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" Hear the cricket on the hearth"

Prehistoric *fire installations* on example of Neolithic and Chalcolithic fire installations from Tepecik Çiftlik, Central Anatolia.

Master´s Diploma Thesis

Brno 2015

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DECLARATION

I declare that I have worked on this thesis independently, using only the primary and secondary sources listed in the bibliography. I agree with storing this work in the library of the Centre of Prehistoric Archaeology of the Near East at the Masaryk University in Brno and making it accessible for study purposes.

Brno 9th of July 2015 Signature

ABSTRACT / ANNOTATION

This thesis offers a technological and typological study of fire installations from Neolithic and Chalcolithic levels excavated at the site Tepecik Çiftlik in Central Anatolia. The approach to study these fire installations has been introduced in bachelor thesis of the author, where a descriptive tool for more effective excavation and documentation of the so-called tannur-like ovens was proposed in form of a worksheet in order to maximize the potential informational gain from the excavation process of these fire installations. The author tries to determine whether the method that she has proposed can become an effective tool to document excavation process of fire installations in the Near East, namely Central Anatolia. She demonstrates the validity of her tool by applying it to two neolithic ovens that she has excavated at Tepecik Çiftlik in 2014 and compares the quality of her findings with data obtained during previous years of research carried out in years 2000-2013 by Turkish team from Istanbul university led by Erhan Bıçakçı. The author pinpoints the main shortcomings and advantages of the conventional approach to oven studies as she tries to critically examine the potential of her tool in comparison with current documentation method employed at Tepecik Çiftlik. A total number of 19 fire installations is presented. Main focus is placed on methods of construction and possible original forms of these fire installations. The documentation worksheet is interlinked with digital Access database, which is practical outcome of the thesis. The newly created database of all data on 19 excavated fire installations from Tepecik was used to establish a working typology of fire installations from this site.

KEYWORDS: *Central Anatolia, Tepecik Çiftlik, Neolithic, Chalcolithic, fire installations, oven, tandır, fırın, hearth, worksheet*

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Teşekkür ederim – ďakujem.

Lenka Tkáčová, Brno 2015

List of abbreviations

BC	before Christ
BCE	before Common Era
FTIR	Fourier Transform Infrared spectroscopy
GIS	Geographic Information System
ÖRN	Tur. Örnek = Sample
PSR	Phytolith – spherulite ratio: method used to distinguish fuel in oven
SB	Tur. Sabit Buluntu = Immoveable feature
SK	Skeleton
UB	Tur. Ufak Buluntu = Small find

Contents:

Introduction

Cricket on the hearth is the name of a novella written by Charles Dickens, which was published in 1845. In many cultures the cricket symbolizes good fortune and health. Hearth is a well-known symbol of home, not only as proverb, but also in archaeology[1]. In Dickensian perception, the idiom "to find a cricket on the hearth" means to have great luck or obtain fortune (Dickens 1845). In this thesis, however, the title has a different meaning- it is used to emphasize that when excavating ovens or hearths, we- the archaeologists - should notice also the very small details, the cricket "chirps" that can later be studied and analysed.

Fire installations have greater informational potential than is often realized and without effective method for excavating and documenting them, the archaeologists are losing data. It has been demonstrated by several archaeologists, that cooking installations can give archaeologists clues about the use of space (Mentzer 2012), functions of the buildings (Özbaşaran 1998, 560), behaviour patterns, cultural structures and practices (Parker 2011, 604). Furthermore, ovens and hearths can provide charcoal samples for absolute chronology; being a non-moveable element of architecture makes them perfect for datation of corresponding levels of settlement, and on a more abstract level they can be subject to inquiries about issues such as gendered space (Parker 2011, 621), sexual division of labour (Parker 2011, 621 - Hodder 2004), among others. Despite their much greater complexity, cooking installations encountered by Near Eastern archaeologists are most commonly identified using only simple analogy of shapes and sizes to ethnographic examples (Gur-Arieh et al. 2013, 4331). There have been proposals by scientists all over the world for new and improved methods of research of fire installations[2], but not many archaeologists have paid attention to optimisation of documentation[3] process, which is the main focus of this thesis- it is primarily concerned with the deficiencies and possible improvements to the conventional documentation

[1] Mihriban Özbaşaran called hearth the "heart of a home" in her article from 1998

[2]Examples from the Near East: Gur-Arieh et al. developed method for recognizing fuel types based on PSR ratio of phytolites and spherulites from ash and applied it to Iron age fire installations excavated in Israel; Berna et al. /2007/ used FTIR spectrometry, X-ray spectrometry and X-ray diffractometry to determine firing temperatures of combustion features from Tel Dor in Israel. For other noteworthy microarchaeological studies of fire installations which have been tried out in different geographical areas, see for example Maniatis et al. 2002 - Spassov & Hus 2006 - Braadbaart et al 2011.

[3] In this thesis, we use the two terms "documentation" and "recording" to distinguish between a) methods for collecting data, such as forms, worksheets, daily notes, etc. and b) drawings, photographs and other techniques to record the visual state of features

process of prehistoric fire installations in Near Eastern archaeology. It chiefly deals with on-site archaeological routines and with description methods for fire installations. The process of documentation/recording[4] is an inherent part of archaeological work, it is entangled with excavation and it is the basis for interpretation. The usual form of recording at archaeological sites in the Near East is field diary (day-by-day entries of excavators describing the progress of excavation) and more or less standardized forms for various purposes (e.g. for sampling, for immovable features, for finds, etc.). These basic forms are usually very general and simple, which is natural given the speed of excavation, pressed to few weeks/months in a year. However, this conventional method does not meet the peculiarities of ovens and hearths, which are rather a complex topic and previous research (Gur-Arieh 2013 - Tkáčová 2013 – Rova 2014) has demonstrated that some oven types (e.g. tabun vs. tannur) are frequently misinterpreted by Near Eastern archaeologists due to oversimplification and lack of nomenclature. We believe that by upgrading the documentation process of fire installations, it will subsequently have positive impact on the possibilities of more precise interpretation.

The archaeologists should aim to improve the documentation techniques of fire installations in order to broaden the possibilities of issue-oriented research for post-modern archaeologists in 21st century. This way – by constantly rethinking and improving what is being done and how it´s done – the archaeologists adhere to the iterative aspect of their work (Neustupný 2007, 187). It is always possible to modify and improve our work, and this thesis presents one of ways in which the archaeological study of fire installations can be carried out. It does not claim to be the most effective one- on the contrary; it is my goal to evaluate it critically in comparison to the current method; to realize its weaknesses and advantages; and finally to propose potential amendments and improvements to fit the needs of Near-Eastern archaeologists. The goal is to create a documentation tool for maximizing the information gain from combustion structures in order to learn more about everyday life and food-related practices of past communities and to test its effectiveness against data from the site Tepecik Çiftlik.

[4] In this thesis, the terms "recording" (for visual documentation of features, such as photographs, drawings) and "documentation" (written information on archaeological contexts, obtained during excavation) are used separately.

The thesis is structurally divided into three parts. In the first, theoretical part, the need of more effective method to study and document fire installations is argued fo. A brief overview of historical development of oven studies is presented in order to explain the main changes and shifts in this type of research with regards to history of archaeological theory until this day. This is followed by a discussion about the current state of research on ovens and hearths in Central Anatolia, which is the region where Tepecik Çiftlik (the site selected as our case study) is located. My documentation tool is then presented in form of a revised worksheet (based on the one created in the author´s bachelor thesis and on previous attempts of oven specialists: McQuitty 1994 - Mulder-Heymans 2002). This worksheet is linked with newly created Microsoft Access database which allows digitalisation of data collected in field and provides us with options for future research. Modifications and contents of the worksheet are explained and embedded in the process of archaeological method.

The second part of this thesis presents my case study – Tepecik Çiftlik – in its geographical, chronological and environmental setting. Ethnographic data that could serve for cautious analogy is presented in a separate subchapter, as well as regional context which provide brief but relevant information about ovens and hearths from sites in proximity to Tepecik Çiftlik, namely:

- *Aşıklı Höyük* (Pre-Pottery Neolithic)
- *Musular* (Pre-Pottery Neolithic)
- *Köşk Höyük* (contemporary with Tepecik Çiftlik- Pottery Neolithic, Chalcolithic)
- *Güvercinkayası* (Chalcolithic)
- *Pınarbaşı* (Pre-Pottery Neolithic, Pottery Neolithic)
- *Çatalhöyük* (Neolithic East Mound and Chalcolithic West Mound)

The last part aims to create a working typology of fire installations from Tepecik Çiftlik in Central Anatolia in order to demonstrate and test the usefulness of new tool for documentation of domestic cooking installations, outlined in Part One. In Part Three, the "old" and the "new" data is confronted- i.e. the data acquired using the conventional recording methods during excavation seasons 2000-2013 (this data consists mostly of drawings, photographs and written field notes from the excavation) and data acquired using the newly devised documentation worksheet during year 2014. The goal is to

justify the need for new, improved documentation tool in oven studies in order to reduce the ambiguity, avoid misinterpretation of features and ensure interoperability of data by creating a digital database with data of even quality, suitable for future investigations and comparison at inter-regional basis. Practical employment of the abovementioned worksheet should help maximize the potential gain of information from ovens and hearths. The new method will subsequently be reflected upon in order to discover its main faults and shortcomings for possible further modifications, and to see whether this method has a potential to become an effective tool for documenting the excavation process of fire installations.

Objectives of research

The main objective of this research is to test a new **descriptive analytical tool** for documentation of fire installations on a specific case study- Neolithic and Chalcolithic fire installations from Tepecik Çiftlik, a site in Central Anatolia- in order to verify if a unified and systematic method can help us streamline the informational gain from excavation process of fire installations.

This new tool has form of a **worksheet linked to digital Access database**[5] and it was originally designed to detect and classify tannur-like ovens by Near-Eastern archaeologists. The worksheet has been firstly created by Mulder-Heymans (2002, 6-7) and applied by her at Iron Age site Tell Hadar in Israel. In 2013 it was revised and modified as a result of my bachelor thesis "Near-Eastern Tannurs Now and Then" and utilized to document a Late Neolithic oven excavated by archaeological team from Masaryk University led by Dr. Inna Mateiciucová at Tell Arbid Abyad[6]. After the outbreak of Syrian war, however, the archaeological project at Tell Arbid Abyad was interrupted, and new area of interest had to be found.

In 2013, Erhan Bicakci, the leader of Istanbul University excavation project at Neolithic/Chalcolithic site Tepecik Çiftlik in Nevşehir Province of Turkey, invited me to join the excavation project at this site. In the following season of 2014 (my second season at Tepecik), an opportunity arose to excavate two Late Neolithic ovens that the team had uncovered in 2012 but left in situ and went on to proceed in other sectors of the site. Since there was no specialist responsible for research of fire installations, I volunteered to supervise the process in order to gain new practical experience with excavation of fire installations. After consulting the possibility with Dr. Bıçakçı and explaining to him my interest in issue-oriented research on fire installations, he entrusted me with data on all the Neolithic and Chalcolithic fire installations that his team excavated since 2000 and made me solely responsible for excavation of two Late Neolithic ovens in trenches 19 J and 19 K in 2014. The aim was to create a classification of fire installations from Tepecik Çiftlik based on technological attributes such as form, size, building technique and possible function and usage. This classification is presented in part three of this thesis and constitutes the secondary objective of presented

[5] This database is part of the thesis and is available for
[6] Khabur region (NE Syria)

research. The primary goal, however, is to confront the conventional recording methods used at Tepecik Çiftlik with newly devised documentation tool in order to test its effectiveness and to create a digital database of Tepecik fire installations by using this tool.

Summary of the objectives:

- Present a descriptive tool for maximizing the informational gain from fire installations in specific context of Central Anatolia and embed it in archaeological method
- Present case study: the site of Tepecik Çiftlik
- Present fire installations excavated in seasons 2000 – 2013 using the conventional documentation methods
- Obtain qualitative data from two Late Neolithic ovens in trenches 19 J and 19 K excavated in 2014 using the revised worksheet
- Compare this data with older data from seasons 2000 – 2013
- Offer a critical reflection of this process and evaluation of the applied method
- Input information about all Tepecik fire installations into database and establish their typology
- Discuss the effectiveness and potential of the unified documentation method and its future use

Part 1 *Things we lost in fire- why are we loosing data?*

1.4. On a way to more effective method to study fire installations

Before starting a debate about effectiveness of current oven studies in Near Eastern archaeology, it is crucial to firstly discuss the essentiality of this research orientation. In the following chapter I argue that the fire installations are indeed a valuable and irreplaceable source of information for archaeologists. After discussing the main promises and possibilities of oven studies, I move on to explain the historical development and point to main current trends of oven studies. Eventually, modern methods and documentation tools of oven studies in Near Eastern archaeology are evaluated critically in order to see if the current approach is satisfactory enough as it is, or if it is necessary to make adjustments to it.

Fire installations from all time periods have been studied by archaeologists worldwide, because they provide them with important clues about many aspects of human life, for example cooking practices and paleonutrition (Smogorzewska 2014, 17), use of space (Mentzer 2012, 41), subsistence behaviours (Mentzer 2012, 1), cultural structures and practices (Parker 2011, 604), or gendered space (Parker 2011, 621).

Charcoals from ovens and hearths have potential for absolute chronology using radiometric, paleomagnetic, and luminescence methods (Mentzer 2012, 2)- due to the nature of fire installations (they are immovable and can therefore represent a rather stable element of architecture), their datation often helps archaeologists date related levels of settlement at excavated sites. Ovens or hearths can also be sampled to provide information about past environmental conditions or environment change- for example a change in fuel from wood to dung can be one of the indicators of ancient deforestation (Nesbitt 1995, 77). Microarchaeology has recently brought forth new methods for studies of fire installations, some of which are very promising. Microarchaeological investigations usually focus on description and recognition of fuels (Mentzer 2012, 1 - Gur-Arieh et al. 2014), mineralogy, depositional fabrics and structures (Mentzer 2012, 1).

Fire installations represent planned elements in context of architecture (Özbaşaran 1998, 558) and they are frequently subject to spatial analysis. Distributional patterns of fire installations within domestic architecture can give archaeologists clues about use of space and help indicate zones of certain activities, for example position of oven in a house can indicate location of "kitchen", especially if it is associated with other objects related to cooking activities, such as grinding stones or pottery vessels. However, it is very common that ovens and hearths appear in publications only as symbols or black dots (Fig. 1 a, b) on the architecture plan: only their distribution is considered, while their forms (beyond simple oven/hearth dichotomy) and other pecularities do not receive much attention.

Fig. 1. *a) (left) Plan of Güvercinkayası: position of hearths and ovens (The Oxford Handbook of Ancient Anatolia, p. 804), b) (right) Distribution of hearths (dots) over part of the Aşıklı Höyük settlement. Based on information in Özbaşaran (1998), figure prepared by Oberendorff.*

If the study of fire installations is combined with other fields of expertise, i.e. archaeobotany or anthropology; interesting facts about human behaviour can be found out- one example of such a productive transdisciplinary entanglement comes from the site of Çatalhöyük. The ovens from this site were located indoors, in small and closely clustered houses with little opportunity for ventilation. Scientists Andrews and Molleson from Natural History Museum in London, who have been responsible for anthropological analysis at this site, have "noticed a black deposit often lining the inside of the ribs, which when analyzed proved to include carbon (Hodder 2004)." It is believed by the Çatalhöyük team that this soot god into people´s lungs from the smoke escaping out of the ovens during their use and it is evidence that people spent quite

some time inside the houses, breathing the smoky air. Hodder goes on to explain that since both men and women had traces of soot on their ribs, it "cannot be argued that men had more of an outdoor and women more of an indoor life (Hodder 2004)."

Traditionally, ovens are attributed to women, and archaeologists tend to interpret food preparation areas as female domains of activity without looking for actual evidence for such statement. The research at Çatalhöyük proved that both men and women spent roughly equal share of time indoors and around the oven, not just women. Although this is not a proof that the sexual division of labor was absent at Çatalhöyük, it nevertheless represents a challenge to traditional thinking of archaeologists, because they usually work with the simple premise that cooking installations are and therefore were centres of female activity. Such premises are usually based on analogies with ethnographic observations. However, although ethnography can provide interesting examples and illustrations and can sometimes help archaeologists with their interpretation of archaeological features, they should try to support similar analogies with more exact evidence (if such evidence is available).

Ovens are also important element of paleonutrition studies, because they represent installations in which food was prepared. Nutrition studies represent transdisciplinary approach and they combine findings of various fields of expertise, such as archaeobotany, zoology, anthropology, etc.

Once it has been argued sufficiently that the fire installations have great informational potential for archaeologists, another question calling for our attention can be derived:

- *Is it important to develop systematic and more efficient methods for documentation of fire installations for Near Eastern archaeologists, or is the current approach satisfactory enough as it is?*

A response to this question is a complex one, and to get a satisfactory answer we firstly need to look at the history of oven studies in Near Eastern archaeology and attempt to encompass the recent trends and developments in this type of research.

The oldest approach to fire installations in archaeology is evolutionist in nature and dates to the first half of 20th century despite the fact that at this time, cultural historical approach represented a shift away from early naive evolutionism. Fire installations were not of any special interest to cultural historical archaeologists because of their focus on recognising „cultural entities" in material culture (and hearths/ovens are rarely good indicators of specific ethnic groups or cultures). The occasional works on fire installations in this time were dealing with rather idealistic attempts to create their typological development and sometimes to relate evolution of cooking installations to evolution of culinary practices (for example the synaptic development of cooking installations by Hough 1926). The early documentation of ovens was limited to their general description in field diary and simple illustration, hand-made by the excavator (Fig. 2- the example is from excavation of Gordon Childe at Orkneys. The author of this thesis was unable to provide original illustration from a field diary of Near Eastern excavation dating to this period). When archaeologist Max Mallowan encountered dome-shaped clay ovens during his excavation at Arpachiyah, he used simple ethnographic analogy from the region to assume that these were ancient bread ovens. As far as the documentation method is concerned, in the published excavation report (Mallowan & Rose 1935), Mallowan gives brief description of the excavated ovens[7] and an idealistic depiction of restored oven (Fig. 3).

[7] which points to his primary focus on general characteristics such as: location in trenches, shape, construction material, dimensions and traces of use, these must have been recorded in his field documentation

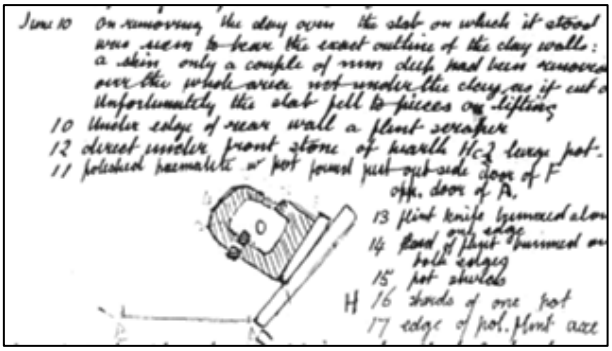


Fig. 2. *Excerpt of Gordon Childe´s field notes on exavation of clay oven at Rinyo, Orkney (1938)*

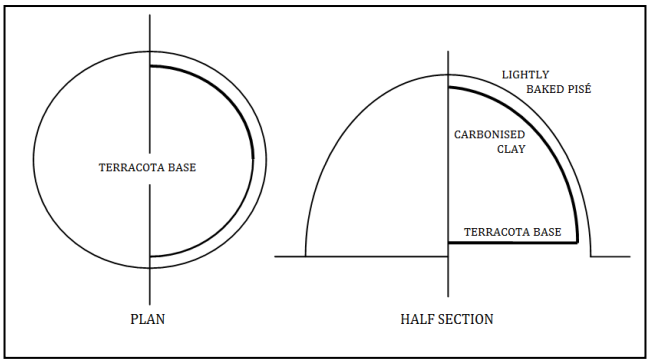


Fig. 3. *Early, idealistic documentation of restored Halaf „bread oven" from Tell Arpachiyah, by M. Mallowan (Mallowan & Rose 1935, 15)*

In second half of 20th century, the typical approach to oven studies in Near Eastern archaeology was ethno-historical in nature and it was primarily concerned with presenting typologies of fire installations (e.g. Canaan 1962 - Forbes 1966 - Weinstein 1973 - Avitsur 1977) and combining archaeological and ethnographic data (Dalman 1964 - Crawford 1981 - Kramer 1982 - Van der Steen 1991 - McQuitty 1994). Special attention was paid to cylindrical clay ovens (the so-called bread ovens) traditionally used in rural areas throughout the Near East. Throughout history, ancient bread ovens were interesting also to biblical archaeologists, since bread was considered to be a stable of life, and the origins of its production were looked for. One such example comes from Avitsur (1977) who focused his investigations on bread ovens from Palestine, frequently quoting the Bible to support his conclusions.

Beginning of the new millenium is marked by further development of ethnoarchaeological research (Parker & Uzel 2007 - Parker 2011) of clay ovens in the Near East, contemplated now also by increasingly popular experimental investigations (Mulder-Heymans 2002 - Eddisford et al. 2009 - Parker 2011 - Uzdurum 2013). Mulder-Heymans, who conducted ethnoarchaeological research of bread ovens in Syria,

proposed a new method for documentation of ovens in order to prevent misinterpretation of various types of „bread ovens“ (in her ethnographic study she encountered the following basic types: tanur, tabun, saj and waqdiah – very similar typologies were already published by Canaan 1962 - Forbes 1966 - McQuitty 1994). Her documentation tool has a form of standardized, detailed worksheet (Mulder-Heymans 2002, 6-7).

The beginning of the 21st century saw diversification of topics and research questions of oven studies and this trend is related to the onset of post-processualist orientation. Ovens and hearths received much more attention than in previous decades; this corresponds with general trend in contemporary archaeology and increased interest in daily life of individuals, every day practices, and cooking traditions of prehistoric communities. Fire installations were now part of spatial analyses, studies of paleonutrition and gender studies (Meyers 2007 - Parker 2011). Parker´s ethnoarchaeological research of bread ovens in South-eastern Anatolia was innovative in topics (behaviour patterns, cultural structures and practices, gender) and also in attempt to really interlink the ethnographic (collected in South-eastern Anatolia) and archaeological data (excavated at Kenan Tepe) and integrate them on various levels of abstraction. His method distinguished three levels of abstraction (Parker 2011, 605), used for interpretation of gradually abstract issues related to use of ovens. Although Parker uses simple relational analogy as his primary tool and his more abstract hypotheses can be considered only speculations, he managed to "modify (his) team's excavation and sampling strategies" (Parker 2011, 618) in order to support the hypotheses by actual excavated evidence. Parker´s innovative approach to ethnoarchaeological study of ovens provided possible interpretations of some of the objects and features that might have been related to tandır ovens (e.g. some sherds that might have been broken oven cores, existence of protective structures). At Kenan Tepe, the archaeological team decided to digitalize their documentation and upload it online as part of Open Context project[8]. Open Context is a way of publishing data through a process which simultaneously reviews, edits, and aligns data to standards. The datasets are contributed by researchers themselves into pre-existing, global ArchaeoML scheme

[8] OpenContext initiative is also used by archaeologists from Çatalhöyük and Pınarbaşı, but only for their respective zooarchaeological projects. Data related to fire installations is not part of these.

with a Web-based software tool called *Penelope*. All content on Open Context is freely and openly accessible to the public- no login is required to access and download the data. This way, it is possible to look up for example information about excavated ovens (tandırs) at Kenan Tepe[9] and find drawings, photographs and general excavation information. At the same time, it is necessary to have in mind the possible misuse and pitfalls of digital archaeology- there are many archaeologists who approach similar projects only very carefully, even reluctantly. Rights of Open Context contributors are protected only by ethics of other users and by Open Context Privacy Policy, following American Library Association recommendations.

The boom of digital technology and its penetration to archaeology is further reflected by improvement in recording techniques- oven specialists can now use high resolution photography, digitalize their drawings, use 3D scanners, GIS software, they can also make 3D reconstructions of fire installations (Parker 2011, Fig. 4). Enhanced possibilities of microarchaeology gave birth to analysis of oven morphology and taphonomy- microarchaeolgical studies of function and use of fire instalaltions represent yet another important and promising approach with innovative methodology and rapidly developing possibilities of research (Gur-Arieh et al. 2013).

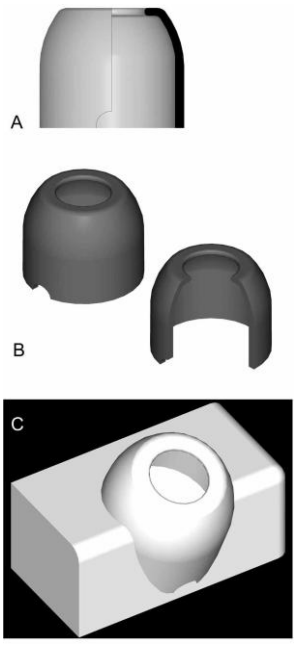


Fig. 4. *Digital reconstruction of tandır oven and its components made by Parker (2011, 608)*

[9] Available at: http://opencontext.org/projects/3DE4CD9C-259E-4C14-9B03-8B10454BA66E, tandır oven documentation to be seen here: http://opencontext.org/subjects/A26C87D9-C8B3-4C85-2404-5434F398EB2D.

In conclusion, if we focus on current trends of oven studies in Near-Eastern archaeology, we might distinguish several main approaches, some of which are already well-established in archaeological discipline, but have recently gained more attention or improved their methodology. These are:

- **Steady interest in ethnoarchaeological studies with gradual modifications**: these combine ethnographic observations with archaeological data and employ various levels of abstraction in order to make conclusions about topics related to fire installations and cooking practices, such as gender roles, social life, behaviour patterns, etc. The conventional ethnoarchaeological approach in oven studies has been criticised by Parker (2011) who attempted to present a more productive ethnoarchaeological approach to oven studies by integrated ethnographic and archaeological datasets using three levels of abstraction.
- **Shift towards life sciences**: Boom of microarchaeological studies focusing on function and use of ovens/hearths, proposing new methods that can bring very promising results. We can even observe birth of new sub-discipline: **archaeology of fire**, which repserents „a pyro-archaeological approach to the past, perceiving fire as a material culture element"(Oestigaard 2007, 212). Apart from fire installations (seen as systems of heating and food preparation), it encompasses studies of ceramic production, archaeometallurgy, glassmaking, building destruction, cremation (Georghiu & Nash 2007, 21), among others.
- **Increasing popularity of nutrition studies** and studies of paleodiet (Sutton, Sobolik & Gardner 2010 – Milano & Bertoldi 2014). Nutrition studies tend to be transdisciplinary in nature, because they are integrated with other natural sciences, such as archaeobotany, zoology, anthropology, etc.
- **Spatial analysis, household archaeology**: ovens and hearths are studied in their contexts (Fig. 1) and often serve as indicators of food preparation zones of activity or domestic activities.
- **Experimental archaeology**: reconstructing traditional types of Near Eastern ovens (Mulder-Heymans 2002 - Parker 2011) and hearths (Uzdurum 2013) often with help of locals from villages who have the skill to build and use them (Fig. 5)

- **Use of modern recording techniques**: digitalisation of drawings, digital reconstructions, use of GIS software, high quality photography, etc. – these modern recording tools are now a standard at almost every excavation project, along with more conventional techniques which are still considered reliable and are not completely replaced (archaeologists believe that for example spending time on a drawing can help the excavator notice details that he/she might have missed by looking at photograph taken at blink of an eye. Mateiciucová & Wilding, personal communication – Gülçur, personal communication). Digital online projects, such as Open Context, are used for example by Kenan Tepe team, but they are generally considered potentially dangerous and not many archaeological teams are willing to publish their data online with unlimited access of the public[10].

