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

ELIF ÜNLÜ

A DISSERTATION

in

Art and Archaeology of the Mediterranean World

Presented to the Faculties of the University of Pennsylvania

in

Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

2009

Supervisor of Dissertation
Dr. Thomas F. Tartaron

Graduate Group Chairperson
Dr. Robert G. Ousterhout

Dissertation Committee
Dr. Thomas F. Tartaron
Dr. Philip P. Betancourt
Dr. Holly Pittman
INFORMATION TO USERS

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleed-through, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

UMI®

UMI Microform 3381877
Copyright 2009 by ProQuest LLC
All rights reserved. This microform edition is protected against unauthorized copying under Title 17, United States Code.

ProQuest LLC
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106-1346
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

©

2009

Elif Ünlü
This dissertation is dedicated to my parents
for loving me through every skin I shed.
First and foremost, I would like to thank Dr. Aslı Özyar for her unwavering support, invaluable guidance, and warm friendship not only throughout the process of writing my dissertation, but since the start of my journey in the field of archaeology.

I would also like to thank my close circle of friends and family for putting up with me through this rollercoaster experience of envisioning, designing, and writing of a dissertation. They have been an anchor to reason and sanity.
ABSTRACT

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

Elif Ünlü

Dr. Tom F Tartaron

This dissertation presents a technological and stylistic assessment of Early Bronze Age pottery production at Tarsus-Gözlükule, a multi-period mound settlement located in the Cilician Plain in southern Turkey.

Pottery production, like all other man-made objects, is firstly a technological act. This dissertation maintains that material style (involving formal, technical, and decorative choices expressed by the artisan) of an artifact should be investigated as a whole as such an integrative study would be the most adequate way of understanding economic circumstances, social representation, and cultural boundaries.

To facilitate this integrative investigation, seventy-two samples of Early Bronze Age pottery excavated from Tarsus-Gözlükule in the 1930s and 1940s were selected for mineralogical, morphological, and chemical analyses.
and powder X-Ray Diffraction analyses were performed to determine the mineralogical makeup, Environmental Scanning Electron Microscope imagery was used to determine the morphology of these samples, and semi-quantitative Energy Dispersive X-Ray Spectroscopy analysis was performed on some samples to determine chemical properties of the clays. As a result of these scientific analyses various fabric groups were established. Afterwards formal shape and stylistic analysis was performed where shapes and surface treatments of the samples were analyzed and compared to the known local and non-local examples.

Such an integrative approach to pottery production facilitates a better definition of the local pottery production process and enables an assessment of the technological know-how of the local pottery producers, their labor organization and its role within the operating markets, their function within the sociopolitical structure, and how such issues relate to the cultural boundaries within the community. Defining the paradigm of the local pottery production process leads to a broader investigation of issues related to the technological transfer of know-how and its social impact upon the pottery producers, the functional and symbolic role of the imported pottery and its local imitations within the community, and the significance of commodity exchange for the identity of individuals, networks of producers, and the community as a whole.
# TABLE OF CONTENTS

INTRODUCTION .................................................................................................................. 1

THEORETICAL FRAMEWORK FOR STUDYING THE TECHNOLOGY OF ANCIENT ARTIFACTS .................................................................................................................. 4

METHODOLOGY .................................................................................................................. 12

GEOLOGY OF THE REGION ............................................................................................... 24

THE EARLY BRONZE AGE PERIOD IN CILICIA: A GENERAL APPRAISAL .................. 31

Surveys in Cilicia .............................................................................................................. 35

Excavations ....................................................................................................................... 39

Tarsus-Gözlükule ............................................................................................................ 39

Mersin-Yumuktepe ......................................................................................................... 47

Kinet Höyük ..................................................................................................................... 49

Kilise Tepe ......................................................................................................................... 51

General Remarks ............................................................................................................. 54

EARLY BRONZE AGE POTTERY PRODUCTION TECHNOLOGY: A COMPREHENSIVE ANALYSIS ........................................................................................................... 57

Local Fabric I ................................................................................................................... 61

Local Fabric II – Reduced Fired Group ........................................................................... 74

Local Fabric III ................................................................................................................ 81

Local Fabric IV – Chaff Tempered Group ...................................................................... 97

Local Fabric V - EB I-II Red Burnished Group ............................................................... 102

Scored Ware ................................................................................................................... 110

Cross-Stitch Incised Ware .............................................................................................. 114

Chevron Incised Fabric .................................................................................................. 117

Anatolian Metallic Fabric ............................................................................................... 120

Red and Black Streak Burnished Ware ........................................................................ 125

Spiral Burnished Ware ................................................................................................... 129

Miscellaneous Samples ................................................................................................. 136

CONCLUSION ................................................................................................................... 164

vii
List of Figures

Figure 1: % Distribution of Leading Local Fabrics during EBA
Figure 2: Local Fabric I Shapes During EB I-II Periods
Figure 3: Local Fabric I Shapes During EB III Period
Figure 4: Local Fabric III Typical Closed Shapes
Figure 5: Local Fabric III EB I Open Shapes
Figure 6: Local Fabric IV Typical Shapes
Figure 7: Local Fabric II Typical Shapes
Figure 8: Local Fabric V Shapes
Figure 9: Typical Polarized Light Microscope Images under XPL for Five Leading Local Fabric Groups
Figure 10: Relative Chronological Chart of Relevant Regions

List of Maps

Map 1: Geological Map of Cilicia, Rough Cilicia, and the Taurus Mountains from MTA (General Directorate of Mineral Research and Exploration) at http://www.mta.gov.tr/v1.0/haritalar/geoloji_haritalari/image/adana.html

Map 2: Main Early Bronze Age Settlements in Anatolia from Arkeo Atlas vol. 2, June 2003

Map 3: Registered EBA settlements in Cilicia from TAY-GIS Project (The Archeological Settlements in Turkey) http://taygis.tayproject.org/TAYGIS_ENG/TAYGISeng.html


Map 5: Current Topographic Map of the Mound of Tarsus-Gözüküle
INTRODUCTION

The aim of all archaeological study is to understand the social, economic, and cultural history of peoples based on the material culture they have left behind. Material culture is created when artisans transform raw materials into usable artifacts by applying technology.¹ Because artisans shape raw materials to a culturally preconceived standard using culturally preconceived methods when creating them, artifacts carry cultural meaning beyond their functionality.² Material culture is the primary source data for the archaeologist, but when the mirror is the mind of the modern scholar, the interpretation of and the meaning attributed to the artifacts amount to a mere reflection of the real modus vivendi of the people who created them even under the best circumstances. Given these inherent limitations in archaeological scholarship, imposing more restrictions by being selective about the aspects of a certain artifact under study, takes the archaeologist further away from the ultimate goal. Nevertheless, the usual practice is to pay more attention to one or the other characteristic of an artifact, depending on the philosophical disposition of the archaeological community at that time. This often results in a bias towards an artificially emphasized characteristic, such as decorative style, shape, or production technology, which becomes the explanatory marker when interpreting and reconstructing the history of a people.

¹ Costin, 2000, p. 379.
Pottery, being the most prolific artifact recovered in prehistoric excavations, has become the main proxy tool for archaeologists in interpreting social, economic, and cultural aspects of a settlement from this period, but typically only a few aspects of pottery assemblages, such as decorative style or shape of the vessels, are brought to bear. This dissertation aims to approach pottery analysis in its totality, combining all aspects related to its production and consumption that is accessible the modern scholar. The anchoring premise of this dissertation is that one may gain a deeper insight into the less tangible aspects of a society under study by integrating all available data on an artifact rather than focusing on particular aspects or characteristics.

For that purpose, carefully selected samples from the Early Bronze Age (henceforth EBA) period of Tarsus-Gozlûkule were subjected to various scientific analyses, the results of which were then combined with formal shape and stylistic analysis and comparison. The EBA in Anatolia is a formative period leading to more complex social and economic systems, which has received relatively little attention in archaeological scholarship relative to its significance. In this dissertation, pottery is used as the primary source data with the assumption that all systems in a society are interconnected. Therefore, changes and interactions discernible in pottery production and consumption will be reflective of changes and interactions occurring in other, less tangible aspects of society. This is a diachronic study, which ultimately seeks to understand the underlying social,
economic, and cultural structures prevalent at the site of Tarsus-Gözlükule, and their interaction and transformation through a ca. 1000 year time-span.

The chapter on "Theoretical Framework for Studying the Technology of Ancient Artifacts" lays the general theoretical framework this dissertation employs and the "Methodology" chapter describes the particular methods of analysis used in this dissertation. The chapter on "The Early Bronze Age Period in Cilicia: A General Appraisal" recounts the current state of archaeological research in this region. The chapter titled "Geology of the Region" summarizes the main geological formations on the western part of the Cilician Plain and the mountains to the north, as these would be the most likely resources for local clays and tempers utilized at Tarsus-Gözlükule. The main chapter of this dissertation is "Early Bronze Age Pottery Production Technology: A Comprehensive Analysis", where technological as well as decorative and stylistic aspects of various ceramic types encountered at Tarsus-Gözlükule during the EBA are investigated, with inter- and intra-regional comparanda drawn where applicable. The "Conclusion" chapter brings together the main trends that arise from this study and explains important phenomena observed within the pottery production process, which are then used to extrapolate the underlying changes and developments in economic, social, political, and cultural spheres in the settlement of Tarsus-Gözlükule during the EBA period.
THEORETICAL FRAMEWORK FOR STUDYING THE TECHNOLOGY OF ANCIENT ARTIFACTS

Habitus, as defined by Bourdieu,\(^3\) is a structure created by a process of practices through which social groups conceptualize a common-sensical world order that creates and maintains meaning. This structure is not consciously constructed nor forcefully enforced. Through *habitus*, history is objectified by the anticipation it creates about how things should be.\(^4\) Hence, *habitus* will give more weight to the earlier experiences of the agents, purging behaviors that are not consistent with their internalized conditions.\(^5\) This creates a kind of constancy and homogeneity reinforcing the preconceived and conditioned system of structures. However, *habitus* is also adjustable as revisions to its structures are needed to incorporate the new experiences of the agents.\(^6\) *Habitus* as a system of structures is a conception of active agents, fashioned in their worldview (*Weltanschauung*) and organically shifting and changing as their worldview negotiates the world order within the technological, ideological, political, and economic spheres. This way, *habitus* ostensibly creates and organizes a social order, and it is the agents operating within the structures of *habitus* who negotiate their status with it through practices.\(^7\)

---

\(^3\) Bourdieu, 1977; Bourdieu, 1990.
\(^4\) Bourdieu, 1990, p. 57.
\(^5\) Bourdieu, 1990, p. 54.
\(^6\) Bourdieu, 1990, p. 56.
\(^7\) Dietler and Herbich, 1998, p. 245f.; Lemonnier, 1990, p. 27.
Based on the general concept of *habitus* one can establish a framework whereby the production process could be regarded as a functional parameter of a society through which group identity manifests itself. Production process involves not only action on matter, but also embodies manufacture of meaning. Some elements of the production process are determined by environmental and physical constraints, which are not subject to change instigated by the agents. But not all aspects of this structure are deterministic, especially those subjected to the choice of the craftspeople, like the use of tools and particular techniques employed, even in some cases the raw materials utilized. Ingold distinguishes between technique (skills), which is a subjective activity acquired through imitation and observation, and technology, which is independent from human subjectivity as a body of generalized knowledge encoded in words and artificial symbols. These two concepts cannot be divorced from each other and are rather cumulative because otherwise humans are reduced to be mere operators. Within this framework, technology should not be treated as an external variable, determined by the physical world and needs to be taken as a

---

10 In preindustrialized societies art and technique, artisan and artist, art-work and artifact were not conceptually distinguished evidenced by the Latin word *ars* and Greek word *tekhne* both meaning skill, see Ingold, 2001, pp. 17f. Moreover, in Akkadian as well šipir nikîti means skillful technique, work of art, artifact, coalescing the meaning of skill and art in one word.
11 Ingold, 1990, pp. 7f.
12 Ingold, 1990, p. 15.
given by the agent within the production system. On the contrary, every technological act is also a social act.

The production process of an artifact involves what the French scholars called the operational sequence (*chaîne opératoire*) whereby craftspeople create objects in a desired form and function from the raw materials available to them through a production process consisting of a series of steps, which are determined not only by environmental and functional constraints, but also by the choices the artisans make throughout the production process. The production sequence consists of many options available to the artisan, and certain permutations on the combination of these options yield the same outcome. By opting for a certain combination of these non-constants within the operational sequence, the agents are empowered with creating their own social representation. The “technological style” of an artifact includes the constants as well as the non-constants of the production system and integrates the choices made at every step of the operational sequence by the agents making it possible to decipher the cultural, ideological, and ethnical traits expressed through these

---

13 Pfaffenberger, 1988, pp. 24f., where the author describes how in the Christian anthropocentric view technology became dehumanized and fetishized. Also, on a similar note, see Ingold, 1990, pp. 5-7; Ingold, 1993, pp. 341f., where the author notes that conceptualized by modern western philosophy, technology in the industrial world has become integrated with the concept of the machine, and hence, dehumanized through such objectification and externalization, losing its cultural importance as a signifier. See also Pfaffenberger, 2001, p. 84; Dietler and Herbich, 1998, p. 237.


15 Lemonnier, 1986, p. 149; Stark, 1999, p. 27. 30; Gosselain, 2000, pp. 189f.

choices. These choices may not be deliberate at all times, rather enacted unconsciously by the agents in conformity with their worldview or in opposition to it as part of their constant affirmation of or negotiation with their habitus.

The term "sociotechnical system" coined by Pfaffenberger refers to this interdependence of the social and technological aspects of a society:

... the sociotechnical system theory proposes that human technological activity is a universal concept whereby complex social structures, nonverbal activity systems, advanced linguistic communication, the ritual coordination of labor, advanced artefact manufacture, the linkage of phenomenally diverse social and nonsocial actors, and the use of diverse artefacts constitute a single, complex system which is adaptive and expressive.

Through sociotechnical systems the objects produced become instruments of agency, through which social boundaries, group identities, and socioeconomic roles are negotiated with the existing structure. This interdependence between technical and social systems provides the scholar of material culture with a conceptual tool to identify and interpret observed changes (or the lack thereof) in material culture because the technological, socioeconomic, and ideopolitical systems are in constant discourse with each other and any change observed in

---

17 Lechtman, 1977, pp. 7, 12, 14; Lechtman and Steinberg, 1979, pp. 137, 154; Lechtman, 1993, pp. 250, 274; Gosselain, 1998, pp. 78-82; Sackett, 1982, pp. 72f.; Stark, 1995, p. 332; Stark, 1998, p. 9; Stark, 1999, pp. 27, 32; Chilton, 1999, p. 50. See Sackett, 1985b, p. 278 and Sackett, 1986, p. 267 for the term coined by him "isochrestic style" (i.e. "equivalent in use" whereby in production there are equally available options that serve equally same function, and a choice of one such style over another could be deemed a cultural marker).
technological sphere is most likely a reflection of changes occurring in other spheres.\textsuperscript{20}

Technological process is systemic, such that it is constructed on the existing knowledge and accepted social parameters of operation.\textsuperscript{21} If a new aspect is introduced into an existing system, it will not necessarily be accepted unless the impetus is strong enough to negotiate the change within the existing system.\textsuperscript{22} Otherwise, it will be ignored and forgotten. Through this process of perpetual discourse, technological systems constantly negotiate with other aspects of social systems and shape it as well as being shaped by it.\textsuperscript{23} This discourse can be deconstructed to a certain degree by studying the production process and understanding its parameters so that one can visualize the threads that bind these different aspects of the social system for a greater perception of the social mechanism as a whole. In other words, the sociotechnical systems of artifacts can act as signifiers of the society that created them.\textsuperscript{24} Hence, by investigating the production process and gaining a better understanding of its mechanisms, it would be possible to define social boundaries and furthermore to differentiate social identities and distinguish changing social order. Therefore, understanding the technological sphere might render the ideopolitical and socioeconomic

\textsuperscript{20} Leeuw van der, 1993, p. 240; Lechtman, 1993, p. 274.
\textsuperscript{21} Lemonnier, 1986, p. 154; Lemonnier, 1992, p. 84.
\textsuperscript{22} Lemonnier, 1990, pp. 28, 32.
\textsuperscript{24} Lemonnier, 1986, pp. 171-179.
domains of a culture more evident. Given that the technological sphere is the one directly related to the material world itself, the archaeologist has a better chance of studying it since every artifact we recover in excavations is the result of a technological act.\(^{25}\)

The methodology of studying the production process of the material culture is enhanced greatly by the notion of *tendance*, which was first proposed by Leroi-Gourhan to explain limited variability in design and consistent output form.\(^{26}\) Functional forms result from laws governing matter and therefore have very limited variability derived from human input. But some flexibility in the interpretation of the function and form should be allowed as objects rarely attain perfect functional form.\(^{27}\) On the other hand, stylistic and decorative elements are part of the superstructure of an object, and therefore will change faster based on cultural nuances.\(^{28}\)

Based on the idea of *tendance*, Sackett and later Stark postulate that “isochrestic variation” (variation in the technological style) is more resistant to change because it results from changes in technological parameters. Stylistic variation, on the other hand, dealing with decorative parameters, is part of a superstructure

---

\(^{25}\) Lechtman and Steinberg, 1979, p. 140.


\(^{27}\) Leroi-Gourhan, 1993, p. 304.

\(^{28}\) Leroi-Gourhan, 1993, pp. 301, 308.
of the production process, and hence, is more inclined to variation.\textsuperscript{29} Therefore, the relative stability of technological style renders the technological aspects of material culture especially suited as a marker for identifying social and cultural affinities compared to the ones based purely on stylistic variation.\textsuperscript{30}

Studies dedicated to the identification of cultural affinities in the archaeological record are problematic as such affinities in non-state societies are fluid and situational.\textsuperscript{31} For archaeologists a more viable path towards understanding the people who have left behind the long-lasting goods of their life-styles would be to focus on the spatial patterns of cultural variation in the remaining material world as markers of social boundaries.\textsuperscript{32} Pottery is one such artifact. Due to its abundance in archaeological contexts, archaeologists rely heavily upon pottery to define cultural and social boundaries and to explain interregional exchange. Studying the technology of pottery production in detail is one potential way of gaining access to other related aspects of social structure (like labor organization, economic parameters, social identities, ideological composition, and social configuration) that are valid within the functional systems of a society, but which do not leave direct traces of their structures.

\textsuperscript{29} Leroi-Gourhan, 1993, p. 301; Stark, 1995, p. 333; Stark, 1999, p. 29. The term "isochrestic variation" is first developed by Sackett, Sackett, 1982; Sackett, 1985a; Sackett, 1986. Contra to this view is Wright, 1984, p. 22, where the author suggests that because technology is culture neutral, it transfers over cultural barriers easily. This is in contrast to stylistic aspects, which are not easily transmitted across different cultures because they embody culture specific messages.

\textsuperscript{30} Stark, 1995, p. 344; Stark, 1999, p 27.


Based on this theoretical framework this dissertation combines both technological and stylistic aspects of ceramic production in order to establish the pottery production and consumption patterns during the 3rd millennium B.C. at Tarsus-Gözlükule with the ultimate aim of gaining a better understanding of the economic and social structures of this settlement.
METHODOLOGY

Using this theoretical framework, this dissertation stipulates that artifacts embody cultural attitudes about production and consumption within the totality of their use-life through raw resource procurement and preparation of the raw resources, the forming techniques (specific tool use and handling), treatment of the vessel surface, firing, distribution of the finished product, and its use, reuse, and discard by consumers. At any given point in this sequence, the agents involved in production and consumption of pottery can assert their worldview through their own interpretation and implementation of their practices. Combining the theories developed about production processes of artifacts and their discourse with the less materialistically tangible social, ideological, political, and cultural structures, one can identify three categories in the operational sequence of pottery production based on their propensity to variability:

- Constants: Environmental limitations as well as limitations imposed upon its form based on the required function of the vessel.

This category reflects the concept of tendance developed by Leroi-Gourhan. Raw material procurement, which is environmentally determined to a great degree, falls under this heading. For example, even if some qualities of noncalcareous clays are more suitable for certain types of vessels, if there are no

33 Dobres, 1995, p. 27.
clay beds that contain noncalcareous clays nearby, such qualities do not factor into the operational sequence by stipulation. Preparation of raw resources and some aspects of the production techniques, especially those related to the function of the vessel, also fall into this category. For example if the vessel to be produced is related to drinking, certain forms will not be viable if they fail to contain the liquid properly.

- Structural aspects: Certain practices related to production, like clay selection, extraction, some of the forming techniques, and firing procedures, should be considered under this heading. They usually do not attain easily accessible symbolic visibility on the finished product.

As Gosselain states, practices are learned through a long apprenticeship and become part of the motor function of the individual through a long, repetitive exercise period, and they are difficult to unlearn if a new production technique requires a new set of skills.\(^{34}\) Moreover, since they do not have easily accessible symbolic visibility on the finished product, a more restricted set of individuals would be responsible for the propagation of the changes occurring in this category.\(^{35}\) Therefore, there may be some resistance in appropriating new production techniques on the part of the producers. For example, when wheel production is introduced, the potters who have been producing vessels through

\(^{35}\) Gosselain, 2000, p. 192.
handmade techniques might have difficulty adopting this technology, and therefore, might show resistance to it. The change to wheel production would also require some individuals who are well-versed in this production technique to transfer this technological know-how. Moreover, traditional practices are often imbued with their own mysticism, constructing a strong belief in how things are meant to be made. Fundamental changes in the social, economic, and/or ideological aspects of the society may be required for such changes to supersede the mainstream and traditional components formed by tight kinship, gender, class, and language aspects of social identity. This category is similar to the concept of "isochrestic variation" developed by Sackett.\textsuperscript{36} This type of variation occurs less frequently, and when it does, it is reflective of significant changes in the less materialistically tangible aspects of the society, be that social, economic, ideological, or a combination thereof, and also would signify pronounced interaction of local and regional networks.

• Superstructural aspects: Under this heading one can consider stylistic and decoration related aspects of pottery production. Some of the preforming and secondary forming and most postfiring techniques fall under this category. These aspects would present more variability as they do not relate to the necessities imposed upon by environmental, functional, or structural aspects of production. For example, the form of the vessel might be primarily determined by

\textsuperscript{36} Sackett, 1982; Sackett, 1985a; Sackett, 1986.
its function, but some form related aspects would be subject to variability. The constant aspect of a drinking vessel would be that it should contain some depth to effectively hold fluids and a stable base to stay upright, but attaching a handle to it and the shape of the handle would be part of the superstructural aspect of the vessel which would be subject to more variability. Also the surface treatment of the vessel, like the type of decoration used, would also fall under this category. Sackett would consider these aspects less diagnostic of socio-cultural changes, as they can be appropriated without the need to have a drastic stimulus to the social structure since they are part of adaptable and easily adjustable aspects of production. Moreover, because they might not involve any technological change, specialized knowledge, or additional learning, they are available to a broader community of producers. The effects of the changes in this category are easily visible on the finished product, and hence, acquire economic, symbolic, and aesthetic values more readily, and therefore, are more quickly borrowed and appropriated.\(^{37}\) This makes the changes in this category more easily and widely transmittable, but they have a more superficial and temporary effect on social identity.\(^{38}\) Or, since they are easy to imitate, their relevance to social identity would be relatively insignificant.

Any analysis of pottery style should encompass all of the above described categories of the production sequence. Style in pottery need not be restricted to

---

\(^{37}\) Gosselain, 2000, p. 191.

\(^{38}\) Gosselain, 2000, p. 191.
those aspects that are not related to the function and technology of the vessel (i.e., factors deemed to be determined by utilitarian or technical constraints); rather, material style (involving formal, technical, and decorative choices expressed by the artisan) of an artifact should be investigated as a whole as such an integrative study would be the most adequate way of identifying social representation. Only then can one reach reasonably accurate conclusions about the effects of social, ideological, and economic transformations on the changes observed within the ceramic repertoire of a settlement.

This dissertation develops such a comprehensive analysis in order to assess the pottery production at Tarsus-Gözlükule during the 3rd millennium B.C. The aim is to define the framework of the technological styles prevalent in the production process of the locally produced pottery of the settlement. This framework will facilitate a better definition of the local pottery production process and enable an assessment of the scope of the local technological know-how, labor organization and its role within the operating markets, the function of the potters within the sociopolitical structure, and how such issues relate to the cultural boundaries within the community. Defining the framework of the local pottery production process will lead to a broader investigation of issues related to intra- and interregional interactions. More specifically, questions regarding the technological transfer of know-how and its economic and social impact upon the

pottery producers; the functional and symbolic role of imported pottery and its local imitations within the community; and the significance of commodity exchange for the cultural identity of individuals, networks of producers, and the community as a whole will be discussed.

To evaluate the pottery production during the EBA at Tarsus-Gözlükule within the parameters defined above, I have undertaken petrographic, mineralogical, and morphological analysis of seventy-two selected ceramic samples excavated from Tarsus-Gözlükule between 1934 -1939 and 1947 -1949.\textsuperscript{40} In the course of the collection, care was taken to ensure that the samples are representative of the EBA Tarsus-Gözlükule pottery repertoire.\textsuperscript{41} Also, samples with excavation context information intact were given preference during the collection process.\textsuperscript{42} Moreover, generally samples were taken from diagnostic sherds, such that shape analysis could be done more accurately. The emphasis was given to the suspected local production examples with forty-eight samples, in order to create a large enough sample space to be representative of the local production process. Eighteen samples were taken from suspected non-local occurrences in

\textsuperscript{40} This part of my dissertation was funded by the Scientific Research Project funds of Boğaziçi University, Istanbul, Turkey. I would also like to thank Dr. Aslı Özyar, Associate Professor at the History Department of Boğaziçi University and the director of the Tarsus-Gözlükule Research and Excavations Project, for generously making this material available to me.

\textsuperscript{41} For detailed information on the samples selected, see the Appendix section, where all the information regarding the selected pottery by the previous excavators is reported along with new observations. The number of the samples selected for analysis is in part determined by financial limitations.

\textsuperscript{42} However, in some cases, especially when a special ware type needed to be sampled, samples were taken from sherds without excavation context if there was no other option.
order to establish their intrusive character scientifically and also to create a basis for comparanda to the local fabrics. The remaining six samples were taken from unknown "ware types".

It should also be noted that this study focuses on fabric types, rather than wares. But to be able to connect the results of this study with those of the former excavators and with the terminology already firmly established as a result of their publications, their ware schema is also incorporated into this analysis. Hence, in this dissertation "ware" refers to the terminology used by the former excavators and "fabric" refers to the fabric categories established here using scientific analyses.

This is a diachronic approach, where the development of the pottery production process throughout the third millennium is investigated.\textsuperscript{43} Therefore, even if a "ware type" continues for the duration of the 1000 years, samples were taken from all established periods, in order to examine if there were any scientifically discernable changes to the structural elements, like fabric, firing conditions, etc. The number of samples used for this study is too small compared to the time span covered to create a statistically significant basis for quantitative analysis.

\textsuperscript{43} A synchronic approach where spatial patterns of pottery distribution are examined would also be a useful addition to this study. However, since the material utilized in this dissertation comes from an older excavation, vital data related to archaeological contexts is not accurate and sometimes missing. With the new excavations, a very useful future project would be to incorporate spatial analysis to this investigation.
Therefore, all conclusions are drawn based on determined qualitative characteristics.

Petrographic and XRD analyses provide information on the minerals found in the clay of the vessels analyzed. Using petrography the mineralogical composition of the clay fabric was determined by microscopic observations of the thin sections. Moreover, one can discover other important characteristics about the clay fabric through petrography (like the size of the inclusions and their distribution within the clay, existence of organic inclusions) leading to a better understanding of not only the possible clay source, but also post-collection procedures, like intentional tempering of and purification levels applied to the clay. XRD, on the other hand, requires the samples to be in powder form for the instrument to measure the minerals within the clay fabric. This method is more of a black-box system compared to petrography. Therefore, in this dissertation the results of the petrographic analysis were taken as principal data and the results from XRD analysis were used to fine-tune the data obtained through petrographic analysis. Morphological characteristics of the samples were determined using ESEM in order to investigate the vitrification levels the samples have reached.

This study is based on the standards created by Tite and Maniatis in early 1980s

44 Generally studies regarding clay compositions and characteristics of ancient ceramics utilize different scientific techniques in tandem to achieve improved interpretive results. For example see, Tsolakidou, et al., 2002 where petrography, XRD, NAA, and XRF are used together to analyze Early Minoan ceramics, also in Stoltman, et al., 1992; Kamilli and Lamberg-Karlovsky, 1979 different techniques are used together.
where the scholars determined firing temperatures of ancient ceramics based on the vitrification levels of the ceramics discernable through high magnification levels the ESEM imagery can provide. Also, on some samples semi-quantitative chemical analysis was done using EDAX to determine if chemical compositions of the clays conform to the distinctions established through mineralogical analyses. These constitute the scientific portion of the analyses performed in this dissertation, based on which various fabric groups were established. The results of these analyses provide information about the constants and the structural aspects of pottery production. Afterwards formal shape and stylistic analysis was done on all the samples where shapes and surface treatments of the samples were analyzed and compared to the known local and non-local examples. This was then integrated with the results of the scientific analyses firstly to determine patterns between the scientifically established fabric groups and the function of the vessels and to also provide a more in depth look into the distribution of the local and non-local fabrics within the region and beyond. More traditional shape and stylistic analysis provides information on some structural aspects, but mainly on the superstructural aspects of pottery production. Moreover, since it is still the norm in the field to predominantly provide this type of data, it is more abundantly available, and hence, at times the only way to construct related comparanda to establish intra- and interregional connections.

45 Maniatis and Tite, 1981; Tite, et al., 1982a; Tite, et al., 1982b.
For petrographic analysis thin sections were made at the Earth Sciences Department of Istanbul Technical University. The samples were fixed and molded into 1 mm thick microscopic cover glass with Struers brand epoxy resin, and sample surfaces were abraded mechanically reducing them into 30 micron thickness. Then the surfaces of the samples were covered with Merc-Entellan brand microscopic surface protector. The petrographic analysis was done at the Museum Applied Science Center for Archaeology (MASCA) at the University of Pennsylvania. Digital pictures of the thin sections under cross-polarized and plane-polarized light were taken at the Temple University Department of Geology.

X-Ray Diffraction (hereafter XRD) facilities at the Earth and Environmental Sciences Department at the University of Pennsylvania were used to acquire mineralogical information about the samples, where micro-samples of 2-3 g taken from the inside of the sherd were ground into powder form. The XRD

---

46 I would like to thank the SAS Dean’s Office at the University of Pennsylvania for funding the expenses of this part of my research with the Prize Fellowship.
47 I would like to extend my great appreciation to Dr. Thomas F. Tartaron, Assistant Professor of Classical Studies at University of Pennsylvania, for providing me with the petrographic assessment of the thin sections. Due to time restrictions, the petrographic analysis done for this dissertation is qualitative and preliminary.
48 I would like to thank Dr. Dennis Terry from the Department of Geology at Temple University for making his polarized light microscopy equipment available to me.
49 I would like to thank Dr. Gomaa Omar from the Department of Earth and Environmental Sciences at the University of Pennsylvania for making the XRD facilities available to me and teaching me how to use them.
analysis was done on a Philips XRD PANalytical X'Pert PRO Diffractometer. The wavelength used was Cu K-α radiation at 45kV and 40 mA. Diffraction patterns were recorded from 5-75° 2θ with the sample spinning at one revolution per 16 seconds. Mineral identification was performed using the software program HighScore Plus. The results of the XRD analysis were combined with the results of petrographic analysis to fine-tune the fabric types defined as a result of the petrographic analysis and to enrich the characteristics of these fabric types.

Morphological changes in the ceramic fabric can be observed using the Environmental Scanning Electron Microscope (hereafter ESEM) at high magnification, which provides data about the firing temperatures to which the ceramics were exposed. This facilitated a better understanding of the pyro-technology available to the third millennium pottery manufacturers. Also, from some of the samples semi-quantitative chemical characteristics were measured using Energy Dispersive X-ray Spectroscopy (hereafter EDAX) attached to the ESEM machine. For this purpose, Phillips XL30 ESEM-FEG/EDAX system at Boğaziçi University's Research and Development Laboratories was used.\(^5\)

Formal shape and stylistic analysis was incorporated in the scientific analyses described above. These include description of the shape and surface treatment

\(^5\) I would like to thank the SAS Dean's Office at the University of Pennsylvania for funding the expenses of this part of my research with their Prize Fellowship.
of the samples and incorporating it with relevant comparanda from both within and neighboring regions.

This dissertation uses an integrative approach combining all these techniques to provide an in depth analysis of both local and non-local pottery, their interactions with each other, and their evolution during a 1000-year time span. Following this in depth analysis, further reflections about the social, cultural, ideological, and economic undercurrents within this society during this time period are extrapolated based on identified continuities and flux moments which affect both structural and superstructural aspects of the pottery production process.
GEOLOGY OF THE REGION

In this chapter the main geological characteristics of the environs of Tarsus will be described. Ethnographic studies have shown that potters usually utilize clay sources within ten kilometers of the production center.\textsuperscript{51} Longer distance transportation of clay as raw material is more unusual if not unattested, but availability of water transport or pack animals is decisive in the cases of long distance transportation of clay because clay is a bulky material to carry.\textsuperscript{52} In this study the geological limits of interest are determined by the notion of locally exploitable clay sources where it is assumed that the local pottery production utilized locally available clay sources. Unfortunately, the region of study was rapidly and heavily industrialized during the 20\textsuperscript{th} century as a result of which traditional arts and crafts have disappeared, and the landscape has been altered drastically. Hence, it is difficult at this point to track ancient clay beds in the region. Therefore, one can only extrapolate which fabrics were locally made based on geological formations in and around the region.

The city of Tarsus itself is located on the alluvial plain formed in the Holocene deposited by the Berdan and Seyhan Rivers (map 1). North of these deltaic sediments are Quaternary sediments consisting of travertine deposits running in

\textsuperscript{51}Nicklin, 1981, pp. 35f., fig. 2.1 and 2.2; Nicklin, 1979, pp. 441, 444f.; Arnold, 1985, pp. 38-42 proposes that the potters generally do not travel more than 7 km to obtain raw materials and many obtain their clay within a 1 km radius. See also, Arnold, 1981, p. 36 for a similar observation. The same holds true for temper material, see Miksa and Heidke, 1995, p. 134 and Arnold, 1981, p. 36

\textsuperscript{52} Nicklin, 1979, p. 444.
a northeast-southwest direction and having a declining gradient towards the south to conform to the topography created by the Taurus Mountain Range. They consist of terraces covered with caliche and alluvium.\textsuperscript{53} The terraces are dated to Pliocene-Pleistocene and are composed of gravel, sand, silt, and clay, all cemented together with carbonates, which have formed in coastal marine environments.\textsuperscript{54} During the Pliocene, a connection between the Mediterranean Sea and the Atlantic Ocean opened, which started a new phase of marine transgression in the Adana Basin. The Handere Formation belongs to this phase and is represented by siltstone and shale embedded with sandstone and conglomerate lenses, oolitic and bioclastic limestone, and sandstone-shale alternation.\textsuperscript{55}

The region north of these has Paleo- and Neo-autochthonous cap rocks. The Neo-autochthonous cap rocks were formed during or after the Miocene and consist of various formations creating a very complex block mostly developed in coastal marine environments. A total of twelve formations are reported where limestone, marl, shale, sandstone, siltstone, conglomerate, and less frequent occurrences of tuff and gypsum are listed as the main components.\textsuperscript{56} Moreover, one formation, the Cingöz Formation, is reported to contain arenites with

\textsuperscript{53} Yalçın and Görür, 1984, p. 171, figs. 2, 8; Ternek, 1957, p. 62; Görür, 1973, p. 229, fig. 2.
\textsuperscript{54} Şahin, et al., 2003, pp. 15f.; Usta and Beyazçicék, 2006, p. 15.
\textsuperscript{55} Yalçın and Görür, 1984, p. 170, figs. 2, 7.
\textsuperscript{56} Şahin, et al., 2003, pp. 13-15; Usta and Beyazçicék, 2006, pp. 12-15; Görür, 1973, pp. 228f., fig. 2
feldspars. The Paleo-autochthonous cap rocks are continental and formed before the Miocene (Early-Middle Eocene). They contain cherty and sandy limestone, sandstone, conglomerate, and siltstone.

To the north of these are older rock formations that are part of the Taurus Range and in most cases are covered with the cap rock formations in angular unconformity. The rock formations forming the Taurus Range are important as the two rivers of interest, namely the Berdan and Seyhan, stem from these mountains and carry the minerals down to the plain.

The Berdan River flows through three different rock formations (Bozkır, Bolkardağı, and Aladağ Blocks) before reaching the alluvial plain near Tarsus and meeting the Mediterranean Sea further south.

The Bozkır Block consists of ultramafic rocks dated to the Upper Cretaceous, more specifically to the Campanian and Maastrichtian. At the bottom of this block is a large ophiolite unit consisting of peridotite, gabbro, and serpentinite. This unit is covered with pelagic limestone and cherty limestone. This is followed

---

by a flysch formation consisting of siltstone, sandstone, limestone, and quartzite.  

The Bolkardağı Block starts with dolomitic and recrystallized limestone alternating with micaceous shale, and it continues with limestone, dolomitic limestone, and shale. Further up comes a formation consisting of marble, recrystallized limestone, dolomitic limestone, and dolomite, above which a formation with pelagic mudstone, chert with radiolarian, pelagic and recrystallized limestone, and shale is found. The very top formation contains limestone, sandstone, shale, serpentine, volcanite, chert, listwanite, dunite, diabase, and gabbro. The oldest of these formations is dated to Late Permian, the youngest to Maastrichtian.

On the southern part of the Bolkardağı Block, rock formations belonging to the Aladağ Unit surface in small areas and display a different geological stratigraphy. The Aladağ Unit is a large formation running in a northwest-southeast direction from north of Anamur to the Cilician Gates. This unit mainly consists of sandstone (some quartzitic), shale with chert, limestone, slate (some micaceous), siltstone, dolomite, quartz, and marl.

---

60 Şahin, et al., 2003, pp. 12f.
63 Demirtaşlı, et al., 1984, pp. 137f., fig. 4; Şahin, et al., 2003, pp. 10f.
The Seyhan River is a much longer and far more substantial watercourse that travels through the Aladağ Nappe and East Taurus Autochthon before reaching the Adana Basin and meeting the Mediterranean Sea.

The Aladağ Nappe mostly consists of sedimentary limestone and dolomite, but also shale, marl, mudstone, sandstone (sometimes with a quartz component), quartzite, shale, chert, flysch, amphibolites, feldspars, and some detritic volcanic material. Some bauxite pockets are also attested.64 Above this geological unit comes a formation called Ophiolite Melange. It contains complex ophiolite rocks, like serpentinized ultramafic rocks, gabbro, diabase, spilitic basalt, basaltic pillow lava, tuffite, pyroclastic rocks, radiolarite, and limestone.65

The East Taurus Autochthon consists mainly of carbonate sediments: siltstone, mudstone, sandstone, marl, limestone, dolomite, and shale with occasional conglomerate, quartzite, quartz, feldspar, biotite, muscovite, tourmaline, zircon bands, and inclusions.66

There are two allochthonous formations located in the Adana Basin: Kızıldağ Melange and Faraşa Ophiolite. The Kızıldağ Melange mainly consists of radiolarite, serpentine, spilitic lava, and ophiolitic rocks with blocks of dolomitic

limestone and cherty limestone visible. The Faraş Ophiolite mainly consists of serpentinized ultramafic and mafic rocks, among which most commonly attested are harzburgite, dunite, pyroxenite, gabbro, and diabase dikes. These are covered with the carbonate sediments of the Adana Basin.

The geology of west Cilicia is very complex. The rivers, traversing this part of the plain, flow through many different rock formations in the Taurus Mountains resulting in diverse sediments. Thus, this diversity profoundly affected the types of pottery that were produced at Tarsus-Gözlükule. Clays available to the potters at Tarsus-Gözlükule possessed different properties because they were derived from various parent rock formations, giving the potters many choices both in terms of clays and in regard to the aplastic materials they could add to their wares. This resulted in a diverse set of possibilities for producing pottery depending on its purpose and functional requirements. The situation is in contrast with parts of the world where very limited ranges of geological diversity exist, which resulted in a very limited range of local wares in comparison, such as the lower Nile Valley in Egypt or southern Mesopotamia.

Moreover, this diversity is of great benefit to a study such as this one because it results in raw materials that are sufficiently distinctive. This means that the study

---

67 Usta and Beyazçicêk, 2006, p. 15.
68 Usta and Beyazçicêk, 2006, p. 16.
like this one, using thin sections as part of the overall characterization, can produce good "fingerprints" for specific fabric types.
THE EARLY BRONZE AGE PERIOD IN CILICIA: A GENERAL APPRAISAL

Cilicia is the name of the large, alluvial plain created by three major rivers draining the massive mountain chains called the Taurus Range that delimits the plain to the north (map 4). The Ceyhan, Seyhan, and Berdan Rivers (from east to west) carry fertile, alluvial silts from the mountains to the plain along with much-needed water for agriculture. To the west, the plain is restricted again by a very mountainous region, called Rough Cilicia, which has been historically inaccessible to overland traffic, including even during the early 20th century. Rough Cilicia has one major riverine system, the Göksu River, which drains into the Mediterranean at Silifke. To the east, the Amanos Mountains demarcate the Cilician Plain and separate it from the Gaziantep/Maraş Region and the Amuq Plain. Surrounded by mountain chains to the north, east, and west and by the Mediterranean Sea to the south, the plain of Cilicia forms a geologically and environmentally homogeneous unit.

Cilicia is within dry farming range in terms of annual rainfall where the average annual rain fall in the vicinity of the modern city of Tarsus is reported to be 575 mm by the local meteorological station, but the annual rainfall rates display a high variability fluctuating within the range of 1262 mm to 320 mm. The sea and

69 In this chapter the general state of material culture during the EBA of Cilician region is evaluated. Detailed pottery analysis is treated under the main chapter and conclusion of this dissertation.
the mountains also determine the major climatic features of this region, which is characteristically hot and humid in the summers and mild and humid in the winters. The humidity rising up from the Mediterranean Sea is caught up by the surrounding mountains with no route to escape, establishing the rainfall pattern and humidity, the dominant traits of the region's climate. It renders the plain very fertile but also makes for unhealthy conditions (especially malaria) for human subsistence, especially during the summers. The highlands on the foothills of the Taurus Mountains have been traditionally used by the inhabitants of Cilicia as an escape from the humid and hot conditions of the summer.\(^7\)

With such a drastically demarcated region, the few passes through the mountains have played a significant role in the establishment and development of the settlements on the plain. Trade routes have been operating seasonally since the aceramic Neolithic, facilitated by the obsidian trade from central Anatolia to Mesopotamia, via the Cilician Gates connecting the Cilician Plain to the central part of Anatolia to the north, via Arslanlı Bel Pass connecting the plain to the Gaziantep area to the east, and via Beylan Pass through the Amanos Mountains connecting the plain to the Amuq Region. Control of these vital passes and routes leading to these passes has been central to the political developments on the plain throughout its history. Any politically expanding power from central Anatolia needed to control the Cilician Plain to facilitate

\(^7\) Ramsay, 1907, pp. 94-96.
access to the Mediterranean Sea. Moreover, political hegemonic interests from both central Anatolia and Syro-Anatolia traditionally sought to control the land routes going through Cilicia for trade and military advantage.

Tarsus is not located directly by the sea, but maritime access to the Mediterranean was possible using the Berdan River by smaller boats at least until the 16th century AD as accounted by Piri Reis, an Ottoman-Turkish admiral in command of the Ottoman fleet and a cartographer, best known for the maps he created and his description of the places he visited with his ships. In his map of the harbor of Tarsus, Piri Reis depicts a small water-inlet located at the outlet of the Berdan River directly connected to the Mediterranean on its south. The Berdan River was flowing through the city of Tarsus until it was redirected by the Byzantium Emperor Justinius to the east of the city during 6th century A.D. to prevent frequent inundations of the city. The lake at the mouth of the Berdan River lost its connection to the Mediterranean, and eventually this area turned into swamps when Seyhan River changed its course to the west and started

---

71 Reis, 2002, p. 561. Here, he also mentions that the city of Tarsus itself lay three miles or so inland and the city is protected by a tower at the entrance of the Berdan River.
72 Reis, 2002, p. 561. This lake is also mentioned by the Greek geographer Strabo. Here, this region is called Rhegma, and it is mentioned that it was the naval station of Tarsus, see Strabo, 1950, 14. 5: 10. This area is now called Rhegma (Aynaz) Swamps.
73 For example, see Strabo, 1950, 14. 5: 12, where it is mentioned that the river flows directly through the city. Whereas Piri Reis describes the Berdan River as flowing in front of the city, Reis, 2002, p. 561.
depositing silts closer to this region and filling this area rapidly.\textsuperscript{74} Even during early 20\textsuperscript{th} century A.D., a lake and marshy area is described to be located five to six miles south of Tarsus.\textsuperscript{75} There was another, smaller, seasonal lagoon located two miles to the southwest of Tarsus, which frequently turned into marshy area during the summers, called Karabucak Swamps, and was consequently dried up in 1960s by planting eucalyptus trees because it was causing health problems (especially malaria) for the residents of Tarsus.\textsuperscript{76}

Rough Cilicia, on the other hand, has always been somewhat outside of the developments ensuing on the plain, being mainly inaccessible via land routes. Historically this region has operated within its own niche with limited contacts with the Cilician Plain to the east and the Konya Plain to the north. Politically, it was a major source of concern for the reigning powers, because its inaccessibility rendered this region difficult to control militarily.

\textsuperscript{74} Gürbüz, 1997, pp. 181f.; Gürbüz, 2003, pp. 81f.; Öner, et al., 2005, pp. 85ff., figs. 2 and 3, but it is proposed that this lagoon was filled up due to the winds blowing the sand dunes along the shore to the north.
\textsuperscript{75} Ramsay, 1907, p. 97.
\textsuperscript{76} Gürbüz, 2003, p. 81 and p. 82, fig. 2 for a hypothetical model of the interaction of the Berdan and Seyhan Rivers and their impact on the plain south of Tarsus. But Öner, et al., 2005, p. 87 proposes that this marshy area was dried up by planting trees by the local municipalities to prevent the sand dunes from creeping further inland into the agricultural land. Also see Ramsay, 1907, p. 109, where the author describes the seasonal nature of this small lagoon.
The Early Bronze Age period in Cilicia is defined within the tripartite periodization, namely EB I-III. During Late Chalcolithic, the material culture of this region is very homogeneous. During this period the region is in close contact with the Amuq F and the Syro-Anatolian regions. The demarcation between the previous Chalcolithic period and the EB Ia is mainly based on changes in pottery, where the so-called Red Gritty Ware appears suddenly, without precedent, and in very large numbers in the region (see Local Fabric III section under chapter Early Bronze Age Pottery Production Technology: A Comprehensive Analysis for more detail). The differentiation between EB I and II seems to be arbitrary as the material culture shows strong continuity from the EB I period. Only by EB III, there are changes in the material culture to merit a new designation in terms of periodization (see below for more detail).

**Surveys in Cilicia**

Regional surveys conducted in Cilicia have revealed a plethora of EBA period settlements on the plain and the highlands, especially on the throughways

---

77 This framework was first established for this region by the former excavators of Tarsus-Gözlükule and their final publication of the excavations there, Goldman, 1956, pp. 60-64. This tripartite system was then taken on by the ensuing excavations and surveys in the region and beyond in Anatolian archaeology.
78 Goldman, 1956, p. 82.
79 Goldman, 1956, pp. 86ff.
80 Goldman, 1956, p. 92.
81 The results of this dissertation strongly favor this view. It is mentioned in the Tarsus publications that there is no sudden break with the EB I period, but there were some changes noted in the pottery repertoire to validate a break with the EB I period (see Goldman, 1956, pp. 104f.). However, this study shows that these changes are only superstructural and actually do not translate into substantial changes in the pottery production tradition at Tarsus-Gözlükule.
connecting the plain with central and southeastern Anatolia (see map 3 for registered EBA settlements in Cilicia).

The main survey of the plain was conducted by Seton-Williams in the early 1950s.\footnote{Seton-Williams, 1954.} Although to date it remains the only comprehensive survey of the region, its early date brings about some problems with the dating of the material. The survey takes Garstang's Mersin-Yumuktepe stratigraphy as the main dating mechanism. For reasons explained below, this creates major problems for the periods relevant for this study. Fortunately, the Tarsus material seems to have been also used in dating the settlements, providing at least more reliable results in some cases. The Seton-Williams survey should be used together with Mellaart’s survey, which covers the Göksu Valley of Rough Cilicia and the northwestern part of Cilicia.\footnote{Mellaart, 1954. These areas were not treated in Seton-Williams’ survey because Mellaart was covering this region as part of his southern Anatolia survey.} The finds from Seton-Williams’ survey show that there was an increase in the number of settlements on the plain during the EBA over the previous period.\footnote{Unfortunately, the author does not provide a map of the region showing solely the EBA period settlements (although there is such a map for Chalcolithic and Middle Bronze Age periods).} The settlements along the central part of the plain are located away from the shoreline, probably due to the marshy environment created by the delta formation of the major rivers draining the plain into the Mediterranean.\footnote{Seton-Williams, 1954, p. 128.} The Cilician Plain is an alluvial plain, and especially from Middle Holocene onwards, with the end of the rise in the sea levels after the last
Ice Age, the rivers deposited large amounts of silt, filling in the sea rapidly and pushing the shoreline farther into the Mediterranean Sea. This may be another reason for the lack of settlements along the central part of the shoreline in the Cilician Plain. On the other hand, for the eastern and western flanks of the plain, EBA settlements can be spotted right along the Mediterranean shoreline.

EBA settlements are frequently found along the main routes connecting the plain with neighboring regions. One can observe EB period settlements dotting the passes through the Taurus Mountains and connecting the plain with the central Anatolian Plateau, one on the northeastern Taurus Range going through Kozan leading to Feke and Kayseri, and another going through Kadirli, where an ancient caravan route existed. The major route leading into the Syro-Anatolian region was Bahçe Pass through the Amanos Mountains where we notice the same phenomenon.

Turning to Mellaart's survey to complement the results of Seton-Williams, one can note a similar trend where there are many EB period settlements along the Cilician Gates, the main pass through the Taurus Mountains connecting the Cilician Plain with the central Anatolian Plateau, as well as dotting the Göksu

---

86 Öner, et al., 2005, pp. 82, 85.
(Calycadnos) Valley, another route connecting the western part of the Cilician Plain with the Konya Plain in the central Anatolian Plateau.\textsuperscript{87}

There are two more recent surveys in the region, but they cover a more limited geographic area; the Göksu River Valley survey conducted by D. H. French\textsuperscript{88} and the eastern Cilician Plain survey by the Bilkent University.\textsuperscript{89} The former survey claims that there were no Chalcolithic settlement in the Göksu River valley, and this region was only settled in the EBA period.\textsuperscript{90} In terms of their material culture these settlements were mostly Cilician in character rather than central Anatolian.\textsuperscript{91} The Bilkent University survey of the eastern Cilician Plain is concerned with the question of Amuq relations in the Chalcolithic and the EBA periods, and they conclude that settlements found this far east on the plain within close proximity of the Syro-Anatolian realm show strong Cilician characteristics in terms of their material culture.\textsuperscript{92}

These surveys show that the fertile Cilician Plain had a dense settlement pattern during the EB period, especially around the main overland routes, to take

\textsuperscript{87} Mellaart, 1954, map 3, p. 192.
\textsuperscript{88} French, 1965.
\textsuperscript{89} Steadman, 1994.
\textsuperscript{90} This is in contrast to Mellaart's finding where he lists few sites with traces of Chalcolithic remains, see Mellaart, 1954, map 2, p. 181. However, again the early surveys' reliance on Garstang's Mersin stratigraphy renders their results, especially in distinguishing the Chalcolithic from EB period, a suspect.
\textsuperscript{91} French, 1965, p. 186.
\textsuperscript{92} Steadman, 1994, p. 103.
advantage of and to control the flourishing commercial trade between Syro-Anatolia, Cilicia, and the central Anatolian Plateau. One can further suggest that the settlements on the Cilician Plain, the Göksu Valley, and the highlands on the southern face of the Taurus Mountains form a regionally characteristic and uniform material culture encompassing the entire Cilician region. Unfortunately, the early surveys, although comprehensive, do not provide enough data to apply to more recently developed settlement pattern theories. The more recent surveys, on the other hand, have a narrow geographic scope and cannot be used for creating a settlement pattern analysis.

