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ARKEOMETRİ SONUÇLARI TOPLANTISI



T.C. KÜLTÜR ve TURİZM BAKANLIĞI
Kültür Varlıkları ve Müzeler Genel Müdürlüğü





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11-15 Mayıs 2015
ERZURUM

T.C.
KÜLTÜR VE TURİZM BAKANLIĞI
Ana Yayın No: 3476

Kültür Varlıkları ve Müzeler Genel Müdürlüğü Yayınları
Yayın No: 173

YAYINA HAZIRLAYAN
Dr. Adil ÖZME



11-15 Mayıs 2015 tarihlerinde gerçekleştirilen
37. Uluslararası Kazı, Araştırma ve Arkeometri Sempozyumu,
Erzurum Atatürk Üniversitesi'nin katkılarıyla gerçekleştirilmiştir.

Kapak ve Uygulama
Yusuf KOŞAR

ISSN: 1017-7671

Kapak Fotoğrafı: *Emine TORGAN*
Tahribatsız ve Mikro Analiz Yöntemleri ile
Arkeolojik Eserlerin Karakterizasyonu

Not : Arkeometri raporları, dil ve yazım açısından Dr. Adil ÖZME tarafından
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İsmail Aygöl Matbaacılık San. Tic. ve Ltd. Şti.
Tel: 0312 310 59 95
ANKARA – 2016

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ARCHAEOMETRIC ANALYSES OF CERAMIC HOUSEHOLD INVENTORIES: CURRENT RESEARCH IN EPHESOS AND AT ÇUKURIÇI HÖYÜK

Lisa PELOSCHEK*

INTRODUCTION

The focus of archaeometric analyses on ceramics from Ephesos during the 2014 research season was based on the characterisation of artefacts originating from settlement contexts. A major part of the natural-scientific investigations involved domestic pottery assemblages of Neolithic and Chalcolithic date, excavated at the settlement mound Çukuriçi Höyük. Another detailed study was dedicated to the comprehensive archaeometric classification of Archaic ceramics from the settlement underneath the Tetragonos Agora of Ephesos. Most recently, a diachronic evaluation was initiated to study the composition of kitchen wares, particularly cooking pottery, from selected find contexts in Ephesos, chronologically covering the Hellenistic to the late antique periods. As both Çukuriçi Höyük and Ephesos are located in the same micro-region in the Küçük Menderes valley, a comparison of clay raw materials can be made. The diachronic aspect of recent ceramic analyses might allow us to establish whether environmental or human factors are responsible for shifts in clay selection. In addition, the comparison of household inventories, by means of their composition, will confirm if specific clay pastes have been utilised for the fabrication of particular functional vessel types. Moreover, the ongoing studies aim to clarify to what extent items consumed in a domestic context might have been imported from other regions of Western Asia Minor and how this exchange of daily-life items might have been motivated.

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CLAY RAW MATERIAL SURVEY

Seminal for the reconstruction of human-environmental interactions is a thorough knowledge of clay deposits native to the geological landscape around archaeological sites. In May 2014, a geological field survey was conducted in order to trace potential sources of clay raw materials in the surroundings of Çukuriçi Höyük. Its primary aim was to characterise clays, rocks and unconsolidated sediments (“sand”) distributed over a distance of roughly 10km around the site. Iron-rich, highly micaceous clay sediments have most commonly been identified, defined by a high plasticity. They are also exposed in close proximity of the tell on the east slopes of Bülbüldağ. By means of rock formations, mica schists are abundant and occur in the broader region. More concentrated on specific locations are serpentinites and talc southwest of modern Selçuk. Amphibolites are sporadically deposited on Bülbüldağ¹. Petrographic, X-ray Fluorescence and heavy mineral analyses will aid in compositionally characterising these materials. It is hoped that this data will allow us to narrow down potential areas from which clays in the prehistoric periods have been mined, when comparing the geological samples with the domestic ceramics consumed on the mound. As such, zones of activities in which prehistoric potters operated might be reconstructed. Gaining knowledge on available clay raw materials is significant, as it allows us to understand if specific clays have been targeted and mined, or if on the other hand the closest resources have been exploited.