Fig. 5. *a) (left) Archaeologist lighting experimentally made clay oven at Güvercinkayası (photo provided by: S. Gülçur) b) (middle) Local woman attending to experimentally made oven at Çatalhöyük (source: www.catalhoyuk.com, c) (right) Experimentally made hearth at Aşıklı Höyük (photo: author).*

It can be stated that importance of fire installations in Near Eastern archaeological studies is generally accepted (Gur-Arieh et al. 2014, 50), yet their informational potential is not always fully exploited. To our extent of knowledge, the most common approach is usually limited to macroscopic description of their shapes and sizes (Gur-Arieh et al. 2014, 50), sometimes complemented by ethnographic analogies (Mulder-Heymans 2002, Parker 2011) or experimental research (in Turkey: Eddisford et al. 2009 at Çatalhöyük, Üzdürüm 2014 at Aşıklı Höyük, etc.). There is currently no systematic and unified method for extracting informational maximum from fire

[10] A small minority of archaeologists have been embracing the Open Context initiatives, mainly those with an interest in customising digital tools or encouraging broader archaeological participation and dialogue beyond a few well-resourced Western institutions (e.g. in line with the participatory agenda espoused by World Archaeology). (Costa et al. 2012, 449)

installations and documentation tools for this purpose differ from site to site. Despite few attempts of Near-Eastern archaeologists to propose such tools (McQuitty 1994, Mulder-Heymans 2002, Parker 2011), none of those had any significant impact beyond their own respective projects. Unless a so-called „oven specialist" is appointed within archaeological team to focus on the fire installations (usually for purposes of his/her thesis), the ovens and hearths are treated without any specific attention (which does not mean that they are not excavated carefully, or that they are not sampled; we are addressing here only the documentation methods). Most of archaeological teams use more or less standardized forms and worksheets for their work, and the fire installations normally fall into general cathegory of „immovable features", along with walls, benches, cells, platforms, etc- these forms rarely meet the complexity of this issue (i.e. excavation of fire installations), especially if the excavators are unexperienced or if the tempo of excavation is too fast. If the archaeological team uses a digital database, the fire installations are part of it, again falling into broad cathegory of architectonic „features". Conventional tools are used for their recording, such as drawings and photographs.

Since each archaeological team uses their own devices and systems of documentation, the quality and character of the acquired data varies a lot from site to site. Although there has been considerable progress in methodology of oven studies and new, innovative methods to study fire installations have been proposed, not enough attention has been paid to the documentation process of fire installations. The conventional documentation tools are seldom critically reviewed, and despite previous attempts to create more effective documentation tools (Mulder-Heymans 2002), most archaeological teams prefer their own documentation systems (described above).

Although proposal of a unified strategy for documentation of fire installations in an area as diverse as the Near East might be too challenging, we believe that modifications to the conventional documentation methods might have positive effect on the informational gain and lead to more fruitful research of fire installations. The new documentation method might help us achieve the following goals:

- **Minimize bias & avoid misinterpretation of features** (e.g. tannur/tabun – unclear definition, often misinterpreted in literature)
- **Ensure clarity and transparency**– avoid receiving incomplete and inconsistent data of uneven quality
- **Increase interoperability**- coping mechanism dealing with heterogeneity of data caused by diversity of vocabularies used for description and interpretation of fire installations

and

- **Achieve accessibility (discoverability)**- possibly create a digital data registry that would ensure access of scientists to data from various sites instead of "digging through" publications and hand-written field notes which are very hard to access.

1.5. Current state of research (oven studies in Central Anatolia, Turkey)

At archaeological sites in Central Anatolia, the fire installations are commonly excavated by field archaeologists and students of archaeology with help of skilled hired workers (local men or women- Fig. 7). There are usually no specialists oriented on research of these features- exceptions are master or doctorate students, if they choose to study fire installations for purposes of their diploma theses (e.g. Melis Uzdurum at Aşıklı- 2013).

Fig. 6. *Excavation of hearth at Tepecik Çiftlik by author in collaboration with one of the local workers (right). At Tepecik, women are usually hired to help the archaeologists, and after spending several subsequent seasons at the site, they become very skilled even in the most delicate tasks.*

Normally, the ovens and hearths are treated as elements of household architecture, „determining the functions of buildings" containing them (Özbaşaran 1998, 556) and are routinely sampled for charcoal remains and for floatation, sometimes also for other purposes, such as micromorphology. The approach of Turkish archaeologists and foreign archaeologists working in Central Anatolia varies from site to site, and it is impossible to make any stricts generalisations regarding the methodology of research in this geographical area- because it depends very much on the academic training that the archaeologists receive at their university or through experience with foreign teams, and also on the general aims and focus of their respective projects.

It can be stated that there is currently no unified documentation system for hearths and ovens that would ensure maximal information gain from fire and cooking installations. An exception is from recently published diploma thesis of M. Uzdurum (2013) who used

a standardized digital database for her study of hearths from Aşıklı (Fig. 8). To our extent of knowledge, this tool is site specific and it was created for needs of Aşıklı archaeological projects only.

Except for a few specialised works (i.e. Özbaşaran 1998 - Parker 2011 - Uzdurum 2013); the data on fire installations is published only scarcely and incompletely in excavation reports and any greater synthesis of information on inter-regional level or further research into the topic is therefore impossible. The only work where data from different sites in Central Anatolia was put together and compared, is Uzdurum´s thesis about hearths from Aşıklı (2013).

Regarding the recording techniques of fire installations and in general, although modern tools (for example at Tepecik Çiftlik: GIS, use of „drones" for aerial photography) are welcome and employed quickly with large enthusiasm by respective teams, there is certain unwillingness and caution when it comes to issue of digitalisation and sharing of data- projects such as Open Context (which is used for example by archaeological team excavating Kenan Tepe) are perceived by many Turkish archaeologists reluctantly and with fear of possible misuse (Bıçakçı, personal communication). This might be one of the reasons for impossibility to find and access data about excavated fire installations – they are not shared, unless they are published and this might take a long time.

Another characteristic of oven studies in central Anatolia is overrepresentation of large megasites with long tradition of research and larger budget- namely Aşıklı Höyük and Çatalhöyük, which have larger possibilities of transdisciplinary research, laboratory analyses, and they also yielded larger numbers of fire installations which allow statistical analysis, etc. In 1998, Mihriban Özbaşaran published a study of pre-pottery Neolithic hearths from Aşıklı Höyük based primarily on morphological and structural characteristics and leading to inquiriess into possible use and function of these hearths. We have already mentioned the diploma thesis of Özbaşaran´s student, M. Uzdurum, which synthesises excavation data, experimental work, ethnographic analogies and also contains brief chapters on fire installations from other sites in vicinity of Aşıklı.

At the abovementioned (and some other- e.g. Güvercinkayası) sites in Central Anatolia, experimental reconstructions of ovens are popular and one might encounter functional reconstructed ovens at excavation houses and/or in experimental houses (Fig. 6). At Çatalhöyük, experimental firing of a Neolithic, reconstructed oven was performed by Eddisford, Regan & Taylor (2009). Some ethno-archaeological and experimental work on ovens has also been done by Atalay (2006) and more recently by Ketchum (2009). Experimental work at Aşıklı Höyük was carried out by Uzdurum as part of her thesis (2013).

Last, but not the least, it is important to notice that although there are only few specialised papers dealing with the topic of fire installations from prehistoric Central Anatolia, the archaeologists working in this area usually have considerable awareness about results of work at other sites, they are able to look for possible ethnographic and archaeological analogies in the area, and they meet regularly during academic symposiums to discuss current issues. However, a lot of work is in progress or not accessible, and it might therefore seem that this topic has been completely neglected, which might not be necessarily the real picture.

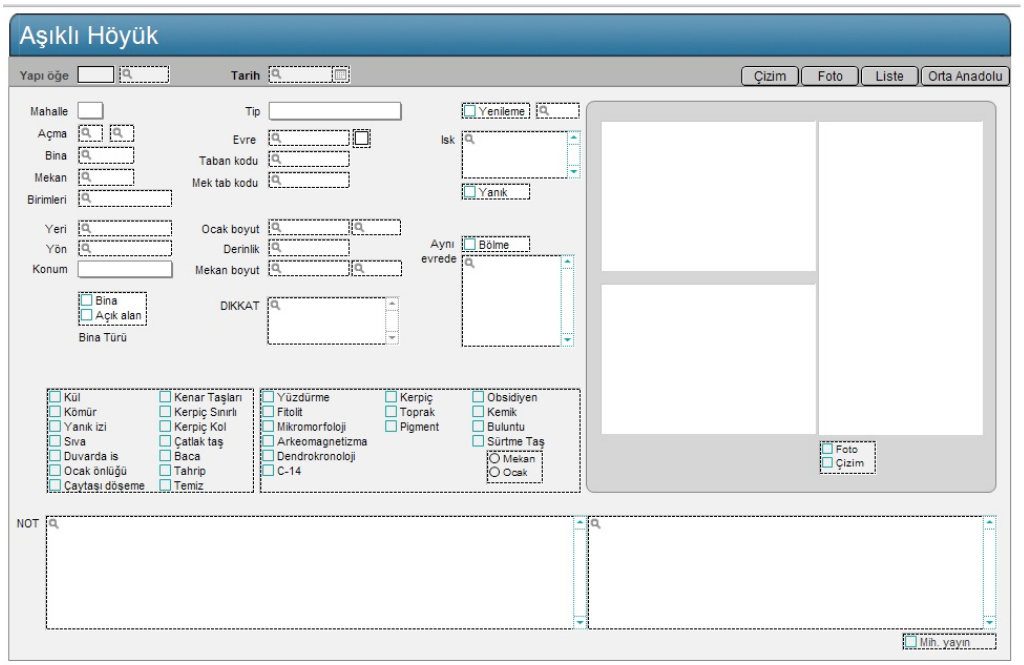


Fig. 7. *Digital database used at Aşıklı Höyük. M. Uzdurum (2013) used it in her thesis about pre-pottery Neolithic hearths.*

1.6. Revised worksheet for excavation and documentation of fire installations

The archaeological excavation is a process that usually develops in a "rapidly evolving environment: several factors (weather, costs, permissions) force the work to be concentrated in a few weeks" (Callieri et al. 2011, 1). This is true especially for foreign teams working in the Near East, but also for native archaeologists from universities in larger countries. For example, a team of archaeologists working and studying at Istanbul university in modern metropolis of Istanbul travels long distance to their excavation house each summer to stay in often secluded, environmentally and culturally different region- for instance in Central Anatolia. Excavation projects in rural Central Anatolia, whether they are carried out by national archaeological teams or by foreign archaeologists, adhere to similar conditions where the abovementioned factors literally dictate the length of stay and character of archaeological work.

Furthermore, excavation is a destructive process, a "mono-directional operation, which constantly modifies the state of the site" (Callieri et al. 2011, 1) and because the interpretation of archaeological contexts is usually possible only much later after acquiring all the necessary information from the field, the documentation of archaeological record is vital to any archaeological project. Its amounts, however, tend to be massive, because daily plans, sketches, photographs, notes and measurements are collected very intensively during those few weeks or months of an excavation in order to extract as much information as possible before the upper levels are destroyed in order to reach and explore the lower layers, and so forth. Because of this, documentation of excavation process is a vital part of archaeological method, making analysis, synthesis and interpretation of archaeological contexts (Neustupný 2007, 76) possible.

Every archaeological team aims to make their documentation efficient and accurate, as the older methods are often impractical and do not fit the needs of speedy excavation pressed into couple of months per year.

The conventional documentation methods usually combine day-by-day field notes with various forms and worksheets that require archaeologists to fill in standard information (for example measurements, soil description, numbers of finds, sampling strategy, etc.); they analyze the excavated feature during its gradual removal and

detailed prospection. After this stage of on-site extraction and documentation of the raw data, the analysis can move on to the excavation house (or laboratory), where it can either continue, or become grounds for subsequent synthesis and interpretation. The quality of data is influenced by several factors, from condition and type of archaeological remains, the chosen documentation strategy of the team, to the qualification, interest or condition of the documenting archaeologist (Sulaiman et al. 2011, 28). That is why pre-printed pro-forma sheets have become a standard in archaeological practice; they formalise the on-site interpretation and help collect comparable data. Sheets with standardized sets of queries, sometimes providing the excavator with lists of options to quickly select from, are now the common way of documentation and they are "designed to create a professional level of organisation and consistency in the recording of physical archaeology and to prompt archaeologists of any level of experience to create a detailed and easily cross-referenced record." (http://www.norvicarchaeology.com/Recording.htm)

The dawn of digital age has brought possibilities for archaeologists to get sufficient documentation even in time-dense conditions (Callieri et al. 2011, 1). Post-modern archaeology produces a great deal of data and rapidly increasing portion of this data is digital (Costa et al. 2012, 450). A careful excavation of any prehistoric feature requires time, but time is often too valuable a commodity for archaeologists to spare it on each and every installation that they uncover. Decisions must be made on a daily basis by excavators how much focus will they put on features that tend to occur very frequently within household architecture- fire installations are a good example of this type of feature. Despite their potential for various kinds of analyses and studies (as demonstrated in the previous chapters), fire installations are often perceived as so commonplace and obvious that they do not require special treatment by archaeologists. This approach is, however, not the best one, because it can lead to misinterpretation and loss of precious information which could easily be obtained if there was simply more time for in-depth analysis. For example, at Tepecik Çiftlik, much greater focus was put on Late Neolithic fire installations from lower occupational level. The reason for this was the fact that these installations were much better preserved and also more interesting due to their positions within household architecture ("alcove ovens"- see chapter 3.1). Data on ovens from this level is qualitatively best and also most easily found in the field diaries. Nevertheless, when it

comes to older features, it is clear that much less time was spent on these; their documentation and recording was very sporadic. For archaeologists focusing on research of fire installations, however, all of the uncovered features are interesting: both well and badly preserved, complex and simple, uniform and unique. Selected examples provide a biased picture and decrease validity of subsequent interpretation.

This is something that should be avoided and proposed documentation method might be helpful in this regard, because it requires certain minimum time to be spent on all the excavated fire installations and it therefore induces **detailed, qualitative study** of even nature. Bearing in mind two facts, namely that the excavation process cannot be much delayed and the fire installations require at least some degree of special attention in order to provide archaeologists with satisfactory information, the conventional documentation method needs to be optimised in order to meet constraints of archaeological fieldwork as described in the first part of this chapter.

Other problems that can be caused by lack of proper documentation of fire installations are: inconsistency of data and very low discoverability of data (one needs to "excavate" the field diaries in order to collect raw information which can be incomplete and very vague).

To address the abovementioned issues and problems of oven research in Near Eastern archaeology, I have decided to modify a specialized worksheet which I created as practical outcome of my bachelor thesis (Tkáčová 2013) and supplement it with newly created digital Access database. When creating this documentation "toolkit", I had several main concerns. Based on my previous findings and experience with this field of research, I decided that the new method should fill the following requirements:

- **Clear:** understandable not only for specialists who have experience with excavation of ovens and hearths, but also for otherwise-oriented field archaeologists and (after basic briefing) hired workers helping with the excavation. The worksheet can also be used as a teaching aid for students of archaeology.
- **Efficient**: it should help streamline the information recorded during excavation of the fire installations and prepare it for subsequent digitalisation in form of database entries ready for further analysis, synthesis and subsequent interpretation

- **Usable:** the worksheet can be filled out quickly in the field and revised in the excavation house.
- **Issue-sensitive**: the worksheet is based on ethno-archaeological studies of fire installations available for the area of Near East and it addresses all the main elements that might be encountered by archaeologists excavating domestic cooking installations, such as tannurs, tabuns, fırıns, domed ovens, hearths, etc.
- **Reflexive**: it should allow an honest, transparent and inclusive strategy (Davies & Hoggett 2004, 3) and give space to self-reflection[11] already during the excavation process by realizing the weaknesses of research and proposals for future improvements that can always be made. Such approach enables setting ground for future discussions between archaeologists from different sites and embracing possibilities of brainstorming which might help interpretation of the prehistoric features or improve one´s skills.

The worksheet which you can see in Fig. 8 is a combination of carefully selected values and categories that deal with all the peculiarities of domestic fire installations. It was originally inspired by an older proposal of Mulder-Heymans (2002). This worksheet should function as structured but at the same time flexible framework that can be used not just by specialists but also by field archaeologists with general training, students of archaeology and even skilled local workers (for example after creating a Turkish mutation). It was designed for use at the site during excavation process and its printed version is complemented by digital Access database which can help store the data and work with it almost immediately.

The top part of the two-sided worksheet (the contents had to be divided into two pages in order to provide enough space for hand-written answers) represents a classic "label" or a header, and it should contain general information which ensures easy traceability of analyzed entities (=fire installations). Apart from entries such as name of site, trench, original designation, type (if possible to determine) and datation, there is a space to describe the condition and level of preservation of feature- this way, the

[11] With the onset of post-processualist movement, archaeologists have debated the relation of context, meaning and theory; this debate resulted in proposal of the so-called **reflexive method** by Ian Hodder (2000). Reflexive approach was created as a reaction to an older notion of processualists that objective archaeological facts can be obtained in the field via rigorous, scientific method (Davies & Hoggett 2004, 2 - Costa et al. 2012, 450). Post-processualists have argued that assumptions regarding archaeological practice are always theory-laden and objectivity cannot exist. Bearing this in mind, the proposed method for documentation of fire installations contains space for self-reflexive expression of the excavator.

oven specialist or any other professional analyzing or synthesising the data will be familiar with the state of the feature and he/she will be aware of what was preserved, fragmentary and what was absent. If possible, the excavator should provide sketch of stratigraphic matrix to clarify the oven´s/hearth´s relation to other excavated featuers.

Second section of the worksheet is morphological and technological. The measurements come first and they are quite detailed: they are divided into two parts: body (core) and superstructure. Not all fire installations have a superstructure[12] . Categories in this section are: ground plan (shape), diameter bottom, diameter top, preserved height (of walls) and depth (of interior), estimated original height (if possible to reconstruct), wall thickness (min-max) and direction/orientation (of the opening). These fields are followed by inquiries about construction material (some common materials are available as options, others can be added) and construction technique. Next categories are: stone lining (of the kerb), form of chamber (for example domed, conical, etc.), foundation (if there are more foundation layers, it should be described), openings, type of clay, etc. – all of these deal with the construction of the fire installation. In order to avoid confusion and desinterpretation, most of the querries do not just contain options yes/no, but also undetectable and not preserved.

Third part is dedicated to context and use of the fire installations, as you can see from Fig. 8. It should contain all the lot numbers, find numbers, etc. as well as information about location of the analysed fire installation.This part is followed by section about Sampling strategy and off-field analysis. The “footer” of the worksheet represents the reflexive part of this tool: it is a space for excavator´s thoughts, ideas, comments about what was neglected, etc.Use of this worksheet should be complemented by a whole set of recording practices- drawing, photography, GIS, etc.

The Access database is set up of 7 related tables generally corresponding with worksheet sections (General information, Body, Superstructure, Form, Use & Context, Sampling and Reflection). All of the information can be gathered through one form (Fig. 9), which has visually divided thematic parts (these parts correspond with

[12] Superstructure is sometimes built around the oven core (it is typical for tannur-type of ovens) for support, heat isolation and sometimes as working space for the cook. It can be built of mudbricks,mud blocks or stones. See pages: XX-XX for more information about most common domestic fire installations that have been attested in Near East ethnographically and archaeologically.

respective tables and so for each oven you fill in just one form and at the same time the data is divided into 5 tables). This division was created in order to avoid creating one chaotic table that would be hard to work with. All the tables are interconnected through unique ID numbers which are given automatically to each fire installation that is entered into the database.

General excavation information						
ID	ID is unique for each fire installation			Stratigraphic Matrix		
Name of site						
Trench	Sector					
Excavated by	University, name of excavator					
Excavated in	Year when the feature was removed					
Original designation of the feature	If the feature already has some designation, write it here					
Type of fire installation	Tandır	Fırın	Earth oven or firepit			
	Tabun	Domed oven	Ocak	Other:		
Datation (Level, phase, period)	If C14 date is available, please include it					
Condition (State of preservation)	Detailed description: what was the original state? Was the feature: Well preserved? Fragmentary? Only traces were visible?					
Photograph	Yes	No	Nr: Include photo numbers to be able to track them easily			
Drawing	Yes	No	Include scales in which the feature was drawn			

Shape and Form					
BODY	*Ground plan*	E.g. circular, rectangular, horseshoe, oval, irregular			
	Diameter bottom	(m)			
	Diameter top	(m)			
	Preserved height/depth	(walls of oven)	(interior)		
	Estimated original height	If possible to reconstruct (m)			
	Wall thickness	(cm)			
	Direction/orientation	Orientation of the bottom opening, if the opening is not preserved, or the feature didn ´t have any, include this information, please			
SUPERSTRUCTURE	*Superstructure around oven*	Yes	No	Undetectable	
	Material	Mudbrick	Pisé	Other:	
	Diameter bottom	(m)			
	Diameter top	(m)			
	Preserved height/depth	(m)			
	Estimated original height	If possible to reconstruct (m)			
	Wall thickness	(cm)			
Construction material	Plaster	Stone	Clay	Mudbrick	
	Describe:				
Construction technique	Please, describe:				
Stone lining	Yes	No			
Form of the chamber	If possible to reconstruct : e.g. dome, cone...				
Foundation	Sherds	Pebbles	Flat stones	Plaster	Other
	Describe:				
Position	Elevated (on platform)	Directly on the floor	Subterannean	Partly sunk	
Preserved openings	Yes	No	Undetectable		
Opening on bottom	Yes	No	Undetectable		
Opening on top	Yes	No	Undetectable		
Inclination of the core	Yes	No	Undetectable	Angle:	
Angle of the walls	Less than 15°	15-45°	None	Unrecognizable	
Type of clay	Untempered	Tempered			
Temper in clay	Straw	Manure	Goat hair	None	Undetectable	Other:
Adjacent working table/ working area	Yes	No	Undetectable		

Use and context						
Location within the site (general context)	Courtyard	Street	Ovenhouse	Room corner	Room centre	
	Building number		Room number			
	Size of house	(m^2)	Size of room	(m^2)		
	Please, describe					
Number of ovens per household unit		Number of uncovered contemporary ovens				
Attested continuity (more ovens in same spot)	Yes	No				
Associated features	E.g. benches, walls, storage cells, working areas, etc.					
Associated layers	Stratigraphic layers that are related to the feature					
Associated lots	Include their numbers to be able to find them easily					
Associated finds	Storage vessel	Grinding stone	Animal bones	Lithic Tool	Clay Balls	
	Pottery tray	Pottery lid	Clay pan	Silo	Cooking rocks	
	Please, include find numbers:				Other:	
Traces of burning	Indicate where, to what degree, colour:					
Fuel	If possible to detect					
Fuelling technique	If possible to detect					
Traces of rebuilding	Yes	No	Undetectable			
Traces of repairing	Yes	No	Undetectable			
Number of preserved floors		Thickness of floor levels:				
Other (additional notes, comments)						

Sampling strategy and off-field analysis					
Sampling	Yes				No
	C14	Floatation	Fuel analysis	FTIR	Micromorphology
Sample Numbers					
Result of analysis					
GIS digitalisation	Yes	No			

Reflection of the excavation process
Please, write down your ideas about the excavation process: (main weaknesses, shortcomings, what was overlooked, what could have been done differently)

Fig. 8. Specialised worksheet to document domestic fire installations for Near-Eastern archaeologists

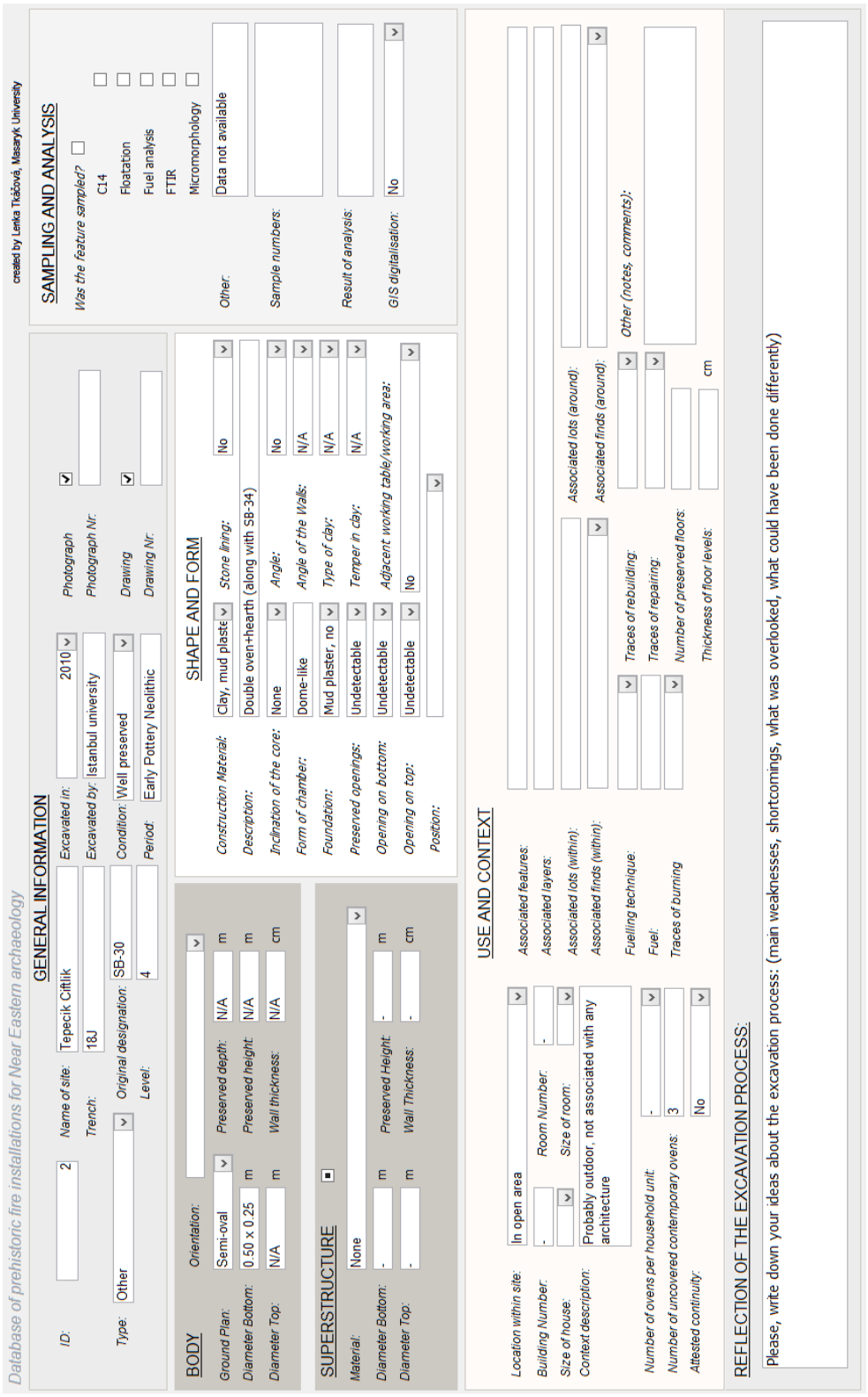


Fig. 9. Printscreen of the Access database form, based on the worksheet (Fig. 8)

Part 2 *Case study: Tepecik Çiftlik*

2.11. Geographical setting

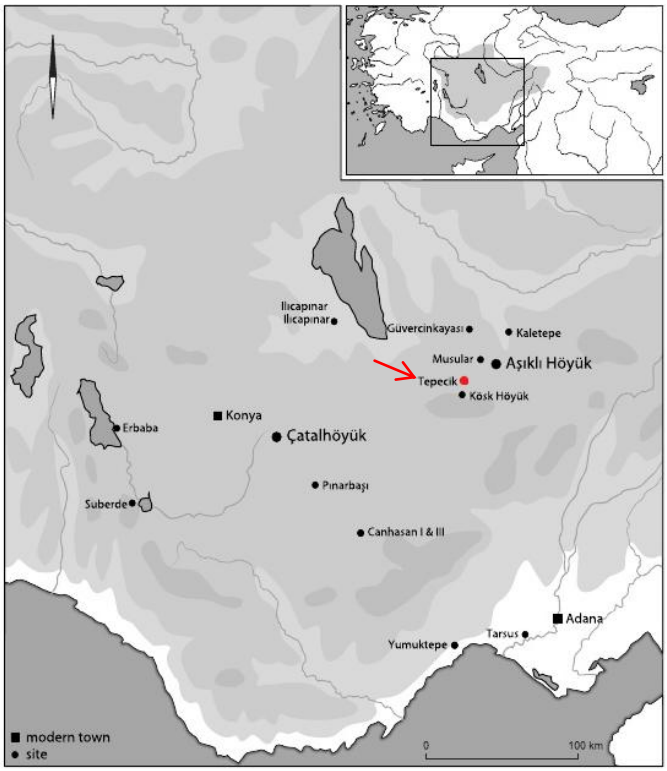


Fig. 10. *Map of central Anatolia showing the most important Neolithic sites; the two main sitesdiscussed in this paper are indicated in bolder letters. Figure prepared by M. Oberendorff, published in Düring & Marciniak 2006, p. 170 (red dot and arrow added by author of thesis).*

Tepecik Çiftlik is 300 x 170 m large oval tell, rising 4.60-9.60 m above the present ground level (Bıçakçı 2001, 27). The settlement mound is situated near the modern city of Niğde south of the Central Anatolian Plateau, southwest of Cappadocia region (Bıçakçı et al. 2007, 237).