Excavations

Tarsus-Gözlükule

The mound of Gözlükule is ca 300x150 m and rises 20 m above the alluvial Cilician Plain (map 5). It was first excavated by an American team directed by Hetty Goldman and Machteld Mellink between 1934 and 1939 and after the war between 1947 and 1949. After 50 years of inactivity on the mound, Boğaziçi University of Istanbul launched an excavation and research project at Tarsus-Gözlükule in the summer of 2001 which still continues under the direction of Dr. Asli Özyar.

The American team excavated two trenches on the mound, trenches A and B. A step trench at operation A went down 34 m below the surface and reached
Chalcolithic and Neolithic levels. Of the 34 m of archaeological deposits, which make up the mound of Gözlükule, 19 m of EBA levels constitute the majority of the vertical elevation of the mound.\textsuperscript{93}

\textit{EB I}

The previous Chalcolithic levels at Tarsus-Gözlükule were reached within very small trial soundings and therefore did not provide much information about this period; only that this area had strong domestic characteristics.\textsuperscript{94} Pottery obtained from this level points to similarities to north Syria, specifically Amuq F in the Chaff-faced Wares and also derivative Uruk related aspects could be discerned, which were strongly colored by local characteristics.\textsuperscript{95}

The architecture of the first EBA period is not well preserved at the mound of Tarsus-Gözlükule. Moreover, the exposed area is small, especially for the earliest EB I, consisting of a ca. 7x10 m trench.\textsuperscript{96} At the onset of the EB I period at Tarsus-Gözlükule stone is used for the first time for the foundation of the buildings with a pisé superstructure.\textsuperscript{97} In the later part of EB I, a partially preserved wall with massive dimensions was encountered running in the north-south direction and two circular towers with 2.5 m diameter were attached to it.

\textsuperscript{93} Goldman, 1956, plan 26.
\textsuperscript{94} Goldman, 1956, p. 82 and plan 1.
\textsuperscript{95} Goldman, 1956, p. 87.
\textsuperscript{96} Goldman, 1956, plan 1b.
\textsuperscript{97} Goldman, 1956, p. 9, plan 1b and 2.
possibly creating a gateway. At a higher level another north-south running wall with stone foundations was next to a courtyard or street-like area that was carefully paved several times. It was entered through the gateway structure described above. Various clay structures were built along the western wall and several storage bins were sunk in to the south, all probably related to the function of this open area. The excavators suggest that the use of stones, a scarce resource in the area, and the preserved dimensions make this an important building complex.

At the beginning of the EBA, the material culture of the settlement shows a break from the Chalcolithic period, which showed strong connections with the north Mesopotamian Halaf and Ubaid traditions. The Red Gritty Ware, a dominant ware type throughout the EBA period, makes its first appearance without much transition, reaching almost a 40% distribution within the Tarsus-Gözlükule repertoire. The pitcher, a typically Anatolian shape, also appears for the first time.

---

98 Goldman, 1956, p. 9, plan 2.
99 Goldman, 1956, plan 3.
100 Goldman, 1956, pp. 10ff., plan 3.
101 Goldman, 1956, p. 10.
103 See Mellink Notes, under "Red Gritty Ware" heading. "Mellink Notes" is a document composed by Machteld J. Mellink while she was conducting the research for the publication of the Tarsus Final Publications in Tarsus. It reflects the author's first-hand observations on pottery, based on which the second volume of the Tarsus Final Publications was compiled. This document was then inherited by the new excavations commenced at Tarsus-Gözlükule in 2001 under the directorship of Dr. Aslı Özyar from the History Department at Boğaziçi University in Istanbul. Because it reflects the first-hand observation on the pottery of the prehistoric settlement, this document proved to be an invaluable source of information for this study.
time. However, strong continuity from the Chalcolithic period can also be seen in the Chaff-faced pottery tradition.

Interregional contact with northern Mesopotamia is evidenced in the appearance of Canaanite blades. A faience bead shows direct or indirect relationship with Egypt. The first use of bronze in the settlement also falls within this period.

EB II

The EB II period architecture of the settlement at Tarsus-Gözlükule is the best preserved of all the EBA levels. The building complex of EB I was meticulously removed and filled in with clay ranging in thickness from 0.5 to 1 m. The first building period reveals two sets of mudbrick row houses separated by an east-west running street. The houses consisted of a large front room and a smaller back room, where the front room contained a large domestic hearth in the middle and smaller cushion hearths placed next to the walls. The recovered artifacts suggest that the front rooms served as domestic workshops, especially for weaving.

---

104 Goldman, 1956, pp. 257, 260. There are also many parallels with the Syro-Anatolian pottery repertoire during EB I (see chapter on Early Bronze Age Pottery of Tarsus-Gözlükule).
105 Goldman, 1956, p. 388.
106 Kuruçayırlı and Özbal, 2005, table 4, sample nr. T47.80.
The first building period (EBII.1-2) ends in destruction by fire, and the fortification wall constructed in the second building period (EBII.3) suggests that it was a result of a hostile attack.\(^{110}\) The jagged fortification wall, which was supported by an earthen rampart, took over the whole southern part of the exposed area.\(^{111}\) Later (EB II.4-6), the fortification wall took on a more systematic appearance with an indirect gateway, which was at a yet later stage closed off.\(^{112}\) The traditional row house approach to the domestic architecture was continued throughout this building period.\(^{113}\) This building period also ended in destruction by fire.\(^{114}\)

In the third building period (EBII.7-8), the row house plan was still utilized in the north section of the trench, but to the south domestic living space was arranged differently than the row house layout to conform to the uneven topography left by the debris of the no longer functional fortification wall.\(^{115}\) This building period ended in a conflagration (EB II.9) that consumed the houses on the northern part, but left the southern part intact.\(^{116}\)

During EB II, there is evidence of increased administrative control over the settlement. Stamp seals gain in popularity, although they were probably in use at

\(^{110}\) Goldman, 1956, p. 20; Mellink, 1989, p. 320.
\(^{111}\) Goldman, 1956, plan 5.
\(^{112}\) Goldman, 1956, plans 6 and 7; Mellink, 1989, p. 320.
\(^{113}\) Goldman, 1956, plans 5-9.
\(^{114}\) Goldman, 1956, p. 28.
\(^{115}\) Goldman, 1956, plans 8-9.
\(^{116}\) Goldman, 1956, p. 32.
the site as early as the Ubaid period.\textsuperscript{117} They were manufactured from a variety of materials, ranging from simple river pebbles to bronze.\textsuperscript{118} An interesting phenomenon is the use of stamp seal impressions on clay weights, which is a solely EB II occurrence.\textsuperscript{119} Moreover, there are occurrences of impressing pottery with seals practiced for the first time at Tarsus-Gözlükule.\textsuperscript{120}

The use of metals becomes more common, including the use of bronze.\textsuperscript{121} The earliest gold object, an earring, is found in this period.\textsuperscript{122} A lead Syrian bottle fragment from the EB II context shows that local craftspeople were applying indigenous resources and knowledge to produce a vessel of typical north Syrian shape.\textsuperscript{123}

\textit{EB III}

The earliest level of the EB III is sketchy for the settlement (EB III.a).\textsuperscript{124} The settlement plan becomes clear only in the second phase (EB III.2).\textsuperscript{125} The orientation of the buildings remained the same as in the EB II period.\textsuperscript{126} Stone was again used in the foundation of the buildings after this method was

\begin{flushright}
119 Goldman, 1956, p. 236.
120 Goldman, 1956, p. 240.
122 Goldman, 1956, p. 301, nr. 2.
124 Goldman, 1956, plan 9 hatched areas.
125 Goldman, 1956, plans 9-10.
126 Goldman, 1956, compare plans 9 and 10.
\end{flushright}
abandoned for the duration of the EB II period. The second building period reveals megaroid buildings (EB III.2-3), which evolve into an agglutinative habitation complex through continuous additions and alterations in the third building period (EB III.4-6). This period ended in destruction.

Throughout this period, the walls of the buildings are rebuilt and repaired constantly, which is explained by the excavators as being the result of a number of earthquakes that weakened the settlement and required continuous repair. One can also observe a change in the use-space of architectural units whereby during the second building phase there are at least four distinct architectural units, which begin to merge into a single large, agglutinative architectural unit by the end of the third building period. This change in architectural use of space might be a reflection of the changing household structures of the settlement.

There is a change in material culture from the EB II period, evidenced especially in the pottery shape repertoire at the onset of the EB III period (EB III.1) in the sudden appearance of the distinctly shaped vessels of “west Anatolian” drinking set with tankards, bell-shaped cups, depata and the so-called wheelmade

---

127 Goldman, 1956, plan 10. But see plan 9 which represents the last phase of EB II and earliest phase of EB III, unit 85, which is an EB II building, has stone foundations. Hence, use of stone in the foundations might not have appeared at the onset of EB III, rather it might have started at the latest phase of EB II.

128 Goldman, 1956, p. 34, plans 10-11 for EB III.2-3 and plans 12-14 for EB III.4-6.

129 According to Mellink, this destruction was a result of forceful intrusion from north Syria due to unrest in that region at this time, see Mellink, 1962, p. 226.

130 Goldman, 1956, p. 348.
“Trojan” plates. Moreover, seal use becomes less frequent during this period compared to the previous period.\textsuperscript{131} Contacts with the east, on the other hand, also continue. For example, cylinder seals and cylinder seal impressions, a type preferred by the Near Eastern administration systems, are first used in this period.\textsuperscript{132} Moreover, some of the hallmark north Syrian pottery shapes are also strongly represented, such as goblets and Syrian bottles.

During this period, the settlement was a production center of various commodities. The sandstone mold from an EB III context provides evidence for metallurgical activity taking place on the settlement.\textsuperscript{133} A hoard of bronze weapons and tools was recovered in room 56 from a late EB III context, some of which were made of bronze.\textsuperscript{134} Moreover, the large number of spindle whorls recovered from this period suggests a thriving textile industry at the site.\textsuperscript{135}

Cylinder seals are used for the first time on the site. The earliest examples, belonging to EB III:1 contexts, are made of frit or faience with herringbone patterns on three registers.\textsuperscript{136} The use of stamp-cylinder seals is also attested

\textsuperscript{131} Goldman, 1956, p. 233.
\textsuperscript{132} Goldman, 1956, pp. 233f.
\textsuperscript{133} Goldman, 1956, p. 305.
\textsuperscript{134} Goldman, 1956, p. 281.
\textsuperscript{135} Goldman, 1956, pp. 328, 330-332.
\textsuperscript{136} Tarsus II, p. 238, fig. 393: 20-21; Mellink, 1989, p. 327.
for the first time evidenced by an impression on a vessel (from an EB III.6 context). \(^{137}\)

Artifacts of non-local origin confirm that the people of Tarsus-Gözlükule engaged in trade relations with various regions of the eastern Mediterranean. Eleven hematite weights of classical Near Eastern style are found together on the floor of Room 17 indicating that they were used as a standard set. \(^{138}\) The gold earrings belonging to this period have close parallels in the Troy and Alaca Höyük corpora. \(^{139}\) Forty-seven disc-shaped beads made from blue frit confirm at least indirect contact with Egypt, \(^{140}\) and a green glazed steatite stamp seal with the handle in the shape of a quadruped animal shows connections with the Levant. \(^{141}\)

\textbf{Mersin-Yumuktepe}

Another settlement located within the Cilician Plain with excavated Early Bronze Age material is the mound of Yumuktepe at Mersin. However, the publication of the Garstang excavations is not very helpful in generating a better understanding of the region during the third millennium B.C. \(^{142}\) It is clear from the publication

\(^{137}\) Goldman, 1956, pl. 60: 5 a-b.  
\(^{138}\) Goldman, 1956, p. 266.  
\(^{139}\) Goldman, 1956, p. 301: 3-6; Mellink, 1989, p. 328.  
\(^{140}\) Goldman, 1956, p. 338.  
\(^{142}\) Garstang, 1953.
that the excavator did not manage to correctly sort out the intricate stratigraphy of the settlement complicated by the constant terracing activities.\textsuperscript{143}

Mersin-Yumuktepe provides evidence for the important obsidian and metal trade on the plain where obsidian is found from the earliest levels of the settlement, and metal use becomes prominent as of level XVI-XVII (dated to ca 4900 B.C. by the new excavators) where the earliest evidence of smelting is found.\textsuperscript{144}

Level XVI was destroyed so violently by a fire that in the next level, level XIIA, the settlement shifted south because of the massive debris left from the XVI destruction.\textsuperscript{145} Level XIIIB (EB III) shows a strong intrusion of the "west Anatolian" style pottery on the settlement, as in Tarsus.\textsuperscript{146}

Black Burnished, White-filled Incised Ware,\textsuperscript{147} Scored Ware,\textsuperscript{148} Anatolian Metallic Ware jugs,\textsuperscript{149} and the existence of "west Anatolian" pottery influence\textsuperscript{150} attested at this settlement are some of the parallels in the material culture of Mersin-

\textsuperscript{143} This is further confirmed by the current excavator I. Caneva through personal communication. Also see, Caneva, 2000, p. 70.
\textsuperscript{144} Caneva, 2000, pp. 70, 72.
\textsuperscript{145} Caneva, 2000, p. 72.
\textsuperscript{146} Caneva, 2000, pp. 71f.
\textsuperscript{147} Garstang, 1953, p. 59, fig. 35 (level XXIV – proto-Chalcolithic, but again the stratigraphy of Garstang for Mersin-Yumuktepe is very problematic).
\textsuperscript{148} Garstang, 1953, p. 174, fig. 113.
\textsuperscript{149} Garstang, 1953, p. 196, fig. 122.
\textsuperscript{150} Garstang, 1953, p. 201, fig. 124: 10. 12 (level X – Bronze Age).
Yumuktepe and Tarsus-Gözüküle. As the settlement's stratigraphy is revised and improved by the new excavators, one will be able to make better sense of the developments at and relations of Mersin-Yumuktepe with Tarsus in particular, but also with the wider regions around it in general. Currently, one can only say that Mersin and Tarsus show close affinities in their material culture throughout the EB period, with the exception of White-on-Black class of pottery that is found in Mersin, but lacking in Tarsus-Gözüküle. This class seems to be of Konya Plain origin with Mersin-Yumuktepe marking its easternmost distribution point.

Kinet Höyük

Kinet Höyük is another important settlement on the Cilician Plain. It lies in the eastern part of the plain and commands important trade routes leading from the Cilician Plain through the Amanos Mountains into the Amuq Region. The results of the ongoing excavations on this site are not yet widely published.

The settlement was encircled by a massive fortification wall with casemate walls and at least one inner room or tower; the pottery obtained from inside the walls dates it to the EB II period.

---

151 Based on personal observations made when visiting the new excavations directed by Dr. I. Caneva, Light Clay hemispherical bowls also seem to be an important part of the Mersin-Yumuktepe repertoire.

152 Garstang, 1953, p. 184, fig. 118 (level XIIa – Early Copper Age).


In the following phase, phase 4 (early EB III), rooms from a domestic area were excavated, which have walls with stone foundations. In one of the rooms a cache of new bronze items was uncovered consisting of a dagger, two chisels or axes, a small ingot, and a dozen pins. A jar stopper with a cylinder seal impression was recovered from an unstratified context, but can stylistically be dated to EB II/III period.

In the next phase, a storage unit containing very large and well-made pithoi and probably belonging to a large-scale building was found in this area. The "west Anatolian" influence is not missing from this settlement, evidenced by the tankards and wheelmade plates, but also a Gray Ware Syrian bottle indicates contact with Amuq/north Syrian realm. In another trench kiln installations were discovered. Two workrooms were attached to this installation, within which large jars and a block of lime were found. This industrial area is dated to the end of EB III to EBIII/MB transition. In the rest of the trenches there seems to be a hiatus at the end of EB III evidenced by a long, erosional deposit.

---

Hence, from these brief descriptions of the EB period settlement at Kinet Höyük, one is inclined to think that it followed a similar pattern with Tarsus-Gözlükule during the EB II-III periods.

Kilise Tepe

Kilise Tepe is located in Rough Cilicia in the Göksu River valley and its tributary Kurtsuyu. The EBA levels exposed in these excavations are very small, mostly relying on a robber’s trench to reach down to these earlier levels. Level V is designated to be the EBA level, with Vj-g phases belonging to EB II and Vf-e belonging to EB III. The earliest phases VI-k, below which bedrock was reached, could not be securely dated due to the scanty nature of remains, but the excavators think they also belong to EB II.¹⁶¹ No complete house plans were obtained, but the walls always had stone foundations, and walls and floors were generally plastered with good quality yellow clay.¹⁶² Like in Tarsus-Gözlükule, the EB II period ends in destruction and rebuilding occurs immediately without a discernable hiatus. The lack of portable material remains on the floor of the last EB II phase (Vg) suggests that the buildings were cleared of their content before the fire.¹⁶³ The architectural remains belonging to the first phase of EB III indicate a similar orientation in the building layout, walls still have stone

¹⁶¹ Seffen, 2007, pp. 88f.
¹⁶³ Seffen, 2007, p. 94.
foundations, and the tradition of plastering with yellow clay still continues.\textsuperscript{164} Hence, there seems to be a level of continuity in the architectural traditions from EB II to EB III. In the next phase of EB III, phase Ve, however, the function of the area changes drastically to what seems to be open space.\textsuperscript{165}

Unlike in architecture, pottery shows a radical change from EB II to EB III. During EB II, pottery production is diversified indicated by the existence of many fabrics and is exclusively handmade, whereas during EB III, the number of fabrics used declines sharply and the wheel becomes the dominant mode of production.\textsuperscript{166} Red and Black Burnished Wares dominate the assemblage during EB II.\textsuperscript{167} The Black Burnished White-filled Incised Ware, Scored Ware, Red Gritty Ware, and White-on-Black Ware tie Kilise Tepe to the Cilician Plain during the EB II period.\textsuperscript{168} At the onset of EB III, however, burnished wares disappear, although red slip is continued to be used, painted pottery (especially in the form of red cross bowls and bands on the rims) becomes plentiful, and the vessels are generally better fired.\textsuperscript{169} The excavators suggest that these changes point to a change from part-time household production during EB II to a more specialized, full-time workshop mode of production during EB III.\textsuperscript{170} This may be due to a

\textsuperscript{164} Seffen, 2007, p. 94.
\textsuperscript{165} Seffen, 2007, p. 100.
\textsuperscript{166} Knappet and Kilikoglou, 2007b, p. 252.
\textsuperscript{167} Symington, 2007, p. 297.
\textsuperscript{168} Symington, 2007, pp. 297, 298, 301.
\textsuperscript{170} Knappet and Kilikoglou, 2007b, p. 252.
general trend in the region and beyond towards closer trade contacts and intensifying interregional interactions during the EB III period. It is very interesting to note that the so-called “west Anatolian” influence in pottery shapes, that is so prevalent at the settlements on the plain (at least the excavated ones) during EB III, seems to be missing at Kilise Tepe with only few instances of handles that can be attributed to the depas class. Kilise Tepe also lacks the Amuq/north Syrian shapes, like chalices and Syrian bottles during EB III. Black Burnished White-filled Incised Ware continues to be produced during EB III (especially during phase Vf4), whereas this ware is completely discontinued during EB III at Tarsus-Gözlükule.

Hence, in terms of pottery production, although there are drastic changes from EB II, the nature of the changes is entirely different from what can be observed at Tarsus-Gözlükule. One can postulate that the “west Anatolian” influence was not uniform in its impact in the region. This brings up a causality question to mind. One wonders, if the destructions were at all related to the newcomers, or if the newcomers were taking advantage of region-wide disruptions due to some other events in settlements where they have already established contact, like Tarsus-Gözlükule and Kinet Höyük.

172 Although there seem to be a few conical goblets in the Light Clay Ware type fabric of Tarsus-Gözlükule, like Symington, 2007, fig. 378: 423 and fig. 381: 466.
During EB II-III Kilise Tepe seems to have remained within its localized niche and had limited contact with the wider regions around it, perhaps because it is located in such an inaccessible, mountainous area.

General Remarks

The excavations at Tarsus-Gözlükule, Mersin-Yumuktepe, and Kinet Höyük on the Cilician Plain show that the settlements on the plain during the EBA period share a similar trajectory in their development and in their contacts with the regions around them.

The evidence for the EB I period is scanty, but it seems there is a change in the pottery repertoire from Ubaid and Uruk influences to a more localized, yet within the plain homogeneous, collection. A strong local component is evidenced by the Red Gritty Ware class, its main shape, the Anatolian pitcher, and in the large pithoi, which are skillfully constructed for their size. Contacts, although limited, existed with the neighboring regions.

During EB II, contacts with regions around the plain intensified. There is a thriving textile industry and other production activities taking place on the settlements. Bronze is attested for the first time in the region. The towns during this period have a well-organized and well-planned appearance. The settlements

174 See Local Fabric III section under “Early Bronze Age Pottery Production Technology: A Comprehensive Analysis” chapter for more detailed analysis of this ware type.
seem to have been fortified, perhaps due to a yet unknown threat imposing on
the plain or perhaps due to infighting among the settlements within the plain for
domination of the region.

Whatever the nature of this threat was, it may have been the main cause of the
destrucţions throughout the region by the end of the EB II period, the result of
which was a drastic change in the pottery repertoire in all of the settlements.
However, immediate resettlement, some continuity in architecture, pottery, and
other types of material culture suggest that perhaps the widespread destructions
were a result of some other catastrophe engulfing the region\textsuperscript{175} and the new
elements observed in the material culture at the onset of EB III were a result of
the generally weakened state of the settlements to be taken advantage of by
newly arriving peoples (see the Conclusion chapter for a more detailed
discussion of this issue). The only observation one can make for certain for this
period is that there was no abandonment of sites and enough of the residents
must have survived and were not entirely subjugated to ensure continuity of
some of the local traditions. Moreover, contacts with the neighboring regions
were still robust, and textile and metal production continued on the settlements.

\textsuperscript{175} One option that comes to mind is severe earthquakes taking place at the beginning of EB III if
the suggestion of the former excavators at Tarsus-Gozluküle is correct in explaining the constant
repairing and rebuilding activities of the buildings during EB III to damage from earthquakes,
which may have been a result of aftershocks in the aftermath of a major earthquake.
Rough Cilicia shows a somewhat different developmental trajectory from the settlements on the plain: it was more isolated throughout the EBA period. However, during EB II, here too we observe contact with the Cilician Plain and the Konya Plain where Cilician characteristics overweight the central Anatolian ones. Kilise Tepe was also destroyed at the end of EB II, but immediate resettlement ensued. Although there is a change in the pottery repertoire at the beginning of EB III, its nature is different from that observed on the plain with the "west Anatolian" impact non-existent other than a few sherd possibly belonging to depata.

The excavations and survey results combined tell a story of a region flourishing during the EBA period with ever increasing contacts with the neighboring regions, intensification of manufacturing of finished products pointing to a more specialized mode of production, and attempts at administrative control of foodstuffs and weights. Intra- and interregional hostilities are also evidenced perhaps as an attempt at controlling the increasingly important trade routes and gaining hegemonic control of the region as a whole.
EARLY BRONZE AGE POTTERY PRODUCTION

TECHNOLOGY: A COMPREHENSIVE ANALYSIS

In this chapter petrographic, XRD, ESEM, and stylistic analyses performed on the seventy-two EBA samples are described in detail. The results of the various scientific and stylistic analyses lead to the identification of five main local fabric groups labeled Local Fabrics I-V. The non-local groups are categorized as fabric groups when all of their members have the same fabric characteristics. However, for some of the non-local samples, although the samples form a coherent group stylistically, in some instances they do not have the same fabric due to the existence of multiple production centers for these vessels. Such cases are categorized as ware groups rather than as fabric groups, but the corresponding fabric characteristics are described in detail as well (like Scored Ware, Cross-Stitch Incised Ware, Red and Black Streak Burnished Ware, and Spiral Burnished Ware groups). There were also eleven singletons and unique occurrences within the selected seventy-two samples that do not conform either to the main local fabric characteristics, or to the analyzed non-local categories. They were treated separately under the Miscellaneous heading. The layout of each section is such that first a summary subsection is fashioned where digests of the results of the scientific analyses are given starting with the petrographic analysis, followed by the XRD and ESEM analyses. Then a digest of the formal shape and stylistic analysis is provided. At the end an integrative summary narrative is provided describing the main identified trends and developments of
each group along with problems and still outstanding issues regarding each group. The detailed description of the samples including their information recorded by the previous excavators, and the results of their petrographic, XRD, ESEM, and shape and stylistic analyses are provided within the Appendix for each group.

In the Tarsus publications, the EB I-II periods ceramics are mainly categorized based on macroscopic observations of the pottery fabrics. For the EB III, however, the publication shifts to a categorization based on shape and surface treatment characteristics, rather than the fabric characteristics.\textsuperscript{176} This study, on the other hand, maintains that sustaining a grouping based on fabric types is more useful in diagnosing and addressing continuities and changes occurring in the pottery production traditions of this settlement. Firstly, the consistency provided by this approach renders comparisons more appropriate. Secondly, this methodology provides a more powerful explanatory power as it enables identification of changes and continuities not only in the superstructural aspects of pottery production, like the shapes and surface treatments of the vessels, but also in the structural aspects, like changes in the clay source, tempering practices, pre-forming, forming, and firing techniques of the vessels etc.

\textsuperscript{176} Goldman, 1956, p. 131 states explicitly that the reason for the change in cataloguing was that there was no longer a strong unity in the shape and fabric types during EB III.
Nevertheless, to be able to tie into the terminology already firmly established within the scholarship as a result of the Tarsus publications, this study tries to link the fabric groups established here with the ware groups established in the Tarsus publications. Therefore, before beginning the description and analysis of the pottery production tradition of EBA Tarsus-Gözlükule, an overview of the main ware types used in the Tarsus publications is useful. There are two main ware types identified by the former excavators, which continue for the duration of the EBA period at Tarsus-Gözlükule, namely the Red Gritty Ware and the Light Clay Ware. Red Gritty Ware is a handmade tradition, which mainly produces vessels of utilitarian character, like pitchers and jars, and the shapes produced within this group are strictly Anatolian (see Local Fabric III section). The Light Clay Ware (see Local Fabric I section), on the other hand, represents a wheelmade tradition, producing mainly shapes used as daily table ware, and this ware group has close parallels to the Amuq region (see Local Fabric I section). Cooking Pot Ware is defined as a diverse group producing vessels for cooking (see mainly Local Fabric III section, but also Local Fabric IV section). The Chaff-faced Ware is a direct descendant from the Chalcolithic period, and like its Chalcolithic predecessor, it is always wheelmade, and continues to be produced at Tarsus-Gözlükule until the end of EB II (see Local Fabric IV section). The Black Burnished and the Red Burnished Wares are a strictly EB I-II phenomenon in the region and have their own idiosyncratic surface treatment and shape repertoire.

177 And its predecessor Spiral-banded Ware, which is a strictly EB I phenomenon.
(see Local Fabrics II and V sections, respectively). They also represent a strictly handmade production.

There were other ware types introduced by the former excavators for the EB III period, like the Gray Ware, Copper Age Ware, Light Clay Red-slipped Burnished Ware, Burnished Red Gritty Ware, Brown-Red Ware etc. However, as mentioned above and established in this study, these distinctions are not reflected within the fabric categories and are mainly classifications based on surface treatment of the vessels.
Local Fabric I
(Plates 18, 19, 20, 32, 33, 34, 35, 53, 55, 56, 58, 59, 60, 61, 62, 63, 64, 66, 68, 70)

Along with Local Fabric III, this group constitutes one of the main fabric categories within the Tarsus-Gozlükule repertoire (figure 1).

Petrographic Analysis

The fabric profile of this group is generally calcareous with calcite being the main component, but in some cases also shell and micrite particles can be observed. Quartz and feldspars (including plagioclase feldspars) are the most commonly attested inclusions. Mica minerals also occur. Metamorphic rocks like quartzite and schist are present in some of the samples.

XRD Analysis

Silicates constitute the most dominant minerals. The rare silicate sapphirine is strongly represented in this fabric group. Feldspars (both alkali and plagioclase) are the other dominant group of minerals. The rare feldspar, reedmergnerite, is commonly found in the members of this fabric group. Minerals belonging to mica group are also attested. Pyroxenes, on the other hand, are generally low for Local Fabric I.

ESEM Analysis
The vessels of this group are generally medium fired with some exceptions reaching high fired stage (samples 19, 32, and 33). All Local Fabric I members are calcareous. The ESEM images show Intermediate Vitrification stages with isolated areas of glass formation with no bloating pores and some clay platelets still intact. During EB III, some members of this fabric group are subjected to reducing firing conditions (samples 66, 68, 70).

**Formal Shape and Stylistic Analysis**

The main ware types that register under Local Fabric I group are the Fine Spiral-banded Ware and the Light Clay Ware. Light Clay Ware is the continuation of the Fine Spiral-banded Ware tradition of early EB I. The Fine Spiral-banded Ware samples are from EB I contexts and the Light Clay Ware samples belong to the EB II-III contexts.

With the exception of samples 64, 66, and 70, all of the vessels of this fabric group belong to open vessels. Samples 18 and 19 are Fine Spiral-banded Ware bowls from EB I. Samples 20, 32, 33, 34, 53, 55, 56 are examples of Light Clay Ware where samples 20, 32, and 33 are bowls from EB II period, samples 34 and 56 are goblets from EB II and III, respectively, and samples 53 and 55 are wheelmade plates from the EB III period. Samples 35, 58, 59, 60, 61, 62, 63 belong to the Slipped and Burnished Light Clay Ware variety. Sample 35 is an early precursor of this ware type from EB II and is a bowl. Samples 58 and 59
are Red Slipped and Burnished Light Clay Ware bowls from the EB III period. Samples 60-63 belong to the “west Anatolian” drinking set repertoire from EB III.

Sample 64 is red slipped and represents an unconventional Syrian bottle shape with no exact parallels found elsewhere. Generally, alabastron type Syrian bottles have a narrower circumference around their shoulder compared to their lower body, but in this example we have the opposite. The flask type Syrian bottles, on the other hand, have a spherical body. Sample 64 could be an eccentric mix of the two conventions. It is a local production, and the typical Syrian bottle shape conventions might have been misapprehended by the local potters who only kept true to the general form of the Syrian bottle prototype.

Samples 66, 68, and 70 belong to the local Gray Ware category from EB III. Sample 66 is a small jar from the EB III period and is a typical member of the local Gray Ware in its shape. Sample 68 is a black-slipped tankard. Sample 70, on the other hand, is a Syrian bottle of alabastron type with closest parallels in the Syro-Anatolian region in its shape.

**Summary Remarks**

The clay inclusions of Local Fabric I members are all naturally occurring as part of the clay source. The only post processing to the clay after being collected seems to be varying levels of purification applied to the vessels depending on
their form and function. The petrography of the Local Fabric I group is consistent with geological formations found in coastal marine environments with predominant sedimentary rocks like limestone and containing quartz, feldspars, micas, shells, and fossils. The region north of Tarsus has Quaternary travertine formations consisting of terraces covered with caliche. Moreover, north of these there are the Paleo- and Neo-autochthonous cap rocks mostly developed in coastal marine environments. The mountains through which the Cydnos River flows are also rich in sedimentary rock formations (see map 1 and the chapter titled "Geology of the Region" for detailed description of the regional geography).

Based on Costin’s categorization on organization of production, Local Fabric I production most probably represents “community specialization”, which is formed by autonomous household-based production units working together within the community to produce unrestricted amount of goods for regional consumption.178

**EB I-II Periods**

During EB I, Fine Spiral-banded Ware type dominates the Local Fabric I group. The surface treatment of this ware group is standard where the inside of the vessel is self-slipped and then the slip is scraped off with a brush-like tool, visually creating a spiral effect, and the outside surface is treated less carefully.

---

178 Costin, 1991, p. 8. Of course, due to lack of excavated EBA ceramic production contexts at Tarsus-Gözlükule, this is only a conjecture based on apparent standardization in the vessel shapes and fabric, its high percentage distribution within the settlement, use of the potter’s wheel, and its wide spread occurrences within the region.
by smoothing in haphazardly oriented strokes. The only shape produced in this ware type is the wheelmade hemispherical bowl.

By EB II and into EB III, the Light Clay Ware becomes the main constituent of the Local Fabric I group. Light Clay Ware starts to be found as early as late EB Ib contexts, but has its main distribution in the EB II period. In fact, Light Clay Ware is one of the dominant ware types at Tarsus-Gözlükule during EB II reaching ca. 20% of the total sherd count. Its main distribution falls within the 15-20 m levels. The typical shape is the hemispherical bowl and the goblet and in much lesser frequency closed storage and drinking vessels, like jugs and jars (see figure 2).

The publication distinguishes the Fine Spiral-banded Ware of the EB I period from the Light Clay Ware where it is noted that the Light Clay Ware replaces the Fine Spiral-banded Ware group by EB II. However, the early specimens of the Light Clay Ware hemispherical bowls still show a similar treatment of the vessel

---

179 Mellink Notes, p. 24.
181 Mellink Notes, pp. 25, 28.
182 Goldman, 1956, p. 106; Mellink Notes, p. 27. But in Mellink, 1989, p. 322, it is proposed that even though these goblets are produced in Tarsus, they must have been produced by a resident Syrian potter, like the Fine Spiral-banded Ware bowls of EB I. However, these shapes are so typical of Local Fabric I group, that they are most certainly part of the mainstream workshop manufacturing Local Fabric I type vessels and not part of a separate production unit. However, the potters operating at the Local Fabric I workshops were most certainly in contact with the Syrian potting community to some degree given how similar shape developments are in both regions.
Samples 20 and 32 demonstrate that the typical surface treatment used for Fine Spiral-banded Ware continued to be used on the Light Clay Ware bowls even during the EB II period. The label “Spiral-banded Ware” emphasizes the surface treatment of the vessels, whereas the label “Light Clay Ware” reflects the fabric type. In fact, as established in this study as far as the fabric is concerned, they belong to the same class and were part of the same production process.

The wheel was started to be used by the potters at Tarsus as of the Chalcolithic period as a result of the contacts with the north Syrian/Amuq regions. Fine Spiral-banded Wares continued the wheel production tradition in potting, which was then transferred to the Light Clay Ware production line. Hence, in terms of pottery production techniques, one can argue for a strong continuation of potting tradition from Chalcolithic continuing to the end of EB III, represented within the Local Fabric I group first by the Fine Spiral-banded Wares and then in the Light Clay Ware category.

**EB III Period**

During EB III, the Local Fabric I group, like the Local Fabric III group, continued to be used with no dramatic change to the fabric. However, again, like the Local Fabric III class, new shapes were introduced and some old ones were

---

184 Mellink Notes, p. 24.
discontinued (see figure 3). Moreover, more of the shapes traditionally handmade and produced within the Local Fabric III tradition started to be manufactured within the Local Fabric I category as well, like pitchers and jars. This is a natural outcome of the ever more widespread use of the wheel in pottery production by this period.\(^{185}\) During EB III, Local Fabric I and Local Fabric III starts merging such that it becomes ever more difficult to tell the two apart in some cases (see also below the discussion under Local Fabric III).\(^{186}\)

The shapes of Local Fabric I vessels have strong parallels to the Amuq region until the end of the EB II period. At the onset of EB III, however, one can see a drastic change in the shapes of Local Fabric I group to more typically Anatolian types, especially the so-called “west Anatolian” vessel shapes with wheelmade plates, tankards, bell-shaped cups, and depata dominating the assemblage rather than the hemispherical bowls and goblets of the previous periods. Especially the wheelmade plate reaches a 10% distribution of the total sherd count as of EB III.\(^{1-2}\), partially replacing the hemispherical bowls and goblets of the previous period.\(^{187}\) The majority of the “west Anatolian” shapes belong to drinking cups probably related to conspicuous consumption of alcoholic beverages, specifically wine.\(^{188}\) These vessels find a wide distribution in

\(^{185}\) Goldman, 1956, p. 133.
\(^{186}\) Mellink Notes, p. 24.
\(^{187}\) Mellink, 1989, p. 325.
\(^{188}\) Çalış-Sazcı, 2007, p. 151, 155. Although the author here proposes that the depas vessel could not have been a regular household vessel because it was used in consumption of wine,
Anatolia, Aegean, and to a lesser degree in Syro-Anatolia. However, some shapes also related to consumption of beverages continued to be produced in EB III at Tarsus-Gözlükule that have close parallels to the Amuq, like goblets with flat and pedestal feet (see sample 56). In the Syro-Anatolian region, goblets are commonly found within burials as part of communal feasting activities, indicating that they were part of ritual paraphernalia. Therefore, it is significant that at Tarsus-Gözlükule hybrids between two distinct regional drinking cups started to be produced towards the later part of EB III, like the goblet-depas type, combining typical Syro-Anatolian shapes like that of the goblet with the Anatolian shapes, like the depas.

This study confirms that the members of the "west Anatolian" drinking cups analyzed belong to a well established local production process. Therefore, these vessels with highly charged symbolism in the consumption realm did not result in a drastic change in the production process and organization of local pottery production at Tarsus-Gözlükule. They confirm that there was a shift in the eating and drinking habits of the residents at this settlement, but the long-standing custom of using the goblet also continued. Moreover, the coexistence of two drinking traditions was epitomized at the later stages of EB III with the depas-

which was an expensive, luxury drink in antiquity. But its frequency at Tarsus-Gözlükule disputes this theory.

189 The easternmost region the "west Anatolian" shapes spread to is Islahiye Region across the Amanos Mountains. For discussion on the distribution see, Mellink, 1998; Spanos, 1972.
190 Sconzo, 2007, pp. 251f.
191 See Goldman, 1956, p. 144, nrs. 508-512.
goblet hybrid unseen anywhere but at Tarsus. Hence, this new intrusive element into the settlement at the beginning of EB III was not absolute, and the surviving inhabitants of the settlement imitated and eventually appropriated the new-coming eating and drinking habits, even producing their own interpretation of it within their own long-established traditional production techniques.

Another significant change occurring in pottery production within the Local Fabric I group by EB III was the coating and burnishing of the vessels with a different colored slip than the body of the vessel, especially in red. Red Slipped and Burnished Light Clay Ware attains a high distribution of 10-20% of the total sherd count as of EB III.1-2. In contrast, the surface treatment of the vessels in Local Fabric I category was generally limited to self-slip during the EB I-II periods. Sample 35, belonging to the EB II period, is an early example of this new trend where a wheelmade Light Clay Ware type vessel is coated with a red slip and burnished. The fabric of the Red Burnished Light Clay Ware of EB III is different from the Red Burnished Ware tradition of the EB I-II periods (see Local Fabric V section). Moreover, the shapes of the earlier Red Burnished Ware vessels are very different from the EB III Red Slipped and Burnished Light Clay Ware vessels. Given a change in the clay source and shapes in the Red Burnished Ware production, it is apparent that the latter tradition is unrelated to the earlier one. The potters of Local Fabric I adopted this method of surface

---

192 Mellink, 1989, p. 325.
treatment not from the local EB I-II Red Burnished tradition, but as part of the sweeping changes occurring in pottery production at the beginning of EB III. Mellink suggests that the red slip tradition of this period might have originated in southwestern Anatolia.\textsuperscript{193}

Samples 66, 68, and 70 are treated as a separate ware category in the former Tarsus publication, labeled Gray Ware.\textsuperscript{194} This analysis shows that this ware type belongs with the Local Fabric I group. The local Gray Ware is best represented by the “west Anatolian” drinking set vessels, but also by small jars within the Tarsus-Gözlükule pottery repertoire,\textsuperscript{195} and it is not related to the Black Burnished Ware tradition of the earlier EB periods (see Local Fabric II section).\textsuperscript{196} The main differences are the use of the wheel in this category for the first time, utilizing a different clay source, better purification of the clay, and a drastic change in the shape repertoire during the EB III period.

Firing in a reduced environment to create dark faced vessels is another new trend for the Local Fabric I group potters. This is a change in the production technology where the fired vessels were exposed to reducing condition during the firing process.

\textsuperscript{193} Mellink, 1986, p. 149.
\textsuperscript{194} Goldman, 1956, p. 134.
\textsuperscript{195} Goldman, 1956, p. 134; Mellink Notes, p. 130. But sample 70 shows that Syro-Anatolian shapes can also be attested in this category.
\textsuperscript{196} Mellink Notes, p. 130.
During EB III, there seems to be a desire to create a diverse variety of surface colors in the Local Fabric I production process, including more frequent use of different color slip than the color of the vessel body and creating gray-black vessels by reducing the firing process. This is certainly a new trend whereas before the Local Fabric I producers were generally content with treating the vessel surfaces with only a self-slip. The desire to create vessels (often of the similar shapes) in different colors may have been due to an attempt to imitate metal vessels, which became prolific in use during EB III as attested in Troy Treasures, Alacahöyük Royal Burials, Eskiyanapar Hoard, Mahmatlar Treasure, Horoztepe Burial, etc.\textsuperscript{197}

The Syrian bottle, sample 64, represents a cross between the Local Fabric I and III conventions. It is a typically Syro-Anatolian shape (although a somewhat misunderstood copy in its shape), but it is handmade. Mellink mentions that such handmade bottles existed within the Tarsus-Gözlükule assemblage in less conventional shapes.\textsuperscript{198} Its fabric is not very calcareous (similar in this aspect to Local Fabric III), but in its other mineral inclusions the vessel is more at home within the Local Fabric I category. Sample 70, on the other hand, is a local imitation of the alabastron type Syrian bottles executed with better competence.

\textsuperscript{197} Tolstikov, et al., 1996; Mellink, 1956; Ank, 1937; Koşay, 1944; Koşay, 1951; Özgüç and Temizer, 1993; Koşay and Akok, 1950; Özgüç and Akok, 1958.

\textsuperscript{198} Mellink Notes, p. 98.
It closely follows the imported Syrian bottle shapes and color (for comparison see Spiral Burnished Ware section). The Syrian bottles were probably used for transportation of perfumed oils\(^{199}\) and were frequently produced in metals. These metal vessels were imitated in ceramic within the Spiral Burnished Ware tradition in the Syro-Anatolian region, which also was a specialty and high quality production, and must have been valued highly. The Syrian bottle shape must have been strongly associated with the luxury goods that it contained, such that the local potters in different regions imitated this shape for local consumption in order to provide cheaper substitutes for the expensive metal and ceramic bottles arriving through trade contacts (see samples 65, 69 under Spiral Burnished Ware section).

In summary, because the Local Fabric I group was long-lived, it provides a long-durée perspective to the changes and continuities attested in the pottery production process at Tarsus-Gözlükule throughout the EBA period. The investigation of Local Fabric I production process in a diachronic approach leads to a picture of complex interactions of old traditions with the new-coming ideas and fashions. The changes observed at the onset of EB III period under this light take on a different shape whereby some common threads are clearly visible tying the EB I-II periods with the EB III period. It can be argued that the intrusive elements after the destruction of the EB II settlement at Tarsus-Gözlükule only

\(^{199}\) Zimmermann, 2005.
led to a partial shift in vessel shapes and surface treatment and not in the general production techniques. It seems that the potters of workshops producing the Local Fabric I class at Tarsus-Gözlükule since the beginning of the EBA period took over the production of the new shapes and surface treatment techniques as a response to changing social habits probably reflective of changes in the ideology of power all the while continuing to produce shapes of north Syrian and local traditions during the EB III period.
Local Fabric II – Reduced Fired Group
(Plates 16, 17, 37)

Petrographic Analysis
The main petrographic characteristic of this fabric group is the calcareousness of
the clay with much shell, fossils, calcite, and limestone inclusions. Quartz is the
next most frequent inclusion. Micas are also attested. Feldspars, on the other
hand, are not that plentiful.

XRD Analysis
Generally the mineral composition of this group is similar to Local Fabric I. The
main difference from Local Fabric I members is lower levels and less variety of
feldspars. The rare feldspar reedmergnerite, also commonly found in Local
Fabric I members, is attested in all samples of this group. All silicates common
for Local Fabric I are frequent for this group as well. Moreover, the rare mineral
sapphirine, strongly represented in Local Fabric I, also occurs in all of the
samples of this group. Similar to Local Fabric I pyroxenes are low for this fabric
group as well.

ESEM Analysis
All the members of this group are highly calcareous, and they are all fired at a
reducing atmosphere. The ESEM images show that they are low fired and are at
the Initial Vitrification stage with minimal smooth glass formation. Petrographic
observations confirm this as well, because calcite does not show signs of alteration. The resulting fabric is soft and crumbly.

**Formal Shape and Stylistic Analysis**

Sample 16 is a Plain Black Burnished Ware bowl from the EB I period. Samples 17 and 37 belong to the Black Burnished White-Filled Incised Ware category from the EB I and II periods, respectively. Both samples 17 and 37 have the steep-walled cup shape, which is typical for this ware type.

**Summary of Local Fabric II**

The fabric of Local Fabric II generally conforms to the main characteristics of Local Fabric I (figure 9). However, there are some fundamental differences between the two groups. The main difference is that the clay of this group is extremely calcareous compared to the Local Fabric I class. Moreover, they were fired in a reducing atmosphere and were subjected to low firing temperatures resulting in a soft and crumbly fabric. The members of this group must have utilized a similar clay source to that of Local Fabric I, but either travertine type sedimentary marine formations were more dominant in their clay source or calcareous inclusions were added intentionally into the paste resulting in a highly calcareous fabric compared to Local Fabric I. The former excavators state that the clay matrix of Black Burnished Ware has mineral as well as organic
inclusions. However, the thin sections do not show any trace of the organic temper observed by Matson.

The vessels of this fabric group belong to the Black Burnished Ware category. Dark-faced pottery is found in the Ubaid period at Tarsus, but is absent from the repertoire during the Late Chalcolithic period (between 30-27 m). It is not clear from the former excavator’s notes and the Tarsus publication if the EB occurrences indicate continuity from the Ubaid phase, or if they consider it as a new class. This group is one of the production lines that became extinct as a result of the sweeping changes occurring in the pottery repertoire of Tarsus-Gözlükule at the beginning of the EB III period.

During EB I-II, the Black Burnished Ware tradition exclusively produced table ware in a very restricted shape repertoire consisting of deep, steep-walled cups (sometimes with flaring rims) with vertical and less frequently with horizontal handles (figure 7).

Mellink mentions that this ware group (along with the Red Burnished Ware group, see Local Fabric V) was perhaps a household production. But the Black Burnished Ware reaches up to 15% distribution during EB I (see figure 1), which

---

201 Mellink Notes, p. 6.
would be indicative of a more organized production. Moreover, the limited and standardized shape and decoration repertoire also suggest the latter. The production organization for Local Fabric II is probably either “individual” or “community specialization”.\(^{203}\)

Some of the Black Burnished Ware vessels are decorated with incised motives, which are then filled with a white substance, called the Black Burnished White-filled Incised Ware by the former excavators. The incised and white-filled decoration starts in EB Ia and has the highest distribution in late EB Ib and early EB II.\(^{204}\) The typical shape is the steep-walled cup, for which the base is also decorated. The fabric is the same as Plain Black Burnished Ware.

In the central Anatolian Plateau white-filled incised decoration is attested during the Chalcolithic period,\(^{205}\) but the decoration scheme is different from Tarsus-Gözlükule. The central Anatolian examples have a more limited motif repertoire, which is applied in a more organized fashion, whereas the motifs encountered at Tarsus-Gözlükule, although carefully executed, are more chaotic and have a

\(^{203}\) Costin, 1991, p. 8. Of course, due to lack of excavated EBA ceramic production contexts at Tarsus-Gözlükule, this is only a conjecture based on apparent standardization in the vessel shapes and decoration, firing techniques, and its wide spread occurrences within the region.

\(^{204}\) Mellink Notes, p. 8.

\(^{205}\) Encountered both in the Halys region and in south-central Anatolia. For Halys region see Schoop, 2005, pp. 46f., Taf. 9-10. The example on Taf. 10: 7 comes closest in decoration type to the Tarsus-Gözlükule examples. For south-central Anatolia, see p. 119, Taf. 54.
wider motif range creating a very distinct syntax as a whole. Moreover, the shapes of the vessels are different in the two regions.

The closest parallels to the Tarsus-Gözlükule examples in terms of decoration and shape come from the Konya region. It is also interesting to note that Mersin-Yumuktepe did not produce much of this ware type and at Kilise Tepe earlier examples are similar in shape, but they were generally not sufficiently reduced, resulting in red to tan surface colors. Generally, these two sites were in closer contact with the Konya region due to their closer proximity. Also, one of the main routes tying the Konya Plain with the Cilician Plain goes through the Cydnos Valley via Kilise Tepe and Mersin-Yumuktepe. The absence of this ware in these two sites is indicative of alternative routes being utilized between the Konya Plain and the Cilician Plain bypassing the Cydnos Valley and the principal candidate would be the Cilician Gates, at the entrance of which Tarsus-Gözlükule is located. This emphasizes the importance of the Cilician Gates and the settlement of Tarsus-Gözlükule in facilitating the connection between the central Anatolian Plateau and the Mediterranean Sea as early as the EB I period. One of the reasons for this route to become prominent could be tied to the metal

---

206 Mellaart, 1963, fig. 10: 1-10, p. 219 (EB 2 - but of course this survey dates the finds based on stratigraphy of Cilician sites).
207 Garstang, 1953, p. 59, fig. 35 is a jar, which has a very different decoration scheme.
208 Symington, 2007, p. 302, fig. 368: 210-213 (from level Vj, EB II). Interestingly, more proper Black Burnished White-filled Incised Ware appears at EB III levels, see p. 314, fig. 229 (though the shapes and decoration syntax are very different).
producing centers on the Taurus Mountains, which both the settlements in south-central Anatolian Plateau and in the Cilician Plain must have been exploiting.

Further afield, the tradition of filling in incised decoration with a white substance is attested in the Balkan Peninsula since the Neolithic period, but the decoration scheme and the shapes are very different from those attested at Tarsus-Gözüklüke.

The white-filled incised decoration in black wares is also attested in the Aegean, but in later EBA contexts, at which time it is already extinct at Tarsus-Gözüklüke. Moreover, the decorative schemes and the shapes of the vessels are very different from those of the Tarsus-Gözüklüke examples.