NEOLITHIC, LATE NEOLITHIC, LATE CHALCOLITHIC AND EARLY BRONZE AGE 1 PERIOD CERAMICS OF ÇUKURIÇİ HÖYÜK

After petrographic analyses of the youngest habitation phase of Çukuriçi Höyük in the Early Bronze Age 1 (EBA 1) had already been concluded in the previous year, the ceramics of the preceding settlement sequences were evaluated in 2014. Summing up the most relevant aspects of the EBA 1 ceramics in regard to their intended function in the household, the following

1 The preliminary results of the geological survey have been briefly presented in Österreichisches Archäologisches Institut 2014, 35-36 and Peloschek (in press) b.

statements can be given: The settlement in the EBA 1 period did not fulfil domestic purposes exclusively. The built settlement units combined living and working spaces. The individual rooms supposedly were used multi-functionally. Most certainly it is revealed that metal working activities were carried out within or adjacent to rooms that at the same time were used as living spaces. This multi-functionality is also reflected in the ceramic assemblages excavated. Identical clay pastes have been utilised in the production of domestic and metallurgical ceramics. Especially ceramics exposed to fire, such as cooking pots or cheesebowls, have preferably been manufactured in this coarse micaceous clay paste².

Although, in morphological terms, the ceramic assemblages of the seventh to fourth millennia³ are more homogenous than those of the EBA 1, surprisingly a high diversity of clay pastes has been recognised. Rock and mineral constituents of the clays indicate the wider exploitation of partly deviating clay deposits than in the EBA 1. Yet, a few clay pastes known from the EBA 1 go back to the earliest phases of Çukuriçi Höyük, testifying partly to a continuation in clay paste selection. This proposed continuation, however, in fact is based on the abundance of micaceous clays native to geological landscape around the tell, making the clay easily available. But clays utilised in the Neolithic period were also supplied from the more extended environment of Çukuriçi Höyük. Visually distinctive clay pastes, exhibiting a wide range of colours after firing, have preferably been used. Particularly worth mentioning is the utilisation of visually pale beige clay pastes. Due to the homogeneity of vessel shapes, all defined by open shapes, no correlation of clay paste and vessel function can be conducted reliably. In the Late Chalcolithic period, the complexity of vessel shapes uncovered in the settlement increases; as also does the number of clay pastes, as identified in thin-section. The synchronisation of clay pastes and vessel shapes of the Chalcolithic period is ongoing.

The interpretational relevance of clay pastes for the settlement history

2 Österreichisches Archäologisches Institut 2013, 45. For an overview of the stratigraphic sequences and built remains of Çukuriçi Höyük compare Horejs et al. 2011.

3 Aspects of the Neolithic settlement have been presented by Galik – Horejs 2011 and, most recently, by Horejs 2012. The Chalcolithic built remains have been described by Horejs – Schwall 2015.

of Çukuriçi Höyük is enormous. Most compelling were results obtained by mapping the distribution of ceramics of diverse composition within the individual rooms of the EBA 1 occupation horizons. No obvious concentration of specific functional or compositional ceramic groups has been detected. This distributional pattern applied to rooms, is based on their layout or permanent installations attributed to storage, living/housing and working spheres. Creating similar models for the Neolithic, Late Neolithic and Chalcolithic-period is in planning. This will show if in these periods more differentiated zones of activities can be reconstructed than in the EBA 1.

ARCHAIC POTTERY FROM EPHEOS

Petrographic and X-ray Fluorescence analyses were performed on Archaic pottery from Ephesos in 2014⁴. Besides the characterisation of ceramics of presumably local provenance, a diverse range of imported ceramics have been identified. In the period under investigation, Lydian influences are evident, being reflected in the shape and decorative repertoire of vessels excavated in the settlement structures underneath the Tetragonos Agora.

In regard to vessels used in household activities, cooking pots and cooking plates are the most distinctive shapes analysed. They are particularly coarse-grained and appear in compositional variants of both local micaceous clays and foreign clay pastes⁵, originating from volcanic environments. The local cooking vessels are defined by a thick wall thickness and a coarse clay paste with a high quantity of siliceous components. Clays deriving from volcanic lithologies are also defined by an extraordinary coarseness. Glassy volcanic rock fragments are of rhyolitic/trachytic/dacitic and/or andesitic composition, not native to the region surrounding Ephesos. Similar compositional patterns have been recognised for Lydianising vessel shapes, forming the drinking

4 The detailed results of archaeometric analyses have been prepared for publication by Peloschek (in press) a. Petrographic data on ceramic objects of Archaic date, that is to say roof tiles from the Artemision area, had been made available by Sauer 2004. This data had been consulted as a reference material for local ceramic productions in the current study.