Central Anatolia can be divided into 3 distinct geographical regions (Özbaşaran & Duru 2005, 16): Cappadocia, Konya Plain and the Lake District. Cappadocia is a region in Central Anatolia; comprising of Nevşehir, Kayseri, Aksaray, and Niğde Provinces. According to the generally accepted consensus, the term "Cappadocia" derives from Old Persian word katpatuka, which means "the land of beautiful horses" (Van Dam 2002, 65). The earliest known record of this term was found on an inscription carved into the Mount Behistun cliffs in Persia. The trilingual inscription (in Old Persian, Elamite and Akkadian) listed the conquest of tribes and countries by king Darius I in late sixth

century BC (Briant 2002, 172-75). This list features the name “Katpatuka” for the first time in history, probably describing the region that later came to be known as Cappadocia (καππαδοκία). Nowadays, Cappadocia refers to regions surrounding modern cities Aksaray, Nevşehir, Niğde and Kayseri (Gülçür 2012, 214).

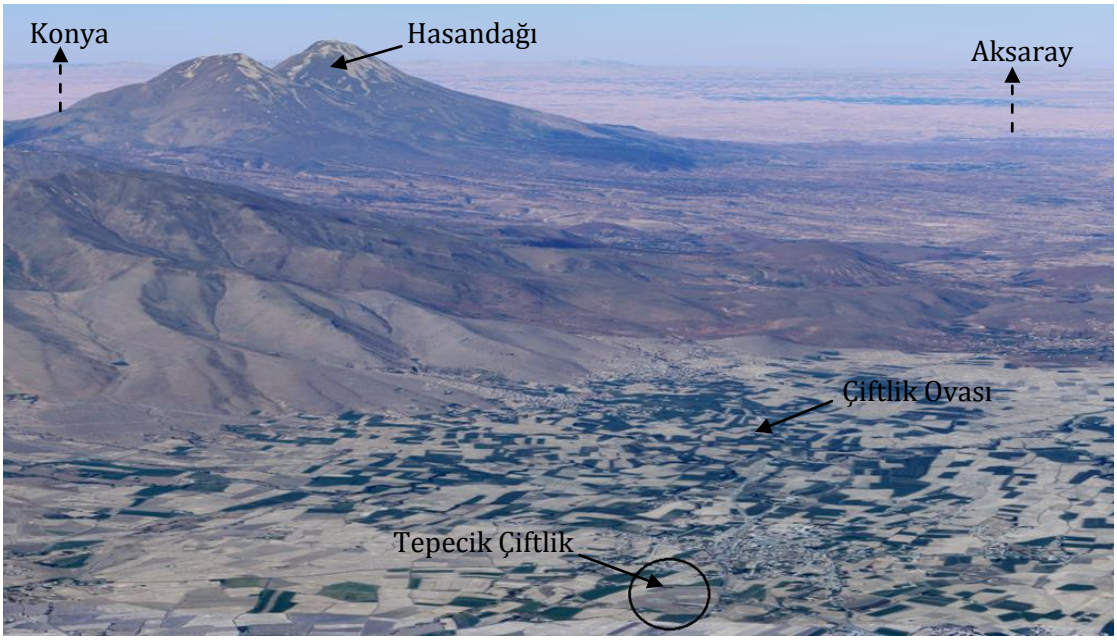


Fig. 11. *Location of Tepecik archaeological site at Çiftlik plain, the volcanic mountain Hasandağı is seen in the background.*

Fig. 12. *View of the oval-shaped settlement mound Tepecik Çiftlik from the air, scale of archaeological excavations is clearly visible. Photo: 2015*

The site Tepecik Çiftlik is located in the Melendiz Plain, which lies in the southern part of Central Anatolian Plateau in the fertile Çiftlik valley neighboring the Göllüdağ region (Bıçakçı 2001, 25-42). The area is located on a high plateau with average alteration of ±1000 m above the sea level. To the north it is flanked by the Pontus Alps, the south is guarded by Taurus Mountains (Gülçur 2012, 214).

This area has been formed during the Pleistocene and in Holocene by intensive volcanic activities. The range of volcanic mountains at Melendiz plain includes Melendiz Dağ (2935 m) and Hasan Dağ (3268 m) (Ertuğ 2013, 155). The closest volcano to Tepecik Çiftlik is Göllüdağ, a rhyolitic strato volcano, which served as an important source of obsidian in the past. One of the most important factors about Tepecik settlement is the production of obsidian tools- this site represents a crucial point in the production and distributional chain of obsidian tools from sources to Cilicia, the Konya Plain and the West.

The assemblage from Tepecik Çiftlik bears close resemblance to that of Köşk Höyük- a site located only 35 km south-southeast from Tepecik at the edge of Bor plain in Niğde region (Bıçakçı 2001, 25). Both of these sites yielded similar Relief Decorated Pottery with animal and human figures (Bıçakçı 2001, 25 - Gülçur 2012, 216), which is dated to Early Chalcolithic period, their architectural layouts and small finds were also similar to such degree that these two sites were reported to form a possible "cultural whole" (Gülçur 2012, 213).

2.12. History of research

The mound was firstly discovered by Ian Todd in the 60s during his comprehensive survey of Central Anatolia (Todd 1968 – Todd 1980 – Bıçakçı 2001, 25 - Todd 2007 and Yıldırım & Gates 2007, 281). Todd´s goal was to visit previously reported mounds, but he managed to identify many new sites on his survey trips. In the context of the same survey, Todd firstly recognized the importance of Aşıklı Höyük (Özbaşaran 2011, 103), now a very intensively excavated Aceramic Neolithic site located some 30 kilometers from Tepecik. Tepecik (Turkish word "tepecik" meaning literally "a small tell") was then surveyed in 1973 by M. Fornaseri, a member of Italian archaeological crew in Arslantepe (Malatya), who was mainly interested in provenance of Late Chalcolithic chipped stone tools from Arslantepe (Taddeucci et al. 1975, 231-2). Subsequently, a

collection of surface finds was conducted on the mound in 1990 by Japanese team led by Sachihiro Omura. This team was carrying out a general archaeological survey of central Anatolia under the auspices of Middle Eastern Culture Center in Japan, which had begun in 1986 and had two main purposes: to establish boundaries of stratigraphy for the site of Kaman-Kalehöyük and to identify archaeological sites in the region. Apart from Tepecik, the Japanese managed to survey a total number of 403 sites until 1995 when the survey moved to Aksaray and Kırşehir regions (Omura 1998, 78).

But it wasn´t until turn of the new millennium when the first systematic excavations of the mound finally started and remains of prehistoric architecture were uncovered. In 2000, a team of archaeologists directed by Erhan Bıçakçı (Istanbul University) and Erol Faydali (Niğde Museum) established a long-term large scale excavation project that continues to this day. The excavations are carried out for two months each summer with the participation of students of archeology and related disciplines (Řídký & Bıçakçı 2011, 27).

2.13. Excavation system

Legend	**Tepecik Çiftlik Excavation System**
1A, 1B ...	Designation of sector on grid scale
SB:	Sabit Buluntu / Non-moveable feature (e.g. bench, storage cell, wall, oven)
UB: △	Ufak Buluntu / Moveable object, artefact
ÖRN:	Örnek Numarası / Number of sample
SK:	Iskelet Numarası / Skeleton number
A	Room designation
1,2,3 ...	Yapı adı / Number of building
11,, (a,b,c)	Lots- each sector, or SB has its number of sandık (unit). Each unit is divided into a: lithics, b: sherds, c: bones

Tab. 1. Overview of the Tepecik Çiftlik excavation system

The excavation system at Tepecik Çiftlik is based on classic grid scale. The mound was divided into squares 10 x 10 m in size, which were created by intersecting N-S and E-W oriented lines (from East to West the sectors are marked by letters of alphabet, from North to South they are designated by numbers – e.g. 15J, 16K, etc.). To facilitate simultaneous excavation in neighboring trenches, one meter wide strips were left unexcavated between trenches to make the passing of wheelbarrows and movement of

excavators possible. These narrow trenches (baulks) were also excavated afterwards and included in the drawings and plans (Çakan 2013, 3).

Architectonic remains were treated as special contexts, with numbers used for buildings (1, 2, 3, etc.) and capital letters for rooms (room A, room BM, etc.) Any immovable elements of the architecture were treated within category of non-moveable features (Turkish: **Sabit Buluntular**), receiving an SB number, unique for its trench (for example an oven could have designation 17K SB-1, but in trench 18K, SB number 1 could be a completely different feature- a wall or bench). Fire installations, benches, walls, storage cells and other features all fall within this category.

Within the trenches, the collected finds were sorted in following way: broken pottery sherds, lithic fragments and animal bones were put into separate buckets (Turkish: **Sandık**). The buckets received a lot number (for example 119,,) for each cultural layer, or for each special context (for example from oven). The field journals contain lists of these lot numbers with the coordinates of their associated layer (Çakan 2013, p. 4). Moveable finds like pottery vessels, tools, grinding stones, or else, were treated as "**Ufak buluntular**", each find got its own UB number and its position was measured with theodolite. The digital database of small finds is currently being created by Hale Eren, a student of archaeology from Istanbul University.

Human remains from Tepecik are usually excavated by specialists on anthropology and each burial receives "Skeleton number" (Turkish: **İskelet Numarası**). Some of the results of anthropological analysis have been published by Ali Metin Büyükkarakaya, Yılmaz Selim Erdal and Metin Özbek.

The general sampling strategy at Tepecik involves various kinds of samples that are taken on daily basis during the excavation:

- Samples for C14 datation
- Botanical, phytolith samples
- Floatation samples of sediments
- Samples of anthropological material for studies of DNA

Each sample has its own sample number (Turkish: **Örnek Numarası**), and the coordinates of each sampling spot are measured.

Documentation procedure

The documentation of Tepecik Çiftlik is held in Turkish language, using a combination of daily entries in trench journals and pre-printed sheet forms (e.g. sample forms). Everyday excavation progress is described in special trench journals which include lists of small finds, feature numbers, etc. Special notebooks for human bones and burials are part of the documentation. The usual recording method involves 1:50 scale daily plans of the excavated trenches with addition of 1:20 and 1:10 detailed plans of features. In these drawings, elevations of measured points are indicated. The detailed drawings and plans are usually prepared by architects (if they are currently present at the site), or trained students of archaeology whose main responsibility is to do these plans and drawings everyday (they usually start drawing in the morning during the working time and return to the site in the afternoon after the daily work is finished in order to study the architectonic remains undisturbed by typical rush and turmoil of excavation). Pottery and small finds are drawn by specialists in the excavation house. The excavated trenches are photographed daily to keep track of work progress using SLR camera, in recent seasons the archaeological team has also employed kite and a drone to obtain high quality aerial views of the site.

Excavation of fire installations at Tepecik Çiftlik

The fire installations were treated within category of non-movable features (**Sabit Buluntular**). They were excavated in horizontal layers by experienced workmen supervised by archaeologists. No specialized form was used for their documentation, they were only included in the field diaries.

Fire installations were assigned a SB number, unique for trench where they were located. Context information further involved the associated archaeological level (i.e. level 2,3,4), building number, room designation and general description of the locus. If any moveable finds were found within the ovens, they were labeled with their own find number and attributed with corresponding number of the oven/fireplace in the find lists. Ovens and fireplaces were included in 1:50 plans of the excavated trench, 1:20 and occasionally 1:10 drawings were obtained as well. Photographs were normally taken from above with scale and north-sign for each building phase (e.g. stone foundation, pebble floor, plastered floor), some detailed photographs also exist that document

specific elements, such as re-plastered oven floors or preserved standing parts of oven walls, but these are more sporadic.

2.4. Revised chronology

Since the beginning of the excavation at Tepecik, it has been clear that the cemetery from uppermost level 1 belongs to late Roman/Byzantine period- this cemetery marks the last known use of the settlement mound (Yıldırım & Gates 2007, 281). The archaeological project of Erhan Bıçakçı aims to study the lower occupational levels, which were originally dated to Middle Chalcolithic (Level 2) and Early Chalcolithic (Level 3).

Later on, with advancing scope of the investigated area and especially after recognizing presence Gelveri-type of ceramics in level 2 at Tepecik, this level was subsequently reassigned to the Early Chalcolithic period (Düring 2011a, 155), somewhat shifting the whole relative chronology of the site. Absolute dates from C^{14} samples support this new dating- the absolute dates are seen in table 2. The comparison of the original and revised chronology of Tepecik Çiftlik can also be seen in table 2. The site stratigraphy with emphasis on Late Neolithic layers has been explained and published in master diploma thesis of Yasin G. Çakan (2013) from Istanbul University. It seems that Tepecik Çiftlik is contemporary with Köşk Höyük, these two sites also bear remarkable similarities in terms of material culture and might represent a distinct cultural group (Bıçakçı 2005, 46).

Level	Original datation	Revised chronology	Timespan	Absolute date
Level 1 badly destroyed, evidenced by graves	I. Late Roman-Byzantine	**Late Roman-Byzantine**	-	-
Level 2 mainly in N-W of excavated area	II. Middle Chalcolithic	**Early Chalcolithic**	Later than 6.000 cal BC	5.950 cal BC (latest confirmed date of occupation)
Level 3 over almost all of the excavated area	III. Early Chalcolithic	**3.1 Late Neolithic Upper Phase**	6.300 – 6.000 cal BC	6.040 cal BC (level 3.4)
		3.2 Late Neolithic Lower Phase	6.400 – 6.300 cal BC	
Level 4 AK building complex	IV. Pottery Neolithic Upper Phase	**Early Neolithic**	6.650 – 6.400 cal BC	6.300 cal BC 6.330 cal BC
Level 5			Earlier than 6.650 cal BC	-
Levels 6 to 9 known from deep sounding in trench 16K	V. Pottery Neolithic			-
Levels 10 to 14 From deep trench	-	**Pre-Pottery Neolithic**	-	-

Tab. 2. Occupational levels and datation of Tepecik Çiftlik. Based on Çakan 2013, table prepared by author.

2.5. Environmental frame and archaeobotanical evidence

The Melendiz Plain attracted people already during the prehistoric times because of its fertile colluvial soil, which was suitable for early agriculturalists, and a network of perennial waters and Melendiz stream which served as sufficient sources of water for the first villages.

The plain is covered with volcanic soils from lava flows originating from the former volcanic activities in this region. Nowadays, most of the area is devoted to quite intensive cereal production, with gardens near channels or rivers, and even some orchards and vineyards. (Ertuğ 2013, 169). The climate is moderate continental, with very dry and hot summers followed by cold winters, with average annual precipitation of 350 mm and it is dominated by treeless steppe vegetation (Ertuğ 2013, 155; see also fig. 13). In past, the area was covered with steppe-forest, remnants of which can still be found in higher altitudes (1400 m - 2000 m) and include mainly oak trees- most of these oaks have been cut down for fuel and reduced by brushwood (Ertuğ 2013, 155-169).

Fig. 13. The Melendiz plain in summer. In this environment, Tepecik Çiftlik settlement mound is situated. Photographed by: Salih Üstündağ 2014.

In prehistoric times, this region was a flourishing place with moderate climate and populated at least since the Neolithic times. The timing of the birth of first Cappadocian

sedentary societies no later than second half of the 9th Millenium BC is therefore no coincidence (Woldring 2002, 59 - Ertuğ 2013, 169). The natural resources during Neolithic and Chalcolithic were abundant and diverse. In the Early Holocene, an improvement in climatic conditions resulted in development of thicker vegetal cover, vast grasslands were now dotted with spots of oak woods. A combination of these factors ensured a suitable environment to settle in- the people found here rich soils to crop their plants on, proximity of water source to drink from, hilly pastures for their herds, clay deposits as construction material for their houses, their ovens and finally the pots to cook in (Gülçür 2012, 214). Wood to make fire and build constructions was not yet as scarce as in later periods. Archeobotanical research in Turkey has confirmed that between 7.960 and 7.000 BP, cold-tolerant vegetation spread from the Taurus mountains into the Melendiz Dağı, consisting mainly of conifer forest with pine and cedar (Woldring 2002, 64). Wild fauna was also available, and there were available sources of obsidian, basaltic and andesitic stones to make hunting and working tools. Since Chalcolithic period, copper slowly made its way into use (Gülçür 2012, 214). Another important element of Central Anatolian subsistence economy was the production of salt (Erdoğu & Özbaşaran 2008).[13]

This overall richness of resources was a result improvement of climate in east-Central Anatolia during this period, which created the perfect conditions for permanent subsistence (Woldring 2002, 59).

The Tepecik Çiftlik village existed within these favourable conditions and its inhabitants made good use of what surrounding nature had to offer. Results of ongoing archaeobotanical research at this site (now at hands of doctorate student Ceren Çilingir İpek from Istanbul University) will certainly shed more light on the nuances of environment in micro-region of Tepecik Çiftlik and its nutritional economy in the 7-6 Millenia B.C.E. Because the data has not been fully processed nor published yet, it is not possible to draw any conclusions regarding this topic. Nevertheless, understanding the environmental frame is crucial when we want to understand the use of fire installations at any site and the picture cannot be complete without consideration of resources

[13] Central Anatolian Salt Project was launched in 2003 and it confirmed that earliest archaeological evidence for using salt in this region comes from the Neolithic site of Çatalhöyük.

available to the people who built and used them. It can be said that the following plants were present at prehistoric Tepecik Çiftlik:

- Emmer wheat (Triticum turgidum dicoccum)
- Barley (Hordeum vulgare)
- Chickpea (Cicer arietinum)
- Bitter vetch (Vicia ervilia)
- Lentil (Lens culinaris)[14]

Further inquiries must be deduced from what we know about the area where Tepecik Çiftlik settlement existed (as described above). With the evidence that is currently at our disposal, we can assume that the earliest inhabitants of Tepecik founded their village on good soil, with water source in the vicinity and variety of wild fauna and vegetation at their hand. Regarding the possible fuel materials that might have been available at Tepecik Çiftlik, it has already been stated that wood was more abundant in the past and even some forests were available in steppe-like environment that we see nowadays, so wood was certainly a plausible option. More can be learned from ethnobotanical research carried out in the area around villages Pinarbasi (Karaman district) and Kizilkaya (Melendiz plain) by Anderson & Ertuğ-Yaras (1998)[15], and individual study of Ertuğ (2000) in Aksaray province, conducted in years 1994-1995. Collection of locally available plants as well as ethnographic observation point to increasingly common use of dung as fuel (Turkish: **tezek**, Anderson & Ertuğ-Yaras 1998, 100; see Fig. 15), because wood is no longer abundant[16]. Some species are still gathered by women for tinder and used in combination with the tezek, and these are: Astragalus, Genista and Salsola (Ertuğ 2000, 177). Jurinea pontica is reportedly only used as tinder in an "old fashion" kind of lighter with flint and an iron striker (Ertuğ 2000, 177). Before they became scarce, oak and elm were the most preferred fuels, nowadays some poplar and willow trees are cultivated in the area. Shrubs are also used for fuel (Fig. 14), namely species Eleagnus augustifolia, Rosa canina and Crataegus, with occasional use of branches of grape vines, dry stems and leaves of maize and beans (Ertuğ 2000, 177).

[14] This information was published in Büyükkarakaya 2014 and reportedly based on personal communication with Ceren Çilingir İpek.
[15] This project focused on use of dung fuel in the region
[16] Use of dung cakes for fuel is said to carry an element of necessity (Anderson & Ertuğ-Yaras 1998, 99)

Fig. 14. Semi-nomadic windscreen at Ketençimen Salavur Plain with simple stone-lined fireplace. In the picture, dried brush branch (Çalı çırpı) can be seen, prepared to be used as fuel. Photographed by: Burak Falay 2011.

Fig. 15. Combination of oven (used to support metal pan sac, left) and hearth (ocak, right) from Kasımtepe Yayla (Upland). Stored tezek can be seen in the corner, some wooden sticks are also prepared-wood is the preferred fuel, if available. Photographed by: Burak Falay 2013.

2.6. Architecture

Throughout all the excavated levels at Tepecik Çiftlik, mostly the foundation layers of the houses were preserved, made of slightly hewn local stones and river cobbles (Gülçur 2012, 216). The wall foundations were set up from two stone courses, sometimes connected by fill of smaller rocks and untempered clay mortar (Çakan 2013). Their shapes and sizes seem to be intentionally selected: flagstones were preferred for bottoms and geometric square forms were used for corners (Bıçakçı 2005, 46). Stone was the main construction material in this region, in contrast to Konya, Karaman and Mediterranean regions- where mudbrick is preferred (Gülçur 2012, 216). It is believed by the excavators that the foundations were supporting mudbrick or packed mud elevations – there is some evidence to support this hypothesis (Çakan 2013). The walls of buildings were plastered on interior and exterior (Bıçakçı 2005, 46), as well as the house floors (Çakan 2013). Clay plastering was used. Building elements - ovens, tandir and clay bins - were located inside the buildings (Bıçakçı 2005, 46).

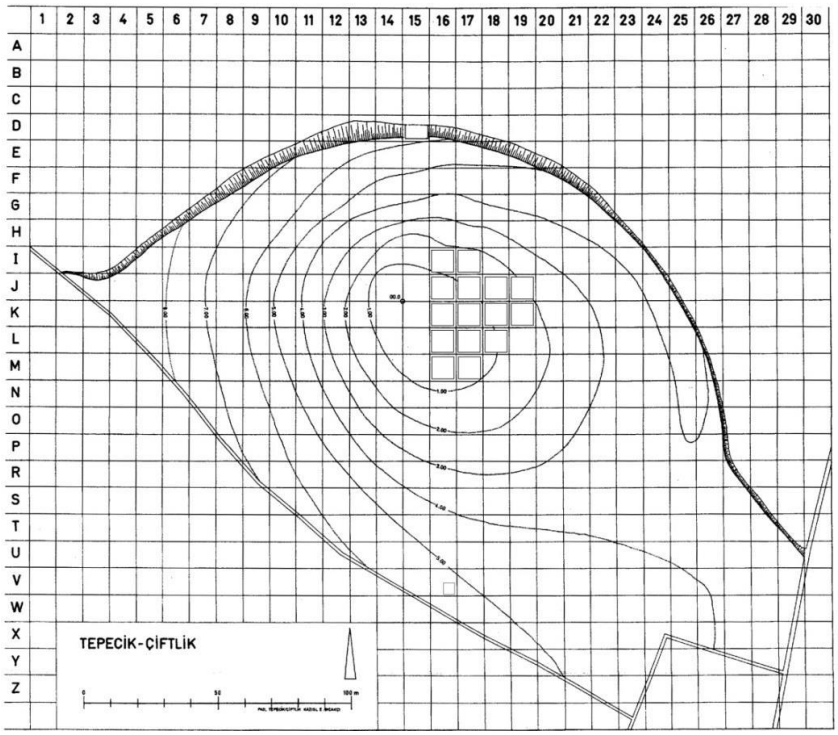


Fig. 16. Plan of Tepecik mound with excavated trenches in the centre. Çakan 2013, 215.

Earliest levels at Tepecik were only reached in deep sounding of small size, containing some badly preserved fire installations (hearths?) and fill deposit of ash and charcoal. These remains are not subject of our study- we are focusing on Pottery Neolithic and Chalcolithic levels only.

In **Level 4** (probably Early Pottery Neolithic), the archaeologists uncovered a building complex surrounding room AK, with additional rooms AY, BA and BM. This household was associated with open area and a ditch full of ashes and animal bones. Surrounding this open area was a so-called "garden wall" (bahçe duvarı) with buttress-like features. The excavation of this wall has been in progress in 2014, its size and function still remain unknown. No fire installations have so far been uncovered in the open area. In room BM of the building complex, a fireplace (18L SB-17) resting on layer of flat rocks was excavated next to a baby burial (SK-81). The building complex ended in catastrophic fire, after the destruction, the inhabitants of the site flattened the area (event dated to 6400 BC) and built different houses in its place.