In short, the Plain Black Burnished Ware and its incised, white-filled decorated relative have a very wide spatial and temporal distribution from the Balkans to the

---

210 Earlier in inland western Anatolia, see Beycesultan: Lloyd and Mellaart, 1962, closest to Tarsus-Gözüklüke is a unique example from EB 1, level XIX, fig. P14: 1. In the next phase, EB 2, the examples are all from jars and jugs and do not bare much resemblance to Tarsus-Gözüklüke ones, see fig. P25: 14, 19, 21 (level XVI), fig. P41: 1A-B, 2A-C, 3 (level XIV), fig. P45: 11a (level XIIIc); decoration from Elmalı: Mellink, 1964, pl. 81, fig. 21 (jar); Mellink, 1965, pl. 61, fig. 15 (jar); Mellink, 1967, pl. 84, fig. 49 (pitcher); Demircihöyük: Korfmann, 1977-78, Abb. 9: 1, 3; Aphrodisias: Joukowsky, 1986, p. 314, fig. 283 (BA 2), fig. 321: 11, fig. 406: 1, p. 565 from level V, BA 2-3; Kusura: Lamb, 1936, pl. VI: d-g. In central Anatolia, Alacahöyük: Koşay and Akok, 1957, pls. XIV, XV, XVI. Later in the Aegean coastal areas, see Troia: Blegen, et al., 1951, pl. 73: 15 (Troia III), pl. 249: 5, 7 (Troia V); Vathy Cave: Benzi, 1997, pp. 388f. White-filled incised decoration is also attested in Amuq; Braidwood and Braidwood, 1960, pp. 361, 399, pl. 37: 8, fig. 307: 19-20, but here the white-filled incised decoration is used on Red and Black Burnished Ware (see discussion below under Local Fabric V section).
central and south-central Anatolia ranging from Neolithic to the end of the EBA. The Tarsus-Gözlükule examples seem to be the result of local development of an Anatolian tradition (perhaps more specifically with ties to the Chalcolithic central Anatolian tradition) with a unique decorative and shape syntax created in Cilicia and south-central Anatolia.
Local Fabric III
(Plates 3, 4, 5, 6, 7, 8, 9, 10, 11, 26, 46, 47, 50, 51, 54, 57)

Along with Local Fabric I, Local Fabric III is the other main fabric group of Tarsus-Gözlükule during the EBA period (figure 1).

Petrographic Analysis

The samples of this group generally have iron-rich clay that is not very calcareous (other than samples 3, 4, 5, 11, 54, 57) or is "unstable" calcareous (samples 8, 9). Quartz (mono- and polycrystalline), feldspars (both alkali and plagioclase) are the main silicate minerals. In addition, this group also has inclusions from metamorphic rocks, especially schist and quartzite and sedimentary rocks like sandstones (with quartz component), siltstones, mudstones, and shale. There are also mica minerals. Some samples also show volcanic inclusions (of basaltic type).

XRD Analysis

Most dominant minerals for this fabric group are of feldspar type, especially a wide variety of plagioclase feldspars are encountered. The rare feldspar reedmergnerite, which is common for Local Fabric I and IV groups, is only found in sample 11. Pyroxenes are higher for Local Fabric III, than attested in the Local Fabric I group, and silicates display a more limited range. Mica group minerals are also generally low for this group.
ESEM Analysis

The members of this group, especially the vessels belonging to the Red Gritty Ware type, are not very calcareous, but are rich in iron content. Some (like samples 8 and 9) have "unstable" calcareous clay, which means that the clay has calcareous inclusions, but they are not evenly distributed within the fabric.\textsuperscript{211} The "unstable" calcareous fabrics behave like noncalcareous fabrics during firing.\textsuperscript{212} The members of this group have all been fired under oxidizing conditions with the exception of sample 9. They have mostly reached Continuous to Final Vitrification stage with continuous glass formation and some displaying bloating pores. However, with noncalcareous clays (or "unstable" calcareous clays), this does not necessarily indicate higher firing temperatures since such ceramics do not undergo the stable Intermediate Vitrification stage observed in calcareous clays.\textsuperscript{213} Moreover, high iron content in the clay would act as a flux, lowering the temperature at which clay vitrifies.

Vessels that belong to cooking pots and pithoi, on the other hand, are fired at lower temperatures. These vessels are generally more calcareous than the rest

\textsuperscript{211} Maniatis and Tite, 1981, p. 73.
\textsuperscript{212} Maniatis and Tite, 1981, pp. 68, 73.
\textsuperscript{213} Tite, et al., 1982a, p. 65; Maniatis and Tite, 1981, p. 61, where the authors suggest that non-calcareous clays undergo uninhibited vitrification with rising temperatures unlike calcareous clays, where after 850 °C calcium-alumino and calcium/magnesium silicates form preventing further vitrification until 1050 °C. Therefore, only perhaps with samples like number 10, which has reached Final Vitrification stage, or with more calcareous samples like 57, which has reached Continuous Vitrification stage, can one establish more certainly that they are really high fired at temperatures above 1000 °C.
of the samples. Especially for cooking pot type vessels, lower firing temperatures are more desirable to prevent easy breakage from the application of repeated heat exposure.\textsuperscript{214} This difference in firing temperatures could rather be related to the function of the vessels.

EDAX analysis on some of the samples belonging to Local Fabric III demonstrates that the clay of this fabric group is exceptionally high in \( \text{Al}_2\text{O}_3 \) content compared to Local Fabric I samples. Moreover, the silica (\( \text{SiO}_2 \)) content is also much higher for this fabric group than Local Fabric I, but the \( \text{CaO} \) levels are much lower. The \( \text{FeO} \) level is only slightly higher compared to Local Fabric I members. It is highly likely that Local Fabric III potters used clays high in aluminum oxide levels (most probably kaolinite) in the production. Kaolinite forms through chemical weathering of aluminum silicates, like feldspars. The samples from Local Fabric III register higher levels of feldspars under XRD analysis, which would further indicate that kaolinite was the main clay component in the Local Fabric III vessels.

**Formal Shape and Stylistic Analysis**

This fabric group is very dominant during the earlier phases of the EBA and mainly consists of Red Gritty Ware type. The vessels belonging to the Red Gritty Ware are generally closed vessels, like pitchers, jars, pots, or pithoi: samples 4.

\textsuperscript{214} Tite, et al., 2001, p. 321.
15, 46, 47 are jars, samples 7, 8, 9, 11, 26 are pitchers, samples 3, 46 are pots, and samples 5, 51 are pithoi. Especially the pitcher and the pithos shapes are typically Anatolian.

The open shapes occur in the later Burnished Red Gritty Ware vessels, like sample 50. The vessels of the Thin Apricot subgroup of Red Gritty Ware class (samples 6 and 10) are both cups, which is the typical shape for this subgroup (see figure 5).

The samples belonging to the Light Clay Ware type, like sample 54, find their closest shape parallels in the Amuq and north Syrian potting tradition. This is not surprising as the Light Clay Ware production at Tarsus-Gözlükule traditionally had close ties to the Amuq/north Syrian region in potting practices (see Local Fabric I).

**Summary of Local Fabric III**

The source clay for the members of this fabric group is rich in metamorphic, sedimentary, and igneous rocks, and is generally not very calcareous. The igneous and metamorphic aspects encountered in the Local Fabric III members could have been carried by the Seyhan River to the Cilician Plain when flowing through the Aladağ Nappe, which contains ophiolite rocks with complex volcanic ultramafic formations, along with metamorphic formations like quartzite and
serpentinite, and sedimentary component with limestone, shale, marl, chert, and dolomite (see map 1 and the chapter titled “Geology of the Region” for detailed description of the regional geography).

This fabric group mainly represents hand-made, utilitarian vessels, like pitchers, pithoi, and cooking pots (figure 4). Therefore, the clay of this fabric group is not as purified as Local Fabric I. There are even some samples where the clay was intentionally tempered (samples 11, 50). Only by EB III, is there evidence for better treatment of the clay due to more widespread use of the wheel within this fabric group. Local Fabric III vessels are well-fired, especially the samples belonging to the Red Gritty Ware group.

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.215

The Origin of the Red Gritty Ware

Local Fabric III group is mostly dominated by the Red Gritty Ware. This ware was one of the leading wares of Tarsus-Gözlükule pottery repertoire throughout the EB period reaching up to 50% distribution (figure 1). It is well-fired and

215 Costin, 1991, p. 8. Of course, due to lack of excavated EBA ceramic production contexts at Tarsus-Gözlükule, this is only a conjecture.
handmade with pitchers and jars being the most dominant shapes (figure 4).\textsuperscript{216}

The Red Gritty Ware is a utilitarian ware. Only during EB I, the Apricot Subgroup of Red Gritty Ware had better purified clay and used to produce table ware (figure 5). Especially in EB I-II, Red Gritty Ware vessels were restricted to a few shapes (pitchers for regular Red Gritty Ware and steep-walled cups for the Apricot Subgroup, see figures 4 and 5).\textsuperscript{217}

Red Gritty Ware appears suddenly and without any precedence at the earliest phases of EBA at Tarsus-Gözlükule and immediately attains a very high distribution (figure 1).\textsuperscript{218}

The sudden appearance and unprecedented production techniques (see below for details) of the Red Gritty Ware type suggest that this was an intrusive event into the potting tradition of Tarsus-Gözlükule at the onset of EB Ia. Originally, it was suggested by the excavators that the Red Gritty group is related to the Stone Ware tradition of the Middle Euphrates region.\textsuperscript{219} Later, the south-central Anatolian region, especially the Niğde-Konya area, was proposed to be the origin

\footnotesize
\textsuperscript{216} Mellink Notes, p. 67.
\textsuperscript{217} Goldman, 1956, p. 94.
\textsuperscript{218} Mellink, 1989, p. 320. The appearance of this ware type is so sudden that its advent is used in defining the beginning of EBA period for the region; see Goldman, 1956, p. 92. Hence, the former excavators strongly believe that this ware type is completely intrusive into Tarsus-Gözlükule settlement when it starts to show up at 27 m levels.
\textsuperscript{219} Goldman, 1956, p. 97, but in fn. 9 the Konya Region Thin Metallic Ware is brought into the discussion as the possible origin of Red Gritty Ware.
of the Red Gritty tradition. Along with lack of well-stratified excavations in the Niğde-Konya area, the difficulty in relating this ware type to this region is further compounded by confusion of terminology with another ware type, namely Anatolian Metallic Ware. Anatolian Metallic Ware is a totally distinct production with very limited shape repertoire and distinctive surface treatment originating in the north Taurus region (see samples 38-39 under Anatolian Metallic Fabric section for a more detailed discussion of this group). For example, in his Konya region survey Mellaart uses the term “Metallic Ware” for both Red Gritty Ware and Anatolian Metallic Ware vessels. Even recently, the Kilise Tepe publication demonstrates how misleadingly the term “Metallic Ware” is used when it is applied to the Red Gritty Ware.

Mellink in her later article raises doubts about the Konya region being the origin of this ware, pointing out to the confusion due to misuse of terminology. Rather, she suggests that the related ceramics found in the Mellaart survey might even have been imports from Cilicia. Based on its high-fired characteristics, the thin

---

220 Mellink, 1989, p. 320. Also Mellaart, 1963, p. 232 (on p. 233, fig. 16: 1-12 for parallels to Tarsus-Gozlükule Red Gritty Ware vessel types) proposed that the origin of the Red Gritty group lies in the Konya Plain on account of a wider shape repertoire and better execution there than in Cilicia. But there is some confusion in his categorization as the author lumps Red Gritty, Red Gritty Apricot, and Anatolian Metallic Wares all together as belonging to the Metallic Ware tradition. See also Mellaart, 1982, p. 22.

221 Symington, 2007, pp. 297f., figs. 220-1. These are typical Red Gritty Ware examples and petrographic and chemical analyses done on these specimens show that they are not local to Kilise Tepe, but imported. It is a strong possibility that these vessels were imported to Kilise Tepe from Tarsus (or some other site in Cilicia) as the petrography of these vessels seems to be very similar to Local Fabric III characteristics.

walls, and reddish to dark brown/gray color, Mellink thinks that the origin of Red Gritty Ware must be related to metallurgical regions. Therefore, she proposes the Bolkarmaden zone in the Taurus Mountains to be the possible source for this ware type, from where it spread by means of metal trade, which was gaining importance during the EBA.\textsuperscript{223} She also sees the origin of the pitcher and its distribution as closely related to this metallurgical tradition, which she thinks is first developed in metal and then transferred into pottery.\textsuperscript{224}

Another suggestion as the origin of this tradition is the Brittle Orange Ware tradition from the Islahiye region. It is suggested that the Brittle Orange Ware and the Red Gritty Ware group are related in technical production aspects.\textsuperscript{225} But there is a critical chronological problem in assigning the origin of the Red Gritty Ware to the Brittle Orange Ware. The Red Gritty Ware appeared in Tarsus at the earliest levels of EBA. Brittle Orange Ware started to be produced in Islahiye Region during EB II.\textsuperscript{226} It appeared in the Amuq in small numbers in Amuq H (late EB I, mainly EB II), only gaining in popularity in Amuq I (EB II).\textsuperscript{227}

\textsuperscript{223} Mellink, 1993, p. 500.
\textsuperscript{224} Mellink, 1993, p. 500.
\textsuperscript{225} Kühne, 1976, p. 56. Similarity between Red Gritty and Brittle Orange Wares is also mentioned in Goldman, 1956, p. 104.
One also needs to note that even though this ware appeared suddenly and without precedence within the Tarsus-Gözlükule repertoire at the beginning of EB I, the former excavators note that the painted subgroup of Red Gritty Ware shows strong similarities to the Chalcolithic Striped-painted Ware tradition in decoration. Hence, even if the Red Gritty Ware tradition is deemed to be an intrusive element, some elements from the local Chalcolithic traditions are integrated within this production process. No more can be said about the origin of this tradition until the south-central Anatolian and north Taurus region’s EBA settlements are better investigated.

The Light Clay Ware and Red Gritty Ware Production Traditions

At the beginning of the EBA two different production traditions utilizing different clay sources, pre-potting clay manipulation techniques, different production processes, and different shape repertoires and surface treatments arose. These two traditions were represented within two separate production processes, namely the Light Clay Ware and the Red Gritty Ware. The Light Clay Ware is dominant within Local Fabric I (see detailed discussion under Local Fabric I section), geared towards producing daily-use table ware with close parallels in form to the Amuq region and mainly thrown on the wheel (figure 2). The Red Gritty Ware, on the other hand, is part of Local Fabric III production manufacturing generally handmade utilitarian vessels with shapes typically

Goldman, 1956, p. 95.
Anatolian in character (figure 4). These two discrete traditions lasted for the duration of the EB period.

The fundamental question that needs to be assessed here is how to explain this parallel coexistence of two very different production traditions persisting for such a long time.

The main determinants of this development were the form and the function of the vessels. The Local Fabric III group, which encompasses a more utilitarian aspect in terms of vessel function, has a more suitable fabric for this purpose than the Local Fabric I group, which was mainly used to produce table ware. One crucial characteristic is the vitrification levels achieved for the two types of fabrics: Local Fabric III members have by far the more vitrified body compared to the Local Fabric I members. Within this premise the characteristics of the clay play an important role. Unlike Local Fabric I group, Local Fabric III vessels are not very calcareous or they lack finely dispersed calcareous inclusions such that they behave like non-calcareous clays. Calcareous clays undergo a stable Intermediate Vitrification stage within the temperature range of 850-1050 °C due to the formation of calcium silicates whereby further vitrification to the clay body is inhibited. The non-calcareous or “unstable” calcareous clays, however, do not undergo this stable Intermediate Vitrification stage of calcareous clays, and

---

229 Maniatis and Tite, 1981; Tite, et al., 1982b.
vitrification increases steadily with increase in firing temperatures.\textsuperscript{230} Hence, without the need for reaching higher kiln temperatures, the vessels of Local Fabric III could obtain a better fired quality. Moreover, the clay of Red Gritty Ware vessels is high in aluminum oxide, which is a known flux agent. Vessels produced from clays high in aluminum oxide result in less permeable and more insulated body.\textsuperscript{231} This is under certain circumstances a desirable aspect for vessels made to hold certain fluids, like pitchers and jars, because oxidization is prevented and hence, the quality of the fluids they hold is preserved more effectively. The problem with better vitrified vessel body is that the vessels tend to be more brittle. However, larger amount of mineral inclusions left in the clay would remedy this situation to a certain degree by preventing crack propagation.\textsuperscript{232} Therefore, Local Fabric III vessels invariably have coarser matrix (with the exception of Apricot Subgroup members).

The Local Fabric I vessels, on the other hand, fulfill the requirements of daily-use table ware better with their finer fabric: they have a more pleasing look and feel even when the surface treatment is minimal, and they are more suitable to be thrown on the wheel. The calcareousness of the clay would facilitate the stable Intermediate Vitrification phase giving the potters a large margin for temperature

\textsuperscript{230} Tite, et al., 1982a, p. 65; Maniatis and Tite, 1981, p. 61.
\textsuperscript{231} Ben-Tor, 1992, p. 108.
fluctuation during firing without causing large numbers of misfired vessels. And the function of these vessels does not require a more vitrified body.

There is a subgroup of Red Gritty Ware with better purified clay, namely the Thin Apricot Subgroup. The clay of this subgroup belongs with the Local Fabric III category, only better purified. The vessels of this subgroup were still always handmade, but this type was used exclusively for open shapes, like bowls and cups (figure 5). It is only produced during EB I and then discontinued. This subgroup never attained a high distribution percentage within the overall pottery repertoire at Tarsus-Gözlükule. In this subgroup, we see a short-lived and failed attempt by the potters from the Local Fabric III tradition to create table ware vessels in order to compete with the Local Fabric I production. But because the Local Fabric I production process was much more suitable for the manufacture of table ware, it might be that the potters specializing in the Local Fabric III type of production techniques stopped competing for this product line and remained in the production of utilitarian vessels where they had a marginal advantage.

Hence, economically, an equilibrium was reached between these two traditions, which must have facilitated their coexistence and survival for almost 1000 years. Moreover, a switch to the use of clays high in aluminum oxide and low in calcium oxide from clays with low aluminum oxide and high calcium oxide levels in the production of closed vessels might be an indication of a change in the
subsistence economy towards production and consumption of vegetable based organic liquids, like olive oil and wine. Vessels made of clays with high calcium oxide levels are permeable, and therefore, are suitable containers for milk and water storage because they enable the cooling of their contents by breathing. But they are not resistant to the high acidic content of some liquids like wine and olive oil. Whereas, the nonpermeable quality of vessels made of clays high in aluminum oxide would make them more suitable containers for wine and olive oil because they are more resistant to acidic liquids and they prevent oxidization and hence, preserve the quality of their contents. Therefore, the sudden appearance of Red Gritty Ware in high numbers at the beginning of EBA might be an indication of a shift in the economy on the Cilician Plain from pastoral products during the Chalcolithic period to agricultural products during the EBA period.

Only by EB III, these two traditions started to merge and resulted in a more standardized single production process by the Middle Bronze period where the wheel was used almost exclusively. During EB I-II, Local Fabric III represented an exclusively handmade tradition. The Red Gritty Ware, Red Burnished Ware, and Cooking Pot Ware were all handmade during EB I-II. Also, although the Apricot Subgroup has much finer clay than the regular Red Gritty Ware, vessels

---

233 This proposal can only be securely substantiated by archaeobotanical analysis of Late Chalcolithic-EBA remains, which will have to wait for the new excavations to reach these strata.  
234 Ben-Tor, 1992, p. 108 proposes a similar shift in the Levant during the Early Bronze Age.
belonging to this subgroup were also invariably handmade. Only in EB III, when the use of the wheel became wider spread, do we start to see the use of the wheel percolate into this stubbornly handmade tradition (like samples 46, 47). For this method to be workable on the Red Gritty Ware types, the fabric became better treated.\textsuperscript{235} Moreover, Light Clay Ware type vessels started occurring under Local Fabric III during the EB III period. Like sample 54, they were coarser than the typical Light Clay Ware samples discussed under Local Fabric I section, but they were nevertheless wheelmade.\textsuperscript{236} This is consistent with the observation that the two fabric types and production processes started merging under the same roof in EB III, such that the longstanding handmade tradition of Red Gritty Ware disappeared totally by MBA.\textsuperscript{237}

This fusion might have been due to changing social, political, and economic conditions whereby production is forced into a more standardized procedure. During EB III, the settlement of Tarsus-Gözlükule underwent a transformation, as a result of which it became less isolated with stronger connections to central Anatolia, west Anatolia, and Syro-Anatolian regions. Moreover, there is evidence of a thriving textile industry and metal production on the site, suggesting a vigorous economic activity geared towards producing surplus, value-added

\textsuperscript{235} See Goldman, 1956, p. 132.
\textsuperscript{236} The occurrence of a Light Clay Ware type vessel (like sample 54) within this fabric group is very interesting as it suggests that the fabric selection for Local Fabric I may have started shifting to the source of the Local Fabric III for some vessels as the two production processes started merging into each other as of EB III.
\textsuperscript{237} Mellink Notes, p. 76.
products for trade. More rapid and standardized production process the wheel facilitates and the ease of firing more calcareous clays might have started pushing the two traditions to merge during EB III, which was completely finalized by the Middle Bronze Age.

**Cooking Pot Ware**

The publication treats the Cooking Pot Ware as a separate group continuing from the Ubaid Cooking Pot tradition. However, this analysis shows that the Cooking Pot Wares (samples 3, 4, 46) are part of the Local Fabric III tradition. Moreover, the Ubaid Period Cooking Pot Ware was tempered with chaff, which is not frequent in the EB period Cooking Pot Wares. Mellink mentions in her notes that the Cooking Pot Wares are related to the Red Gritty Wares. This study confirms that observation. One main difference between Red Gritty Ware and Cooking Pot Ware is that the Cooking Pot Wares are lower fired, which is expected, given how brittle the vitrified bodies of the Red Gritty Ware vessels are, a very unsuitable characteristic for the functional requirements of the cooking pot vessels, which would require a porous body to reduce thermal stress. Moreover, there is evidence of intentional tempering for the Cooking Pot Wares (like in samples 3 and 4) to facilitate a more porous body.

---

238 Mellink Notes, p. 87; Goldman, 1956, pp. 96f.
239 Goldman, 1956, p. 78.
240 Mellink Notes pp. 67, 76.
Cooking Pot Wares at Tarsus-Gözlükule do not show much change in production techniques throughout the EBA period. This class is a highly utilitarian pottery type, and therefore tends to have more stable production techniques. The functional requirements limit the output options for pottery related to cooking and also usually they have narrower distributional networks.\textsuperscript{242}

\textsuperscript{242} Stark, 1995, 332f.; Stark, 1999, p. 27.
Local Fabric IV – Chaff Tempered Group
(Plates 1, 2, 22, 23, 25, 45)

Petrographic Analysis
This fabric group is chaff tempered. It is also highly calcareous with much limestone and shell inclusions. Samples 1 and 2 are even intentionally tempered with lime stone. Otherwise, the petrography of this group is similar in its makeup to Local Fabric III with a strong metamorphic and sedimentary component in its inclusions (figure 9).

XRD Analysis
The XRD analysis also confirms that in its mineralogical content Local Fabric IV is similar to Local Fabric III. For Local Fabric IV, like in Local Fabric III, most dominant minerals are of feldspar type. Similarly pyroxenes are higher for this group as well. Silicate minerals display a more limited range, with quartz and coesite being the most frequent. Mica group minerals are generally very low.

ESEM Analysis
The members of this group are generally medium to high fired and display characteristics of calcareous clays in Intermediate Vitrification stage. Sample 22 is higher fired indicated by the segregation of iron and calcium visible in the thin section.
Formal Shape and Stylistic Analysis

Local Fabric IV group is mainly represented by utilitarian shapes, like jars (samples 1, 22, and 23) and pans (samples 25 and 45) (figure 6). Open shapes are less common (sample 2) (figure 6). Samples 1 and 2 are from EB I, samples 23 and 25 are from EB II, and sample 45 is from EB III.

Samples 1 and 23 represent the typical Chaff-faced Ware type. Sample 22, on the other hand, belongs to the better purified, wheelmade, and better fired subgroup, called the Light Slipped Chaff-faced Ware.

Sample 2 is from the Intermediate Light Ware category, which is a cross between the Chaff-faced Wares and the Red Gritty Wares. It is only produced in EB I.

Samples 25 and 45 were categorized as Cooking Pot Ware in the depots, but they are closer to the Chaff-faced Ware in their fabric. The differentiation between the Cooking Pot Ware and Chaff-faced Ware seems to be blurry especially for the EB I Period. They are both pans, which find close parallels in their shape in the Amuq region, especially sample 45.

Summary Remarks

243 Mellink Notes, p. 37.
Chaff is the main inclusion for the Local Fabric IV members and they are calcareous. The calcareous component of this fabric group would easily be encountered in formations of coastal marine environments with predominant sedimentary rocks like limestone and containing quartz, micas, shells, and fossils. The region north of Tarsus has Quaternary travertine formations consisting of terraces covered with caliche. Moreover, north of these there are the Paleo- and Neo-autochthonous cap rocks mostly developed in coastal marine environments. The metamorphic component of this fabric group may have been carried down to the plain by the Seyhan River from the Aladağ Unit located north of Tarsus and Adana, which is rich in both sedimentary and metamorphic rocks (see map 1 and the chapter titled “Geology of the Region” for detailed description of the regional geography).

Sample 2, by its very nature for being a cross between Chaff-faced Ware and the Red Gritty Ware, is similar to Local Fabric III in its mineralogical makeup other than its calcareousness.

This fabric group was generally used for storage and cooking vessels (figure 6) as the voids remaining from burnt-off chaff would facilitate better breathing of the clay for cooling purposes and would give strength to the vessel body against
crack propagation that might occur from rapid temperature changes (for cooking vessels) and from shocks of impact (for both storage and cooking vessels).\textsuperscript{244}

Local Fabric IV production probably falls under “community specialization” type of production organization due to strong continuity and standardization of vessel shapes, the use of the potter’s wheel, and high percentage distribution within the settlement.\textsuperscript{245}

Chaff Tempered Ware was in use at Tarsus-Gözlükule since the Ubaid period.\textsuperscript{246} This tempering method was introduced to the potters of Tarsus-Gözlükule from the Syro-Anatolian tradition with the onset of the Ubaid phase and continued to be used in the Late Chalcolithic and the following Early Bronze periods.\textsuperscript{247} This group is one of the leading ware types, reaching up to 30% distribution, until the end of EB II without undergoing much change in shape and composition (figure 1).\textsuperscript{248} It disappears entirely by the EB III period.\textsuperscript{249} This fabric group is another tradition that is discontinued at the beginning of the EB III period as part of the drastic changes taking place within the pottery repertoire of Tarsus-Gözlükule.

\textsuperscript{244} Freestone, 1987, p. 160.
\textsuperscript{245} Costin, 1991, p. 8. Of course, due to lack of excavated EBA ceramic production contexts at Tarsus-Gözlükule, this is only a conjecture.
\textsuperscript{246} Goldman, 1956, pp. 77f., 82f., 85f.
\textsuperscript{247} For Ubaid introduction, see Goldman, 1956, p. 81, for Chalcolithic, see Goldman, 1956, p. 87, For EB I-II, see Mellink Notes, p. 33. But in Mellink Notes, p. 346, the excavator mentions that this tradition comes to an end at about 10 m levels, which is early EB III.
\textsuperscript{248} Mellink Notes, pp. 35f.
\textsuperscript{249} Mellink, 1989, p. 324.
The chaff-faced tradition was very strong in the Amuq region into Amuq F, constituting ca 30% of sherd distribution, but it disappeared there totally by Amuq G.\textsuperscript{250} The shapes of Tarsus-Gözlükule Chaff-faced Ware vessels have very strong affinities to the Amuq counterparts even when this tradition was already extinct in the Amuq.\textsuperscript{251} The Chaff-faced tradition introduced into Tarsus-Gözlükule from the Syro-Anatolian region lingered at Tarsus longer than in Syro-Anatolia perhaps due to the divergent impact of the Early Transcaucasian Culture (ETC) intrusion into the Amuq and southeast Anatolian regions at the onset of the EB period (see discussion related to ETC under Local Fabric V).

\textsuperscript{250} Braidwood and Braidwood, 1960, pp. 232-240. Amuq F is contemporary with Tarsus Late Chalcolithic and Amuq G is contemporary with Tarsus EB 1a-b. Hence, at Amuq the Chaff-faced tradition dies out by the beginning of EBA and is completely replaced by the mineral tempered Simple Ware tradition.

\textsuperscript{251} This also happens in other places in southeast Anatolia. For example at Kurban Hoyuk the Chaff-faced tradition starts in Late Chalcolithic and shares many shapes with the Amuq F, and it tapers off during the early EBA, see Algaze, 1990.
Local Fabric V - EB I-II Red Burnished Group  
(Plates 13, 14, 15)

Petrographic Analysis

All of the samples belonging to this fabric group have iron-rich clay. They are also somewhat calcareous consisting of limestone, calcite, and shell. Other dominant silicates are quartz, feldspars (both alkali and plagioclase) and mica. The samples of this group are all intentionally tempered; sample 13 with chaff, sample 14 with quartz, and sample 15 with limestone and quartz.

XRD Analysis

Local Fabric V shows many parallels to Local Fabric III group in the XRD phase diagram. Plagioclase feldspars are the most dominant mineral. Alkali feldspars are lower. Silicates and mica minerals show a limited range.

ESEM Analysis

No ESEM analysis was performed on the members of this group.²⁵²

Formal Shape and Stylistic Analysis

The members of this group are all red slipped and burnished. The slip is crackly and has peeled off at places. The quality of burnish varies from lustrous to dull, but generally the surfaces have a soapy feel.

²⁵² Unfortunately, this omission was necessitated by financial restrictions.
Both open and closed vessels are attested within this group (figure 8). Sample 13 is from a very early context of EB I and is a hole-mouth pot, sample 14 is a bowl, and sample 15 is a jar. They are all from EB I period. Sample 14 shows a drastic color variation of red and black with the outside surface in bright red and the rim and the inside surface in black.

Summary for Local Fabric V

The Red Burnished Ware appears in the EB I period and becomes infrequent during EB II, eventually becoming extinct by EB III (figure 1). The matrix of the Red Burnished Ware shows variability, some being closer related to Local Fabric IV (like sample 13) and some to Local Fabric III (samples 14, 15). The former type is more frequent in the earlier examples, and by EB II, Red Burnished Ware vessels converge towards the Red Gritty Ware in fabric, and use of chaff temper is discontinued. Overlapping of some characteristics from different fabric groups is frequently attested at Tarsus-Gözlükule during EB I as a natural result of introduction of new traditions at the beginning of EB I and some continuation of the old ones.

253 Mellink Notes, pp. 14, 16f.
254 Mellink Notes, pp. 14-19; Goldman, 1956, p. 111. There is a strong representation of Red Burnished Chaff-faced Ware tradition in Amuq F (5-10% of total sherd bulk), and Tarsus examples that are chaff tempered may be affiliated with this, see Braidwood and Braidwood, 1960, p. 239.
255 Mellink Notes, pp. 14-19.
256 Goldman, 1956, p. 111.
By EB III, treating the vessel surface with an iron-rich slip shifts to the Local Fabric I production. In contrast to the earlier Red Burnished Ware vessels, these vessels are all wheelmade (see samples 58, 59, 60, 61, 62, 63 under Local Fabric I). This shift starts as early as EB II as evidenced by sample 35.

The origin of the Red Burnished Ware is a highly contested issue. There is a Red Burnished tradition in the Neolithic settlement of Tarsus, but it is absent in the Chalcolithic period, other than the Ubaid Chaff-faced Red Burnished Ware.

The specific subgroup of the Red Burnished Ware, where an intentional color difference of red and black is created on the surface of the vessel, assumed a separate terminology in central Anatolian, eastern Anatolian, and Syro-Anatolian regions. Interchangeable use of terminology from different regions for this class of pottery renders the issue further complicated. The term ‘Red and Black Burnished Ware’ (henceforth RBBW) is used for the Amuq region to denote a class of pottery influenced by the Early Transcaucasian Culture (henceforth ETC) infiltrating into the southeastern Anatolia towards the end of Chalcolithic and beginning of EBA periods. Khirbet Kerak Ware is used to classify a similar type of pottery in the Levant region. The term ‘Black-topped Ware’ is used for the

---

257 Goldman, 1956, p. 133. In the publication they are treated as a separate ware group. Also see, Mellink, 1989, p. 325.
258 Mellink Notes, p. 14. Sample 13, with its chaff temper, might actually be related to this Ubaid tradition.
central Anatolian Red Burnished Wares. For example, Mellink refers to this class appearing at Tarsus as “Anatolianizing” Red and Black Ware, suggesting that she considered this ware type as somewhat related to, but not an exact imitation of the RBBW tradition. For clarity’s sake, I will delineate these terms by their region and use RBBW for the derivative ETC material encountered in the Amuq/north Syrian regions and Black-topped Ware for the examples from central and south Anatolia.

The problem of the origin of this type of pottery is further augmented by the ongoing debate about the origin of RBBW attested in the Amuq and the Black-topped Ware of Central Anatolia, and how (if at all) they are related to each other. Because the resulting pottery is very similar in appearance at first glance, one can argue that the RBBW of Amuq H-I (appearing in very small quantities by Amuq G) and the Black-topped Ware are both similar to sample 14.

However, there are marked differences between these two traditions evident at closer investigation. Firstly, they appear in a very different combination of material culture for each region, where the areas impacted by the ETC display

---

259 Mellink, 1993, p. 503.
260 For the discussion on this issue, see Batiuk, 2005, pp. 14-18, 29f., 35f.
261 Braidwood and Braidwood, 1960, p. 292.
262 Matson, 1956, p. 361 mentions that the sherds he looked at from Tarsus-Gözlükule resemble the RBBW type pottery from the Amuq.
culturally specific items like the fireplace andirons, distinctive plastic or incised
decoration on pottery, zoomorphic figurines and libation cups with curvaceous
bodies, monocellular houses built with pisée, use of specific metalworking
techniques etc. The central and south Anatolian regions do not display this
idiosyncratic material culture of the ETC.

Also, there are marked differences in the production techniques. Matson in his
report of the techniques used in the production of RBBW of Amuq claims that the
black color on the surface was produced by exposing the surface to an organic
material when still hot. The black color penetrates thoroughly through the body
of the vessel, generally resulting in a thoroughly dark core, and only in some
cases there is an abrupt change of color to red on the cross-section of the
sherd. For Black-topped Ware vessels (like in sample 14), however, the
tendency is that the black color does not fully penetrate into the body of the
vessel and a sharp color distinction from black to red is visible in the section of
the sherd. Furthermore, in the case of RBBW of Amuq the vessels generally
have a black surface on the outside and a red surface on the inside regardless of

---

263 Braidwood and Braidwood, 1960, p. 361. One of the current excavators at Tell T'ainat, Dr. S.
Batiuk, also confirmed this (personal communication). However, if Matson's explanation for
creating the black color on the surface is correct, it would fail to explain the penetration of the
black color into the clay body. This method would have only caused the surface of the vessel to
turn black and the organic substance would not be able to penetrate the thick, almost vitrified slip
to cause the vessel body to turn black.

264 This is also the case for Black-topped Ware examples from central Anatolia, see Schoop,
2005, p. 60.
the shape of the vessel, and the vessels belonging to the ETC culture in east Anatolia show the same pattern. On the other hand, the Black-topped Ware tradition consistently prefers to create black surface on the inside and a red surface on the outside for bowls, which is also exemplified by sample 14. For the Black-topped Ware, the color difference seems to have been achieved by the way the vessels were stacked in the kiln, cutting the oxygen to the inner parts of the vessel and resulting in the black color, which is consistent with sample 14's color scheme. Moreover, in addition to mineral inclusions, the RBBW of Amuq also has some plant temper, which is not the case for the Tarsus specimens. The most typical shape for the RBBW is the cup with S-profile, which is totally absent from the Black-topped Ware repertoire at Tarsus-Gözlükule and at other sites in central Anatolia where this ware is encountered. Moreover, within the central and south Anatolian tradition of Black-topped Ware, the plastic decoration, which is a characteristic part of the RBBW repertoire, is missing. Hence, based on the observations listed above these vessels at Tarsus are

---

265 Braidwood and Braidwood, 1960, p. 361. Also the case at Hayaz Höyük examples, see Thissen, 1985, p. 88.
266 For example at Çadirhöyük the Black-topped Ware has the same color pattern (Dr. S. Steadman, personal communication); see also Schoop, 2005, p. 59 for Yarikkaya examples in the Halys Region and Frangipane, 2000, p. 446 for Arslantepe VIA (Late Chalcolithic). Arslantepe makes an interesting example as this settlement was at the same time very much impacted by the ETC infiltration.
267 Braidwood and Braidwood, 1960, p. 360.
268 Although some scholars argue that the white-filled, incised decoration appearing on some Red Burnished vessels in central and south Anatolia is related to the white-filled, incised decoration of RBBW, for example, Amiran, 1968.
related to the central Anatolian Black-topped Ware tradition, rather than the Amuq RBBW tradition.

The production of vessels with red and black color differences is encountered in south-central Anatolia since Chalcolithic.\textsuperscript{269} It appears in the Elbistan Plain by EB II and continues into EB III (although it disappears on the Cilician Plain by EB III).\textsuperscript{270} Similarly to Tarsus, in central Anatolia the Black-topped Ware is mostly found in open vessels. The class of pottery best represented by sample 14 at Tarsus-Gözlükule, is part of a central Anatolian tradition introduced there by the beginning of EB I and reaching its peak distribution by the end of EB I and during EB II.

Black-topped Ware is also encountered in Cyprus starting at Philia phase, where many Anatolianizing aspects in pottery repertoire appeared suddenly.\textsuperscript{271} The

\textsuperscript{269} Especially of importance is Guvercinkayasi, see Schoop, 2005, p. 121 and also see Gülçur, 1997, p. 95. Also encountered in large numbers during the Chalcolithic of the Halys Region, see Schoop, 2005, p. 36 (Alişar levels 12-14, redated from EBA to Chalcolithic by Schoop, p. 93), p. 59f (Yankkaya near Hattusha), p. 65 (Çadirhöyük). This is also verified by Dr. S. Steadman, who remarked that vessels that are burnished and display red color outside and black inside are one of the dominant types at Çadirhöyük during the Late Chalcolithic-EBA Transitional period consisting mainly of open vessels. The number of burnished vessels diminishes during EB I at this site (personal communication). Also occurs on Konya Plain, see Mellaart, 1963, p. 215, fig. 8: 3, 6, 9, 14. At Demircihöyük, Black-topped Ware becomes infrequent during EB II and disappears completely by the end of this period, Efe, 1988, figs. 5-6.

\textsuperscript{270} Brown, 1967, pp. 131, 133 and p. 146, fig. 12 for examples.

\textsuperscript{271} Frankel, et al., 1996, p. 49. Philia culture is not only represented by a drastic change in pottery technology and shapes, but also in burial traditions, agricultural and animal husbandry techniques, architecture, metallurgy, and textile industry, indicating a drastic change in the everyday life of the inhabitants was taking place. All of these new features were introduced from the Anatolian mainland.
earliest appearance of the Philia culture in Cyprus is in the Ovgos Valley during the last years of Late Cypriot Chalcolithic.\textsuperscript{272} Black-topped Ware vessels are considered to be part of the Philia Red Polished Ware class. They display close affinities to the Black-topped Ware of central and south Anatolian pottery assemblage in surface treatment and shape.\textsuperscript{273} Given the date this type of pottery appears at Cyprus, it is certain that it was introduced there from south Anatolia, most probably from Cilicia.

\textsuperscript{272} The exact dating of the Philia Phase is wrought with difficulties as most known Philia sites are cemeteries and few settlement sites with Philia assemblage did not produce secure contexts, see Webb and Frankel, 1999, p. 8, 27f. But recent excavations at Marki-Alonia produced good stratigraphy and $^{14}$C dates. Based on these, Philia phase is dated to 2400-2200 B.C, Frankel and Webb, 2006, p. 35. $^{14}$C dates obtained from Lemba 3 suggest initial Philia settlement to be within the range of 2500-2400, see Webb and Frankel, 1999, p. 5 and 43. Manning and Swiny, 1994, p. 166 assert that the height of the Philia Phase is 2400 B.C. and Peltenburg based on Kissonerga-Mosphilia dates this period to 2400-2300 B.C. (Period 5), see Peltenburg, 1991, p. 31.

\textsuperscript{273} From Marki Alonia: Frankel and Webb, 2006, p. 95f., for similar bowl shape comparable to sample 14, see fig. 4.1, also found commonly among regular Red Polished Ware, fig. 4.17, pl. 43; Frankel and Webb, 1996, pp. 149f. and fig. 7.3. Some scholars consider this category separate from Philia Red Burnished Ware and call it 'Red-and-Black Polished Ware', see Dikaios, 1962, p. 172.
Scored Ware
(Plates 21, 27)

Petrographic Analysis
Two sherds of Scored Ware were analyzed. In terms of their petrography these two vessels are dissimilar. The only commonality between them is that they both have iron-rich clay. Sample 21 is less calcareous than sample 27 and has a finer matrix, and sample 27 has more variety of sedimentary rocks than sample 21.

XRD Analysis
The phase diagram also confirms that these two samples are different. Sample 21 has higher levels of pyroxenes compared to sample 27. They both have unusual minerals not encountered in the main local fabric groups.

ESEM Analysis
Sample 21 is in Continuous Vitrification stage and is higher fired than sample 27, which is in Intermediate Vitrification stage.

Formal Shape and Stylistic Analysis
Both samples belong to closed vessels, which is typically the case at Tarsus-Gözlükule for this ware type. Sample 21 is from a late EB Ia context, and sample 27 is from an EB II context. The diagnostic characteristic of this ware

\[274\] The only exception is nr. 244, which is a bowl.
group is the thick, red slip, which is scored with a sharp object in haphazard orientations.

**Summary of Scored Ware Group**

Although they are both distinct from each other in terms of their clay matrix and firing levels, they are stylistically related to Scored Ware. The fabric and the surface treatment of these vessels indicate that they are both non-local to Tarsus, but their differences indicate that there was not a single, standardized supplier of these types of vessels.

Scored Ware is encountered in the Konya Plain275 and at Kilise Tepe in the Göksu Valley276 throughout the EBI-EBII period in small percentages. The typical shapes found on the Konya Plain are large, closed vessels and bowls,277 and at Kilise Tepe only large, closed vessels appear.278 In Mersin Scored Ware bowls are encountered between levels XIII-XIIb.279 The origin of Scored Ware might be the Konya Plain given its higher frequency there and a wider variety of shapes it appears in.

---

275 Mellaart, 1963, pp. 224f., fig. 13: 1-18. For distribution in Konya Plain see fig. 7. Also mentioned in passim that this ware type is encountered in large numbers at Konya-Karahöyük, see Alp, 1964, 116.
278 Symington, 2007, p. 297. There is a Scored Ware bowl (nr. 369), which comes from an unstratified context listed under phase Vf (Early EB III). This date is too late for Scored Ware.
279 Garstang, 1953, p. 174, fig. 113. Unfortunately, Mersin stratigraphy is not very useful for dating purposes.
A ware type called Scored Ware, treated under Aegean Ware, appears at Troy IId in small numbers, becoming more numerous by Troy If, and continuing into Troy Ila-d. At Troy, this ware is represented by many shapes belonging to both open and closed vessels. Some are not slipped, but some are slipped in a color that ranges from red to black. From the description in the Troy publication, this class must be related to the Scored Ware treated here, rather than the Aegean connections proposed in the publication. The time lag for the appearance of this ware at Troy suggests that this ware type was introduced to Troy from central Anatolia.

Vessels that are scored with flint are encountered in Syro-Anatolia during Late Ubaid period, but they are farther removed from the Tarsus examples as they do not have the thick, red slip, and the flint scraping is only applied to the bottom of the bowls.

---

280 Blegen, et al., 1950, pp. 53f., figs. 252, 409: 10, pl. 251: 1-9 (Troy Middle I) and pl. 252: 3-19 (Troy Middle and Late I) This spans EB II late until early EB IIIa based on Mellink’s Anatolian chronology, see Mellink, 1986, pl. 16; Mellink, 1992, pp. 216f. But Abay’s chronology would indirectly correlate these levels to the middle to late of EB II, see Abay, 1997, p. 350, fig. 47 (see figure 10 of this dissertation). Nevertheless, there is a lag in the appearance of the Aegean Ware at Troy compared to the time span of Scored Ware at Tarsus-Gözlükule.

281 Brown, 1967, p. 138, fig. 5: 26 (Tell es-Sheikh), 29, 30, 43 (Goksun), 48 (Maraba). See also p. 139, fig. 6 for a distribution map; Kurban Höyük: Algaze, 1990, pl. 20: H, 22: F (Plain Simple Ware) and pl. 30: E. N, 31: I. K, pl. 32: L. M (Period VI-Late Chalcolithic); Hayaz Höyük: Thissen, 1985, pp. 82f. reports that flint-scraped pottery could be considered as related to the Chaff-faced Ware of the Chalcolithic period.
In the Levant region, a class of pottery called Metallic Ware also has a similar surface treatment. However, this ware occurs during EB II-III in this region and shows a totally different shape repertoire compared to the Scored Ware tradition.\textsuperscript{282}

Given the early date of this ware, it is noteworthy that Scored Ware has a wide distribution in western, central, and southern Anatolia. The exact origin of this ware type is not certain. Because it was so widely distributed and found in large enough quantities at some sites, one can argue for many production centers, among which the Konya region would certainly be a strong candidate. At Tarsus-Gözlükule Scored Ware vessels appear in sufficient quantity to suggest that they were not the result of a chance contact. That they were not of local production at Tarsus-Gözlükule shows that this settlement had direct contacts with the Konya Plain as early as EB I. Moreover, since the Scored Ware vessels found at Tarsus-Gözlükule predominantly belong to large, closed vessels, they must have arrived at the settlement for their contents.

\textsuperscript{282} Greenberg and Porat, 1996, figs. 2-3.
Cross-Stitch Incised Ware
(Plates 28, 29)

Petrographic Analysis

Although samples 28 and 29 belong to the same ware type, the petrographic analysis shows that they actually have very different fabrics. Sample 29 is rich in sedimentary inclusions showing bimodal distribution, which indicates that it might have been intentionally tempered. On the other hand, sample 28 has much plagioclase feldspar and many metamorphic components, but all inclusions are well-sorted, indicating they were part of the original clay source. They share two common characteristics; they are both not very calcareous and they both have iron-rich clay. Sample 29 is more similar in its fabric to the Chevron Incised Group.

XRD Analysis

XRD analysis also confirms that these two samples are from two very different clay sources. Compared to sample 29, sample 28 is high in plagioclase feldspars. For sample 29, on the other hand, the most dominant minerals are from the mica group, and it also has higher levels of alkali feldspars.

ESEM Analysis

Both vessels show smooth glass formation. They are both in differing stages of Continuous Vitrification with sample 28 higher fired than sample 29.
Formal Shape and Stylistic Analysis

In shape and decoration the vessels of this group are both jars of a form typical for the Cross-Stitch Incised Ware found at Tarsus-Gözlükule. Their decoration is typical of this ware with incised diamonds and chevrons running in bands or zigzags accentuating the carination of the vessel.

Summary of Cross-Stitch Incised Group

Samples 28 and 29 have very different fabrics from each other. This grouping is only based on shape and decoration characteristics, rather than fabric. Even though the fabrics of samples 28 and 29 are different from each other, they are also different from the main local fabric categories. They are both of non-local manufacture. At Tarsus-Gözlükule this ware group mainly falls within the EB II.2-4 phases, but also continues into early EB III in small numbers in a much coarser variety.\(^\text{283}\)

It is certain that this group does not belong with the local production of Tarsus-Gözlükule. The origin of this ware is located in the İslahiye-Antep Region (termed there Brittle Orange Ware) as it is found there in greater numbers and a wider variety of shapes.\(^\text{284}\) Cross-Stitch Incised Ware can be considered to be a

\(^{283}\) Mellink, 1989, p. 322.
\(^{284}\) Mainly from Gedikli Höyük: Alkim and Alkim, 1966, figs. 41-42 (chamber tomb M-1), but also shapes not represented in the Tarsus-Gözlükule assemblage are found like fig. 44 (Chamber
particular subgroup of the Brittle Orange Ware in this region. Brittle Orange Ware is a diverse group, whereas the production of Cross-Stitch Incised Ware is very limited in shape and decorative repertoire. At Amuq, Brittle Orange Ware is common in Amuq Phases H (up to 6% of sherd bulk), I (up to 9% of sherd bulk), and J (up to 3% sherd bulk), but there are very few examples matching the shape and surface treatment of Cross-Stitch Incised Ware type found in Amuq Phase I. Hence, in the Amuq, the regular Brittle Orange Ware was probably part of the local production, but this particular subgroup was most likely an import there as well.

Since they belong to a very standardized closed shape at Tarsus-Gözlükule, it may be that these particular vessels were used to transport organic products. These vessels are found in small numbers at many sites in Syro-Anatolian indicating that they were exported over a wide region.

---

286 Amuq: Braidwood and Braidwood, 1960, pp. 406f., fig. 310: 17-19 and pl. 87: 2 from Phase I. No further information is given here. The Brittle Orange Ware of Amuq starts in Phase H (p. 368); Aleppo: Mellaart, 1981, p. 289, fig. 169: 966; Tell Brak: Fielden, 1977, pp. 249f. pl. XIII: 13-13a; Umm el-Marra: Schwartz, et al., 2003, p. 329 (from levels V and IV - EB IVA-B). Umm el-Marra examples raise a chronological problem. This ware is limited to EB II and the beginning of EB III in Tarsus and to Phase I (EB II-III) at Amuq. Their existence at Umm el-Marra in EB IV is interesting. But because the stratigraphy of the source area, namely the Islahiye region, is unclear, one cannot establish exactly for how long this ware type was in production there.
Chevron Incised Fabric
(Plates 30, 31)

Petrographic Analysis
Samples 30 and 31 are very similar with metamorphic and sedimentary minerals dominating their fabric. They are both not very calcareous and have iron-rich clay. Moreover, they both show bimodal distribution of inclusions suggesting they were intentionally tempered. The fabric of this group is similar to the fabric of sample 29 from the Cross-Stitch Incised Ware Group.

XRD Analysis
Both samples are similar in their mineralogy based on XRD analysis as well. The dominant minerals are quartz and mica group. In terms of XRD phase diagrams, Chevron Incised Group is somewhat similar to sample 29 of Cross-Stitch Incised Group with the difference of sample 29 showing higher levels of sanidine.

ESEM Analysis
This group is high fired showing extensive smooth glass formation with no bloating pores.

Formal Shape and Stylistic Analysis
Like Cross-Stitch Incised Group, the members of this group also have a very limited shape repertoire consisting of the squat jar with splaying rim and the
pitcher with rising spout. The incised decoration also has a very limited motif range including one to three vertical lines of chevrons that run from the neck to the maximum diameter of the vessel used in combination with two to three lines of horizontal spiral incisions running around the neck.

These vessels show laminations of red and gray on their cross-section. The very thin dark layer on their surface indicates that the slip used must be firing darker than the clay of the vessel body.²⁸⁷

**Summary Remarks**

Like the Cross-Stitch Incised Group, the vessel shapes of Chevron Incised Fabric also have a very limited repertoire, consisting entirely of closed vessels. They find no parallels in shape and surface treatment within the Tarsus-Gözüklüke repertoire. Based on their fabric and vessel shapes, one can claim that they are certainly non-local. This ware group falls strictly within the EB II period at Tarsus-Gözüklüke.²⁸⁸

Although the petrography of this group is similar to the Cross-Stitch Incised Ware vessels, there are no vessels in the İslahiye region with comparable shape and surface decoration. Moreover, vessels of Chevron Incised Group are always

²⁸⁷ Although in Tarsus Notes II, p. 109 it is mentioned that some vessels also show surface color of bright red to orange as well.
²⁸⁸ Mellink, 1989, p. 322.
handmade whereas Cross-stitch Incised Group vessels are always wheelmade. There are vessels with similar decoration in the middle Euphrates region, but there, chevron incised decoration appears solely on fruit stands. So far no other close parallels are found in the neighboring areas incorporating both the surface decoration and the shapes defining the Chevron Incised Ware. However, the limited shape repertoire and idiosyncratic surface treatment these vessels occur in indicates a fairly standardized production. Therefore, there must be a production center or region for this group.

