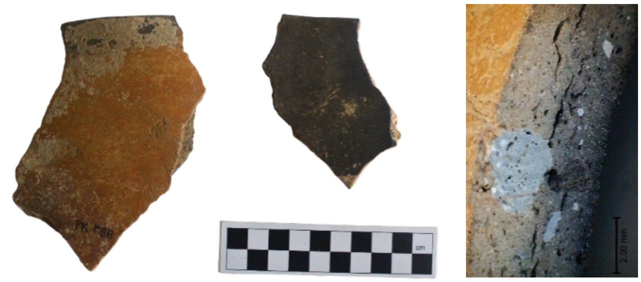
Sample No.	S14 
Ware	A – RBL
Context	113
Shape	jar - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior orange (5YR 5/4), black along the rim. Interior black (10YR 4/1). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.6 cm
Rim diameter	22 cm

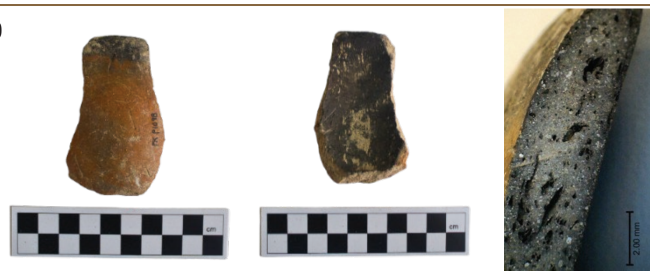
Sample No.	S15 
Ware	D – RBL
Context	B1
Shape	jar - straight thinning rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior orange (7.5YR 6/4), black along the rim. Interior black (5Y 4/1). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Very hard
Wall thickness	0.5 cm
Rim diameter	9 cm

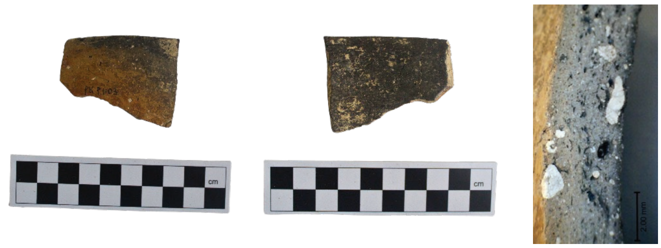
Sample No.	S16 
Ware	D – RBL
Context	198
Shape	bowl - straight thinning rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior orange (5YR 5/6), black spot close to the rim. Interior black (2.5YR 3/1). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Very hard
Wall thickness	0.5 cm
Rim diameter	14 cm

Sample No.	S17 
Ware	D – RBL
Context	62
Shape	bowl - straight thinning rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior orange (5YR 5/4), black spot close to the rim. Interior black (5YR 3/1). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Very hard
Wall thickness	0.7 cm
Rim diameter	19 cm

Sample No.	S18 
Ware	D – RBL
Context	62
Shape	jar - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior orange (7.5YR 5/4), black across the rim. Interior black (10YR 4/1). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Very hard
Wall thickness	0.7 cm
Rim diameter	19 cm

Sample No.	S19 
Ware	D – RBL
Context	11
Shape	jar - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior orange (7.5YR 5/4), black along the rim. Interior black (5YR 3/1). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Very hard
Wall thickness	0.7 cm
Rim diameter	14 cm

Sample No.	S20 
Ware	D – RBL
Context	198
Shape	bowl - straight thinning pointed rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior orange (5YR 5/4), black along the rim. Interior black (5YR 3/1). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Very hard
Wall thickness	0.5 cm
Rim diameter	10 cm

Sample No.	S21 
Ware	D – RBL
Context	198
Shape	bowl - straight thinning pointed rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior orange (7.5YR 5/4), black along the rim extending downwards. Interior black (7.5YR 4/1). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Very hard
Wall thickness	0.4 cm
Rim diameter	13 cm

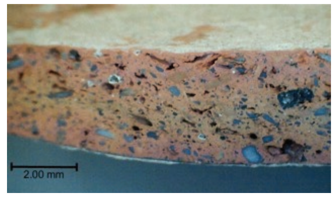
Sample No.	S22 
Ware	CW
Context	2
Shape	pan/tray – base
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior untreated, brown (5YR 5/4). Crust on both sides.
Degree of oxidation or reduction	Oxidised, no core
Fabric Hardness	Very soft
Wall thickness	1.5 cm
Rim diameter	

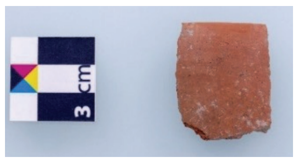
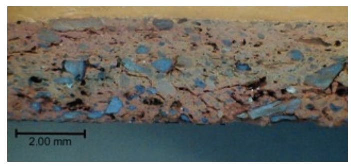
Sample No.	S23 
Ware	CW
Context	71
Shape	pan/tray – base
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior untreated, brown (5YR 4/4). Crust on both sides.
Degree of oxidation or reduction	Oxidised, no core
Fabric Hardness	Very soft
Wall thickness	2.5 cm
Rim diameter	

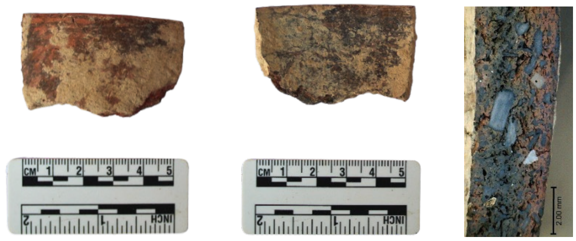
Sample No.	S24 
Ware	CW
Context	67
Shape	pan/tray – base
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior untreated, brown (5YR 5/4). Crust on both sides.
Degree of oxidation or reduction	Oxidised, no core
Fabric Hardness	Very soft
Wall thickness	2.3 cm
Rim diameter	

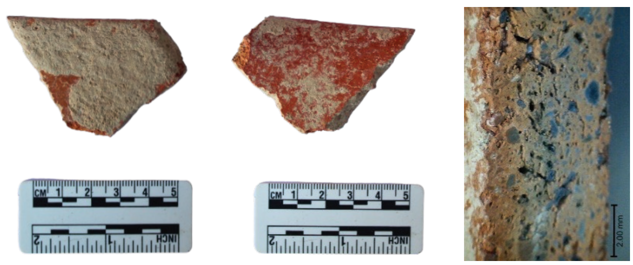
Sample No.	S25   
Ware	RB/B
Context	BI21 - Unit 3 - Lot 1641 Building 15
Shape	bowl - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior (10R 5/6), orange. High lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.4 cm
Rim diameter	10 cm

Sample No.	S26  
Ware	RB/B
Context	BU13 - Unit 34 - Lot 1413 Building 12
Shape	bowl - flaring constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior (10R 5/6), orange. Medium lustre. Crust on the exterior
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.4 cm
Rim diameter	11 cm

Sample No.	S27  
Ware	RB/B
Context	BI21 - Unit 3 - Lot 1596 Building 15
Shape	bowl - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior, pink (10 R 6/6) with many blackened spots (10YR 6/2). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.4 cm
Rim diameter	11 cm

Sample No.	S28  
Ware	RB/B
Context	BQ09 - Unit 3 - Lot 851 Building 1
Shape	bowl - straight thinning pointed rim
Degree of preservation	Good
Surface treatment – Interior/Exterior	Exterior orange (2.5YR 6/6). Interior with blackened strokes (5YR 4/2) across the surface. Medium lustre. Crust on the interior.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.4 cm
Rim diameter	7 cm

Sample No.	S29 
Ware	RB/B
Context	BI21 - Unit 3 - Lot 1641 Building 15
Shape	bowl - straight thinning rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior pink (5YR 4/2) with blackened strokes (2.5YR 4/1) across the surface. Interior completely blackened (2.5YR 4/1). Medium lustre. Crust on both sides
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.5 cm
Rim diameter	11 cm

Sample No.	S30 
Ware	RB/B
Context	BX14 -Unit 4 - Lot 210 Building 8
Shape	bowl - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior orange (10R 5/6). Medium lustre. Crust on both sides
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.9 cm
Rim diameter	15 cm

Sample No.	S31 
Ware	RB/B
Context	BI21 - Unit 15 - Lot 1726 Building 15
Shape	bowl - flaring thinning pointed rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior pink (7.5YR 4/1), almost completely blackened (5YR 4/1) in strokes. Medium lustre.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.8 cm
Rim diameter	7 cm

Sample No.	S32 
Ware	RB/B
Context	BT13 - Unit 12 - Lot 1772 Building 18
Shape	bowl - slightly flaring thinning pointed rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior orange (2.5YR 5/6). Interior few blackened spots (2.5YR 4/3). Medium lustre. Crust on the interior
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.5 cm
Rim diameter	12 cm

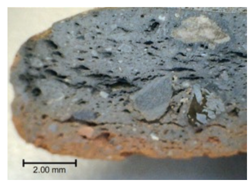
Sample No.	S33 
Ware	RB/B
Context	BT13 - Unit 11 - Lot 1976 Building 18
Shape	bowl - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior orange (2.5YR 5/4). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, defused core margins
Fabric Hardness	Hard
Wall thickness	0.5 cm
Rim diameter	12 cm

Sample No.	S34 
Ware	SW
Context	BT13 - Unit 11 - Lot 1960 Building 18
Shape	jar – closed body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior red to beige slip (7.5YR 5/2). Interior untreated grey (10YR 5/2). Crust on both sides.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	0,6 cm
Rim diameter	

Sample No.	S35 
Ware	SW
Context	BI21 - Unit 3 - Lot 1641 Building 15
Shape	bowl - flaring constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior red to beige slip (5YR 5/3). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	0,6 cm
Rim diameter	7 cm

Sample No.	S36 
Ware	SW
Context	BI21 - Unit 3 - Lot 1641 Building 15
Shape	bowl - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior red to beige slip (2.5YR 5/4). Reduced spots along the rim only on the exterior (7.5YR 4/2). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	0,5 cm
Rim diameter	6 cm

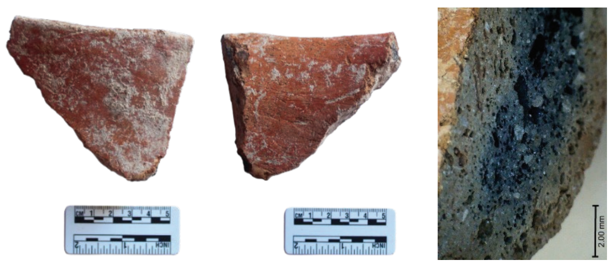
Sample No.	S37   
Ware	SW
Context	BO19 - Unit 6 - Lot 1665 Building X
Shape	bowl - flaring thinning rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior brown to beige slip (5YR 4/3 and 5YR 6/4). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	0,5 cm
Rim diameter	9 cm

Sample No.	S38  
Ware	SW
Context	BI21 - Unit 3 - Lot 1637 Building 15
Shape	jar - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and red to beige slip (5YR 6/4). Interior dark brown and beige slip (7.5YR 4.1). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	1 cm
Rim diameter	11 cm

Sample No.	S39 
Ware	SW
Context	BI21 - Unit 9 - Lot 2034 Building 15
Shape	jar - closed body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior dark brown to beige slip (7.5YR 5/3). Interior untreated, beige (7.5YR 6/3). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	0.5 cm
Rim diameter	

Sample No.	S40 
Ware	SW
Context	BT13 - Unit 5 - Lot 1781 Building 18
Shape	bowl - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior dark brown to beige slip (5YR 4/2). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	0.5 cm
Rim diameter	7 cm

Sample No.	S41 
Ware	LChalRM
Context	BU12 - Unit 14 - Lot 572 Building 5
Shape	jar - closed body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior painted red (2.5YR 4/4). Interior (Munsell code) beige (7.5YR 4/3), untreated. Medium lustre on the exterior. Crust on both sides.
Degree of oxidation or reduction	Reduced, defused core margins
Fabric Hardness	Hard
Wall thickness	0.9 cm
Rim diameter	-

Sample No.	S42 
Ware	LChalRM
Context	BO19 - Unit 2 - Lot 1448 Building X
Shape	jar - flaring thinning rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior painted orange (5YR 5/4) No lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, defused core margins
Fabric Hardness	Hard
Wall thickness	1.50 cm
Rim diameter	19 cm

Sample No.	S43 
Ware	LChalRM
Context	BR10 – Unit 9 – Lot 510 Building 4
Shape	bowl - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior self-slipped brown (5YR 5/4). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, defused core margins
Fabric Hardness	Hard
Wall thickness	0.8 cm
Rim diameter	15 cm

Sample No.	S44 
Ware	LChalRM
Context	BT13 - Unit 19 - Lot 1996 Building 18
Shape	jar - open body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior painted orange/red (2.5YR 4/4). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, defused core margins
Fabric Hardness	Hard
Wall thickness	12 cm
Rim diameter	-

Sample No.	S45   
Ware	LChalRM
Context	BT13 - Unit 14 - Lot 1786 Building 18
Shape	jar - flaring thinning rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior painted brown (7.5YR 5/3). Crust on both sides.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	1,1 cm
Rim diameter	9 cm

Sample No.	S46   
Ware	RB/B
Context	KM 1175 - in situ deposit, fill associated with structure 1052
Shape	bowl - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior orange (10R 5/6). High lustre. Crust on the exterior
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.4 cm
Rim diameter	8 cm

Sample No.	S47 
Ware	RB/B
Context	KM 1138 - in situ deposit, fill associated with structure 834
Shape	bowl - open body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior dark red (2.5YR 4/4). High lustre. Crust on the exterior.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.6 cm
Rim diameter	

Sample No.	S48 
Ware	RB/B
Context	KM 471 - in situ deposit, pit associated with structure 706
Shape	bowl - open body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior orange (10R 5/6). High lustre.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.9 cm
Rim diameter	

Sample No.	S49   
Ware	RB/B
Context	KM 471 - in situ deposit, pit associated with structure 706
Shape	bowl - open body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior orange (10R 4/6). High lustre.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.6 cm
Rim diameter	

Sample No.	S50   
Ware	RB/B
Context	KM 1044 - in situ deposit, building structure 1044
Shape	bowl - open body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior orange (2.5YR 5/6). High lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.8 cm
Rim diameter	

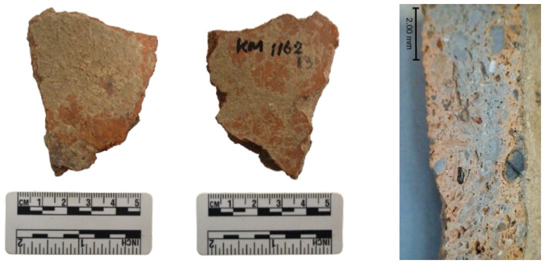
Sample No.	S51 
Ware	SW
Context	KM 1339 - in situ deposit, associated with structure 1165
Shape	bowl - open body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior orange/beige (5YR 6/4). High lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	0.9 cm
Rim diameter	

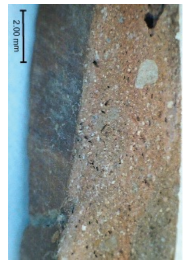
Sample No.	S52 
Ware	RB/B
Context	KM 1044 - in situ deposit, building structure 1044
Shape	jar – closed body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior red/orange slip (2.5YR 5/4). Interior untreated, beige (7.5YR 6/3). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	0.6 cm
Rim diameter	

Sample No.	S53   
Ware	SW
Context	KM 1162 - in situ deposit pot-spread associated with structure 1052
Shape	jar – closed body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior beige slip (5YR 6/4). Interior untreated, red (2.5YR 5/4). Medium lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	1 cm
Rim diameter	

Sample No.	S54   
Ware	SW
Context	KM 1044 - in situ deposit, building structure 1044
Shape	jar – closed body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior orange (2.5YR 5/4). Interior untreated, beige (5YR 5/3). Medium lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	0.5 cm
Rim diameter	

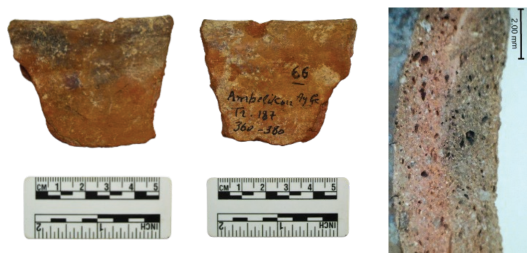
Sample No.	S55 
Ware	SW
Context	KM 1162 - in situ deposit pot-spread associated with structure 1052
Shape	jar – closed body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior orange slip (7.5YR 6/3), but almost completely covered in crust. Interior untreated, beige (5YR 6/3). Medium lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	0.7 cm
Rim diameter	

Sample No.	S56 
Ware	SW
Context	KM 1162 - in situ deposit pot-spread associated with structure 1052
Shape	jar – closed body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior orange slip (2.5YR 6/6), but almost completely covered in crust. Interior untreated, beige (7.5YR 6/3). Medium lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	1 cm
Rim diameter	

Sample No.	S57   
Ware	RL
Context	Tray 194A
Shape	bowl - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior red colour (2.5YR 4/4), with blackened surfaces close to the rim on the exterior (5YR 4/2). Medium lustre.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.8 cm

Sample No.	S58   
Ware	Tray 192A
Context	bowl - straight thinning pointed rim
Shape	Average
Degree of preservation	Exterior and interior orange colour (2.5YR 5/6)), with blackened surfaces close to the rim (7.5YR 4/2). Medium lustre.
Surface treatment – Interior/Exterior	Reduced, no core
Degree of oxidation or reduction	Hard
Fabric Hardness	0.7 cm
Wall thickness	6 cm

Sample No.	S59 
Ware	RL
Context	Tray 185
Shape	bowl - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior orange colour (2.5YR 5/4). Medium lustre.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.6 cm
Rim diameter	8 cm

Sample No.	S60 
Ware	RL
Context	Tray 187
Shape	jar - constant flaring rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior orange colour (5YR 5/4) with blackened surfaces close to the rim (7.5YR 4/1). Interior untreated, orange (5YR 5/4). Low lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.8 cm
Rim diameter	15 cm

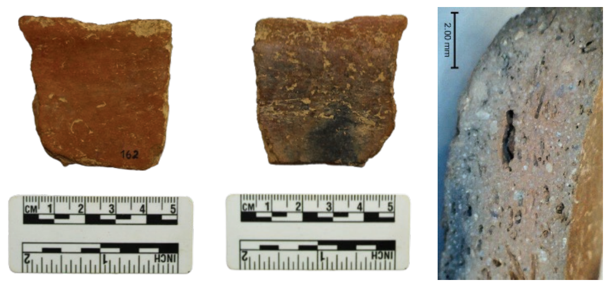
Sample No.	S61 
Ware	RL
Context	Tray 174
Shape	bowl - constant flaring rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior orange (5YR 5/4) with blackened spot (5YR 4/1). Medium lustre.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.8 cm
Rim diameter	

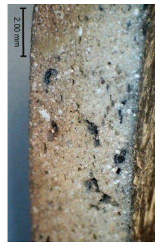
Sample No.	S62 
Ware	RL
Context	Tray 172
Shape	bowl - open body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior red colour (10R 5/6). Medium lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.5 cm
Rim diameter	

Sample No.	S63 
Ware	RL
Context	Tray 175
Shape	bowl - straight thinning rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior orange/brown colour (5YR 4/3). Medium lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.5 cm
Rim diameter	10 cm

Sample No.	S64 
Ware	RL
Context	Tray 184
Shape	bowl - straight thinning rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior red (5YR 5/3) with a blackened surface (7.5YR 4/2). Interior completely dark (5YR 4/1). Medium lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.7 cm
Rim diameter	10 cm

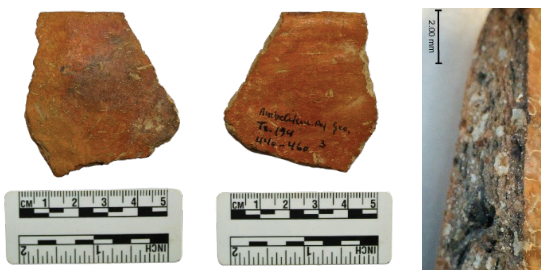
Sample No.	S65 
Ware	RBL
Context	Tray 187
Shape	bowl - open body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior red (5YR 5/4). Interior completely dark (10YR 4/1). Medium lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.6 cm
Rim diameter	

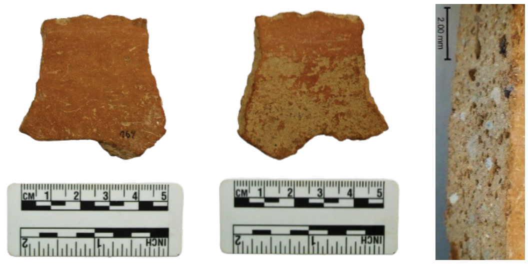
Sample No.	S66 
Ware	RBL
Context	Tray 171
Shape	bowl - flaring thinning pointed rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior red (5YR 4/3). Interior completely dark (5YR 3/1). Medium lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.6 cm
Rim diameter	11 cm

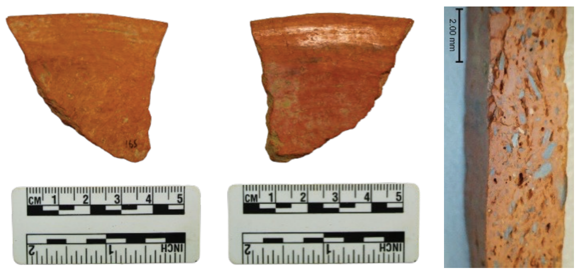
Sample No.	S67   
Ware	RBL
Context	Tray 183
Shape	bowl – open body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior dark red (2.5YR 4/3). Interior completely dark (10YR 4/1). Medium lustre.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.6 cm
Rim diameter	