Apart from AK building complex (stretching in the south-eastern part of the excavated area, in trenches 17L, 17K, 18 L and 18K), architectural remains of badly preserved building were also found in northern part of the site in sectors 17J and 18 J (rooms AM and AL). A rather enigmatic, perhaps an "hearth+oven" installation (18J SB-30 and 18J SB-34, Fig, 50-53) was found here; it was not associated with any architecture and probably located in the open area. Another fire installation (17J SB-6) from Level 4 was found in room AL, it is a hearth of roughly round shape located in the room centre (however, the context is unclear due to very bad preservation of the architecture in this part of the site).

The foundations of buildings in Level 4 are made of stone and in some cases, the floors are plastered. South Not much is known about upper structures of these buildings, but there were burnt wooden beams excavated in this level, perhaps belonging to roofs. In room BM postholes were found, indicating that this area might have been sheltered, but outdoor zone for various activities (Çakan, personal communication).

Late Neolithic level 3 is the most extensively investigated at Tepecik. The whole level is characterized by dynamic development in the architectural layout of the settlement

with six sub-levels of reconstructions (Bıçakçı, Godon & Çakan 2012, 91)[17]. The households are separate and dispersed, not following any rigid organisational pattern but rather being continuously self-reorganized (Bıçakçı, Godon & Çakan 2012, 91). Two main architectural phases were distinguished in level 3.

Fig. 17. Late Neolithic houseplans at Tepecik Çiftlik (Çakan 2013, 215). Ovens from lower phase of level 3 are marked in red, upper phase fire installations are marked green. Room numbers and oven circles were added by author of this thesis.

[17] In this book, older relative chronology is used and level 3 is regarded as Early Chalcolithic

Lower phase of level 3 (Late Pottery Neolithic) at Tepecik is easily differentiated because of "**fırınlı yapılar**" – houses with ovens (one example can be seen in Fig. 18). These houses had stone foundations and plastered floor with the fire installations always placed in a small apse (alcove) at the furthest end of the building. Additional domestic features were frequently present, such as benches, storage cells and silos. The ovens seem to have been well maintained and used for long periods of time (Bıçakçı, Godon & Çakan 2012, 92).

In upper phase of level 3, the oven houses were replaced with new building units and practice of using the open areas became more common compared to previous levels (Bıçakçı, Godon & Çakan 2012, 92). Three of four fire installations found in this level were situated in a single building complex- contrasting with lower phase of level 3, where only one oven per house was the standard.

Fig. 18. Building 4 in trench 16L with storage cells, alcove oven and refuse in the room centre. Tepecik archive.

Level 2 (Early Chalcolithic) has best been preserved at the highest part of the tell in western and north-western sectors of the site (Bıçakçı, Godon & Çakan 2012, 91). The excavated area is not as large as for level 3, but in 2014, household units in sector 15J provided interesting insight into Early Chalcolithic architecture at Tepecik. In one of the houses, a room was excavated with internal elements such as stone-build oven in room corner adjacent to pisé platform (Fig. 19). A posthole was also found in this room, as

well as collapsed wooden beams in room centre, shedding more light on roof construction at Tepecik.

Fig. 19. Early Chalcolithic house 17, room CE, located in trench 15J, featuring a platform, oven and collapsed wooden beams in the room.

2.7. Pottery

Tepecik Çiftlik vessels are mostly local, with few imported pieces (Bıçakçı, Godon & Çakan 2012, 96). Throughout all the assemblage, hole-mouth and open forms are most dominant with no handles and no carinated shapes. They were mainly fired in an "open fire with no specific control during the cooling stage; the dark coloured wares, including the black burnished ones, were fired under reducing conditions" (Bıçakçı, Godon & Çakan 2012, 97).

Late Neolithic ceramics from Tepecik Çiftlik are usually open-fired closed and open vessels without any lugs or handles. They generally fall into the category of mottled wares and dark coloured black burnished wares. Most common forms are jars with bead-rim, hole-mouth jars, bowls with convex profiles, shallow bowls with straight sides and jars with vertical necks. Throughout time, increase in use of organic temper has been attested, but all of the wares from earliest to latest levels contain organic chaff and grass temper (Bıçakçı, Godon & Çakan 2012, 96). According to site´s pottery specialists, Çiftlik is lacking the usual cooking ware types (Martin Godon, online communication). There are some pots with flat bases, which could theoretically be used inside ovens, but no direct traces of use over fire or burning residues could be found on

them (Ozan Özbudak, online communication). Most pots seem to have been used for storage (Fig. 22), serving and daily consumption (Fig. 20). There were few pieces of the so-called husking trays at Tepecik. Large trays (Fig. 21) were abundant, some with mat prints on the bottom (Martin Godon, online communication).

In later levels, relief decorated pottery became dominant along with the so-called Gelveri type, which is a typical feature of Cappadocian Early Chalcolithic, known also from Köşk Höyük Chalcolithic layers (Gülçur 2012, 216). Tepecik relief decorated pottery featured figural designs depicting animals (cattle, deer, donkeys) and humans as well as floral motifs (Fig. 22).

Fig. 20. Small drinking vessels. Tepecik archive.

Fig. 21. Trays with mat prints. Tepecik archive.

Fig. 22. Storage vessel, relief-decorated. Tepecik archive.

2.8. Ground stone industry

Ground stone industry from Tepecik Çiftlik was studied by Jaroslav Řídký, who analysed its typological, technological and functional aspects (Bıçakçı, Godon & Çakan 2012, 101). As we can see from Fig. 23, most of the ground stone finds were used for food preparation (mills), with smaller portions of artifacts used for lithic tool production and little percentage of woodworking tools (stone axes).

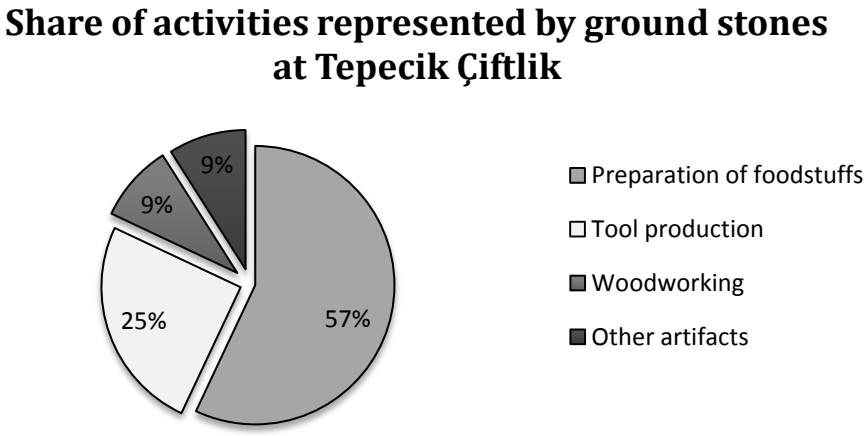


Fig. 23. Ground stone functions at Tepecik. Adapted from (Řídký & Bıçakçı 2011).

Mills, the most typical tools for food preparation, are the most frequent, largest and heaviest finds among Tepecik grinding stones (Řídký & Bıçakçı 2011, 30). They show

traces of use-wear and they were used for their original purpose - grinding of raw materials (Řídký & Bıçakçı 2011, 31). Some of the mills were found in secondary position (built into constructions- Fig. 25 or worked into oven platforms- Fig. 24). Sometimes the artefacts were re-utilized (Řídký & Bıçakçı 2011, 31). In late neolihic phase, ground stones were often found near ovens (Fig. 26).

Fig. 24. Example of upper mill (highlighted by red arrow) built into the bottom of the furnace. Photo J. Řídký. (Řídký & Bıçakçı 2011)

In building U of lower phase of Level 3, numerous stone axes were found together with obsidian tools, deer antlers, pestles and hammers in a cache that might have been a safekeeping place for craftsman´s valuables (Bıçakçı, Godon & Çakan 2012, 101).

Fig. 25 Secondary use of ground stones in stone platform of a room. Two fire installations are marked white. Tepecik archive.

Fig. 26. Ground stones in the vicinity of oven SB-1 in trench 19J. Tepecik archive.

2.9. Ethnographic evidence for possible analogy

When it comes to the topic of ovens and hearths, what the archaeologists uncover can sometimes be confusing and even enigmatic, despite the fact that fire installations constitute such basic element of daily life in any human community that they seem ubiquitous in archaeological contexts (due to the fact that they preserve quite well and they are immoveable). Becoming familiar with the local traditions and crafts might broaden archaeologist´s understanding of daily life in rural community.

The most comprehensive ethnographic research of ovens in Turkey was carried out by Parker and Uzel (2007)- this investigation focused on tandır cooking in Tigris basin around cities of Bismil and Diyarbakır. Parker´s and Uzel´s research confirmed that tandır bread ovens are very common in Turkish villages and towns; and this type of cooking is considered an integral part of Turkish tradition and heritage (Parker & Uzel 2007, 8). In Southeastern Anatolia, modern tandırs are "large hollow clay structures that usually measure around one meter in diameter at theis base and about one meter in height (Parker & Uzel 2007, 7)"[18]. The function of tandır ovens in Southeastern Anatolia is very specific – they are used exclusively for baking unleavened flat bread (Turkish: **tandır ekmeği**; Parker & Uzel 2007, 15. See also Fig. 27). Tandırs are often placed in oven shelters or oven-houses (Turkish: **tandır evi**; Harmansah 2007, 10), which enable work in bad weather during winter and also serve as wind protection for the fire.

The cores can be inserted into mudbrick superstructures. In some parts of Turkey, tandır cores are placed underground so that their mouth is at floor level (visible in Fig. 27). This placement can be dangerous as small children are often reported to fall into the oven and suffer from severe burns (Akçay et al. 2008, 268-270 - Al, Çoban & Güloğlu 2010, 59; also see Albayrak et al. 2011, 323-328 for Eastern Turkey). In Fig. 27, two women Çiftlik Village are seen sitting in a windscreen near the house. They are not related, but come from the same neighbourhood and they bake the flatbread everyday for another family as supply for winter. They are using "tezek" (dried dung) as fuel, but they also use wood when available.

[18] Tandır is Turkish equivalent of Arabic „tannur"

Tandırs observed in contemporary Central Anatolia generally fall into the second category of underground installations, or they can have form of low horseshoe-shaped "pedestal" for iron pan (Turkish: **sac**) on which the flatbread is baked. Tandırs can be accompanied by small hearths as can be seen in Fig. 28. The hearth is used for cooking liquid foods and boiling water, while the tandır is used for bread making. This oven-hearth combination was also mentioned by Atalay (2007), who observed this kind of installations in Kücükköy, comprising of large circular tandır (bread oven) and an open air hearth used for making most other food.

In Central Anatolia, semi-nomadic lifestyle is still practiced by some communities. In the mountain pastures (yaylas) around Tepecik Çiftlik, the semi-nomads spent part of year annually with their herds, dwelling in their white tents with stone bases. These people use different fire installations that are also worth mentioning to provide a more complete ethnographic picture of the region. In the uplands, people usually construct simple fireplaces out of three rocks collected nearby, and surround them by low windscreen made of stones (Fig. 29, also seen in Fig. 14). This installation is located not far from the tents, and after the semi-nomadic group leaves their camp to move on further, the stone installation remains in place and can be repaired and used next year or by another group. Brushes are used as fuel along with dried tezek (dung, see chapter XX). The fireplaces are not very large; the observed example that I encountered during my trip to the mountains in 2013 was approximately 40 x 40 cm in size.

Fig. 27 Village women baking *tandır* bread. Çiftlik Village on sac, Niğde Province, Central Anatolia. Photographed by: Salih Üstündağ 2012.

Fig. 28 Oven-hearth combination (ocak and tandır). Sac is seen hanging above the featuers in the left picture. Altunhisar. Photographed by: Burak Falay, 2013.

Fig. 29 The semi-nomadic fireplace in use. Çiftlik - Ketençimen üstü Salavur Yaylası (Upland). Photographed by: Burak Falay, 2011.

Fig. 30. A fireplace with protective stone windshield used by herders (yaylacı) during their stay in the mountain pastures. Salavur Plain, Central Anatolia. Photographed by author, 2013.

2.10. Regional context: selected sites in proximity to Tepecik Çiftlik

The following chapter presents Neolithic and Chalcolithic sites in Niğde, Aksaray, Karaman and Konya provinces of Central Turkey. Its aim is to provide some possible analogies or comparisons for Tepecik fire installations.

Generally speaking, hearths and ovens in Central Anatolia during pottery Neolithic seem to be much less variable than their counterparts on sites in the Levant and Northern Mesopotamia. According to Baird (2012, 451-2), this higher degree of standardisation has utilitarian reasons: relatively cold winters of the Anatolia plateau- it is true that most of the fire installations that I have studied for purposes of this thesis are indeed located indoors. The picture is skewed by the fact that in other parts of Southwest Asia, some Neolithic houses are represented by basements or had two stories- it is possible that some fire installations were placed on upper stories of houses and our awareness of these is hence limited. Nevertheless, elaboration of Anatolian hearths/ovens might also reflect their key role in cooking and commensality, within the social life of the household (Özbaşaran 1998) and their fixed place in the symbolic geography of the household (Baird 2012, 451-2).

The oldest fire installations that are presented in this chapter come from Pre-Pottery Neolithic Aşıklı Höyük, Musular (Aksaray province) and Early Neolithic rock shelter Pınarbaşı (Karaman province). In this period, fire pits (roasting pits) and hearths seem to be dominant. At Aşıklı, roasting pits (firepits) and indoor hearths were attested.

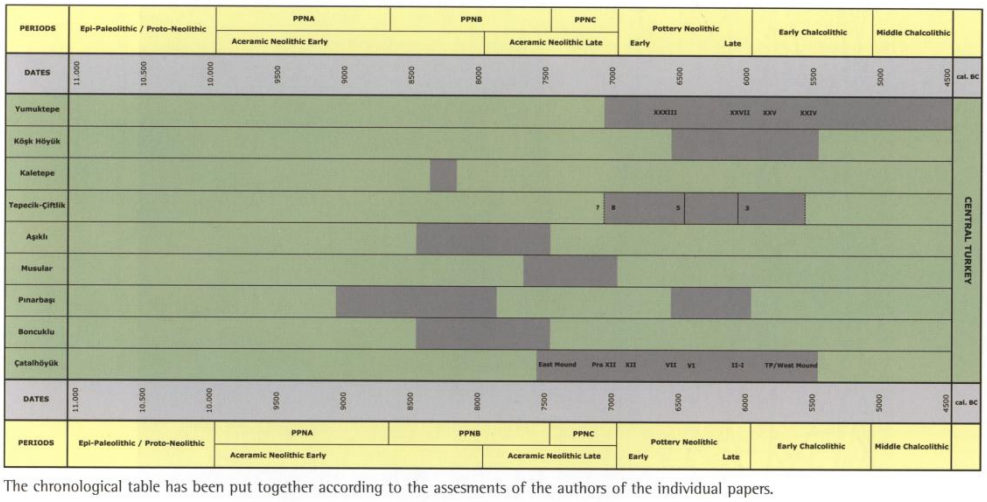
At Later Neolithic sites Çatalhöyük (also at Haçilar, Bademağaci and Höyücek) ovens substituted for, were integrated with, or accompanied hearths, further underlining the important role of cooking installations (Baird 2012, 451-2). This is true also for Tepecik level 3, as we will see in the next part of this thesis.

Later on, at Early Chalcolithic Çatalhöyük West and Çan Hasan, on the other hand, hearths were absent, but according to Baird (2012) this can be ascribed to fact that only basement rooms survived in archaeological record at these sites.

Late Neolithic and Early Chalcolithic Köşk Höyük yielded three types of fire installations: circular tandırs, domed fırıns and rectangular or rounded hearths attached to benches. Köşk is similar to Tepecik because of its material culture and architecture

and suggestions have been made that these two sites belonged to a cultural whole. Unfortunately, not much published information is available on fire installations from this site, leaving us in doubt about their form and construction technique.

From Middle Chalcolithic period, the site of Güvercinkayası is presented here, with ovens usually placed in room corner and accompanied by round hearths in room centre, ot placed on „porches“ in front of houses. Fire installations at Güvercin commonly features foundation layers of pottery sherds.



The chronological table has been put together according to the assesments of the authors of the individual papers.

Tab. 3. Chronological table. Taken from: Özdoğan 2011.

2.10.1. **Aşıklı Höyük (Pre-Pottery Neolithic)**

Location and excavation

Aşıklı Höyük is located in eastern part of Central Anatolia (west Cappadocia), in Aksaray province of Turkey. It is approximately 30.3 km away from Tepecik. The extensive excavations of this site date back to 1989 and they were originally directed by Prof. Ufuk Esin until 2001, followed by Nur Balkan-Atlı (2002-2004) and Mihriban Özbaşaran until present day (Özbaşaran 2012, 135). Occupation of this site was dated to 9th and 8th Millenium Aceramic Neolithic. Aşıklı lies in a narrow valley next to alluvial flood plain of Melendiz River, near modern village Kızıkaya. Climatic conditions in this area are continental and the region is part of the Central Anatolian steppe (Özbaşaran 2012, 136).

Architecture

Archaeologists have excavated a vast area of more than 4000 m^2, uncovering single and multiple room houses (earliest are semi-subterranean and sub-oval in plan, they are later replaced by rectangular buildings in the 8th millennium). Within the houses, built-in features such as storage cells, benches and fireplaces were found. Aşıklı Höyük settlement consists of three main sections: "The Cult Building Complex to the south, which consists of the Housing Area it partially surrounds; and the Economic Activities Area to the east separated from these two sections by a wide open space, where buildings related to the subsistence economy are located" (Bıçakçı 2005, 33). Earliest buildings at this site were sub-oval in plan, semi-subterranean, free-standing and constructed of kerpiç blocks. They were aligned around open space used for activities (Özbaşaran 2012, 138).

Fire installations

Two detailed studies of fireplaces from Aşıklı have so far been published (to the extent of our knowledge)- first one by Özbaşaran (1998), followed by diploma thesis by her student, Uzdurum (2013). Both of these studies focus mainly on their technological features and typological analysis, using ethnographic analogies when necessary and complemented by experimental analysis.

The most common type of fire installation attested at the site was rectangular indoor hearth. Aşıklı hearths were domestic in nature and they were used for heating, cooking and probably also to produce light in the interiors (Özbaşaran 1998, 558 - Kvæstad 2010, 83). The hearths were not found in all houses and buildings containing hearths were usually single-roomed (Özbaşaran 1998, 556). Most of the fireplaces were situated in room corner with two sides adjacent to the intersecting walls (Özbaşaran 1998, 556 - Jakar 2011), no hearths were found in room centre. Large flat stones (placed vertically) were usually used to create a curb (upright edge) around the hearths, standing approximately 20 cm above the floor level (Kvæstad 2010, 44). The floors were paved with pebbles (Fig 31) and then plastered with a thick layer of clay (Jakar 2011 - Kvæstad 2010, 44). Dimensions of the fireplaces vary, but they were always proportional to the size of the room where they were built (Özbaşaran 1998). Some of the hearths had chimneys – ventilation holes.

Although there seems to be no distributional pattern of the fire installations within the buildings (Özbaşaran 1998, 556), diachronic continuity in use of space which involves the hearths existed at Aşıklı - fireplaces tended to be constructed in the same spot in the course of time. This building continuity was demonstrated by Düring (2005, 24 – see also Fig. 36) and later by Kvæstad (2010, 45).

The site also featured several examples of roasting pits (possibly functioning as earth ovens) with substantial amount of well preserved carbonised wood and relatively large pieces of charcoal under the pavement of pebbles (Özbaşaran 1998, 558). The schematic diagram of earth oven can be seen in Fig. 33 as well as photographs of some of the Aşıklı fire pits.

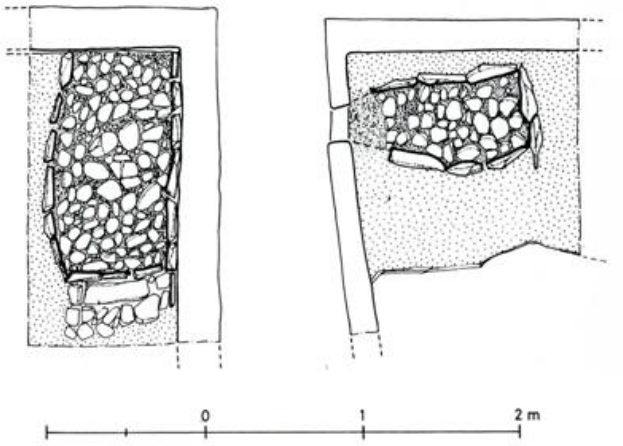


Fig. 31. Typical pre-pottery Neolithic hearths from Aşıklı: (left) hearth in room corner with pebble pavement, (right) fireplace with chimney/ventilation hole and pebble pavement. Özbaşaran 1998, 564.

Fig. 32. Well-preserved plastered hearth from Aşıklı. Photo: taken during visit to the site in 2014.

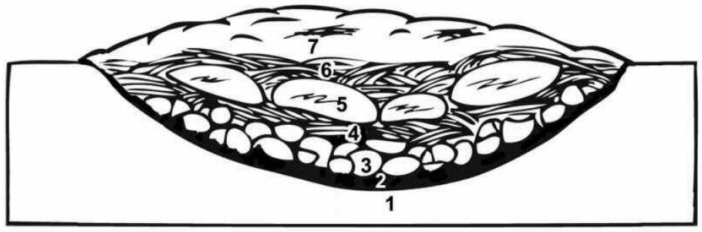


Fig. 33. Idealized earth oven section diagram showing seven layers: (1) prepared surface (oven pit), (2) fire (reduced to ashes and glowing coals by the time the oven is sealed), (3) layer of red-hot rocks (heating element), (4) lower layer of green plant material (packing), (5) food layer, (6) upper layer of packing, and (7) earthen cap (published in Black & Thoms 2014, p. 205. Originally adapted from Thoms 1989:268, Figure 21)

Fig. 34. Aşıklı fire pits. Excavation archive of Aşıklı Höyük. Uzdurum 2013, 92.

Fig. 35. Fireplace with pebble floor and its location inside structure at Aşıklı Höyük. Kvæstad 2010, 82.

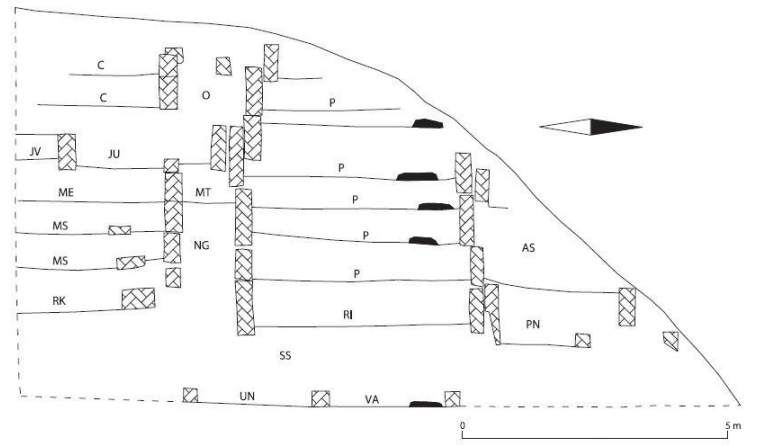


Figure 3. Schematic west section of the north-south axis of sounding 4H/G at Aşıklı Höyük (redrawn from Esin and Harmankaya 1999: 93, fig. 9). Hearths marked in black. Figure prepared by Medy Oberendorff.

Fig. 36. Schematic section of sounding at Aşıklı Höyük. Hearths marked in black. Figure prepared by Oberendorff. Düring 2005, 24.

2.10.2. Musular (Pre-Pottery Neolithic)

Location and excavation

Musular lies on the west bank of Melendiz River, on tufa bedrock foundation. The site was discovered[19] during a survey in the vicinity of Aşıklı during one of the excavation seasons there (in 1993). Musular is contemporary with Aşıklı Höyük (it is dated to 7500-6500 cal. BC), and the site is located across the river from Aşıklı.

The archaeological excavation of Musular started in 1996 and it was carried out until 2004 by Istanbul University in cooperation with Aksaray Museum (Özbaşaran et al 2012, 160). Excavations at Musular suggest that it was a non-domestic site, related to cattle hunting and perhaps related ceremonial activities (Duru and Özbasaran, 2005).

Architecture

One of the most interesting buildings at this site is A building with benches and hearth. The building was constructed on sloping section of the bedrock and it was quadrangular in plan (Duru and Özbasaran 2005, 18). Due to its position on a sloping ground, the building was subject to drainage problems, these were solved by using various channels carved into the bedrock.

The building had floors of red painted lime plaster (Duru and Özbasaran 2005, 18). Although the structure was badly preserved, there were remains of kerpiç blocks indicating that its walls were made of mudbrick (Özbasaran et al. 2012, 161).

Fire installations

Located in A building, the only hearth of Musular site was uncovered. It was situated at the north end of the east bench, fairly large and quadrangular in shape, with kerpiç walls.

According to the excavators: “The hearth measured 1.6 x 1.7 m, it was squarish in plan. Its walls are thick, reaching 36 cm, four kerpiç blocks could be identified, the largest being 20 x 50 and the smallest 12 x 32 cm. An abundance of small to medium-sized limestone and cobbles seemingly filled the hearth rather than paved it, possibly as an

[19] Along with 12 other sites , all were one-period flat sites (Duru & Özbaşaran 2005, 15 - Özbaşaran et al 2012, 159)

abandonment process" (Özbasaran et al. 2012, 161). The houseplan of building with bench and the hearth can be seen in Fig. 37.