Since only closed vessels are attested at Tarsus-Gözlükule, the vessels belonging to this group probably arrived at Tarsus-Gözlükule as containers for their contents.

Engin, 2006, p. 323, especially figs. 1, 5, 6 (EB II from Gre Virike); Peltenburg, et al., 1996, p. 17, fig. 18: 1 (Cream slipped, orange fabric, EB III-IV, from Jerablus-Tahtani).
Anatolian Metallic Fabric
(Plates 38, 39)

Petrographic Analysis
Samples 38 and 39 are very similar petrographically and differ considerably from the main local fabric groups in their clay matrix. Serpentinite is the dominant inclusion along with some quartz and mica. These samples are unstable calcareous. The clay of these vessels must have been obtained from a metamorphic vein poor in sedimentary rocks.

XRD Analysis
The phase diagrams of these samples are also very different from the local fabric groups. Pyroxenes dominate the mineralogical makeup. Otherwise, these samples are poor in other types of minerals.

ESEM Analysis
These samples have a clinky feel and the ESEM images confirm that they are in Continuous Vitrification Stage and high fired.

Formal Shape and Stylistic Analysis
Samples 38 and 39 possess typical characteristics of what is termed “Light Clay Miniature Lug Ware” in the Tarsus publications. The name used in Tarsus publications derives from the many small lugs on the body, neck, and spout of
these vessels. This ware type is very limited in shape variety, consisting only of jars and pitchers. They have a carelessly executed decoration in purplish red with very minimalistic range of motifs, consisting of bands, dots, and wavy lines. Some (like sample 38) have a brown-purplish slip covering the body of the vessel.

**Summary of Anatolian Metallic Fabric**

The vessels belonging to this group deviate substantially from the local fabric groups in their clay, surface treatment, and shape. They form a tight group among each other with very limited shape and decoration range. This group is undoubtedly a non-local production.\(^{290}\) Their distribution is strictly limited to EB II at Tarsus-Gözlükule,\(^{291}\) but in central Anatolia it might be continuing into early EB III.\(^{292}\)

---

\(^{290}\) Although the former excavators suggest that the clay is similar to the Light Clay Ware group, they also concede that this is not a local production (see Tarsus II, p. 131; Mellink Notes, p. 146). At the time of the publication Anatolian Metallic Ware was not an identified group. Hence, the link to this ware is missing in the publication. But see, Mellink, 1989, p. 322, where this ware is correctly identified as an intrusive element into the Tarsus repertoire.

\(^{291}\) Specifically, their main stratigraphic contexts fall within EB II.1-2 and 5-6, and very few within EB II.7-8.

\(^{292}\) And if Mellart’s dating of his survey material is trusted starting in the Konya Region as early as EB I. But generally speaking, this is not very easy to affirm as the stratigraphy and dating of the central Anatolian settlements are questionable. One can only ascertain the EB II dating of this ware.
Anatolian Metallic Ware vessels are found in limited numbers in other settlements in Cilicia \(^{293}\) and in settlements in the Taurus Mountains. \(^{294}\) The NAA Analysis performed on the Anatolian Metallic Ware found at Göltepe, an EBA metal production site on the Taurus Mountains shows that the vessels belonging to this ware type form a tight geochemical group distinct from the local clays and locally produced wares. \(^{295}\) Moreover, this ware type contains over 25% magnesium oxide, indicating that it was made of magnesium silicate clay, rather than a clay high in aluminum oxide, which is more frequently used in the Near East. This quality of the clay would have aided in creating the dense, nonpermeable vessel body typical of these wares. \(^{296}\)

The origin of this ware might lie in the southern-central Anatolian region. \(^{297}\) In these regions, a wider variety of shapes, including open ones like bowls and

---

\(^{293}\) Two jugs in Mersin, Garstang, 1953, p. 196, fig. 122 and one sherd from Kilise Tepe, Symington, 2007, p. 298.

\(^{294}\) Friedman, 2000.

\(^{295}\) Friedman, 2000, p. 124.

\(^{296}\) Friedman, 2000, pp. 165-167.

\(^{297}\) Especially in Acemhöyük: Özten, 1989, p. 409, figs. 1-36 (Level X - EB II, but also levels VIII and IX - early EB III). Also encountered in Karahöyük: Alp, 1968, p. 304, Taf. 10: 19 (level VII-VIII-Intermediate Phase into MBA) and Kültepe: Özgüç, 1986, pp. 38ff., fig. 3: 21 found in a cist grave belonging to level 14 (EB IIIa, but Mellink dates this level to EB II, which is a more plausible date given the limited time-span when these vessels occur at Tarsus-Gözlükule) along with 2 goblets (figs. 3: 19 - 20, ills. 3: 12 - 13) that have their closest shape similarity in the EB II-III periods. Also found in various sites in the Konya region, see Mellaart, 1963, pp. 226-229, fig. 14, 15, 16 for a range of Anatolian Metallic Ware vessels, but the author includes Red Gritty, Red Gritty Apricot, and Miniature Lug Wares as all belonging to the Anatolian Metallic Ware tradition, which is surely not true. He dates this material to EB I-II, which if correct would certainly designate the Konya region as the origin of this ware. But Mellaart’s dates are very problematic as he uses Garstang’s Mersin stratigraphy, which is very problematic (see chapter “The Early Bronze Age Period in Cilicia: A General Appraisal”). Another interesting occurrence from the
cups, are also attested, which is not the case for Tarsus-Gözlükule.\footnote{298} Moreover, at Acemhöyük, Anatolian Metallic Ware vessels are found within the kilns, certifying their local production there.\footnote{299} It seems there were several centers producing this ware. This is interesting as these vessels are very standardized in shape, surface treatment, and production techniques, which would lead one to think that they belong to a single production center.

Given that Anatolian Metallic Ware vessels have their main distribution in the Taurus Mountain Ranges and south-central Anatolia, the appearance of this group within the Tarsus-Gözlükule repertoire would suggest an increasing contact with the metal production centers in the Taurus Mountains during the EB II period.\footnote{300} Moreover, sample 24 is an example of Micaceous Ware (under Miscellaneous section) that is most probably a local production in the settlements.

Konya region is the use of a typical Anatolian Metallic Ware pitcher shape and the use of lugs on a Red Burnished Incised Ware, see p. 219, fig. 13. Friedman, 2000, pp. 73, 78, 97 also suggests south-central Anatolia as the origin. But she does so based on Mellart’s dating of his survey material, which is very problematical. But De Sena and Friedman, 1997, p. 244, think that Anatolian Metallic Ware was a local production at Göltepe. The NAA analysis done on the Göltepe pottery assemblage shows that the Metallic Ware vessels form a tight group and diverge greatly from the other types of pottery geochimically. The clay of this ware group has a much higher metal content. The authors suggest that the metals in the clay of this ware group may have acted as flux, enabling the hard-fired quality typical of this ware, which were perhaps added intentionally from metallurgical byproducts as a tempering agent. Another possibility suggested is that the clay naturally contained high metal levels and was chosen for this quality from a nearby source.

\footnote{299} Öztèn, 1989, p. 410. 
\footnote{300} Mellink, 1989, p. 322; Mellink, 1993, p. 503. Mellart mentions that this ware is especially frequent on the settlements at the entrance to the Cilician Gates, see Mellaart, 1954, p. 191 and 212, fig. 6. This would also further confirm this proposal, indicating that a tight network of interactions was formed between south-central Anatolia, the Taurus Mountains, and the Cilician Plain.
of Taurus Mountains, which confirms further that direct trade contacts existed between these regions at least as early as EB II.
Red and Black Streak Burnished Ware
(Plates 40, 41)

Petrographic Analysis
Samples 40 and 41 are different from each other with sample 40 consisting mainly of sedimentary rocks, and sample 41 containing both sedimentary and igneous rocks. In terms of their petrography, especially sample 41 conforms well to the contemporary Cypriote fabric characteristics.\(^{301}\)

XRD Analysis
The XRD analysis also shows that samples 40 and 41 diverge from each other in their mineralogy. They both have plagioclase feldspars and some amount of pyroxenes, along with quartz and micas. However, sample 41 registers a wider variety in alkali feldspars and mica types compared to sample 40.

ESEM Analysis
These vessels are both calcareous and have iron-rich clay. Sample 40 is medium fired. The cross section of these vessels is black other than close to the outer surface indicating insufficient oxidization of the body of the vessel. This may be because the bottle shape has a very small opening, which would not have allowed enough oxygen to get into the inside of the vessel during the firing.

\(^{301}\) Frankel and Webb, 1996, pp. 175-180.
process. And the thick, highly burnished slip on the outside of the vessel would have blocked the oxygen from penetrating into the vessel body from the outside.

Formal Shape and Stylistic Analysis

The shapes that this ware group occurs in at Tarsus-Gözlükule and the surface decoration are very idiosyncratic. Both samples 40 and 41 belong to the typical long-necked bottle shape. They also display the characteristic surface decoration of highly burnished, thick, red slip with black patches. Moreover, in sample 41 the slip is scraped off with a tool in irregular striations, which is another characteristic attribute of surface treatment used in this ware type.

Summary for Red and Black Streak Burnished Group

The fabric of samples 40 and 41 diverge from each other to some degree. Generally one can propose that they are similar to Local Fabric III. It would have been difficult to tell this group apart from the Local Fabric III group, were it not for their unique surface treatment and vessel shape. These vessels originate in Cyprus. Hence, mineralogical similarities between Local Fabric III and Red and Black Steak Burnished Ware vessels are not very surprising given that Cyprus geologically used to be part of Cilicia.\footnote{Yalçın and Görür, 1984, pp. 165f., fig. 1.}

\footnote{Yalçın and Görür, 1984, pp. 165f., fig. 1.}
The two shapes appearing at Tarsus are the bottle and the bowl, with the bottle shape being far more frequently attested compared to the bowl. However, the existence of the bowl shape at Tarsus-Gozlukule suggests that these vessels did not arrive at the site purely for the contents they were carrying.

These vessels belong to the Late Chalcolithic/Transitional Philia phase of Cyprus. The exact dating of the Philia Phase is wrought with difficulties as there is a lack of tell sites in Cyprus to provide good stratigraphy and relative chronology, and the few settlement sites with Philia assemblage did not produce secure contexts. Moreover, the island did not undergo the same transformation contemporaneously where the west and northwest regions of the island produced the earliest Philia assemblage, and southwestern and central settlements followed suit sometime later. Nevertheless, the earliest appearance of the Philia culture in Cyprus is in the Ovgos Valley during the last years of Late Cypriot Chalcolithic. The production of Red and Black Streak Burnished Ware mainly falls within the Late Chalcolithic/Early Cypriot Transitional Philia Phase.

---

304 Webb and Frankel, 1999, p. 8, 27f. But excavations at Marki-Alonia produced good stratigraphy and 14C dates. Based on these, Philia phase is dated to 2400-2200 B.C, Frankel and Webb, 2006, p. 35. 14C dates obtained from Lemba 3 suggest initial Philia settlement to be within the range of 2500-2400, see Webb and Frankel, 1999, p. 5 and 43. Manning and Swiny, 1994, p. 166 assert that the height of the Philia Phase is 2400 B.C. based on 14C dating. Peltenburg dates this period to 2400-2300 B.C. (Period 5) based on Kissonerga-Mosphilia, see Peltenburg, 1991, p. 31. Since they occur in Tarsus in EB II.5-6 (ca 2500 B.C.), Lemba 3 14C dates are the more viable compared to the Marki-Alonia 14C dates. In fact, Marki-Alonia dates create a serious chronology problem. However, given the time lag occurring at Cyprus for the Philia phase pottery types to spread, perhaps some sites in Cyprus were impacted later.
The Philia culture was intrusive to Cyprus, and its origin is suggested to be from south Anatolia. The new settlers established themselves in the copper rich regions in the northwestern Troodos Mountains and the coastal areas.

Mellink, on the other hand, thinks that the Philia transformation was not due to Anatolian people settling in Cyprus en masse, but rather due to intensifying contacts between the Cypriot settlers and Anatolia by the second half of EB II, initiated by southern Anatolian centers in search of rich copper sources. The Cypriot made vessels found at Tarsus-Gözlükule support this suggestion. Moreover, the Cypriot pottery attested at Tarsus from the EB II period is not limited to the Red and Streak Burnished Ware, but examples of Matt-impressed Ware (sample 12 under Miscellaneous section), which is probably a Cypriote production, indicate direct contacts with this island started as early as EB Ia. Also three sherds belonging to the Cypriot Red-On-White Ware recovered from very early EB II contexts point to continued contacts between Cilicia and Cyprus earlier in the EB II period.

---

306 Mellink, 1991, p. 173; Frankel, et al., 1996, p. 49. The epicenter of the Philia culture being at the Troodos Mountains, which is rich in copper ores, lends strength to this argument.
Spiral Burnished Ware
(Plates 43, 65, 69)

Petrographic Analysis

The members of this group are noncalcareous. They are mineral rich with much quartz, feldspars (including plagioclase), and some mica. Moreover, igneous minerals like amphiboles can be observed in samples 43 and 65, and sample 69 has some volcanic inclusions, including basalt. All the inclusions are well-sorted.

One can say that especially 43 and 65 are very similar to each other, and sample 69 is somewhat different.

XRD Analysis

The XRD phase diagram shows that the members of this group contain high levels of pyroxenes and plagioclase feldspars, but the alkali feldspars are relatively lower. Other than quartz silicates do not register for this group strongly. Mica group is also not strongly represented with muscovite being the most frequently attested. The mineralogical makeup of this group differs substantially from the local fabric groups.

ESEM Analysis
The members of this group have noncalcareous clay and are high fired as the ESEM images show Continuous Vitrification stage with smooth glass formation and fine bloating pores.

**Formal Shape and Stylistic Analysis**

All the members of this group have the same surface treatment. The surface is slipped, and then the slip is removed in bands with a tool on the wheel generating spiral bands of subtle color and texture difference. This is a reserve slip technique, but this particular type is called spiral burnished technique, which is of Syro-Anatolian origin. In addition, sample 43 has a thin red painted band on its shoulder and belongs to Spiral Burnished Ware with Banded Decoration class. Sample 43 is a jar from the EB II period, and samples 65 and 69 are alabastron type Syrian bottles of EB III period. Although sample 69 was categorized as Gray Ware in the depots and sample 63 as Light Clay Ware, this distinction seems to be superfluous and only based on a subtle color difference where sample 69 is a few shades darker than sample 65.

**Summary Remarks**

The clay matrix of this group does not conform to the typical characteristics of the local fabric groups, but these samples also do not belong to a single production
center.\textsuperscript{308} They are noncalcareous and contain high levels of pyroxenes, igneous rocks, and feldspars. The uniting characteristics of this group are that they are all high fired with compact, clinky body, and they all share the same surface treatment. These types of vessels are called Spiral Burnished Ware.\textsuperscript{309} They are certainly non-local, and one can safely point to one or more production centers in Syro-Anatolian region as their origin.

In Syro-Anatolia, this ware type is commonly attested especially within the northeast Syrian region during the Early Dynastic II-III, and continuing into the Akkadian period.\textsuperscript{310} Although this ware type has a wide distribution region, it is remarkably uniform in its clay quality, firing technique, and surface treatment, and the vessel forms it appears in. Chemical analyses indicate that in Syro-Anatolia, there are two main groups of the Spiral Burnished Ware, namely the calcareous and the noncalcareous.\textsuperscript{311} The “true” Spiral Burnished Ware belongs to the

\textsuperscript{308} Perhaps samples 43 and 65 might be considered as similar enough to propose a common manufacturing center, but sample 69 is more likely to have been produced at a different center.

\textsuperscript{309} The more common name for this ware is Metallic Ware. But to avoid further confusion with the term used for a certain class of pottery in Anatolia, also called Metallic Ware (see Local Fabric III and Anatolian Metallic Fabric sections of this dissertation), here Spiral Burnished Ware will be preferred. Stone Ware is another, less common name used by some scholars.

\textsuperscript{310} Kühne and Schneider, 1988, pp. 85, 87-90; Abay, 1997, p. 288; Algaze, 1990, p. 349 (peak distribution is during Period IV (mainly 3\textsuperscript{rd} quarter of the 3\textsuperscript{rd} millennium), continuing into Period III (EB IVa-b)). But Pruß contends that the “true” Metallic Ware was not produced beyond the ED III period, see Pruß, 2000, pp. 197f. Also Milano and Rova, 2000, p. 713 are of the same opinion. Strommenger, 1970, p. 47 proposes production from Mesilim to Akkadian periods. General consensus seems to be that the Metallic Ware starts sometime before the Akkadian period and continues well into the Akkadian period.

\textsuperscript{311} Kühne and Schneider, 1988 for detailed analysis. Some scholars categorize and distinguish this ware based on color differences of gray and light brown and surface treatment, for example Strommenger, 1970, p. 47, pl. 8.
noncalcareous group, and the calcareous group is an imitation of the “true” Spiral Burnished Ware.\textsuperscript{312} The production centers for the “true” Spiral Burnished Ware are not yet determined, but noncalcareous clay sources are not frequent in the Syrian region, and the foothills of the Taurus Range are suggested as the only geologically viable sources for noncalcareous clays.\textsuperscript{313} The infrequency of its raw material would render the “true” Spiral Burnished Ware a scarce product of high quality manufacture,\textsuperscript{314} which might have been strongly associated with luxury goods and therefore, would have inspired cheaper, local imitations.

\textsuperscript{312} Kühne and Schneider, 1988, p. 114; Abay, 1997, pp. 294f. For example, at Samsat Metallic Ware/Spiral Burnished Ware constitutes 6% of the total sherd count and is one of the dominant ware groups (Abay, 1997, p. 288), which would indicate that it was locally produced. Analysis shows that most of the Samsat Metallic Ware vessels are calcareous (Abay, 1997, pp. 294f). On the other hand, Pruß and Milano et al. would like to take a more purist approach to the Metallic Ware phenomenon and limit it to the noncalcareous, “true” Metallic Ware when discussing chronology and distribution. They also treat the Spiral Burnished Ware as a separate category, see especially Pruß, 2000, p. 195; Milano and Rova, 2000, pp. 716f.; Porter, 1995, p. 20; Klenk, 1987, p. 29 for identification of “true” Metallic Ware at Lidar Höyük as non-local. However, samples 43, 65, 69 are Spiral Burnished Ware and are noncalcareous. Hence, “true” metallic Ware with spiral burnished decoration is possible and is attested outside the source area. Therefore, the distinction between “true” Metallic Ware and Spiral Burnished Ware is not that straight forward. Moreover, Schneider mentions the difficulty in distinguishing “true” Metallic Ware and calcareous Metallic Ware macroscopically, but in terms of clay composition they are very distinct from each other, see Schneider, 1989-90, p. 39.

\textsuperscript{313} Kühne and Schneider, 1988, pp. 117-119; Abay, 1997, p. 295. As production centers for the “true” Spiral Burnished Ware, it is suggested that Khabur and Balikh regions would be the most likely based on their frequency in these regions, see Kühne and Schneider, 1988, pp. 114f. and Abay, 1997, p. 307. See also Pruß, 2000, p. 195 and Milano and Rova, 2000, p. 716; Schneider, 1989-90, pp. 33f. and fig. 2. If one regards the distribution pattern given in Strommenger, 1970, pl. 8, the Spiral Burnished Ware would have its core distribution area in the Upper Euphrates region where both gray and light brown versions coexist.

\textsuperscript{314} Broekmans, et al., 2002, p. 346.
The “true” Spiral Burnished Ware and its imitations are encountered within a very wide area ranging from west Anatolia to south Mesopotamia.\textsuperscript{315} Outside of its core distribution region, the pattern of distribution of this ware changes drastically. Not only the “true” Spiral Burnished Ware is encountered in much smaller numbers, but also its calcareous imitations are not as frequent. Moreover, within its core distribution region, this ware occurs in open vessels shapes as well as closed shapes, whereas outside of its core distribution area it is only attested in closed shapes, particularly the Syrian bottles and certain types of jars.

The alternative name of this ware type, Metallic Ware, is derived not only from the high-fired, good quality of these vessels, but also because they invariably imitate metallic vessels. This is also the case in Anatolia, where especially the Syrian bottle shape is found among the metal vessels from EB II-III.\textsuperscript{316} The high quality of these ceramics renders them expensive substitution for the metallic vessels they imitate.\textsuperscript{317}

\textsuperscript{315} Abay, 1997, p. 307
\textsuperscript{316} Troia: Tolstikov, et al., 1996, nr. 4 (This is a flask type Syrian bottle with its spherical body); Eskiyapar: Özgüç, 1986, p. 36, fig. 3-9 (silver alabastron Syrian bottle with grooved decoration on the neck and shoulder); Demircihöyük-Sarıkent necropolis: Seeher, 2000, pl. 18: 7-9 (lead bottles of flask type. Nr. 9 even has a handle, perhaps an Anatolian interpretation); Küçüköyük necropolis: Gürkan and Seeher, 1991, p. 83, Abb. 21: 7-9 and pl. 13: 7 (lead bottles of flask type); Tarsus-Gozlukule: Tarsus II, p. 303, nr. 11, fig. 435 (lead bottle fragment, EB II).
\textsuperscript{317} Kühne and Schneider, 1988, p. 85
It is proposed that the Syrian bottles were used to transport luxury liquids, like perfumed oils and ointments. Samples 65 and 69 may have arrived in Tarsus-Gözlükule through such trade contacts. The shape must have been strongly associated with the luxury goods that it contains, such that the local potters imitated this particular bottle shape within the well-established local production tradition (see samples 64 and 70 under Local Fabric I). The container might have become a strong signifier of its content, and hence, by association the Syrian bottle shape might have become a luxury good itself to be deemed worthy of imitation for local production and consumption purposes.

This class of pottery constitutes an interesting case of derivative imitation. The high quality “true” Metallic Ware imitated the more expensive metal vessels, and both the ceramic vessel and its contents would have acquired significance as a luxury good among the elite consumers. Then, the local potters produced an even cheaper local imitation where it still must have been strongly associated with consumption of luxury products.

Goldman, 1956, p. 302; Mazzoni, 1994, p. 251. Zimmermann, 2005, p. 164, where the author points out that two locally made Syrian bottles from the MBA levels of Kültepe/Kanesh have a relief decoration on their body, probably imitating a sort of a net bag, within which these vessels were suspended during transportation and storage, see fig. 2. 1.2. Sconzo, 2007, p. 261 also remarks that this vessel is found very frequently within funerary contexts in the Middle Euphrates region.
The jar, sample 43, also probably arrived as a container of luxury liquids although trade contacts for luxury liquids seem to be very rare in EB II Period. 319

Direct trade contacts with Syro-Anatolian region involving ceramics and their contents during the EB III period are further confirmed through the imported high-necked jars (see sample 48 under the Miscellaneous section) and the Smeared Wash Ware pottery (see sample 72 under Miscellaneous section) found in Tarsus-Gözlükule.

319 But in Kültepe there are some examples of early type of Syrian bottles found at level 15 (EBII), see Özgüç, 1986, figs. 3: 10, 11, 12, 15, 16, indicating that importing luxury liquids to Anatolia started as early as EB II. There is also a fragment of a Syrian bottle made of lead from Tarsus EB II context, see Tarsus II, p. 303, fig. 435: 11. Mellink thinks this bottle was locally made, see Mellink, 1989, p. 323.
Miscellaneous Samples

This section deals with singletons and unique samples, which could not be categorized with the main local and non-local groups.

Sample 12 – Matt-impressed Ware (2 pieces) (plate 12)

Period: EB I
Context: + 23.00 m
Ware: Not categorized in the depots
Shape: Cannot be determined
Wheel: No

Macroscopic Observations
Clay Color: a) 2.5YR 5/8, b) 7.5YR 7/4 – a) Red, b) Pink
Surface Color: Same
Firing: Medium, no dark core
Surface Treatment: Self-slipped. The outside surface is impressed with a matt-like object creating a rough surface.
Inclusions: Copious medium to large grits, some lime, rare mica.

Petrographic Analysis

Its thin section reveals that this sample has an iron-rich, relatively coarse fabric. This fabric is not very calcareous, but there are few calcite and shell. Fibrous voids indicate chaff temper. There are also small amounts of quartz, feldspars, mudstone, and much chert. Petrographically sample 12 is very similar to Local Fabric III characteristics.

XRD Analysis

Sample 12 also is comparable to Local Fabric III profile in the XRD analysis. It has a wide variety of feldspars with albite, anorthite, bytownite, and labradorite constituting the plagioclase feldspars, and anorthoclase and microcline constituting the alkali feldspars. There are moderate amount of pyroxenes,
especially enstatite and pectolite. Quartz, coesite, sapphireine, and ternesite are the silica minerals. Within mica group minerals only muscovite registers.

**ESEM Analysis**

The ESEM image of sample 12 shows that it is relatively low fired with clay platelets still intact and lacking glass formation.

**Formal Shape and Stylistic Analysis**

Sample 12 is from a late EB Ia context. It has an unusual surface treatment where a matt-like pattern is impressed all over the sherd body. This kind of surface treatment is not encountered among the Tarsus-Gözlükule pottery repertoire, and it is also not discussed in the Tarsus publications. However, later Mellink categorized this as Pattern-combed Red Gritty Ware and linked it to the Syrian realm.\(^{320}\) In the Amuq it is listed under the Brittle Orange Ware category with comb-impressed decoration and occurs in Amuq G-H. But there, too, it is not a common occurrence.\(^{321}\) Along the Turkish Euphrates, at Horum Höyük,

---

\(^{320}\) Mellink, 1989, p. 320.

\(^{321}\) Braidwood and Braidwood, 1960, p. 369, fig. 286: 14, pl. 38: 8, 11 from Amuq H (later half of EB Ib to first half of EB II), and it is noted that although there are several sherds of this type, they probably belong to the same vessel and p. 293, fig. 233: 12, pl. 32: 14 (in Brittle Orange Ware clay) from Amuq G (earlier half of EB I). But also there is a later occurrence from Amuq J (EB IIIb) p. 442, fig. 341: 6 (in Simple Ware clay). See also Mazzoni, 1985, p. 2, fig. 3: 18 from Ebla (EB IV and non-local). The EB III-IV examples are probably not related to sample 12 as they are chronologically much later, and there is no indication that the Matt-impressed Ware shows signs of continuity from early EB I into EB III.
very similar pottery is encountered, albeit in small numbers dated to the beginning of 3rd millennium B.C.\textsuperscript{322}

The closest comparanda to that of sample 12 is encountered in the Early Chalcolithic pottery assemblage of Cyprus, at Lemba 1, Mylouthkia, and Marki Alonia and here it is part of the local pottery assemblage.\textsuperscript{323} Therefore, it is very likely that sample 21 is an import from Cyprus. This would also explain why the fabric of sample 12 shows similarities to Local Fabric III.\textsuperscript{324}

\textsuperscript{322} Marro, et al., 1999, fig. 10: 10-12.

\textsuperscript{323} At Kissonerga-Mylouthkia: Bolger and Shiels, 2003, p. 135, pl. 12:3 dated to 4th millennium. These types of vessels are very rare on this settlement, p. 142. At Marki Alonia, see Frankel and Webb, 1996, pl. 28: n. At Lemba, see Peltenburg, 1987, pp. 55 and Peltenburg, 1985, p. 14 from Period 1 (tentatively dated to earlier than 3400 B.C.).

\textsuperscript{324} As explained under Red and Black Streak Burnished Ware section, the fabric of Cypriote pottery is very similar to especially the characteristics of Local Fabric III of Tarsus-Gözlükule, which is expected as Cyprus geologically used to be part of Cilicia.
Sample 24 – Micaceous Ware (plate 24)

Period: EB II
Context: Lot nr. 1320: Room 91, north edge, gray to black fill, to ca. + 13.50 m
Ware: Micaceous Cooking Pot Ware
Shape: Jar
Wheel: No
Diameter (rim): 13 cm
Preserved Height: 4.2 cm

Macroscopic Observations
Clay Color: 7.5YR 4/4 – Brown
Surface Color: 5YR 5/4 - Reddish brown
Firing: No dark core
Surface Treatment: Slipped and horizontally burnished.
Inclusions: Much medium to large grits, plenty of mica, some small lime.

Petrographic Analysis

The thin section of sample 24 reveals that this sample is very different from the main local fabric types of the Tarsus-Gözlükule repertoire. It is very micaceous with large amounts of mica grains. There are also coarse quartz fragments and many laths of plagioclase feldspar (some perhaps of volcanic origin). Under plane polarized light there is a colorless mineral with strong cleavage (perhaps basaltic pyroxene). This sample is noncalcareous. The fabric is multi-mineralogical, with angular and fresh grains. It could be that a micaceous fabric originating from volcanic rocks was used, and feldspars were added as temper.

XRD Analysis

This sample is very high in pyroxene varieties (enstatite, pectolite, pigeonite, pyroxene, diopside) and feldspars (anorthite, bytownite, and labradorite constituting the plagioclase and microcline constituting the alkali feldspars).
Muscovite registers as part of the mica group. The rare mineral sapphirine is attested in the XRD analysis. There are some unusual silicates found in this sample like the amphibole richterite and monetite from the phosphates group.

**ESEM Analysis**

This sample is noncalcareous. The ESEM image shows that it is in Intermediate Vitrification stage with some smooth glass formation without bloating pores. Hence, it was medium to high fired.

**Formal Shape and Stylistic Analysis**

Sample 24 is a jar from an EB II context.\(^{325}\) It was categorized as Cooking Pot Ware in the depots. But this sample is drastically different in its fabric from the typical Cooking Pot Ware of Tarsus-Gözlükule. Mellink in her notes mentions a type of micaceous clay occurring in Tarsus as part of the Gritty Cooking Pot Ware category.\(^{326}\) She describes it as having a brown paste with smoothed brown-reddish slip and remarks that it usually occurs at earlier phases of the EBA.\(^{327}\) Hence, it seems that there was a class of utilitarian pottery at Tarsus with micaceous clay identified by Mellink, but got sorted into the general Cooking Pot Ware category at the time of the publication and consequently never

---

\(^{325}\) For shape: Goldman, 1956, fig. 344: 49; Intermediate Light Ware, jar, EB I. Shape closest in period and ware-type: Goldman, 1956, fig. 350: 309, Gritty Micaceous Clay, jar, EB II. Here rim is more triangular and profile less curvy.

\(^{326}\) Mellink Notes, p. 87.

\(^{327}\) Mellink Notes, p. 87.
obtained its own category. This poses a problem when deciding if this could be a local production since it is impossible to estimate its frequency within the Tarsus-Gözlükule assemblage.\textsuperscript{328}

On the other hand, the clay characteristics of sample 24 are so different from the local fabric types of Tarsus-Gözlükule such that one is inclined to conclude that it was not a local production. There is a Micaceous Ware attested at Göltepe, an EBA site at the Taurus Mountains near Bolkarmaden, which is a local production at this site.\textsuperscript{329} It may very well be that sample 24 is an import from the settlements in the Taurus Mountains, with which there was already direct trade contacts during EB II (see above “Anatolian Metallic Fabric” section).

\textsuperscript{328} There are only two vessels, that can securely be identified as being micaceous by their descriptions. Goldman, 1956, pp. 124f., nrs. 306 and 309 (both from EB II and both listed under Cooking Pot Ware). Another problem is that Mellink in her notes lists cooking pots with brown, micaceous paste as occurring at 27-28 m (earliest levels of EB la) with 5% distribution, which is too early compared to sample 24 and the examples in the publication, see Mellink Notes, p. 88.

\textsuperscript{329} De Sena and Friedman, 1997, p. 240; Friedman, 2000, pp. 116-122, 151-156, where NAA, ESEM, and energy dispersive spectrometry analyses show that Micaceous Ware is similar to the Burnished Ware and the crucibles, which were all a local production as they overlap with the chemical composition of the local clays. However, energy dispersive spectrometry analysis shows that the Micaceous Ware is generally less calcareous than the Burnished Ware, see p. 156, Table 6.5.
Sample 36 – Black Polished Ware (plate 36)

Period: EB II
Context: Lot nr. 1206: Room 97, top floor, + 12.36 m
Ware: Black Burnished Ware
Shape: Bowl
Wheel: No
Diameter (rim): 20 cm
Preserved Height: 1.6 cm

Macroscopic Observations
Clay Color: 10YR 4/1 – Dark gray
Surface Color: GLEY 1 2.5/N - Black
Firing: Soft and crumbly
Surface Treatment: Self-slipped and burnished with horizontal strokes. Outside is soapy and lustrous, inside is less so.
Inclusions: Some small to medium grits and lime, little mica.

Petrographic Analysis
Sample 36 is more siliceous than calcareous with much coarse monocrystalline and polycrystalline quartz that are subangular to subrounded, fractured, and weathered. There are also many sedimentary rock fragments like shale, sandstone, and siltstone (some with a quartz component). There are few feldspars (including plagioclase) where in some cases quartz-feldspar intergrowth can be observed. Quartzite is also attested.

XRD Analysis
The phase diagram of sample 36 shows that there are no pyroxenes and low levels of feldspars in this fabric. Anorthite is the only plagioclase feldspar, and sanidine is the only alkali feldspar attested. The rare feldspar reedmergenerite, commonly found in both Local Fabric I and II members, is also found in sample 36. Silicate minerals register at high levels and in a wide variety, including
bustamite, coesite, quartz, sapphirine, and ternesite. Mica minerals are also high
with alurgite, muscovite, and sericite.

**Formal Shape and Stylistic Analysis**

Petrographically, unlike Local Fabric II examples, the fabric of sample 36 is not
very calcareous and is high in sedimentary siliceous inclusions. Through the
XRD analysis, on the other hand, it would be possible to categorize this sample
under Local Fabric II. However, also in its shape sample 36 is atypical Local
Fabric II group. Furthermore, there is no similar shape within the known EBA
Tarsus-Gözlükule repertoire. The find context of this sherd indicates very late EB
II context.

This sample is listed under Miscellaneous Group because of the ambiguity the
various analyses yielded.
Sample 42 –Red Burnished Incised Ware (plate 42)

Period: EB II
Ware: Red Burnished Incised Ware
Shape: Pitcher?
Wheel: No

Macroscopic Observations
Clay Color: 10YR 7/4 – Very pale brown
Surface Color: 10R 4/6 - Red
Firing: Soft and crumbly, but no dark core
Surface Treatment: Outside is slipped and burnished. There is incised decoration of three parallel lines and the tip of a diamond, which was made before the slip was applied.
Inclusions: Many small to medium grits, some lime, few mica particles.

Petrographic Analysis
Sample 42 has very little fine quartz and some feldspars. It is very calcareous with copious fossils from a fossiliferous limestone source. Petrographically, this sample is closest to Local Fabric II members.

XRD Analysis
XRD analysis shows that this sample is very poor in its mineralogical makeup.
No feldspars, pyroxenes, or mica minerals are detected. The dominant minerals for this sample include quartz, bavenite, and olivine.

ESEM Analysis
The ESEM image of sample 42 shows that this sample is in the Intermediate Vitrification stage with some smooth glass formation typical of calcareous clays.
It is low to medium fired.
Formal Shape and Stylistic Analysis

Sample 42 is most probably a pitcher\textsuperscript{330} and is a typical example in its surface treatment of the EB II Red Burnished Incised Ware category. The main distribution of this ware falls within 17-20 m levels (early EB II).\textsuperscript{331} It is never a high frequency ware type, and during EB II it is generally restricted to the pitcher shape.\textsuperscript{332} For the EB II Red Burnished Incised Ware, the former excavators report that there is no clear attestation of filling in the incised decoration with a white substance,\textsuperscript{333} but sample 42 shows traces of white encrustation within the incised decoration at places. Moreover, Mellink suggests that there is no connection between the Red Burnished Incised Ware and the Black Burnished Incised Ware (see Local Fabric II section above) during the EB II Period,\textsuperscript{334} but based on its petrographic aspects, this sample is most closely related to the Local Fabric II group. However, due to the ambiguity presented by the petrographic and XRD analyses, this sample was categorized under the Miscellaneous Group.

The most comparable examples to sample 42 are attested in the settlements on Konya Plain, where both steep-walled cups and closed vessels (pitchers and

\begin{itemize}
  \item \textsuperscript{330} Goldman, 1956, fig. 262: 66: Red Burnished Incised Ware, pitcher.
  \item \textsuperscript{331} Mellink Notes, p. 21.
  \item \textsuperscript{332} Goldman, 1956, p. 112.
  \item \textsuperscript{333} Goldman, 1956, p. 112.
  \item \textsuperscript{334} Mellink Notes, p. 20; Goldman, 1956, p. 96 (but here it is also noted that they have the steep walled cup, a hallmark shape of Black Burnished Ware, in common.)
\end{itemize}
jars) existed in this ware type during EB II. In Rough Cilicia at Kilise Tepe Red Burnished Incised Ware occurs as well, albeit in a very limited quantity.

This type of surface treatment is also encountered in west Anatolia, but the decoration semantics are somewhat different in this region.

Red Burnished Incised Ware is also found in Cyprus during the Philia phase. Within this tradition, this ware type is considered to be part of the general Red Burnished Ware tradition. During the Philia phase, it is mostly encountered on closed shapes like jugs and jars. The incised decoration is filled with a white substance in some cases. The decoration scheme is very limited suggesting a small number of production centers existed on the island supplying this type of pottery.

335 Mellaart, 1963, p. 219, fig. 10: 9-14. Again the dating of this material is based on the excavated sites in Cilicia, hence the EB II date for this ware at Konya Plain is reached through a circular argument.
336 Symington, 2007, p. 303, fig. 369: 226. 227 (below level Vg-EB II) shows similarities to the Tarsus tradition, and the excavators believe that it might be an import from Tarsus-Gözlükule.
337 Elmali-Karataş: Warner, 1994, pl. 173: 3 (pitcher); Gordion: Gunter, 1991, fig. 4: 65, pl. 15: 65 (level 7) is a cup or bowl with painted decoration inside and incised decoration outside and fig. 4: 68, pl. 16: 68 (level 7) is a jar.
338 See the Red and Black Streak Burnished Ware section for detailed discussion of the Philia phase.
339 For example from Markia Alonia: Frankel and Webb, 2006, pp. 94f. and figs. 4: 2, 3, 4, 5. This decoration tradition continues into EC I-II, but in much reduced numbers, see p. 119, fig. 4: 32.
341 Frankel and Webb, 2006, p. 95.
In the Amuq under the category called Red and Black Burnished Ware (RBBW), a group with white-filled incised category is identified, which is mostly restricted to lids in Amuq H, but is also encountered on some vessels types in Amuq I. However, the decoration semantics are very different from the Tarsus-Gözlükule ones.

Although red slipped, burnished, and incised decorated pottery is has a very wide distribution in Anatolia and beyond, pottery most similar to the decoration semantics of sample 42 is found commonly within Cilicia and Konya regions and must have been a local development at Tarsus-Gözlükule where some of its traits are shared with the Black Burnished Incised Ware tradition.

342 Braidwood and Braidwood, 1960, pp. 361, 368, 399, figs. 285: 4-13 and 307: 19-20, pls. 37: 1, 4-7 and 37: 8.
Sample 44 (plate 44)

Period: EB II
Context: Room 114
Ware: Incised Ware
Shape: Bowl
Wheel: Yes

Macroscopic Observations
Clay Color: 10YR 6/4 - Light yellowish brown
Surface Color: 10YR 6/4-10YR 3/1 - Light yellowish brown to very dark gray
Firing: Medium
Surface Treatment: Self-slipped (?) and smoothed inside and outside in horizontal strokes.
On the outside, rough incised notches are applied in parallel orientation.
Inclusions: Many small grits and much lime, some mica. Mottled at places.

Petrographic Analysis
The fabric of sample 44 is rich in minerals. The fabric matrix is noncalcareous, but there are large calcareous inclusions of shell and calcite. Some fossils can be identified as gastropods and snails. This is an "unstable" calcareous fabric. Much quartz, feldspars (including plagioclase), and some mica constitute other inclusions attested in this sample. The inclusions are angular to subangular, indicating that a well-mixed temper consisting of finely ground quartz, feldspars, and limestone was added to the clay. The inclusions show a strong orientation in the wheel direction.

XRD Analysis
The XRD analysis shows that this sample is dominated by silicate minerals, like quartz, coesite, bustamite, sapphirine, serendibite, and ternesite. The feldspars registered are bytownite and sanidine. Mica, muscovite, and sericite make up the mica group minerals. Pyroxenites are low consisting only of enstatite.
Formal Shape and Stylistic Analysis

Sample 44 belongs to a published vessel.\textsuperscript{343} In the publication it is treated as being a variant of Black Incised Ware.\textsuperscript{344} However, sample 44 is not similar to the Local Fabric II group in its fabric, surface treatment, and decoration syntax. The incised decoration consists of unevenly spaced, parallel notches, which must have been applied when the clay was still wet, resulting in bumps along the edges. In terms of its mineralogical makeup and surface treatment this sample does not conform to any of the above defined local fabric and ware groups. Hence, it would be difficult to regard this sample as a local production. Furthermore, there are no comparable parallels with a similar surface treatment in the neighboring regions either.\textsuperscript{345}

\textsuperscript{343} Goldman, 1956, p. 127, fig. 259: 337a: Miscellaneous Incised Ware, bowl.
\textsuperscript{344} Goldman, 1956, p. 111.
\textsuperscript{345} There is a Fingernail Impressed Ware attested in central Anatolia, but the surface decoration of this type is not exactly alike to sample 44, see Arik, 1937, pl. CXXV: 834 and Koşay, 1951, pl. C: 1 from Alacahöyük.
Sample 48 (plate 48)
Period: EB III
Context: + 10.18 m
Ware: Red Gritty Ware
Shape: High-necked jar
Wheel: Yes
Diameter (rim): 14 cm
Preserved Height: 5.4 cm

Macroscopic Observations
Clay Color: 2.5YR 5/8 - Red
Surface Color: 5YR 5/6 - Yellowish red
Firing: Dark core
Surface Treatment: Self-slipped. Outside is low burnished in vertical strokes, inside is smoothed in horizontal strokes. Four parallel bands are incised on the neck.
Inclusions: Much medium to large grits and lime, little mica.

Petrographic Analysis

The thin section of this sample reveals that this fabric is very calcareous with many limestone pebbles and micrite. There are also smaller fragments of quartz, feldspars, some quartz-sandstone, mudstone, and mica. The calcareous fragments are generally much larger than the rest of the inclusions, which indicates that limestone may have been added as temper.

XRD Analysis

The dominant minerals for this sample are silicates, like quartz, bavenite, kyanite, rosenhahnite, and sapphire. Anthophyllite belongs to the amphibole group. Enstatite and pectolite constitute the pyroxenes. Only anorthite is registered from the feldspar group.
ESEM Analysis

This fabric is iron-rich and calcareous. The ESEM image shows continuous and smooth glass formation throughout the vessel. Hence, this vessel was high fired.

Formal Shape and Stylistic Analysis

Sample 48 belongs to a high-necked jar with four shallow, carefully, and evenly incised parallel grooves on its neck.\textsuperscript{346} This shape is a new introduction into the Tarsus-Gözlükule repertoire during the EB III period, appearing at the 11 m level.\textsuperscript{347} The excavators suggest that the high-necked jars from Tarsus belong to the west Anatolian tradition.\textsuperscript{348} However, the examples from west Anatolia have a much cruder application of the incised lines compared to sample 48.\textsuperscript{349} More closely related to the shape and style of sample 48 is the high-necked jar tradition from the middle Euphrates region.\textsuperscript{350} There, high-necked jars appear in a variety of ware types. Sample 48 would most closely be related to Brittle Orange Ware.

\textsuperscript{346} Goldman, 1956, fig. 275: 596: Red Gritty Ware, high-necked jar with incised decoration.
\textsuperscript{347} Mellink Notes, p. 75.
\textsuperscript{348} Goldman, 1956, p.132.
\textsuperscript{349} Troy: Blegen, et al., 1951, pp. 137, 199, fig. 181: 15 (Troy IV); Aphrodisias: Joukowsky, 1986, fig. 426: 18 (BA 4). Some of the published vessels are certainly of west Anatolian tradition, like Tarsus, II, fig. 275: 596. It seems at Tarsus-Gözlüküle both high-necked jar traditions existed. It is possible that in the publication, west Anatolian style high-necked jar tradition and the Syro-Anatolian high-necked jar tradition is mistakenly merged.
\textsuperscript{350} Engin, 2007, p. 274, fig. 18.5: 31: Euphrates Ware related to Metallic Ware, Period II (EB III-IV), especially end of 3rd millennium (p. 273). Also Sconzo, 2007, pp. 251f., fig. 17: 4, Plain Simple Ware, where the author informs us that in certain burials this type of tall-necked, globular jar and the ovoid plain or corrugated goblet are deposited as part of a drinking set during the EB IV period at Shiyukh Tahtani. Dornemann, 1988, fig. 13. 24 (EB III-IV), Metallic Ware from tomb LI; Algaze, 1990, pl. 66: G (Period IV - 3rd quarter of 3rd millennium, Plain Simple Ware).
Sample 49 (plate 49)

Period: EB III
Context: Intrusion
Ware: Red Gritty Ware
Shape: Jar with two horizontal handles
Wheel: No

Macroscopic Observations
Clay Color: 2/5YR 4/8 - Red
Surface Color: 5YR 5/4 - Reddish brown
Firing: Dark core
Surface Treatment: Slipped and smoothed.
Inclusions: Much small to medium lime and grits. Holes on the surface suggest spalting.

Petrographic Analysis

Many large, subrounded calcite pebbles are visible in the thin section of sample 49. The main component is mudstone. There is also much angular quartz, fair amounts of fine, weathered feldspars, and mica.

XRD Analysis

This sample is poor in minerals detected under XRD analysis. The phase diagram shows that quartz and rosenhahnite constitute the silicate minerals. Margarite registers as the only mica mineral, and enstatite as the only pyroxene class mineral.

ESEM Analysis

This fabric is calcareous and iron-rich. The ESEM image shows that glass formation dominates. This sample was medium to high fired.
Formal Shape and Stylistic Analysis

Sample 49 is a sherd from a published vessel.\footnote{Goldman, 1956, p. 151, fig. 275: 590.} This jar shape with its upturned handles and globular body is foreign to the Tarsus-Gözlükule repertoire and securely belongs to the west Anatolian tradition. A very comparable example is found in the Troy II corpus.\footnote{Blegen, et al., 1950, fig. 131: a, shape C 12, p. 234.} These jars are handmade, occur in a variety of ware types, and find comparable predecessors in Troy I.\footnote{Blegen, et al., 1950, p. 234.} From Beycesultan a similar storage vessel provides another parallel.\footnote{Lloyd and Mellaart, 1962, fig. P54: 5 and sheet 6: 19 (EB IIIa).} Sample 49 is not a local production, and must have arrived to Tarsus-Gözlükule as part of the intensifying connections with west Anatolia during the EB III period.
Sample 52 (plate 52)

Period: EB III
Context: Intrusion
Ware: Slipped Red Gritty Ware
Shape: Pitcher
Wheel: No

Macroscopic Observations
Clay Color: 2.5YR 5/8 – Red
Surface Color: 2.5YR 4/6-3/2 - Red to dusky red
Firing: Well
Surface Treatment: Outside is slipped with a thin, wash-like slip, which is smoothed in haphazard orientations.
Inclusions: Much small to medium lime (some large). Few small to medium grits, rare mica. Holes on the surface suggest spalting.

Petrographic Analysis
This sample has overall well-sorted inclusions, only some calcite particles are large. There is also micrite. It is somewhat coarse, but poor in mineral variety with small quartz fragments and fine feldspars. Calcite is altered suggesting this vessel was mid-range fired. There is preferred orientation of minerals.

XRD Analysis
This sample has high levels of feldspars with albite and anorthite constituting the plagioclase, and microcline and sanidine constituting the alkali feldspars. Pyroxenes are also high including enstatite and ferrosilite. Mica minerals register in a wide variety, including lepidolite, muscovite, and sericite. Other silicate minerals consist of quartz, serendibite, and tennesite.

Formal Shape and Stylistic Analysis
Sample 52 is a pitcher and belongs to a published vessel. The cross-section shows laminations of gray and red layers. The surface is covered with a brownish wash-like slip applied nonhomogeneously. In the publication, this vessel is related to the Smeared Wash Ware tradition of Syro-Anatolia, but this ware is wheelmade, and sample 52 is handmade. Also Smeared Wash Ware has a much finer fabric (see sample 72 below), whereas the fabric of sample 52 is quite coarse.

There is a class of pottery reported from Kilise Tepe with a hard, red gritty fabric coated with a brown slip starting at level Vf (EB III). These vessels are handmade, and the pitcher shape is more at home here than in Syro-Anatolia. Hence, sample 52 is most probably an import from Kilise Tepe.

---

355 Goldman, 1956, p. 145, fig. 270: 530. Also in the Bilkent University survey conducted in eastern Cilician Plain there is a similar vessel (Steadman, 1994, p. 98, fig. 7: 5), which is categorized as Brittle Orange/Konya Metallic Ware. One must surely rule out the possibility of this being part of the Anatolian Metallic Ware tradition (see above Anatolian Metallic Fabric section).

356 Goldman, 1956, p. 145. From the Amuq one can find a good parallel to this particular surface treatment, see Braidwood and Braidwood, 1960, pl. 80: 3, but the pitcher shape is not common there.


358 Especially similar in shape to sample 52, is the pitcher from level Ve (EB III), see Symington, 2007, fig. 379: 447, although this is red slipped.
Sample 67 (plate 67)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period:</td>
<td>EB III</td>
</tr>
<tr>
<td>Context:</td>
<td>+ 8.00 m</td>
</tr>
<tr>
<td>Ware:</td>
<td>Slipped and Burnished Gray Clay Ware</td>
</tr>
<tr>
<td>Shape:</td>
<td>Bowl</td>
</tr>
<tr>
<td>Wheel:</td>
<td>Yes</td>
</tr>
<tr>
<td>Diameter (rim):</td>
<td>16 cm</td>
</tr>
<tr>
<td>Preserved Height:</td>
<td>2.8 cm</td>
</tr>
</tbody>
</table>

**Macroscopic Observations**
- Clay Color: 2.5YR 3/4 – Dark reddish brown
- Surface Color: 7.5YR 3/1 - Very dark gray
- Firing: Crumbly
- Surface Treatment: Both outside and inside is slipped, then burnished (inside very lightly) with horizontal strokes. On the outside below the rim there is fluted decoration in parallel, horizontal orientation.
- Inclusions: Some small to medium grits and lime, some mica.

**Petrographic Analysis**

This sample is highly calcareous with fractured calcite inclusions (perhaps re-deposited through diagenesis), fossils, and shell. There is also much quartz (some altered). Mica is also detected.

**XRD Analysis**

Silicate minerals dominate this sample with quartz, coesite, kyanite, sapphireine, and ternesite. Mica occurs in a wide variety including alurgite, lepidolite, muscovite, and sericite. Bytownite and sanidine are the registered feldspars, and diopside, enstatite, and ferrosilite constitute the pyroxene group.