Sample No.	S68   
Ware	RBL
Context	Tray 172
Shape	bowl - slightly flaring thinning rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior red (10R 4/4), almost completely dark on the lower part of the interior(N.3.25/). Medium lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.3 cm
Rim diameter	10 cm

Sample No.	S69 
Ware	RBL
Context	Tray 184
Shape	bowl - straight thinning rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior orange (5YR 5/4) with a blacked spot on the exterior (5Y 3/1). Medium lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.6 cm
Rim diameter	6 cm

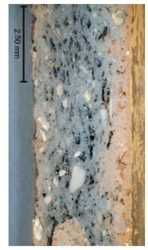
Sample No.	S70 
Ware	RBL
Context	Tray 194A
Shape	bowl - straight thinning rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior orange (7.5YR 5/4) with a blacked surface on the exterior. High lustre.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.6 cm
Rim diameter	9 cm

Sample No.	S71 
Ware	RBL
Context	Tray 171
Shape	bowl - straight thinning pointed rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior orange (5YR 5/4). Medium lustre. Crust on both sides.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.5 cm
Rim diameter	9 cm

Sample No.	S72 
Ware	RB/B
Context	Tray 171
Shape	bowl - straight constant pointed rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior orange to red (2.5YR 5/6). Black strokes on the interior. High lustre.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.9 cm
Rim diameter	11 cm

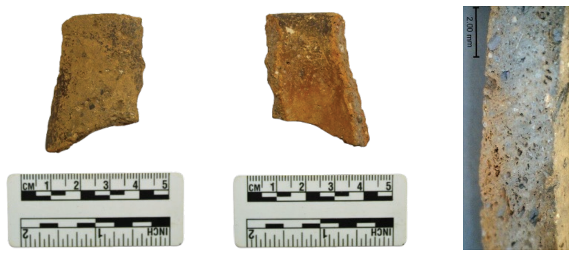
Sample No.	S73   
Ware	RB/B
Context	Tray 195
Shape	bowl - straight constant rounded rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior orange to pink (10R 5/6). Exterior surface irregularly reduced (2.5Y 5/1). High lustre.
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.6 cm
Rim diameter	17 cm

Sample No.	S74   
Ware	SW
Context	Tray 171
Shape	jar - closed body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior dark brown to beige slip (5YR 4/3 and 7.5YR 6/4). Interior untreated and with crust (7.5YR 5/3). Medium lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	0.4 cm
Rim diameter	

Sample No.	S75   
Ware	SW
Context	Tray 171
Shape	jar - closed body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior dark brown to beige slip (7.5YR 4/2 and 7.5YR 5/4). Interior untreated, beige (5YR 6/4). Medium lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	0.6 cm
Rim diameter	

Sample No.	S76   
Ware	SW
Context	Tray 173
Shape	jar - closed body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior dark brown to beige slip (7.5YR 5/3 and 5YR 5/4). Medium lustre. Interior untreated, beige (7.5YR 5/4).
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	0.5 cm
Rim diameter	

Sample No.	S77 
Ware	SW
Context	Tray 170
Shape	jar - closed body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior dark brown to beige slip (10YR 5/3). Medium lustre. Interior untreated, beige (10YR 5/3) and with crust.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	0.5 cm
Rim diameter	

Sample No.	S78 
Ware	SW
Context	Tray 170
Shape	jar – spout
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior dark brown to beige slip (5YR 5/4 and 7.5YR 4/1). Medium lustre.
Degree of oxidation or reduction	Reduced, diffused core margins
Fabric Hardness	Very hard
Wall thickness	0.5 cm
Rim diameter	4 cm

Sample No.	S79 
Ware	CW
Context	Tray 176
Shape	Pan/tray - base
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior brown (7.5YR 5/3). Crust on both sides.
Degree of oxidation or reduction	Oxidised, no core
Fabric Hardness	Very soft
Wall thickness	1.8 cm
Rim diameter	

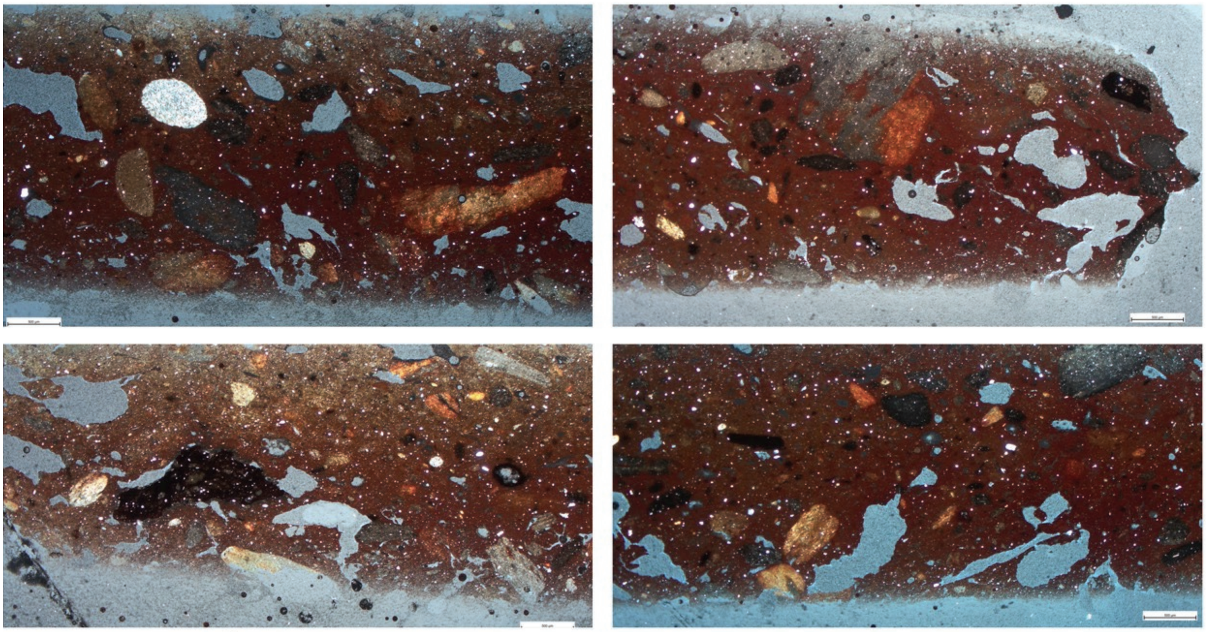
Sample No.	S80 
Ware	CW
Context	Tray 177
Shape	Pan/tray - base
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior dark brown (5YR 5/4). Crust on both sides.
Degree of oxidation or reduction	Oxidised, no core
Fabric Hardness	Very soft
Wall thickness	2 cm
Rim diameter	

Sample No.	S81 
Ware	CW
Context	Tray 176
Shape	Pan/tray - base
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior and interior dark brown (5YR 5/4). Crust on both sides.
Degree of oxidation or reduction	Oxidised, no core
Fabric Hardness	Very soft
Wall thickness	1.1 cm
Rim diameter	

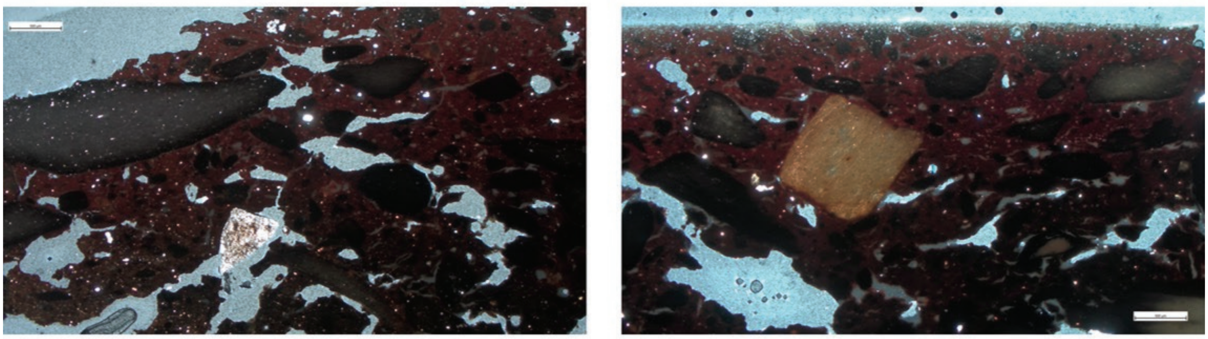
Appendix VI: Mineralogical and Technological Characterization of the Ceramic Sample

FABRIC I: FABRIC WITH DOMINANT PRESENCE OF ARGILLACEOUS INCLUSIONS
S25, S28, S29, S30, S31, S32, S47, S72, S73 (9 samples, 11% of the overall sample)
Microstructure
Rare meso planar voids, occasionally parallel to the section's margins (<2%). Few macro vughs (<5%), dominant meso and micro vughs (<10%). Voids are randomly oriented and are close- to double-spaced. The non-plastic inclusions are also randomly oriented.
Groundmass
Homogenous within group. Samples are moderately optically active to optically inactive (S29, S30), due to firing. Colour in crossed polars (XP) under x10 lens ranges from light to dark orange. There is colour differentiation in S29, where one half of cross-section, parallel to the wall margins is grey-brown, the other half is dark orange/red (XP, x5). In S30, the margins at both the external and internal wall sides are orange and in contrast with the bulk of the cross-section, which is grey-brown (3.2-5 mm in width) (XP, x5). In S47, there cross-section is orange besides a grey-brown strip in the middle of the cross-section, parallel to the wall margins(1.1-1.9 mm in width) (XP, x5). A matrix-supported fabric. Red clay matrix.
Inclusions
c:f:v0.0625mm= 45:45:10 The matrix is fine with poorly sorted inclusions and bimodal grain-size distribution. The size of the coarse fraction ranges from pebbles to fine sand. The fine fraction is of fine sand and below. The packing of the coarse fraction is close- to double spaced, and that of the fine fraction is single- to open-spaced. **Coarse Fraction** <u>Dominant:</u> Argillaceous inclusions; high and low sphericity, sub-angular, sub-rounded and rounded, elongated (up to 2 mm in diameter) coexisting with equant ones. Sharp to clear boundaries. They include the following types: i. Grey, with some visible unidentified constituents in very fine fraction, some of them are partly oxidised presenting an area colour transformation to brown or brownish-red (e.g. S30). They often have clearly visible boundaries. Largest grey argillaceous inclusion in S25 <1.2 mm. In S28, one large grey argillaceous inclusion up to 1.7x 1.2 mm, high sphericity, sub-angular. In S29, elongated inclusion up to 3.6 mm. ii. Orange to dark yellow, heterogenous, with visible variations in texture such as laminations and can reach the proportions of siltstones, with quartz grains, mica laths and opaques. Largest dark reddish-brown to orange argillaceous inclusion in S25, elongated, sub-angular, low sphericity <1.7 mm. In S30, large orange-yellow inclusion, high sphericity, sub-rounded, almost rectangular, up to 2.3x 1.7 mm. iii. Very few dark reddish-brown, almost homogenous, with some visible microcracks and darker outlines. In S30, large red argillaceous inclusion, high sphericity, sub-rounded, up to 1.2x 0.7 mm. <u>Common:</u> chert, high sphericity, equant, sub-angular, up to <0.9 mm. <u>Common:</u> opaques, black, high to low sphericity, rounded and sub-rounded, mostly equant, some elongated, <0.6 mm. <u>Few:</u> Quartz, monocrystalline, high sphericity up to 1.2 mm in diameter. <u>Rare:</u> sandstone, contains iron oxides, quartz, opaques and/or mica, high sphericity, rounded <0.7mm <u>Rare:</u> siltstone, contains iron oxides, quartz, opaques and/or mica, high sphericity, rounded <0.5mm <u>Rare:</u> textural concentration features. For example, in S25, a textural concentration feature 1.8 mm in long diameter, containing argillaceous material, quartz and small sedimentary rock fragments of grey/beige micritic texture with darker brown fabric. <u>Rare:</u> feldspars, mainly plagioclase, equant <2 mm. **Fine fraction** <u>Common:</u> argillaceous inclusions, opaques, quartz <u>Few:</u> mica, serpentinite
Comments
• Sedimentary oriented fabric. • Relatively fine matrix enriched with argillaceous inclusions. Little effort for clay refinement considering the size of the inclusions. Variation in colour of argillaceous inclusions due to firing (both temperature and atmosphere). • Use of red clay – the clay matrix is thick red/dark red. • High-fired for LChal standards (ca. 600-800 C). Variation in firing, ranging from optically active to totally optically inactive and blackened as it was fired in reduced atmosphere (S25).

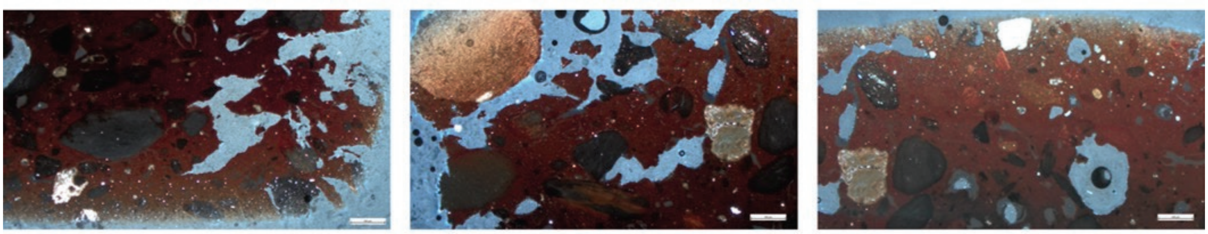
S28 - RB/B from Chlorakas-*Palloures, assigned to Fabric I (photomicrographs taken under XP x2,5)*



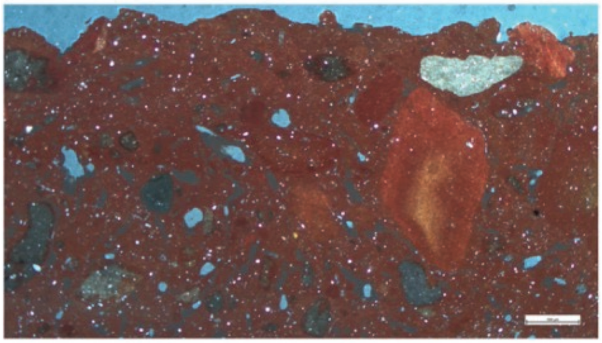
S25 - RB/B from Chlorakas-*Palloures, assigned to Fabric II (photomicrographs taken under XP x2,5)*



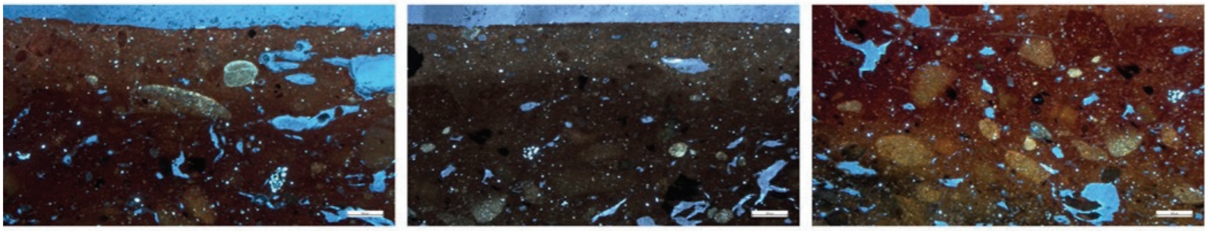
S29 - RB/B from Chlorakas-*Palloures, assigned to Fabric II (photomicrographs taken under XP x2,5)*



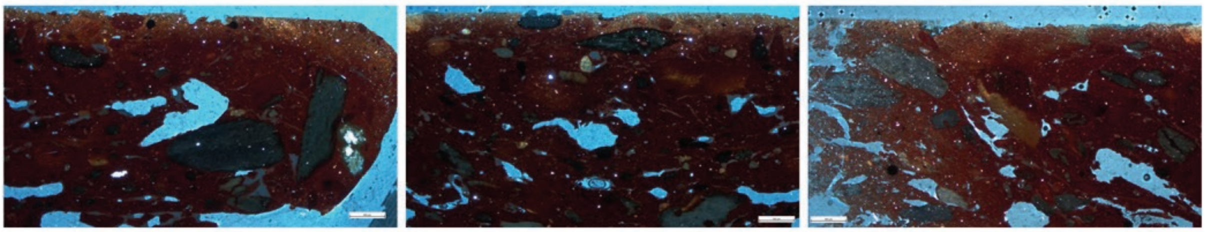
S30 - RB/B from Chlorakas-*Palloures, assigned to Fabric II (photomicrographs taken under XP x2,5)*



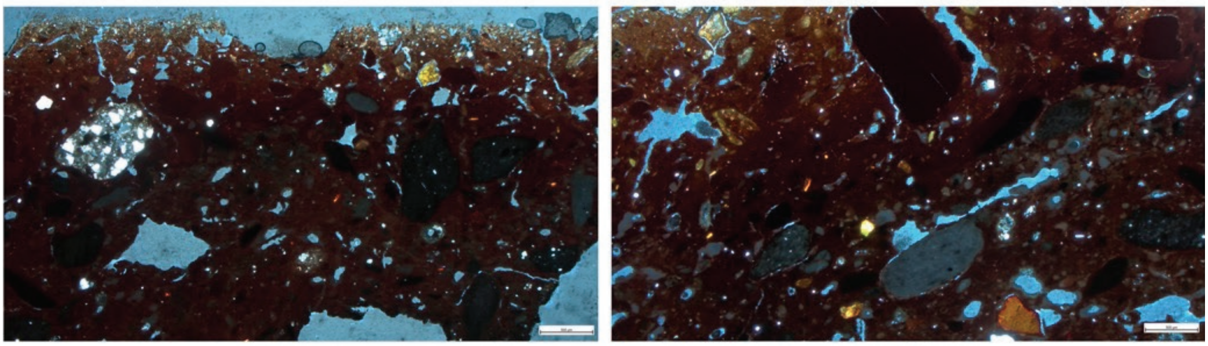
S31 - RB/B from Chlorakas-*Palloures, assigned to Fabric I (photomicrographs taken under XP x2,5)*



S47 - RB/B from Kissonerga-*Mosphilia, assigned to Fabric I (photomicrographs taken under XP x2,5)*

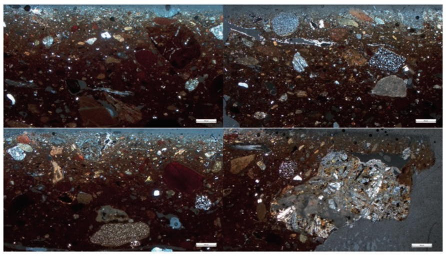


S72 - RB/B from Ambelikou-*Agios Georghios, assigned to Fabric I (photomicrographs taken under XP x2,5)*

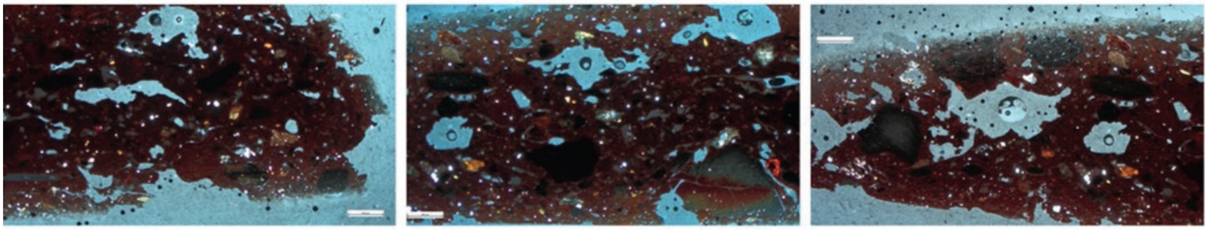


S73 - RB/B from Ambelikou-*Agios Georghios, assigned to Fabric I (photomicrographs taken under XP x2,5)*