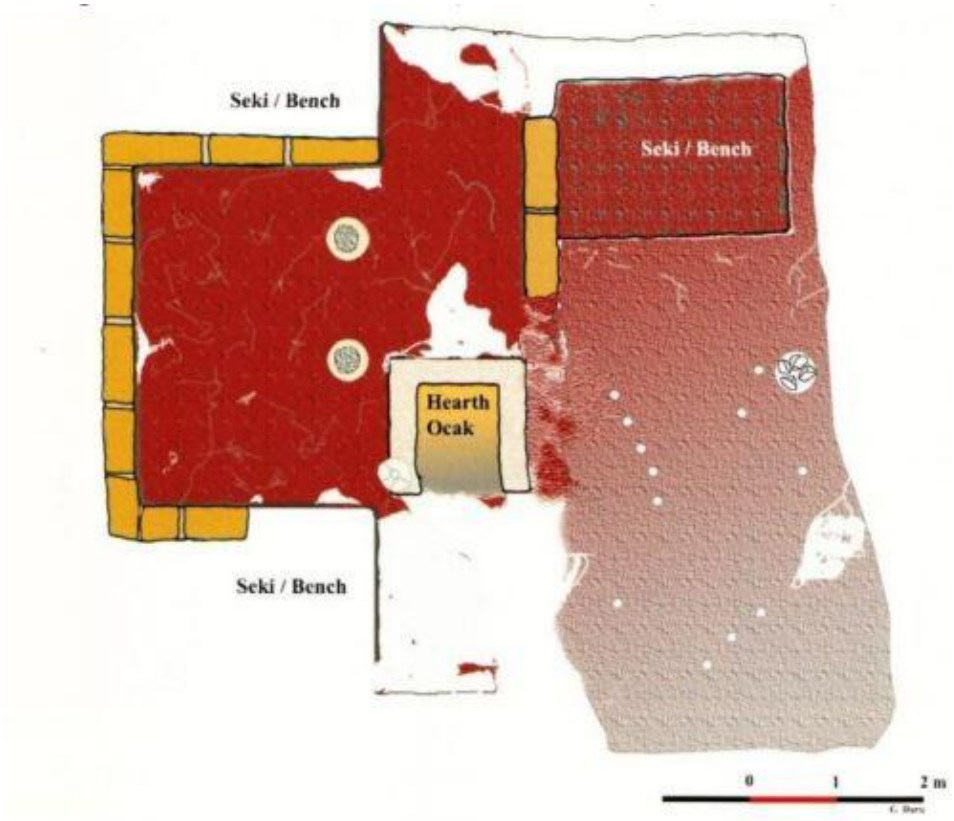


Fig. 37. Musular building with hearth, bench and red painted floor. Özbaşaran et al. 2007.

2.10.3. **Köşk Höyük (Late Pottery Neolithic- Early Chalcolithic)**

Location and excavation

Köşk Höyük is located on rocky slope of a natural elevation approximately 1100 m above sea level (Öztan 2011, 31), on the edge of Bor Plain. The site lies 37.5 km to the south from Tepecik Çiftlik. It was discovered in 1961 with first surveys in 1964 and 1965, followed by excavation project in years 1980 – 1992, led by Uğur Silistreli. In 1996, the archaeological project was renewed and continues to this day under direction of Aliye Öztan from Ankara University. The settlement was founded in the vicinity of water source- spring Köşk Pınarı. In past, steppe-forests were available in the region.

Architecture

The site was settled during Late Pottery Neolithic period and continued until Middle Chalcolithic period (Gülçur 2012, 215). The houses, situated in blocks on levelled terraces, were rectangular (Öztan 2011, 33) and composed of two- to four rooms (Gülçur 2012, 216). They usually featured interior architectural elements such as cell-like storage rooms and benches. Benches were "situated in one corner of the room and sometimes set against middle of the wall facing the entrance" (Öztan 2011, 33). In Neolithic period (Levels II-V), limestone was the preferred construction material, in levels III and V there is ocassional use of mudbrick (Öztan 2011, 33). The earthen floors of buildings were covered with smooth plaster. Architecture at Köşk Höyük was dynamic in nature (Düring 2011a, 151): over time modifications were made according to needs of the site´s inhabitants- dividing walls were added to create new rooms, some rooms were connected, doors blocked, new rooms added as the need arose (Öztan 2011, 33).

Fire installations

At Köşk Höyük, three types of domestic fire installations were reportedly attested: fırın ovens, tandırs and hearths. In every building there was at least one fire installation (Öztan 2011, 33 - Uzdurum 2013, 135).

The hearths were usually adjacent to benches[20] with their outer frame and rectangular in plan. In level IV (still Late Neolithic), rounded hearths became common (Öztan 2011, 34). Fırın ovens, as they were categorised by Uzdurum (2013), were few in number. They also had rectangular, slightly irregular plan and their upper structures had form of a dome. These ovens had 1,5 cm thick floors.

Since Early Chalcolithic period, fire installations at Köşk saw improvement in construction technique and some changes: for example layers pottery sherds started appearing as isolation layer of oven foundations. The ovens were constantly renewed.

Last group of fire installations from Köşk Höyük are tandırs (Uzdurum 2013, 135). They were circular in plan, located in room centre (5-10 cm raised above floor level) and most commonly appeared in Early Neolithic (Uzdurum 2013, 135).

Resim 4: H/12 plankarede I. kat fırını

Fig. 38. Fırın from Köşk Höyük. Öztan 2002, 62.

[20] Probably used as working areas (Uzdurum 2013, 135)

2.10.4. Güvercinkayası (Middle-Late Chalcolithic)

Location and excavation

Güvercinkayası (the name of the site means „Pigeon rock" – Gülçur & Firat 2005, 41) is located on a steep rock outcrop on the right bank of Melendiz River (Gülçur 2012, 213) in Aksaray province of Turkey, east of modern city of Aksaray and near Çatalsu (Apsari) Village. The site was discovered in 1994 during Aksaray, Nevşehir and Niğde survey (Gülçur 2012, 217) conducted by Ufuk Esin and her student Sevil Gülçur, systematic excavation project in collaboration with Aksaray museum was established in 1996 and has been directed by Gülçur (Arbuckle 2012, 303). The excavation is still in progress, altough the archaeological team has almost reached the bedrock level and fieldwork will probably be finished in few upcoming seasons (Gülçur, pers. comm). Güvercin is a fortified settlement dating back to the Middle and Late Chalcolithic Phases (Gülçur 1996, 197-210 - Gülçur & Firat 2005, 41 - Gülçur 2012, 215). Radiocarbon dating provided absolute dates 5210 – 4810 BC (Düring 2011a, 241).

Architecture

The Chalcolithic architecture consists mainly of uniformly furnished, single-roomed attached houses (Düring 2011a, 241 - Gülçur 2012, 218). The settlement consists of two main occupational complexes:

- **Lower settlement**- relatively small domestic structures oriented along roughly East-West trending street (Arbuckle 2012, 303).
- **Upper settlement**- consists of group of larger structures and it is fortified (Arbuckle 2012, 303). This area probably served as specialized storage complex, and structures located here featured caches of grinding stones and multiple large ovens (Arbuckle 2012, 303).

Standardisation was normal for Güvercin architecture (Pavlů et al. 2009, 19). The houses were usually one-room buildings with rectangular or trapezoidal plans. The existing rock surface was used as foundation of walls made of rough quarry stones (Gülçur & Firat 2005, 42).

Fire installations

At Güvercinkayası, following main types of domestic fire installations were present: domed ovens, round hearths and horseshoe-shaped hearths (Pavlů et al. 2009, 19). The fire installations could be built on small platforms and isolation layers of pottery sherds (Fig. 40) under the plastered floors. An oven in one of the corners beside the entry and a round hearth in the centre of the main room were standardized facilities (Gülçur & Firat 2005, 42). Ovens often occured with grinding stones in their vicinity, there are several cases where upper slabs were found close to an oven." (Pavlů et al. 2007, 35). Grinding stones and handstones are also frequently found next to fireplaces. (Pavlů et al. 2007, 35).

Fig. 39. Chalcolithic fire installation in Güvercinkayası house. Photographed during visit to the site in 2014.

Fig. 40. Bottom layer of fireplace made of broken pottery sherds put together in a „mosaic" style to provide better heat isolation. Photographed during visit to the site in 2014.

Fig. 41. Fire installation from Güvercinkayası. Photographed during visit to the site in 2014.

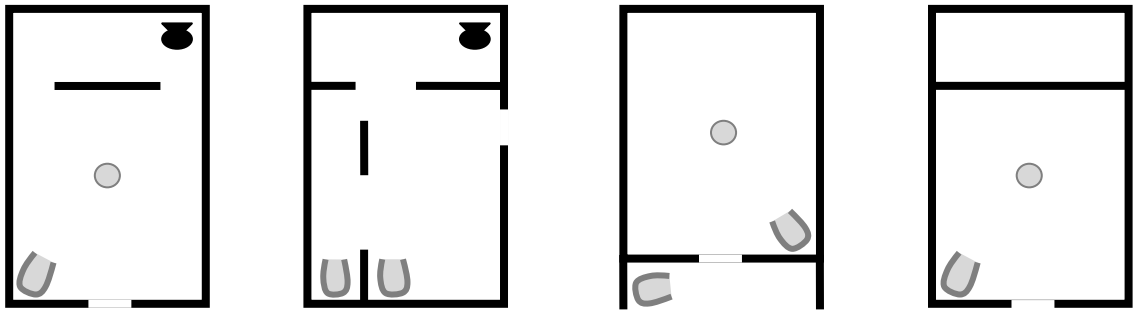


Fig. 42. Idealised houseplan types from Güvercinkayası, indicating positions of ovens, round hearths and storage vessels. Based on architecture plan of the site published in Oxford Handbook of Ancient Anatolia, 804 (to be seen also in Fig. 1 of this thesis). a) with oven in cornerand round hearth in room centre, b) with two ovens and no hearths, c) oven in corner, round hearth in centre and „anteroom“ or „porch“ with oven d) with oven in corner, hearth in centre and separate space at the far edge of the room. Position of grinding stones is not indicated, but according to Pavlů et al. (2007, 35) they were often discovered in vicinity of ovens and hearths

2.10.5. Pınarbaşı (Pre-Pottery Neolithic, Pottery Neolithic)

Location and excavation

The site lies near Suleimanhaci village in Karaman province (Konya plain). It is located on the southern side of central Anatolian plateau. Excavations were initiated in 1994 and continued in 1995 as salvage project organised by the University of Edinburgh, Department of Archaeology under leadership of Prof. Trevor Watkins (Baird 2011, 183) in cooperation with Karaman Museum. The site is situated only about 20 km from Çatalhöyük and it has been carried out as part of the Çatalhöyük Research Project (OpenContext). It is a rock shelter settlement.

Architecture

Five main occupational phases were recognized during the excavation (Watkins et al. 1994):

Phase V: Area enclosed by a curving dry-stone wall

Phase IV: Layer of greyish deposits rich in bones

Phase III: A 'fire installation' bonded to the rock face

Phase II: Two pits with an upper fill of stones and secondary fill of charcoal

Phase I: Modern chaff/dung

Fire installations

In Area B small ovens and numerous fire-pits (Fig. 43, 44) were found near a Neolithic wall constructed by three or four rows of large stones. They were C14 dated to the fifth and fourth millennia B.C. 7th Millenium occupation in Pınarbaşı the rock shelter featured a curvilinear structure cut into the deposit with stones along the top. This structure contained hearths, ovens and fire pits (TAY project). The Phase III hearth from Pınarbaşı had a base made of of well baked clay which was bonded to the rock face at the east. According to Watkins et al. (1994): “The whole installation was placed within a cut and consisted of a series of ashy or silty fills with at least one instance of re-lining indicated by another deposit of baked/fired clay.”

Fire pits were also present at Pınarbaşı, these were shallow, stone-lined with large, blackened stones in the bottom, covered by a layer of fine ash (Watkins 1995).

Fig. 43. Pınarbaşı. Traces of firepits.

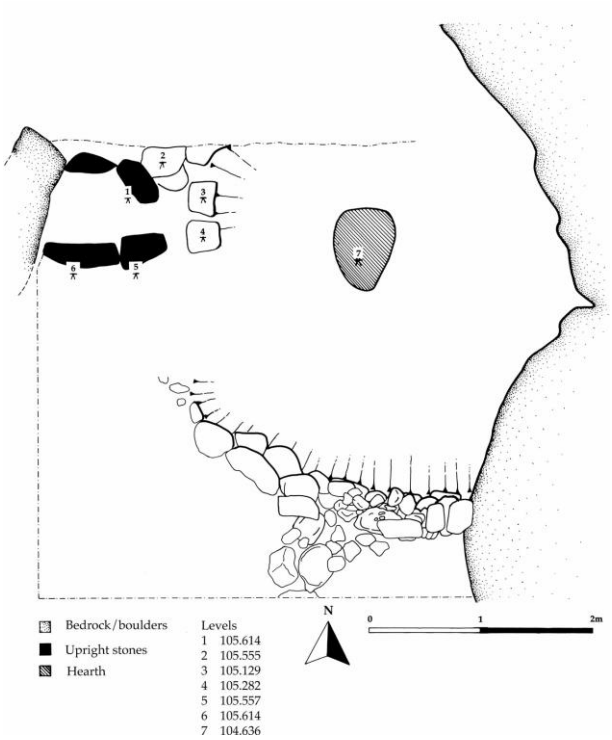


Fig. 44. Pınarbaşı. Drawing showing position of hearth and fire pit.

2.10.6. Çatalhöyük (Neolithic East Mound and Chalcolithic West Mound)

Location and excavation

The first excavations at Çatalhöyük were carried out in 1961 and 1965 by James Mellaart (Hodder 2011, 245). Renewed excavations began in 1993 under leadership of Ian Hodder (Sagona & Zimansky 2009, 86) and continue to this day. The site is situated in Konya Plain, 52 kilometres from modern city of Konya. It comprises of two mounds- East Mound was settled in Ceramic Neolithic period; the West one was settled during the Chalcolithic.

Architecture

In early period, the site was a village of rectangular houses that were tightly packed into blocks (Sagona & Zimansky 2009, 86), forming clustered neighbourhoods (Düring 2011a, 132). Lack of alleyways and outer doors led the excavators to believe that the houses were mainly accessed through the roofs (like at Aşıklı). The clustered blocks of houses were later replaced with less tight household structure: much less standardized houses from upper levels at Çatalhöyük are adjacent to open areas; streets and doors start to appear (Düring 2011a, 132).

Fire installations

According to Cessford and Near (2005, 176-177), three main groups of fire installations were present at Çatalhöyük:

- Oval domed ovens built against permanent fixtures such as walls or posts (Cessford & Near 2005, 176-177 - Farid 2007, 57)
- Small free-standing circular hearths with low superstructures (Cessford & Near 2005, 176-177 - Farid 2007, 57)
- Fire spots: localised places of burning lacking any built structure

An example of Çatalhöyük large domed oven with elaborate carvings and of exquisite preservation degree can be seen in Fig.45. The ovens were generally located in southern sides of buildings, but their location within buildings could frequently be shifted to

different spot (Cessford & Near 2005, 177). Use of clay balls (Fig. 46) has been reported for Çatalhöyük as well and their possible association with cooking is studied by Sonya Atalay (2003).

Fig. 45. Elaborate oven with carvings from Çatalhöyük. Source: www.catalhoyuk.com

Fig. 46. Çatalhöyük clay ball deposit. Source: https://www.youtube.com/watch?v=4AcFg4N9LLA

Part 3 *Rekindling ancient fire: ovens and hearths from 7th – 6th Millenium Tepecik Çiftlik*

3.1. **Fire installations excavated in years 2000 – 2014**

Archaeological team directed by Erhan Bıçakçı uncovered 19 identifiable fire installations in years 2000-2014. Two Late Neolithic fire installations[21] from level 3 (upper phase) excavated in 2014 by the author of this thesis, were documented using the specialised worksheet (Fig. 8). Two fire installations from Early Chalcolithic level 2 discovered in 2014[22] have not been excavated in time of this thesis´ submission (they were uncovered and cleaned; photographed and measured).

The following chapters present all[23] the excavated fire installations with the traditional[24] focus on their technological and typological aspects. Afterwards, the conventional documentation method used during years 2000-2013 for the presented fire installations is compared with the newly deviced method proposed in this thesis. In this part I try to determine whether or not this approach can improve the information gain from excavated fire installations and lead to more precise interpretation.

The data presented on the following pages, concerning dimensions, locations, associated finds and construction techniques of Tepecik fire installations was collected from the documentation available at the excavation house in form of field diaries. Photographs come from Tepecik archive and the houseplans were published in Çakan´s thesis. They are used for illustration of the oven location, where necessary.

The oldest fire installations at Tepecik Çiftlik fall to Level 5. They were „badly preserved, presumably open-air fireplaces“ (Bıçakçı et al. 2007, 241; Fig. 47), but these features could not be included in this study, as virtually no data exists that could give us

[21] SB-1 in 19J and SB-4 in 19K

[22] SB-20 in 15J and SB-15 in 15J

[23] Note: the 2 fire installations excavated by the author using the new tool are not included in this analysis. They receive special emphasis in chapter 3.4. where I test the newly proposed method for documentation.

[24] At this stage, where a lot of data related to fire installations (e.g. archaeobotanical remains, zoo-archaeological data, etc.) is still being processed by specialists and doctorate students and no systematic sampling was applied to the fire installations (except the two excavated by the author, the analysis of these samples is, however, not subject of this thesis) to enable microarchaeological analysis; choosing a different path than the one usually followed by archaeologists when studying fire installations- a.k.a. focus on their morphological and structural characteristics – was not really an option. We remain aware of the drawbacks of such approach, which can "ultimately be stereotypical, atemporal and decontextualized." (Cessford & Near 2005, 176), but is still a valuable and integral part of this type of studies.

details about their shape, form, etc. Level 5 is only known from small-size deep sounding and so the contexts of these early hearths and ovens could not be analysed either. Judging from their photographs, they might have been simple firepits, similar to those from PPNB Aşıklı.

Fig. 47. Earliest fire installations at Tepecik Çiftlik- open air fireplaces, possibly firepits. Tepecik archive

Early Neolithic level 4

In Early Neolithic level 4, there were only four combustion features interpreted by the excavators as fireplaces and/or ovens. Such a small number of excavated features does not allow any generalisations or statistical comparison and future excavations will probably shed more light on this matter. For now, it can be said that of the four features, two were located indoor. The other two (SB-30 and SB-34 in sector 18J) represent a specific type of installation without other equivalent from any other part or level of Tepecik Çiftlik settlement. This installation was a combination of two combustion features (described below on pages 76 and 77), which were not associated with any architecture and were probably built outdoor in open space. They were both built without layer of stones or pebbles, solely out of clay which is heavily burnt. No similar installation was found on Tepecik. The function of this combustion installation remains unknown. The keyhole shape of the larger structure is somewhat reminiscent of pottery kilns excavated in Syria (Balikh region) at Sabi Abyad (Fig. 48). No kilns were found so far at Tepecik Çiftlik and the pottery seems to be fired in open fires. This installation was located in an open area, but no pottery wasters were found around it to

support this hypothesis. Second hypothesis about this double installation is more pragmatic- this could have been an example of oven+hearth combo (like we saw in the ethnographic chapter- Fig. 28) or double fireplace. Double horseshoe-shaped hearth was found in courtyard of one of the buildings at Arslantepe in Malatya (Balossi-Restelli 2012), but this feature is much younger- it was found in Middle Bronze Age level (Ebeling & Meissner 1993, 47).

At this stage, it is not possible to clearly determine the original function of Tepecik double feature.

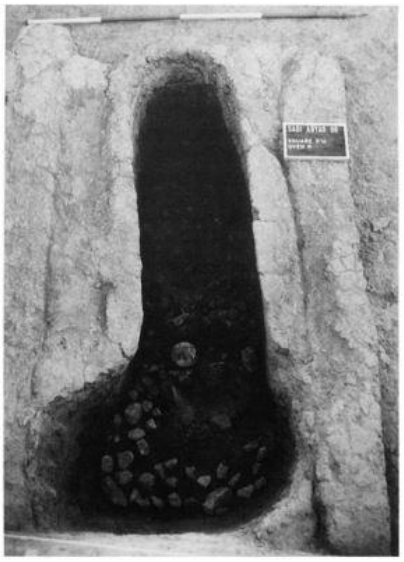


Fig. 48. Keyhole-shaped kiln from Sabi Abyad. Akkermans & LeMiére 1992, 6.

None of the Level 4 fire installations were stone-lined and they were all built either directly on the ground/floor or on very low platform of stones. Fireplaces SB-17 and SB-6 are very badly preserved and not much can be told about their construction technique. Only SB-17 was associated with a burial- a baby skeleton was found next to it. In the fill of SB-6, a celt was found. No grinding stones or other finds were found near the Level 4 installations.

FEATURE: SB 17

PHASE: Level 4

PERIOD: Early Neolithic

EXCAVATED IN: 2012

LOCATION: Sector 18 L **BUILDING:** 20 **ROOM:** BS

DESCRIPTION: Fireplace on surface of flat stone slabs, plaster floor was not preserved, propably a simple round hearth (?), although the intepretation is unclear due to poor preservation and lack of data

DIMENSIONS: ca 0.75 x 0.50 m

ORIENTATION: To the north (this is questionable, because only the stone foundation was preserved, the approximate orientation can be deduced from position of walls and the room space)

CONTEXT: Related to the building complex surrounding room AK. Built in room BS (under room BM). The fireplace was located inside a niche-like addition to the wall which made it similar to the „alcove ovens" that are typical for later level 3.2. Its position and location in this niche might be the first evidence for later tradition, developed during the lower phase of Late Neolithic.

ASSOCIATED FINDS: Baby burial (SK-81) under wall next to it

Fig. 49. Fireplace SB-17, belonging to level 4. Tepecik archive.

FEATURE:	SB 30
PHASE:	Level 4
PERIOD:	Early Neolithic
EXCAVATED IN:	2010
LOCATION:	Sector 18 J Probably in open area
DESCRIPTION:	Smaller of two associated features, ground shape is diagonally cut oval
DIMENSIONS:	0.50 x 0.25 m
ORIENTATION	To the north-west
CONTEXT:	Probably located in outdoor area, not associated with any architecture
ASSOCIATED FINDS:	None

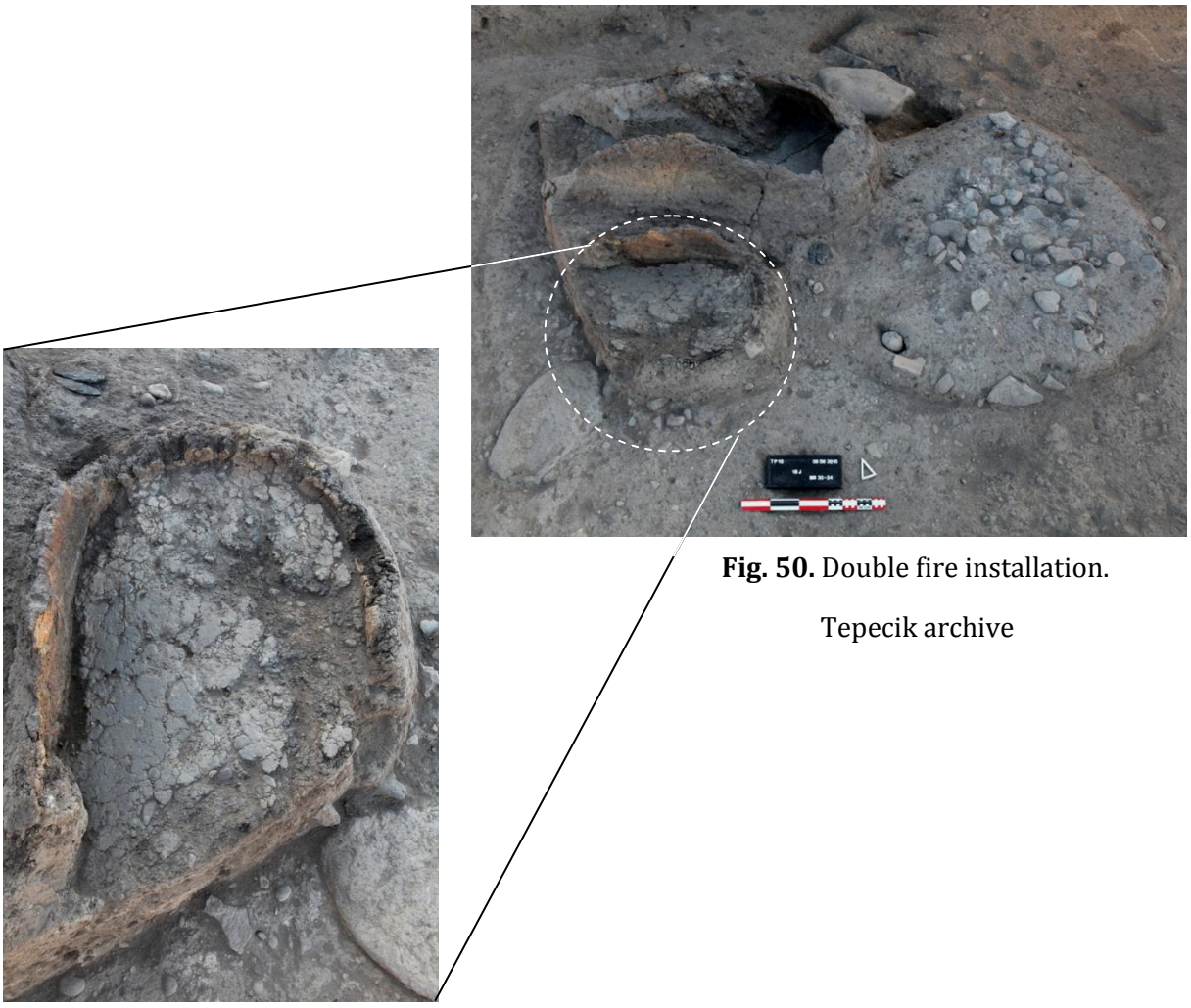


Fig. 50. Double fire installation. Tepecik archive

Fig. 51. 18J SB-30. Tepecik archive

FEATURE:	SB 34

PHASE:	Level 4
PERIOD:	Early Neolithic
EXCAVATED IN:	2010
LOCATION:	Sector 18 J Probably in open area
DESCRIPTION:	Larger of two associated features, keyhole shape
DIMENSIONS:	1.5 x 0.75 m
ORIENTATION	To the north-west
CONTEXT:	Same as ID2 (above)
ASSOCIATED FINDS:	None

Fig. 52. 18J SB-34. Tepecik archive

Fig. 53. Double fire installation in 18J Tepecik archive

FEATURE:	SB 6

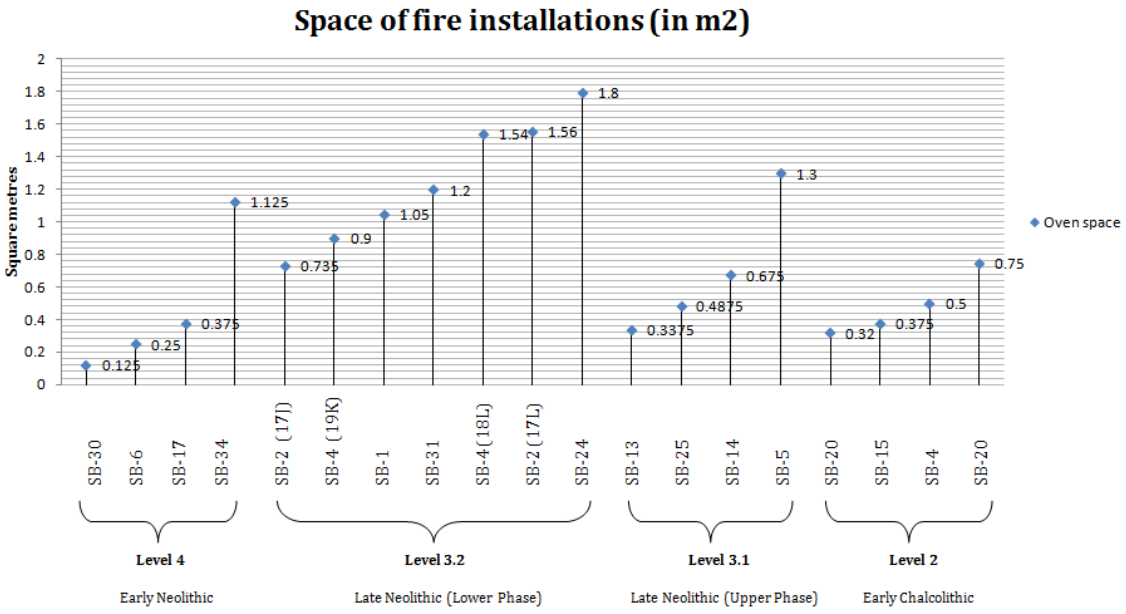
PHASE:	Level 4
PERIOD:	Early Neolithic
EXCAVATED IN:	2006, 2007
LOCATION:	Sector 17 J **BUILDING:** 21 **ROOM:** AL
DESCRIPTION:	Very badly preserved fire installation, roughly round shape, this feature didn´t have rock foundation or pebble layer, only mud plaster floor
DIMENSIONS:	Cca 0.50 x 0.50 m
ORIENTATION	N/A
CONTEXT:	The position is unclear due to poor state of architecture preservation, it is possible that this hearth was in room centre
ASSOCIATED FINDS:	UB-300 (celt)

Fig. 54. 17J SB-6. Tepecik archive.