5 As examples for archaeometric studies dealing with Archaic ceramic assemblages, Riederer 2007 and Seifert 2004 should be mentioned.

and dining sets of the Archaic households. A local production of ceramics covering the complete spectrum of pots necessary for performing quotidian activities existed. The need for importing, at the same time, vessels of the same function seems to have been stylistically motivated. Supplementary X-ray Fluorescence analyses indicated that several of the Lydianising vessels seem to have been manufactured in N-Ionia or Aeolis, while some have been identified as likely Ephesian reproductions. The aforementioned cooking pots and plates point to being made from foreign clay pastes; moreover, they also point to an origin in N-Ionia and Aeolis.

The study was also methodologically relevant, as the drawback of thin-section analyses on fine-grained ceramics had been demonstrated. The bulk of vessels inspired by Lydian prototypes contained only muscovite micas and quartz, not being distinctive of any specific geological environment in broader Western Asia Minor, in respect to the Ionian landscape. Production centres, for example, in Miletus, Priene, Magnesia, Teos, Klazomenai, Smyrna or Phocaea are known, operating in the Archaic period. Most of these production centres have been defined by Neutron Activation analyses⁶, yet petrographic reference data that would aid in identifying ceramic products from these workshops do not exist. A comparative approach of archaeometric methods is attempted, trying to promote the use of complementary natural-scientific techniques in ceramic research.

KITCHEN WARE AND COOKING POTTERY IN EPHEOS

In order to test for the functionality of one specific class of pottery, the Hellenistic to late antique kitchenware of Ephesos is currently under study⁷. The ceramics to be investigated in the course of an integrated approach combining petrographic, geochemical and heavy mineral analyses, originate, amongst others, from dwelling units in Terrace Houses 2 and the late antique residence to the south of the church of Mary (>Verulanushallen<). Cooking

6 Compare Akurgal et al. 2002.

7 Previous work on Ephesian cooking pots and kitchen ware include those by Sauer – Ladstätter 2008 and Zabehlicky-Scheffenecker – Schneider 2005. Cooking vessels of presumably Ephesian origin have, moreover, been identified by Slane – Kiriatzi 2014, 910.

pots, frying pans, casseroles, trefoil juglets - just to mention a few - have been sampled⁸. In scientific research it had been proposed that from the late Augustan period onwards and particularly at the mid period of the Roman Imperial era an importation of cooking pots from Phocaea to Ephesos and Central Western Asia Minor is evident. While earlier cooking pots of local Ephesian provenance were defined by thick walls and particular vessel shapes, vessels of presumably Phocaeen origin exhibit a differing shape repertoire and are particularly thin-walled. A change in cooking practices in the Ephesian households might be responsible for this shift.

First petrographic results confirm the presence of vessels fabricated from clays that derive from volcanic regions, likely to be traced to the region between modern Izmir, Phocaea and Pergamon. However, simultaneously cooking pots of local manufacture continue to be in use. One logical assumption would be to suspect that the composition of Phocaeen ceramics, being made from clays with volcanic ingredients, would be better suited for food preparation procedures than the local counterparts. From a chronological perspective it is noteworthy that there is still strong evidence for exchange networks in the broader Phocaea region in late antiquity, as preliminary thin-section analyses imply. Selected ceramic fragments will be submitted for thermal conductivity tests. The interrelationship of clay paste and wall thickness in regard to heat efficiency will be explored. Residue analyses on the same ceramic fragments will demonstrate which kind of food had been prepared in the individual vessels. The sum of observations will allow for a sound argumentation on possible reasons why Phocaeen cooking pots gained such a popularity from the Augustan period onwards, and what effect this tendency had on the Ephesian ceramic industry.

ACKNOWLEDGEMENTS

The archaeometric ceramic analyses at Çukuriçi Höyük and the geological field survey presented have been conducted in the course of a research project financially supported by the Austrian Science Fund (FWF-Project P25825 “Interaction of Prehistoric Crafts and Technologies”), under the directorship

8 For the sampling strategy and first observations on the presented project compare Österreichisches Archäologisches Institut 2014, 51.

of B. Horejs (OREA, ÖAW). The analyses of ceramics from Ephesos are supported by the Austrian Archaeological Institute. The scientific work is being conducted by L. Peloschek (Çukuriçi Höyük, Ephesos) and J. Erci (Kitchen Ware and Cooking Pottery in Ephesos).

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