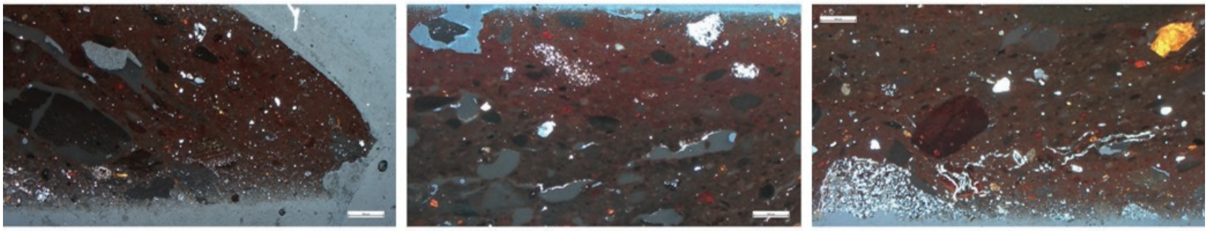
FABRIC II: FABRIC WITH DOMINANT PRESENCE OF ARGILLACEOUS INCLUSIONS, COMMON SANDSTONE AND FEW DOLERITE FRAGMENTS
S26, S27, S33, S46, S48, S50, S52 (7 samples, 9% of the overall sample)
Microstructure
Some mega planar voids (<5%), occasionally parallel to the cross-section's margins in some samples (e.g. S26), and vertical to the section in others (e.g. S46). Frequent meso and micro vughs, randomly oriented (<10%). Voids are close- to double-spaced and the non-plastic inclusions are also randomly oriented.
Groundmass
Heterogenous within group. Samples are moderately optically active. Colour in crossed polars (XP) under x10 lens ranges from dark orange to dark brown. In S26, the margins at both the external and internal wall sides are yellow and in contrast with the bulk of the cross-section, which is orange-brown (3-3.2 mm in width) (XP, x5).). In S48 and S33, the margins at both the external and internal wall sides are orange and in contrast with the bulk of the cross-section, which is grey-brown (2.4-2.6 mm in width) (XP, x5). There is colour differentiation also in S52, where one half of cross-section, parallel to the wall margins is grey-brown, the other half is dark orange/red (XP, x5). A matrix-supported fabric.
Inclusions
c:f:v0.0625mm=50:45:5 The matrix is fine with poorly sorted inclusions and bimodal grain-size distribution. The size of the coarse fraction ranges from pebbles to fine sand. The fine fraction is of fine sand and below. The packing of the coarse fraction is close- to double spaced, and that of the fine fraction is close- to double-spaced. **Coarse Fraction** <u>Dominant:</u> Argillaceous inclusions; high and low sphericity, sub-angular, sub-rounded and rounded, elongated (up to 2mm in diameter) coexisting with equant ones. Sharp to clear boundaries. They include the following types: i. Grey with some visible unidentified constituents in very fine fraction, some of them are partly oxidised presenting an area colour transformation to brown or brownish-red (e.g. S27). They often have clearly visible boundaries. Largest grey argillaceous inclusion in S25 <1.2 mm. In S28, one large grey argillaceous inclusion up to 1.8x 1.1 mm, high sphericity, sub-angular. In S33, elongated inclusion up to 2.2 mm. In S52, 2.6 x 2.7 mm. ii. Orange to dark yellow, heterogenous, with visible variations in texture such as laminations and can reach the proportions of siltstones, with quartz grains, mica laths and opaques. Largest dark reddish-brown to orange argillaceous inclusion in S26, elongated, sub-angular, low sphericity <1.6 mm. iii. Dark reddish-brown-orange, almost homogenous, with some visible microcracks and darker outlines. In S33, large red argillaceous inclusion, high sphericity, sub-rounded, up to 2.6x 1.1 mm. <u>Dominant:</u> Chert, high sphericity, sub-angular, <0.7 mm. <u>Dominant:</u> Serpentinite, high sphericity, sub-rounded, <0.4 mm. <u>Common:</u> Sandstone, high and low sphericity, sub-angular, sub-rounded and rounded, contains iron oxides, quartz, opaques and/or mica. In S33, up to 2.4x 1 mm. <u>Common:</u> Quartz, polycrystalline, high sphericity, angular to sub-angular, <0.6 mm. <u>Common:</u> opaques, black, high to low sphericity, rounded and sub-rounded, mostly equant, some elongated, <0.6 mm. <u>Few:</u> dolerite, high sphericity, sub-angular and sub-rounded, <2.5 mm. In S26 the largest fragment, low sphericity, sub-angular, up to 5.3x 2 mm. Constituent mineral plagioclase feldspars and amphibole grains at a very weathered stage. <u>Few:</u> Siltstone, high and low sphericity, sub-angular, sub-rounded and rounded, contains iron oxides, quartz, opaques and/or mica. In S25, up to 1.7 x 0.6 mm, in S52 up to 1.1 x 1 mm. <u>Few:</u> Micritic limestone, high sphericity, rounded and sub-rounded. The largest fragment in S26 (1x 6 mm), contains microfossils, and quartz grains in fine fraction. **Fine fraction** <u>Common:</u> argillaceous inclusions, opaques, quartz, coarse siltstone to sandstone fragments. <u>Few:</u> mica, serpentinite, biotite, feldspars
Comments
• This Fabric Group is similar to Fabric Group I. • The majority of inclusions is still comprised of argillaceous and sedimentary inclusions, but it appears to come from a different clay source as there is more mixing of various inclusions and the matrix is quite heterogeneous. • The red/orange colour of serpentinite is due to the firing temperature. It indicates firing above 650°C, since the colour changes in the range of 650-750°C.



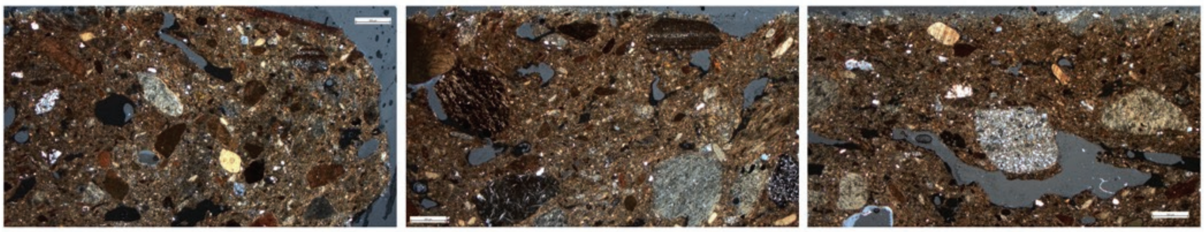
S26 - RB/B from Chlorakas-*Palloures, assigned to Fabric II (photomicrographs taken under XP x2,5)*



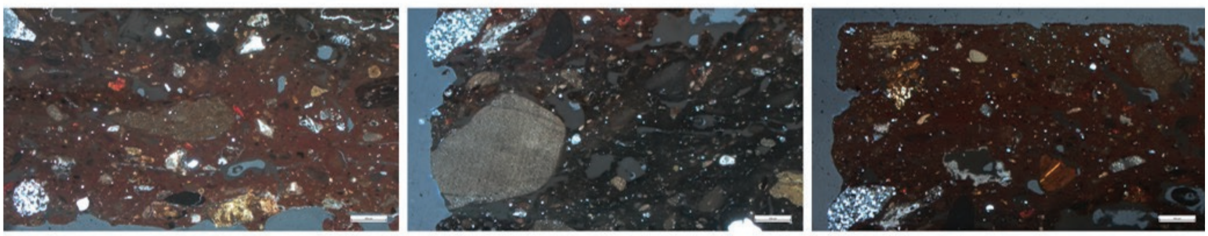
S27 - RB/B from Chlorakas-*Palloures, assigned to Fabric II (photomicrographs taken under XP x2,5)*



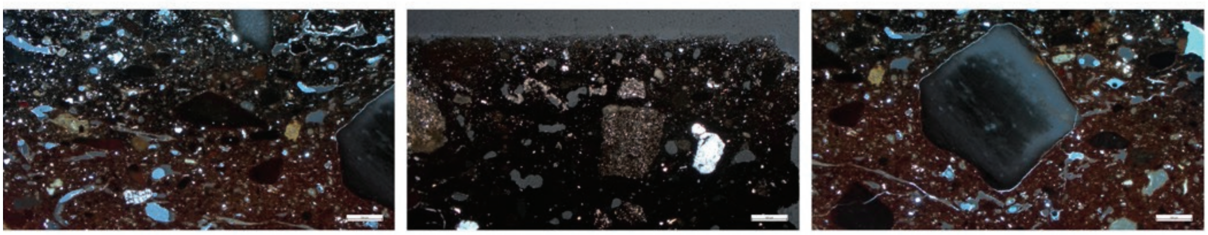
S33 - RB/B from Chlorakas-*Palloures, assigned to Fabric II (photomicrographs taken under XP x2,5)*



S46 - RB/B from Kissonerga-*Mosphilia, assigned to Fabric II (photomicrographs taken under XP*

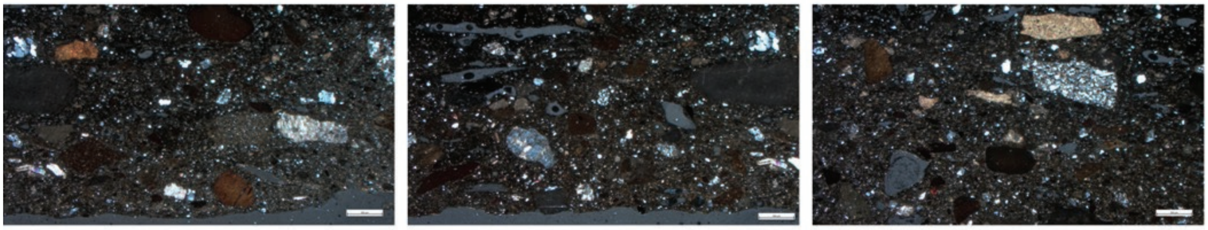


S50 - RB/B from Kissonerga-*Mosphilia, assigned to Fabric II (photomicrographs taken under XP*

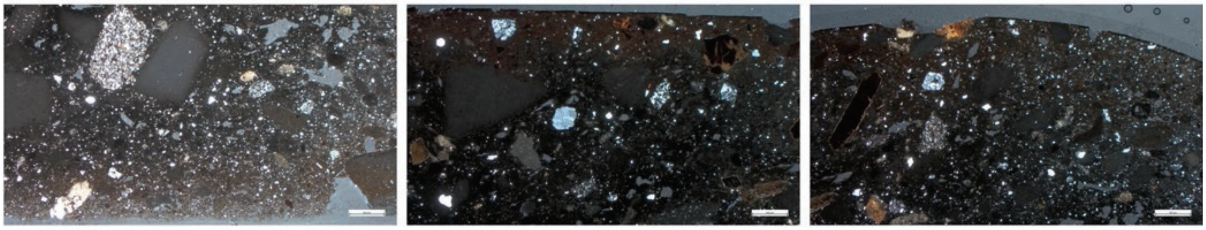


S52 - RB/B from Kissonerga-*Mosphilia, assigned to Fabric II (photomicrographs taken under XP x2,5)*

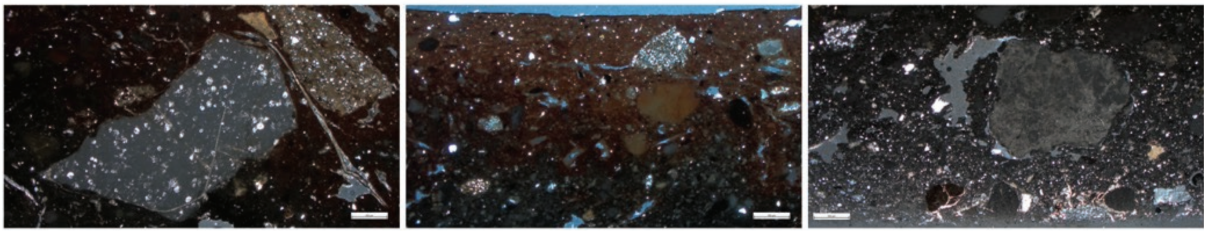
FABRIC III: FABRIC WITH DOMINANT PRESENCE OF MICRITIC LIMESTONE AND CHERT
S34, 35, S36, S37, S38, S39, S40, S51, S53, S54, S55, S56, S74, S75, S76, S77, S78 (17 samples, 21% of the overall sample)
Microstructure
Rare meso vughs (<2%), common to few planar voids, parallel to the section's margins (<5%), and dominant micro vughs (<10%). The voids are randomly oriented and close- to double-spaced. The non-plastic inclusions are also randomly orient-ed.
Groundmass
Homogenous within group. Samples are moderately optically active. Colour in crossed polars (XP) under x10 lens ranges from dark yellow-orange to dark brown. There is colour differentiation in S34, S37, S38, S55, S56, S74, S76, and S77, where one half of cross-section, parallel to the wall margins is grey-brown, the other half is dark orange-yellow (XP, x5). In S51, S53, S54, and S75, the margins at both the external and internal wall sides are orange (1.6-2.5 mm in width) (XP, x5), and in contrast with the bulk of the cross-section, which is grey-brown. There is on colour differentiation in S78. A matrix-supported fabric.
Inclusions
c:f:v0.0625mm= 50:45:5 The matrix is fine with poorly sorted inclusions and bimodal grain-size distribution. The size of the coarse fraction ranges from pebbles to fine sand. The fine fraction is of fine sand and below. The packing of the coarse fraction is close- to double spaced, and that of the fine fraction is single- to open-spaced. **Coarse Fraction** <u>Dominant:</u> Micritic limestone, high and low sphericity, rounded and sub-rounded, and equant. The largest fragment in S34 (1.2x 0.4 mm), contains microfossils, opaques and quartz grains in fine fraction. In S37, up to 5 x 2.5 mm. The large limestone inclusions often contain iron oxides as well (e.g. S38). <u>Dominant:</u> Chert, high sphericity, sub-angular, <0.8 mm. <u>Dominant:</u> Argillaceous inclusions, high and low sphericity, sub-angular, sub-rounded and rounded, elongated (up to 3 mm in diameter) coexisting with equant ones. Sharp to clear boundaries. They include the following types: i. Dark reddish-brown, almost homogenous, with some visible microcracks and darker outlines (e.g. S34). In S34, up to 3 mm. In S53, a large fragment, high sphericity rounded, 2.7 in diameter. ii. Grey with some visible unidentified constituents in very fine fraction, some of them are partly oxidised presenting an area colour transformation to brown or brownish-red. In S37 up to 1 x 6.3 mm. <u>Common:</u> Sandstone, high and low sphericity, sub-angular, sub-rounded and rounded, contains iron oxides, quartz, opaques and/or mica. In S74, up to 5.3x 2.1 mm. <u>Common:</u> Serpentinite, high sphericity, sub-rounded, <0.7 mm. <u>Common:</u> Monocrystalline quartz, high sphericity, sub-angular, sub-rounded and rounded, <0.2 mm. <u>Common:</u> opaques, black, high to low sphericity, rounded and sub-rounded, mostly equant, some elongated, <0.6 mm. <u>Few:</u> Quartz, polycrystalline, high and low sphericity, angular and sub-angular, <1 mm. <u>Few:</u> Calcite, quant, in S51 up to 3 x 0.7 mm. <u>Rare:</u> amphiboles, high sphericity, sub-angular, equant, <0.4 mm. **Fine fraction** <u>Common:</u> argillaceous inclusions, opaques, quartz <u>Few:</u> mica, serpentinite, feldspars
Comments
• There's minimum clay refinement in this fabric group, as there's a lot of plant inclusions. • The samples S36, S39, and S40 are distinguished by the overly dominant presence of monocrystalline quartz in coarse and fine fraction. However, this might be because of the lack of overall variability in the section. The sample is not different enough to be categorized as a different fabric group or sub-group.



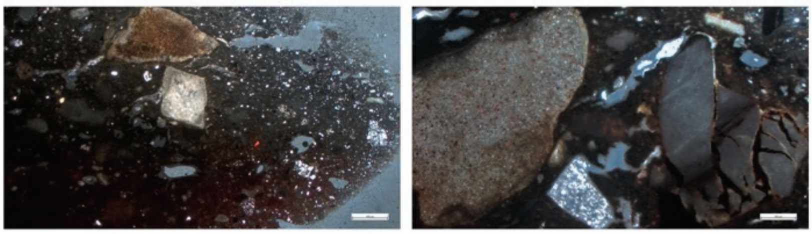
S34 - SW from Chlorakas-*Palloures, assigned to Fabric III (photomicrographs taken under XP x2,5)*



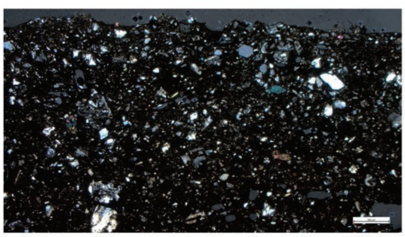
S36 - SW from Chlorakas-*Palloures, assigned to Fabric III (photomicrographs taken under XP x2,5)*



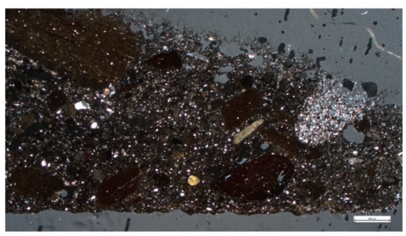
S37 - SW from Chlorakas-*Palloures, assigned to Fabric III (photomicrographs taken under XP x2,5)*



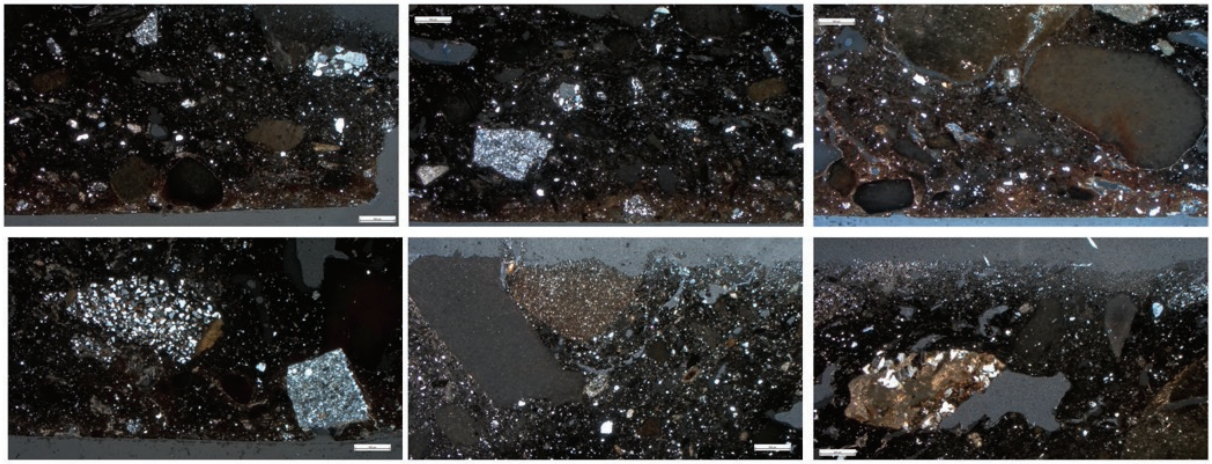
S38 - SW from Chlorakas-*Palloures, assigned to Fabric III (photomicrographs taken under XP x2,5)*



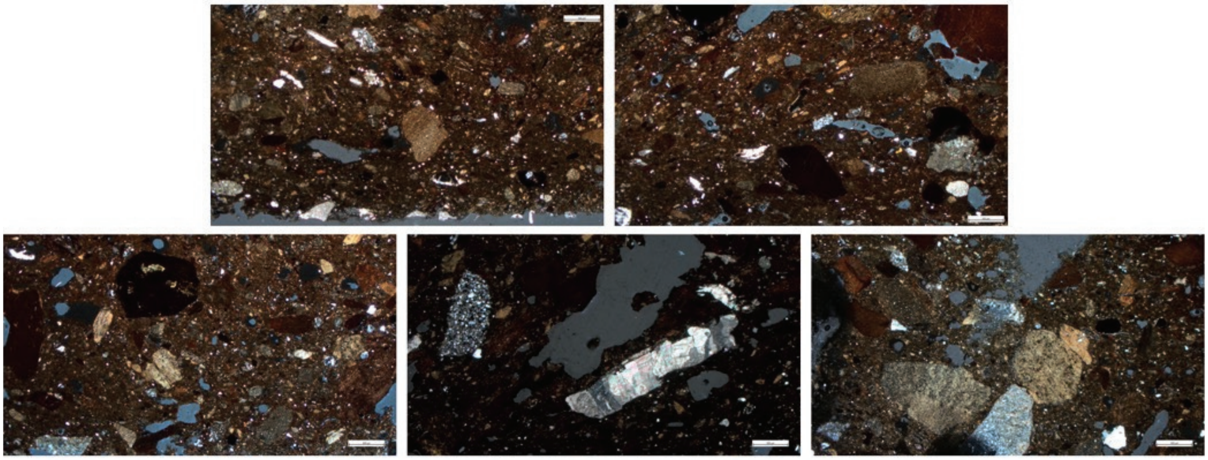
S53 - SW from Kissonerga-*Mosphilia, assigned to Fabric III (photomicrographs taken under XP x2,5)*



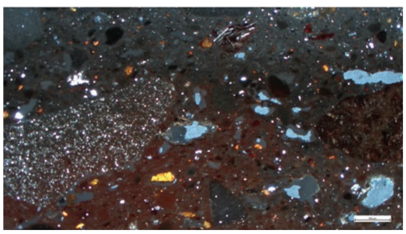
S54 - SW from Kissonerga-*Mosphilia, assigned to Fabric III (photomicrographs taken under XP x2,5)*



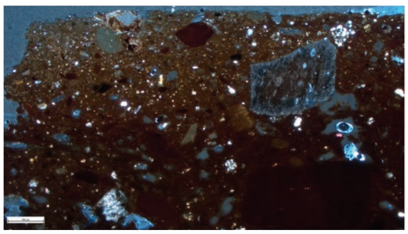
S39 - SW from Chlorakas-*Palloures, assigned to Fabric III (photomicrographs taken under XP x2,5)*



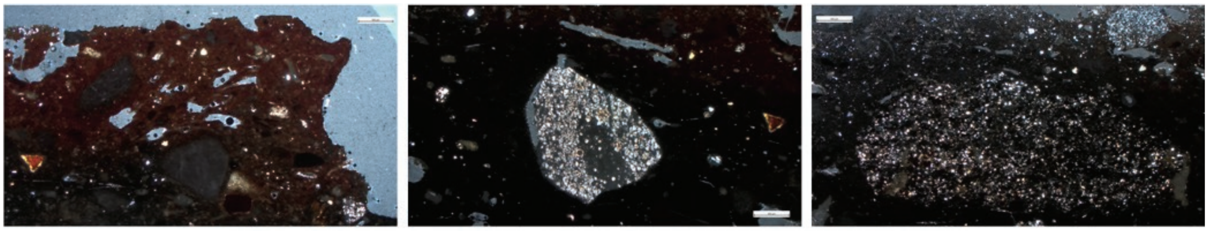
S51 - SW from Kissonerga-*Mosphilia, assigned to Fabric III (photomicrographs taken under XP x2,5)*