Late Neolithic level 3 – lower phase

In lower phase of **Late Neolithic level 3**, the household architecture changed completely in terms of organisation of space. Fire installations also changed significantly – their form became very distinct and more elaborate, their position within architecture became uniform and central, and their functions were probably also different than in previous period. All the fire installations from this level were carefully maintained (rebuilt when necessary, cleaned out before each new replastering) and intensively used (this is evidenced by multiple replastering- Fig. XX). They were usually located in alcoves- recesses adjacent to or opening out the rooms.

The fire installations became associated with ground stones more often, as well as with working areas that were always situated nearby. Storage cells in the houses completed the typical furbishing of a household. The oven also became larger in this level, and as a rule they were placed in special alcoves- niches created in a wall specialy for the purpose of building an oven there. Their placement there was a conscious choice and not necessarily functional. During this stage, the fire installations also grew in size (In chart XX you can see how the space taken by fire installation changes in different levels. Within each level, the sizes are listed in ascending order).



Tab. 4. Showing the space that was taken by fire installations (width x length)

Most of the ovens in this level follow the same building pattern, they feature flat stone platforms, sometimes with additional layer of pebbles under mud plastered floors. There are some slight variations to this standard form. For example, SB-2 in sector 17L has two building phases and in the second phase its form changes considerably – it is lined with vertically placed stones and repaired many times (at least 9 replastering phases have been attested) and so it was carefully maintained for a long time.

Another interesting variation is SB-24 in trench 16K (partly 17K). The oven has double wall supported by two vertically placed stones and its „door" is also lined with stones for additional support- it is very elaborately made and well preserved. In this room, a cache of tools was found (see chapter 2.8, p. 48) along with other finds such as awls and slingstones. The house itself had 4 sub-phases of construction, and it featured a grinding/pounding area with red ochre residues.

Some of the fire installations from this level have bench-like thresholds (e.g. SB-, SB-), these elements further underline the fact that these features were carefully made and had important position within the household.

Feature SB-4 in trench 18L had shallow depression in the oven floor. We can see such depressions also in SB-1 from 19J and SB-4 from 19K, excavated in 2014 (see chapter 3.4). The function of these depressions is unclear, but they were not holes for ventilation. No ventilation holes or "chimneys" were attested at Tepecik. Not much is known about upper parts of level 3 fire installations, but the evidence that is available (for example from SB-24 in trench 16K) led the excavators to interpret majority of the alcove ovens as fırıns (see pages 138-150 in the back for explanation of the oven types). According to Çakan and Büyükkarakaya (personal communication), Tepecik ovens might have been similar to those at Ulucak Höyuk, a site located near Izmir close to the Aegean coast (more than 750 km from Tepecik). Neolithic Ulucak featured a very well preserved (almost intact) oven that is clearly the fırın type- it can be seen in Fig. 55).

Fig. 55. Neolithic fırın from Ulucak. Derin 2005, 91.

FEATURE:	SB 4

PHASE:	Level 3, Lower Phase (3.2 Alt Evre = Fırınlı Yapılar)
PERIOD:	Late Neolithic
EXCAVATED IN:	2010
LOCATION:	Sector 18 L **BUILDING:** 7 **ROOM:** BL
DESCRIPTION:	No mudbrick structure preserved, early phase of the installation was larger- it was rebuilt, not just repaired, it has bench-like feature, small depression on the right side, it was built on layer of flat stones, rectangular shape of these seemed to be preferred.
DIMENSIONS:	1,40 x 1,10 m
ORIENTATION:	To the south
CONTEXT:	In stone alcove of a house**,** the room contains storage cells (to the SW of the oven).
ASSOCIATED FINDS:	UB-262 (awl), UB-264 (obsidian arrowhead), UB-259 (grinding stone)

a) b) c)

Fig. 56. 18L SB-4 alcove oven. Construction phases. Tepecik Archive

FEATURE:	SB 2

PHASE:	Level 3, Lower Phase (3.2 Alt Evre = Fırınlı Yapılar)
PERIOD:	Late Neolithic
EXCAVATED IN:	2005, 2008
LOCATION:	Sector 17 L **BUILDING**: 6 **ROOM**: BR
DESCRIPTION:	Mudbrick structure not preserved, 2 building phases (upper phase: lined with stones with plastered interior, lower phase: only plastered floor was preserved on layer of stone slabs, the floor was re-plastered many times
DIMENSIONS:	1,30 x 1,20 m
ORIENTATION:	To the north
CONTEXT:	In room BR, position of „alcove“ oven, but room BN to the southeast makes the houseplan a little different.
ASSOCIATED FINDS:	Burial SK-34

Fig. 57. 17L SB-2 oven. Top left: upper building phase. Top right: stone platform. Bottom: repairs of the oven floor. Tepecik Archive

FEATURE:	SB 24

PHASE:	Level 3, Lower Phase (3.2 Alt Evre = Fırınlı Yapılar)
PERIOD:	Late Neolithic
EXCAVATED IN:	2005
LOCATION:	Sector 16 K/partly 17 K **BUILDING**: 3 **ROOM:** U
DESCRIPTION:	Vertical stones lining the oven mouth and body, double stone supporting the back of the oven, had a plastered, bench like feature
DIMENSIONS:	1,80 x 1,00 m
ORIENTATION:	To the North
CONTEXT:	Alcove oven, storage cells opposite the oven, workshop area adjacent, grinding stone in situ next to it
ASSOCIATED FINDS:	Finds in the room include awls (UB-297, 299, 300, 366), slingstone (UB-298) and a grinding stone in situ next to it

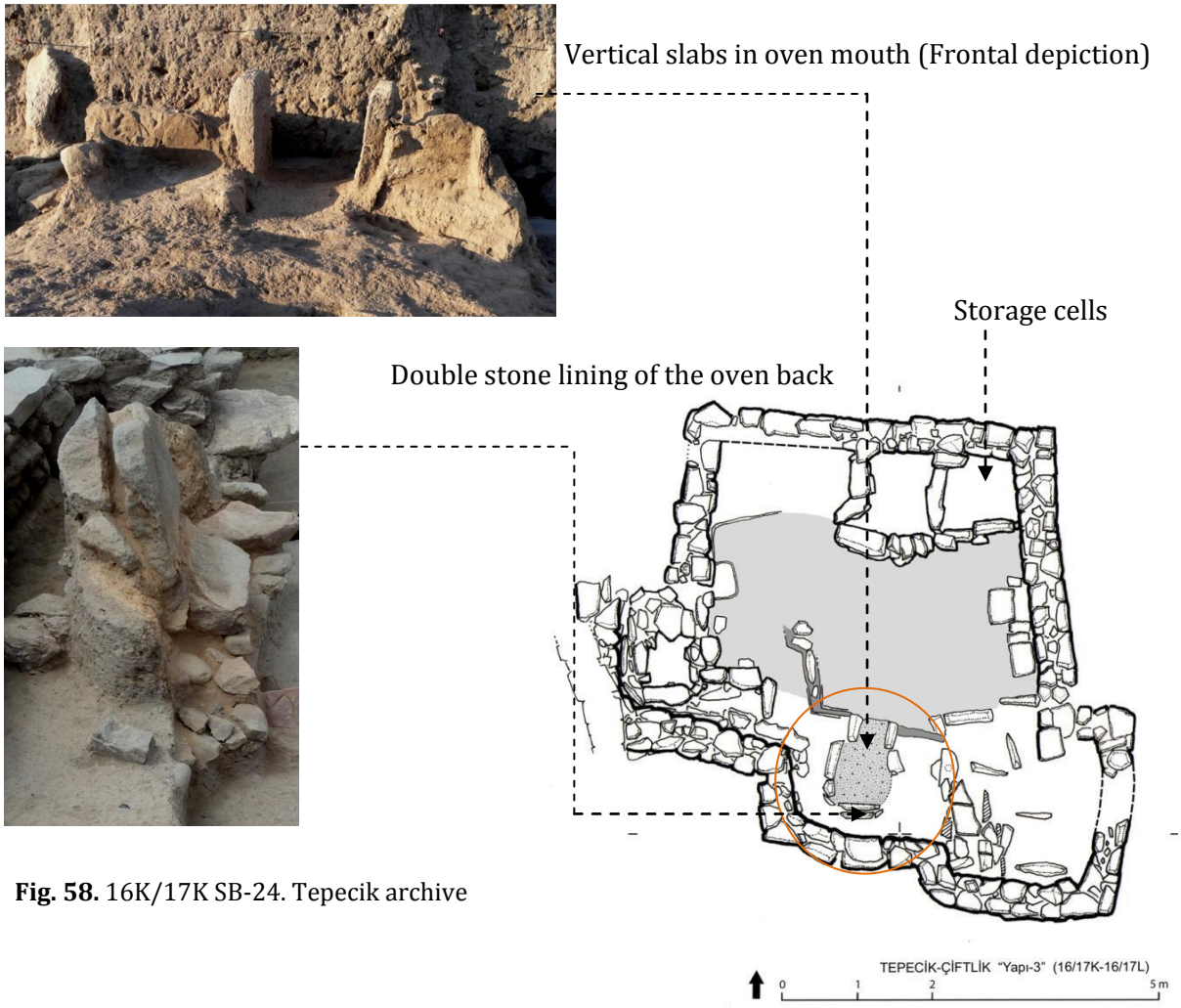


Fig. 58. 16K/17K SB-24. Tepecik archive

FEATURE:	SB 31

PHASE:	Level 3, Lower Phase (3.2 Alt Evre = Fırınlı Yapılar)
PERIOD:	Late Neolithic
EXCAVATED IN:	2010 – 2012
LOCATION:	Sector 16 L **BUILDING**: 4 **ROOM**: BK
DESCRIPTION:	Weakly preserved, only the plaster floors were preserved, traces of frequent re-plastering
DIMENSIONS:	1,20 x 1,00 m
ORIENTATION:	To the North
CONTEXT:	Alcove oven, trash (animal bones) in the room centre, the room featured a bench and storage cells (SB- 37, 38, 42)
ASSOCIATED FINDS:	None

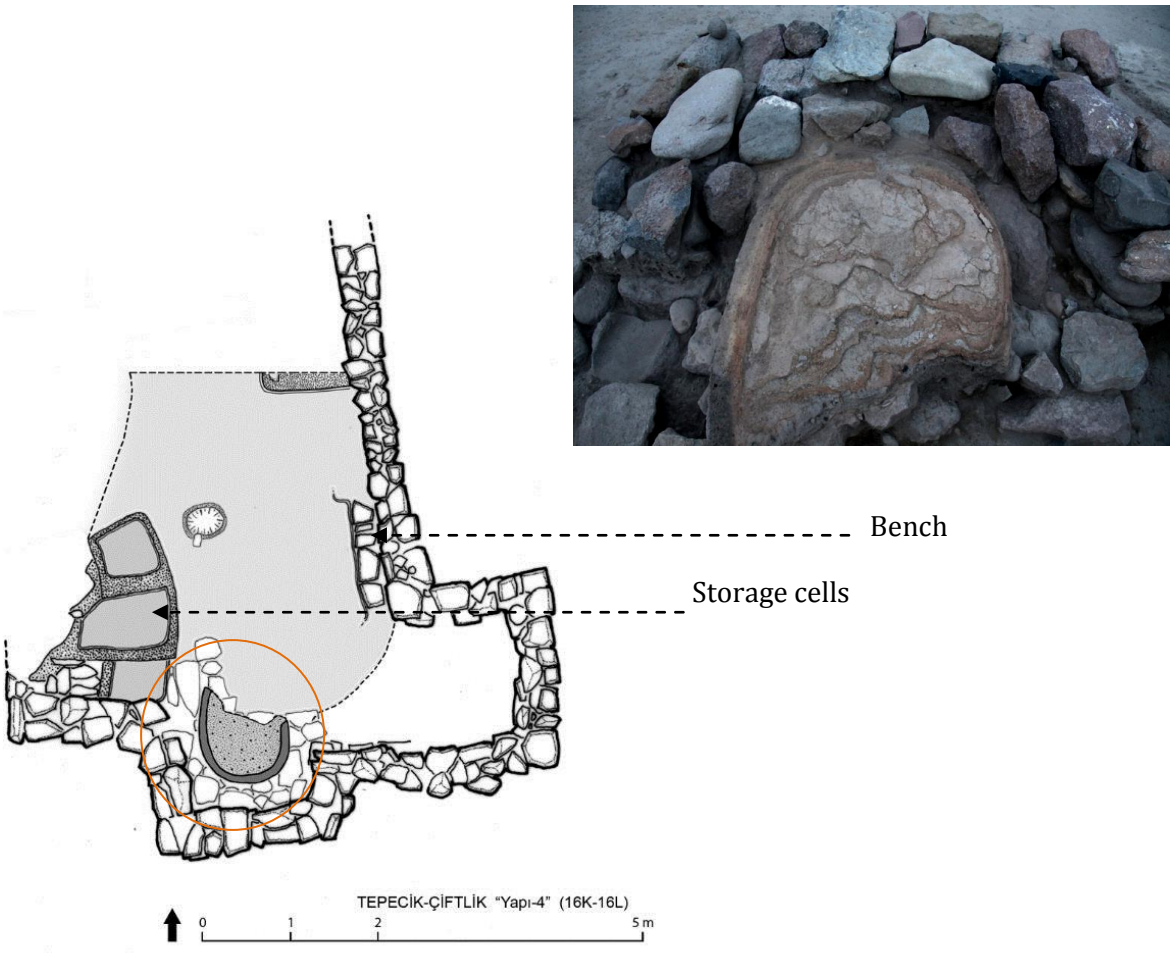


Fig. 59. 16L SB-31 alcove oven. Tepecik archive

FEATURE:	SB 2

PHASE:	Level 3, Lower Phase (3.2 Alt Evre = Fırınlı Yapılar)
PERIOD:	Late Neolithic
EXCAVATED IN:	2006
LOCATION:	Sector 17 K/J **BUILDING:** 10 **ROOM**: AJ
DESCRIPTION:	Low degree of preservation, stone foundation
DIMENSIONS:	1,05 x 0,70 m
ORIENTATION:	To the South
CONTEXT:	Freestanding building a little distant from the others (buildings 4, 3,6 and 7 were more or less adjacent to each other)
ASSOCIATED FINDS:	N/A

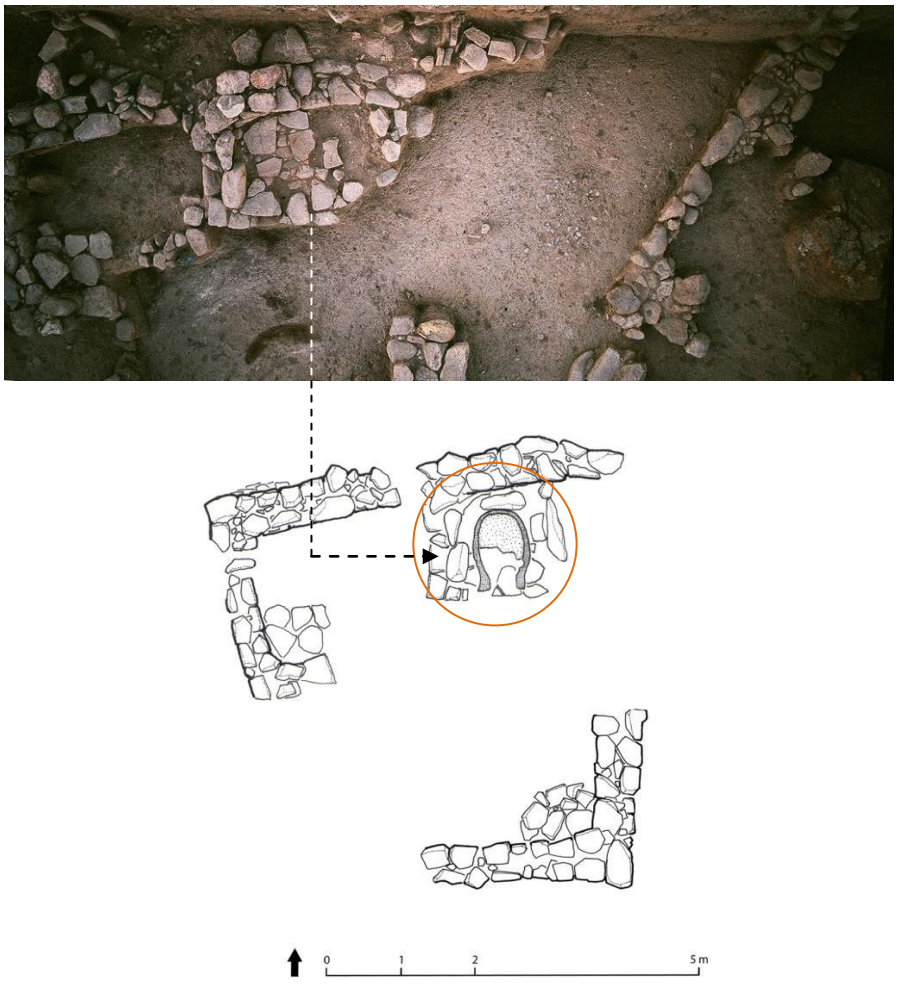


Fig. 60. 17K/J SB-2 fire installation. Tepecik archive

In the upper phase of Late Neolithic level 3, four fire installations have so far been excavated. Their sizes vary, the smallest feature was 0.75 x 0.65 m in diameter, the largest one covered space of 1.30 x 1.00 m.

Three of the features from this level were found in one building (Nr. 2) in trenches 16J/K and 17J/K. The other one (SB-5) was located in a stone apse, connected to one-roomed building 1. In this period, two ash refusal areas were found, associated with SB-5 and SB-13.

SB-25 from sector 16 J/K had slightly inclined floor and was lined with vertically placed stones on the sides. It was rather small, 0.75 x 0.65 m, and the room in which it was located yielded some sling stones, broken awls, worked horn, beads and storage vessel located in the corner- this room was therefore not used for food preparation, it was probably multi-functional.

Feature SB 13 in sector 17 K was originally interpreted as possible tandır because of its circular ground plan. This interpretation cannot be proven right now. The feature didn´t have a clearly built clay core, it was rather a stone-lined fireplace with plastered interior. Tandırs in this area of Turkey can have similar form (Fig. 27 and 28), but they are used in combination with metal sac pans which cover them during baking, creating a more closed atmosphere. This could not be the case of Neolithic Tepecik, even if we would look for clay alternatives of the „sac“ (no such pans or trays were found at the site that could be used in this way). The feature must have been used in a different way.

FEATURE:	SB 5 (ashpit SB 30)

PHASE:	Level 3, Upper Phase (3.1)
PERIOD:	Late Neolithic
EXCAVATED IN:	2000
LOCATION:	Sector 16 K **BUILDING:** 1 **ROOM:** A
DESCRIPTION:	Floor not preserved, adjacent ash pit that originally served as firepit (after the oven was built, the firepit was used for ash refusal)
DIMENSIONS:	1,30 x 1,00 m (oven), 0,40 x 0,40 m (ashpit)
ORIENTATION:	To the north-east
CONTEXT:	The fireplace was located in an apse added to the room
ASSOCIATED FINDS:	Burial SK-2

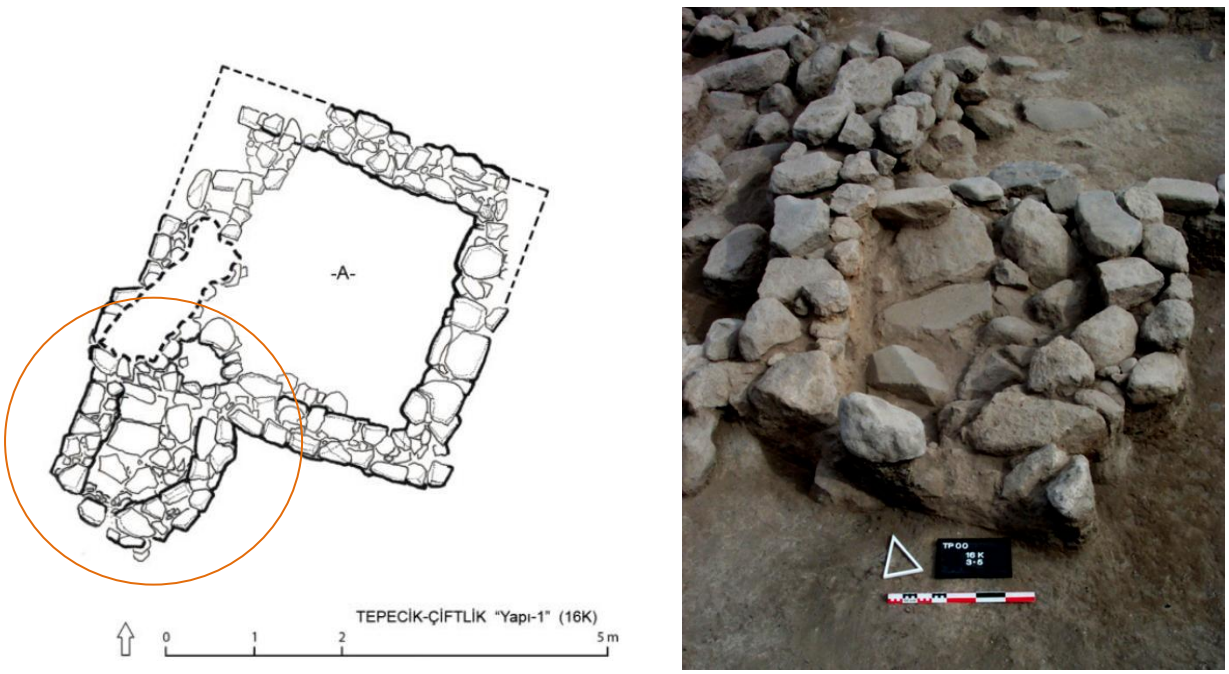


Fig. 61. 16K SB-5. Tepecik archive

FEATURE:	SB 25

PHASE:	Level 3, Upper Phase (3.1)
PERIOD:	Late Neolithic
EXCAVATED IN:	2005
LOCATION:	Sector 16 J/K **BUILDING**: 2 **ROOM**: AD (baulk)
DESCRIPTION:	Slightly inclined floor, lined with vertical slabs
DIMENSIONS:	0,75 x 0,65 m
ORIENATION:	To the south-east
CONTEXT:	The fireplace was built against north-western wall of the room
ASSOCIATED FINDS:	In the room: sling stones (UB-206, 258), broken awls (UB-247, 369), worked horn (UB-228), beads (UB-186, 197, 211, 212, 227, 263) and storage vessel, located in room´s corner

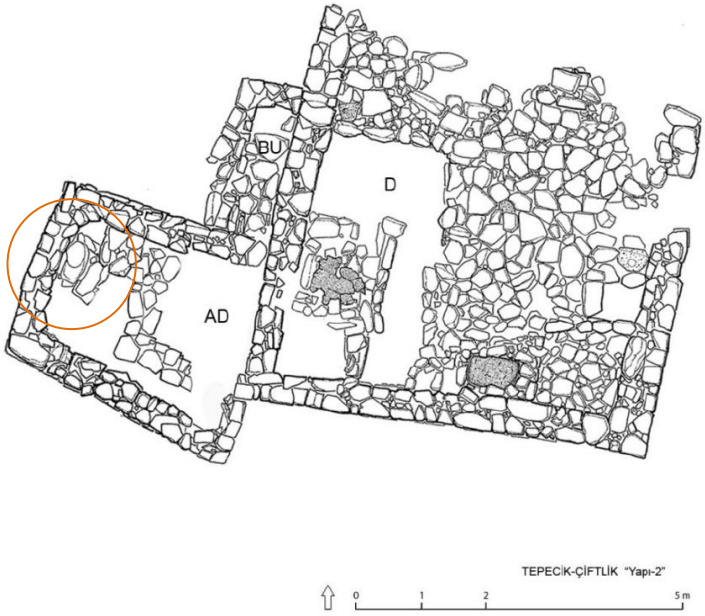


Fig. 62. 16J/K SB-25 Fireplace with inclined floor. Tepecik archive

FEATURE:	SB 14 (for 17 J)

PHASE:	Level 3, Upper Phase (3.1)
PERIOD:	Late Neolithic
EXCAVATED IN:	2005
LOCATION:	Sector 17 J/K **BUILDING**: 2 **ROOM**: D (baulk)
DESCRIPTION:	Badly preserved, probably not in use for long time (no traces of repair)
DIMENSIONS:	0,90 x 0,75 m
ORIENTATION:	To the east
CONTEXT:	Built on flat stone platform against western wall of room D, the room had stone pavement
ASSOCIATED FINDS:	The room featured a mortar (UB-4) and ground slabs embedded in floor

Fig. 63. 17J/K SB-14 fireplace. Tepecik archive

FEATURE:	SB 13 (for 17 K) / 1 (for 17 J/K) (ashpit SB 38)

PHASE:	Level 3, Upper Phase (3.1)
PERIOD:	Late Neolithic
EXCAVATED IN:	2004
LOCATION:	Sector 17 J/K **BUILDING**: 2 **ROOM**: D
DESCRIPTION:	Pebble pavement + plastered floor, stone lined, adjacent kőzlűk (ashpit)
DIMENSIONS:	0,75 x 0,45 m (oven), 0,30 x 0,30 m (ashpit)
ORIENTATION:	To the west
CONTEXT:	Built against southern wall of room D
ASSOCIATED FINDS:	The room featured a mortar (UB-4) and ground slabs embedded in floor

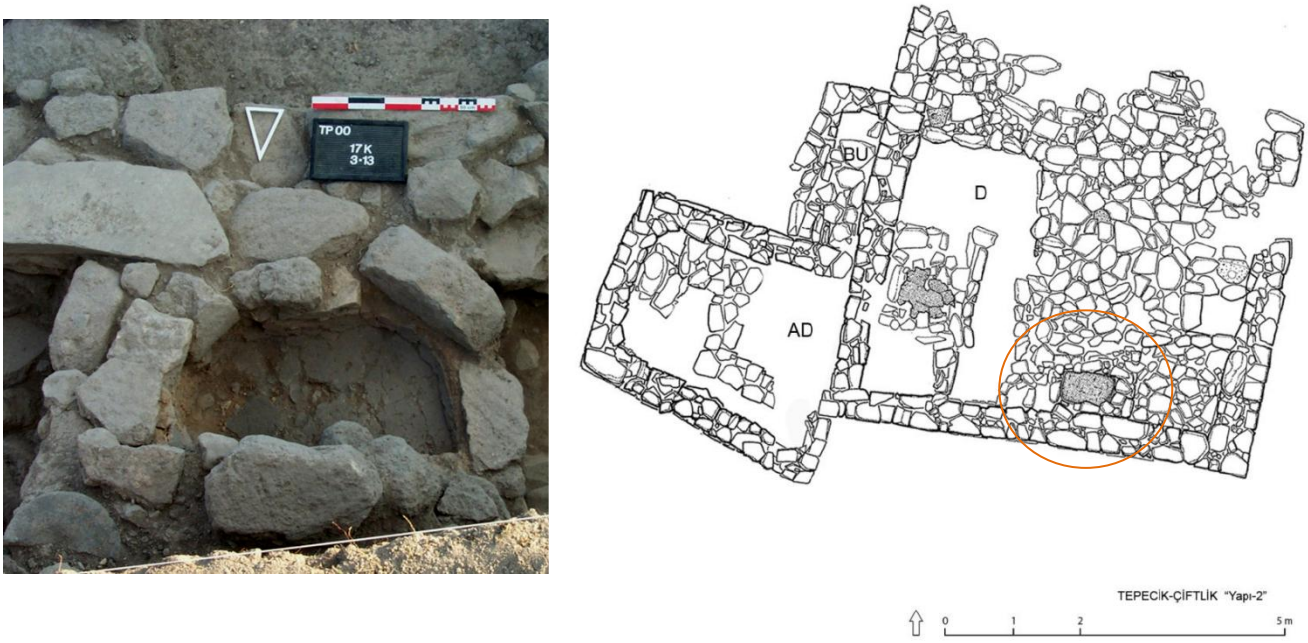


Fig. 64. 17J/K SB-13 fire installation. Tepecik archive

Chalcolithic level 2

The architecture from level 2 is not as well understood as its Late Neolithic counterpart. The fire installations are much smaller than in level 3. To this day, only 4 Early Chalcolithic fire installations were excavated at Tepecik Çiftlik and only further investigation will show if there is any standardisation or distributional pattern within architecture.