**Formal Shape and Stylistic Analysis**
Sample 67 is a bowl with horizontal, parallel, fluted decoration on the outside, and it does not find close parallels in its shape and surface treatment within the local Tarsus-Gözlükule EB III material. Also, petrographically it does not conform to the above defined local fabric groups. This sample belongs to the Second Group of Gray Ware within the Tarsus-Gözlükule EB III repertoire, which frequently has fluted decorations on the body.³⁵⁹ This sample finds parallels in its surface treatment in the central Anatolian Plateau.³⁶⁰ It is highly likely that fluted decoration on the vessel body is imitating metal vessels.³⁶¹

³⁵⁹ Goldman, 1956, p. 134; Mellink Notes, p. 129. For example Goldman, 1956, figs. 285 and 366: 735 for a cup of this type of Gray Ware with fluted decoration on the surface.
³⁶⁰ Alacahöyük: Koşay, 1944, pl. LXXXVI: 4-5 (Gray Ware pot from grave MA); Horoztepe: Özugç and Akok, 1958, pl. XV: 6 (jar); Aphrodisias: Joukowsky, 1986, p. 391, fig. 325: 3 and p. 589, fig. 426: 10 (BA 4, depas); Kusura: Lamb, 1936, pl. VII: 9. 14; Elmalı-Karataş: Warner, 1994, pl. 179: h, f (pitchers).
³⁶¹ Alacahöyük: Koşay, 1951, pl. CLXXVI (gold pitcher and pot); Arık, 1937, pl. CLXXI (gold pitcher); Mahmatlar treasure: Koşay and Akok, 1950, pl. XXXVIII: 8-9 (gold pitcher).
Sample 71 (plate 71)

Period: EB III
Context: Lot nr. 864: Room 39, East, between + 8.08-9.05 m and + 9.25 m floors
Ware: Copper Age Ware of Central Anatolia
Shape: Cannot be determined
Wheel: No

Macroscopic Observations
Clay Color: 5YR 5/8 - Yellowish red
Surface Color: 2.5YR 4/8 - Red
Firing: Slightly dark core
Surface Treatment: Both outside and inside is slipped, but on the inside the slip is applied thinner and is also worn off. Outside surface is burnished with horizontal strokes, inside only very lightly burnished with vertical strokes. Plastic circular decoration on the outside and the slip is worn off at its edges.
Inclusions: Some small to medium grits, some small lime, little mica.

Petrographic Analysis

This sample contains sedimentary, igneous, and metamorphic minerals. Large and rounded shell and limestone constitute the calcareous inclusions, and large quartz, plagioclase feldspars, microcline, chert, serpentine (pyroxene or olivine altered), and other volcanics are the other identified inclusions. There is also some mica. The clay matrix is fine with a bimodal distribution, indicating that it may have been tempered with calcareous sand.

XRD Analysis

Feldspars dominate this sample with anorthite, bytownite, and labradorite belonging to the plagioclase class, and microcline and sanidine belonging to the alkali group. There is a wide variety of mica types, like alurgite, muscovite, sericite, and lepidolite. Quartz, kyanite, rankinite, and ternesite are the main silicate minerals. Enstatite is the only registered pyroxene.
Formal Shape and Stylistic Analysis

With its fluted, plastic decoration and compact slip, sample 71 is a typical example of the Copper Age Ware attested in central Anatolia (also see above sample 67). Parallel to plastic surface decoration are found at sites like Alaca Höyük, Gordion, Bahçehisar, and Kusura. This ware type starts appearing at Tarsus at the very beginning of the EB III Period (EB III.1).

Mellink proposes that this ware was locally produced given its abundance at Tarsus-Gözlükule. However, the petrographic and XRD analyses indicate that this sample does not conform to any of the main local fabric groups within the Tarsus-Gözlükule repertoire. It is also noteworthy that this sample shows different mineralogical characteristics compared to sample 67, another vessel with central Anatolian characteristics.

362 Goldman, 1956, p. 134, fig. 284: 712, 714: Copper Age Ware of Central Anatolia, Red Fluted Ware. Mellink Notes, pp. 122f. for the characteristics of this group.
363 Ark, 1937, pl. CXXI: 754, 758.
364 Gunter, 1991, fig. 4 and pl. 16: 72.
365 Efe, 1994, fig. 23: 104, 111
366 Lamb, 1936, fig. 7: 6 (Period B); Lamb, 1937, pl. LXXXIV: 10 (Transitional period).
Sample 72 (plate 72)

Period: EB III
Context: Lot nr. 832?: + 11.43 m
Ware: Smeared Wash Ware
Shape: Chalice
Wheel: Yes
Diameter (rim): 8 cm
Preserved Height: 4.8 cm

Macroscopic Observations
Clay Color: Inside 5YR 6/6, outside 10YR 7/3 – Inside reddish yellow, outside very pale brown
Surface Color: 10YR 7/4 - Very pale brown
Firing: Well
Surface Treatment: On the outside, below the rim a light slip-like paint is applied in a band ca. 1.8 cm wide (10YR4/3 - brown). This area is scraped off horizontally in very narrow strips before the paint was applied. Other parts of the body are smoothed in horizontal and diagonal strokes.
Inclusions: Few fine grits and small lime, rare mica. The fabric is very well treated and compact.

Petrographic Analysis
Sample 72 has very fine clay with some calcite and shell inclusions, some quartz, quartz-sandstone, and mica. The segregation of iron and calcite indicates that this vessel was high-fired.

XRD Analysis
The XRD analysis shows that this sample has high levels of pyroxenes like augite, diopside, enstatite, and pyroxene. Feldspars are also dominant, where albite, andesine, and anorthite constitute the plagioclase feldspars, and sanidine and anorthoclase constitute the alkali feldspars. Kyanite and sapphirine are the registered silicate minerals, and muscovite is the only mineral belonging to the mica group.
ESEM Analysis

Sample 72 is not very calcareous and iron-rich. The ESEM image shows that it is in Continuous Vitrification stage with fine to coarse bloating pores. It is high fired.

Formal Shape and Stylistic Analysis

Sample 72 is a chalice of the well-known Smeared Wash Ware tradition of the Syrian assemblage. Sample 72 is certainly an import, given the very infrequent number of occurrences and alien surface treatment at Tarsus-Gözlükule. This category is briefly mentioned in the Tarsus publication under Miscellaneous Imported Ware. These types of vessels frequently have an overall self-slip, sometimes lightly burnished, and then a thin, brownish red paint is applied lightly, in a smear-like fashion, sometimes in bands only, sometimes covering the whole vessel. In the case of sample 72, the brownish paint is only applied in a wide band on the upper, outer part of the vessel. It is also frequent that the surface is striated with a comb-like tool in horizontal, but irregular

---

369 Closest parallels come from Amuq Smeared Wash Ware tradition, see Braidwood and Braidwood, 1960, p. 418, fig. 319: 12 (phase I) and p. 448, fig. 356: 8 (phase J). See also Samsat: Abay, 1997, Abb. 227: h and 228: a for shape (these are Metallic Ware examples), Abb. 230 for decoration (all from level XVII-EB IIib); Tell Chuera: Kühne, 1976, Tfl. 34-35 (for decoration); Tell Qarqur: Graff, 2006, p. 147, fig. 5.2 (for decoration and chalice shapes).
370 Goldman, 1956, fig. 285: 743a-c, which is categorized under Miscellaneous Imported Ware for EB III. Also found within MBA context: p. 182, fig. 293: 948-949.
fashion. A variety of Smeared Wash Ware is also found on the Elbistan Plain as of Amuq I (EB II). The application of the thin wash and other decorative surface treatments do not seem to follow a standard, and one encounters a wide variety even within a single settlement.

This ceramic group spans from the end of ED III period until the end of the 3rd millennium, reaching its peak of popularity during the Akkadian period.

Unlike Simple Ware, Smeared Wash Ware is not commonly found on the settlements in the eastern Syro-Anatolian realm. Abay explains this by suggesting that this particular ware type was primarily used as grave goods.

---

371 In Prag, 1970, p. 83, where this particular type is called “Combed Wash Ware” or “Wellenware” by Kühne (Kühne, 1976, pp. 95-97) and deemed to be different, but related to Smeared Wash Ware. Rova is against categorizing these different types as separate wares and proposes that they represent variants of the same ware type, see Rova, 1989, p. 157. A more detailed description of different decoration techniques is given on pp. 154f. This type of surface decoration is more frequently found in the eastern part of the core distribution area (Khabur-Balikh region and southeast Anatolia), p. 155. See Lidar Höyük: Hauptmann, 1983, fig. 12 (from chamber tomb 6) and Harran: Prag, 1970, fig. 8: 47-49, pl. XXXIV: B, but here the decoration is different with painted decoration applied in a much stronger fashion compared to the wash-like characteristic observed on sample 72. Brown, 1967, p. 134, pl. XlVb and fig. 15: 1 (shape similar to sample 72) called Ozan Ware since the application of the paint is different in this region. There are no striations on the surface. For example, see Braidwood and Braidwood, 1960, pl. 89: 3, 5, 7, which all differ from each other. Also, see Rova, 1989, pp. 151f.

372 Abay, 1997, p. 286. Also in the Amuq it starts at Phase I (EB II-beginning of EB III) with 3-8% distribution of the sherd count, becoming more frequent in Phase J (EB III), reaching up to 18-23% distribution of the sherd count, see Braidwood and Braidwood, 1960, p. 446. Kühne, 1976, p. 98 dates this ware to somewhere in ED III period. Rova, 1989, pp. 191f. proposes that this ware starts in late ED, reaching its peak popularity during Akkadian period, and lasting until the end of EB (with slight variations in different regions in terms of dates). Schwartz, et al., 2003, p. 329 remarks that this type appears at Umm el-Marra by period IV (EB IVB).
rather than daily life use, as was the case for Simple Ware. However, in the west, Smeared Wash Ware becomes the second dominant ware type during EB III, and it is frequently found within settlement contexts. It is very likely that sample 72 is an import either from the Amuq, or some other settlement in the western Syro-Anatolian realm.

---

CONCLUSION

In this dissertation, petrographic, mineralogical, morphological, and formal shape and decoration related analyses have been investigated in tandem on pottery samples spanning the duration of the EBA period at the settlement of Tarsus-Gözüklü. This investigation led to the identification of five main local fabric groups and six important non-local ceramic categories, along with several minor local and non-local occurrences.

This study is important in several ways. It makes extensive use of various scientific analyses to identify the raw materials used in pottery and to help characterize the individual wares based on their various technological aspects. Moreover, this is the first pottery study for this region whereby pottery production technology is evaluated along with stylistic considerations. Pottery production and consumption patterns at Tarsus-Gözüklü have been investigated in their totality in a diachronic approach drawing comparanda from within the region, as well as neighboring regions. Thus, this study was able to establish the range of local and imported wares by scientific as well as stylistic means, adding valuable detail and insight to the understanding of pottery production traditions and consumption patterns at Tarsus-Gözüklü during the 3rd millennium B.C. New information about local and imported classes of pottery was then used to reconstruct the history of ceramic production at the site and how this industry developed and changed through time. Based on this reconstruction, this study
sheds light on the less materially tangible features of society such as political, cultural, and ideological aspects. Consequently, we have a better understanding of the main economic, social, and cultural structures at Tarsus-Gözlükule during the EBA, a critical time period for the formation of more complex social apparatus in the region and in Anatolia.

Among the five local fabrics, Local Fabric I and III are by far the longest lasting and most important fabric groups within the Tarsus-Gözlükule repertoire (figure 1). They both span the whole duration of the EBA and attain the highest levels of distribution, rivaling only each other within the site. They continue with only slight changes even during EB III, when all of the other local fabrics have been discontinued. Local Fabric I mainly consists of daily table ware vessels, is always thrown on the wheel, and generally has a fine matrix as a result of this. In terms of its shapes and surface treatment, it is strongly tied to the Syro-Anatolian realm especially during EB I-II (figure 2). Local Fabric III, on the other hand, is invariably handmade during the EB I-II periods, has a coarser, but generally better vitrified matrix, and is represented by vessels of utilitarian character. The shapes attested in this group are strictly Anatolian, especially during the EB I-II periods (figure 4). These two traditions remain strictly delimited and distinct from each other, and do not share production technology or shape repertoire for the duration of the EB I-II periods. Local Fabric III starts merging with the Local Fabric I characteristics only by EB III, one of which is the use of the wheel within
Local Fabric III production for the first time, requiring and consequently resulting in better purified clay in this category. Moreover, strict distinctions between the groups in their typical shape repertoires break down in EB III. For example, the pitcher, only produced within the Local Fabric III during EB I-II, starts to be produced within Local Fabric I, and open shapes, like bowls, appear within the Local Fabric III group.

Local Fabric IV, the chaff-tempered fabric group, is another major production line at Tarsus-Gözükule during the EB I-II periods. This fabric group is discontinued at the beginning of EB III. Local Fabric IV production also represents a wheelmade tradition, and in terms of vessel shapes, it also has strong parallels in the Syro-Anatolian region. But unlike Local Fabric I, Local Fabric IV is a direct continuation from the previous Chalcolithic period, when it was the dominant fabric. Local Fabric IV is generally geared towards producing closed vessels related to cooking and storage (figure 6). The chaff tempered clay results in a porous, breathable vessel body suitable for storage of liquids like water and milk. The voids from burnt-out chaff temper left within the vessel body also make these vessels appropriate for cooking by making them resistant to thermal stresses caused by the rapid and uneven heating and cooling such vessels are repeatedly subjected to, as the voids would successfully arrest crack propagation. The chaff tempered pottery tradition had close affinities to the Amuq region during the Chalcolithic period, but this tradition was discontinued in the Amuq after the
Chalcolithic, perhaps because this region underwent drastic changes in its material culture due to the ETC impact, which did not cross the Amanos Mountains to influence the Cilician Plain. The Local Fabric IV group rather continued to produce shapes well-known from the Chalcolithic period well into EB II, showing a strong element of continuity in the face of changes taking place at this settlement at the beginning of EB I.

The other two local fabric groups, namely Local Fabrics II and V, only occur during EB I-II and are abruptly discontinued at the beginning of EB III. They represent a smaller percentage of the total sherd count (figure 1). Albeit represented in smaller numbers, none of these fabric groups reflects a household production in the strictest sense. They all have their own idiosyncratic shape and surface treatment repertoire, homogeneous within their group, but distinct from each other. Local Fabric II only produces open vessels (figure 7), and Local Fabric V predominantly produces open vessels, but also some closed ones as well (figure 8). They represent minor production units occupying their own small niche in the local pottery market.

Based on the theoretical framework defined at the beginning of this dissertation, one can identify two important flux moments at Tarsus-Göziükule during the third millennium B.C. These moments are characterized by transformations in both the structural and superstructural categories defined within the methodology.
chapter of this dissertation with changes in clay composition, shape repertoire, and surface treatment taking place all at once. One is the sudden appearance of Local Fabric III type vessels in large numbers at the beginning of EB Ia and the other is the drastic change in configuration of local fabric types and vessel shapes at the beginning of EB III.

The first flux moment occurs at the very beginning of the third millennium when Local Fabric III type vessels are introduced into the pottery repertoire of Tarsus-Gozlukule in large numbers. They are immediately incorporated into the local production process and attain very high distribution levels (figure 1). They appear so abruptly and in such large numbers, that their advent becomes a marker of the beginning of EBA in the region. Local Fabric III vessels represent a completely different approach to pottery production at the settlement of Tarsus-Gözlükule with their handmade, coarse, yet better vitrified bodies. They are also represented by shapes not encountered here until their advent. Such a drastic and abrupt change in the operational sequence of local pottery production at the beginning of third millennium at Tarsus-Gözlükule indicates corresponding changes in the economic, social, or cultural components of the settlement and needs to be explained within this broader social framework.

The coexistence of Local Fabric I and III vessels, which represent two very different production styles, lasting for more than a millennium without
overpowering each other is an unusual phenomenon. Certainly, these were two
distinct production workshops operating simultaneously on the site. One can
propose that resistance on the supply side to appropriating new production
technologies and shapes might have facilitated the coexistence of two distinct
production traditions side by side. However, although it is natural to encounter
such conservatism, especially in pottery production, which is generally seen as a
conservative industry, the fact that they are both local production, and therefore,
must have operated in proximity to each other for such a long time, makes it
nevertheless unlikely that eventually they would not start emulating each other at
least in some aspects of their production processes. Moreover, demand side
dynamics would have eventually conflated if there was no functional separation
in the perception of the consumers between these two traditions, forcing one or
the other tradition to either adjust its production, or to disappear. Also, the fact
that these two traditions do not eventually reproduce some of the shapes from
the other tradition indicates that each occupied its own niche in the pottery
market, and that both producers and consumers were consciously aware of it.

This phenomenon can best be explained by relating the clay characteristics of
each fabric group to the function of the vessel produced. The fabric of Local
Fabric III vessels is non-calcareous or unstable calcareous and the clay has high
aluminum oxide levels. These properties result in a more vitrified and
nonpermeable body without the need to reach very high firing temperatures.
Moreover, clays high in aluminum oxide resist the damaging effects of acidic 
liquids better. Since Local Fabric III tradition generally produces certain types of 
utilitarian vessels, like the pitcher and the pithos, which are used to store liquids, 
a nonpermeable body would have been desired, especially if these liquids were 
vegetable based, like olive oil or wine. A nonpermeable body would prevent 
oxidization of the liquid, and thus, preserve its freshness better. And these 
vessels would have been better suited to hold these liquids with high acidic 
properties. Local Fabric I, on the other hand, has a calcareous matrix, and the 
vessels in this group generally have a porous and less vitrified body. This fabric 
is adequate for purposes of table ware use, especially given that fine calcareous 
clays have a high tolerance of temperature fluctuations during the firing process 
because they form a stable vitrification stage between 750-1050° C,\textsuperscript{377} whereby 
further vitrification of the clay body is arrested. The consistent use of the wheel 
would allow the potters to produce standardized vessel shapes quickly. 
Additionally, they have a more pleasing look even with minimal surface treatment 
due to the fineness of their clay. Hence, Local Fabric I potters produce cheap, 
standardized, but aesthetically pleasing vessels for everyday consumption as 
table ware. Jars and jugs produced within Local Fabric I, would have been more 
adequate to store non-vegetable based liquids, like water and milk, which need a 
breathable fabric to keep cool, and the calcareous, permeable body of these 

\textsuperscript{377} This is based on the thresholds defined by Tite and Maniatis, 1975a, Tite and Maniatis, 1975b, 
Tite, et al., 1982b. However, Dr. Tom Tartaron suggests that vitrification for calcareous clays 
starts at the middle temperatures of this range, personal communication.
vessels would have fulfilled that condition. There is a short-lived attempt of the
Local Fabric III workshop to produce table ware, which manifests itself in the Thin
Apricot Subgroup vessels. However, these vessels do not survive beyond EB I.

One can perhaps explain the sudden appearance, the immediate acceptance,
and long-lived survival of Local Fabric III type vessels to a change in the
agricultural practices in this region where production and consumption of
vegetable based organic foodstuffs, like olive oil and wine, have become more
predominant. There is evidence that ca. 5000 B.P., the eastern Mediterranean
underwent a dramatic climate change leading to aridification of the region,\textsuperscript{378}
which might have provided an impetus for a change in the subsistence economy,
shifting production to the wetter climate of the foothills of the Taurus Mountains,
which is even now an important production center for fruits and vegetables.
Therefore, the quick and widespread acceptance of Local Fabric III type vessels
within the pottery production process at Tarsus-Gözlükule could have been due
to a need to accommodate this new subsistence economy, which also ensured
their long-lived survival as a distinct production process. An economic
equilibrium must have been reached between these two production processes,
where each workshop was producing vessel types in which they had a marginal
advantage.

\textsuperscript{378} Weiss, et al., 1993, p. 997, where micromorphological and physicochemical properties of soil-
stratigraphic units extracted around Tell Leilan showed alterations in the hydrologic regime and
soil conditions indicative of severe aridification. Also see chart in Weiss and Bradley, 2001.
It is difficult to tie the significant changes observed in the pottery production process of Tarsus-Gözüküle to other aspects of material culture because the trenches reaching down to these early levels were very small. But the little architectural evidence we have shows that an important building complex with an elaborate entrance system was erected at this site during EB I.

In terms of pottery production the transitional character of EB Ia is apparent with many short-lived cross-breeds of different fabric groups. The prime examples are the Transitional Painted Ware (sample 11) and the Intermediate Light Ware (sample 2). They are a cross between the Chaff-faced Ware and the Red Gritty Ware with the grit to chaff ratio varying widely from vessel to vessel. The Transitional Painted Ware imitates Chalcolithic Striped-painted Ware in decoration, but also has resemblance to Red Gritty Painted Ware. This ware type blends the characteristics of Local Fabric III with especially Local Fabric IV.

Difficulties in understanding the changes occurring at the beginning of EB I period at Tarsus-Gözüküle are further compounded by the chronological problems regarding the very early stages of the EBA in the region. What the former excavators denote EB Ia seems to be rather a transitional period between the Late Chalcolithic and the EBA periods. The transitional nature of this early phase was identified by Mellink when she was conducting the main research for the publication of the Tarsus volume, but this phase was somehow shifted to the EBA at the time of the publication. However, it is beyond the scope of this study to delve into chronological problems regarding the EBA period in Cilicia in particular and in Anatolia in general. In this dissertation already established conventions are used to prevent further confusion. This is a cautionary note to keep in mind that EB Ia rather belongs to Late Chalcolithic period.

Goldman, 1956, p. 93; Mellink Notes, p. 94.

Mellink Notes, pp. 95-97; Goldman, 1956, p. 95. Although this is a circular observation as the decoration resemblance of Red Gritty Painted Ware to the Chalcolithic Striped Ware is also noted.
but because its clay is closer to Local Fabric III characteristics, in this study it was categorized under this group. The Intermediate Light Ware example (sample 2), on the other hand, is closer to Local Fabric IV in its clay characteristics (especially in its calcareousness) rather than Local Fabric III, and therefore, is categorized under Local Fabric IV in this study. These types were never standardized and did not reach a high frequency.

These hybrid fabric types are only encountered at the beginning of the EB period (i.e., EB Ia). It is natural that the early stages of the EB period would encompass pottery with transitional characteristics when there is a sharp break from older traditions and new, intrusive elements are suddenly introduced (in this case the Red Gritty Ware). It would be expected that the potters would try to experiment with the old and the new elements, until new production processes are established and standardized. However, by EB Ib, which could be seen as the true start of the EBA in this region, these experimental fusions merge into the main fabric groups and disappear. Hence, at Tarsus-Gözlükule, a stable and long-lasting equilibrium of five main local production traditions was established by EB Ib, which would last with minor changes until the end of EB II.

---

[382] One can also add that although sample 2 is handmade, its shape is most similar to the Spiral-banded Ware and Light Clay Ware bowls.
Meanwhile, Tarsus-Gözlüküle was not closed off to the neighboring regions during this early period. The long-standing shared pottery production tradition with the Amuq continued within the Local Fabric I group. The shapes and surface treatments of many of the vessels produced within this group have such strong parallels with the Amuq that it would not be outrageous to claim that the potters of Tarsus-Gözlüküle were in constant contact with this region for the duration of the EBA period. The Scored Ware group appearing at Tarsus in significant numbers in EB Iib and continuing into EB II shows that this site had direct trade contacts with the south central Anatolian Plateau at this early period. Moreover, the Matt-impressed Ware (sample 12) indicates that Tarsus-Gözlüküle probably was in contact with Cyprus. Tarsus-Gözlüküle had been an important trade node between the central Anatolian Plateau and Mesopotamia since the Neolithic period due to obsidian trade moving from the central Anatolian Plateau to Mesopotamia and even further down to the Levant. These trade routes were not broken during EB I, probably being still utilized for the obsidian trade, but also for the newly emerging important raw materials, namely metals, for which the metalliferous regions of the Taurus Mountains provided a rich source. The first use of bronze is attested at Tarsus-Gözlüküle during this period. The first evidence of smelting at the nearby site of Mersin-Yumuktepe, dated to ca. 4900 B.C., confirms the increasing importance of this resource in the region.

Caneva, 2000; Kelly-Buccellati, 1990, p. 121; and also Cyprus was plugged into this trade network since the Aceramic Neolithic via Cilicia, see Åström, 1989, p. 15.
During the EB II period, there were no drastic changes within the local pottery production traditions. Vessels belonging to the Local Fabric I group became more frequent within the overall production output, becoming one of the dominant categories of Tarsus-Gözlükule along with the Local Fabric III group. By EB II, Local Fabric I was well established with standardized shapes that still showed strong parallels to the Amuq region, among which the hemispherical bowl and the goblet were the main shapes. Hence, Local Fabric I was still the main producer of daily use table ware vessels. We see the early appearance of the use of red slip in this category, which would become one of the new traits of Local Fabric I during EB III. The remaining local fabric groups continued with little change in their production techniques as well as shapes. The pan shape was the only new shape introduced into the Local Fabric IV group, and it also had strong affinities to the Amuq region.

During EB II, the number and variety of non-local vessels increase drastically at Tarsus-Gözlükule. Direct trade contacts with the Syro-Anatolian region across the Amanos Mountains intensified. Jars belonging to the Cross-Stitch Incised Ware were brought into the settlement in considerable numbers from the Islahiye Region across the Amanos Mountains. Because this ware type is only represented in a particular closed shape at Tarsus-Gözlükule, it probably arrived at the settlement as a result of the contents it was carrying. The Chevron Incised Ware, although its production center is still not clear (but most probably lying in
the Syro-Anatolian region), is also represented by only two types of closed shapes, and like the Cross-Stitch Incised Ware, it must have come to the settlement for its contents. An early example of Spiral Burnished Ware, a hallmark production of the Syro-Anatolian region, especially during EB III, is represented by a few jars. The Anatolian Metallic Ware vessels encountered at the settlement in significant numbers are also restricted to closed shapes. Their origin lies in south-central Anatolia and the Taurus Mountains. They must have been delivered to Tarsus-Gözüküle for their contents as well. The Micaceous Ware (sample 24), which is a local production at the settlements in the Taurus Mountains, provides further evidence of direct contact with this region during EB II.

That all of these vessels are closed shapes is indicative of trade in specialized liquid products, possibly wine and oils that are imported to Tarsus-Gözüküle in considerable quantities during this period from the Syro-Anatolian and south central Anatolian regions. The appearance of these closed vessels within the settlement during EB II indicates a drastic increase in the consumption of exotic, luxury liquid commodities for some of the residents of Tarsus-Gözüküle. Moreover, the Cross-Stitch Incised Ware and Spiral Burnished Ware were both traded widely within the Syro-Anatolian region, indicating that the EB II settlement at Tarsus-Gözüküle was tapping into a well established and robust trade network.
Red and Black Stroke Burnished Ware, appearing at Tarsus-Gözlükule in significant numbers, reflects increased direct trade contacts with Cyprus during EB II. This ware type arrives at Tarsus-Gözlükule in both closed and open shapes. Moreover, this period coincides with drastic, transformative changes within the material culture of Cyprus, called the Philia phase, which has strong Anatolianizing traits not only in pottery, but also in agriculture and animal husbandry practices, metallurgical technology, and architecture.

During EB II, metal use on the site became more common. Intensified contacts with south-central Anatolia, the Taurus Mountains, and Cyprus must have been a result of the increased importance of the metal trade, the beginnings of which can be traced back to the Late Chalcolithic and EB I periods in this region.

The EB II levels are well preserved on the settlement of Tarsus-Gözlükule due to a succession of conflagrations. The town was well organized with row houses separated by a street. These row houses consist of two rooms, and the artifacts recovered from them indicate that the front rooms were used as workshops, especially for weaving. In the second building phase, after the town was destroyed, a massive fortification wall was erected, which fell into disuse towards the end of this period. The construction of a fortification wall may have been due to external hostilities, especially since there is evidence that the settlement was
becoming more prosperous by the production of surplus products, like textiles, and by participating in trade of metals. But erection of a fortification wall also leads to changes in social and economic structures. Firstly, it indicates intensification of group identity. Secondly, it necessitates boundary maintenance, which requires labor mobilization. Finally, delimiting a settlement in such a manner increases competition for space among the residents. Hence, during the EB II period at Tarsus-Gözlükule some changes in the attitudes of the residents towards space allocation, group identity, and communal labor organization must have occurred.

The second flux moment at Tarsus-Gözlükule occurs at the beginning of EB III. After the EB II town was destroyed, the ensuing EB III period at Tarsus-Gözlükule was marked by extensive changes in the pottery production industry. Local Fabrics II, IV, and V were discontinued. Local Fabrics I and III continued as the surviving dominant fabric groups into EB III, but even here important changes can be observed. Hence, the beginning of EB III is also characterized by changes in both the structural and superstructural aspects of pottery production.

The structural changes occurring in Local Fabric III vessels are related to fabric composition and forming techniques, and the superstructural changes are exemplified by changes in the shape repertoire. The wheel came into use within
the Local Fabric III group for the first time since its conception. This required better purified clay for Local Fabric III vessels thrown on the wheel. Moreover, this fabric group started to incorporate open shapes like bowls and cups along with the customary shapes like pitchers and jars. The outcome of these trends is that the fabric of Local Fabric I and III started merging with each other, making it sometimes very difficult to distinguish between these two fabrics through macroscopic observations, but they still remain distinct petrographically. The lines sharply delineating these two production traditions during EB I-II start to be blurred in fabric, production techniques, and shape repertoire, such that by the MBA they merge completely into each other resulting in a single production tradition. The discontinuation of three of the local fabric groups and the start of the merging of the remaining two main fabric groups with each other indicate an increasing standardization in the pottery production industry at the town of Tarsus-Gözlükule during EB III.

Local Fabric I undergoes even more drastic changes, especially in the shape repertoire and surface treatment. All vessels in this fabric group were still wheelmade, but the surface treatment shifted from smoothed self-slip to a predominant use of a different colored slip (generally red, but tan and brown shades are also encountered) than the vessel body, which was then burnished. Moreover, a reducing firing environment was now utilized for the first time within this fabric group to create vessels of gray to black color, further adding to the
variety of surface colors strived for within this fabric group during this period. Creating vessel surfaces in an assortment of colors may be due to the desire to imitate metal vessels as many of the shapes produced within this fabric group find parallels in metal, like tankards, goblets, pitchers, and bottles. Moreover, metal vessels became the main objects of luxury consumption during EB III as evidenced by the finds of various hoards and burials in the Aegean, Anatolia, and Mesopotamia. It is only natural that there would be an increased demand for ceramic vessels in imitation of metal counterparts as a cheaper substitute.

Another drastic change occurring in this fabric group is in the shape repertoire. During EB III, shapes traditionally produced within the Local Fabric III group, like pitchers and jars, were also starting to be made within Local Fabric I. Although these were still thrown on the wheel, the fabric of Local Fabric I became coarser compared to the EB I-II periods. Moreover, totally new shapes were introduced into Tarsus-Gözlükule during EB III, consisting of the bell-shaped cup, the tankard, the depas, and the wheelmade plate. They also appear within the Local Fabric III group, but in much smaller amounts and only in selected shapes. For example, the wheelmade plate was never produced within Local Fabric III. These new vessel shapes predominantly impact the Local Fabric I group. They are highly idiosyncratic and are predominantly related to drinking; usually appearing as a set in the settlements where encountered, they are termed the "west Anatolian" drinking set. It is suggested that the bell-shaped cup, the
tankard, and the depas were used for conspicuous consumption of beverages, most probably alcoholic beverages, especially wine. They are awkward vessels with their oversized handles, and in the case of the depas shape, the too narrow base provides little support for the vessel to stand upright on its own. The various hoards and burials suggest that they were frequently produced in metal. Hence, these vessels were part of elite, luxury customs related to public and also probably ritualistic consumption of beverages. Their clay counterparts, as more affordable substitutes, would enable non-elite residents to imitate such customs.

The wheelmade platter, most certainly related to eating, was replacing the hemispherical bowl of the previous periods. At Tarsus-Gözlükule the sudden appearance of these vessel shapes in considerable numbers and within a well-established local production line indicates a change in eating and drinking customs. However, when evaluating these changes, one also has to keep in mind that Local Fabric I potters continued to produce goblets and chalices of the Syro-Anatolian tradition representing a different type of drinking custom rooted strongly at Tarsus-Gözlükule since EB I. It seems that the Local Fabric I producers, while appropriating the new eating and drinking customs, continued to produce traditional shapes, even merging the two distinct traditions together in the later depas-goblet hybrid. Hence, at Tarsus-Gözlükule we cannot talk of a wholesale and exclusive adoption of an intrusive eating and drinking custom.

---

Rather, this new eating and drinking custom was appropriated and eventually adopted into the traditional eating and drinking customs of the settlement. Moreover, another new shape introduced into the Local Fabric I group is the Syrian bottle, the hallmark vessel related to luxury export of oils from the north Syrian region produced there both in metals and in high quality ceramics. Hence, one can postulate that the Local Fabric I workshop has become the supplier of cheap imitations of luxury vessels, regardless of their origin.

The “west Anatolian” drinking set attains a wide distribution from the Cycladic islands and mainland Greece to southeast Anatolia with infrequent attestations as far east as north Syria during EB III. The issue of their mode of diffusion is further complicated by the selective adoption of certain shapes in different settlements, especially in the Aegean. The origin of these vessel types is still not resolved, but the current state of research favors their origin to be in the southwest Anatolian region. They attain a high distribution on the coastal and

---

386 The problem with the origin of these vessel types is primarily compounded by chronological disparities between excavated west Anatolian settlements. There are very few 14C dates available from this region, most important of which comes from Demircihöyük-Sariket level Q, where a single tankard is found, which is dated by 14C and dendochronology to 2875-2525 B.C., see Çalış-Sazcı, 2007, p. 155 (in terms of relative chronology this would correspond to middle EB Ib – middle EB II based on Abay’s chronology (Abay, 1997, p. 350) and end of EB Ib – end of EB II based on Mellink’s chronology (Mellink, 1992) (see figure 10). However, establishing the origin of these vessels types to be in the Eskişehir region based on a single tankard is problematic. At Troy, first depas type appears at Troy IIb, dated to 2570-2450 B.C. by 14C, Çalış-Sazcı, 2007, p. 155, which corresponds to EB II by relative chronology. Korfman and Kromer propose that Troy II material is contemporaneous with Troy I Late material, which would date this level to second quarter of third millennium, because three of the 14C dates obtained from Troy IIg overlap with Troy I Late dates, see Korfmann and Kromer, 1993, pp. 162-168, Abb. 23. However, their reasoning is based on some very tenuous evidence and the remaining two 14C dates fit nicely into
inland settlements of west Anatolia and the coastal settlements of southern Anatolia, but they are not as strongly represented in the settlements of central Anatolia, which led some scholars to suggest that the mode of their diffusion was through maritime routes. There is a contemporaneous reverse diffusion of technological advances spreading from southern Anatolia (specifically Cilicia) to western Anatolia and beyond, namely the wheel technology in pottery production and alloying copper with tin to produce bronze in metallurgy. Tarsus-Gözlükule, being located in close proximity to metalliferous Taurus Mountains and at the cross-roads tying the central Anatolian Plateau with Syro-Anatolia along with having maritime access to the Mediterranean would have been playing a pivotal role in the transmission of the new pottery and metal production technologies to the west. Hence, even though the exact modes of transmission of this new eating and drinking custom to the east and the new technologies to the west is the conventional Troy sequence. Moreover, Manning poses a valid argument against this redating, pointing out that the reason $^{14}$C dates from Troy IIg overlapping with Troy I Late is most probably due to the long-lived nature of the beams the samples were derived from, which were most probably few centuries earlier than the date of Troy II, see Manning, 1997, p. 156. Here, the author suggests that Troy II falls within ca. 2500-2300/2200 B.C., p. 157. Efe, sees the origin of these vessels types in Eskişehir region, and favors an inland route in the transmission of the “west Anatolian” drinking set via inland west Anatolia to Troy and the Aegean, see Efe and Ilasli, 1997, Efe, 1997, Efe and Ay-Efe, 2001. At Karataş-Semahöyük, one-handled tankards appear in significant numbers at level V.3, which is dated to transitional EB II – EB III, see Mellink, 1994, p. 458 and Warner, 1994, pp. 8f. The first depas type appears at Karataş-Semahöyük during level VI along with the first attestation of wheel use, dated to EB IIIa, see Warner, 1994, p. 9. However, Karataş-Semahöyük dates are based on relative chronology, and hence, do not necessarily mean that the tankard and depas vessels appeared in the southwest Anatolia later. Moreover, Mellink makes a compelling argument about the “west Anatolian” drinking set vessels originating in southwest Anatolia, based on their shape development and she proposes that these vessel types have disseminated from here via maritime routes to the Aegean and eastern Mediterranean sites, see Mellink, 1986. This issue cannot be resolved until reliable $^{14}$C dates are obtained from this region.
not well understood, one can speak of a very intense, reciprocal interaction between the peoples of these regions during EB III.

Furthermore, more ceramic imports are attested at Tarsus-Gözlükule during EB III compared to the previous periods. The high necked jars with a corrugated collar (sample 48) and the Smeared Wash Ware goblets (sample 72) are of typical Syro-Anatolian manufacture, the jars with ovoid body and two horizontal upturned handles (sample 49) are a hallmark shape within the Trojan repertoire, and bowls with either fluted or grooved plastic decoration on their body belong to the central Anatolian tradition (samples 67 and 71). These imports call attention to increasing direct trade connections with central Anatolia, western Anatolia, and the Syro-Anatolian regions.

The changes observed in the pottery repertoire of Tarsus-Gözlükule at the beginning of EB III did not result in drastic changes within the architectural remains and use-space of the settlement. After the final destruction of the EB II town, the settlement was immediately rebuilt with some changes in the architecture whereby megaroid type houses replaced the row house layout of the previous period. The megaroid houses eventually evolved into agglutinative habitation complexes through many revisions to the house plans as the EB III period progresses. However, the orientation of the houses remained the same, and building techniques did not diverge substantially from the EB II period. The
constant revisions and repairs to the buildings are interpreted as the result of a series of earthquakes occurring during this period.

For the EB III period, there is evidence of metallurgical activity taking place on the site, as well as an intensified textile production. Cylinder seals are used for the first time, along with stamp seals (which were already extensively used during EB II), indicating an increase in administrative control. Noteworthy is the practice of impressing the ceramic vessels with seals starting in EB II and continuing into EB III. During EB II, this practice was limited to the handles of pitchers, whereas during EB III, it was extended into a wider variety of shapes like bowls, pots, pithoi, and jars. The practice of impressing pottery with seals is encountered in the Levant since the EB I period. Based on the seal impressed pottery at Ebla, Mazzoni proposes that the purpose of this practice was to mark high quality agricultural products produced in non-palatial workshops and shipped to be consumed by the urban elites. However, in the Levant only closed vessels were impressed with seals, whereas at Tarsus-Gözlükule not only closed vessels, but also open vessels, like bowls, were impressed with seals. Therefore, it is difficult to extend Mazzoni's argument to the case of

---

367 The earliest molds and crucibles found at Tarsus-Gözlükule date to the EB III period, see Goldman, 1956, pp. 304f.
368 Goldman, 1956, pp. 240f.
369 Ben-Tor, 1978; Ben-Tor, 1994; Lapp, 1989.
370 Mazzoni, 1984, p. 488.
371 Lapp, 1989, figs. 2, 3, 5, 6, 7; Ben-Tor, 1994, figs. 1-20 and mostly on storage jars of Metallic Ware.
Tarsus-Gozlükule. Nevertheless, although the practice of stamping pottery with seals would not imply that pottery production itself was subjected to a centralized administrative control at Tarsus-Gozlükule, since seals needed to be impressed before pottery was fired, the pottery production workshops would have had to be exposed to an administrative entity during the production process.

The fundamental question is why Tarsus-Gozlükule's local pottery production industry underwent these changes in EB III, despite having had a very stable pottery production industry for almost 800 years. When an in depth analysis is performed, it is apparent that the changes observed are not only superstructural, but also affect the structural aspects of pottery production and therefore, they are a result of changes in the social and economic structures of this settlement. The EB III period is a time of rising urbanism across Anatolia and north Syria as a result of intensifying trade contacts across the regions that were previously only loosely connected.

At Tarsus-Gozlükule, we see an increase in direct contacts with the neighboring regions already during EB II. Although the settlement was destroyed by the end of EB II, it was immediately rebuilt. The fortification wall erected during EB II is indicative of some hostilities arising in the region, which may have been due to internal strife, or external pressures.
There is a marked increase in the use of metals on the site during the EB II, but especially the EB III period.\textsuperscript{392} In fact, procurement of metals and production of metal artifacts became increasingly important in the region.\textsuperscript{393} Hence, metals, which were produced and consumed only occasionally before EB II, must have started to become an important commodity during EB III, especially in elite consumption circles. They may have revised the understanding of luxury consumption and prompted the elites to pursue their procurement more aggressively. Moreover, metals would have acquired critical importance as trade commodities. Since metal resources were usually obtained from and traded over long distances, a more interconnected and interactive environment would be instigated, forcing each region to reach out to other regions and to negotiate terms of interaction acceptable to both sides. At the same time, when certain materials reach economic importance not only as trade items, but also as status markers, the possession and consumption of these materials are incorporated into the ideological discourse, as a result of which attempts at controlling their procurement and distribution intensify, creating inter- and intra-settlement rivalries. Moreover, the abundance of spindle whorls and other paraphernalia related to weaving found at the settlement suggests that the weaving industry was one of the main surplus producing industries for the residents of Tarsus-Gözlükule starting in EB II. Özdoğan emphasizes the importance of textiles, along with industrial foodstuffs like olive oil, wine, and honey, in providing surplus

\textsuperscript{392} Goldman, 1956, pp. 281, 300, 304.
\textsuperscript{393} Caneva, 2000; Yalçın, 2000.
value to settlements in Anatolia during EBA, in turn facilitating craft specialization and the emergence of elite groups demanding such goods, which become the main impetus of formation of urban centers.  

The rising importance of metals as a resource is also evident in the neighboring regions. In western Anatolia, there is evidence of copper extraction and metal working on settlements like Limantepe, Bakla Tepe, and Altın Tepe since the Late Chalcolithic and EB I periods; silver and gold is encountered as of EB I; and first bronze use is attested during EB II. The Trojan hoards underline the continuing and even increasing importance of metals during EB III in this region. In the Syro-Anatolian region, the Arslantepe royal tomb dated to 3000 B.C. shows a sophisticated metal production technology where silver-copper, arsenical copper, and arsenical copper with high nickel content alloys are used to produce various metal artifacts. Bronze starts to be used at Arslantepe as of EB II. In the Amuq, the bronze statuettes recovered from Amuq G/H transition contexts show skilled application of artisanship in this material as early as EB Ib. Also in the Carchemish Valley region, the abundance of metal artifacts and their prolific consumption as grave goods point to a robust trade network in

---

395 Keskin, 2004, pp. 143-147. The lead isotope analysis performed on these bronze pins shows that the source for two of the pins was Bolkardağı in the Taurus Mountains, p. 148.
396 Tolstikov, et al., 1996.
397 Hauptmann and Palmieri, 2000.
399 Braidwood and Braidwood, 1960, pp. 307-312.
metals.\(^{400}\) In central Anatolia, the burials of Alaca Höyük,\(^{401}\) Horoztepe,\(^{402}\) and Resuloğlu,\(^{403}\) as well as various hoards recovered, like Eşkiyapar,\(^{404}\) shows the prolific use of metals in this region during EB III. Hence, it is evident that as of EB II, metal production and consumption had reached an industrial phase in Anatolia, necessitating long distance trade.\(^{405}\) Mellink suggests that ever increasing importance of metallurgy and trade in metals led to the establishment of small kingdoms in Anatolia towards the end of the EBA.\(^{406}\)

The increasing importance of trade towards the end of the third millennium can also be substantiated by the meager textual information we have from this period. The archives dated to late third millennium B.C. from the city of Ebla (modern name Tell Mardikh) located in Syria provide us with evidence of thriving mercantile activity which reached the Levant, southern Mesopotamia, as well as Anatolia. Especially the text known as “the seventeen towns in the hand of the king of Ebla”\(^{407}\) lists city-states located in central and southern Anatolia, which

---


\(^{401}\) Koşay, 1944; Koşay, 1956; Koşay, 1951; Mellink, 1956 where she also mentions that the three long swords found in the tombs of Alaca Höyük are the earliest attestation of this type of weaponry in the eastern Mediterranean, pp. 49f.

\(^{402}\) Özgüç and Akok, 1958.

\(^{403}\) Yıldırım and Ediz, 2006, pp. 215f., where some of the metal artifacts like vessels, weapons, and pins have been ritualistically killed by bending them or breaking them, thus, rendering them functionally useless.

\(^{404}\) Özgüç and Temizer, 1993.

\(^{405}\) Yalçın, 2000.

\(^{406}\) Mellink, 1956, p. 57.

\(^{407}\) Original publication of this text can be found in Pettinato, 1978. The name misleadingly suggests military control, but the scholars of Eblaite agree that this term actually means that Ebla had close commercial contacts with the city-states listed in this text.
had close commercial contacts with Ebla. Moreover, these texts show the importance of trade in metals and textiles during this period. Anatolian city-states seem to have been mainly involved in the trade of gold and silver.

In light of this evidence, one can postulate that the changes observed at Tarsus-Gözlükule at the beginning of EB III may be due to the changing economic conditions, whereby as trade in metals gained importance in the region and beyond, the existing social and economic structures were inadequate to accommodate this new impetus. Since the settlement of Tarsus-Gözlükule had customarily been in a position to control the routes leading from the metalliferous Taurus Mountains to the Mediterranean and the Syro-Anatolian regions, the impact of these changes in the economic system would have been intense, prompting drastic reorganization in the economic sphere, which would have to be supported by changes in the ideological and political discourse. The existing structures could have been inadequate to accommodate these changes, and new venues for transmitting a new ideology might have been needed.

---

408 Pettinato, 1991, p. 160. The author also suggests that the toponym Ga-ne-šu is the same as Kaneš of the Old Assyrian Trading Colony period. But Archi, 1981, p. 1 disputes this equation. Astour, 1996, p. 226 also disputes this equation and further adds that the toponym Ga-ne-šu is the same as URU Ka-an-ni-š[e], which he identifies as Tilmen Höyük in İslahiye region. There are difficulties in reconstructing geographic settings based on Eblaite texts due to the peculiar use of language and script at Ebla and to the plethora of homonyms encountered, see Astour, 1988, pp. 547-549.

409 Pettinato, 1991, pp. 104f., 113. For example in a text called “the treaty between Ebla and Ašur”, a city-state, called Kakmium, located south of Lake Van is mentioned where Ebla claimed commercial monopoly access to this city-state with an embedded Eblaite trading post similar to those of attested during the Middle Bronze Age Assyrian Trading Colonies. This city-state predominantly transacted in the trade of gold and silver, see Pettinato, 1991, pp. 151f.
Anthropological evidence shows the symbolic importance of public feasting, where conspicuous and prolific consumption of especially alcoholic beverages is used in order to validate and maintain political power.\textsuperscript{410} It is also significant that in burials some members of the "west Anatolian" drinking set are found along with pitchers and jars of Anatolian tradition and goblets and chalices of Syrian type.\textsuperscript{411} Hence, appropriating and incorporating a new eating and drinking custom, which involves conspicuous consumption of beverages, while at the same time preserving some of the old customs, would have provided an appropriate outlet for the changing world view to be transmitted and accepted by the residents of Tarsus-Gözlükule.

The surveys conducted in Cilicia show that this region was densely populated during EBA, especially around the important passes and routes tying this geographically delimited area with neighboring regions (map 3). This settlement pattern is indicative of the vital importance of trade networks for the continuing welfare of the settlements in this region. Cilicia consists of fertile, arable land on the plains, a suitable environment for animal husbandry in the highlands situated at the foothills of the Taurus Mountains, economically valuable raw resources in the Taurus Mountains, and strategically situated locations controlling important trade routes, which combined provided a richly diverse economic portfolio for the peoples inhabiting this region. These circumstances allowed the region to

\textsuperscript{411} For example at Gedikli Höyük necropolis, see Alkım, 1979.
develop its own cohesive cultural character, which remained uniform not only throughout the EBA, but at all times of its history of occupation.
APPENDIX

Local Fabric I

Sample 18 (plate 18)
Period: EB I
Context: + 27.00 - 28.00 m
Ware: Fine Spiral Banded Ware
Shape: Bowl
Wheel: Yes
Diameter (rim): 16 cm
Preserved. Height: 2 cm

Macroscopic Observations
Clay Color: 2.5YR 5/8 - Red
Surface Color: 2.5YR 6/6 - Light red
Firing: Well, no dark core
Surface Treatment: Self-slipped and smoothed in diagonal strokes in various directions on the outside. Slip removed in spiral bands on the inside.
Inclusions: Few fine grits and little mica. Clay is very well treated and compact.

Sample 19 (plate 19)
Period: EB I
Context: + 20.00 - 21.00 m
Ware: Fine Spiral Banded Ware
Shape: Bowl
Wheel: Yes
Diameter (rim): 18 cm
Preserved Height: 2.3 cm

Macroscopic Observations
Clay Color: 5YR 6/6 - Reddish yellow
Surface Color: 10YR 7/4 - Very pale brown
Firing: Well, no dark core
Surface Treatment: Self-slipped and smoothed in vertical strokes on the outside. Slip removed in spiral bands on the inside.
Inclusions: Few fine grits and lime, rare mica. Clay is very well treated and compact.

Sample 20 (plate 20)
Period: EB I-II
Context: + 19.50 m
Ware: Light Clay Ware
Shape: Bowl
Wheel: Yes
Diameter (rim): 20 cm
Preserved Height: 7.5 cm
Macroscopic Observations

Sample 32 (plate 32)
Period: EB II
Context: Lot nr. 1235: Room 103, + 15.22 - 15.88 m floor
Ware: Light Clay Ware
Shape: Bowl with suspension hole
Wheel: Yes
Diameter (rim): 28 cm
Preserved Height: 2.8 cm

Macroscopic Observations
Clay Color: 5YR 7/6 - Reddish yellow
Surface Color: Same
Firing: Well
Surface Treatment: Self-slip. Outside roughly scraped, only the rim area lightly smoothed with horizontal strokes. On the inside the slip is removed in circular bands reminiscent of Fine Spiral Banded Ware. Two small holes by the rim were made when the clay was still wet.
Inclusions: Few fine grits (some medium), little mica. Clay is well treated and compact.

Sample 33 (plate 33)
Period: EB II
Context: Lot nr. 1240: Room 105, + 14.16 m
Ware: Light Clay Ware
Shape: Bowl
Wheel: Yes
Diameter (rim): 11 cm
Preserved Height: 5 cm

Macroscopic Observations
Clay Color: 2.5Y 7/2 - Light gray
Surface Color: Same
Firing: Well, no dark core
Surface Treatment: Self-slip. Outside scraped with a hard tool in diagonal strokes; only the rim area is smoothed with horizontal strokes (almost reaching a low burnish) on the outside. Inside smoothed in horizontal strokes, but not as carefully as the outside rim area.
Inclusions: Fine to small grits and lime, little mica. The clay is overall well treated.
Sample 34 (plate 34)

Period: EB II
Ware: Light Clay Ware, corrugated
Shape: Goblet
Wheel: Yes
Diameter (base): 4 cm
Preserved Height: 2.9 cm

Macroscopic Observations
Clay Color: 7.5YR 5/6 - Strong brown
Surface Color: 7.5YR 6/6 - Reddish yellow
Firing: Medium, no dark core
Surface Treatment: Self-slipped and smoothed. Parallel corrugations on the outside both on the body and at the base done with a hard, pointed tool. On the inside regular wheelmarks are visible.
Inclusions: Some small to medium grits, little small lime, some mica.