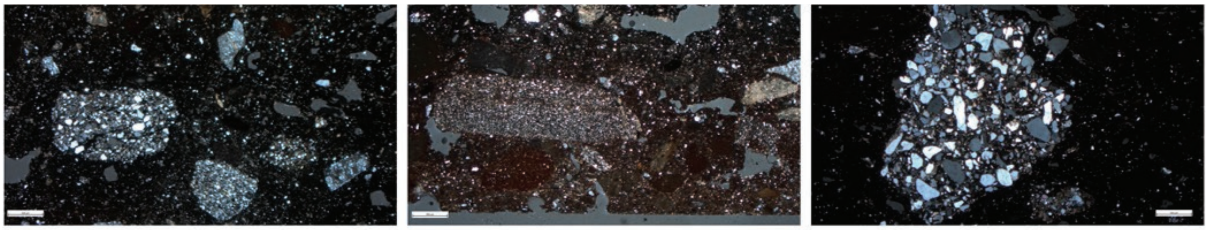
S55- SW from Kissonerga-*Mosphilia, assigned to Fabric III (photomicrographs taken under XP x2,5)*



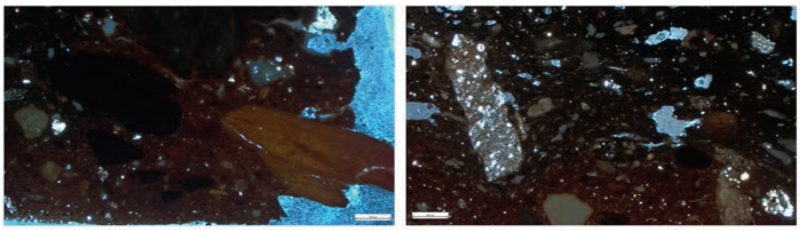
S76- SW from Kissonerga-*Mosphilia, assigned to Fabric III (photomicrographs taken under XP x2,5)*



S74 - SW from Ambelikou-*Agios-Georghios, assigned to Fabric III (photomicrographs taken under XP x2,5)*

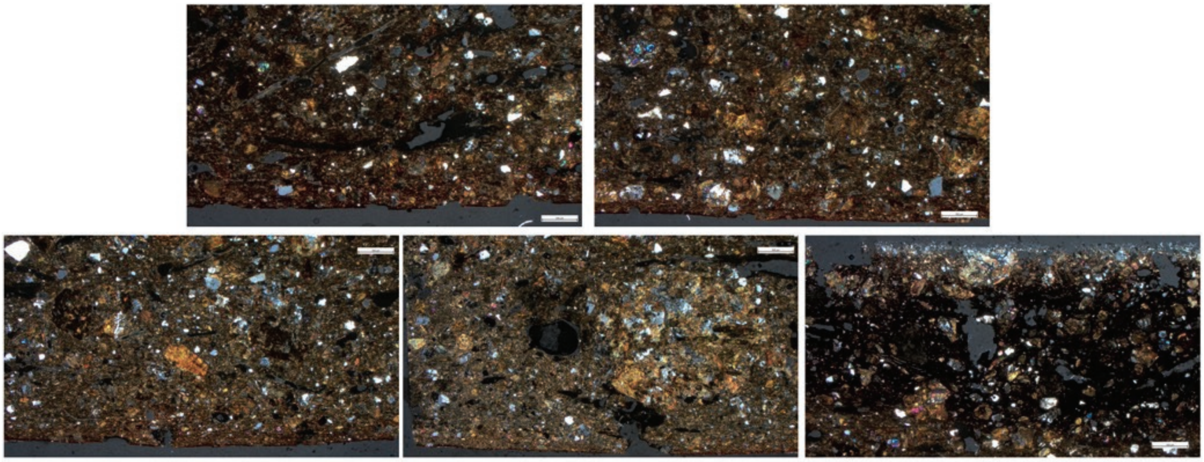


S75 - SW from Ambelikou-*Agios-Georghios, assigned to Fabric III (photomicrographs taken under XP x2,5)*

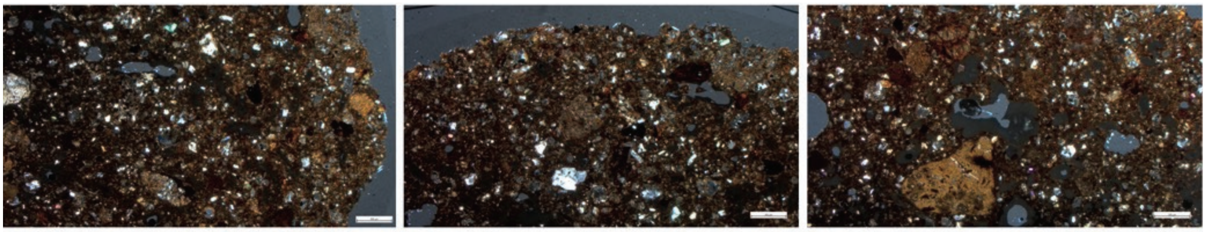


S77 - SW from Ambelikou-*Agios-Georghios, assigned to Fabric III (photomicrographs taken under XP x2,5)*

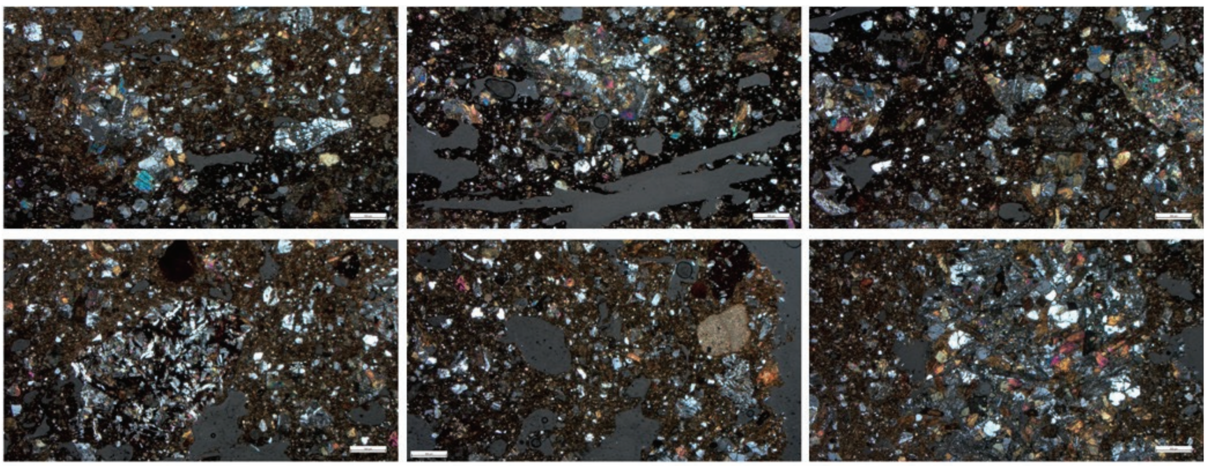
FABRIC IV: FABRIC WITH DOMINANT PRESENCE OF AMPHIBOLES, FELDSPARS AND QUARTZ
S41, S42, S43, S44, S45 (5 samples, 6% of the overall sample)
Microstructure
Common to few planar voids (<10%), parallel to the section's margins. Rare meso vughs (<2%) and common micro vughs (<5%). The voids are randomly oriented and close- to double-spaced. The non-plastic inclusions are also randomly oriented.
Groundmass
Homogenous throughout the group. Samples are moderately optically active. Colour in crossed polars (XP) under 10x lens ranges from yellow to dark orange and dark brown-grey. There is colour differentiation in S41, where a thin margin cross-section, parallel to the wall margins is grey-brown, the rest is dark yellow (XP, x5). In S42, S43, S44, and S45, the margins at both the external and internal wall sides are orange (2-3.4 mm in width) (XP, x5), and in contrast with the bulk of the cross-section, which is grey-brown. A matrix-supported fabric.
Inclusions
c:f:v0.0625mm= 55:35:10 The matrix is fine with moderately to well sorted inclusions and bimodal grain-size distribution. The size of the coarse fraction ranges from pebbles to fine sand. The fine fraction is of fine sand and below. The packing of the coarse fraction is close- to double spaced, and that of the fine fraction is single- to open-spaced. **Coarse Fraction** <u>Dominant:</u> Amphiboles, high sphericity, sub-angular, equant, <0.8 mm. <u>Dominant:</u> Feldspars, mostly plagioclase, low sphericity, angular, <0.2 mm. <u>Dominant:</u> Quartz, monocrystalline and polycrystalline, high and low sphericity, angular, sub-angular and sub-rounded, <0.4 mm. <u>Few:</u> Olivine, high sphericity, angular and sub-angular, <0.5 mm. <u>Few:</u> Dolerite, high sphericity, sub-angular and sub-rounded. In S41, largest fragment 2.8 mm in diameter. In S42, 3.5x 1.9 mm. Largest fragment in S44, 2.9 mm in diameter. <u>Few:</u> Gabbro, high and low sphericity, sub-angular and sub-rounded, containing plagioclase felspar and amphibole grains. In S43, largest fragment 2.5 x 2.5 mm. <u>Few:</u> Sandstone, high and low sphericity, sub-angular, sub-rounded and rounded, contains iron oxides, quartz, biotite, feldspars, opaques and/or mica. In S41, 1,9x 1.1 mm. Largest sandstone fragment in S42, 3.4x 3.8 mm. <u>Few:</u> Quartzite, low sphericity, angular, up to <0.6 mm. <u>Few:</u> Opaques, black or brown, high to low sphericity, rounded and sub-rounded, mostly equant, some elongated, <0.6 mm. <u>Few:</u> Micritic limestone, high and low sphericity, sub-angular and angular, <2 mm. Contains microfossils, opaques and quartz grains in fine fraction, sometimes with darker outlines (e.g. S42). **Fine fraction** <u>Dominant:</u> amphiboles, feldspars <u>Common:</u> quartz, serpentinite <u>Few:</u> mica, opaques
Comments
• There seems to clay refinement in this fabric group. • The moderately to well sorted inclusions indicate standardization. • The sample S43 seems to be a coarser version of the same fabric group.



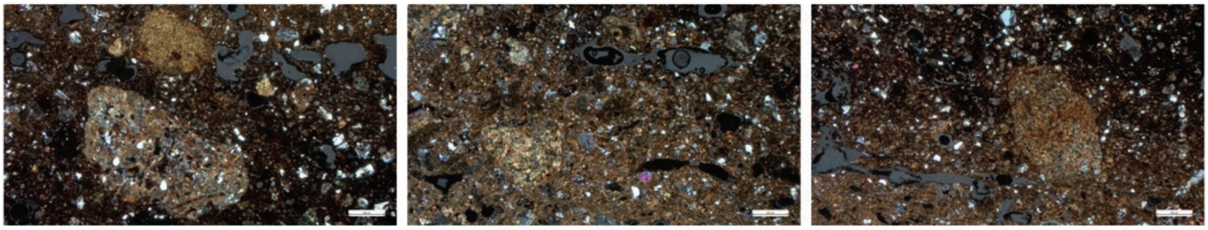
S41 - LChalRM from Chlorakas-*Palloures, assigned to Fabric IV (photomicrographs taken under XP x2,5)*



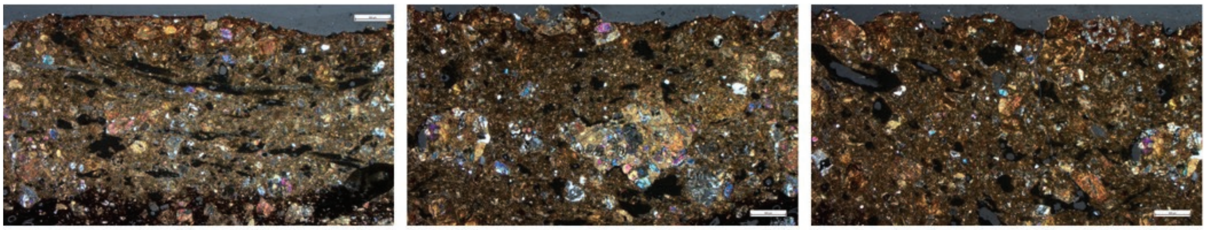
S42 - LChalRM from Chlorakas-*Palloures, assigned to Fabric IV (photomicrographs taken under XP x2,5)*



S43 - LChalRM from Chlorakas-*Palloures, assigned to Fabric IV (photomicrographs taken under XP x2,5)*

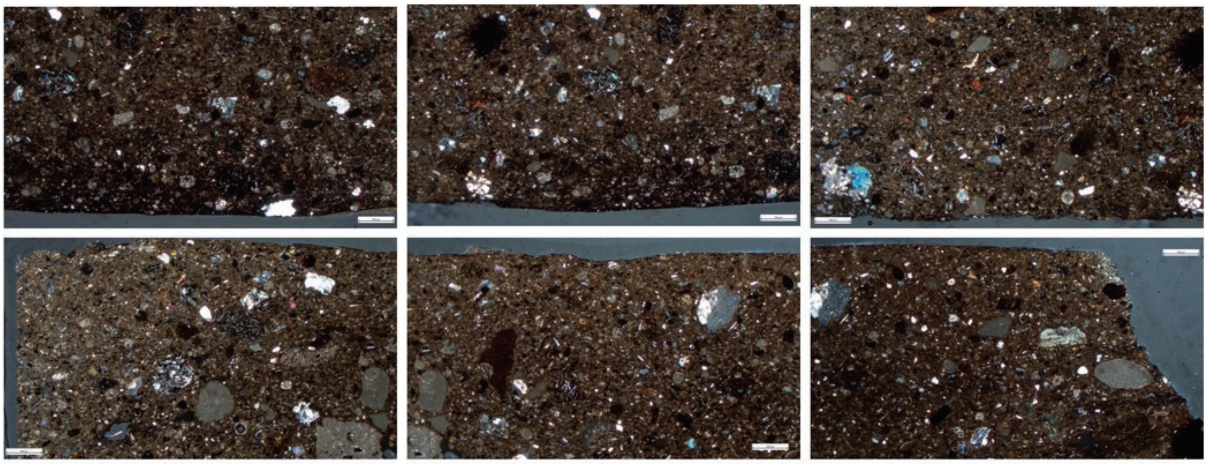


S44 - LChalRM from Chlorakas-*Palloures, assigned to Fabric IV (photomicrographs taken under XP x2,5)*

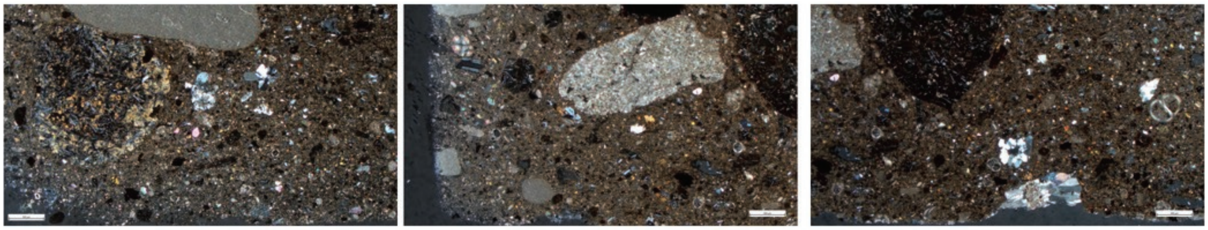


S45 - LChalRM from Chlorakas-*Palloures, assigned to Fabric IV (photomicrographs taken under XP x2,5)*

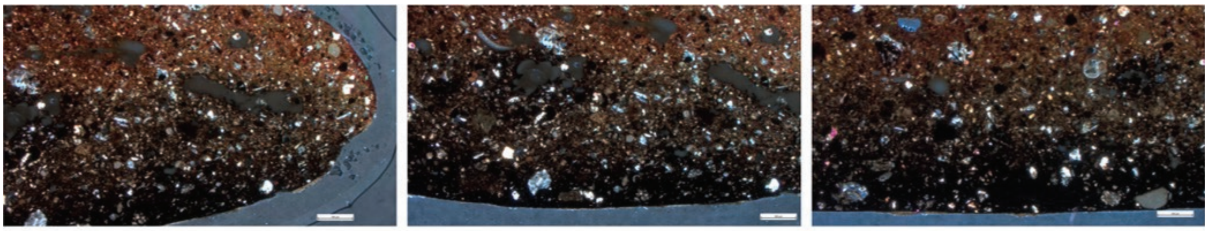
FABRIC V: FABRIC WITH DOMINANT PRESENCE OF CARBONATES
S4, S8, S11, S14, S15, S16, S18, S19, S20, S21 (10 samples, 12% of the overall sample)
Microstructure
Rare to absent planar voids (<2%), rare macro vughs (<5%) and common meso and micro-vughs (<10%). The voids are randomly oriented and are singe to open-spaced. The non-plastic inclusions are also randomly oriented
Groundmass
Homogenous throughout the group. Samples are moderately optically active. Colour in crossed polars (XP) under x10 lens ranges from dark orange-red to dark grey-brown. There is colour differentiation in S8, S11, S12, and S21, where a thin margin cross-section, parallel to the wall margins is grey-brown, the rest is dark yellow (XP, x5). In S14, S15, S18 the margins at both the external and internal wall sides are dark brown-grey (0.3-0.8 mm in width) (XP, x5), and in contrast with the bulk of the cross-section, which is yellow-brown. There is no colour differentiation in S4 and S20. A matrix-supported fabric.
Inclusions
c:f:v0.0625mm= 45:45:10 The matrix is fine with poorly sorted inclusions and bimodal grain-size distribution. The size of the coarse fraction ranges from pebbles to fine sand. The fine fraction is of fine sand and below. The packing of the coarse fraction is close- to double spaced, and that of the fine fraction is closed- to double-spaced. **Coarse Fraction** <u>Dominant:</u> Microfossils, predominantly foraminifera, some open and some calcite-filled, and some bioclast. Calcite-filled are often covered by opaque or iron oxide. They range in size and go up to 0.5 mm (S8). <u>Dominant:</u> Micritic limestone, high and low sphericity, sub-angular and angular, <1 mm. Contains microfossils, opaques and quartz grains in fine fraction. Largest fragment in S21, 4.1x 2.7 mm. In S19, 3.8 x 3 mm. <u>Dominant:</u> Feldspars, mostly plagioclase, low sphericity, angular, <0.2 mm. <u>Common:</u> Serpentinite, high and low sphericity, angular, sub-angular and sub-rounded, <0.3 mm. <u>Common:</u> Basalt, high and low sphericity, sub-angular and sub-rounded. Largest fragment in S8, 2 mm in diameter, containing feldspars and an altered material. <u>Common:</u> Opaques, black, high to low sphericity, rounded and sub-rounded, mostly equant, some elongated, <0.6 mm. <u>Common:</u> Quartz, polycrystalline, high sphericity, angular and sub-angular, <1.2 mm. <u>Few:</u> Sandstone, high sphericity, sub-angular, sub-rounded and rounded, contains iron oxides, quartz, biotites, feldspars, opaques and/or mica, <0.6 mm. <u>Few:</u> Volcanic rock fragments, probably dolerite, high sphericity, <0.7 mm. In S26 the largest fragment, low sphericity, sub-angular, up to 4.4x 2.3 mm (S8). <u>Rare:</u> Olivine, high sphericity, angular and sub-angular, <0.4 mm. <u>Rare:</u> Clinopyroxenes, low sphericity, sub-angular, <0.4 mm. <u>Rare:</u> Orthopyroxenes, low sphericity, sub-angular, <0.4 mm. **Fine fraction** <u>Dominant:</u> feldspars, quartz <u>Common:</u> serpentinite, limestone <u>Rare:</u> mica
Comments
• The very well-preserved fossils of this fabric group (e.g. S8), are indicative of its firing in low temperatures. • Seems to be the finest fabric of the overall sample.