Features SB-20 and SB-15 in sector 15J have been uncovered and partially excavated in 2014, but left in the trench awaiting further research. I have been able to inspect them during my stay in 2014 and it seems that SB-20 is a rather simple rectangular fireplace on layer of flat stones, with plastered floor, built directly on the ground of room CC. In the next room of the same building (17) is an interesting feature SB-15 which is very unlike all the other Tepecik combustion features. It is very well preserved and so its construction technique can be understood quite well. The feature was built in room corner, making use of architectonic layout and of stone foundations of the walls. The walls of the oven are built of vertically placed stone slabs, creating sort of a chamber that was coated with clay on the interior (in one place, imprints of fingers were recognised). The foundation of this oven was made with the usual pebble foundation that was covered with mud plaster.

SB-20 in trench 15K is a simple fireplace, 0.80 x 0.40 m large and built on layer of river pebbles with only one level of plastered floor. It was not very well preserved. Its location was probably in room CF of building 19, but due to low degree of preservation, the context is still unclear.

The last studied example of fire installations from Tepecik Çiftlik is SB-4. This badly preserved fireplace was built on top of an older wall and its context is not very clear. It had a pebble layer on surface of flat stones and was probably located outdoor, which would be unusual, because stone foundations are usually used indoors at Tepecik.

FEATURE:	SB 20

PHASE:	Level 2
PERIOD:	Early Chalcolithic
EXCAVATED IN:	Not exavated yet, only uncovered (2014)
LOCATION:	Sector 15 J **BUILDING**: 17 **ROOM**: CC
DESCRIPTION:	Fireplace on layer of pebbles
DIMENSIONS:	1,00 x 0,75 m
ORIENTATION:	To the south-east
CONTEXT:	In room CC directly on the floor, probably against wall?
ASSOCIATED FINDS:	N/A

Fig. 65. 15J SB-20 fireplace. Tepecik archive

FEATURE:	SB 15
PHASE:	Level 2
PERIOD:	Early Chalcolithic
EXCAVATED IN:	Not exavated yet, only uncovered (2014)
LOCATION:	Sector 15 J **BUILDING**: 17 **ROOM**: CE
DESCRIPTION:	With fingerprint marks, the oven had pebble layer and plastered floor
DIMENSIONS:	0.75 x 0.50 m (approximate- not excavated yet)
ORIENTATION:	To the south
CONTEXT:	In room corner, next to pisé platform (SB-16), in room there were some grinding stones and burnt wood beams
ASSOCIATED FINDS:	2 grinding stones

Fingerprints in the clay lining of oven and their location in the feature

Fig. 66. 15J SB-15. Tepecik Archive

FEATURE:	SB 20

PHASE:	Level 2
PERIOD:	Early Chalcolithic
EXCAVATED IN:	2013
LOCATION:	Sector 15 K **BUILDING:** 19 **ROOM:** CF
DESCRIPTION:	Fireplace on pebbles, badly preserved
DIMENSIONS:	0.80 x 0.40 m
ORIENTATION:	To the south
CONTEXT:	It is associated with room and building, but the context is unclear due to low degree of preservation.
ASSOCIATED FINDS:	Ground stone nearby (see Fig. 67)

Fig. 67. 15K SB-20 fireplace. Tepecik archive

FEATURE:	SB 4

PHASE:	Level 2
PERIOD:	Early Chalcolithic
EXCAVATED IN:	2013
LOCATION:	Sector 15 J In open area
DESCRIPTION:	Layer of pebbles on flat stone pavement
DIMENSIONS:	0.50 x 1.00 m
ORIENTATION:	To the south
CONTEXT:	Probably in open area, on wall of room BY
ASSOCIATED FINDS:	None

Fig. 68. 15J SB-4 fireplace. Tepecik archive

3.2. Comparison with other sites in the region

In earliest levels of Tepecik, possible fire pits were found, and although these were not studied in detail due to lack of documentation, they are similar to roasting pits from Aşıklı and Pınarbaşı.

Tepecik didn´t show long-term continuity in use of space like we saw at Aşıklı, where some hearths were built in the same spot throughout many building phases. It did, however, feature standardized and very well-maintained fire installations in lower phase of level 3. During this period, fire installations placed in stone niches of the buildings were indeed, to paraphrase Özbaşaran (1998), hearts of homes and centerpieces of household activities evolving around them. Apart from this occupational phase, however, Tepecik was a dynamic settlement changing constantly according to people´s needs- in this regard the site is similar to Köşk Höyuk (Tepecik and Köşk also share similarities in material culture, they were located in similar environment, and they are chronologically contemporary).

It seems that after the lower phase houses from level 3 were abandoned, the idea of symbolic central position of fire installations was also left behind. Flat stone pavements and pebble layers were the common foundations for Tepecik fire installations, no instance of pebble layer (like at Güvercin) was attested. No clay balls were found at Tepecik that might have functioned as cooking utilities. Some of the Late Neolithic fırıns from Tepecik might have been domed like at Çatalhöyük, but not enough is known about roofs of Tepecik ovens to confirm such assumption.

3.3. Benefits and drawbacks of the current approach

The following chapter aims to offer a critical assessment of the methods and documentation techniques that have been used at Tepecik Çiftlik in previous years. In this chapter, I pinpoint the main weaknesses of the approach but it should be emphasized that these observations have been made from the viewpoint of someone who is issue-oriented in research and they are not easily met in circumstances of large excavation where no specialist is responsible for excavation of fire installations.

At Tepecik Çiftlik, archaeologists are able to perform fine-scale excavation of fire installations with help of often very skilled local workers. Overall, the Tepecik data obtained during the excavation process of these fire installations is qualitatitvely good, but I have noticed that there is certain bias: less well preserved or simpler fire installations were quickly excavated away with minimum documentation, while for example the alcove ovens from lower phase of Level 3 were excavated very carefully and with better documentation. A lot of information can be deduced from photographs (especially in recent years the photographs are of high quality), but it is always better to complement visual documentation with notes, details, thoughts, precise measurements, description of the excavation process, etc.

No unified documentation method has been used at Tepecik for ovens and hearths (unlike for burials, samples, pottery and small finds, which have their own documentation systems and databases). This is partly caused by the fact that no-one has so far been particularly focusing on the oven study (only Late Neolithic ovens were published in Çakan´s thesis, which dealt with household architecture from this site). The problem is that data about fire installations is virtually scattered in trench journals, handwritten in Turkish and available at the excavation site or in scanned form[25], they were not fully digitalized. What is lacking is effective documentation method that could ensure that the fire installations receive more equal and systematic attention. Field journal entries often depend very much on qualifications of the student or archaeologist who was responsible for keeping them- some of the students wrote very detailed

[25] my personal handicap was elementary knowledge of the language, which slowed down the whole process of tracking the data, but I was able to track down the data eventually

entries, others got by with brief descriptions. Looking for this information was time-consuming and not very effective.

Field directors and long-term members of Tepecik team have remarkable knowledge of what has been found at the site and were willing to consult with me whenever possible, but depending on personal communication for data is not a very sustainable solution, especially with more and more excavation seasons behind us.

Another thing that I witnessed was the situation, when ovens/hearths were uncovered in one year, but due to end of excavation season had to be left in place throughout the rest of the year until the following excavation season when they were finally removed. This sometimes caused incompatibilities in documentation (for example the fire installation in trench 19K that I excavated in 2014 received SB number 1, but when I looked through the older documentation from year 2012, when it was discovered, it had different SB number). Preservation of the features was influenced by this as well.

As I have stated in the theoretical part, the new method should help minimize bias, ensure clarity and transparency, ensure better interoperability and positively influence accessibility (discoverability) of data. It is not my goal to change the current documentation system at Tepecik Çiftlik, which has so far been used with satisfactory results. But I offer a proposal of how excavation of domestic fire installations, which are sometimes neglected, can be optimised and bring more promising results.

3.4. Applying new tool: fire installations in trenches 19 J and 19 K

In the following chapter, I try to demonstrate that by using the specialised worksheet during excavation of two Late Neolithic ovens from lower phase of Level 3, more qualitative data can be obtained which is easily traceable and comparable.

Both of these fire installations have been uncovered in 2012 and excavated partially in that year. SB-1 is located in Western part of trench 19 J, SB-4 is situated in trench 19 K. Both features are associated with lower phase of Late Neolithic level 3. The installations are representatives of common type attested at Tepecik, the so-called "alcove" ovens due to their location in a stone niche of a building. Despite general trend in orientation of the Late Neolithic ovens at Tepecik (N-S or S-N), the orientation of feature SB-1 is to the west. The other installation, SB-4, fits the N-S orientation tradition.

Originally, the features were probably surrounded by kerpiç superstructures- this is evidenced by remains of kerpiç surrounding the oven cores. Shallow depressions (5 x 8 x 3 cm) have been found in the oven floors, lined with plaster. The function of these depressions is unknown- the excavators suggested a hypothesis that the depression was used for starting the fire and keeping the burning coals (Çakan, personal communication). I was unable to find archaeological or ethnographic analogies for such a feature and so for now on its function remains unsolved. Both of the fire installations bear traces of frequent replastering- SB-4 was replastered at least six and SB-1 at least seven times. Working areas have been uncovered the vicinity of both of these ovens. The oven mudbrick structure in both cases also had a small, narrow bench, which ran along the oven mouth. Grinding stones were found near the ovens. Both of these ovens had large stone (20 x 30 cm) placed „in the mouth" (at the spot where bottom opening was located, a large flat stone was placed and plastered over). Both featured pebble layers resting on pavements of flat stones. The pebble pavement consisted mostly of mature river pebbles which probably came from the nearby Melendiz stream- they were collected in vicinity of Tepecik settlement. Most of these pebbles were deliberately broken into smaller pieces. The fragments were also used in the pavement to fill in gaps and make a more even surface. Smaller, smooth river pebbles were kept intact as their

size was adequate for construction of the pavement[26]. Mainly basalt[27] and andesite rocks were used and the stones featured traces of burning (pink colouring) due to exposure to oven`s heat. The stones were deliberately chosen for their purpose, this choice was made by skilled and probably experienced people who knew exactly what they are going to build and what kind of stones they would need. For oven SB-1 in 19J trench, almost 100 kg of pebbles were used to create the pebble pavement.

Both of the features shared the following characteristics:

Ground plan:	elongated horseshoe
Construction material:	flat stones, river pebbles, mud plaster, kerpiç, clay
Main elements:	flat stone surface, pebble pavement, plastered floors (many times repaired), bench-like threshold, large flat stone placed under oven door, traces of kerpiç that indicate presence of possible superstructure
Additional elements:	shallow depression on one side of the oven floor (inside the oven)

General observations upon arrival (july 2014): State of preservation

Top level of the ovens´ floors was partially destroyed due to open exposure in the trench since 2012. Levels of orange mud plaster were visible in several succeeding layers. Macroscopically, the plastered floors seemed to have same consistence and there have not been any significant differences in quality (between SB-1 and SB-4; also throughout time when the ovens were used and repaired, the quality of plaster remained the same). The mud plaster has organic (impressions of grass or straw) and

[26] Most of the stones were small (51-200 g) or middle sized (201 – 500 g). Their size would generally fit into adult`s hand.

[27] Basalt rocks have very good isolation qualities, they do not crack and they are very light (Ertuğaç, personal communication)

fine mineral temper. Kerpiç walls surrounding the ovens were excavated away in 2012 (for SB-1 they were removed completely, in case of SB-4 some parts of it remained).

Method of excavation

Firstly, I cleaned both of the ovens from the debris and weeds that have acummulated over the past two years of exposure to the nature´s elements. After taking photographs of the state before and after cleaning, I continued in excavation of the floor plaster in successive layers. The tools which I used were spatulas, soft brush and a trowel. Both features could clearly be divided into three main horizontal levels of construction:

- Plastered floors
- Pebble pavement
- Flat stone platform

I also decided to cut featue SB-4 lengthwise in place where the deppression was made into the floor in order to see the oven´s profile, as can be seen in Fig. XX. This helped us understand the micro-stratigraphy of the installation and confirmed that the depression was indeed an intentional element, which was repaired along with the oven floor.
Drawings were made in scale 1:10 for each of these main levels of construction and three points always measured with theodolite. The pebbles from the stone pavements under the ovens were taken to the excavation house for geological analysis. Each floor level was sampled for micromorphological analysis and floatation sample of excavated material was also taken. As the ovens were clean of ash and fill, fuel residues could not be studied. The specialized worksheet presented in this thesis was used to document both of the ovens.

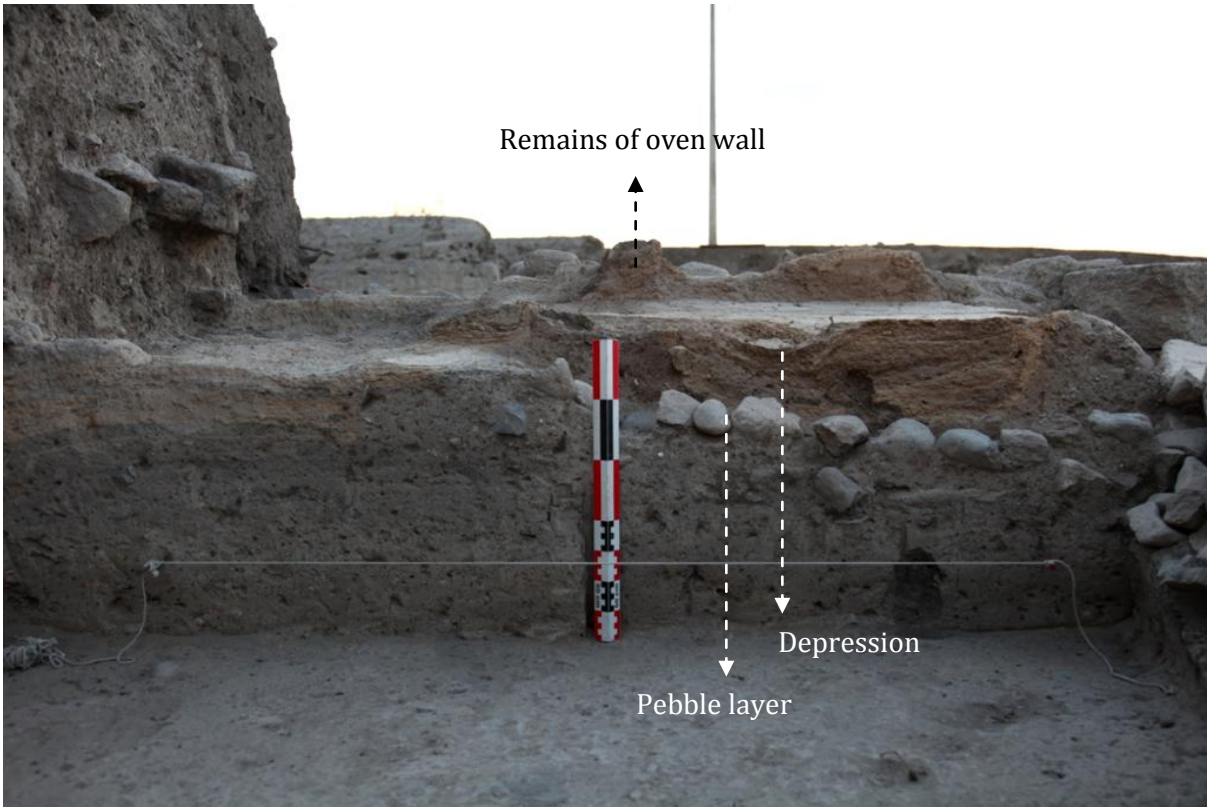


Fig. 69. Oven section with visible floor levels, remains of still standing oven wall, depression in the floor and pebble layer. Tepecik archive

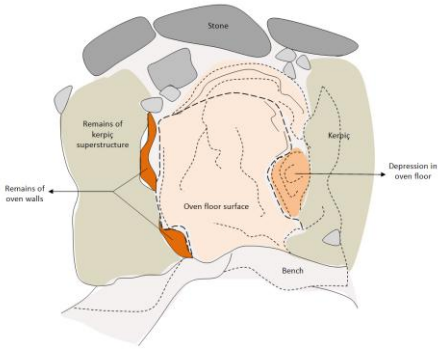
Sampling strategy

Sampling of the ovens SB-1 and SB-4 consisted of three types of samples:

- Floatation samples for palaeobotanical analysis
- Clay plaster samples for micromorphological analysis
- Pebbles for weighing and basic macroscopic analysis at the excavation house by a geologist

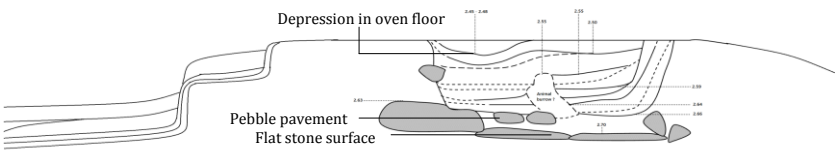
The samples of floor plaster were taken in rubber gloves with help of a trowel, wrapped in alluminium foil and then placed into plastic box to ensure their safe transportation. Sample of plaster from the oven depression was also taken. Floatation samples were taken to the excavation house in buckets. No charcoal or ashy fill of the oven were found. Some of the samples were transported to Brno for future analysis.

General excavation information					
ID	11			Stratigraphic Matrix	
Name of site	Tepecik Çiftlik				
Trench	19K				
Excavated by	Lenka Tkáčová (Masaryk Unviersity)+ archaeological team from Istanbul University			Building 16 — SB-4 — Room CJ	
Excavated in	2012, 2014				
Original designation of the feature	SB-4				
Type of fire installation	~~Tandır~~	Fırın	~~Earth oven or firepit~~		
	~~Tabun~~	~~Domed oven~~	~~Ocak~~	~~Other:~~	
Datation (Level, phase, period)	Level 3, lower phase (Late Neolithic)				
Condition (State of preservation)	State upon arrival (2014): Floor levels of the fire installation were preserved, but the uppermost layer was destroyed due to exposure since 2012. Remains of kerpiç surrounding the body of the fire installation were removed in 2012 and only traces were left (most intact portion was on the western side of the oven). Parts of the oven wall were still standing (ca 10 cm tall), they had dark grey burned core and the interior rim was orange. Excavation uncovered pebble pavement and flat stone layer underneath, as well as large cracked flat stone placed under oven mouth Measurements from 2012 documentation: X: 0.65 – 1.45 Y: 1.05 – 1.85 Z: 2.41 Measurement from 2014 (core): X: 0.65 – 1.45 Y: 1.05 – 1.85 Z: 2.31 – 2.60				
Photograph	Yes	~~No~~	Nr: IMG_0767, IMG_0768, IMG_0803, IMG_0810		
Drawing	Yes	~~No~~	1:20, 1:50, profile drawing		



Shape and Form				
BODY	*Ground plan*	Horseshoe with straight sides (U shape)		
	Diameter bottom	1.0 x 0.9 m		
	Diameter top	0.8 x 0.7 m		
	Preserved height/depth	10 cm (walls of oven)	32 cm (interior)	
	Estimated original height	N/A		
	Wall thickness	10 cm		
	Direction/orientation	To the south		
SUPERSTRUCTURE	*Superstructure around oven*	Yes	~~No~~	~~Undetectable~~
	Material	~~Mudbrick~~	~~Pisé~~	Other: Packed mud
	Diameter bottom	2.00 x 1.40 m		
	Diameter top	2.00 x 1.40 m		
	Preserved height/depth	0.50 m ?		
	Estimated original height	N/A		
	Wall thickness	Max 40 cm		
Construction material	Plaster	Stone	Clay	Kerpiç
	Please, decribe: mud plaster, flat stones for foundation, clay coating of the interior and packed kerpiç was used for the superstructure			
Construction technique	Firstly, a layer of flat stones was laid out on the ground. Afterwards, the gaps were filled with smaller rocks and another layer of pebbles was created. On this, the oven was built – firstly the mud construction, which was plastered thickly on the interior, as well as on the floor of the created chamber. A large flat stone was placed at the bottom of the opening and plastered over with thin mud mixture. The oven had a small depression in right part of its interior, the function of this depression is unclear. Also, a narrow bench-like feature was created in the front- like small step.			
Stone lining	~~Yes~~	No		
Form of the chamber	Not preserved well enough to be reconstructed			
Foundation	~~Sherds~~	Pebbles	Flat stones	Plaster	~~Other~~
	Layer of flat stones was the lowest level, on which there were some river pebbles and subsequently mud plastered floors				
Position	Elevated (on platform)	~~Directly on the floor~~	~~Subterannean~~	~~Partly sunk~~
Preserved openings	Yes	~~No~~	~~Undetectable~~	

Opening on bottom	Yes	~~No~~	~~Undetectable~~	
Opening on top	~~Yes~~	~~No~~	Undetectable	
Inclination of the core	~~Yes~~	No	~~Undetectable~~	~~Angle:~~
Angle of the walls	Less than 15°	15-45°	None	Unrecognizable
Type of clay	~~Untempered~~		Tempered	
Temper in clay	Straw	~~Manure~~	~~Goat hair~~	~~None~~	~~Undetectable~~	~~Other:~~
Adjacent working table/ working area	Yes	~~No~~	~~Undetectable~~	

Use and context					
Location within the site (general context)	~~Courtyard~~	~~Street~~	~~Ovenhouse~~	Room corner- - in niche	~~Room centre~~
	Building number	16	Room number	CJ	
	Size of house	N/A (m²)	Size of room	N/A (m²)	
	The house has not been fully excavated in 2014 - it continued into the southern profile of the trench				
Number of ovens per household unit	1 so far	Number of uncovered contemporary ovens	6		
Attested continuity (more ovens in same spot)	~~Yes~~	No			
Associated features	Working area next to it with stone tools (grinding stones, obsidian blade) and bone idol				
Associated layers	N/A – the context will become more clear when the whole building is excavated				
Associated lots	57,, and 140,, (within); 53,, and 81,, (around)				
Associated finds	Storage vessel	Grinding stone	Animal bones	Lithic Tool	Clay Balls
	Pottery tray	Pottery lid	Clay pan	Silo	Cooking rocks
	Please, include find numbers: N/A			Other: Bone idol	
Traces of burning	Indicate where, to what degree, colour: the oven wall had dark grey core with orange interior rim, there were cracks from heat on the mud plaster floors				
Fuel	The oven was cleaned out after it fell out of use – fuel residues not macroscopically visible				
Fuelling technique	The oven was cleaned out after it fell out of use – probably internally fired (interior showed traces of burning)				
Traces of rebuilding	~~Yes~~	No	~~Undetectable~~		
Traces of repairing	Yes	~~No~~	~~Undetectable~~		
Number of preserved floors	6	Thickness of floor levels:	3-5 cm		
Other (additional notes, comments)	The oven had a shallow depression in its floor (in eastern half of the feature). I decided to cut the installation lengthwise in this spot to see if the depression was intentionally made and to understand the feature stratigraphy. This process showed that the depression was renewed along with oven floor and so it was probably created on purpose, but its function is unclear- it was not a ventilation hole, nor does it seem to be result of post-depositional process. 				

Sampling strategy and off-field analysis					
Sampling	Yes				~~No~~
	~~C14~~	Floatation	~~Fuel analysis~~	FTIR	Micromorphology
Sample Numbers	1055 a,b,c,d,e,f – samples of clay plaster from the floors 1097 – sample of excavated material for floatation 1155- sample of the kerpiç surrounding oven core 1152 – flaotation sample 1159 a,b,c – sample of oven wall material (burned clay) from around the oven mouth 1160 – cample of material from the bench-like feature of the oven 1128 –ashy soil, fill of the oven floor depression 1271- clay plaster used to create the depression 1272- white ashy soil covering the rock surface under oven floor				
Result of analysis	In progress – selected samples were transported to Brno for laboratory analysis				
GIS	Yes- in progress			No	

Reflection of the excavation process
The feature was uncovered in 2012 and then left in the trench until 2014, when it was again cleaned and excavated. Because of this, top layers of the feature were damaged, and I have also found some discrepancies in the feature´s documentation. In field diary from 2012 the feature had a different SB number (9) and it is unclear which find numbers were associated with it. Also the measurements of kerpiç structure are not clear from the documentation.