Sample 35 (plate 35)

Period: EB II
Context: Lot nr. 1235: Room 103, + 15.22-15.88 m floor
Ware: Red Burnished Plain Ware
Shape: Carinated bowl
Wheel: Yes
Diameter (rim): 24 cm
Preserved Height: 3.7 cm

Macroscopic Observations
Clay Color: 7.5YR 6/8 - Reddish yellow
Surface Color: 2.5YR 4/6 - Red
Firing: Medium, dark core
Surface Treatment: Thick, red slip is burnished with horizontal and sometimes diagonal strokes. The slip is worn off at places especially at the edges of the rim.
Inclusions: Few fine grits and lime, rare mica. Overall well treated and compact.

Sample 53 (plate 53)

Period: EB III
Context: Lot nr. 990: Room 68, + 10.47 m floor
Ware: Light Clay Ware
Shape: Wheelmade plate
Wheel: Yes
Diameter (base): 8 cm
Preserved Height: 3.2 cm

Macroscopic Observations
Clay Color: 10YR 7/4 - Very pale brown
Surface Color: Same
Firing: Medium, no dark core  
Surface Treatment: Very roughly smoothed on the outside, slightly better smoothed on the inside.  
Inclusions: Small to medium grits (few large), very little mica.

**Sample 55 (plate 55)**  
Period: EB III  
Context: Lot nr. 831-3: Room 35 area, ca. + 10.20 m floor  
Ware: Light Clay Ware  
Shape: Wheelmade plate with conspicuous wheelmarks  
Wheel: Yes  
Diameter (rim): 22 cm  
Preserved Height: 3.5 cm  

**Macroscopic Observations**  
Clay Color: 10YR 6/4 – Light yellowish brown  
Surface Color: 10YR 7/4 - Very pale brown  
Firing: Medium, no dark core  
Surface Treatment: Outside is self-slipped and the wheelmarks are accentuated in horizontal, parallel grooves. Inside is lightly smoothed.  
Inclusions: Some small to medium grits and lime, little mica.

**Sample 56 (plate 56)**  
Period: EB III  
Context: Lot nr. 734: East of Room 26 to + 8.35 m floor (below + 8.01 m)  
Ware: Light Clay Ware  
Shape: Goblet  
Wheel: Yes  
Diameter (rim): 10 cm  
Preserved Height: 4.1 cm  

**Macroscopic Observations**  
Clay Color: 10YR 6/6 – Brownish yellow  
Surface Color: Same  
Firing: Medium, no dark core  
Surface Treatment: Smoothed both on the inside and outside.  
Inclusions: Some fine to small grits and lime, some mica. The clay is overall well treated.

**Sample 58 (plate 58)**  
Period: EB III  
Context: Lot nr. 1121: Room 87, + 12.03-12.24 m floor  
Ware: Red Burnished Light Clay Ware  
Shape: Bowl  
Wheel: Yes  
Diameter (rim): 38 cm  
Preserved Height: 3 cm  

**Macroscopic Observations**
Clay Color: 10YR 5/3 – Brown
Surface Color: 7.5YR 5/4 - Brown
Firing: Medium, no dark core
Surface Treatment: Coated with a thick slip, which is well burnished with horizontal strokes. Surface is soapy and mottled at places.
Inclusions: Some small grits and little mica. The clay is overall well treated and compact.

Sample 59 (plate 59)
Period: EB III
Context: Lot nr. 929: Room 54, below + 10.25 to 10.63 m floor
Ware: Red Burnished Light Clay Ware
Shape: Carinated bowl
Wheel: Yes
Diameter (rim): 19 cm
Preserved Height: 3.4 cm
Macroscopic Observations
Clay Color: 7.5YR 6/6 – Reddish yellow
Surface Color: Outside 7.5YR 5/6, inside 2.5YR 5/8 - outside strong brown, inside red
Firing: Medium, very slightly gray core
Surface Treatment: Inside and outside slipped and burnished with horizontal strokes. Slip is applied non-homogeneously. Soapy feel, but no luster.
Inclusions: Some fine to small grits and lime, some mica.

Sample 60 (plate 60)
Period: EB III
Context: No context information
Ware: Red Burnished Light Clay Ware
Shape: Tankard
Wheel: Yes
Diameter (rim): 12 cm
Preserved Height: 2.5 cm
Macroscopic Observations
Clay Color: 5YR 6/4 – Light reddish brown
Surface Color: 10YR 4/6 - Red
Firing: Medium, very slightly gray core
Surface Treatment: Red slipped and well burnished in horizontal strokes on the outside. No slip on the rim (may have flaked off here), but slip continues ca. 1 cm below the inside of the rim. The rest of the surface just smoothed.
Inclusions: Some fine grits and mica. The clay is overall well treated.

Sample 61 (plate 61)
Period: EB III
Context: No context information
Ware: Brown Smear-burnished Light Clay Ware
Shape: Bell-shaped cup

197
<table>
<thead>
<tr>
<th>Sample 62 (plate 62)</th>
<th>Sample 63 (plate 63)</th>
<th>Sample 64 (plate 64)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Period:</strong></td>
<td>EB III</td>
<td>EB III</td>
</tr>
<tr>
<td><strong>Context:</strong></td>
<td>+ 10.65 m</td>
<td>+ 10.25 m</td>
</tr>
<tr>
<td><strong>Ware:</strong></td>
<td>Tan Burnished Light Clay</td>
<td>Tan Burnished Light Clay</td>
</tr>
<tr>
<td><strong>Shape:</strong></td>
<td>Depas or narrow bell-shaped cup</td>
<td>Depas or narrow bell-shaped cup</td>
</tr>
<tr>
<td><strong>Wheel:</strong></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Preserved Height:</strong></td>
<td>5.8 cm</td>
<td>3.6 cm</td>
</tr>
<tr>
<td><strong>Macrowscopic Observations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clay Color:</td>
<td>7.5YR 6/6 – Reddish yellow</td>
<td>7/5YR 5/6 – Strong brown</td>
</tr>
<tr>
<td>Surface Color:</td>
<td>5YR 5/6 - Yellowish red</td>
<td>Same</td>
</tr>
<tr>
<td>Firing:</td>
<td>Medium, no dark core</td>
<td>Medium, no dark core</td>
</tr>
<tr>
<td>Surface Treatment:</td>
<td>Slipped and burnished in vertical strokes on the outside.</td>
<td>Slipped and low burnished in vertical strokes. Slip is non-homogeneously applied.</td>
</tr>
<tr>
<td>Inclusions:</td>
<td>Some fine to small grits, few mica. The clay is overall well treated.</td>
<td>Some fine to small grits and lime, little mica. The clay is overall well treated.</td>
</tr>
</tbody>
</table>

Sample 64 (plate 64)

| Period: | EB III |
|----------------------|----------------------|----------------------|
| Context: | No context information | No context information |
| Ware: | Red Slipped Light Clay Ware | Red Slipped Light Clay Ware |
Shape: Syrian bottle
Wheel: No
Diameter (base): 1 cm
Preserved Height: 14.7 cm

*Macroscopic Observations*
Clay Color: 7/5YR 7/6 – Reddish yellow
Surface Color: 2.5YR 4/82 to 5YR 3/2 - Red to dusky red
Firing: Well, no dark core
Surface Treatment: Outside red slipped, which is worn off from most of the surface.
Inclusions: Some small to medium grits and lime, little mica.

**Sample 66 (plate 64)**
Period: EB III
Context: Lot nr. 764: Layered earth under North wall of Room 31, to ca. + 10.04 m
Ware: Gary Ware
Shape: Small jar
Wheel: Yes?
Diameter (base): 12 cm
Preserved Height: 2.4 cm

*Macroscopic Observations*
Clay Color: 2.5Y 4/1 – Dark gray
Surface Color: GLEY1 2.5/N - Black
Firing: Medium, soft
Surface Treatment: Slipped and burnished in horizontal strokes. Slip is cracking at places. The surface has a soapy feel.
Inclusions: Few fine grits, very few mica. Clay is well treated and compact.

**Sample 68 (plate 68)**
Period: EB III
Context: Lot nr. 1192: North of cutting to ca. + 12.65 m, unburnt earth with ash, over North part of Room 65, TAH
Ware: Black-slipped Gray Ware
Shape: Tankard
Wheel: Yes
Preserved Height: 4.2 cm

*Macroscopic Observations*
Clay Color: 10YR 4/2 – Dark grayish brown
Surface Color: Same
Firing: Medium, soft
Surface Treatment: Outside self-slipped and medium burnished in horizontal strokes. Soapy fell, low luster.
Inclusions: Some fine to small grits and lime, some mica. The clay is overall well treated.

**Sample 70 (plate 70)**
Period: EB III
Lot nr. 813: Room 34, + 9.22 m
Ware: Gray Ware
Shape: Syrian bottle
Wheel: Yes
Diameter (rim): 4 cm
Preserved Height: 2.8 cm

**Macroscopic Observations**
Clay Color: 10YR 6/3 – Pale brown
Surface Color: Same
Firing: Medium, soft
Surface Treatment: Roughly smoothed. Surface mottled at places. There is a plastic ridge below the rim and another on the shoulder.
Inclusions: Some small to medium grits and lime, little mica.

**Petrographic Analysis**

Sample 18
Sample 18 has a fine, dense fabric with some iron content. It is calcareous with fine calcite inclusions. Additional mineral inclusions consist of fine quartz, few small feldspars, and some mica (including muscovite). There is possibly serpentine (pyroxene or olivine alteration).

Sample 19
Sample 19 has a very fine and iron-rich clay. One can observe fine calcareous inclusions, fine quartz, and some fine mica. Segregation of iron from calcium has occurred indicating that this vessel was high fired.

Sample 20
Sample 20 has a very fine clay matrix with fine calcareous inclusions, fine monocrystalline quartz, mica, and feldspars.

Sample 32
The clay of sample 32 is very fine. It has fine calcareous inclusions and some monocrystalline quartz particles. There is one large mudstone visible.

Sample 33
Sample 33 has extremely fine matrix with very few and fine mineral inclusions. There are fine calcareous inclusions. There is also fine quartz along with a few larger polycrystalline quartz grains, and very fine mica. In the thin section, the segregation of the iron content from the calcium is noticeable, and along with the general greenish color of the vessel one can deduce that this vessel was high fired.
Sample 34
Sample 34 has a fine matrix (coarser than 33) with quartz, fine feldspars, fine mica, large calcite and fossils as inclusions all in a well mix. There are also possible volcanic inclusions.

Sample 35
Sample 35 has a very fine fabric with small quartz, feldspar, and fine mica inclusions. It is moderately calcareous with fine calcite and some shell particles. There are some thin fibrous voids indicating that this vessel was vegetable tempered (but unlike Local Fabric IV examples the vegetable temper is very few and thin). It is somewhat optically active indicating that it might have been low fired.

Sample 53
Sample 53 has a very fine, calcareous fabric with copious, very small calcite inclusions. There is also fine quartz attested.

Sample 55
Sample 55 also has a very calcareous, but very fine matrix. The inclusions are very fine with the exception of one very large and round fossiliferous limestone inclusion. There is also quartz, some fine mica, and few feldspars.

Sample 56
Sample 56 has a very calcareous, but fine fabric with fine shell, calcite, and rounded fossil (possibly radiolarian) inclusions. There is also quartz and little quartzite, some muscovite mica, and few plagioclase feldspars.

Sample 58
Sample 58 also has a very fine fabric with copious calcite inclusions. There is also some fine quartz, feldspars (some plagioclase with twinning), and few mica. There are fine siliceous rock fragments, perhaps chert.

Sample 59
Sample 59 has a very fine fabric and is relatively calcareous with fine calcite, shell, fossils, and micrite inclusions. There is also much fine quartz.

Sample 60
Sample 60 has fine clay with well-sorted inclusions. It is only slightly calcareous. There is much fine quartz (mostly mono-, but some polycrystalline). Some fine feldspars and mica also exists.

Sample 61
Sample 61 is not as fine, but calcareous with some large limestone fragments, calcite (where some twinning is visible), and shell. There is also quartz, feldspars, mica, and rare schist inclusions.

Sample 62
Sample 62 also has very fine fabric, but is very calcareous with predominantly shell inclusions. Microfossils are visible, and some identifiable, like ostracods and gastropods. There is also much monocrystalline quartz and little mica.

Sample 63
Sample 63 also has a very fine fabric with fine calcareous inclusions and few fossils. Other minerals consist of monocrystalline quartz, some feldspars, and few quartz-mica schist.

Sample 64
The fabric of sample 64 is somewhat calcareous with chert, quartz, and feldspar inclusions.

Sample 66
Sample 66 has a fine fabric. Calcite is the main calcareous inclusion. One can also observe fine monocrystalline quartz and fine mica particles.

Sample 68
Sample 68 has calcareous inclusions that are a mix of calcite, shell, and microfossils. Mineral inclusions are dominated by monocrystalline quartz and feldspars. The inclusions are well-sorted.

Sample 70
Sample 70 is calcareous with large calcite, some microfossils, and some micrite. It also has polycrystalline quartz, feldspars, and large mica particles (some muscovite). The inclusions are weathered.

XRD Analysis
Quartz is the most frequent silicate and coesite, kyanite, and sapphirine are also encountered.

The plagioclase feldspars that register for the members of this group consist mainly of anorthite, bytownite, and in lesser degree labradorite. The alkali feldspars most commonly encountered are sanidine and microcline. The rare feldspar, reedmergnerite, is also strongly represented.

Mica type minerals generally register as sericite and to a lesser degree as mica and muscovite.

Pyroxene type minerals are low for this fabric with enstatite being the most frequently attested, but some members also carry diopside.

The rare copper sulfide covellite is found in most of the samples belonging to this group.

**ESEM Analysis**

**Sample 19**
Sample 19 has fine, homogeneously dispersed calcite inclusions. It is in Intermediate to Continuous Vitrification stage with many bloating pores. It was relatively high fired.

**Sample 20**
Sample 20 has a calcareous groundmass. It is in Intermediate Vitrification stage. It was medium fired.

**Sample 32**
Sample 32 has calcareous clay with some iron content. It is in Continuous Vitrification stage with fine to medium bloating pores. Hence, it was high fired.

**Sample 33**
Sample 33 is calcareous with some iron content. It is in Continuous Vitrification stage with fine bloating pores. It was high fired.

**Sample 53**
Sample 53 has calcareous clay. ESEM image shows some glass formation with no bloating. It is in Intermediate Vitrification stage, and hence, was medium fired.
Sample 58
Sample 58 similarly is calcareous and shows some glass formation without bloating pores. It is in Intermediate Vitrification stage and was medium fired.

Sample 62
Sample 62 has predominantly calcareous clay. The ESEM image shows that this sample is in Intermediate Vitrification phase with some glass formation. This vessel was medium fired.

Sample 70
Sample 70 has calcareous clay and was fired in a reducing atmosphere. The ESEM image shows very little and isolated areas of glass formation with clay platelets still intact suggesting that this vessel is in the Initial to Intermediate Vitrification phase, and hence, was low fired.

EDAX Analysis

<table>
<thead>
<tr>
<th>Sample #</th>
<th>CO₂</th>
<th>Na₂O</th>
<th>MgO</th>
<th>Al₂O₃</th>
<th>SiO₂</th>
<th>P₂O₅</th>
<th>Cl₂O</th>
<th>Y₂O₃</th>
<th>K₂O</th>
<th>CaO</th>
<th>TiO₂</th>
<th>FeO</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>0</td>
<td>1.335</td>
<td>5.28</td>
<td>12.685</td>
<td>59.585</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3.04</td>
<td>12.24</td>
<td>0</td>
<td>5.83</td>
</tr>
<tr>
<td>33</td>
<td>0</td>
<td>1.885</td>
<td>7.13</td>
<td>13.64</td>
<td>45.105</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3.04</td>
<td>12.24</td>
<td>0</td>
<td>5.83</td>
</tr>
<tr>
<td>53</td>
<td>25.57</td>
<td>1.015</td>
<td>2.75</td>
<td>11.495</td>
<td>27.175</td>
<td>0</td>
<td>0.235</td>
<td>0</td>
<td>3.25</td>
<td>25.265</td>
<td>0.28</td>
<td>2.965</td>
</tr>
<tr>
<td>59</td>
<td>13.33</td>
<td>1.405</td>
<td>3.48</td>
<td>11.59</td>
<td>35.195</td>
<td>0.535</td>
<td>0.275</td>
<td>0</td>
<td>3.63</td>
<td>22.2</td>
<td>0.35</td>
<td>8.005</td>
</tr>
<tr>
<td>70</td>
<td>36.81</td>
<td>0.635</td>
<td>3.12</td>
<td>7.255</td>
<td>25.35</td>
<td>0</td>
<td>0</td>
<td>0.47</td>
<td>1.035</td>
<td>22.04</td>
<td>0.2</td>
<td>3.085</td>
</tr>
<tr>
<td>Avg.</td>
<td>15.14</td>
<td>1.255</td>
<td>4.352</td>
<td>11.33</td>
<td>38.48</td>
<td>0.107</td>
<td>0.102</td>
<td>0.094</td>
<td>2.191</td>
<td>20.71</td>
<td>0.32</td>
<td>5.912</td>
</tr>
</tbody>
</table>

The EDAX analysis shows that the members of Local Fabric I have higher levels of CaO whereas Al₂O₃ and SiO₂ levels are much lower compared to Local Fabric III members. Hence, Local Fabric I samples are made of clays high in calcium oxide, which result in permeable and porous body.

Formal Shape and Stylistic Analysis

Samples 18 and 19
Samples 18, 19 were categorized under the Fine Spiral-banded Ware in the depots. The previous excavators report that this ware starts at the beginning of EB I and is discontinued by the beginning of EB II, at which point it is replaced by

412 All values are in Weight Percentage.
413 Ben-Tor, 1992, p. 108.
the wheel-made Light Clay Ware bowls. However, this distinction is based on surface treatment only and the fabric of the Fine Spiral-banded Ware is the same as the Light Clay Ware. The singular shape Fine Spiral-banded Ware appears in is the hemispherical bowl. The surface treatment consists of a self-slip. On the inside the slip is scraped off with a brush-like tool, visually creating a spiral effect. The outside of the vessel is treated less carefully and consists of roughly smoothing the surface. Samples 18 and 19 show the typical characteristics of this ware type. Sample 18 comes from an EB Ia context and sample 19 comes from a late EB Ib context. These bowls have a close similarity to the Simple Ware tradition of Amuq G and other Syro-Anatolian sites.

Sample 20
In sample 20 the characteristics of Fine Spiral-banded Ware bowls and the later Light Clay Ware bowls are blended. Its context information places this sample within the EB I-II transition. These bowls are commonly attested in the Syro-Anatolian realm within the Plain Simple Ware category.

Sample 32
Sample 32 still shows the remnants of the surface treatment adapted from Fine Spiral-banded Ware with horizontal smoothing of the interior and careful treatment of the rim, and a less careful treatment of the outside surface. It has two suspension holes below the rim. Bowls with two suspension holes and a

414 Mellink Notes, p. 23.
415 Goldman, 1956, pp. 93f.; Mellink Notes, p. 22.
416 Goldman, 1956, fig. 344: BG.
417 Goldman, 1956, fig. 344: BE.
418 Braidwood and Braidwood, 1960, p. 267, fig. 204: 1 for sample 18 and fig. 204:2 for sample 19 (Amuq G – EB Ib), for the surface treatment, see p. 265. Also found in other settlements in Syro-Anatolia, for example from Tell Hadidi: Dornemann, 1988, p. 19, fig. 5: 6, 7 (EB I) and fig. 6: 26, 28 (EB II); Samsat: Abay, 1997, Abb. 12: a (Level e – Late Chalcolithic/Tarsus: EB Ia) for sample 18, Abb. 230: c (Level XVII – EB III) for sample 19; Kurban Höyük: Algaze, 1990, pl. 19: G-H (Period VI - Late Chalcolithic, Plain Simple Ware).
419 Goldman, 1956, fig. 347: C: Light Clay Ware, bowl (from EB II).
420 Tell Chuera: Kühne, 1976, Abb. 183 (Plain Simple Ware, bowl); Tell Hadidi: Dornemann, 1988, fig. 4: 18 (EB I), fig. 6: 27 (EB II); Samsat: Abay, 1997, Abb. 97: b (Level XX – EB II); Amuq: Braidwood and Braidwood, 1960, p. 266, fig. 203: 4 (Plain Simple Ware, Phase G – EB Ib), for continuation of this type of surface treatment at Amuq into Phase H, see p. 352.
421 Goldman, 1956, fig. 347: X: Light Clay Ware, bowl, fig 245: 161 with suspension holes.
crimped rim are a common variant within the hemispherical bowl category.\textsuperscript{422} This shape is also found in the Syro-Anatolian region.\textsuperscript{423}

Sample 33

Sample 33 has a greenish gray tinge to it (due to high firing), but otherwise is a typical hemispherical bowl.\textsuperscript{424} The color variations within the Light Clay Ware bowl category are noted by the former excavators.\textsuperscript{425} Again, these bowls have good parallels in the north Syrian realm.\textsuperscript{426} These types of bowls with simple rims in Plain Simple Ware continue from EB I into EB III in northwest Syria.\textsuperscript{427}

Sample 34

Sample 34 is of the Light Clay Corrugated Ware category. It appears only in two highly standardized shapes, the goblet and the jar, the former being more common.\textsuperscript{428} The typical characteristic of this type is that the outside of these vessels are corrugated with a pointed tool.\textsuperscript{429} This group is in distribution within the EB II-III periods.\textsuperscript{430} Sample 34\textsuperscript{431} is a goblet, and very similar goblets are found in the Amuq I sequence within the Plain Simple Ware category.\textsuperscript{432} They

\textsuperscript{422} Goldman, 1956, p. 106. But the existence of suspension holes might not necessarily indicate a crimped rim as implied in the publication; see Mellink Notes, p. 24.
\textsuperscript{423} Dornemann, 1988, fig. 5: 34 (EB I).
\textsuperscript{424} Goldman, 1956, fig. 347: A, E: Light Clay Ware, bowl
\textsuperscript{425} Goldman, 1956, p. 105; Mellink Notes, p. 24. At Kurban Höyük, a class of vessels with denser clay and greenish color is separated as a subgroup of Plain Simple Ware (Ware 03), see Algaze, 1990, p. 282, where the author notes that this subgroup has finer clay and is higher fired, like sample 33.
\textsuperscript{426} Tell Chuera: Kühne, 1976, Abb. 185 (Plain Simple Ware, bowl); Tell Hadidi: Dornemann, 1988, fig. 5: 8 (EB I); Kurban Höyük. Algaze, 1990, pl. 45: C (Period V-early EBA, Plain Simple Ware).
\textsuperscript{427} Dornemann, 1988, p. 27.
\textsuperscript{428} Goldman, 1956, p. 106; Mellink Notes, p. 31.
\textsuperscript{429} Goldman, 1956, p. 106.
\textsuperscript{430} Mellink Notes, p. 32.
\textsuperscript{431} Goldman, 1956, figs. 245 and 348: 178. Light Clay Corrugated Ware, goblet. This type is also found at Kültepe in a cist grave from level 14 (EB IIIa) along with a pitcher from the Anatolian Metallic Ware tradition, see Özgüç, 1986, pp. 38f., figs. 3: 12-13, 3: 19-20. They look more like the EB III goblets with pedestal feet, even though Özgüç claims that they have their closest shape in the EB II goblets of Tarsus. These goblets (generally all Light Clay Ware type vessels) are also found at Kilise Tepe in Rough Cilicia, but are very infrequent, Symington, 2007, fig. 381: 466 (there is no corrugation).
\textsuperscript{432} Braidwood and Braidwood, 1960, p. 410, fig. 313: 27 and p. 412, fig. 315: 3, pl. 87: 3, here called 'truncated conical cups' whereas the term 'goblet' refers to a class of pottery with a similar, but different profile. They also occur in Phase J, but the corrugation is less frequent in this phase,
are also common in the Islahiye Region across the Amanos Mountains\(^{433}\) and within the Syro-Anatolian realm.\(^{434}\)

**Sample 35**

Sample 35 was stored under the Red Burnished Ware category in the depots. However, there are a few problems with this grouping. Firstly, this sherd is wheelmade, whereas the vessels belonging to Red Burnished Ware are generally handmade. Moreover, the EB I-II Red Burnished Ware has a different fabric (see Local Fabric V section). Also, the closest shape for sample 35 can be found under the Light Clay Ware category.\(^{435}\) However, Mellink in her notes remarks that ‘Red Burnished carinated bowls’, a predominantly EB III shape and belonging to the Light Clay Ware group, start appearing in small numbers by 14-16 m levels (i.e. middle to late EB II) on the site.\(^{436}\) Hence, this sample must be an early example of this later Red Slipped and Burnished Light Clay Ware group (see below samples 58 and 59). The profile of sample 35 is similar to a bowl of Plain Simple Ware from Amuq H.\(^{437}\)

**Samples 53 and 55**

Sample 53 belongs to a wheelmade plate (or the so-called "Trojan plate").\(^{438}\) This class is exclusively produced within the EB III period and enjoys a high distribution pattern between 9-12 m levels.\(^{439}\) It is only exclusively produced within the Light Clay Ware tradition.\(^{440}\) Sample 55 is a typical example of the

---

\(^{433}\) At Gedikli, see Alkim, 1979, figs. 18-19 (level III).

\(^{434}\) Tell Umm el-Marra: Schwartz, et al., 2003, p. 339, fig. 23: 5 (from Elite Tomb 1 dated to EB IV, more specifically transition between Tell Mardikh II B1/II B2, p. 336); Tell Hadidi: Dornemann, 1988, fig. 19: 1 (EB III-IV); Kurban Höyük: Algaze, 1990, pl. 53: C (Period IV - 3\(^{rd}\) quarter of 3\(^{rd}\) millennium, Plain Simple Ware) and pl. 97: B (Period III-EB IVa-b, Plain Simple Ware). It is interesting to note that these goblets seem to have become more prolific during EB III in the Syro-Anatolian sphere. At this point they are extinct at Tarsus.

\(^{435}\) For shape: Goldman, 1956, fig. 347: G, Light Clay Ware, bowl.

\(^{436}\) Mellink Notes, p. 113.

\(^{437}\) Braidwood and Braidwood, 1960, p. 354, fig. 270: 5. Also at Kurban Höyük, Algaze, 1990, pl. 58: M (Period IV - 3\(^{rd}\) quarter of 3\(^{rd}\) millennium B.C., Plain Simple Ware with brown wash on the interior).

\(^{438}\) Goldman, 1956, fig. 355: 396: Handleless bowl with flaring sides, Light Clay Ware.

\(^{439}\) Mellink Notes, pp. 143f.

\(^{440}\) Goldman, 1956, p. 133.
wheelmade plate with conspicuous wheelmarks.\textsuperscript{441} During EB III, these wheelmade plates have a wide distribution from west Anatolia to Cilicia.\textsuperscript{442}

Sample 56
Sample 56\textsuperscript{443} is a good example of the goblet shape, which is only produced in the Light Clay Ware group.\textsuperscript{444} These types of goblets with pedestal and flat feet are produced at Tarsus-Gözüüküle from EB III.2 onwards and continue into MBA period.\textsuperscript{445} The shape of sample 56 has a strong Syro-Anatolian affiliation, there commonly referred to as cyma recta cups.\textsuperscript{446} The goblets are also produced in precious metals.\textsuperscript{447} In the later phases of EB III, these cups start replacing depas and bell-shaped cup shapes with hybrid end-products, like depas-goblets.\textsuperscript{448} The goblet tradition as drinking vessel at Tarsus-Gözüüküle is not new and is part of the local production repertoire as of the EB II period. It is only produced within the Local Fabric I tradition (see sample 34).

Samples 58 and 59
Samples 58 and 59 belong to the Red Slipped and Burnished Light Clay category. This ware is different from the earlier EB I-II Red Burnished Wares. The fabric is dense, better purified, and lacks the vegetable temper of the earlier Red Burnished Ware category.\textsuperscript{449} Typically, it occurs on small vessels related to

\textsuperscript{441} Goldman, 1956, fig. 355: 419-420: Light Clay Ware, handleless bowl with conspicuous wheelmarks. Also found at Kültepe, see Özgüç, 1986, pp. 39f., fig. 3: 24 (level 13-EB IIIa) and figs. 3:14-15, 3: 22-23, 25 (levels 11b-12/EB IIIb); Aphrodisias: Joukowsky, 1986, p. 389, fig. 423, esp. nr. 5.
\textsuperscript{442} Troy: Blegen, et al., 1950, fig. 129, shapes A1 and A2; Beycesultan: Lloyd and Mellaart, 1962, p. 212, fig. P.52: 1 (Level IX-EB IIIa); Aphrodisias: Joukowsky, 1986, p. 579, fig. 419: 3, 12, 15, 18 (BA 2); Külüoba: Efe and Ay-Efe, 2001, fig. 22; Aharköy, Çukurhisar, and Bahçehisar on Eskişehir Plain: Efe, 1994, fig. 3: 1-2, fig. 6: 13-15, and fig. 9: 21, 23-27.
\textsuperscript{443} Goldman, 1956, fig. 268: 517: Light Clay Ware, goblet with pedestal foot.
\textsuperscript{444} Goldman, 1956, p. 133.
\textsuperscript{445} Mellink, 1989, p. 327.
\textsuperscript{446} Goldman, 1956, p. 133. Cyma recta cups from Amuq: Braidwood and Braidwood, 1960, p. 353, fig. 269: 9-10 (Plain Simple Ware, Phase H - EB Ib-II); Samsat: Abay, 1997, Abb. 96: b (Plain Simple Ware, level XX - EB II); Tell Chuera: Kühne, 1976, Abb. 110; Tell Hadidi: Dornemann, 1988, fig. 6: 34 (EB II), fig. 19: 3 (EB III); Kurbann Höyük: Algaze, 1990, pl. 43: L (Period V, early EBA, Plain Simple Ware, cyma recta cup).
\textsuperscript{447} Troy: Tolstikov, et al., 1996, p. 36, nos. 6 and 7 (both gold, from Treasure A), p. 97, nr. 103 (silver, from Treasure B); Eskiyaşar: Özgüç and Temizer, 1993, figs. 45-46 and pl. 116: 3, 4 (silver).
\textsuperscript{448} Mellink, 1998, p. 6, like nos. 508-513 in Goldman, 1956, p. 144, figs. 266 and 357.
\textsuperscript{449} Goldman, 1956, p. 133; Mellink Notes, p. 112.
eating and drinking. It is also attested in pitchers, but the bowls and plates constitute the greater percentage in distribution.\footnote{Goldman, 1956, p. 134; Mellink Notes, pp. 112-114, 118.} The surface treatment is not homogeneous and varies from a wash-like slip to thick lustrous examples.\footnote{Goldman, 1956, p. 133; Mellink Notes, p. 112.} Sample 35 is an early occurrence of this type (see above). Samples 58\footnote{Shape closest Goldman, 1956, fig. 353: 426, Light Clay Red Slipped Burnished Ware, handleless bowl with conspicuous wheelmarks, EB III} and 59\footnote{Goldman, 1956, fig. 353: 409: Red Slipped Burnished Light Clay Ware, handleless carinated bowl.} are bowls.

**Samples 60, 61, 62, and 63**

Samples 60, 61, 62, 63 belong to the "west Anatolian" drinking set vessels. Sample 60 is a Red Slipped and Burnished Light Clay Ware tankard,\footnote{Goldman, 1956, fig. 356: 470-471: One- or two-handled cup.} sample 61 is Brown Slipped and Smear-burnished Light Clay Ware bell-shaped cup,\footnote{Most probably of the developed, late depas type: See Goldman, 1956, fig. 266: 507, for drawing of it in Spanos, 1972, pl. 7, fig. 1. Mellink coins the term "late depas type" (see Mellink, 1989, p. 325). Similar example found in Aphrodisias, see Joukowsky, 1966, p. 618, fig. 444: 2 (EB 4-MBA).} and samples 62\footnote{Goldman, 1956, fig. 357: 497 and fig. 356: 495: Two-handled cup with narrower bell-shaped body.} and 63\footnote{Most probably belongs to the family: Goldman, 1956, fig. 357: 497 and fig. 356: 495: Two-handled cup with narrower bell-shaped body. The sherd is too small to be sure of the exact shape. It could also be of a similar shape sample 62 belongs to.} are from Tan Slipped and Burnished Light Clay Ware, where sample 62 is a depas and 63 could be a depas, but could also be a narrow bell-shaped cup. These examples show the variety in the color and the technique of burnishing within this ware type.

**Sample 64**

Sample 64 belongs to a Syrian bottle shape, but the form is very different from typical Syrian bottle shapes. The base of this sample is narrower than its shoulder, whereas typical Syrian bottles have the opposite proportion. In Tarsus local imitation of Syrian bottles are found within EB III.4-8.\footnote{Mellink Notes, p. 100; Mellink, 1989, p. 326. This peculiar shape might be a misinterpretation of the flask type Syrian bottle, which occurs somewhat earlier than the alabastron type bottles, see Kontani, 1995, p. 110.} It is red slipped, but the slip has peeled off almost completely.

\footnote{Goldman, 1956, fig. 353: 426, Light Clay Red Slipped Burnished Ware, handleless bowl with conspicuous wheelmarks, EB III}
Sample 66
Sample 66 belongs to a small jar. It seems to be handmade (although this is not certain). This sample belongs to the First Group of Gray Ware, for which it is noted that the small, handless jar is a typical shape.

Sample 68
Sample 68 is a tankard. This sample also belongs to the First Group of Gray Ware, within which the "west Anatolian" drinking set shapes are represented.

Sample 70
Sample 70 is an alabastron type Syrian bottle with double ridged rim and a plastic ridge on the shoulder. The double ridged rim is a characteristically Syro-Anatolian attribute, of which sample 70 is a local imitation. In Tarsus local imitation of these alabastron bottles are found within EB III.4-8. Syrian bottles are frequently produced in metal and especially a silver example from Eskiyatpar is very similar to sample 70 in account of the rills on its shoulder.

---

459 For shape closest: Goldman, 1956, fig. 362: 576 (Burnished Red Gritty Ware, handless jar) and fig. 362: 584 (Black Slipped Gray Clay, handless jar). Farther, fig. 267: 582: Plain and Burnished handless jar.
461 Tarsus fig. 356: 470: Black Slipped Gray Ware, one-handed cup with offset splaying rim and fig. 265: 480: Black Slipped Gray Ware, two-handled cup with offset splaying rim.
463 Goldman, 1956, fig. 268: 617: Spiral Burnished Dark Gray Clay, bottle.
464 Goldman, 1956, p. 134; Mellink Notes, p. 98. Best shape comparison comes from Oylum Höyük EB IV necropolis, where bottles of dark gray fabric with two ridges around the lip and a kink at the shoulder are found, see Ozgen, et al., 1997, p. 74, Abb. 15: 5, 7. See also Tilmen Höyük: Alkim, 1964, pl. LVI, fig. 9; Gedikli Höyük: Alkim, 1979, p. 91, figs. 26-27. From Syro-Anatolian realm: Gre Vrike: Engin, 2007, p. 275, fig. 18.6: 17 (period II-EB III/IV, Buff Ring Burnished Ware) and p. 276, fig. 18.7: 9 (Black/Gray Ring Burnished Ware); Kurban Höyük: Algaze, 1990, pl. 78: C (Period IV - 3rd quarter of 3rd millennium) and pl. 133: I (Period III - EB Iva-b), both Metallic Ware; Samsat: Abay, 1997, p. 159, fig. 229: e (Metallic Ware); Banat: Porter, 1999, fig. 3 top-left (period III); Tell Hadidi: Dornemann, 1988, fig. 15: 18 (Metallic Ware, EB III-IV); Habuba Kabira: Strommenger, 1970, Abb. 12: d (simple burnished dark-gray surface –no spiral burnish). Also encountered in central Anatolia as a result of contacts with Syro-Anatolia during this period, see Özgüç, 1986, pp. 34f., figs. 3.4, 3.6 from level 13 (EB IIIa).
465 Mellink Notes, p. 100; Mellink, 1989, p. 326.
Local Fabric II

Sample 16 (plate 16)
Period: EB I
Context: + 26.50-27.00 m
Ware: Black Burnished Ware
Shape: Bowl
Wheel: No
Diameter (rim): 24 cm
Preserved Height: 4 cm

Macroscopic Observations
Clay Color: 7.5YR 3/1 – Very dark gray
Surface Color: 7.5YR 4/2 to 7.5YR 2.5/1 - Brown to black
Firing: Medium, soft and crumbly
Surface Treatment: Both inside and outside is slipped and burnished in vertical strokes. The surface has a soapy feel and low luster. Inside is better burnished than outside (or outside surface is more worn off). Color varies from grayish brown to black due to differing firing conditions.
Inclusions: Some fine to small grits and lime (few large), and little mica.

Sample 17 (plate 17)
Period: EB I
Context: + 21.00 m
Ware: Black Burnished White-filled Incised Ware
Shape: Steep-walled cup
Wheel: No
Diameter (base): 8 cm
Preserved Height: 14 cm

Macroscopic Observations
Clay Color: 2.5Y 4/1 – Dark gray
Surface Color: GLEY1 2.5/N - Black
Firing: Medium, soft and crumbly
Surface Treatment: Slipped and burnished both on the inside and outside. Inside is better burnished and lustrous (or perhaps outside surface is more worn off). The body is burnished in horizontal strokes, but the base is burnished in varying orientations. On the outside and including the base it is decorated with incised lines forming parallel line clusters and cross-hatches, which are then filled with a white substance.
Inclusions: Some small to medium grits and lime, and little mica.

Sample 37 (plate 37)
Period: EB II
Context: Room 100, + 14.63 m floor
Ware: Black Burnished White-filled Incised Ware
Shape: Steep-walled cup
Wheel: No
Diameter (rim): 18 cm
Preserved Height: 4.5 cm

Macroscopic Observations
Clay Color: 10YR 3/1 – Very dark gray
Surface Color: same
Firing: Medium, soft and crumbly
Surface Treatment: Slipped and burnished on the inside in horizontal strokes. On the inside three lines of incised decoration is visible. On the outside burnished less vigorously with horizontal strokes at the rim, with vertical strokes on the rest of the body. The outside surface has incised decoration, rendering triangles filled with diagonal lines. All incised decoration is filled with a white substance.
Inclusions: Some small grits and lime, little mica.

Petrographic Analysis
Sample 16
The fabric of 16 does not contain much clay, but consists of mostly fine-grained minerals, mainly fractured and stressed quartz and few feldspars. There are also copious mica fragments and metamorphic gneissic inclusions. It is very calcareous with finely ground limestone, calcite, and shell. This vessel is low-fired as calcite remained in its original form showing cleavage.

Sample 17
Like sample 16, the clay matrix of sample 17 does not contain much clay and consists of mostly fine-grained minerals. But sample 17 is coarser with mainly quartz, feldspars, and mica used as mineral inclusions, but also serpentinite is attested. It is also very calcareous consisting of shell and calcite.

Sample 37
Sample 37 is very calcareous with much shell and some limestone inclusions. It could have been intentionally tempered with shell. There is also quartz.

XRD Analysis
Quartz occurs in all of the members, and coesite, kyanite, sapphirine, serendibite, and ternesite are the other most frequently encountered silicates.

The plagioclase feldspars that register for the members of this group consist mainly of anorthite, bytownite, and in a lesser degree labradorite. The alkali feldspar, which is encountered most commonly, is sanidine. The rare feldspar, reedmrgnerite, exists in all samples.
Mica type minerals generally register as muscovite and sericite.

Pyroxene type minerals are very low for this fabric with enstatite being the most frequently attested.

**ESEM Analysis**

**Sample 16**

This sample has calcareous clay and fired at a reducing temperature. This vessel is in Initial Vitrification stage and was low to medium fired.

**Sample 37**

Sample 37 is also similar to 16 with very calcareous clay fired at a reducing atmosphere. It is in the Initial Vitrification stage and was low to medium fired.

**Formal Shape and Stylistic Analysis**

**Sample 16**

Sample 16\(^{467}\) displays typical characteristics of the Black Burnished Ware group. The surface is not of uniform black, but has some grayish brown patches due to variable firing conditions in the kiln.\(^{468}\)

**Sample 17**

Sample 17 belongs to the Black Burnished White-filled Incised Ware group. It is the base fragment of a steep-walled cup, a typical shape for this ware type.\(^{469}\) It displays hatched and parallel incised lines as decoration. The incisions are applied after burnishing, and when the vessel is in leather-hard condition. It is common for this ware type that the entire vessel, including the base, is decorated with incised, white-filled motifs.

**Sample 37**

\(^{467}\) Goldman, 1956, fig. 345: AE: Plain Black Burnished Ware, bowl.
\(^{468}\) This is not unusual for this ware, see Goldman, 1956, p. 95; Mellink Notes, p. 5.
\(^{469}\) Goldman, 1956, figs. 240, 345: 88 for shape (EB I); figs. 258, 349: 321 and figs. 257, 349: 322 for shape and decoration (EB II). For shape also Kilise Tepe: Symington, 2007, fig. 369: 241-3 (VI-h - EB II) and for white filled incised decoration fig. 368: 210-3 (VJ - EB II). Also encountered on the Konya Plain with very similar shape and decoration, see Mellaart, 1963, p. 219, fig. 10: 1-8.
Sample 37 is also a steep-walled cup, but from EB II Period. It also displays characteristic decoration scheme for this type of ware class. As seen in this sample, it is common that the incised, white-filled decoration was applied to the inside of the vessel as well.

470 Goldman, 1956, fig. 349 E (for shape), fig. 257: 327, 331 (for decoration): Black Burnished White-filled Incised Ware, steep-walled cup.
Local Fabric III

**Sample 3 (plate 3)**
Period: EB I  
Context: + 21.50 m  
Ware: Red Gritty Ware, Hard Gritty subgroup  
Shape: Large bowl?  
Wheel: No  
Preserved Height: 6.5 cm  

*Macroscopic Observations*
Clay Color: 10R 5/8 - Red  
Surface Color: 10R 5/6 - Red  
Firing: No dark core  
Surface Treatment: Inside and outside is self-slipped and smoothed in mostly diagonal strokes (but of slightly varying orientation).  
Inclusions: Copious medium to large grits and lime (some very large), rare mica.

**Sample 4 (plate 4)**
Period: EB I  
Context: + 22.50 m  
Ware: Soft Gritty Burnished Cooking Pot Ware  
Shape: Jar  
Wheel: No  
Diameter (rim): 19 cm  
Preserved Height: 7 cm  

*Macroscopic Observations*
Clay Color: 7.5YR 6/6 - Reddish yellow  
Surface Color: Same  
Firing: Dark core  
Surface Treatment: Outside and inside is self-slipped and smoothed, at places reaching a low burnish (especially inside). Slip is cracking and peeling at places.  
Inclusions: Much medium to large grits and lime and little mica.

**Sample 5 (plate 5)**
Period: EB I  
Context: + 23.00 - 24.00 m  
Ware: Red Gritty Pithos Ware  
Shape: Jar  
Wheel: No  
Preserved Height: 8.4 cm  

*Macroscopic Observations*
Clay Color: Outside 10R 4/8, inside 7.5YR 6/3 - Outside red, inside light brown  
Surface Color: Same as outside  
Firing: No dark core  
Surface Treatment: Roughly smoothed inside and outside; for outside in horizontal and for inside in diagonal strokes. There are two plastic ridges on the outside.
Inclusions: Much medium to large grits and lime. Rare mica.

**Sample 6 (plate 6)**

- **Period:** EB I
- **Context:** + 24.50 - 25.00 m
- **Ware:** Red Gritty Ware, Thin Apricot subgroup
- **Shape:** Bowl
- **Wheel:** No
- **Diameter (rim):** 26 cm
- **Preserved Height:** 3.1 cm

*Macroscopic Observations*

- **Clay Color:** 5YR 6/8 – Reddish yellow
- **Surface Color:** 5YR 5/8 – Yellowish red
- **Firing:** Well, no dark core
- **Surface Treatment:** It is self-slipped and burnished in horizontal strokes.
- **Inclusions:** Few fine grits and lime, rare mica. The clay is overall well treated.

**Sample 7 (plate 7)**

- **Period:** EB I
- **Context:** + 23.00 m
- **Ware:** Red Gritty Painted Ware
- **Shape:** Probably pitcher
- **Wheel:** No
- **Preserved Height:** 3.8 cm

*Macroscopic Observations*

- **Clay Color:** 5YR 5/6
- **Surface Color:** Same
- **Firing:** Dark core, but dense and compact
- **Surface Treatment:** Self-slipped and very lightly burnished on the outside and roughly smoothed on the inside. On the outside there are two wide bands of red painted decoration (10YR 4/4 - Weak red).
- **Inclusions:** Some small to medium grits, much small to medium lime, some mica.

**Sample 8 (plate 8)**

- **Period:** EB I
- **Context:** + 22.50 m
- **Ware:** Red Gritty Painted Ware
- **Shape:** Probably pitcher
- **Wheel:** No

*Macroscopic Observations*

- **Clay Color:** 5YR 5/6 – Yellowish red
- **Surface Color:** Same
- **Firing:** Hard and brittle
- **Surface Treatment:** Self-slipped and smoothed with vertical strokes. There are two bands of black painted decoration (7.5YR 2.5/1 - Black) on the outside.
- **Inclusions:** Small to medium grits and lime (some large), very few mica.
Sample 9 (plate 9)
Period: EB I
Context: C. pit, + 22.50 m
Ware: Red Gritty Painted Ware, reduced
Shape: Probably pitcher
Wheel: No

Macroscopic Observations
Clay Color: 2.5Y 3/1– Very dark gray
Surface Color: Same
Firing: Hard and brittle
Surface Treatment: Outside is self-slipped and roughly smoothed in haphazard orientations, inside is left very rough. There is two parallel bands and a more fleeting band at an angle to these of white painted decoration (5Y 7/1 - Light gray).
Inclusions: Much medium to large grits and lime, some mica.

Sample 10 (plate 10) (two pieces)
Period: EB I
Context: + 24.50-25.00 m
Ware: Transitional Painted Ware, from Apricot subgroup
Shape: Cup with vertical handle
Wheel: No
Diameter (rim): 6 cm
Preserved Height: 2.1 cm

Macroscopic Observations
Clay Color: 5YR 6/8 – Reddish yellow
Surface Color: Same
Firing: Clinky
Surface Treatment: Self-slipped and burnished (low burnish outside, better inside) in horizontal strokes. There are painted decoration in vertical bands of red and white (10R 3/4 - dusky red, 5YR 7/3 - pink) on the outside for 10b, and a narrow red band on the rim and red vertical bands on the outside for 10a.
Inclusions: Few small to medium grits and lime, little mica. The clay is overall well treated and compact.

Sample 11 (plate 11)
Period: EB I
Context: + 24.50-25.00 m
Ware: Red Gritty Ware, Transitional Painted subgroup
Shape: Pitcher with rising cut-away spout
Wheel: No
Preserved Height: 6 cm

Macroscopic Observations
Clay Color: 5YR 6/8 – Reddish yellow
Surface Color: Same
Firing: Soft and crumbly, but no dark core
Surface Treatment: Outside is self-slipped and smoothed in vertical strokes. There is painted decoration in wide vertical bands (10R 3/4 - Dusky red) on the outside. Paint fleeting and worn off at places.
Inclusions: Copious medium to large grits and lime, little mica. Some chaff.

Sample 26 (plate 26)
Period: EB II
Context: Lot nr. 1246: Room 107, +16.11 m floor
Ware: Red Gritty Ware
Shape: Pitcher with beaked spout
Wheel: No
Preserved Height: 5 cm

Macroscopic Observations
Clay Color: 2.5YR 5/8 - Red
Surface Color: 2.5YR 5/6 - Red
Firing: Slightly dark core
Surface Treatment: Outside is self-slipped and roughly smoothed in haphazard orientations.
Inclusions: Much small to medium grits and lime, little mica.

Sample 46 (plate 46)
Period: EB III
Context: Lot nr. 834: Room 30, top floor, + 9.35-9.65 m
Ware: Red Gritty Cooking Pot Ware
Shape: One-handled cup
Wheel: Yes
Diameter (rim): 16 cm
Preserved Height: 5.5 cm

Macroscopic Observations
Clay Color: 5YR 4/6 - Yellowish red
Surface Color: 7.5YR 6/4 - Light brown
Firing: Medium, no dark core
Surface Treatment: Self-slipped and roughly smoothed in horizontal strokes.
Inclusions: Copious medium to large lime and grits (some very large), few mica.

Sample 47 (plate 47)
Period: EB III
Context: Lot nr. 834: Room 30, top floor, + 9.35-9.65 m
Ware: Red Gritty Ware
Shape: Jar
Wheel: Yes
Diameter (rim): 24 cm
Preserved Height: 5.1 cm

Macroscopic Observations
Clay Color: 7.5YR 6/4 – Light brown
Surface Color: 2.5YR 6/8 - Light red  
Firing: Core slightly gray  
Surface Treatment: Self-slipped and smoothed  
Inclusions: Much small to medium (few large) grits, few mica and lime.

**Sample 50 (plate 50)**  
Period: EB III  
Context: Lot nr. 1134: Unburnt earth just under +11.95-12.13 m floor  
Ware: Burnished Red Gritty Ware  
Shape: Carinated bowl  
Wheel: Yes  
Diameter (rim): 24 cm  
Preserved Height: 3.9 cm  

**Macroscopic Observations**  
Clay Color: 7.5YR 6/4 – Light brown  
Surface Color: Same  
Firing: Gray core  
Surface Treatment: Self-slipped and burnished on the inside and outside with horizontal strokes. Burnishing is better and more lustrous on the outside.  
Inclusions: Some small to medium grits and lime. Few mica.

**Sample 51 (plate 51)**  
Period: EB III  
Context: Lot nr. 974-5: Room 62, +10.25 m floor  
Ware: Burnished Red Gritty Ware  
Shape: Pithoid  
Wheel: No  
Diameter (rim): 20 cm  
Preserved Height: 8.2 cm  

**Macroscopic Observations**  
Clay Color: 2.5YR 5/8 – Red  
Surface Color: Same  
Firing: No dark core  
Surface Treatment: Self-slipped and burnished with vertical strokes on the outside and with horizontal stokes on the inside. On the inside, burnishing becomes lighter farther away from the rim. Mottled at places due to differing firing conditions.  
Inclusions: Much small to medium grits and lime, few mica. Holes on the surface suggest spalting.

**Sample 54 (plate 54)**  
Period: EB III  
Context: Lot nr. 824: Room 30, top floor, + 9.35-9.65 m  
Ware: Light Clay Ware  
Shape: Bowl

219
Wheel: Yes
Diameter (rim): 30 cm
Preserved Height: 3.5 cm

**Macroscopic Observations**

Clay Color: 5YR 5/6 – Yellowish red
Surface Color: 10YR 6/4 - Light yellowish brown
Firing: No dark core
Surface Treatment: Self-slipped and lightly smoothed.
Inclusions: Some small to medium grits, less small lime, and some mica.