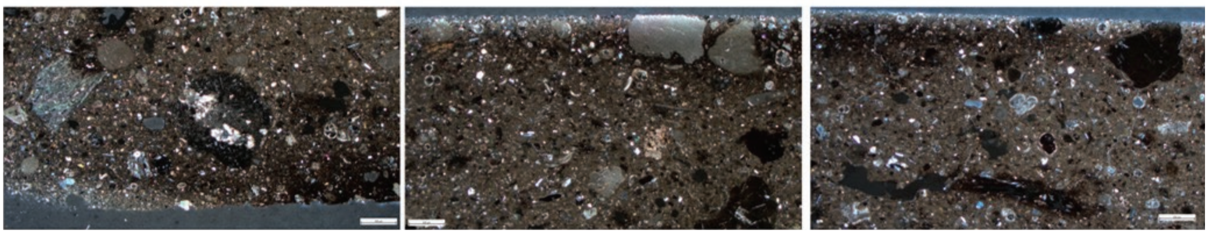
S4 - RL from Politiko-*Kokkinorotsos, assigned to Fabric V (photomicrographs taken under XP x2,5)*



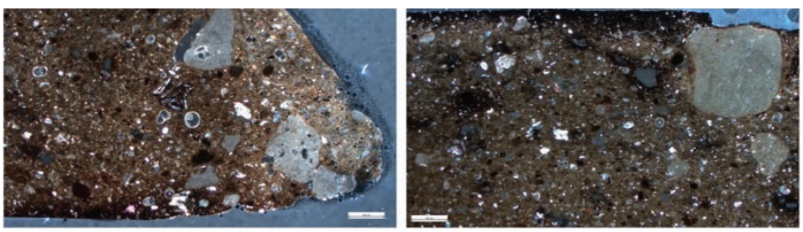
S8 - RBL from Politiko-*Kokkinorotsos, assigned to Fabric V (photomicrographs taken under XP x2,5)*



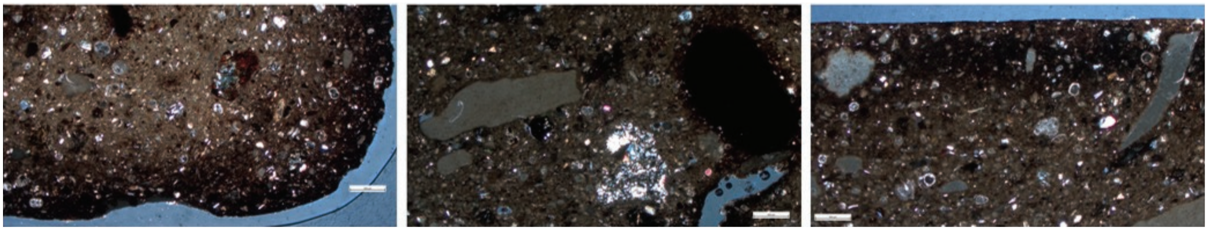
S11 - RBL from Politiko-*Kokkinorotsos, assigned to Fabric V (photomicrographs taken under XP x2,5)*



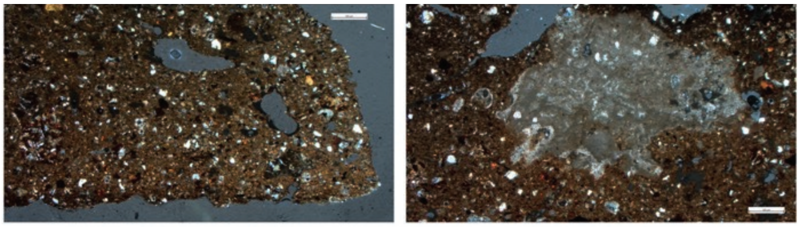
S14 - RBL from Politiko-*Kokkinorotsos, assigned to Fabric V (photomicrographs taken under XP x2,5)*



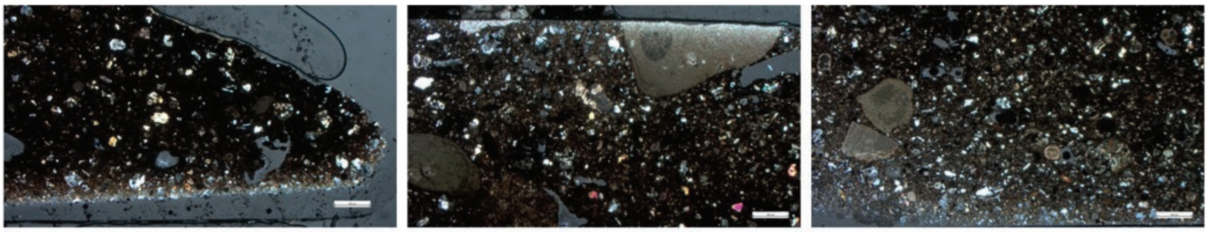
S15 - RBL from Politiko-*Kokkinorotsos, assigned to Fabric V*
(photomicrographs taken under XP x2,5)



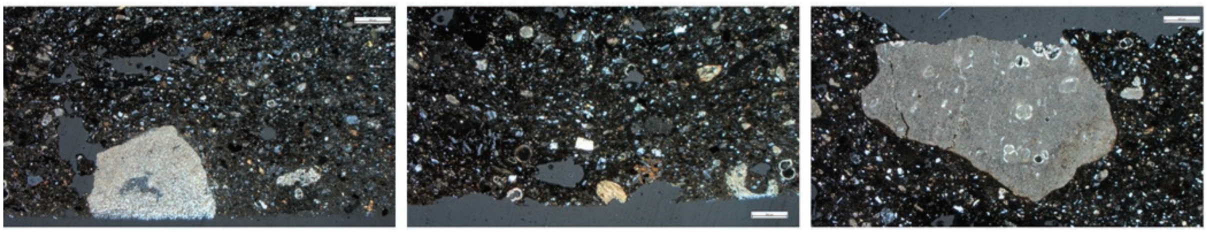
S18 - RBL from Politiko-*Kokkinorotsos, assigned to Fabric V (photomicrographs taken under XP x2,5)*



S19 - RBL from Politiko-*Kokkinorotsos, assigned to Fabric V (photomicrographs taken under XP x2,5)*

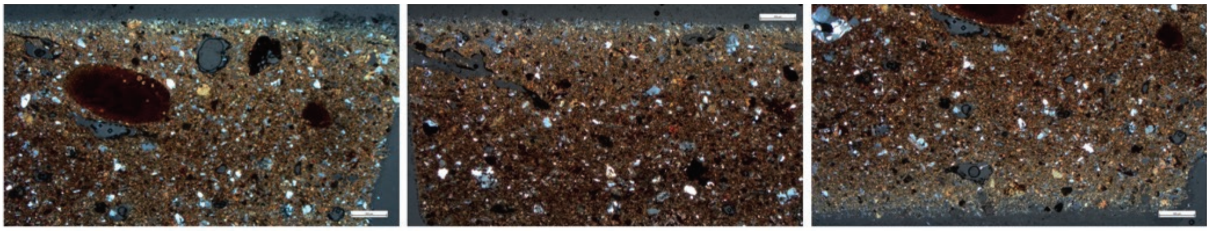


S20 - RBL from Politiko-*Kokkinorotsos, assigned to Fabric V (photomicrographs taken under XP x2,5)*

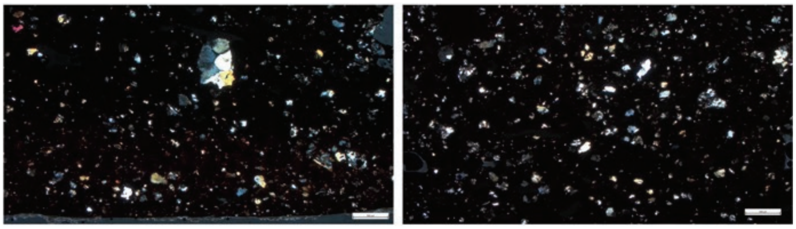


S21 - RBL from Politiko-*Kokkinorotsos, assigned to Fabric V (photomicrographs taken under XP x2,5)*

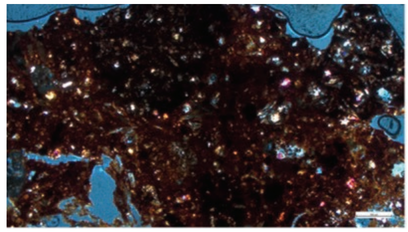
FABRIC VI: FABRIC WITH DOMINANT PRESENCE OF FELDSPARS AND DOLERITE
S1,S2, S3, S5, S6, S7, S9, S12, S10, S13, S17, S22, S23, S24 (14 samples, 17% of the overall sample)
Microstructure
Rare to absent planar voids (<2%), rare macro vughs (<2%) and common meso and micro-vughs (<5%). The voids are randomly oriented and are singe to open-spaced. The non-plastic inclusions are also randomly oriented.
Groundmass
Homogenous throughout the group. Samples are moderately optically active. Colours in crossed polars (XP) under x10 lens ranges from yellow to red-orange, and dark grey-brown. There is colour differentiation in S6, where a thin line in the middle of cross-section is dark grey-brown (1.4 mm in width), while the rest is dark orange (XP, x5). In S2, S9 and S12, a thin margin cross-section, parallel to the wall margins is grey-brown (0.6-0.7 mm in width), the rest is dark yellow (XP, x5). In S10 and S13, a thin margin cross-section, parallel to the wall margins is dark red-orange (0.3-2.8 mm in width), the rest is grey-brown (XP, x5). In S17, the margins at both the external and internal wall sides are dark brown-grey (0.6-0.8 mm in width), and in contrast with the bulk of the cross-section, which is yellow-brown (0.-0. mm in width) (XP, x5). There is no colour differentiation in S1, S3, S5, S7, S22, S23, and S24. A matrix-supported fabric.
Inclusions
c:f:v0.0625mm= 55:40:5 The matrix is fine with poorly sorted inclusions and bimodal grain-size distribution. The size of the coarse fraction ranges from pebbles to fine sand. The fine fraction is of fine sand and below. The packing of the coarse fraction is close- to double spaced, and that of the fine fraction is closed- to open-spaced. **Coarse Fraction** <u>Dominant:</u> Feldspar, mostly plagioclase, low sphericity, angular, <0.2 mm. <u>Dominant:</u> Polycrystalline quartz, high and low sphericity, angular and sub-angular. Largest fragment in S1 0.7x 0.6 mm. <u>Dominant:</u> Dolerite, high and low sphericity, angular, sub-angular and sub-rounded, <0.6 mm. Often weathered. Largest fragment in S3, 3.5x 1.4 mm. <u>Common:</u> Monocrystalline quartz, high and low sphericity, angular and sub-angular, <0.2 mm. <u>Common:</u> Serpentine, high and low sphericity, angular and sub-angular, <0.5 mm. <u>Common:</u> Biotite, high sphericity, angular, sub-angular and sub-rounded, <2 mm. <u>Common:</u> Opaques, black, high to low sphericity, rounded and sub-rounded, mostly equant, some elongated, <0.5 mm. <u>Common:</u> Clay pellets, high sphericity, sub-rounded, rounded and equant, up to 1.6 x 1.2 mm (in S5). <u>Common:</u> Orthopyroxene low sphericity, sub-angular, <0.9 mm. <u>Few:</u> Basalt, high sphericity, sub-rounded. Largest fragment in S17, 2.8x 1.5 mm. <u>Few:</u> Clinopyroxenes, low sphericity, sub-angular, <0.4 mm. <u>Rare:</u> Olivine, high sphericity, sub-rounded, <2 mm. <u>Rare:</u> Sandstone, high and low sphericity, sub-angular, sub-rounded and rounded, contains iron oxides, quartz, biotites, feldspars, opaques and/or mica. In S7, 2.8x 1.2 mm. <u>Rare:</u> Micritic limestone, high and low sphericity, sub-angular and angular, <0.8 mm. Contains microfossils, opaques and quartz grains in fine fraction. Largest fragment in S22, 6.9x 2.2 mm. <u>Rare:</u> Microfossils, predominantly foraminifera, some open and some calcite-filled. Calcite-filled are often covered by opaque or iron oxide. They range in size and go up to 0.3 mm. **Fine fraction** <u>Dominant:</u> feldspars, quartz <u>Common:</u> opaques, biotite <u>Few:</u> microfossils, mica, limestone
Comments
• Microcrystalline calcareous matrix. • Less high-fired than Fabric Group I.



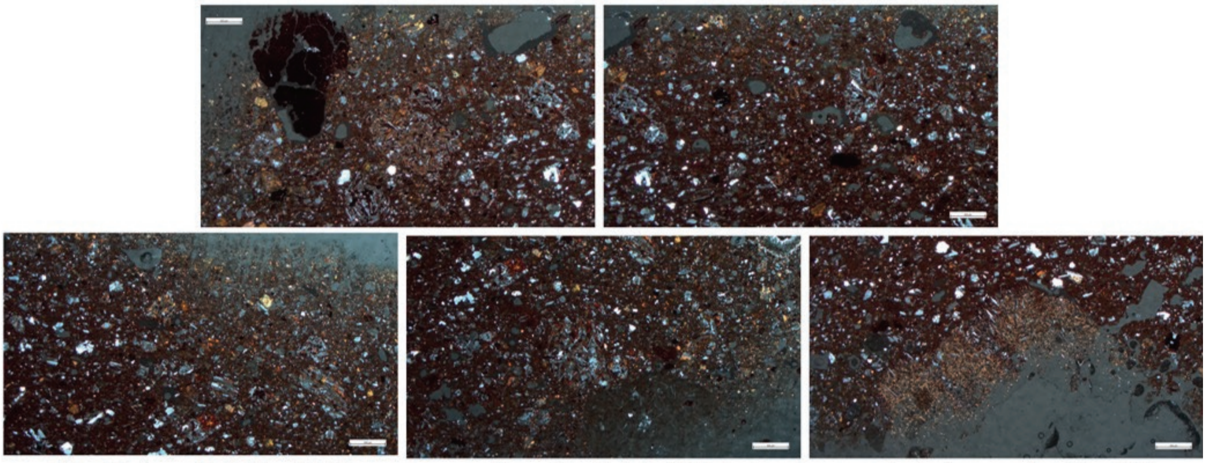
S1 - RL from Politiko-*Kokkinorotsos, assigned to Fabric VI (photomicrographs taken under XP x2,5)*



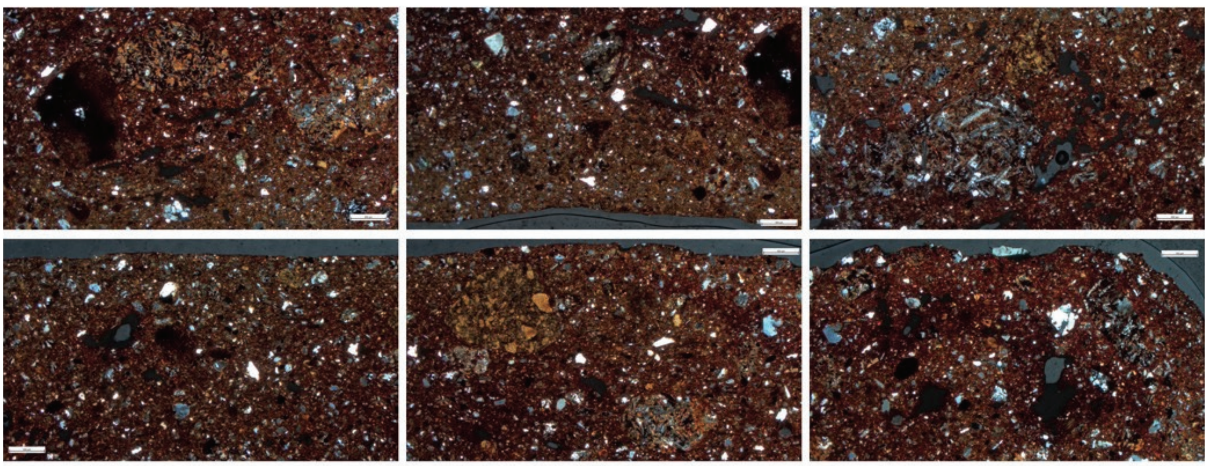
S2 - RL from Politiko-*Kokkinorotsos, assigned to Fabric VI (photomicrographs taken under XP x2,5)*



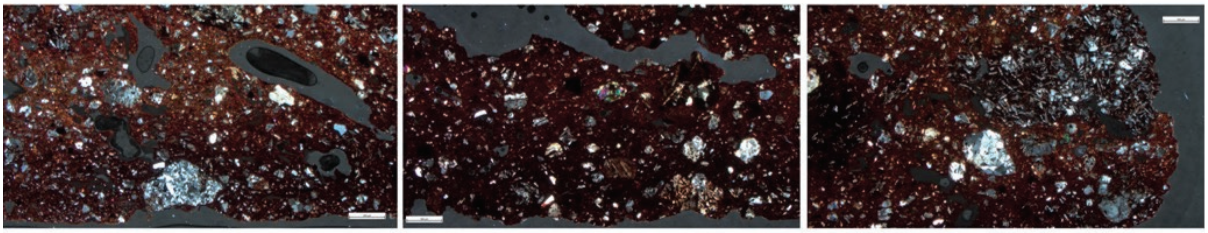
S22 - CW from Politiko-*Kokkinorotsos, assigned to Fabric VI (photomicrographs taken under XP x2,5)*



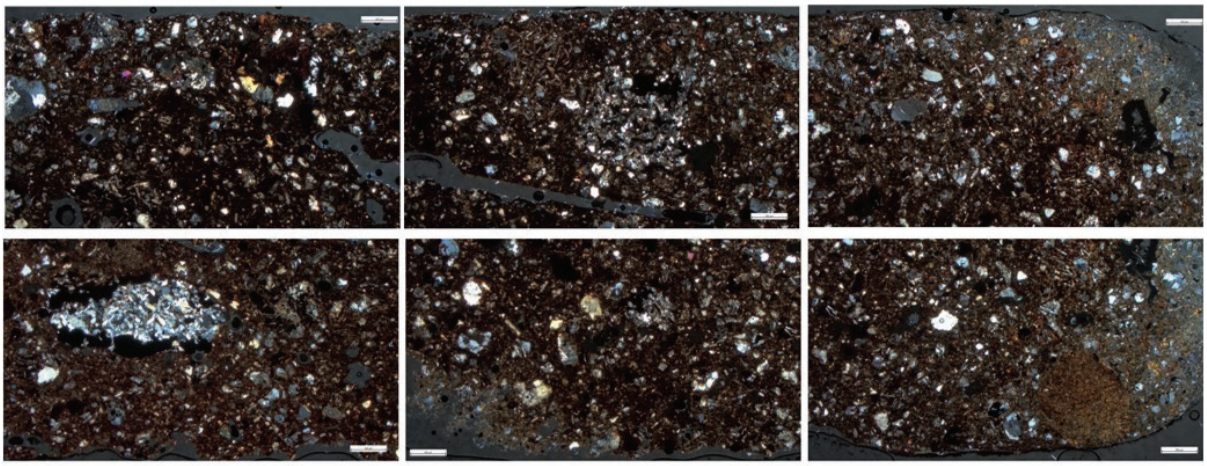
S3 - RL from Politiko-*Kokkinorotsos, assigned to Fabric VI (photomicrographs taken under XP x2,5)*



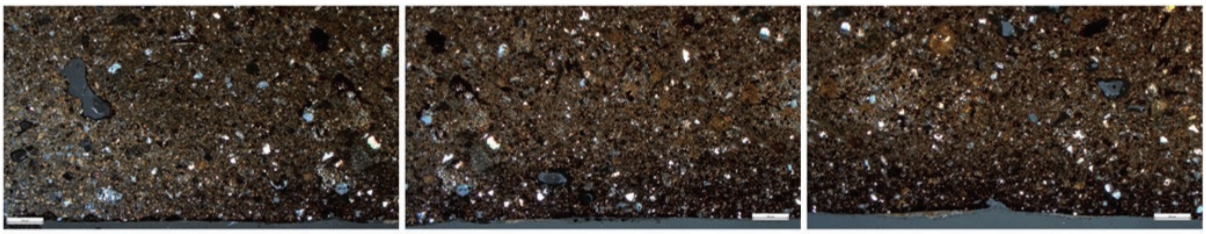
S5 - RL from Politiko-*Kokkinorotsos, assigned to Fabric VI (photomicrographs taken under XP x2,5)*



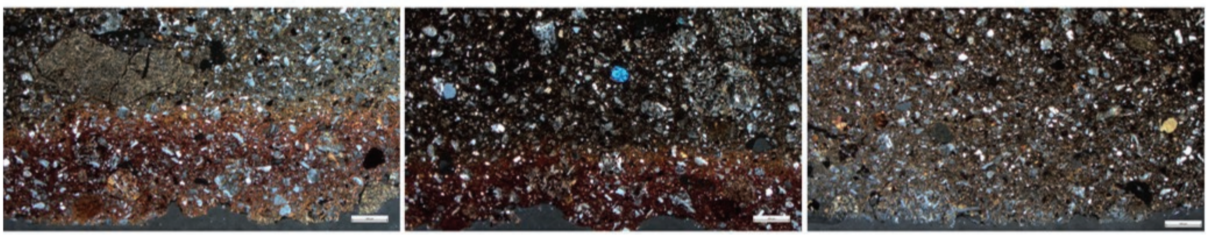
S6 - RL from Politiko-*Kokkinorotsos, assigned to Fabric VI (photomicrographs taken under XP x2,5)*



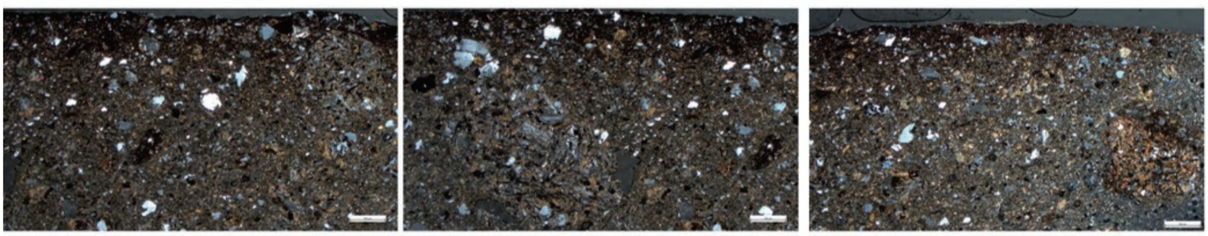
S7 - RBL from Politiko-*Kokkinorotsos, assigned to Fabric VI (photomicrographs taken under XP x2,5)*



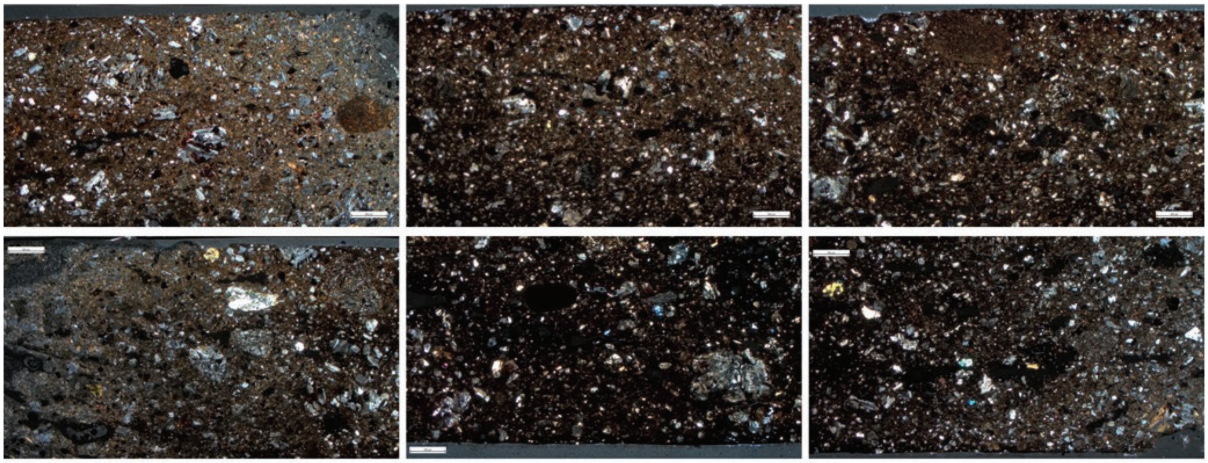
S9 - RBL from Politiko-*Kokkinorotsos, assigned to Fabric VI (photomicrographs taken under XP x2,5)*



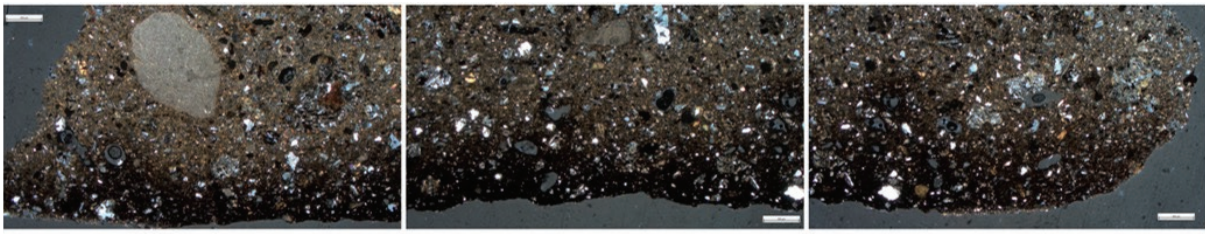
S10 - RBL from Politiko-*Kokkinorotsos, assigned to Fabric VI (photomicrographs taken under XP x2,5)*



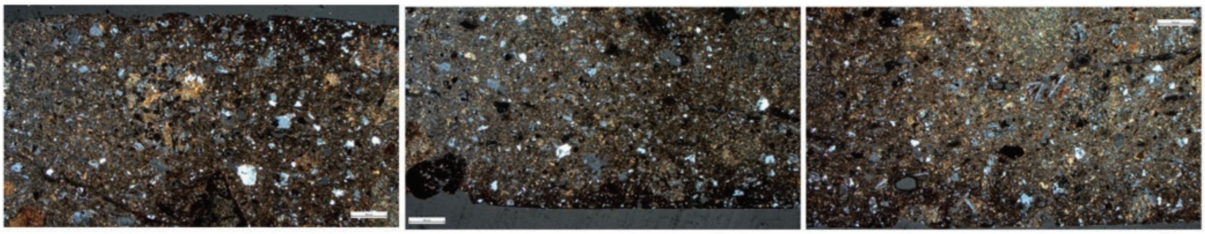
S12 - RBL from Politiko-*Kokkinorotsos, assigned to Fabric VI (photomicrographs taken under XP x2,5)*



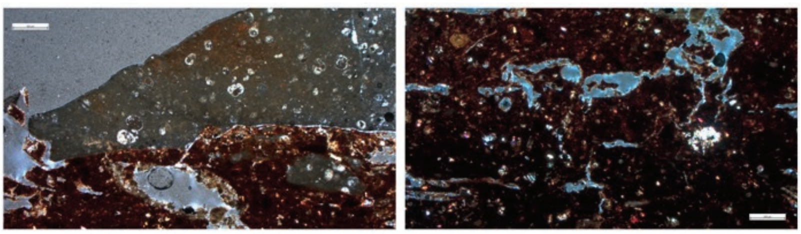
S13 - RBL from Politiko-*Kokkinorotsos, assigned to Fabric VI (photomicrographs taken under XP x2,5)*



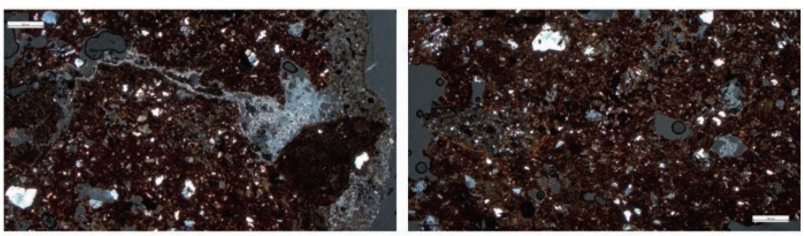
S16 - RBL from Politiko-*Kokkinorotsos, assigned to Fabric VI (photomicrographs taken under XP x2,5)*



S17 - RBL from Politiko-*Kokkinorotsos, assigned to Fabric VI (photomicrographs taken under XP x2,5)*



S22 - CW from Politiko-*Kokkinorotsos, assigned to Fabric VI (photomicrographs taken under XP x2,5)*



S24 - CW from Politiko-*Kokkinorotsos, assigned to Fabric VI (photomicrographs taken under XP x2,5)*

FABRIC VII: FABRIC WITH DOMINANT PRESENCE OF IGNEOUS COMPONENTS, ESPECIALLY DOLERITE AND BASALT

S57, S58, S59, S60, S61, S62, S63, S64, S65, S66, S67, S68, S69, S70, S81 (15 samples, 18% of the overall sample)

Microstructure

Rare to absent planar voids (<1%), rare macro vughs (<2%) and common meso and micro-vughs (<5%). The voids are randomly oriented and are singe to open-spaced. The non-plastic inclusions are also randomly oriented.

Groundmass

Homogenous throughout the group. Samples are moderately optically active.
Colour in crossed polars (XP) under x10 lens ranges from dark orange-red to dark grey-brown.
There is colour differentiation S60, S65 and S67, where a margin cross section, parallel to the wall margins is grey-brown (1-3 mm in width), the rest is orange-red.
In S66 and S68, a thin margin cross-section (1.4-2.5 mm in width), parallel to the wall margins is grey-brown, the rest is dark orange-yellow (XP, x5).
In S62, S69, and the margins at both the external and internal wall sides are dark orange-red (0.3-1.9 mm in width), and in contrast with the bulk of the cross-section, which is dark brown (XP, x5). There is no colour differentiation in S64 and S70, as due to the firing the whole sample is grey-black. There is no colour differentiation in S57, S58, S59, S61, S63, S71, and S81. A matrix-supported fabric.

Inclusions

c:f:v0.0625mm= 45:45:10
The matrix is fine with poorly sorted inclusions and bimodal grain-size distribution. The size of the coarse fraction ranges from pebbles to fine sand. The fine fraction is of fine sand and below. The packing of the coarse fraction is close- to double spaced, and that of the fine fraction is closed- to open-spaced.

Coarse Fraction

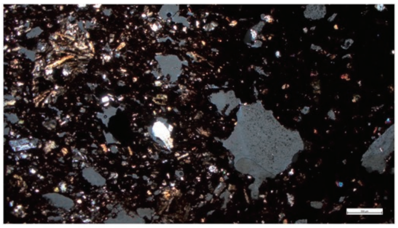
Dominant: Dolerite, high and low sphericity, angular, sub-angular and sub-rounded, <1.6 mm. Often weathered. Largest fragment in S70, 3.4x 1.6 mm.
Dominant: Basalt, high and low sphericity, angular, sub-angular and sub-rounded, <2.2 mm. Largest fragment in S79, 5.4x 2.8 mm.
Common: Clinopyroxenes, low sphericity, sub-rounded, contains mostly olivine, <0.7 mm. Some almost altered
Common: Feldspar, mostly plagioclase, low sphericity, angular, <0.3 mm.
Common: Quartz, monocrystalline and polycrystalline, high sphericity, sub-angular and sub-rounded, <0.5 mm.
Common: Opaques, black, high to low sphericity, rounded and sub-rounded, mostly equant, some elongated, <1.2 mm.
Few: Amphibole grains, high sphericity, sub-angular, equant, <0.5 mm (e.g. S69)
Few: Olivine, high sphericity, sub-angular and sub-rounded, <0.2 mm (e.g. S69).
Rare: Granitic rock.

Fine fraction

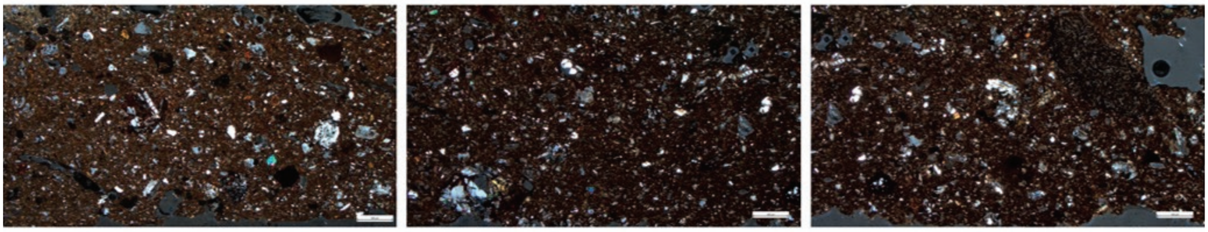
Dominant: feldspars, basalt
Common: quartz

Comments

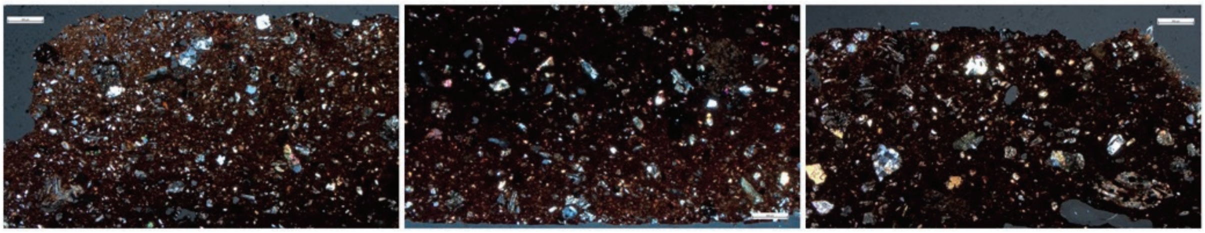
• There is no systemic processing of the clay at any stage of the chaîne opératoire.
• The mineral grains and rock fragments often seem weathered.
• The overwhelming presence of dolerite indicated that the clay source is situated up in the Troodos mountains.



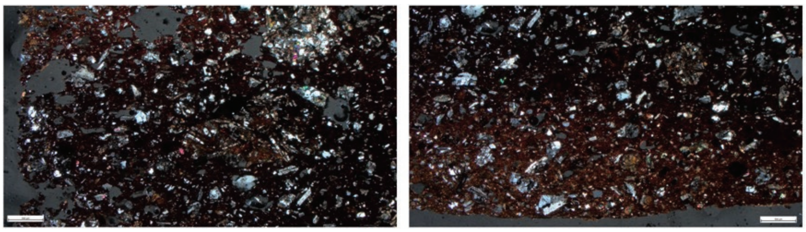
S57 - RL from Ambelikou-*Agios Georghios,*
assigned to Fabric VII (photomicrographs



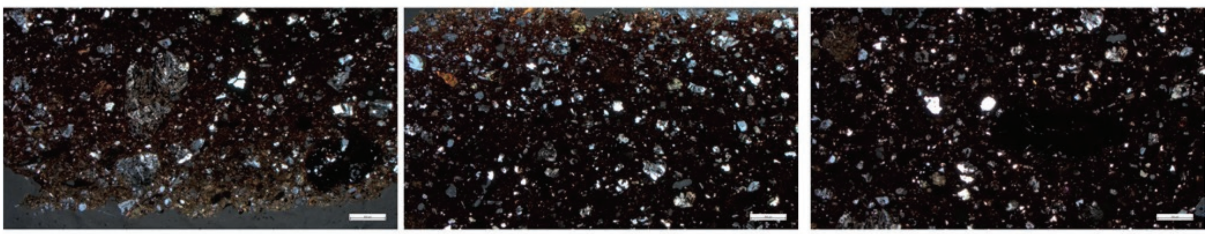
S58 - RL from Ambelikou-*Agios Georghios, assigned to Fabric VII (photomicrographs taken under XP x2,5)*



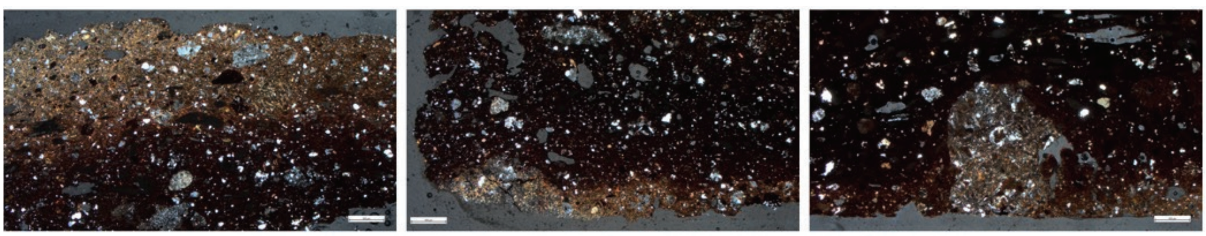
S59 - RL from Ambelikou-*Agios Georghios, assigned to Fabric VII (photomicrographs taken under XP x2,5)*



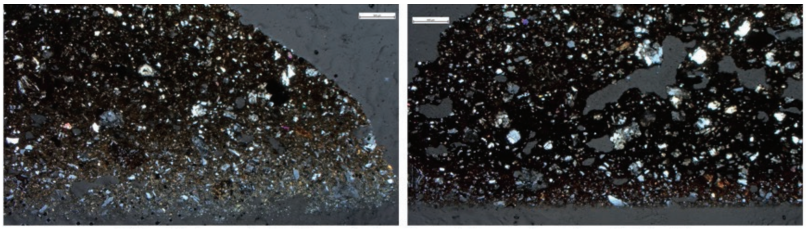
S60 - RL from Ambelikou-*Agios Georghios, assigned*
to Fabric VII (photomicrographs taken under XP x2,5)



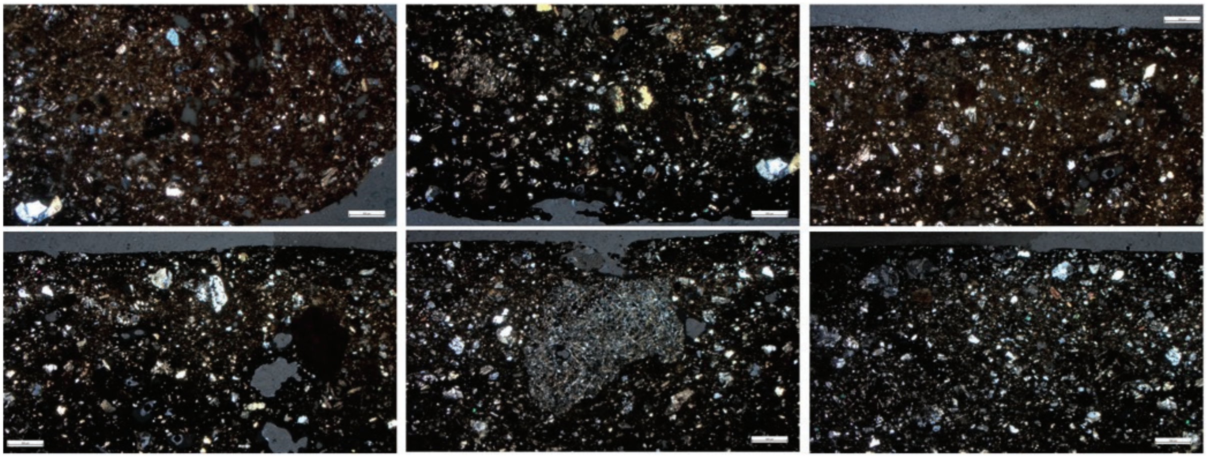
S61 - RL from Ambelikou-*Agios Georghios, assigned to Fabric VII (photomicrographs taken under XP x2,5)*



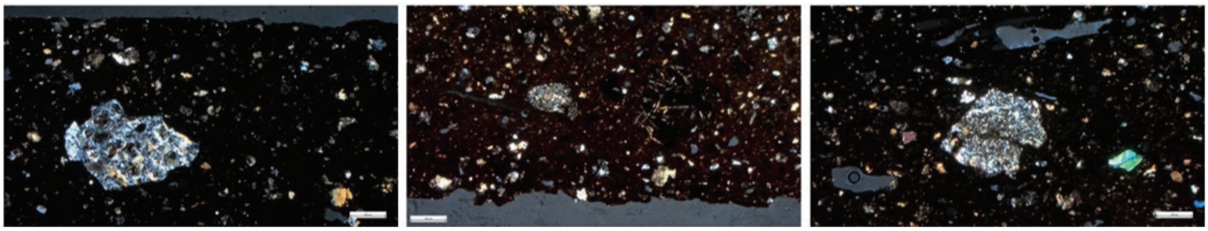
S62 - RL from Ambelikou-*Agios Georghios, assigned to Fabric VII (photomicrographs taken under XP x2,5)*



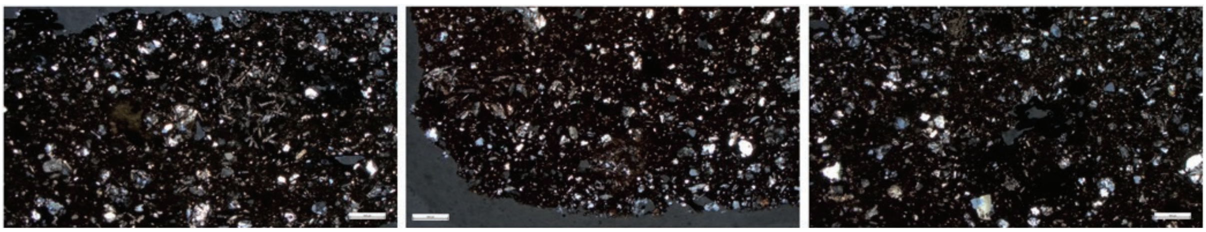
S63 - RL from Ambelikou-*Agios Georghios, assigned to Fabric VII (photomicrographs taken under XP x2,5)*



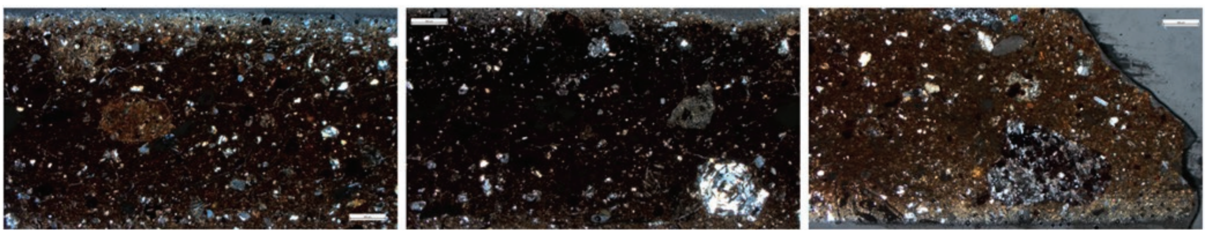
S64 - RBL from Ambelikou-*Agios Georghios, assigned to Fabric VII (photomicrographs taken under XP x2,5)*



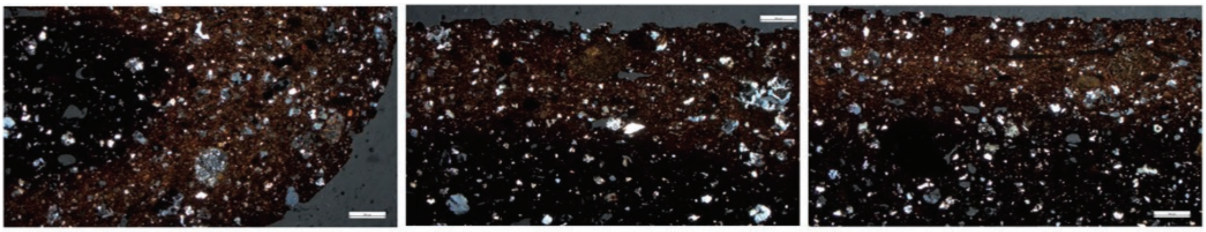
S65 - RBL from Ambelikou-*Agios Georghios, assigned to Fabric VII (photomicrographs taken under XP x2,5)*