**Sample 57 (plate 57)**

Period: EB III
Context: Lot nr. 1022: Room 74, below + 10.00-10.30 m, hearth of Room 35
Ware: Light Clay Ware, painted
Shape: Unknown, but probably a large closed shape, like a pitcher
Wheel: No

**Macroscopic Observations**

Clay Color: 2.5YR 6/2 – Grayish brown
Surface Color: Outside 10YR 6/4, inside 2.5YR 5/2 - Outside light yellowish brown, inside grayish brown
Firing: Well fired
Surface Treatment: Outside self-slipped and lightly burnished in horizontal strokes. Inside smoothed with a hard tool in haphazardly oriented strokes. Painted decoration 2.5YR4/6 (red) consisting of two wide, parallel bands and two concentric inverted chevrons between them.
Inclusions: Some small to medium grits and lime, some mica.

**Petrographic Analysis**

**Sample 3**

Sample 3 has large and copious inclusions. It is very calcareous with subrounded to subangular calcite and limestone fragments. There are quartz, mudstone, and feldspars (weathered, but one showing a good cleavage). It is somewhat micaceous. There is a multimodal size range in inclusions indicating that this sample may have been intentionally tempered. It is optically active, therefore must have been exposed to low to medium firing range.

**Sample 4**

For sample 4 the dominant mineral is large mudstones with quartz and fossils embedded. There is also fine quartz. Calcareous inclusions have quartz infilling, creating quartz-cement type fragments. There is also chaff temper in this fabric.

**Sample 5**

220
The fabric of sample 5 is also very coarse and calcareous with large, subangular to subrounded calcite fragments. It is similar in mineral inclusions of sample 3, but does not contain as much feldspars. It is not as optically active as sample 3, hence, it was fired at a higher temperature.

**Sample 6**
Sample 6 has an iron-rich fabric and is only slightly calcareous. The mineral makeup of this fabric consists of fine quartz, feldspars, quartz-feldspars, sandstone (quartzite-like), and few mudstones.

**Sample 7**
Sample 7 also has an iron-rich fabric and is slightly calcareous (more so than sample 6). There is very fine micrite. Quartz, quartz-sandstone, few fine feldspars, and volcanic inclusion (possibly basalt) constitute the main inclusions. Calcium carbonate is altered to calcium oxide indicating that this vessel was high fired.

**Sample 8**
Sample 8 also has an iron-rich fabric. However, the groundmass is not very calcareous, but there are large calcareous inclusions. Other inclusions are quartz, quartzite, fine and few sandstones, feldspars, iron-rich mudstones, and volcanic fragments, like basalt.

**Sample 9**
Sample 9 also has an iron-rich fabric and is somewhat calcareous with large calcite inclusions and micrite. The fabric is coarse with much quartz, quartzite, quartz-sandstone, large mudstones, shale, few and fine feldspars, and volcanic fragments including basalt.

**Sample 10**
Sample 10 also has an iron-rich, but fine matrix (less fine than 6). It is somewhat calcareous. Quartz and quartz-sandstone, few and well-weathered feldspars, and few mica constitute the main inclusions.

**Sample 11**
Sample 11 has iron-rich fabric. It is calcareous with much calcite, calcite-mud, and fossils. There are fine quartz inclusions in both polycrystalline and metamorphic varieties and feldspars. There is also chaff.
Sample 26
Sample 26 has an iron-rich matrix and is very coarse. Mineral inclusions consist mainly of large quartz and quartz-sandstone particles. Feldspars are fine and weathered and there are also few mica types. The groundmass is not very calcareous, but there are many calcareous inclusions. Calcium carbonate is altered to calcium oxide indicating that this vessel was high fired.

Sample 46
Sample 46 does not have a very calcareous groundmass, but has large calcite inclusions where some angularity is present. There are also large quartz (including polycrystalline), quartzite, and mudstone particles. The inclusions are all in a good mix of angular and rounded particles. There is a strong orientation of the voids, but not the inclusions.

Sample 47
Sample 47 is less coarse and less calcareous than sample 46, but similar in its mineralogy. There is quartz and feldspars. Particles of mica-schist that displays some angularity suggest that they may have been added as temper.

Sample 50
The thin section of sample 50 shows calcareous inclusions. Quartz and quartz-sandstone have a bimodal distribution and could have been added as temper. There are also mudstones and fine feldspars.

Sample 51
Sample 51 is not very calcareous with much large, weathered and stressed quartz, quartzite, quartz-sandstone, feldspars constituting the main inclusions all in a well sorted mix. Iron-oxide and calcium segregation has occurred indicating that this vessel was high fired.

Sample 54
Sample 54 has small calcareous inclusions. There are also monocrystalline quartz, some metamorphic quartz-sandstone, quartz-mica schist, and feldspars.

Sample 57
Sample 57 also has a very fine fabric with many fine mono- and polycrystalline quartz. There are also several quartz-mica schist (or phyllite), some feldspars,
and few large iron-rich mudstones with undulating extinction. Some calcite and microfossils make up the calcareous component.

**XRD Analysis**

Quartz, coesite, kyanite, sapphirine, and ternesite are the most frequently encountered silicates.

The plagioclase feldspars that register for the members of this group consist mainly of albite, anorthite, bytownite, and labradorite. The alkali feldspars encountered most commonly are sanidine and microcline.

Mica type minerals generally consist of muscovite and sericite.

Pyroxene type minerals are higher for this fabric compared to Local Fabric I with enstatite, diopside, and ferrosilite being the most frequently attested.

Covellite is encountered in some of the samples.

**ESEM Analysis**

**Sample 3**
Sample 3 is in Intermediate Vitrification stage with isolated areas of glass formation.

**Sample 5**
Sample 5 is higher fired than sample 3 with more glass formation visible, but it is still in Intermediate Vitrification stage.

**Sample 6**

---

471 The XRD analysis shows that the fabrics of samples 3, 5, 51 are generally poor in minerals. Quartz and coesite are the main silicate minerals and mica type minerals constitute the second significant mineral type, with sericite being the most frequent. Sample 3 also has muscovite. There are also minerals uncommon in the main fabric groups encountered in these samples, like bavenite and anthophyllite for sample 3. Samples 50 and 51 are especially poor in mineral variety content. They have a micaceous fabric with muscovite and sericite being the dominant minerals. Quartz is the main silicate component. However, these differences are not reflected in the petrographic analysis. One has to conclude that the micro samples taken from these ceramics for XRD analysis fail to reflect the real composition of their clay.
Sample 6 has less calcareous, more iron-rich clay. The ESEM image shows that the clay has reached Continuous Vitrification stage with few small bloating pores present, but otherwise a smooth glass phase dominates. Hence, it was high fired.

Sample 8
The clay of Sample 8 has calcareous inclusions, but the groundmass is not calcareous, rather it is iron rich. Such "unstable" calcareous fabrics rather behave like non-calcareous clays when fired.\(^{472}\) The ESEM image of sample 8 shows a Continuous Vitrification stage. This vessel was high fired.

Sample 9
Sample 9 is similar to sample 8 in composition. However, sample 9 is fired in a reducing environment. It is also in Continuous Vitrification stage, but with coarse bloating pores. Vessels made of noncalcareous (or "unstable" calcareous) clays fired in a reducing atmosphere frequently form bloating pores in Continuous Vitrification stage.\(^{473}\) This vessel was high fired comparable to sample 8.

Sample 10
Sample 10 also has less calcareous and more iron-rich clay. The ESEM image of this sample shows a Final Vitrification stage with coarse bloating pores typical of noncalcareous clays. Hence, this vessel was very high fired (ca 1150-1200° C). This sample can be categorized as clinky in more traditional terminology.

Sample 11
The ESEM image of sample 11 shows that this vessel is in Intermediate Vitrification stage with dominant glass formation. It was medium fired.

Sample 50
Sample 50 is in Intermediate Vitrification stage. It was medium fired.

Sample 51
Sample 51 is in Intermediate Vitrification stage with some glass formation and no bloating pores. It was medium fired.

Sample 57
\(^{472}\) Maniatis and Tite, 1981, p. 68
\(^{473}\) Tite, et al., 1982a, pp. 65f; Maniatis and Tite, 1981, pp. 61-4.
Sample 57 is somewhat calcareous and calcareous inclusions are dispersed evenly. It is in Continuous Vitrification stage with fine bloating pores. Hence, it was high fired.

**EDAX Analysis**

<table>
<thead>
<tr>
<th>Sample #</th>
<th>CO₂</th>
<th>Na₂O</th>
<th>MgO</th>
<th>Al₂O₃</th>
<th>SiO₂</th>
<th>P₂O₅</th>
<th>Cl₂O</th>
<th>Y₂O₃</th>
<th>K₂O</th>
<th>CaO</th>
<th>TiO₂</th>
<th>FeO</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>0</td>
<td>2.285</td>
<td>2.2</td>
<td>15.44</td>
<td>75.065</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5.29</td>
<td>0</td>
<td>0</td>
<td>0.825</td>
</tr>
<tr>
<td>9</td>
<td>0</td>
<td>0</td>
<td>3.115</td>
<td>26.7</td>
<td>53.92</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7.32</td>
<td>1.095</td>
<td>0.935</td>
<td>6.92</td>
</tr>
<tr>
<td>10</td>
<td>0</td>
<td>1.665</td>
<td>4.35</td>
<td>24.62</td>
<td>62.41</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2.67</td>
<td>0.6</td>
<td>0</td>
<td>3.685</td>
</tr>
<tr>
<td>50</td>
<td>0</td>
<td>2.285</td>
<td>2.915</td>
<td>31.41</td>
<td>54.405</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3.495</td>
<td>0.91</td>
<td>0.53</td>
<td>4.045</td>
</tr>
<tr>
<td>Avg.</td>
<td>0</td>
<td>1.559</td>
<td>3.145</td>
<td>24.54</td>
<td>61.45</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4.694</td>
<td>0.615</td>
<td>0.366</td>
<td>3.869</td>
</tr>
</tbody>
</table>

The EDAX analysis shows that the members of Local Fabric III have very high levels of Al₂O₃ and SiO₂ compared to Local Fabric I members. Furthermore, CaO levels for these samples are very low. Aluminum is a known flux agent in clays facilitating higher vitrification levels at lower temperatures, which result in a less permeable and more insulated body.

**Formal Shape and Stylistic Analysis**

**Sample 3**
Sample 3 was categorized under the Cooking Pot Ware in the depots. Cooking Pot Ware was originally included under the Red Gritty Ware category by Mellink, but this class must have been categorized as a separate group at the time of the publication. However, in this analysis it is clear that Cooking Pot Ware is part of the Local Fabric III, which is the main fabric group incorporating the Red Gritty Ware. Its shape does not have exact parallels in the published Tarsus corpus. It could be a pot rim, or a very large deep bowl.

**Sample 4**
Sample 4 is a jar and was categorized in the depots as Soft Gritty Cooking Pot Ware. This utilitarian ware is in use at the site since the Ubaid period and is discontinued after EB I.

---

474 All values are in Weight Percentage.
475 Ben-Tor, 1992, p. 108.
476 The former excavators note that chaff is encountered in this ware group as tempering material (Goldman, 1956, p. 78). But sample 3 does not have chaff.
477 see Mellink Notes, p. 87.
478 For comparison see Goldman, 1956, fig. 346: 131: Soft Gritty Cooking Pot Ware, jar.
Sample 5
Sample 5 was identified as Red Gritty Pithos Ware by the excavators. These handmade storage vessels are produced throughout the EBA period and are only discontinued and replaced by the wheelmade counterparts in MBA. Plastic ridges, also encountered on this sample, are a typical feature on the pithoi. These large pithoi are one of hallmarks of the EB period at Tarsus-Gözlükule. The pithoi produced at Tarsus-Gözlükule are impressive in their size and manufacturing techniques. The artisanal aptness reflected in these vessels demonstrates that they must have been produced by skilled, professional potters.

Sample 6
Sample 6 is a cup and was classified as Thin Apricot Subgroup of Red Gritty Ware. The Thin Apricot Subgroup has much finer clay than the regular Red Gritty Ware. The shapes of this subgroup mostly consist of open forms, more specifically bowls and cups. This group starts by 26-27 m (beginning of EB I) and is not produced beyond EB I.

Samples 7, 8, 9
Samples 7, 8, 9 were categorized under the Red Gritty Painted Ware group. The clay matrix of this ware is the same as plain Red Gritty Ware. The painted decoration is regarded as a degenerated continuation of Chalcolithic Striped-painted Ware. The Painted Red Gritty Ware is generally an EB I occurrence, but few examples are also found in EB II. The dominant shape for this group is the pitcher, similar to the Plain Red Gritty Ware. Sample 7 is a red on red, sample 8 is a black on red, and sample 9 is a white on black example.

479 Goldman, 1956, p. 78.
480 Mellink Notes, p. 84.
482 Goldman, 1956, fig. 344: BP: Red Gritty Ware, Thin Apricot Subgroup, cup.
483 Goldman, 1956, p. 94, Mellink Notes, p. 70.
484 Mellink Notes, p. 73.
485 Goldman, 1956, p. 95.
486 Mellink Notes, pp. 67, 76.
488 Goldman, 1956, fig. 254: 235-238.
489 Samples 7, 8, 9: Goldman, 1956, p. 95 for EB I. Illustrations exist only for EB II. For sample 7 fig. 254: 238; for sample 8 fig. 254: 235; for sample 9 fig. 254: 236.
Sample 10
Samples 10 (consisting of two pieces) was categorized as Transitional Painted Ware, Apricot Subgroup by the former excavators. It is a cup with a vertical handle. sample 10 does not contain chaff. The former excavators remark that, unlike Red Gritty Painted Ware, the painted decoration for the Apricot Transitional Painted Ware only uses red paint. However, sample 10 has both red paint and traces of white paint, resembling more the Red Gritty Painted tradition in its use of multi-colors. There is really no reason not to simply group this under regular Red Gritty Apricot Subgroup. The fabric and production technique of sample 10 has stronger affinities to sample 6, rather than sample 11.

Sample 11
Sample 11 is a pitcher with rising cut-away spout. It was categorized as Transitional Painted Ware in the depots. This ware is distinguished from Red Gritty Ware in that, along with grits and lime, it also has chaff as a tempering agent. The decoration scheme of this ware is a descendant of the Chalcolithic Stripe-painted tradition. In terms of production technique it is a combination of the main Chalcolithic and EBA potting traditions. Its main distribution falls within 20-28 m (EB I).

490 Goldman, 1956, fig. 344: 59: Cup with vertical loop-handle (from Plain Thin Apricot Group, but the cup with vertical handle is also common for the painted examples).
491 Goldman, 1956, p. 95 (with one exception, nr. 68, which is trichrome).
492 For Red Gritty Painted Ware tradition see Mellink Notes, p. 67.
493 Goldman, 1956, fig. 237: 54: Transitional Red Painted Ware, pitcher (for ware type). For shape: fig. 262: 356: Pitcher with rising spout, EB II. Although the cut-away spout occurs within the Tarsus assemblage (see Mellink Notes, p. 68), it is not as common as the trefoil and rising spouts. Pitchers with cut-away spouts are more at home in west-central Anatolia. For closest in shape see, Mellink, 1964, pl. 80, fig. 16 from Karataş-Semahöyük necropolis. There, however, usually much steeply rising, elongated necks are more typical, like in Warner, 1994, pl. 172: e-f (Karataş-Semahöyük); Gürkan-Seeher, 1991, Abb. 12, Abb. 19: 4 has shorter neck, squat body (Küçükheuyük); Joukowsky, 1986, p. 394 (Aphrodisias) starting as of BA 1 here; Lloyd and Mellaart, 1962, shape 10 appearing in EB 1 (Beycesultan). From Alaca Höyük comes another example, see Koşay, 1944, pl. LXXII: 133, LXXIV top right, LXXV bottom right. From Gordion, see Gunter, 1991, pl. 18: 94.
494 Goldman, 1956, p. 95. But in Mellink Notes it is mentioned that in some cases there is no chaff temper, see p. 95.
495 Goldman, 1956, p. 95; Mellink Notes, p. 95.
496 Mellink Notes, p. 97.
its fabric and conforms very well to the typical characteristics of this ware. Pitcher with rising cut-away spout is a typical Anatolian shape.

**Sample 26**
Sample 26\(^{497}\) represents the typical characteristics of Red Gritty Ware of EB II period.

**Sample 46**
Sample 46 was categorized under the Red Gritty Cooking Pot Ware in the depots. This sherd possibly belongs to a one-handled cup.\(^{498}\) The strong orientation of the inclusions apparent in the thin section further confirms that this vessel was wheelmade. This bowl is an example of the start of wheel production in the manufacture of typical Red Gritty Ware vessels during EB III period.

**Sample 47**
Sample 47\(^{499}\) is wheelmade demonstrating the more widespread use of the wheel in this category.\(^{500}\) Earlier parallels (EB II) to this shape come from Syro-Anatolian region.\(^{501}\)

**Sample 50**
Sample 50 was grouped under Burnished Red Gritty Ware in the depots. This is a new treatment of the surface in the Red Gritty Ware category appearing in EB III, whereby only a self-slip is applied, and then the vessel is burnished. It is a

---

\(^{497}\) Goldman, 1956, figs. 249, 250: Red Gritty Ware, pitcher with rising spout. This pitcher type is common throughout south, central-western, and central Anatolian EB pottery assemblage.

\(^{498}\) Goldman, 1956, fig. 358: 654: Cooking Pot Ware, one-handled cup. But the handle rises above the rim line and the rim is less everted. Another possibility is the one-handled cup in the Red Gritty group; see fig. 274; 458, fig. 459: 358. Here, although the rim and the neck are in right proportions, again the handle rises above the rim line. In all examples of such shapes the handles are of the rising type, which is different from the stance of the handle of sample 46.

\(^{499}\) For shape Goldman, 1956, fig. 363: C, E. Handleless pithos, EB III.

\(^{500}\) It could be that only the rim and neck area of this vessel is wheelmade.

\(^{501}\) Tell Chuera: Kühne, 1976, Abb. 236 (Plain Simple Ware, pot, 1. Übergangsperiode – EB I-EB II Transition); Banat: Porter, 1999, fig. 1 on p. 317: middle left (Plain Simple Ware from kiln area belonging to Banat IV - 2600-2450 B.C.); Tell Hadidi: Dornemann, 1988, fig. 17: 12 (EB III-IV, Simple Ware); Kurban Höyük: Algaze, 1990, pl. 92: G (Period IV - 3\(^{rd}\) quarter of 3\(^{rd}\) millennium, Cooking Pot Ware).
carinated bowl. Although in the publication this shape is only represented by Red Burnished Light Clay Ware, in the Mellink notes one finds that carinated bowls also occur in the Red Gritty Ware category starting at 12-13 m level (i.e. very end of EB II). The shape finds parallels in the north Syrian region, but also in Troy.

Sample 51
Sample 51 was categorized as EB III Red Gritty Burnished pithoid in the depots.

Sample 54
The shape of sample 54 is not found among the Tarsus-Gözüküle repertoire, but a very similar shape is found in Mersin and from a survey conducted in the eastern Cilician coastal plain by Bilkent University. The grooved rims on bowls appear in the Syro-Anatolian region in EB III-IV periods.

Sample 57
Sample 57 was categorized as Painted Light Clay Ware in the depots. It is remarked in the publication that painted decoration is very rare during EB III.

Goldman, 1956, fig. 264: 400, 401, 402. Handleless carinated bowl, Red-slipped Burnished Light Clay Ware, EB III. Also attested at Kilise Tepe, see Symington, 2007, fig. 372: 302 (Hard orange fabric, unstratified, but treated under level Vf (EB III) in the publication).

Mellink Notes, p. 74. However, also in the publication it is noted that in this period the Red Gritty and Light Clay Wares start merging with each other, not only in the use of the wheel in the Red Gritty Ware category for the first time, but also in the fabric as well, whereby it becomes increasingly difficult to distinguish the two ware types, like in nrs. 400-402, pp. 132, 136.

Kühne, 1976, Abb. 187: Plain Simple Ware, bowl.

Blegen, et al., 1951, fig. 158: 33. 186 (Troy IV-EB IIIb). For this example the clay is red, but unlike sample 50, the vessel is slipped.

Goldman, 1956, fig. 364: 636: Red Slipped Red Gritty Ware, two-handled pithos. Sample 62 is a pithoid, but is similar in shape.

Goldman, 1956, fig. 365: 650: Cooking Pot Ware, open dish or bowl.

Garstang, 1953, p. 193, fig. 120 and fig. 123: 4, but it has a red slip. It is from unstratified levels, but dated to the latter half of the 3rd millennium.

Steadman, 1994, p. 94, fig 5: 20 classified as Simple Ware with orange slip and burnish.

Kurban Höyük: Algaze, 1990, pl. 61: H-I (Period IV - 3rd quarter of 3rd millennium, Plain Simple Ware) and pl. 99: A, C (Period III - EB IVa-b, Plain Simple Ware); Gre Vrike: Engin, 2007, fig. 18. 3: 7 (Plain Simple Ware, Period II (EB III-IV)); Tell Hadidi: Dornemann, 1990, pl. 18: 9 (EB IV), Tell es-Sweyhat: Danti and Zettler, 2007, p. 173, fig. 11.6 (Phase 3).

Goldman, 1956, fig. 272: 562, 563: Light Clay Ware, pitchers with painted decoration.

Goldman, 1956, p. 132.
At Tarsus-Gözlükule the types of vessels with painted decoration are limited to jars and pitchers.\textsuperscript{513}

\textsuperscript{513} Mellink Notes, p. 166.
Local Fabric IV

Sample 1 (plate 1)
Period: EB I
Context: + 25-26 m
Ware: Chaff-faced Coarse Ware
Shape: Jar
Wheel: No
Diameter (rim): 22 cm
Preserved Height: 5.6 cm

Macroscopic Observations
Clay Color: 10YR 6/4 – Light yellowish brown
Surface Color: Same
Firing: Medium with core black up to the surface
Surface Treatment: Self-slipped. Surface smoothed roughly with a hard tool.
Inclusions: Much chaff, small to medium lime and grits, little mica.

Sample 2 (plate 2)
Period: EB I
Context: + 28.00-29.00 m
Ware: Intermediate Light Ware
Shape: Bowl
Wheel: No
Diameter (rim): 13 cm
Preserved Height: 4.8 cm

Macroscopic Observations
Clay Color: 10YR 6/4 – Light yellowish brown
Surface Color: 10YR 7/4 - Very pale brown
Firing: Medium with a dark core and crumbly clay
Surface Treatment: Self-slipped and smoothed with horizontal strokes.
Inclusions: Some small to medium grits and lime, some chaff, and very little mica.

Sample 22 (plate 22)
Period: EB II
Context: Lot nr. 1252: Room 111, + 15.42 m floor
Ware: Light Slipped Chaff-faced Ware
Shape: Jar
Wheel: Yes
Diameter (rim): 24 cm
Preserved Height: 5.8 cm

Macroscopic Observations
Clay Color: 10YR 7/4 – Very pale brown
Surface Color: Same
Firing: There is a dark core, but the clay is dense and more compact
Surface Treatment: Self-slipped and smoothed in horizontal strokes.
Inclusions: Some small to medium lime. Some chaff, some mica.

**Sample 23 (plate 23)**

<table>
<thead>
<tr>
<th>Period:</th>
<th>EB II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Context:</td>
<td>Lot nr. 1206: Room 97, top floor, + 12.36 m</td>
</tr>
<tr>
<td>Ware:</td>
<td>Chaff-faced Coarse Ware</td>
</tr>
<tr>
<td>Shape:</td>
<td>Jar</td>
</tr>
<tr>
<td>Wheel:</td>
<td>No</td>
</tr>
<tr>
<td>Diameter (rim):</td>
<td>36 cm</td>
</tr>
<tr>
<td>Preserved Height:</td>
<td>5.5 cm</td>
</tr>
</tbody>
</table>

**Macroscopic Observations**

- **Clay Color:** 7.5YR 6/4 – Light brown
- **Surface Color:** Same
- **Firing:** Medium with dark core
- **Surface Treatment:** Self-slip? Smoothed in horizontal strokes around the rim area, in diagonal strokes elsewhere.
- **Inclusions:** Copious chaff. Some small to medium grits and lime, some mica.

**Sample 25 (plate 25)**

<table>
<thead>
<tr>
<th>Period:</th>
<th>EB II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Context:</td>
<td>Lot nr. 1249: Room 109, + 17.97 m floor</td>
</tr>
<tr>
<td>Ware:</td>
<td>Coarse Cooking Pot Ware</td>
</tr>
<tr>
<td>Shape:</td>
<td>Pan</td>
</tr>
<tr>
<td>Wheel:</td>
<td>No</td>
</tr>
<tr>
<td>Diameter (base):</td>
<td>&gt; 46 cm</td>
</tr>
<tr>
<td>Preserved Height:</td>
<td>22 cm</td>
</tr>
</tbody>
</table>

**Macroscopic Observations**

- **Clay Color:** 7.5YR 6/4 – Light brown
- **Surface Color:** Same
- **Firing:** Low. Soft and very crumbly
- **Surface Treatment:** Inside roughly smoothed with horizontal strokes, outside left very rough.
- **Inclusions:** Copious chaff, medium to large grits, little mica, and few shell and lime particles.

**Sample 45 (plate 45)**

<table>
<thead>
<tr>
<th>Period:</th>
<th>EB III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Context:</td>
<td>Lot nr. 953: Room 56, burnt floor at + 9.75 m</td>
</tr>
<tr>
<td>Ware:</td>
<td>Cooking Pot Ware</td>
</tr>
<tr>
<td>Shape:</td>
<td>Pan</td>
</tr>
<tr>
<td>Wheel:</td>
<td>No</td>
</tr>
<tr>
<td>Diameter (rim):</td>
<td>30 cm</td>
</tr>
<tr>
<td>Diameter (base):</td>
<td>28 cm</td>
</tr>
<tr>
<td>Preserved Height:</td>
<td>5.2 cm</td>
</tr>
</tbody>
</table>

**Macroscopic Observations**

- **Clay Color:** 5YR 5/6 – Yellowish red
- **Surface Color:** Same
Firing: Low. Soft and crumbly. Dark core at thicker parts
Surface Treatment: Inside very lightly burnished. The rim and outside wall roughly smoothed with a hard tool. Outside bottom is left very rough and two small holes are visible.
Inclusions: Copious medium to large grits and lime, some chaff, little mica.

Petrographic Analysis

Sample 1
The dominant inclusion of sample 1 is the chaff temper. The mineral inclusions consist of coarse, eroded feldspars and quartz. Calcareous inclusions are angular limestone, copious shell in various sizes, and microfossils. The angularity of limestone suggests that it may have been added intentionally as temper.

Sample 2
For sample 2 plentiful feldspars, including the plagioclase and quartz (some polycrystalline) comprise the dominant mineral inclusions. Feldspars are weathered, quartz is less so. There is also little chert, mudstones, and few mica. Copious calcite and shell constitute the calcareous inclusions. There are also fossils (gastropod and radiolarian identified), some embedded in mudstones. There is also some amount of chaff.

Sample 22
Sample 22 has fine fabric. There is some fine micrite. Also some fine polycrystalline quartz, few mica, and feldspars can be observed. The main aspect though is the many organic fibrous voids in wheel orientation confirming the chaff temper. Segregation of calcium and iron suggests high firing temperatures.

Sample 23
The clay matrix of sample 23 has chaff as the main tempering agent. However, the mineral inclusions are coarser and more copious compared to sample 22 and consist of quartz, much feldspars (some plagioclase), and little mica. There is much calcite (with visible twinning) and microfossils observable.

Sample 25
The fabric of sample 25 consists of very fine clay with many organic voids remaining from chaff temper. It has fewer mineral inclusions than sample 23,
consisting mainly of quartz (both mono- and polycrystalline) and microfossils, but also some mica.

Sample 45
The clay matrix of sample 45 is highly calcareous, consisting of large limestones and shell. Mineral inclusions consist of plagioclase feldspars, stretched quartz, quartzite, and chert. Mica types also exist, including muscovite mica. There are also long, fibrous voids visible suggesting that organic temper was added to this clay.

XRD Analysis
Quartz and coesite are the most frequently encountered silicas.

The plagioclase feldspars that register for the members of this group consist mainly of albite, anorthite, bytownite, and labradorite. The alkali feldspars most commonly encountered are sanidine and microcline.

Sericite is the most common mica type mineral.

Pyroxene type minerals are high for this fabric group with enstatite, kanoite, and ferrosilite being the most frequently attested.

Covellite is encountered in some of the samples of this group.

ESEM Analysis
Sample 1
Sample 1 shows some glass phase with no bloating pores. Hence, this sample was medium to high fired.

Sample 2
Sample 2 shows Intermediate Vitrification with fine bloating pores. The clay of this sample is calcareous and has high hematite content. The Intermediate Vitrification stage and fine bloating pores suggest that this vessel might have been medium fired.

Formal Shape and Stylistic Analysis
Sample 1
Sample 1 is a jar with a shape typical of Late Chalcolithic period,\(^{514}\) which shows that the Chalcolithic period shapes were still in use during EB Ia.\(^{515}\) It is of the coarse variety of Chaff-faced Wares, which is more frequent in the early phases of EBA.\(^{516}\)

**Sample 2**
Sample 2 is a bowl\(^{517}\) and was categorized under the Intermediate Light Ware class in the depots. This class of pottery displays combined characteristics of the Red Gritty and the Chalcolithic Smooth-faced Light Slipped Wares, and it only exists in the early part of EB I.\(^{518}\) Handmade coarse bowls are the main shape appearing in this category of which sample 2 is a typical example.\(^{519}\) It should also be noted that these bowls resemble the Light Clay Ware bowls in shape very much.

**Sample 22**
Sample 22\(^{520}\) is a Light Slipped Chaff-faced Ware jar from the EB II period, and it is wheelmade. It is reported by the former excavators that the surface of these ware types usually attains a low burnish,\(^{521}\) but this is not the case for sample 22, which is only smoothed. This group is one of the dominant ware types until the end of EB II.\(^{522}\) Sample 22 finds close parallels in shape in the Syro-Anatolian region.\(^{523}\)

**Sample 23**

---

\(^{514}\) For comparison see Goldman, 1956, fig. 343: R: Coarse Chaff-faced jar.

\(^{515}\) Given that EB Ia is a Late Chalcolithic/Transitional EBA level, this is not surprising.

\(^{516}\) Mellink Notes, p. 33.

\(^{517}\) For comparison see Goldman, 1956, fig. 234: 48, Intermediate Light Ware, bowl.

\(^{518}\) Goldman, 1956, p. 93; Mellink Notes, p. 94.

\(^{519}\) Mellink Notes, p. 94; Goldman, 1956, p. 93.

\(^{520}\) Goldman, 1956, fig. 347: AO: Light-slipped Chaff Faced Ware, jar. This jar type has strong parallels in Amuq F; see Braidwood and Braidwood, 1960, p. 236, fig. 176: 9-23. Mellink in her notes mentions that the Light Slipped Chaff-faced Ware is closely related to the Chaff-faced Simple Ware tradition of Amuq F, see Mellink Notes, p. 35.

\(^{521}\) Mellink Notes, p. 35.

\(^{522}\) Mellink Notes, p. 36.

\(^{523}\) Tell Hadidi: Dornemann, 1988, fig. 7: 17 (EB II); Gre Vrike: Engin, 2007, p. 268, fig. 18.1: 8 (in Plain Simple Ware, EB I-II); Kurban Höyük: Algaze, 1990, pl. 40: B (Chaff-faced Ware, Period VI - Late Chalcolithic).
Sample 23 belongs to a coarser variety of Chaff Tempered group, and it is handmade. The coarse Chaff Tempered Ware is most dominant in EB I, but it nevertheless continued to be produced in small numbers until the end of EB II. Parallels to this shape come from Syro-Anatolian sphere.

Sample 25
Sample 25 is a pan. It was categorized as a Coarse Chaff-faced Cooking Pot Ware in the depots. It is noted by the former excavators that the Chaff-faced Wares are part of the cooking pot repertoire in the early parts of EBA. In later phases they become grittier. However, in the transition one can find a variety of chaff to grit ratios and a shared profile range. But the former excavators also note that the pan shape is usually found within the Cooking Pot Ware category. As of Amuq G, shallow platters start appearing in large numbers within the Simple Ware category, which would be the closest parallels in shape to this sample.

Sample 45
Sample 45 is also a pan and was categorized as Cooking Pot Ware in the depots. Mellink notes that the pans usually occur in a soft and crumbly, low-fired fabric. Their inner surface has a low burnish. A very characteristic aspect of these pans is that they have holes on their bases, which do not always penetrate the entire cross-section of the vessel. They were probably executed with a pointed tool. It is suggested that they enable the moisture to escape during cooking. These holes could be facilitating a greater thermal resistance to the vessel by allowing the moisture to escape and reduce the shrinkage during heating when exposed to direct heat. One such hole is visible on the base of

---

524 Goldman, 1956, fig. 347 AO: Light Slipped Chaff-faced Ware, jar.
525 Mellink Notes, p. 38.
526 Kurban Höyük: Algaze, 1990, pl. 40: A (Chaff-faced Ware, Period VI - Late Chalcolithic).
527 Goldman, 1956, figs. 276, 365: 667; fig. 280: 668: Cooking Pot Ware, pan (EB III). For EB II: fig. 252: 305.
528 This aspect is not treated in the publication, but Mellink Notes provide a more detailed account of this process. See Mellink Notes, p. 37.
529 Mellink Notes, p. 90.
530 Braidwood and Braidwood, 1960, p. 266, fig. 203: 1. Although these platters belong to the Simple Ware category, the excavators remark that in some instances Simple Ware vessels were tempered with chaff.
531 Tarsus fig 280: 668, Cooking Pot Ware, pan.
532 Mellink Notes, p. 89.
533 See description for nr. 668 in Goldman, 1956, p. 158.
sample 45. There are exact parallels to this peculiar vessel type in the Amuq J.\textsuperscript{534} At Troy I, similar pans also make an appearance, but they lack the perforations on their bases.\textsuperscript{535} At Cyprus during the Philia phase, very similar pans with perforation on their base are frequently attested.\textsuperscript{536} They arrive there as part of the sweeping changes with strong Anatolian affiliation, which defines the Philia phase.

\textsuperscript{534} Braidwood and Braidwood, 1960, pp. 432, 434, fig. 334: 22, 23 (Amuq J-EB III). Schwartz (Schwartz, et al., 2003, p. 329) mentions that cooking ware trays with pitted bottoms appear at Umm el-Marra by Period IV (EB IVB).
\textsuperscript{535} Blegen, et al., 1950, pp. 56 and 75, shape D 23.
\textsuperscript{536} Swiny, 1986, p. 37.
Local Fabric V

Sample 13 (plate 13)
Period: EB I
Context: + 24.00-24.50 m
Ware: Red Burnished Ware
Shape: Pot
Wheel: No
Preserved Height: 2.6 cm

Macroscopic Observations
Clay Color: 10YR 6/4 - Light yellowish brown
Surface Color: 2.5YR 4/4 - Reddish brown
Firing: Dark core. Crumbly
Surface Treatment: Slipped and burnished with horizontal strokes. Slip is cracking and peeling at places. Outside is more lustrous and soapy than the inside.
Inclusions: Some medium to large grits and lime. Some chaff. Rare mica.

Sample 14 (plate 14)
Period: EB I
Context: + 21.00 m floor
Ware: Red Burnished Ware
Shape: Bowl
Wheel: No
Diameter (rim): 24 cm
Preserved Height: 4.3 cm

Macroscopic Observations
Clay Color: 7.5YR 5/8 to GLEY1 2.5/N - Strong brown to black
Surface Color: 10R 4/8 to GLEY1 2.5/N - Red to black
Firing: Medium
Surface Treatment: Slipped and burnished in horizontal strokes. Slip crackly at places. The surface is very lustrous, but the outside is burnished better than the inside. Surface color varies due to oxidizing conditions. The outside is bright red and the rim and inside is black. The black surface penetrates into the body of the vessel until the midpoint where the color abruptly changes to red.
Inclusions: Fine to small grits and lime, rare mica.

Sample 15 (plate 15)
Period: EB I
Context: + 22.00 m
Ware: Red Burnished Coarse Ware
Shape: Jar
Wheel: No
Diameter (rim): 40 cm
Preserved Height: 6.3 cm

Macroscopic Observations
Clay Color: 2.5YR 6/8 - Light red
Surface Color: 10YR 4/8 - Red
Firing: Dark core
Surface Treatment: Inside and outside slipped. The slip thicker on the inside and thinner and worn off on the outside. Both sides burnished with horizontal strokes, but burnish is lustrous on the inside and matt and lighter on the outside.
Inclusions: Some medium to large grits and lime. Rare mica. There are holes on the surface suggests spalting.

Petrographic Analysis
Sample 13
The fabric of sample 13 is fine and iron-rich. The calcareous inclusions consist of calcium oxide, indicating that the vessel is medium to high fired. Fine quartz and plagioclase feldspars (some angular) are the main mineral inclusions. Elongated metamorphic rock fragments can also be observed where mica and quartz are embedded in argillaceous rock fragments. There are also many voids remaining from burnt-out vegetable temper.

Sample 14
The clay matrix of sample 14 is similar to sample 13, but coarser with a better size distribution. The fabric is more sandy than calcareous and the mineral inclusions consist of copious quartz, plagioclase and alkali feldspars (microcline identified) many in unaltered form, muscovite mica, and perhaps granite. Quartz fragments are mainly subangular to angular, but there are also subrounded ones. Calcite, shell, and fossil inclusions make up the calcareous component. They were not much altered by firing and preserved their original form, hence this vessel was low fired.

Sample 15
The clay of sample 15 has a fine groundmass with much coarse mineral inclusions, including quartz, feldspars, limestone, mica, and possibly chert. There is an opaque mineral present. There are also shell and fossil particles. Limestone and quartz are mainly rounded, but some are angular. Perhaps additional limestone and quartz were supplemented intentionally as tempering agent into the clay.

XRD Analysis
Most dominant minerals registered in the XRD phase diagram of the samples belonging to this group are feldspars with andesine, anorthite, bytownite, and labradorite constituting the plagioclase feldspars, and microcline and sanidine constituting the alkali feldspars.

Quartz and covellite are also found in all of the members of this group.
Pyroxenes are generally low with enstatite being the most frequently encountered pyroxene mineral.

Mica type minerals are also low for the samples of this group with muscovite being the most common.

**Formal Shape and Stylistic Analysis**

**Sample 13**
Sample 13\(^{537}\) is a hole-mouth pot of Red Burnished Ware category and belongs to the early phases of EB I. Its slip is crackly and worn off at places, but the surface has a soapy feel in general. Especially early in the EBA period some Light Slipped Chaff-faced Wares are red burnished, which would explain the vegetable temper in this sample.\(^{538}\) This sample finds parallels in shape, fabric, and surface treatment to the Ubaid Chaff-faced Red Burnished Ware tradition of Tarsus, which is related to the Chalcolithic Red Burnished Chaff-faced Ware tradition of Amuq.\(^{539}\)

**Sample 14**
Sample 14\(^{540}\) is a Red Burnished Ware bowl from EB I. The surface color is bright red on the outside and black on the inside and around the rim area. This bowl was fired upside down cutting off the oxygen to the inside and the rim area intentionally achieving a stark color difference.\(^{541}\) Burnishing provides a good luster and a soapy feel. This type of Red Burnished Ware (also called Black-topped Ware) is common in the region\(^{542}\) and beyond.\(^{543}\)

---

\(^{537}\) Goldman, 1956, fig. 345: 101: Plain Red Burnished Ware, one-handled bowl or large cup.

\(^{538}\) Mellink Notes, p. 35.

\(^{539}\) Chaff tempered vessels are generally closely related to the Amuq region, see Braidwood and Braidwood, 1960, p. 239. Hole-mouth jars occur within the Chaff-faced category during Amuq F, see p. 236, fig. 176: 1, 2, 4 and p. 239 for Red Burnished Chaff-faced Ware tradition in Amuq.

\(^{540}\) Goldman, 1956, fig. 345: BG: Plain Red Burnished Ware, bowl.

\(^{541}\) This surface treatment is common in this group, see Goldman, 1956, p. 96.

\(^{542}\) At Mersin-Yumuktepe, vessels with red/brown and black color difference are encountered as of level XII A, see Garstang, 1953, pp. 190f., fig. 119: 15, 19-21. But the shapes are different. Similar shapes appear at levels XIII-XIV, pp. 198f., fig. 123: 17. At Mersin, differentiated fired vessels disappear by level X. Only one example comes from Kilise Tepe: Symington, 2007, pp. 302f., fig. 369: 218 (level Vi-EB II).

\(^{543}\) Konya Plain: Mellaart, 1963, p. 215, fig. 8: 3. Also encountered in the Elbistan Plain in southeastern Turkey as of EB II and continues into EB III, see Brown, 1967, p. 146, fig. 12 for examples.
Sample 15
Sample 15\textsuperscript{544} was categorized as Red Burnished Coarse Ware in the depots. This type seems to be more frequent in larger storage vessels, like jars and pitchers. The slip is usually thick and has a low burnish.\textsuperscript{545}

\textsuperscript{544} For shape: Tarsus fig 345: AN: Plain Black Burnished Ware, jar.
\textsuperscript{545} Mellink Notes, p. 18.
Scored Ware

Sample 21 (plate 21)
Period: EB I
Context: + 23.00 - 24.00 m
Ware: Not categorized in the depots
Shape: Cannot be determined, but a large, closed vessel.
Wheel: No
Macroscopic Observations
Clay Color: 7.5YR 6/4 – Light brown
Surface Color: 10R 3/2 to 10R 4/6 - Dusky red to red
Firing: No dark core
Surface Treatment: First striations are made with a hard pointed tool in varying orientations, creating a combed-like surface. Then a thick slip is applied, which is very lightly burnished.
Inclusions: Copious medium to large grits, very little mica.

Sample 27 (plate 27)
Period: EB II
Context: Lot nr. 1249: Room 109, + 17.97 m floor
Ware: Red Gritty Combed Ware
Shape: Cannot be determined, but a large, closed vessel
Wheel: No
Macroscopic Observations
Clay Color: 5YR 5/6 – Yellowish red
Surface Color: 2.5YR 4/6 - Red
Firing: No dark core, but clay crumbly
Surface Treatment: The surface is scored with a sharp, pointed tool. The tool marks are of varying and haphazard orientation. Then a thick, red slip is applied and lightly burnished.
Inclusions: Copious medium to large grits and lime.

Petrographic Analysis
Sample 21
Sample 21 has iron-rich clay. It is somewhat calcareous with finely dispersed calcite inclusions. The other dominant mineral consists of many fine quartz grains. There are also some mica and mudstones with quartz component. Iron and calcite segregation suggests high firing conditions.

Sample 27
Sample 27, on the other hand, has a coarser matrix, which is calcareous. It also has an iron-rich fabric. Main identified inclusions are mudstone, quartz-sandstone, quartz, few and fine feldspars, and a little mica, including muscovite.

**XRD Analysis**

The XRD analysis shows that these two samples are dissimilar in their mineralogy.

**Sample 21**

Sample 21 has along with quartz, some unusual silicates (mainly carbonate based minerals, like kutnohorite and latiumite) and phosphates (like arrojadite and monetite) not commonly found within the Tarsus-Gözlükule local fabric groups. Feldspars do not display a wide variety, and mainly consist of albite and sanidine. There are relatively high levels of pyroxenes including enstatite, ferrosilite, diopside, and pigeonite. Mica type is restricted to muscovite.

**Sample 27**

For sample 27, the main mineralogical component consists of silicates, like quartz, coesite, sapphirine, and serendibite. Sericite represents the mica group. Pyroxenes are lower with diopside being the only registered pyroxene. This sample also has some unusual minerals, like meionite, a carbonate-rich silicate, and anthophyllite, a metamorphic mineral from amphibole group not commonly encountered within the local fabric groups at Tarsus-Gözlükule.

**ESEM Analysis**

**Sample 21**

Sample 21 was high fired. The ESEM image shows that it has reached Continuous Vitrification phase with fine to coarse bloating pores.

**Sample 27**

Sample 27 was medium fired. The ESEM image shows that this sample is in Intermediate Vitrification stage typical of calcareous clays.

**Formal Shape and Stylistic Analysis**

**Sample 21**

The surface of Sample 21 has a thick, red to dark red slip, which was applied after it was scored with a hard pointed tool in varying orientations creating a
haphazard combed effect. It probably belonged to a large, closed vessel. The find level of this sherd indicates a late EB Ia context.

Sample 27
Sample 27 comes from an EB II context. It has a purplish red, thick slip, which was applied after the surface was scored with a pointed tool in haphazard orientations. Like sample 21, it also must have belonged to a closed vessel. The surface is mottled. It was grouped with Red Gritty Combed Ware in the depots.

This class of pottery is not treated systematically in the Tarsus publications,\(^{546}\) which results in a misapprehension that this ware type is not represented strongly at Tarsus-Gözükule. However, as shown here, Scored Ware existed in Tarsus EB I-II repertoire consistently, albeit in small numbers.

\(^{546}\) Goldman, 1956, pp. 97, 109, 121f.: 263-9 are deemed to be Scored Ware, but the striations bear no resemblance to sample 21. Rather, the real Scored Ware, which also exists in Tarsus, is categorized under Cooking Pot Ware for EB I: fig. 243: 125, 127, 128, 137 and under Red Gritty Combed Ware for EB II: fig. 252: 244-245a-b (but not all examples categorized under Red Gritty Combed Ware are Scored Ware type).
Cross-Stitch Incised Ware

Sample 28 (plate 28)
Period: EB II
Context: Lot nr. 1216: Room 98, + 13.41-14.42 m floor
Ware: Red Gritty Cross-Stitch Incised
Shape: Jar
Wheel: Yes
Preserved Height: 3.6 cm
Macroscopic Observations
Clay Color: 2.5YR 4/8 – Red
Surface Color: Same
Firing: Very well, clinky
Surface Treatment: Outside is self-slipped and burnished in vertical strokes. Then incised chevron and diamond patterns were applied while the clay was wet.
Inclusions: Some fine to small grits and lime. The clay is overall well treated.

Sample 29 (plate 29)
Period: EB II
Context: Lot nr. 1246: Room 107, + 16.11 m floor
Ware: Red Gritty Cross-Stitch Incised
Shape: Jar
Wheel: Yes
Preserved Height: 2.2 cm
Macroscopic Observations
Clay Color: 2.5YR 4/8 – Red
Surface Color: 2.5YR 5/6 - Red
Firing: Very well, clinky, but less than sample 28.
Surface Treatment: Outside is self-slipped and very low burnished in horizontal strokes. Then incised diamond patterns were applied in a band around the carination while the clay was wet.
Inclusions: Some small to medium grits and lime, little mica.

Petrographic Analysis
Sample 28
Sample 28 is very sandy with well-sorted inclusions and not very calcareous. There is calcite with twinning and cleavage and some microlite with microfossils. Other inclusions are well-sorted and consist of stretched metamorphic quartz, mono- and polycrystalline quartz, feldspars (including plagioclase), and mica.

Sample 29
Sample 29, on the other hand, is different from sample 28. There is a more bimodal distribution of inclusions with a finer groundmass, meaning that this
vessel was intentionally tempered. Dominant mineral is quartz-sandstone. There is also quartz and shale. Hence, a more sedimentary rich clay source must have been used in the production of this vessel. It is also less calcareous than sample 28.

**XRD Analysis**
The XRD analysis also confirms that these two samples are very different from each other. Sample 28 is high in plagioclase feldspars (anorthite, bytownite, and labradorite), contains pyroxenes (especially enstatite), and has the rare mineral sapphirine.

Sample 29, on the other hand, is high in mica variety (biotite, muscovite, phlogopite, and sericite) and in alkali feldspars (microcline and sanidine).

**ESEM Analysis**

**Sample 28**
Sample 28 is not very calcareous and is very iron-rich. ESEM image shows that the clay has reached smooth glass formation. This sample is in Intermediate to Continuous Vitrification stage. It was high fired.

**Sample 29**
Sample 29 is not very calcareous and has iron-rich clay. The smooth glass formation is advanced. This vessel is also in Intermediate to Continuous Vitrification stage. It was high fired.

**Formal Shape and Stylistic Analysis**

**Samples 28 and 29**
Samples 28 and 29 are sherds of typical Cross-Stitch Incised Ware vessel type. In Tarsus-Gözlükule this ware type starts by the beginning of EB II and ends by the end of it. Moreover, at this settlement this ware only occurs in the specific wheelmade jar shape with a high neck and flaring rim and a strong carination at the shoulder. This group had a very standard incised decoration usually applied to the neck and to the upper part of the vessel consisting of

---

547 Tarsus II, figs. 255, 348: 278 and fig. 255: 281b: Red Gritty Cross-stitch Incised Ware, jar.
548 Tarsus II, fig. 255: 280: Red Gritty Cross-stitch Incised Ware, jar.
549 Mellink Notes, p. 80.
running diamonds in a straight or zigzag band sometimes accented with a single diamond in between, straight parallel lines, cross-hatched bands, and hatched running triangles. The incisions were made after the slip was applied, and the vessel was burnished.551

The former excavators treat this category as a subgroup of the typical Red Gritty Ware type only with better purified clay,552 but the petrographic analysis shows that there are marked deviations from the Local Fabric III group. The former excavators also mention that this ware type might be related to Brittle Orange Ware of Amuq J-I.553

552 Tarsus II, p. 109; Mellink Notes, p. 79.
Chevron Incised Fabric

Sample 30 (plate 30)
Period: EB II
Context: + 11.56-11.74 m
Ware: Red Gritty Chevron Incised Ware
Shape: Jar/pitcher
Wheel: No
Preserved Height: 4 cm?

Macrosopic Observations
Clay Color: 2.5YR 4/8 – Red
Surface Color: 2.5YR 3/1 – Dark reddish gray
Firing: Clinky with alternating laminations of gray and red in the cross-section.
Surface Treatment: Slipped thinly outside and inside until the neck. The slip non-homogeneously applied. Outside is lightly burnished. There are two parallel, thin, horizontal, incised bands on the neck and two vertical rows of chevrons incised below the bands.
Inclusions: Some fine to small grits and lime, rare mica. The clay is overall well treated and compact.

Sample 31 (plate 31)
Period: EB II
Context: + 14.40 m
Ware: Red Gritty Chevron Incised Ware
Shape: Jar/pitcher?
Wheel: No
Preserved Height: 5.3 cm?

Macrosopic Observations
Clay Color: 2.5YR 5/8 – Red
Surface Color: 2.5YR 3/1 – Dark reddish gray
Firing: Clinky, but alternating laminations of gray and red in the cross-section.
Surface Treatment: Slipped thinly and lightly burnished outside. The slip is flaking off at places. There are two vertical rows of chevrons incised on the shoulder.
Inclusions: Some fine to small grits and lime (few medium), rare mica. The clay is overall well treated and compact.

Petrographic Analysis
Sample 30
Sample 30 is similar in its fabric to sample 29, but not as sandy. The fabric is fine and iron-rich with some larger inclusions. Bimodal grain size is indicates that it was intentionally tempered. Dominant minerals are quartz, quartzite, quartz-sandstone, quartz-siltstone, some polycrystalline quartz, and mica. There is also some calcite.
Sample 31
Sample 31 is very similar to sample 30. It also has bimodal distribution with
dominant minerals being quartzite, quartz-sandstone and quartz-siltstone and
some polycrystalline quartz. There is also some calcite.

XRD Analysis
The two samples are very similar in their phase diagram. They have no
feldspars and low levels of pyroxenes. Quartz constitutes the dominant silicate
for both of them. Sample 30 also has sapphirine and serendibite. From the mica
group sericite occurs in both, with sample 31 also containing biotite and
phlogopite.

ESEM Analysis
Sample 30
Sample 30 is not very calcareous and has iron-rich clay. It is in Continuous
Vitrification stage with smooth glass formation throughout the body. It is high
fired.

Formal Shape and Stylistic Analysis
Samples 29 and 30
Samples 29 and 30 show the typical characteristics of the Chevron Incised Ware
type. The ware type occurs exclusively in EB II and its distribution falls within
19-10 m. The vessels of this group are limited to two shapes: the squat jar
and the pitcher with rising spout. The decoration is applied on a reserve area
left unburnished and has a limited arrangement consisting of one to three rows of
vertical chevrons reaching from neck to the maximum diameter and spiraled
incisions on the neck. Unlike Cross-Stitch Incised Group, the vessels of this
group are handmade.

The cross-section of samples 30 and 31 show laminations of dark and red clay,
which is usually a result of alternating oxidizing/reducing stages applied during

554 Tarsus II, figs. 254, 348: 270-277: Red Gritty Chevron Incised Ware, pitcher/jar for both
samples.
555 Mellink Notes, p. 78.
556 Tarsus II, p. 109; Mellink Notes, p. 77.
557 Tarsus II, p. 109; Mellink Notes, p. 77.
firing. For both samples the clay is red just below the surface, but the outside surface is reddish gray, indicating that the slip used fires darker than the clay body. This is further confirmed by sample 30, which is only slipped to the neck on the inside and the remaining non-slipped area is red.

In the publication, like the Cross-Stitch Incised Group, this type is treated as a subgroup of the Red Gritty Ware. However, like the Cross-Stitch Incised Group, the matrix of this fabric does not conform to the typical parameters of the Local Fabric III group. Moreover, these vessels are very idiosyncratic in their shape and surface treatment with no parallels within the Tarsus-Gözlükule repertoire. They also appear in very limited numbers. Hence, they are certainly non-local to Tarsus-Gözlükule.

---

559 Tarsus II, p. 109; Mellink Notes, p. 77.
560 It is mentioned that there exists one example in regular Red Gritty Ware displaying the characteristic decoration of this group, see Tarsus II, pp. 109 and 118, fig. 249: 221. This single example might be an indication of local imitation.
Anatolian Metallic Fabric

Sample 38 (plate 38)
Period: EB II
Context: Lot nr. 1235: Room 103, + 15.22-15.88 m floor
Ware: Light Clay Miniature Lug Ware
Shape: Jar/pitcher?
Wheel: No

Macroscopic Observations
Clay Color: 10YR 6/6 – Brownish yellow
Surface Color: 10YR 4/1 – Dark gray
Firing: Clinky, no dark core
Surface Treatment: Slipped and smoothed in horizontal strokes. The slip applied non-homogeneously, and the body of the vessel shows through the slip at places. Around the shoulder there is painted decoration in shiny black (10YR 2/1) rendering a band and dots below it. Inside is roughly smoothed.

Inclusions: Copious small grits and some lime. Holes on the surface suggest spalting.

Sample 39 (plate 39)
Period: EB II
Context: Lot nr. 1246: Room 107, + 16.11 m floor
Ware: Light Clay Miniature Lug Ware
Shape: Jar/pitcher? Handle penetrates the wall of the vessel.
Wheel: No

Macroscopic Observations
Clay Color: 10YR 3/2 – Very dark grayish brown
Surface Color: Outside 10YR 5/4, inside 10YR 3/1 – Outside yellowish brown, inside very dark gray
Firing: Clinky, no dark core
Surface Treatment: Slipped and lightly burnished on the outside in horizontal and diagonal strokes. Color varies due to firing. Painted decoration (10R 3/3 - dusky red) renders a band and dots on the shoulder, and a circular blob around the handle. The handle is also painted.

Inclusions: Copious small to medium grits and some lime.

Petrographic Analysis
Sample 38
Sample 38 has much small serpentinite, some quartzite, and quartz. There are also some calcite inclusions, but the fabric matrix is not calcareous.

561 Analysis on Anatolian Metallic Ware from Göltepe confirms high amounts of serpentinite occurring in the fabric of these vessels, see Friedman, 2000, p. 170.
Sample 38
Sample 39 is very similar to sample 38 with small serpentinite mineral inclusions along with some quartzite and quartz. Calcite inclusions are somewhat more than in sample 38, but similarly the matrix itself is not calccareous.

XRD Analysis
Samples 38 and 39 form a very tight group in their phase diagrams. They are high in pyroxenes (diopside, enstatite, pectolite, augite, and pyroxene), but contain no feldspars. They are both low in mica levels (margarite) and silicates (kyanite, olivine, and sapphirine).

ESEM Analysis
Sample 38
Sample 38 is "unstable" calcareous and is very iron-rich. It is in Intermediate to Continuous Vitrification stage with smooth glass formation without bloating pores consistent with noncalcareous and "unstable" calcareous clays. It was relatively high fired.

Formal Shape and Stylistic Analysis
Samples 38 and 39
At Tarsus-Gözlükule, the shapes of the vessels from this group are limited to closed storage and pouring vessels, like jars and pitchers and samples 38 and 39 are typical examples.

The former excavators name this group of vessels "Light Clay Miniature Lug Ware", and the name derives from the small lug handles located on the body of the vessels. It is suggested that these lugs serve no real function, but they might have been useful to prevent slipping of the hands. Moreover, some lugs on the neck and spout are pierced, perhaps used to hang vessel with a thread.

---

562 Analysis on Anatolian Metallic Ware from Göltepe also confirms high amounts of pyroxenes occurring in the fabric of these vessels, see Friedman, 2000, p. 170.
563 Although Friedman, 2000, pp. 161ff. suggests that in her analysis, the Anatolian Metallic Ware vessels were not vitrified that much, and hence, were not high fired. But this is not the case for sample 38.
564 Tarsus II, p. 107; Mellink Notes, p. 145.
565 Tarsus II, fig. 247: 196, 198: Light Clay Miniature Lug Ware, pitcher or jar for both samples.
when not in use or to fasten a leather or cloth cover over the vessel. When one regards the use of knobs and rivets frequently found on metal vessels, like in Alacahöyük, along with the extremely high fired quality of this ware group, it is possible that these vessels were imitating metal vessels. These vessels all have painted decoration applied in purplish red paint and executed in a careless way. The decoration elements consist of bands accentuated by dots around the rim, shoulder, and handle and wavy lines running from spout to shoulder. Some (like sample 38) also have a brown-purplish slip.

This group is intrusive to the local repertoire of Tarsus-Gözlükule in fabric, shape, and decoration.

---

568 Arik, 1937, pl. XIII: 1082 (pitcher).
Red and Black Streak Burnished Ware

**Sample 40 (plate 40)**

Period: EB II  
Context: + 13.50 m floor  
Ware: Red and Black Streak Burnished  
Shape: Bottle  
Wheel: No  

**Macroscopic Observations**

Clay Color: 5YR 5/6 – Yellowish red  
Surface Color: 2.5YR 4/6 to 5YR 3/1 - Red to very dark gray  
Firing: Crumbly  
Surface Treatment: Outside is coated with a thick, red slip and burnished with horizontal and vertical strokes to a high luster. The slip flakes off at places. The red color changes to dark gray/black creating a smoky effect.  
Inclusions: Some small to medium grits and lime.

**Sample 41 (plate 41)**

Period: EB II  
Context: Fortification wall  
Ware: Red and Black Streak Burnished  
Shape: Bottle  
Wheel: No  

**Macroscopic Observations**

Clay Color: 7.5YR 6/6 to 10YR 3/1 – reddish yellow to very dark gray  
Surface Color: 2.5YR 4/6 to 7.5YR 5/6 to 10YR 2/1 - Red to strong brown to black  
Firing: Crumbly  
Surface Treatment: Slipped with a thick slip and highly burnished. At places the dark clay body penetrates to the surface creating a smoky effect. Then the slip is scraped off with a hard tool in unsystematic strokes. Inside is roughly smoothed.  
Inclusions: Many small to medium grits and lime.

**Petrographic Analysis**

**Sample 40**

Sample 40 is very calcareous with large limestone inclusions in a rounded and angular mix. There is also shell. The other dominant mineral is mudstones with a quartz component in subrounded to subangular fragments. There is mono- and polycrystalline quartz and some shale. This fabric mainly consists of sedimentary minerals.

**Sample 41**
Sample 41 is also calcareous with several large calcite and shell fragments. There are shale fragments and some large basalt inclusions with plagioclase laths embedded. There are also free feldspars and quartz. Mudstones with quartz component are also visible. This fabric is different from sample 40 with its igneous component along with the sedimentary component.

XRD Analysis
The phase diagram shows that samples 40 and 41 are generally very similar to each other in their mineralogical components with moderate amounts of pyroxenes (enstatite, diopside), plagioclase feldspars (anorthite, bytownite, labradorite), micas (muscovite and sericite), and quartz. However, sample 41 has a different set of alkali feldspars, like anorthoclase and microcline, and a wider variety of micas (biotite, lepidolite, phlogopite) compared to sample 40 where only sanidine registers as alkali feldspar.

ESEM Analysis
Sample 40
Sample 40 is calcareous and has iron-rich clay. The ESEM image shows that it is in Intermediate Vitrification stage. Hence, it was low to medium fired.

Formal Shape and Stylistic Analysis
Samples 40 and 41
The shape repertoire of this ware type is limited to the long-necked bottle and the bowl. In Tarsus-Gözlüküle bottles outnumber bowls by a large margin. Sample 40 is a bottle. It is not possible to discern the shape of sample 41, but probably it is also a bottle.

This ware is not an indigenous production. The shapes and the surface treatment have no parallels within the Tarsus-Gözlüküle corpus. The former excavators suggest a Cypriot origin and place it within the second half of EB II (subphases 5-6, i. e. ca. 2500 B.C.).

---

570 Tarsus II, p. 113
571 Tarsus II, fig. 263: 371-378: Red and Black Streak Burnished Ware.
572 Tarsus II, fig. 263: 373, 377: Red and Black Streak Burnished Ware (for decoration, not shape).
573 Tarsus II, pp. 112f.; see especially Mellink, 1989, p. 323 and Mellink, 1991, pp. 170ff.; Webb and Frankel, 1999, p. 28. $^{14}$C dates obtained from Marki-Alonia puts Philia Phase (within which this particular ware is attested) into 2400-2200 B.C., which creates a slight chronological problem.
This type of pottery is registered under the names of the Black Slipped and Combed Ware and Red and Black Stroke Burnished Ware in Cyprus. However, in some instances these two terms are used as if denoting two distinct ware types.\textsuperscript{574} The surface treatment of this class is extremely unique. These vessels have a thick layer of red slip, which is highly burnished.\textsuperscript{575} The surface is red with black areas ranging from smoky looking black patches to deep black. At places the slip is so thick, it cracks off. There are also tool marks showing scraping of the surface in striations. How this bichrome look is achieved is of some discussion. The most satisfactory explanation is that the black areas were created by preventing oxygenation of the surface. This would be achieved by applying a certain, probably organic based, paste on the surface. During the firing process, this organic substance would burn off leaving the dark patches behind. Sample 41 shows the irregular striations on the surface where the black patches are disrupted by these streaks, indicating that there was an additional step in the process where the surface was scraped off before burnishing, and then the vessel was placed in the kiln.\textsuperscript{576} Whether or not the surface was slipped before the application of the organic substance remains open.

The examples occurring at Cyprus seem to present a variety in the application of the surface treatments. Webb claims that some of the Red and Black Stroke Burnished Ware vessels in Cyprus have a single slip whereas some others have argued for a double slip consisting of an underlying reddish slip on top of which a black slip was added.\textsuperscript{577} Another suggestion is that there was no separate black with Tarsus subphases 5-6 being dated to 2500 B.C. if the origin of this ware is Cyprus, the Tarsus examples cannot be earlier than the Cyprus appearance.\textsuperscript{574} Frankel and Webb, 2006, p. 96 and 103 treats them two distinct ware types, the latter being a subgroup of Philia Red Polished Ware. See also, Frankel and Webb, 1996, p. 150 and 154; Webb and Frankel, 1999, pp. 14f., Table 2; Bolger, 1987, pp. 59 and 70. Mellink, 1991, p. 172 treats them as the same ware type.

\textsuperscript{575} Matson reports that one of the two such sherds he investigated does not have a slip, whereas the other does, see Matson, F. R. in Tarsus II, pp. 358f. But this is not the observation made by me at the depots of Tarsus excavations.

\textsuperscript{576} The samples investigated in this study confirm Matson's observations: a red slip was applied first, and then an organic based paste was put on, which was then scraped off in striations at places, see Matson, F. R. in Tarsus II, pp. 358f.

\textsuperscript{577} Webb and Frankel, 1999, p. 27. But even in Marki-Alonia, where their research is based, this type is probably an import given its rarity with six Black Slip and Combed Ware examples out of 2936 total diagnostic pieces of pottery, see p. 16. Also, see Frankel and Webb, 2006, p. 103 where an additional 31 such sherds are recovered.
slip, but rather the color difference on the surface of the vessel is due to differing firing conditions in the kiln whereby the vessel was first slipped and burnished, and then slip was removed with a rough tool, which remained matt and did not reduce when firing.\footnote{578} In some cases both techniques are present within a single settlement.\footnote{579} Given this variety in the application of the surface treatment, it is difficult to insist upon a single technique. It seems that the main objective of the potters was to reach a bichrome effect of red and black adorned further with streaks running along the body of the vessel. This reported diversity in the application of the surface treatment (with the end result of similar looking effect) suggests that there were more than one production centers of this ware.\footnote{580}

Within the Cypriot pottery holdings of the University Museum of Archaeology and Anthropology at the University of Pennsylvania, there are sherds from Sotira that show similar surface treatment to samples 40 and 41. They are categorized as either Red on White Combed Ware or Black Combed Ware. In these instances the vessel surface is slipped, and the slip is scraped off with a hard pointed tool exposing the color of the vessel body, leaving striations of parallel bands or less frequently wavy lines. But these vessels are not as highly burnished, and their surfaces are either red or black.\footnote{581} The typical bottle shape is attested among these vessels, and the cross-sections of these sherds are black indicating insufficient oxidization. The surface treatment of samples 40 and 41 is a result of a more complex, multi-staged process compared to the vessels found at the University Museum. Nevertheless, these vessels are certainly related to the production techniques exhibited on samples 40 and 41.

\footnote{578} Swiny, 1986, p. 35
\footnote{579} Frankel and Webb, 2006, pp. 103f., fig. 4.15, pl. 41 bottom.
\footnote{580} But it is remarked by scholars working in Cyprus, that Philia phase pottery is remarkably uniform in its fabric and surface treatment, prompting some scholars to suggest that they were produced at a single center, see Frankel and Webb, 1996, pp. 149f. and Peltenburg, 1987, p. 59. But given the fabric differences between samples 40 and 41, it is very possible that there was more than one center of production for this ware type.
\footnote{581} In a few cases of the red examples there are some dark patches, but these have a very different quality, and are certainly due to firing differences in the kiln. In Marki-Alonia, these vessels are treated under Red Polished Philia Ware as a derivation of this main ware group. They are called Stroke-burnished and Band-burnished vessels, see Frankel and Webb, 2006, pp. 96f. and pl. 41 top right.
Spiral Burnished Ware

Sample 43 (plate 43)
Period: EB II
Context: No context information
Ware: Spiral Burnished Ware
Shape: Jar
Wheel: Yes
Preserved Height: 3.8 cm
Macroscopic Observations
Clay Color: 5YR 5/6 - Yellowish red
Surface Color: 5YR 6/4 - Light reddish brown
Firing: Very well, clinky
Surface Treatment: Self-slipped and lightly burnished in a horizontal spiral pattern on the outside. A thin red painted band is visible on one of the sherds (10R 4/4 - Weak red).
Inclusions: Some small to medium lime, few small grits, some mica.

Sample 65 (plate 65)
Period: EB III
Context: Room 32
Ware: Spiral Burnished Light Clay Ware
Shape: Syrian bottle
Wheel: Yes
Preserved Height: 3.8 cm
Macroscopic Observations
Clay Color: 10YR 6/4 - Light yellowish brown
Surface Color: Same
Firing: Very well, clinky
Surface Treatment: Self-slipped on the outside and lightly burnished in horizontal bands giving the spiral burnish effect.
Inclusions: Some fine to small grits and lime, much mica. The clay is overall well treated.

Sample 69 (plate 69)
Period: EB III
Context: Lot nr. 857?, Room 37, in walls of period with +10.31 m floor
Ware: Spiral Burnished Gray Ware
Shape: Syrian bottle
Wheel: Yes
Preserved Height: 9.9 cm
Macroscopic Observations
Clay Color: 7.5YR 4/2 - Brown
Surface Color: 10YR 6/3 to 10YR 4/2 - Pale brown to dark grayish brown
Firing: Very well, clinky
Surface Treatment: Self-slipped and then low burnished in horizontal spiral bands on the outside. Color varies to gray at places due to firing.

Inclusions: Some fine to small grits and lime, rare mica.

Petrographic Analysis
Sample 43
Sample 43 is not very calcareous. Other mineral inclusions consist of much plagioclase feldspars, quartz, some mica and amphibole (perhaps hornblende). The inclusions are, although copious, small and well-sorted.

Sample 65
The clay matrix of sample 65 is similar to sample 43 with chert, quartz, mica, feldspars, and amphibole (perhaps hornblende) as identified mineral inclusions.

Sample 69
Sample 69 has copious plagioclase feldspars, quartz, and some volcanic inclusions (possibly basalt). It also displays altered calcite indicating that it was high fired.

XRD Analysis
The samples of this group have pyroxenes in great variety, especially enstatite, diopside, augite, pyroxene, and donpeacorite. They also have high levels of plagioclase feldspars (albite, andesine, anorthite, bytownite, and labradorite), but lower levels of alkali feldspars, most strongly represented by sanidine. For this fabric group quartz is not dominant. Mica minerals are not abundant and are generally represented by muscovite.

ESEM Analysis
Sample 43
Sample 43 is not very calcareous, but the existing calcareous inclusions are finely dispersed. It is in the Continuous Vitrification stage with smooth glass formation interspersed with fine bloating pores. It was high fired.

Sample 69
Sample 69 is not very calcareous and iron-rich. However, it was fired in a reducing atmosphere. It has reached the Continuous Vitrification phase with fine bloating pores. It was high-fired.

Formal Shape and Stylistic Analysis
Sample 43

Sample 43 (four pieces) comes from an EB II context. It was categorized as Spiral Burnished Ware in the depots, and it may even be part of one of the published jars,\(^{582}\) and if not, it is very similar to these vessels.\(^{583}\) The vessel is slipped and then the slip is removed in bands with a brush-like tool creating a color and texture difference on the surface. In addition, there is a band of fleeting red color on one of the sherds, designating this sample as Spiral Burnished Ware with Banded Decoration. The fabric is compact and the pieces of sample 43 are extremely well fired and thin. The former excavators point to Syro-Anatolia for its origin where similar vessels have been in production during this period.\(^{584}\) This particular subgroup seems to be most common during EB II, although it is also found within EB III-IV contexts, but in very limited numbers.\(^{585}\) A similar vessel with red painted band is also found at Kültepe level 15 (EB II)\(^{586}\) and Gedikli Höyük level III.\(^{587}\)

---

\(^{582}\) Tarsus II, fig. 263: 369, 370: Spiral Burnished Ware, jar. Although the description of the publication certainly makes this possible, it is not certain whether or not sample 43 is really part of one of these jars as during the storage period of 55 years after the excavation, the Tarsus-Gozlukule material has been through relocations and floods, and the contents of the boxes have been in some cases disturbed from their original classification. Even if the pieces of sample 43 are not part of these vessels, they indeed must have belonged to a vessel of similar characteristics.

\(^{583}\) Mellink, 1989, pp. 322f. notes that these fragments were found embedded in the walls of room 116, from EB II.4 period (hence, probably even older than EB II.4).

\(^{584}\) Tarsus II, p. 112; Mellink, 1989, pp. 322f. Abay, 1997, p. 35 under “Die Metallische Ware mit Streifenbemalung” remarks that this type is not different from the regular Spiral Burnished Ware in production technique and clay with only difference being the narrow, horizontal bands of painted decoration varying in color from brown to red utilized at the shoulder and neck of the vessels. They occur at Samsat level XX (EB II), see Abb. 113: h, for the jar example. Also Engin mentions that this particular subgroup is very similar in vessel forms and firing quality to the Metallic Ware, Engin, 2007, p. 277, and see p. 276, fig. 18.7, especially nrs. 14-16 (Period I-EB II) for examples from Gre Vrike. Jerablus-Tahtani: Peltenburg, et al., 1996, p. 17, fig. 18: 3 (EB III-IV); Tell es-Sweyhat: Zettler, 1997, p. 61, fig. n (from chamber Tomb 1 - 3\(^{rd}\) quarter of 3\(^{rd}\) millennium); Tell Hajji Ibrahim: Danti, 1997, fig. 5.7: h-l (phase C - 3\(^{rd}\) quarter of 3\(^{rd}\) millennium); Harran: Prag, 1970, fig. 8: 43-44; Tell Hadidi: Dornemann, 1988, fig. 13: 19-20 (Tomb L1 - EB III-IV). Tell Banat: Porter, 1995, pp. 16f., 19f., figs. 14-16 (from chamber tomb I dated to mid-third millennium BCE). Also occurs at Kurban Höyük Period IV (3\(^{rd}\) quarter of 3\(^{rd}\) millennium), but is not illustrated, see Algaze, 1990, p. 327. Strommenger, 1970, p. 47 states that vessels with spiral burnished decoration and red painted bands occur in the light brown Spiral Burnished Ware category and are represented at Habura Kabira by a single sherd.

\(^{585}\) Engin, 2007, p. 277.

\(^{586}\) Özgüç, 1986, pp. 37f., fig. 3-18, ill. 3-11.

\(^{587}\) Alkim, 1979, p. 89, fig. 20.
Sample 65
Sample 65, from EB III, belongs to a Syrian bottle of alabastron type. It was categorized as Spiral Burnished Light Clay Ware in the depots. In Mellink Notes, three ware types were listed regarding the Syrian alabastra found at Tarsus-Gözüküle: the original, non-local, Syrian Spiral Burnished bottles, a buff, well-levigated, local version, and a Red Gritty local version. Sample 65 belongs to the first category as the fabric of sample 53 is very different from Local Fabric I characteristics. These types of bottles are attributed to the Syrian tradition.

Sample 69
Samples 69 is an alabastron type Syrian bottle. Sample 69 has very compact and high-fired clay. With its spiral burnished surface treatment, this sample should be considered a Syrian import and belongs to the third group of Gray Ware. In Tarsus these alabastron bottles made of Gray Fabric are exclusively found within the 9-11 m levels. Sample 70 (see under Local Fabric I) is a local imitation of these vessels.

The alabastron type Syrian bottles start occurring at Tarsus-Gözüküle as of EB III.2 and continue into MBA period. They are also found in Kinet Höyük.

---

589 Mellink Notes, p. 98.
590 Mellink Notes, p. 98; Habuba Kabira: Strommenger, 1970, p. 50, Abb. 12: d (simple burnished dark-gray surface – no spiral burnish - from grave dated to 2nd half of ED-Ur III periods). From Syro-Anatolian realm: Gre Vrique: Engin, 2007, p. 275, fig. 18.6: 17 (period II - EB III/IV, Buff Ring Burnished Ware) and p. 276, fig. 18.7: 9 (Black/Gray Ring Burnished Ware); Kurban Höyük: Algaze, 1990, pl. 78: C (Period IV - 3rd quarter of 3rd millennium) and pl. 133: I (Period III - EB IVa-b), both Metallic Ware; Samsat: Abay, 1997, p. 159, fig. 229: e (Metallic Ware); Banat: Porter, 1999, fig. 3 top-left (period III); Tell Hadidi: Dornemann, 1988, fig. 15: 18 (Metallic Ware, EB III-IV); Tell Shiukh Tahtani: Sconzo, 2007, p. 260, fig. 17.11: 41-52 (Orange Spiral Burnished Ware from “Perfume Room” dated to EB IV). See also Tilmen Höyük: Alkim, 1964, pl. LVI, fig. 9; Gediği Höyük: Alkim, 1979, p. 91, figs. 26-27. Oylum Höyük EB IV necropolis: Özgen, et al., 1997, p. 74, Abb. 15: 5, 7; Zincirli: von Luschan, 1943, Tfl. 26: f. Also encountered in the settlement of Göltepe in the Taurus Mountains, see Yener, 1995, p. 179, fig. 3-A and in central Anatolia as a result of contacts with Syro-Anatolia during this period, see Özgüç, 1986, pp. 34ff. figs. 3.4, 3.6 from level 13 (EB IIIa).
591 Tarsus II, fig. 268: 617: Spiral Burnished Dark Gray Clay, bottle.
592 A Spiral Burnished Ware example is also found in Kültepe level 12 (EB IIIb), see Özgüç, 1986, pp. 34ff., fig. 3.3.
593 Mellink Notes, p. 100.
595 Gates, 2004, p. 170, fig. 5.
Kültepe levels 13, 12, 11b, Tilmen Höyük level IIIa, Oylum Höyük, and Gedikli level III. Especially at Gedikli these bottles appear in cremation cemeteries along with Tarsus EB III.2-3 depata, tankards, and pitchers with cutaway spout. Mellink thinks that the source of these Gray Ware bottles at Tarsus-Gözülekule might be the Islahiye region.

596 Özgüç, 1986, for level 13 see ill. 3-4 and 5, figs. 3-6 and 3-7, for level 12 see ill. 3-3, for level 11b see ill. 3-6 and 3-7.
597 Alkim, 1964, fig. 9 and Alkim, 1969, p. 288 (same bottle). This level is dated to EB III, but based on Tarsus stratigraphy.
599 Alkim, 1979, p. 91, figs. 26-27.
600 Mellink, 1989, p. 327. Islahiye region is not a production center of these bottles, but they may have been imported there from the north Syrian region and then passed along to Cilicia.
BIBLIOGRAPHY

Abay, E.

Algaze, G.

Alkim, H.

Alkim, U. B.


Alp, S.


Amiran, R.

Archi, A.

Arık, R. O.

Arnold, D. E.


Astour, M. C.


Áström, P.

Batiuk, S. D.
2005 *Migration Theory and the Distribution of the Early Transcaucasian Culture*, Ph.D., Department of Near and Middle Eastern Civilizations, University of Toronto.

Ben-Tor, A.


1994 "Early Bronze Age Cylinder Seal Impressions and a Stamp Seal from Tel Qashish" *Bulletin of the American Schools of Oriental Research* 295.

Benzi, M.
1997 "The Late Early Bronze Age Finds from Vathy Cave (Kalymnos) and Their Links with the Northeast Aegean" in *Poliochni e l'antica età del bronzo nell'egeo settentrionale*, C. G. Doumas and V. La Rosa (eds.), Athens, Scuola Archeologica Italiana di Atene: 383-394.

Blegen, C. W., J. L. Caskey, M. Rawson, and J. Sperling

Blegen, C. W., J. L. Caskey, and M. Rawson

Bolger, D.

Bolger, D. and J. Shiels

Bourdieu, P.


Braidwood, R. and L. Braidwood

Broekmans, T., A. Adriaens, and K. van Lerberghe

Broekmans, T., A. Adriaens, and E. Pantos

Brown, G. H.

Bunimovitz, S. and G. Raphael

Çağlak-Sazlı, D.

Caneva, I.

Chilton, E. S.

Costin, C. L.


Danti, M. D.

Danti, M. D. and R. L. Zettler

De Sena, E. C. and E. S. Friedman

Demirtaşlı, E., N. Turhan, A. Z. Bilgin, and M. Selim

Dietler, M.

Dietler, M. and I. Herbich

Dikaios, P. 

Dobres, M.-A. 

Dornemann, R. H. 


Efe, T. 
1988  Demircihöyük III/2. Die Keramik 2, Mainz am Rhein, Von Zabern.


Efe, T. and A. Ilasli 

Efe, T. and D. S. M. Ay-Efe 

Engin, A. 

Fielden, K.

Frangipane, M.

Frankel, D. and J. M. Webb

Frankel, D., J. M. Webb, and C. Eslick

Frankel, D. and J. M. Webb

Freestone, I. C.

French, D. H.

Friedman, E. S.
2000 Technological Style in Early Bronze Age Anatolia: The Interrelationship between Ceramic and Metal Production at Göltepe, Ph.D., Department of Near Eastern Languages and Civilizations, University of Chicago.

Garstang, J.

Gates, M.-H.


Goldman, H.

Görür, N.

Gosselain, O. P.


Graff, S. R.

Greenberg, R. and N. Porat

Gülçur, S.

Gürbüz, K.

2003  "Berdan Nehri’nin Kuvaterner’deki Evrimi ve Tarsus’un Tarihçesine Jeolojik Bir Yaklaşım" Kuvaterner Çalıştayı 4: 79-83.

Gürcan, G. and J. Seeher

Gunter, A.

Hauptmann, A. and A. Palmieri

Hauptmann, H.

Ingold, T.


Joukowsky, M. S.

Kamilli, D. C. and C. C. Lamberg-Karlovsky

Kelly-Buccellati, M.

Keskin, L.

Klenk, G. B.

Knappet, C. and V. Kilikoglou


Kontani, R.

Korfmann, M.

Korfmann, M. and B. Kromer

Koşay, H. Z.

Koşay, H. Z. and M. Akok

Koşay, H. Z.


Koşay, H. Z. and M. Akok

Kühne, H.

Kühne, H. and G. Schneider
1988 "Neue Untersuchungen zur Metallische Ware" *Damaszener Mitteilungen* 3: 83-139.

Kuruçayırılı, E. and H. Özbal

271

Lamb, W.
1936  "Excavations at Kusura near Afyon Karahisar" Archaeologia 86: 1-64.

---


Lapp, N. L.

Lechtman, H.

Lechtman, H. and A. Steinberg

Lechtman, H.

Leeuw van der, S.

Lemonnier, P.

---


---


---

Leroi-Gourhan, A.

Lloyd, S. and J. Mellaart

Malamidou, D.

Maniatis, Y. and M. S. Tite
1981 "Technological Examination of Neolithic-Bronze Age Pottery from Central and Southeast Europe and from the Near East" Journal of Archaeological Science 8: 59-76.

Manning, S. W.

Marro, C., A. Tibet, and R. Ergeç

Matson, F. R.

Mazzoni, S.

Mellaart, J.
1981 "The Prehistoric Pottery from the Neolithic to the Beginning of EB IV (c. 7000-2500 B.C.)" in The River Qoueq, Northern Syria, and its

1982 "Archaeological Evidence for Trade Routes Between Syria and Mesopotamia and Anatolia During the Early and the Beginning of the Middle Bronze Age" Studi Eblaiti V: 15-32.

Mellink, M. J.


1986 "The Early Bronze Age in Western Anatolia" in The End of the Early Bronze Age in the Aegean, G. Cadogan (ed.), Leiden, Brill: 139-152.


Miksa, E. and J. M. Heidke

Milano, L. and E. Rova

Nicklin, K.


Oner, E., B. Hocaoglu, and L. Uncu

Özdoğan, M.

Özgen, E., B. Helwing, and H. Tekin

Özgüç, T. and M. Akok
1958  *Horoztepe Eski Tunç Devri Mezarlığı ve Iskan Yeri*, Istanbul.

Özgüç, T.

Özgüç, T. and R. Temizer

Özgül, N., S. Metin, and W. T. Dean

Özten, A.

Peltenburg, E. J.


Peltenburg, E. J., D. Bolger, S. Campbell, M. A. Murray, and R. Tipping

Peltenburg, E. J.

Pettinato, G.


Pfaffenberger, B.


Phillip, G.

Porter, A.

—

Prag, K.

Pruß, A.

Quenet, P.

Ramsay, W. M.

Reis, P.

Rova, E.

Rye, O. S.

Sackett, J. R.

277


Spanos, P. Z.
1972 Untersuchungen über den bei Homer "depas amphikypellon" genannten GefäBtypus, Istanbuler Mitteilungen, Beiheft 6, Tübingen, Verlag Ernst Wasmuth.

Stark, M. T.

Steadman, S. R.

Stoltman, J. B., J. H. Burton, and J. Haas

Strabo

Strommenger, E.

Swiny, S.

Symington, D.


Ternek, Z. 1957 "Adana Havzasının Alt Miosen (Burdigalien) Formasyonları, Bunların Diğer Formasyonlarla olan Münasebetleri ve Petrol İmkanları" *MTA* 49: 48-68.

Thissen, L. C. 1985 "The Late Chalcolithic and Early Bronze Age Pottery from Hayaz Höyük" *Anatolica* 12: 75-130.


Tsolakidou, A., V. Kilikoglou, E. Kiriatzi, and P. M. Day

Usta, D. and H. Beyazçicêk
2006 "Adana İlinin Jeolojisi", in Maden Tektik Araña Genel Müdürüği, Doğu Akdeniz Bölge Müdürlüğü, Adana.

von Luschan, F.

Warner, J. L.

Webb, J. M. and D. Frankel


Weiss, H. and R. S. Bradley

Wright, R. P.

Yalçın, M. N. and N. Görür

Yalçın, Ü.

Yener, A. K.

Yıldırım, T. and İ. Ediz

Zettler, R. L.

Zimmermann, T.
Figure 1: % Distribution of Leading Local Fabrics During EBA
Composed from data provided in Mellink Notes. These figures are an approximation.
Figure 2. Local Fabric I Shapes During EB I-II Periods

Figure 3. Local Fabric I Shapes During EB III Period
Figure 4. Local Fabric III Typical Closed Shapes

Figure 5. Local Fabric III EB I Open Shapes
Figure 8. Local Fabric IV Typical Shapes

Figure 9. Local Fabric II Typical Shapes
Figure 8. Local Fabric V Shapes
Figure 9: Polarized Light Microscope Images under XPL for Five Leading Local Fabric Groups
<table>
<thead>
<tr>
<th>Time</th>
<th>Tarsus Abay</th>
<th>Tarsus Mellink</th>
<th>Amuq Abay</th>
<th>Troy</th>
<th>North Mesopotamia</th>
<th>South Mesopotamia</th>
</tr>
</thead>
<tbody>
<tr>
<td>3300</td>
<td>EB Ia/ Late Chalcolithic</td>
<td>EB Ia</td>
<td>Early Phase G</td>
<td>Troy 0</td>
<td>EB I</td>
<td>Late Uruk</td>
</tr>
<tr>
<td>3200</td>
<td>EB Ib</td>
<td>EB Ib</td>
<td>Middle-Late Phase G</td>
<td>Troy I</td>
<td>EB II</td>
<td>Jemdet Nasr/ ED I</td>
</tr>
<tr>
<td>3100</td>
<td>EB II</td>
<td>EB II</td>
<td>Phase H</td>
<td>Troy II</td>
<td>EB III</td>
<td>ED II</td>
</tr>
<tr>
<td>3000</td>
<td>EB IIIa</td>
<td>EB IIIb</td>
<td>Phase I</td>
<td>Troy III</td>
<td>EB IVA</td>
<td>ED III</td>
</tr>
<tr>
<td>2900</td>
<td>EB IIIb</td>
<td>EB IIIb</td>
<td>Phase J</td>
<td>Troy IV</td>
<td></td>
<td>Akkadian</td>
</tr>
<tr>
<td>2800</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2700</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2600</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2300</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 10: Relative Chronological Chart of Relevant Regions
Composed by chronologies provided in Abay 1997, Mellink 1992, and Manning 1997
Map 1: Geological Map of Cilicia, Rough Cilicia, and the Taurus Mountains from MTA (General Directorate of Mineral Research and Exploration) at http://www.mta.gov.tr/v1.0/haritalar/jeoloji_haritalari/image/adana.html
Map 2: Main Early Bronze Age Settlements in Anatolia
from Arkeo Atlas vol. 2, June 2003
Map 3: Registered EBA Settlements in Cilicia from TAY-GIS Project (The Archeological Settlements in Turkey) at http://taygis.tayproject.org/TAYGIS_ENG/TAYGISeng.html
Map 4: Physical Map of Cilicia and Its Environs
from MTA (General Directorate of Mineral Research and Exploration)
at http://www.mta.gov.tr/v1.0/index.php?id=fiziki_haritalar&h=6
Sample 1

PLATE 1

a. Front View

b. Back View

c. Profile Scan

d. Profile Drawing

e. Polorized Light Microscope - XPL

f. Polorized Light Microscope - PPL

g. XRD Phase Diagram

h. SEM Image
Sample 2

Period: EQ I
Type: Bowl
Fabric: Local Fabric IV

Old Excavation Info:
Intermediate Light Ware
28-29 m

PLATE 2

c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram

h. SEM Image
Sample 3

a. Front View
b. Back View
c. Profile Scan
d. Profile Drawing
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL
g. XRD Phase Diagram
h. SEM Image
Sample 4

a. Front View
b. Back View
c. Profile Scan
d. Profile Drawing
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL
g. XRD Phase Diagram
Sample 5

PLATE 5

- a. Front View
- b. Back View
- c. Profile Scan
- d. Profile Drawing
- e. Polarized Light Microscope - XPL
- f. Polarized Light Microscope - PPL
- g. XRD Phase Diagram
- h. SEM Image
Sample 6

a. Front View

b. Back View

c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram

h. SEM Image
Sample 7

Period: EB I
Fabric: Local Fabric III

Old excavation info:
Red Gritty Painted Ware
+ 23 m

preserved h = 3.8 cm

Sample 7

a. Front View
b. Back View
c. Profile Scan
d. Profile Drawing
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL
g. XRD Phase Diagram
h. Front Surface Scan
Sample 8

- a. Front View
- b. Back View
- c. Profile Scan
- d. Profile Drawing
- e. Polarized Light Microscope - XPL
- f. Polarized Light Microscope - PPL
- g. XRD Phase Diagram
- h. SEM Image

PLATE 8

Sample 8
Period: EB I
Fabric: Local Fabric III

Old excavation info:
Red Gritty Painted Ware
+ 22.5 m

Pattern? 1 cm

302
Sample 9

PLATE 9

a. Front View
b. Back View
c. Profile Scan
d. Profile Drawing
e. Polorized Light Microscope - XPL
f. Polorized Light Microscope - PPL
g. XRD Phase Diagram
h. SEM Image
Sample 10

Period: EB I
Type: Cup
Fabric: Local Fabric III

Old Excavation Info:
Transitional Painted Ware
+ 24.50-25.00 m

PLATE 10

da. Front View
b. Back View
c. Profile Scan
i. Front Surface Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL

g. XRD Phase Diagram
h. SEM Image
Sample 12

a. Front View
b. Back View
c. Profile Scan
d. Front Surface Scan
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL
g. XRD Phase Diagram
h. SEM Image
Sample 13

PLATE 13

a. Front View  
b. Back View  
c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL  
f. Polarized Light Microscope - PPL

g. XRD Phase Diagram

Old Excavation Info:  
Beads and beads from 24.5 to 24.5 cm

Fabric: Local Fabric IV
Sample 14

PLATE 14

a. Front View

b. Back View

c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram
Sample 15

a. Front View  b. Back View

c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL  f. Polarized Light Microscope - PPL

g. XRD Phase Diagram
Sample 16

a. Front View

b. Back View

c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram

h. SEM Image
Sample 18

PLATE 18

a. Front View  
b. Back View  
c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL  
f. Polarized Light Microscope - PPL

g. XRD Phase Diagram
Sample 19

- Front View
- Back View
- Profile Scan
- Profile Drawing
- Polorized Light Microscope - XPL
- Polorized Light Microscope - PPL
- XRD Phase Diagram
- SEM Image

Sample 19
Period: EB III
Type: Bowl
Fabric: Local Fine Spiral-banded Ware

Old Excavation Info
Fine Spiral-banded Ware
Room 115
+ 20.00 21.00 m

diameter d = 16 cm
preserved h = 2.3 cm
Sample 21

a. Front View

b. Back View

c. Profile Scan

d. Front Surface Scan

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram

h. SEM Image
Sample 22

a. Front View
b. Back View
c. Profile Scan

d. Profile Drawing
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL
g. XRD Phase Diagram

PLATE 22
Sample 23

a. Front View

b. Back View

c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram
Sample 24

PLATE 24

a. Front View
b. Back View
c. Profile Scan

Sample 24
Period: EB II
Type: Jar
Fabric: Miscellaneous

Old Excavation Info:
Micaceous Cooking Pot Ware
Lot nr. 1320: Room 91, north edge,
grey to black fill, to ca +13.50 m
d = 13 cm
preserved h = 4.2 cm

1 cm

d. Profile Drawing
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL

h. SEM Image

318
Sample 25

![Sample 25](image)

**Plate 25**

- **a. Front View**
- **b. Back View**
- **c. Profile Scan**
- **d. Profile Drawing**
- **e. Polarized Light Microscope - XPL**
- **f. Polarized Light Microscope - PPL**
- **g. XRD Phase Diagram**

*Note: The text below the images is not included in the natural text.*
Sample 26

PLATE 26

a. Front View

b. Back View

c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram
Sample 27

PLATE 27

a. Front View
b. Back View
d. Front Surface Scan
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL
g. XRD Phase Diagram
h. SEM Image
Sample 28

PLATE 28

a. Front View

b. Back View

c. Front Surface Scan
d. Profile Scan

e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL

g. XRD Phase Diagram
h. SEM Image
Sample 30

Period: EB II
Type: Pitcher/Jar?
Fabric: Chevron Incised

Old excavation info:
Chevron Incised Ware
+11.56-11.74 m

Sample 30

Profile Drawing

Profile Scan

Polarized Light Microscope - XPL

Polarized Light Microscope - PPL

XRD Phase Diagram

SEM Image
Sample 31

PLATE 31

a. Front View

b. Back View

c. Profile Scan

d. Profile Drawing

e. Polorized Light Microscope - XPL

f. Polorized Light Microscope - PPL

g. XRD Phase Diagram

h. Front Surface Scan
Sample 32

a. Front View  b. Back View  c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL  f. Polarized Light Microscope - PPL

g. XRD Phase Diagram  h. SEM Image
Sample 33

Period: EB II
Type: Bowl
Fabric: Local Fabric I

d = 11 cm
preserved h = 5 cm

Old Excavation Info:
Light Clay Ware
Lot nr. 1240: Room 105 +14.18 m

Profile Drawing

Polarized Light Microscope - XPL
Polarized Light Microscope - PPL

XRD Phase Diagram

SEM Image
Sample 34

- Front View
- Back View
- Profile Scan

**Sample 34**

**Period:** EB II  
**Type:** Goblet  
**Fabric:** Local Fabric I

**Old Excavation Info:**  
Light Clay Ware  
Lot nr. A 1164: N of Rooms 83-84, under room 90  

**d. Profile Drawing**

**Old Excavation Info:**  
Light Clay Ware  
Lot nr. A 1164: N of Rooms 83-84, under room 90  

**e. Polarized Light Microscope - XPL**  
**f. Polarized Light Microscope - PPL**

**g. XRD Phase Diagram**
Sample 35

a. Front View

b. Back View

c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram
Sample 36

PLATE 36

da. Front View

b. Back View

c. Profile Scan

d. Profile Drawing

e. Polorized Light Microscope - XPL

f. Polorized Light Microscope - PPL

g. XRD Phase Diagram
Sample 37

PLATE 37

a. Front View  b. Back View  c. Profile Scan  i. Front Surface Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram

h. SEM Image

Sample 37
Period: EB II
Shape: Cup
Fabric: Local Fabric II

Old Excavation Info:
Black Burnished White-Filled Incised Ware
Room 10, X = 1.63 m Sout
Sample 38

Period: EB II
Type: Pitcher/Jar?
Fabric: Anatolian Metallic Fabric

Old Excavation Info:
Light Clay Miniature Lug Ware
Lot nr. 1235: Room 103,
+ 15.22-15.88 m floor

Sample 38

Plate 38

PLATE 38

a. Front View
b. Back View
i. Front Surface Scan
c. Profile Scan
d. Profile Drawing
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL
g. XRD Phase Diagram
h. SEM Image
Sample 39

PLATE 39

a. Front View
b. Back View
c. Profile Scan

d. Profile Drawing
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL
g. XRD Phase Diagram
h. Front Surface Scan
Sample 40

PLATE 40

a. Front View
b. Back View
c. Profile Scan
d. Front Surface Scan
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL
g. XRD Phase Diagram
h. SEM Image
Sample 41

PLATE 41

a. Front View
b. Back View
c. Profile Scan
d. Front Surface Scan
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL
g. XRD Phase Diagram
Sample 42

PLATE 42

a. Front View  

b. Back View

c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram

h. SEM Image
Sample 43

PLATE 43

a. Front View  
b. Back View  
c. Profile Scan  
d. Profile Drawing  

e. Polarized Light Microscope - XPL  
f. Polarized Light Microscope - PPL  
g. XRD Phase Diagram  
h. SEM Image
Sample 44

PLATE 44

a. Front View

b. Back View

c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram
Sample 45

PLATE 45

a. Front View
b. Back View
c. Profile Scan
d. Profile Drawing
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL
g. XRD Phase Diagram
Sample 46

PLATE 46

a. Front View  
b. Back View  
c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL  
f. Polarized Light Microscope - PPL

g. XRD Phase Diagram
Sample 47

PLATE 47

a. Front View
b. Back View
c. Profile Scan
d. Profile Drawing
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL
g. XRD Phase Diagram
Sample 48

Period: EB III
Type: High-necked Jar
Fabric: Miscellaneous

Old Excavation Info:
Red Gritty Ware
+ 10.16 m
preserved h = 5.4 cm

Sample 48

a. Front View
b. Back View
c. Profile Scan

d. Profile Drawing

e. Polorized Light Microscope - XPL
f. Polorized Light Microscope - PPL

g. XRD Phase Diagram
h. SEM Image
Sample 49

PLATE 49

a. Front View  
b. Back View  
c. Profile Scan

d. Polarized Light Microscope - XPL  
e. Polarized Light Microscope - PPL

f. XRD Phase Diagram  
g. SEM Image
Sample 51

PLATE 51

a. Front View
b. Back View
c. Profile Scan
d. Profile Drawing
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL
g. XRD Phase Diagram
h. SEM Image
Sample 53

PLATE 53

a. Front View
b. Back View
c. Profile Scan

d. Profile Drawing
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL

g. XRD Phase Diagram
h. SEM Image

Sample 53

Period: EB II
Type: Plate
Fabric: Local Fabric I

Old Excavation Info:
Light Clay Ware
Est No: 690 Room 69
+10.47 m floor

preserved h = 3.2 cm

d = 6 cm

0 1 cm

Sample 53

Period: EB II
Type: Plate
Fabric: Local Fabric I

Old Excavation Info:
Light Clay Ware
Est No: 690 Room 69
+10.47 m floor

preserved h = 3.2 cm

d = 6 cm

0 1 cm
Sample 54

PLATE 54

a. Front View
b. Back View
c. Profile Scan
d. Profile Drawing
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL
g. XRD Phase Diagram
Sample 55

PLATE 55

a. Front View
b. Back View
c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL

g. XRD Phase Diagram

Sample 55

Phase: EB III
Type: Tegin Ware
Fabric: Local Fabric

Old Excavation Info:
Light Gray Ware
Lot no. 231.3; Room 35 area
ca. 10.20 m

preserved h = 3.4 cm

d = 22 cm

349
Sample 56

PLATE 56

Sample 56
Period: EB III
Type: Chalice
Fabric: Local Fabric 1

Old Excavation Info:
Light Clay Ware
Lot nr. 734: East of Room 26
to +8.35 m floor (below 8.01 m)

Sample 56

a. Front View
b. Back View
c. Profile Scan

d. Profile Drawing
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL
g. XRD Phase Diagram

Sample 56

d = 10 cm
preserved h = 4.1 cm

1 cm

Sample 56
Sample 57

a. Front View

b. Back View

c. Profile Scan

d. Front Surface Scan

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram

h. SEM Image
Sample 58

PLATE 58

a. Front View  
b. Back View  
c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL  
f. Polarized Light Microscope - PPL

g. XRD Phase Diagram  
h. SEM Image
Sample 59

a. Front View

b. Back View

c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram

Old Excavation Info:
Red Burnished Light Clay Ware
Lot no: 029 Room 54,
below +10.25 to +10.63 m

Type: Bow

Fabric Local Fabric I

Preserved h = 3.4 cm

353
Sample 60

PLATE 60

a. Front View

b. Back View

c. Profile Scan

Sample 60
Period: EB III
Type: Tankard
Fabric: Local Fabric I

Old Excavation Info:
Red Slipped and Burnished
Light Clay Ware
Lot nr. 929: Room 54,
below + 10.25 to 10.83 m

d. Profile Drawing

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram
Sample 61

a. Front View

b. Back View

c. Profile Scan

d. Polorized Light Microscope - XPL

e. Polorized Light Microscope - PPL

f. XRD Phase Diagram
Sample 62

PLATE 62

a. Front View

b. Back View

c. Profile Scan

d. Polarized Light Microscope - XPL

e. Polarized Light Microscope - PPL

f. XRD Phase Diagram

g. SEM Image
Sample 63

PLATE 63

a. Front View

b. Back View

c. Profile Scan

d. Polarized Light Microscope - XPL

e. Polarized Light Microscope - PPL

f. XRD Phase Diagram
Sample 64

a. Front View
b. Back View
c. Profile Scan
d. Profile Drawing
e. Polarized Light Microscope - XPL
f. Polarized Light Microscope - PPL
g. XRD Phase Diagram

Sample 64
Period: EB III
Type: Syrian bottle
Fabric: Local Fabric I

Old Excavation Info:
Red Slipped Light Clay Ware
No context information

preserved h = 14.7 cm
d = 1 cm

1 cm
Sample 65

PLATE 65

a. Front View

b. Back View

c. Profile Scan

d. Front Surface Scan

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram
Sample 66

PLATE 66

a. Front View

b. Back View

c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram

Sample 66
Period: EB III
Type: Jar
Fabric: Local Fabric I

Old Excavation Info:
Gray Ware
Lot nr. 764: Layered earth under north wall of Room 31, to ca + 10.04 m

d = 12 cm
preserved h = 2.4 cm

360
Sample 67

PLATE 67

a. Front View  
b. Back View  
c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL  
f. Polarized Light Microscope - PPL

g. XRD Phase Diagram
Sample 68

PLATE 68

Sample 68
Period: EB III
Type: Tankard
Fabric: Local Fabric I

Old excavation info:
Black-slipped Gray Ware
Lot nr. A 1192: North of cutting to ca + 12.65, unbrunt earth with ash, over north part of Room 65

preserved h = 4.2 cm

1 cm

d. Profile Drawing

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram
Sample 69

a. Front View

b. Back View

c. Profile Scan

d. Profile Drawing

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram

h. SEM Image
Sample 70

Period: EB III
Type: Syrian bottle
Fabric: Local Fabric 1

Old Excavation Info:
Gray Ware
Lot nr. 813: Room 34,
+ 9.22 m

Profile Drawing

Profile Scan

Polarized Light Microscope - XPL
Polarized Light Microscope - PPL

XRD Phase Diagram

SEM Image
Sample 71

PLATE 71

a. Front View

b. Back View

d. Front Surface Scan

c. Profile Scan

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram
Sample 72

Period: EB III
Type: Chalice
Fabric: Miscellaneous

Old Excavation Info:
Smear Washed Ware
Lot nr. 837: + 11.43 m

d. Profile Drawing

e. Polarized Light Microscope - XPL

f. Polarized Light Microscope - PPL

g. XRD Phase Diagram

h. SEM Image