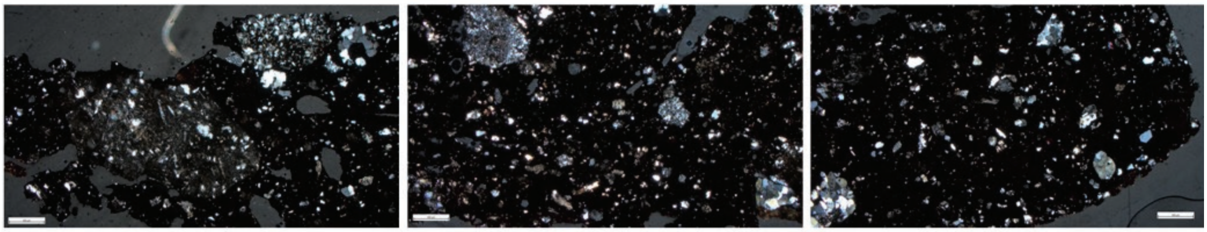
S67 - RBL from Ambelikou-*Agios Georghios, assigned to Fabric VII (photomicrographs taken under XP x2,5)*



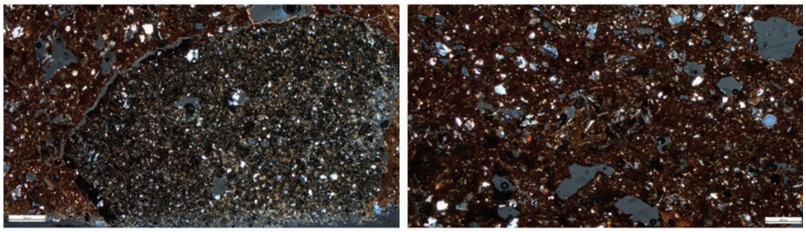
S68 - RBL from Ambelikou-*Agios Georghios, assigned to Fabric VII (photomicrographs taken under XP x2,5)*



S69 - RBL from Ambelikou-*Agios Georghios, assigned to Fabric VII (photomicrographs taken under XP x2,5)*

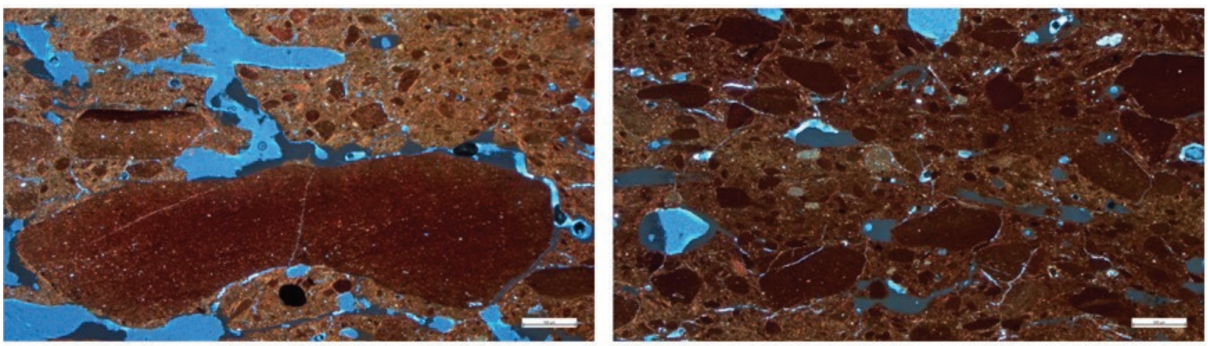


S70 - RBL from Ambelikou-*Agios Georghios, assigned to Fabric VII (photomicrographs taken under XP x2,5)*



S81 - RBL from Ambelikou-*Agios Georghios, assigned to Fabric VII (photomicrographs taken under XP x2,5)*

OUTLIER: FABRIC WITH DOMINANT PRESENCE OF RED ARGILLACEOUS INCLUSIONS
S49 (1 sample, 1% of the overall sample)
Microstructure
Rare macro vughs (<2%), some meso planar voids (<5%), occasionally parallel to the section's margins. Dominant meso and micro vughs (<10%). Voids are randomly oriented and are close- to double-spaced. The non-plastic inclusions are randomly oriented.
Groundmass
Homogenous. Sample is moderately optically active. Colour in crossed polars (XP) under x10 lens ranges from light to dark orange. A matrix-supported fabric.
Inclusions
c:f:v0.0625mm= 60:35:5 The matrix is fine with poorly sorted inclusions and bimodal grain-size distribution. The size of the coarse fraction ranges from pebbles to fine sand. The fine fraction is of fine sand and below. The packing of the coarse fraction is close- to double spaced, and that of the fine fraction is single- to open-spaced. **Coarse Fraction** Dominant: Argillaceous red to brown inclusions, almost homogenous, with some visible microcracks and darker outlines; high sphericity, sub-angular, sub-rounded and rounded, elongated (up to 3 mm in diameter) coexisting with equant ones. Sharp to clear boundaries. One large argillaceous inclusion high sphericity, sub-rounded, almost rectangular, up to 4x 2.3 mm. Other, elongated inclusion, low sphericity, well rounded up to 2.7 x 1.8 mm. Common: chert, high sphericity, equant, sub-angular, up to <0.9 mm. Common: opaques, black, high to low sphericity, rounded and sub-rounded, mostly equant, some elongated, <0.58 mm. Few: Quartz, monocrystalline, high sphericity up to 1.2 mm in diameter. Rare: sandstone, high sphericity, rounded <0.7mm **Fine fraction** Common: argillaceous inclusions, opaques, quartz Few: mica, serpentinite, biotite
Comments
• Closely related to Fabric Group I. • Sedimentary oriented fabric, fine pure enriched with argillaceous inclusions. • High-fired. • The homogeneous size and distribution of the red argillaceous inclusions in the fabric indicate that it has been added as temper in the clay mix. • Similar to a petrographic fabric of pithoi from Alassa identified by Nodarou (2017, Fabric Group 8, 9 and 10). Additionally, it also seems to be similar to Fabric IX, identified at Kissonerga-Ammoudhia by Graham (2013, p. 296-297, Appendix 4).



S49 - RB/B from Kissonerga-*Mosphilia, assigned as an Outlier (photomicrographs taken under XP x2,5)*

OUTLIER: FABRIC WITH DOMINANT PRESENCE OF IGNEOUS INCLUSIONS AND SEDIMENTARY COMPONENTS

S71 (1 sample, 1% of the overall sample)

Microstructure

Rare to absent planar voids (<1%), rare macro vughs (<2%) and common meso and micro-vughs (<5%). The voids are randomly oriented and are singe to open-spaced. The non-plastic inclusions are also randomly oriented.

Groundmass

Homogenous. Sample is moderately optically active.
Colour in crossed polars (XP) under x10 lens ranges from dark orange-red to dark grey-brown. There is no colour differentiation. A matrix-supported fabric.

Inclusions

c:f:v0.0625mm= 45:45:10
The matrix is fine with poorly sorted inclusions and bimodal grain-size distribution. The size of the coarse fraction ranges from pebbles to fine sand. The fine fraction is of fine sand and below. The packing of the coarse fraction is close- to double spaced, and that of the fine fraction is closed- to open-spaced.

Coarse Fraction

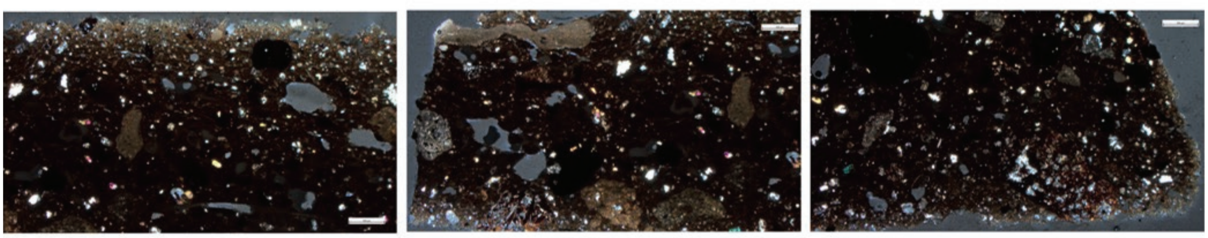
Dominant: Dolerite, high and low sphericity, angular, sub-angular and sub-rounded, <1.6 mm. Often weathered.
Dominant: Radiolarian chert, high and low sphericity, sub-rounded and sub-angular.
Common: Feldspar, mostly plagioclase, low sphericity, angular, <0.3 mm.
Common: Sandstone, high sphericity, sub-angular, sub-rounded and rounded, contains iron oxides, quartz, biotite, feldspars, opaques and/or mica, <0.6 mm.
Common: Quartz, monocrystalline and polycrystalline, high sphericity, sub-angular and sub-rounded, <0.5 mm.
Common: Opaques, black, high to low sphericity, rounded and sub-rounded, mostly equant, some elongated, <1.2 mm.
Few: Olivine, high sphericity, sub-angular and sub-rounded, <0.2 mm.

Fine fraction

Dominant: feldspars, opaques
Common: quartz

Comments

- This sample is closely related to Fabric Group VII. However, it is defined by the presence of sedimentary inclusions as well (e.g. chert, sandstone).



S71 - RBL from Ambelikou-*Agios Georghios, assigned as an Outlier (photomicrographs taken under XP x2,5)*

OUTLIER: FABRIC WITH DOMINANT PRESENCE OF QUARTZ, BASALTS AND CLINOPYROXENES

S79 (1 sample, 1% of the overall sample)

Microstructure

Rare to absent planar voids (<1%), rare macro vughs (<2%) and common meso and micro-vughs (<5%). The voids are randomly oriented and are singe to open-spaced. The non-plastic inclusions are also randomly oriented.

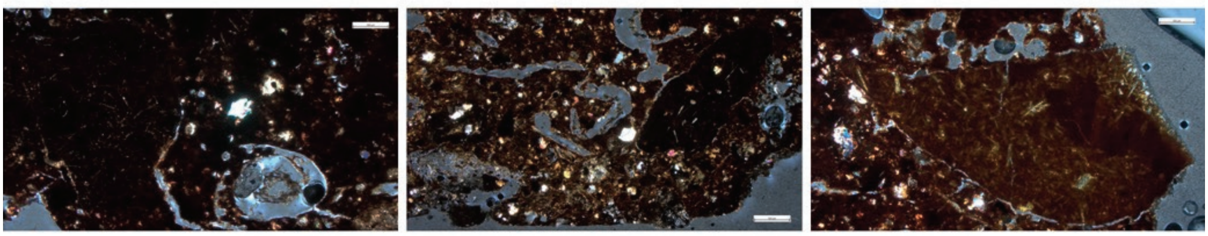
Groundmass

Homogenous. Sample is moderately optically active.
Colour in crossed polars (XP) under x10 lens ranges from dark orange-red to dark grey-brown. There is no colour differentiation. A matrix-supported fabric.

Inclusions

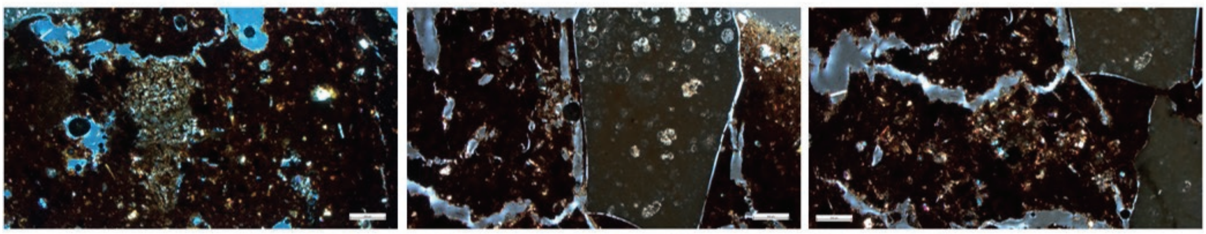
c:f:v0.0625mm= 45:45:10
The matrix is fine with poorly sorted inclusions and bimodal grain-size distribution. The size of the coarse fraction ranges from pebbles to fine sand. The fine fraction is of fine sand and below. The packing of the coarse fraction is close- to double spaced, and that of the fine fraction is closed- to open-spaced.
Coarse Fraction
<u>Dominant:</u> Basalt, high and low sphericity, angular, sub-angular and sub-rounded, <2.2 mm. Largest fragment in S79, 5.4x 2.8 mm.
<u>Dominant:</u> Clinopyroxenes, low sphericity, sub-rounded, contains mostly olivine, <0.7 mm. Some almost altered
<u>Dominant:</u> Quartz, monocrystalline and polycrystalline, high sphericity, sub-angular and sub-rounded, <0.5 mm.
<u>Common:</u> Feldspar, mostly plagioclase, low sphericity, angular, <0.3 mm.
<u>Common:</u> Dolerite, high and low sphericity, angular, sub-angular and sub-rounded, <1.3 mm.
<u>Common:</u> Opaques, black, high to low sphericity, rounded and sub-rounded, mostly equant, some elongated, <1.2 mm.
<u>Few:</u> Olivine, high sphericity, sub-angular and sub-rounded, <0.2 mm.
Fine fraction
<u>Dominant:</u> feldspars, basalt
<u>Common:</u> opaques, quartz, olivine

Comments



S79 - CW from Ambelikou-*Agios Georghios, assigned as an Outlier (photomicrographs taken under XP x2,5)*

OUTLIER: FABRIC WITH DOMINANT PRESENCE OF RADIOLARIAN CHERT AND ORTHOPYROXENES
S80 (1 sample, 1% of the overall sample)
Microstructure
Rare to absent planar voids (<1%), rare macro vughs (<2%) and common meso and micro-vughs (<5%). The voids are randomly oriented and are singe to open-spaced. The non-plastic inclusions are also randomly oriented.
Groundmass
Homogenous. Sample is compact, moderately optically active. Colour in crossed polars (XP) under x10 lens ranges from dark orange-red to dark grey-brown. There is no colour differentiation. A matrix-supported fabric.
Inclusions
c:f:v0.0625mm= 65:25:10 The matrix is fine with poorly sorted inclusions and bimodal grain-size distribution. The size of the coarse fraction ranges from pebbles to fine sand. The fine fraction is of fine sand and below. The packing of the coarse fraction is close- to double spaced, and that of the fine fraction is closed- to open-spaced. **Coarse Fraction** Dominant: Radiolarian chert, high and low sphericity, sub-rounded and sub-angular. Largest fragment is 3.1x 2 mm. Dominant: Orthopyroxene, low sphericity, sub-angular, <0.9 mm. Dominant: Micritic limestone, high and low sphericity, sub-angular and sub-rounded. Largest fragment 3.6 x2.6 mm. Common: Quartz, monocrystalline and polycrystalline, high sphericity, sub-angular and sub-rounded, <0.5 mm. Common: Opaques, black, high to low sphericity, rounded and sub-rounded, mostly equant, some elongated, <1.2 mm. Few: Olivine, high sphericity, sub-angular and sub-rounded, <0.2 mm. **Fine fraction** Dominant: feldspars, chert Common: opaques, quartz, olivine
Comments



S80 - CW from Ambelikou-*Agios Georghios, assigned as an Outlier (photomicrographs taken under XP x2,5)*

Appendix VII: The Chemical/Elemental Dataset of the Ceramic Sample

Name	Site	Ware	Shape	Provenance hypothesis	Petrofabric	Mg	Al	Si	P	K
S56	Kissonerga-Mosphilia	SW	jar	Ktima Lowlands	IV	4.54	7.59	27.94	0.10	1.04
S55	Kissonerga-Mosphilia	SW	jar	Ktima Lowlands	IV	4.65	8.30	27.14	0.08	1.09
S54	Kissonerga-Mosphilia	SW	jar	Ktima Lowlands	IV	2.26	7.12	27.69	0.11	1.46
S53	Kissonerga-Mosphilia	SW	jar	Ktima Lowlands	IV	5.01	8.31	26.10	0.09	0.95
S52	Kissonerga-Mosphilia	SW	jar	Ktima Lowlands	III	1.94	6.89	26.86	0.10	1.47
S51	Kissonerga-Mosphilia	SW	bowl	Ktima Lowlands	IV	4.18	8.62	26.86	0.09	1.22
S46	Kissonerga-Mosphilia	RB/B	bowl	Ktima Lowlands	III	4.57	8.71	26.60	0.07	1.11
S47	Kissonerga-Mosphilia	RB/B	bowl	Ktima Lowlands	I	1.16	9.36	29.40	0.06	1.02
S48	Kissonerga-Mosphilia	RB/B	bowl	Ktima Lowlands	III	1.59	9.89	28.42	0.07	1.15
S49	Kissonerga-Mosphilia	RB/B	bowl	Ktima Lowlands	II	1.10	9.34	29.27	0.06	0.88
S50	Kissonerga-Mosphilia	RB/B	bowl	Ktima Lowlands	III	5.27	8.12	25.94	0.07	1.06
S41	Chlorakas-Palloures	LChalRM	jar	northern Paphos	V	6.16	7.57	25.13	0.04	0.78
S43	Chlorakas-Palloures	LChalRM	bowl	northern Paphos	V	3.69	8.59	25.64	0.07	0.96
S44	Chlorakas-Palloures	LChalRM	jar	northern Paphos	V	5.77	7.40	26.96	0.05	0.45
S45	Chlorakas-Palloures	LChalRM	jar	northern Paphos	V	5.57	7.54	23.24	0.11	1.06
S34	Chlorakas-Palloures	SW	jar	Ktima Lowlands	IV	2.45	7.81	28.44	0.10	1.60
S36	Chlorakas-Palloures	SW	bowl	Ktima Lowlands	IV	2.41	8.06	28.78	0.09	1.56
S37	Chlorakas-Palloures	SW	bowl	Ktima Lowlands	IV	2.50	7.93	27.29	0.12	1.75
S38	Chlorakas-Palloures	SW	jar	Ktima Lowlands	IV	2.76	6.19	25.54	0.11	1.58
S39	Chlorakas-Palloures	SW	jar	Ktima Lowlands	IV	2.47	7.37	28.56	0.07	1.54
S40	Chlorakas-Palloures	SW	bowl	Ktima Lowlands	IV	2.77	7.97	27.85	0.09	1.62
S31	Chlorakas-Palloures	RB/B	bowl	Ktima Lowlands	I	1.60	10.05	27.31	0.07	1.03
S30	Chlorakas-Palloures	RB/B	bowl	Ktima Lowlands	I	1.68	8.76	26.29	0.12	1.23
S26	Chlorakas-Palloures	RB/B	bowl	Ktima Lowlands	III	4.40	8.43	24.25	0.11	1.18
S27	Chlorakas-Palloures	RB/B	bowl	Ktima Lowlands	III	1.61	9.13	28.23	0.11	1.18
S35	Chlorakas-Palloures	SW	bowl	Ktima Lowlands	IV	1.48	9.49	27.49	0.10	0.98
S25	Chlorakas-Palloures	RB/B	bowl	Ktima Lowlands	I	5.50	9.08	25.99	0.07	1.20
S29	Chlorakas-Palloures	RB/B	bowl	Ktima Lowlands	I	1.28	9.40	29.34	0.07	0.99
S28	Chlorakas-Palloures	RB/B	bowl	Ktima Lowlands	I	1.53	9.86	27.72	0.06	1.05
S32	Chlorakas-Palloures	RB/B	bowl	Ktima Lowlands	I	1.47	9.61	27.55	0.08	1.18
S33	Chlorakas-Palloures	RB/B	bowl	Ktima Lowlands	III	3.87	7.22	20.76	0.07	1.37
S42	Chlorakas-Palloures	LChalRM	jar	northern Paphos	V	3.34	8.87	24.11	0.05	0.74
S15	Politiko-Kokkinorotsos	RBL	jar	Ktima Lowlands	VI	3.57	7.61	21.93	0.09	1.30
S16	Politiko-Kokkinorotsos	RBL	bowl	Ktima Lowlands	VII	3.25	9.01	23.30	0.07	1.14
S17	Politiko-Kokkinorotsos	RBL	bowl	Ktima Lowlands	VII	2.52	8.86	23.88	0.10	0.61
S18	Politiko-Kokkinorotsos	RBL	jar	Ktima Lowlands	VI	3.11	6.39	19.87	0.13	1.45
S19	Politiko-Kokkinorotsos	RBL	jar	Ktima Lowlands	VI	2.99	7.84	22.17	0.11	0.77
S20	Politiko-Kokkinorotsos	RBL	bowl	Ktima Lowlands	VI	3.04	8.75	22.26	0.08	0.80
S21	Politiko-Kokkinorotsos	RBL	bowl	Ktima Lowlands	VI	3.47	7.13	20.31	0.12	1.70
S8	Politiko-Kokkinorotsos	RBL	jar	central/northern Cyprus	VI	2.42	6.72	20.22	0.11	1.86
S9	Politiko-Kokkinorotsos	RBL	bowl	central/northern Cyprus	VII	4.17	9.01	26.40	0.06	0.70

Ca	Ti	V	Mn	Fe	Ni	Cu	Zn	Rb	Sr	Ba	Total
1.70	0.44	0.13	0.07	5.84	0.03	0.01	0.01	0.01	0.02	0.02	49.45
1.70	0.46	0.14	0.06	5.87	0.02	0.01	0.01	0.01	0.02	0.02	49.58
6.39	0.34	0.11	0.14	4.47	0.01	0.02	0.01	0.01	0.03	0.04	50.23
2.09	0.48	0.13	0.11	6.85	0.03	0.03	0.02	0.01	0.03	0.03	50.26
8.55	0.33	0.11	0.13	4.38	0.01	0.01	0.01	0.01	0.03	0.04	50.87
1.70	0.52	0.13	0.14	6.35	0.02	0.00	0.01	0.01	0.02	0.03	49.90
1.57	0.53	0.13	0.11	6.40	0.03	0.01	0.01	0.01	0.02	0.04	49.92
0.66	0.42	0.13	0.20	6.40	0.01	0.01	0.01	0.01	0.03	0.02	48.89
0.53	0.38	0.13	0.04	6.92	0.01	0.02	0.02	0.01	0.02	0.03	49.24
1.00	0.42	0.13	0.21	6.49	0.01	0.01	0.01	0.01	0.03	0.03	48.98
1.85	0.46	0.13	1.09	6.11	0.03	0.01	0.01	0.01	0.02	0.03	50.20
2.42	0.10	0.13	0.11	8.47	0.03	0.04	0.01	0.00	0.04	0.03	51.06
2.85	0.18	0.14	0.10	8.61	0.01	0.02	0.01	0.00	0.04	0.03	50.93
1.99	0.13	0.13	0.18	6.86	0.01	0.02	0.03	0.00	0.03	0.02	50.03
3.38	0.10	0.22	0.16	10.58	0.05	0.02	0.01	0.00	0.07	0.07	52.18
4.21	0.37	0.11	0.09	4.34	0.01	0.01	0.01	0.01	0.03	0.03	49.63
3.23	0.41	0.10	0.10	4.48	0.01	0.00	0.01	0.01	0.02	0.03	49.32
5.01	0.37	0.12	0.15	4.88	0.01	0.01	0.01	0.01	0.02	0.04	50.23
9.34	0.34	0.16	0.40	5.01	0.01	0.01	0.01	0.01	0.04	0.05	51.58
4.18	0.37	0.11	0.10	4.83	0.01	0.01	0.01	0.01	0.03	0.03	49.68
4.02	0.37	0.11	0.13	4.81	0.01	0.01	0.01	0.01	0.02	0.04	49.84
1.08	0.42	0.14	0.09	7.65	0.01	0.26	0.01	0.01	0.02	0.02	49.78
3.49	0.43	0.15	0.09	8.39	0.01	0.01	0.01	0.01	0.02	0.03	50.75
5.34	0.48	0.13	0.57	6.21	0.03	0.00	0.01	0.01	0.03	0.03	51.21
1.29	0.42	0.17	0.50	6.71	0.01	0.01	0.02	0.01	0.02	0.05	49.47
1.88	0.43	0.14	0.10	7.66	0.01	0.01	0.01	0.01	0.02	0.04	49.86
1.03	0.47	0.11	0.08	6.30	0.03	0.01	0.01	0.01	0.02	0.03	49.94
0.80	0.39	0.12	0.33	6.01	0.01	0.01	0.01	0.01	0.02	0.03	48.81
0.97	0.40	0.11	0.54	7.21	0.01	0.00	0.01	0.01	0.03	0.03	49.55
0.76	0.42	0.12	0.09	8.55	0.01	0.01	0.01	0.01	0.03	0.03	49.94
1.25	0.30	0.10	7.88	9.73	0.19	0.03	0.02	0.01	0.04	0.27	53.12
1.75	0.16	0.14	0.32	12.35	0.02	0.02	0.03	0.00	0.04	0.04	51.99
11.74	0.26	0.11	0.34	5.90	0.01	0.01	0.01	0.00	0.09	0.09	53.07
5.98	0.38	0.12	0.26	8.44	0.01	0.02	0.02	0.00	0.05	0.05	52.09
2.38	0.46	0.16	0.24	12.80	0.01	0.03	0.04	0.00	0.04	0.07	52.18
16.57	0.26	0.14	0.48	5.89	0.01	0.01	0.01	0.00	0.09	0.08	54.49
8.57	0.38	0.17	0.25	9.56	0.00	0.02	0.01	0.00	0.09	0.24	53.17
6.12	0.50	0.16	0.26	10.76	0.00	0.02	0.02	0.00	0.04	0.05	52.86
11.31	0.30	0.13	0.72	8.83	0.02	0.02	0.01	0.01	0.09	0.08	54.26
7.69	0.32	0.18	5.27	9.02	0.01	0.02	0.02	0.01	0.11	0.15	54.12
1.66	0.32	0.13	0.10	7.50	0.01	0.01	0.01	0.00	0.03	0.04	50.15

S10	Politiko-Kokkinorotsos	RBL	bowl	central/northern Cyprus	VII	2.72	8.37	26.05	0.07	0.54
S11	Politiko-Kokkinorotsos	RBL	bowl	central/northern Cyprus	VI	3.44	8.77	24.28	0.07	1.39
S12	Politiko-Kokkinorotsos	RBL	jar	central/northern Cyprus	VII	2.96	9.76	24.66	0.05	0.50
S13	Politiko-Kokkinorotsos	RBL	jar	central/northern Cyprus	VII	2.66	9.00	26.50	0.08	0.54
S14	Politiko-Kokkinorotsos	RBL	jar	central/northern Cyprus	VI	2.85	6.64	21.06	0.12	1.23
S1	Politiko-Kokkinorotsos	RL	bowl	central/northern Cyprus	VII	2.56	8.59	25.40	0.08	0.64
S2	Politiko-Kokkinorotsos	RL	jar	central/northern Cyprus	VII	3.34	9.63	24.06	0.07	0.62
S3	Politiko-Kokkinorotsos	RL	jar	central/northern Cyprus	VII	3.35	9.76	23.01	0.06	1.75
S4	Politiko-Kokkinorotsos	RL	jar	central/northern Cyprus	VI	3.13	7.49	21.66	0.15	2.20
S5	Politiko-Kokkinorotsos	RL	jar	central/northern Cyprus	VII	2.50	8.98	26.61	0.04	0.57
S6	Politiko-Kokkinorotsos	RL	jar	central/northern Cyprus	VII	2.08	9.15	26.75	0.07	0.84
S7	Politiko-Kokkinorotsos	RL	jar	central/northern Cyprus	VII	2.36	8.70	27.90	0.05	0.77
S22	Politiko-Kokkinorotsos	CW	pan/ tray	central/northern Cyprus	VII	3.16	5.77	17.64	0.18	1.16
S23	Politiko-Kokkinorotsos	CW	pan/ tray	central/northern Cyprus	VII	2.61	7.72	26.35	0.06	0.77
S24	Politiko-Kokkinorotsos	CW	pan/ tray	central/northern Cyprus	VII	3.26	9.51	24.37	0.05	0.66
S69	Ambelikou-Agios Georghios	RL	bowl	central/northern Cyprus	VIII	3.16	9.25	26.66	0.04	0.91
S70	Ambelikou-Agios Georghios	RL	bowl	central/northern Cyprus	VIII	3.12	10.48	24.62	0.03	1.32
S71	Ambelikou-Agios Georghios	RL	bowl	central/northern Cyprus	Outlier	2.84	9.04	25.38	0.06	1.37
S72	Ambelikou-Agios Georghios	RB/B	bowl	Ktima Lowlands	I	1.81	10.06	28.29	0.05	1.02
S73	Ambelikou-Agios Georghios	RB/B	bowl	Ktima Lowlands	I	2.93	8.53	28.80	0.06	1.11
S64	Ambelikou-Agios Georghios	RBL	bowl	central/northern Cyprus	VIII	2.73	9.57	25.97	0.06	0.80
S65	Ambelikou-Agios Georghios	RBL	bowl	central/northern Cyprus	VIII	2.55	9.80	26.03	0.05	1.24
S66	Ambelikou-Agios Georghios	RBL	bowl	central/northern Cyprus	VIII	3.44	8.86	25.67	0.05	1.21
S67	Ambelikou-Agios Georghios	RBL	bowl	central/northern Cyprus	VIII	2.08	9.32	26.56	0.04	0.68
S68	Ambelikou-Agios Georghios	RBL	bowl	central/northern Cyprus	VIII	3.73	9.51	24.80	0.05	1.33
S57	Ambelikou-Agios Georghios	RL	bowl	central/northern Cyprus	VIII	3.01	9.63	25.69	0.05	0.82
S58	Ambelikou-Agios Georghios	RL	bowl	central/northern Cyprus	VIII	3.55	8.88	25.72	0.05	1.05
S59	Ambelikou-Agios Georghios	RL	bowl	central/northern Cyprus	VIII	2.66	9.03	26.68	0.05	1.08
S60	Ambelikou-Agios Georghios	RL	jar	central/northern Cyprus	VIII	2.60	9.10	25.76	0.05	1.10
S61	Ambelikou-Agios Georghios	RL	bowl	central/northern Cyprus	VIII	3.40	7.63	24.27	0.06	1.67
S62	Ambelikou-Agios Georghios	RL	bowl	central/northern Cyprus	VIII	3.80	9.64	25.67	0.03	1.08
S63	Ambelikou-Agios Georghios	RL	bowl	central/northern Cyprus	VIII	2.74	9.19	26.90	0.05	0.91

2.22	0.50	0.16	0.24	9.90	0.01	0.01	0.01	0.00	0.04	0.07	50.91
4.37	0.41	0.12	0.24	8.43	0.01	0.01	0.01	0.00	0.04	0.06	51.66
1.79	0.46	0.14	0.19	10.59	0.00	0.02	0.02	0.00	0.04	0.04	51.22
1.94	0.45	0.15	0.15	8.84	0.01	0.01	0.01	0.00	0.04	0.04	50.42
15.61	0.24	0.13	0.33	5.43	0.01	0.01	0.01	0.00	0.12	0.10	53.89
2.33	0.46	0.20	0.19	10.68	0.00	0.02	0.02	0.00	0.05	0.10	51.33
1.44	0.54	0.14	0.14	11.49	0.00	0.01	0.01	0.00	0.02	0.04	51.55
3.33	0.40	0.14	0.29	9.90	0.00	0.03	0.02	0.00	0.03	0.09	52.16
9.40	0.33	0.17	0.40	8.32	0.01	0.01	0.02	0.01	0.11	0.13	53.54
1.53	0.46	0.13	0.14	9.39	0.00	0.01	0.02	0.00	0.07	0.04	50.52
1.45	0.44	0.15	0.17	9.22	0.00	0.01	0.03	0.00	0.03	0.05	50.44
1.13	0.35	0.12	0.22	8.13	0.00	0.01	0.03	0.00	0.03	0.06	49.86
13.32	0.41	0.21	0.35	13.84	0.00	0.04	0.03	0.01	0.08	0.12	56.33
2.06	0.44	0.17	0.26	10.41	0.00	0.04	0.03	0.00	0.04	0.04	50.98
1.99	0.46	0.15	0.20	10.64	0.00	0.04	0.02	0.00	0.04	0.04	51.43
1.20	0.36	0.14	0.19	8.05	0.00	0.02	0.03	0.00	0.01	0.02	50.06
0.73	0.27	0.12	0.32	9.64	0.00	0.02	0.13	0.00	0.01	0.03	50.86
1.96	0.33	0.14	0.10	9.67	0.00	0.03	0.03	0.00	0.04	0.06	51.05
0.64	0.42	0.10	0.15	6.36	0.01	0.01	0.01	0.01	0.02	0.02	48.97
0.78	0.44	0.13	0.08	6.17	0.02	0.01	0.01	0.01	0.02	0.03	49.11
1.08	0.42	0.14	0.30	9.36	0.01	0.03	0.02	0.00	0.01	0.03	50.53
0.81	0.44	0.15	0.23	9.08	0.00	0.01	0.03	0.00	0.01	0.03	50.47
1.31	0.35	0.15	0.20	9.41	0.00	0.02	0.04	0.00	0.03	0.03	50.75
0.78	0.43	0.15	0.18	9.68	0.00	0.02	0.03	0.00	0.01	0.03	50.00
1.36	0.34	0.14	0.17	9.52	0.00	0.02	0.02	0.00	0.04	0.03	51.05
1.25	0.43	0.14	0.16	9.39	0.00	0.03	0.01	0.00	0.01	0.02	50.65
1.85	0.38	0.14	0.18	8.90	0.00	0.06	0.01	0.00	0.01	0.02	50.81
1.16	0.47	0.14	0.15	8.71	0.00	0.04	0.01	0.00	0.01	0.01	50.21
1.93	0.41	0.15	0.18	9.55	0.00	0.05	0.01	0.00	0.02	0.03	50.93
1.82	0.42	0.16	0.18	11.89	0.00	0.04	0.04	0.00	0.02	0.04	51.63
1.28	0.30	0.12	0.15	7.96	0.00	0.02	0.01	0.00	0.02	0.01	50.09
1.13	0.41	0.14	0.17	8.33	0.00	0.02	0.03	0.00	0.02	0.04	50.08

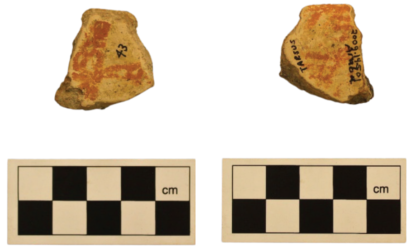
S74	Ambelikou-Agios Georghios	SW	jar	Ktima Lowlands	IV	2.66	7.26	29.72	0.07	1.55
S75	Ambelikou-Agios Georghios	SW	jar	Ktima Lowlands	IV	2.53	7.75	27.96	0.09	1.59
S76	Ambelikou-Agios Georghios	SW	jar	Ktima Lowlands	IV	2.58	7.41	28.63	0.08	1.69
S77	Ambelikou-Agios Georghios	SW	jar	Ktima Lowlands	IV	2.97	8.09	28.73	0.07	1.63
S78	Ambelikou-Agios Georghios	SW	jar	Ktima Lowlands	IV	2.94	7.50	23.93	0.11	1.65
S79	Ambelikou-Agios Georghios	CW	pan/ tray	central/northern Cyprus	Outlier	3.74	8.89	25.52	0.05	1.60
S80	Ambelikou-Agios Georghios	CW	pan/ tray	central/northern Cyprus	Outlier	3.84	8.52	25.23	0.05	1.63
S81	Ambelikou-Agios Georghios	CW	pan/ tray	central/northern Cyprus	VIII	3.38	9.13	25.17	0.05	1.32

Name	Site	Mg	Al	Si	P	K	Ca	Ti	V	Mn	Fe
SARM69-mean			1.62	8.53	29.16	0.13	1.56	1.51	0.35	0.15	0.12
SARM69-mean			1.57	8.86	28.61	0.13	1.60	1.69	0.37	0.15	0.13
SARM69-mean			1.72	8.86	28.67	0.13	1.61	1.51	0.38	0.14	0.13
SARM69-mean			1.80	8.83	28.66	0.13	1.62	1.53	0.35	0.15	0.13
SARM69-mean			1.46	8.94	28.73	0.14	1.60	1.52	0.36	0.15	0.14
SARM69-mean			1.63	8.80	28.77	0.14	1.60	1.55	0.36	0.15	0.13
SARM69-min			1.46	8.53	28.61	0.13	1.56	1.51	0.35	0.14	0.12
SARM69-max			1.80	8.94	29.16	0.14	1.62	1.69	0.38	0.15	0.14
SARM69-stdev			0.13	0.16	0.22	0.00	0.02	0.08	0.01	0.00	0.01

2.52	0.32	0.11	0.10	4.67	0.01	0.00	0.01	0.01	0.02	0.03	49.08
3.88	0.36	0.11	0.13	5.25	0.01	0.01	0.01	0.01	0.03	0.03	49.75
3.37	0.37	0.14	0.11	5.11	0.01	0.01	0.01	0.01	0.03	0.03	49.59
2.59	0.35	0.03	0.09	4.49	0.01	0.01	0.01	0.01	0.02	0.03	49.11
7.46	0.39	0.11	0.22	7.44	0.02	0.01	0.02	0.02	0.04	0.05	51.92
1.71	0.34	0.15	0.14	8.55	0.00	0.02	0.02	0.00	0.01	0.01	50.77
1.18	0.33	0.15	0.97	9.11	0.00	0.03	0.03	0.00	0.02	0.02	51.13
1.08	0.41	0.15	0.18	10.07	0.01	0.05	0.02	0.00	0.02	0.03	51.06

Ni	Cu	Zn	Rb	Sr	Ba	Total	
5.91	0.01	0.01	0.01	0.01	0.01	0.07	49.17
6.16	0.01	0.01	0.01	0.01	0.01	0.06	49.38
6.03	0.01	0.01	0.01	0.01	0.01	0.06	49.30
6.02	0.01	0.01	0.01	0.01	0.01	0.06	49.31
6.13	0.01	0.01	0.01	0.01	0.01	0.07	49.29
6.05	0.01	0.01	0.01	0.01	0.01	0.07	49.29
5.91	0.01	0.01	0.01	0.01	0.01	0.06	
6.16	0.01	0.01	0.01	0.01	0.01	0.07	
0.10	0.00	0.00	0.00	0.00	0.00	0.00	

Appendix VIII: Macroscopic Analysis of the Cypriot Sherds in the Tarsus-*Gözlükule* Pottery Reference Collection at Bryn Mawr College

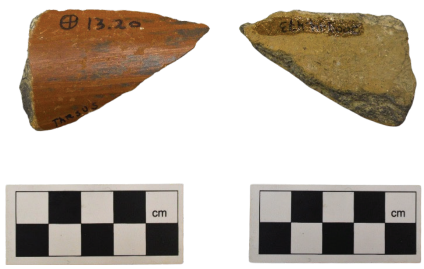
Sherd No.	2009.14.501 
Ware	RW
Chronology of Ware in Cyprus	MChal
Context	EB II deposit
Shape	bowl – straight thinning pointed rim
Degree of preservation	Average
Surface treatment – Interior/Exterior	Painted on both sides, undistinguished patterns
Degree of oxidation or reduction	oxidised, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.7 cm
Rim diameter	

Sherd No.	2009.14.502 
Ware	RW
Chronology of Ware in Cyprus	MChal
Context	EB II deposit
Shape	bowl – open body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Painted on both sides, lattice exterior, uniform red interior
Degree of oxidation or reduction	oxidised, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.5 cm
Rim diameter	

Sherd No.	2009.14.470 
Ware	BSC
Chronology of Ware in Cyprus	Philia Phase
Context	EB II deposit – TAN, Room 107, Floor; Date: December 14, 1938; Meters: 16.11
Shape	closed body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior red black burnished, interior uniform reduced
Degree of oxidation or reduction	reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.8 cm
Rim diameter	

Sherd No.	2009.14.471 
Ware	BSC
Chronology of Ware in Cyprus	Philia Phase
Context	EB II deposit – Room 103, Floor; Date: December 10, 1938; Meters: 15.22 - 15.88
Shape	closed body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior red black burnished, interior uniform reduced
Degree of oxidation or reduction	reduced, diffused core margins
Fabric Hardness	Hard
Wall thickness	0.6 cm
Rim diameter	

Sherd No.	2009.14.472 
Ware	BSC
Chronology of Ware in Cyprus	Philia Phase
Context	EB II deposit – Meters: 14.40
Shape	open body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior red black burnished, interior red/orange slipped
Degree of oxidation or reduction	reduced, no core
Fabric Hardness	Hard
Wall thickness	1.1 cm
Rim diameter	

Sherd No.	2009.14.473 
Ware	BSC
Chronology of Ware in Cyprus	Philia Phase
Context	EB II deposit – Meters: 13.20
Shape	closed body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior red black burnished, interior untreated
Degree of oxidation or reduction	Oxidised, defused core margins
Fabric Hardness	Hard
Wall thickness	0.9 cm
Rim diameter	

Sherd No.	2009.14.473  
Ware	BSC
Chronology of Ware in Cyprus	Philia Phase
Context	EB II deposit – Meters: 13.20
Shape	closed body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior red black burnished, interior untreated
Degree of oxidation or reduction	Oxidised, defused core margins
Fabric Hardness	Hard
Wall thickness	0.9 cm
Rim diameter	

Sherd No.	2009.14.474   
Ware	BSC
Chronology of Ware in Cyprus	Philia Phase
Context	EB II deposit
Shape	open body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior red black burnished, interior uniform reduced and bur-nished
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.7 cm
Rim diameter	

Sherd No.	2009.14.475 
Ware	BSC
Chronology of Ware in Cyprus	Philia Phase
Context	EB II deposit – TAL, Room 62, Floor; Date: April 20, 1938; Meters: 10.11
Shape	closed body sherd
Degree of preservation	Average
Surface treatment – Interior/Exterior	Exterior red black burnished, interior uniform reduced
Degree of oxidation or reduction	Reduced, no core
Fabric Hardness	Hard
Wall thickness	0.7 cm
Rim diameter	

The Late Chalcolithic period (ca. 2900–2400 BC) in Cyprus was a dynamic phase of significant social and material transformations, paving the way for the island's transition into the Bronze Age. During this time, Cyprus moved away from earlier apparent isolation, exhibiting numerous indirect signs of interaction with neighboring regions. These sociocultural changes are particularly reflected in pottery, with previous studies primarily focusing on the morphological characterization of contemporary wares.

This study conducts an intra- and inter-site compositional and technological analysis of ceramic fabrics from four Late Chalcolithic sites in southwestern and central Cyprus: Chlorakas-Palloures, Kissonerga-Mosphilia, Ambelikou-Agios Georghios, and Politiko-Kokkinorotsos. Various ware types were examined using ceramic thin-section petrography and handheld energy-dispersive X-ray fluorescence spectrometry to assess their mineralogical, chemical, and technological properties. These analytical data were integrated with contextual information and a detailed macroscopic study of all selected samples. Additionally, a pottery dataset from Tarsus-Gözlükule in Anatolia was examined macroscopically and incorporated into the study to explore potential interactions between Cypriot and Anatolian crafting communities.

This research aims to investigate pottery technologies and their degree of technological variability at local, regional, and interregional levels. It also seeks to examine the organization of pottery production and distribution patterns, with a particular focus on identifying potential inter-site interaction networks within and outside Cyprus during the Late Chalcolithic period.