Fig. 70. Worksheet for SB-4 in trench 19K

Fig. 71. Two foundation levels of SB-4 in trench 19K. (left) plastered floors, the depression is visible in the right half of the oven floor (right) pebbles and flat stone surface showing. Tepecik archive

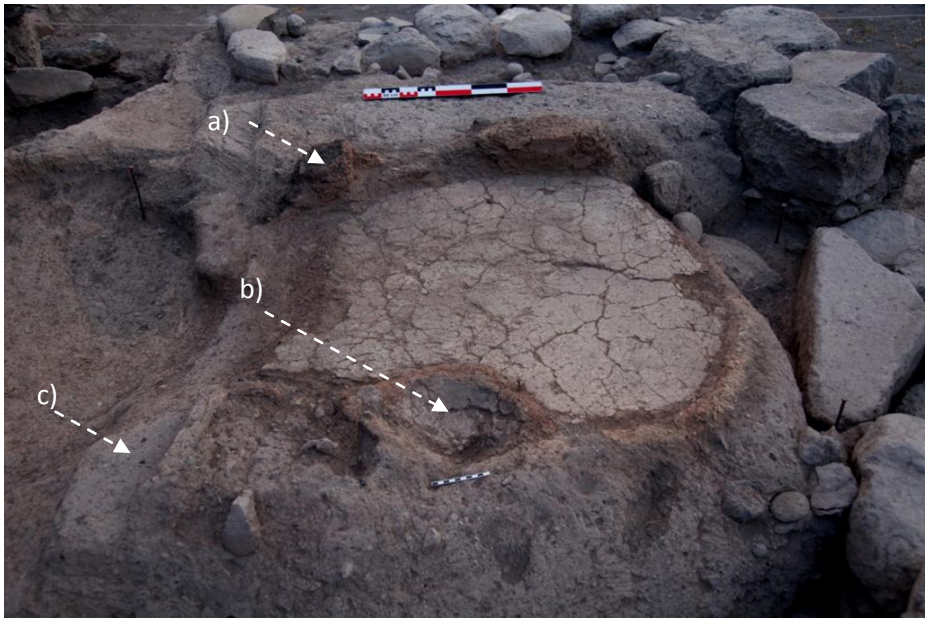
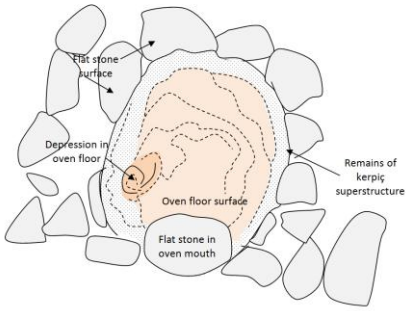
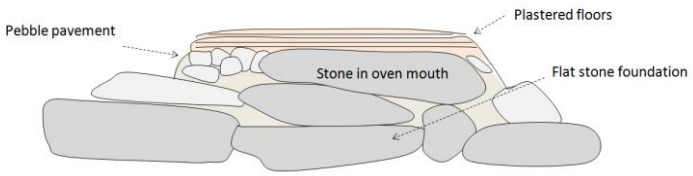


Fig. 72. SB-4 from different angle. Arrows point to: a) remaining, well baked oven walls, b) depression in oven floor and c) bench-like threshold. Tepecik archive

General excavation information				
ID	10	Stratigraphic Matrix		
Name of site	Tepecik Çiftlik			
Trench	19J			
Excavated by	Lenka Tkáčová (Masaryk university), Istanbul university archaeological team	Building 15	SB-1	Room BO
Excavated in	2012, 2014			
Original designation of the feature	SB-1			
Type of fire installation	~~Tandır~~	Fırın	~~Earth oven or firepit~~	
	~~Tabun~~	~~Domed oven~~	~~Ocak~~	~~Other:~~
Datation (Level, phase, period)	Level 3, lower phase (Late Neolithic)			
Condition (State of preservation)	State upon arrival (2014): What is preserved: floor levels of the fire installations, pebble pavement and flat stone layer underneath, large cracked flat stone placed in front of the oven mouth What is fragmentary: Remains of kerpiç surrounding the body of the fire installation (they were removed in 2012) What is absent: preserved parts of the oven´s walls (judging from the pictures they were found by excavators, but they were excavated away in 2012 without specific documentation except for mentions in daily plans)			
Photograph	Yes	No	Nr: IMG_0841, IMG_0835, IMG_1016, IMG_2111	
Drawing	Yes	No	1:50, 1:20	

Shape and Form				
BODY	*Ground plan*	Elongated horeshoe/oval		
	Diameter bottom	0.6 x 0.7 m – maximum diameter of preserved floor surface in 2014		
	Diameter top	0.5 x 0.6 m		
	Preserved height/depth	N/A (walls of oven)	10 cm (interior)	
	Estimated original height	Not possible to reconstruct		
	Wall thickness	N/A (cm)		
	Direction/orientation	To the west		
SUPERSTRUCTURE	*Superstructure around oven*	Yes- excavated in 2012	No	Undetectable
	Material	Mudbrick	Pisé	Other:
	Diameter bottom	1.50 x 0.70 m		
	Diameter top	N/A (m)		
	Preserved height/depth	N/A (m)		
	Estimated original height	Not possible to reconstruct		
	Wall thickness	N/A (cm)		
Construction material	Plaster	Stone	Clay	Mudbrick
	Clay plaster floors resting on pebble pavement, the whole structure was built on pavement of flat stones. The pebble pavement was made up of 99,141 kg of 11tones. Their total number was 640, but the pavement also contained one pottery sherd, obsidian pebble and five kerpiç fragments.			
Construction technique	Firstly the selected surface where the inhabitants of the house wanted to place the oven was laid with large flat slabs. Afterwards they must have created the pebble layer, using mostly river pebbles which were deliberately cracked to create even-sized rocks. It is unclear how the oven body was constructed and whether it was surrounded by a working table made of packed mud (there were some traces of kerpiç according to the excavators who uncovered the feature in 2012). The interior of the feature was plastered with clay plaster with inclusions of straw or grass. It can be seen that the feature was in use for long time since it bears traces of multiple replastering. Large stone was placed under the oven door (0.5 m wide), it was cracked and supported by another flat stone to achieve even height with the floor levels of the oven. 			
Stone lining	Yes	No		
Form of the	Not preserved well enough to be reconstructed			

chamber					
Foundation	Sherds	Pebbles	Flat stones	Plaster	Other
	Foundation is made up of small pebbles, the whole feature stands on surface of flat slabs				
Position	Elevated (on platform)	Directly on the floor	Subterannean	Partly sunk	
Preserved openings	Yes	No	Undetectable		
Opening on bottom	Yes	No	Undetectable		
Opening on top	Yes	No	Undetectable		
Inclination of the core	Yes	No	Undetectable	Angle:	
Angle of the walls	Less than 15°	15-45°	None	Unrecognizable	
Type of clay	Untempered	Tempered			
Temper in clay	Straw	Manure	Goat hair	None	Undetectable	Other:
Adjacent working table/ working area	Yes	No	Undetectable		

Use and context					
Location within the site (general context)	Courtyard	Street	Ovenhouse	Room corner- in niche	Room centre
	Building number	15	Room number	BO	
	Size of house	N/A (m²)	Size of room	N/A (m²)	
	The oven is located within a house as is common in this level at Tepecik, the house probably had the typical tripartite layout with the oven placed in an alcove				
Number of ovens per household unit	1 so far	Number of uncovered contemporary ovens	6		
Attested continuity (more ovens in same spot)	Yes	No			

Associated features	Working platform (SB-12), walls (SB- 7, 10, 11)				
Associated layers	-				
Associated lots	36,, (inside, 2012) and 45,, (around, 2012); 89,, (inside. 2014)				
Associated finds	Storage vessel	Grinding stone	Animal bones	Lithic Tool	Clay Balls
	Pottery tray	Pottery lid	Clay pan	Silo	Cooking rocks
	69, 70, 79, 80, 81, 82, 83, 139, 135, 136 (ground and grinding stones in the room), 146 (figurine in the room), 147 (worked horn in the room), 137 spatula (in the room), 138 (worked bone in the room)				
Traces of burning	Indicate where, to what degree, colour: plastered floors were cracked, also the pebbles from pebble surface showed traces of being affected by high temperature				
Fuel	It is unclear what was used to fuel this fire installation as it was cleaned out and didn´t show any traces of ash				
Fuelling technique	Very probably the fuel was placed inside the oven and then raked out (the oven mouth was big enough for frequent cleaning of the oven and the flat surface of the stone in the opening would enable the cook to rake the ashes out easily)				

Traces of rebuilding	Yes	No	Undetectable
Traces of repairing	Yes	No	Undetectable
Number of preserved floors	7	Thickness of floor levels:	1-2 cm
Other (additional notes, comments)	The oven had a shallow depression in its floor (in northern half of the feature). It seemed to have more layers, but was not very well preserved. Its function is unclear (it was not a ventilation hole).		

Sampling strategy and off-field analysis					
Sampling	Yes				No
	C14	Floatation	Fuel analysis	FTIR	Micromorphology
Sample Numbers	1109 – floatation sample (z: 2.77-2.76) 1108 a,b – sample of depression material (z: 2.76 – 2.75) 1118 a,b,c – ashy soil from oven excavation 1090 a,b,c,d,e,f,g – samples of plastered floors				
Result of analysis	In progress – selected samples were transported to Brno for laboratory analysis				
GIS digitalisation	Yes – in progress	No			

Reflection of the excavation process
The feature was uncovered in 2012 and then left in the trench until 2014, when it was again cleaned and excavated. Because of this, top layers of the feature were damaged. The space of the house was excavated in a different year and the context is unclear. I could not find measurements and description of kerpiç structure, which was removed in 2012. Because of degree of preservation it was not possible to cut the feature to see its section, as was done with SB-4 in 19K.

Fig. 73. Worksheet for SB-1 in trench 19J

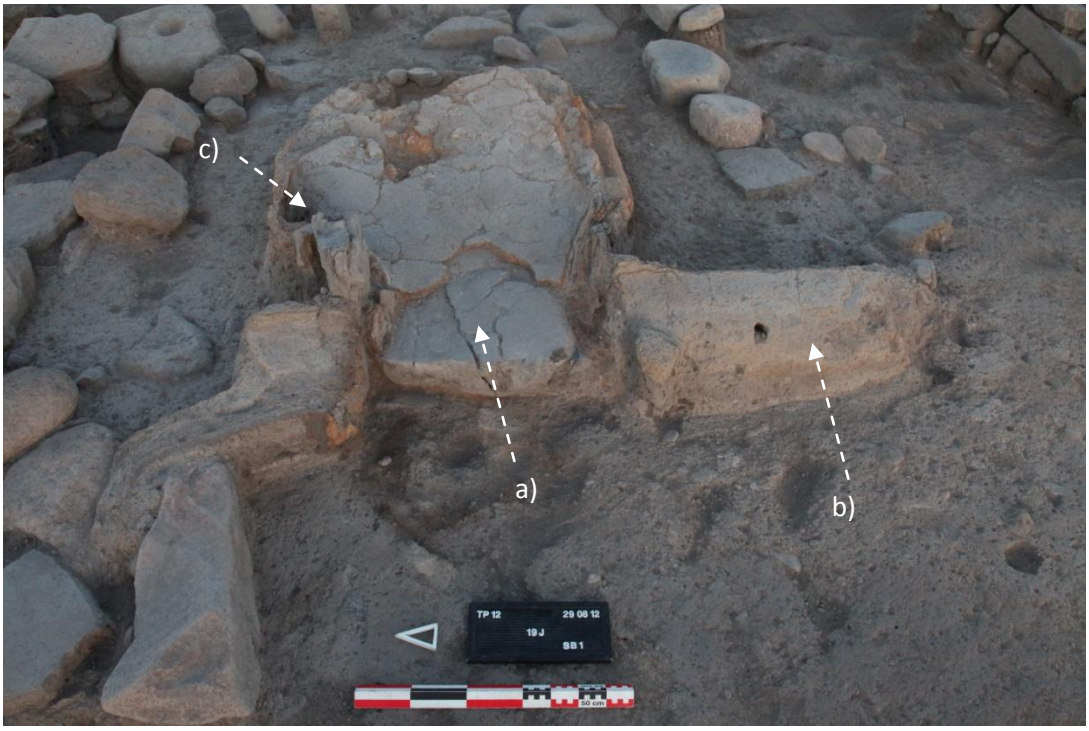


Fig. 74. Uppermost level of oven SB-1 with plastered floors. This was its condition in 2012. Arrows point to: a) flat stone placed in oven mouth, b) remains of mudbrick superstructure, c) depression. Tepecik archive

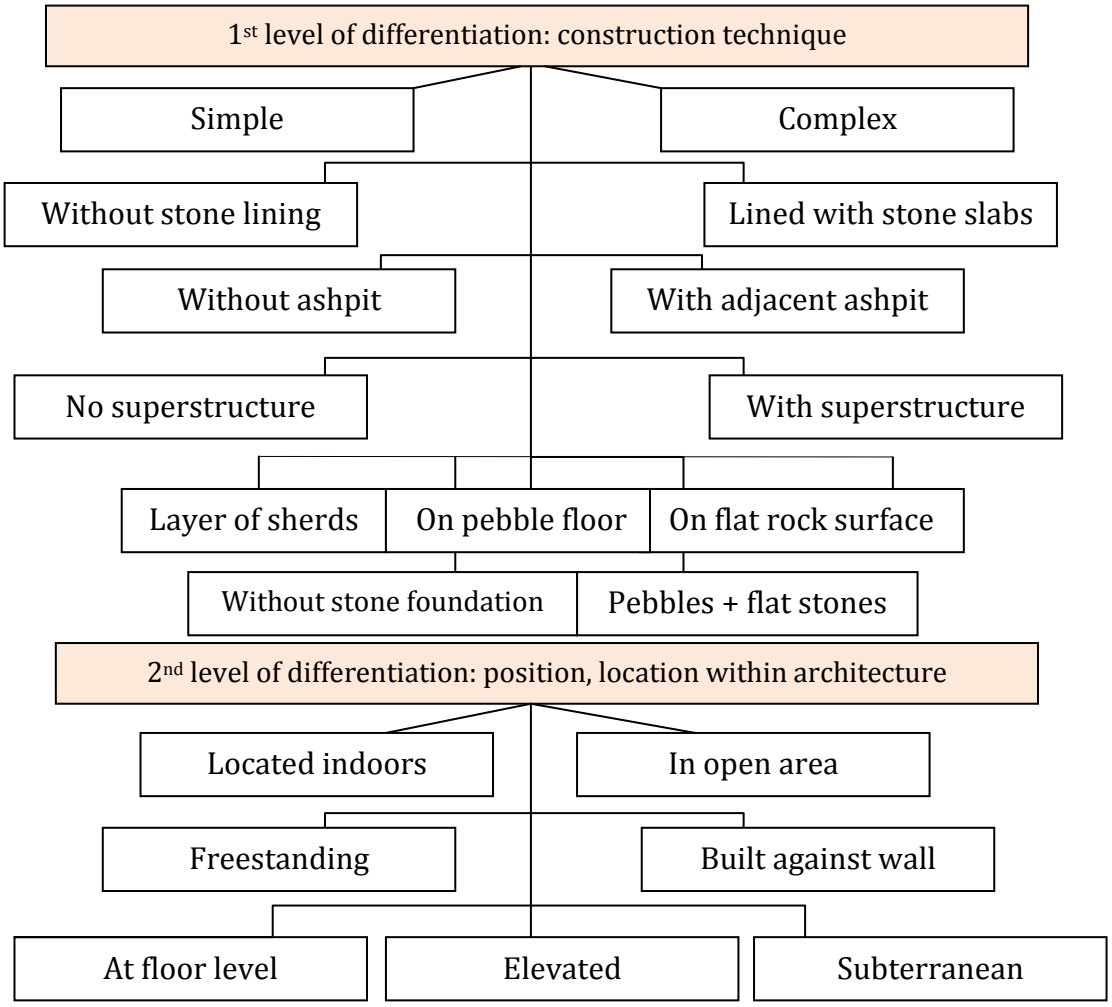
Fig. 75. Two foundation levels of SB-1 in trench 19J. (left) pebble pavement (right)flat stone surface. Tepecik archive

Final comments

Both of these fire installations fit well into the broader picture of ovens from this occupation phase at Tepecik Çiftlik. They show the same typical features (stone platform, pebble pavement, large flat stone in oven mouth (Fig. 74), bench-like thresholds (Fig. 72) and remains of kerpiç superstructures), they are well- maintained (frequently repaired: each had at least 6 levels of re-plastered floors). They also show signs of exposure to heat- the floors are cracked and the pebbles also showed colouring due to heat exposure. Both features were cleaned out before dismantled and so no macroscopically visible fuel residues could be found, just like in other Late Neolithic ovens from Tepecik. Documentation worksheets were filled in during the excavation process in 2014 in great detail and you can see them in Fig. 70 and 73.

3.5. Typology of fire installations from Tepecik Çiftlik

I present a working typology of fire installations from Tepecik Çiftlik based on the data collected by archaeological team from Istanbul university in years 2000-2014. In order to do so, I have created a diagram (see below) with two basic levels of differentiation: construction technique and position. Afterwards, I considered each of the features against this set of qualities in order to recognise those features that shared similar characteristics and to see if they could represent any distinct types. I had previously entered data about all of the 19 analysed fire installations into the database, which is available on USB flashdrive. With the fire installations documented with the conventional methods, **only 40-50 % of the form** could be filled in and a the dataset features many gaps at this stage. Nevertheless, it was possible to analyse these technological and contextual aspects of Tepecik fire installations:



After examining morphological attributes (**1st level of differentiation**) of the fire installations, the following main typological groups could be distinguished at Tepecik Çiftlik:

- **Hearths of following variants:**

Simple freestanding hearth without stone foundation

  - *17J SB-6* (badly preserved, context is not clear)

Simple hearth on stone foundation, without stone lining, built directly on ground level

  - *18L SB-17, 15J SB-20*

Slightly raised fireplace on platform of stones

  - *17J/K SB-14*

Fireplace with stone foundation and adjacent firepit for ash refusal

  - *16K SB-5*

Stone-lined fireplace on flat stone foundation with plastered interior

  - *17L SB-2* (upper phase, originally interpreted as tandır), *17K SB-13*

Simple hearth on pebble floor

  - *15K SB-20*

Hearth with flat stone surface + pebble floor

  - *15J SB-4*

Fireplace with slightly inclined floor and limited by two vertically placed stones

  - *16J/K SB-25*

Additionaly, two fireplaces had adjacent ash collecting pits (both of these features came from upper phase of level 3):

16K SB-5 (ashpit SB-30 was 0.40 x 0.40 m large) and 17J/K SB-13 (ashpit SB-38 was 0.30 x 0.30 m large)

- **Fırıns or fırın-like ovens** on flat stone foundation (i.e. slightly raised), with/without pebble floor and with plastered interior, usually located in alcove of building
    - *17K/J SB-2, 16L SB-31*

Fırın-like ovens were generally similar in their construction, but some variations could be observed, namely:

Ovens with mudbrick superstructure, bench-like feature and stone placed in oven mouth

- *19K SB-4, 19J SB-1*

Ovens without mudbrick superstructure, with bench-like feature

- *18L SB-4*

Fırın with double stone-lined back and vertically placed stones lining the bottom opening

- *16K SB-24*

The last two types are unique and each is represented only by one fire installation.

- **Stone-built chamber oven** in room corner, interior covered with thick clay layer, with pebble pavement and mud-plastered floor
    - *15J SB-15*
- **Oven + hearth installation**

Oven + hearth combination without stone foundation, made of clay

- *18J SB-30 and SB-34*

Overall, apart from lower phase of Level 3, when fırın-like ovens were the usual type, the Tepecik fireplaces show great diversity. No standardised forms were distinguished throughout occupational time span and it seems that the fire installations were built dynamically from available materials (stones, clay, etc.) according to needs of Tepecik inhabitants, following no specific tradition. In level 3 lower phase, however, the ovens do seem to be standardized, they are well-made, often repaired and maintained clean. It might point to existence of some local tradition during this time, which did not prevail in later levels.

2nd level of differentiation: context

Majority were indoor features (given the relatively harsh Anatolian winters, this might have been a practical choice, although the position of the alcove ovens could also have symbolical meaning) built against walls. Freestanding features were more common in Early Neolithic and Early Chalcolithic- during the Neolithic the ovens seem to be placed near walls or adjacent to walls as a rule. Three ourdoor fir einstallations were excavated- two of them comprise the double installation associated with level 4, the last one was found in Early Chalcolithic level 2. No subterranean features were found. During the Neolithic, the fire installations were usually built on low stone pavements, making them slightly raised. Fireplaces were generally built on the ground level.

			Early Neolithic				Late Neolithic											Early Chalcolithic			
			4				3.2							3.1				2			
Type	How many?	ID:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Without rock foundation	3		x	✓	✓	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
On flat rock surface	7		✓	x	x	x	✓	✓	x	✓	✓	x	x	✓	x	✓	x	x	x	x	x
On pebble floor	4		x	x	x	x	x	x	✓	x	x	x	x	x	✓	x	x	✓	x	✓	x
With layer of pottery sherds	0		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Both: pebbles + flat stones	5		x	x	x	x	x	x	x	x	x	✓	✓	x	x	x	✓	x	✓	x	✓
Without stone lining	14		✓	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	x	✓	x	✓	x	✓	✓
Lined with stone slabs	5		x	x	x	x	x	✓	✓	x	x	x	x	x	✓	x	✓	x	✓	x	x
No ashpit	17		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	x	✓	✓	✓	✓
With ashpit	2		x	x	x	x	x	x	x	x	x	x	x	✓	x	x	✓	x	x	x	x
Without superstructure	16		✓	✓	✓	✓	x	✓	✓	✓	✓	x	x	✓	✓	✓	✓	✓	✓	✓	✓
With superstructure	3		x	x	x	x	✓	x	x	x	x	✓	✓	x	x	x	x	x	x	x	x
Indoor	16		✓	x	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x
Outdoor	3		x	✓	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓
Freestanding	6		x	✓	✓	✓	x	✓	x	x	x	x	x	x	x	x	x	x	x	✓	✓
Built against wall	12		✓	x	x	x	✓	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	?	✓	x	x
At floor level	8		✓	✓	✓	✓	x	x	x	x	x	x	x	x	✓	x	?	✓	x	✓	✓
Elevated (on platform)	10		x	x	x	x	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	?	x	✓	x	x
Subterranean	0		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Legend:
ID 1: 18L SB-17, **ID 2**: 18J SB-30, **ID 3**: 18J SB-34, **ID 4**: 17J SB-6, **ID 5**: 18L SB-4, **ID 6**: 17L SB-2, **ID 7**: 16K SB-24, **ID 8**: 16L SB-31, **ID 9:** 17K/J SB-2, **ID 10:** 19J SB-1, **ID 11:** 19K SB-4, **ID 12:** 16K SB-5, **ID 13:** 16J/K SB-25, **ID 14:** 17J/K SB-14, **ID 15:** 17J/K SB-13, **ID 16:** 15J SB-20, **ID 17:** 15J SB-15, **ID 18:** 15K SB-20, **ID 19**: 15J SB-4

Tab. 5. Tepecik fire installations according to pre-selected set of classification categories

Conclusions

The site Tepecik Çiftlik was used as a case study to demonstrate and test new documentation tool for domestic fire installations. This tool has form of a specialized pre-printed worksheet and it is interlinked with digital Access database.

Let us now review the tested documentation method and pinpoint some of its main weaknesses and advantages, when compared to the conventional documentation method, in order to determine its potential for oven studies in Near-Eastern archaeology.

Pre-printed worksheets are not new in archaeology, yet their potential is not fully exploited when it comes to the issue of fire installations. Rather than treating fire installations within broad category of immoveable features, a "tailored" tool can be used to get more qualitative data relevant for oven studies. Application of the worksheet in the case study has shown that this tool could be of use especially at smaller sites that still depend on conventional documentation systems because they didn´t have to cope with huge amounts of data. It is also good in cases of delayed publication or if the team does not plan on publishing detailed study of ovens (ovens usually appear very sporadically in general excavation reports and monographs)- if the data is readily available, digitalised and of even quality, it can eventually be shared between archaeologists for purpose of inter-regional analysis, or inter-disciplinary research (for example data on ovens might be interesting for an archaeo-botanist).

The case study has also brought some weaknesses to light, which should be addressed, namely:

- the new method focuses only on domestic fire installations, and not on other combustion features, such as kilns
- if the archaeological team has some long-established ways and a system that everybody is accustomed to, it might take some time before the new method is accepted and taken with same seriousness as the regular documentation
- data on ovens and hearths can be so diverse that statistical analysis is not plausible

- this tool is not satisfactory for sampling and additional sampling documentation should be kept
- the worksheet might be susceptible to bias, leading the archaeologist towards certain questions that he/she might not have asked- less experienced archaeologist might end up "seeing things that are not there", just because it seems from the worksheet that they should be. This is not true- the goal is not to fill in every single entry, but to document everything that is relevant.

The new documentation method helped organize the data obtained during 15 years of excavation at Tepecik Çiftlik. This data is now prepared for further analysis. Use of the worksheet has shown that some of the fire installations were documented only sporadically and not in great detail. Some information (such as ground shape, orientation, etc.) could be retrospectively deduced from photographs, but other details (for example: temper in clay, angle of walls, thickness of preserved walls and others) are irrevocably lost.

By employing the proposed worksheet as the basic tool for documentation of ovens and hearths, the information gain can be maximized without need for specialist. Its categories should provide useful framerwork for archaeologists towards questions about all the main components of fire installations in a detailed way. The data obtained in this way will be more organized and readily available when entered into the database (no need to look up pieces of scattered information). More detailed measurements can be potentially useful for reconstructions of original forms. At the beginning of this thesis, I have stated that the new documentation tool should be clear, efficient, usable, issue-sensitive and reflexive. I believe that all of these conditions have been met and only further application in archaeological practice will definitely test its usefulness and confirm its effectiveness (or show its limitations).

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Fig. 31. Typical pre-pottery Neolithic hearths from Aşıklı: (left) hearth in room corner with pebble pavement, (right) fireplace with chimney/ventilation hole and pebble pavement. Özbaşaran 1998, 564.

Fig. 32. Well-preserved plastered hearth from Aşıklı. Photo: taken during visit to the site in 2014.

Fig. 33. Idealized earth oven section diagram showing seven layers: (1) prepared surface (oven pit), (2) fire (reduced to ashes and glowing coals by the time the oven is sealed), (3) layer of red-hot rocks (heating element), (4) lower layer of green plant material (packing), (5) food layer, (6) upper layer of packing, and (7) earthen cap (published in Black & Thoms 2014, p. 205. Originally adapted from Thoms 1989:268, Figure 21)

Fig. 34. Aşıklı fire pits. Excavation archive of Aşıklı Höyük. Uzdurum 2013, 92.

Fig. 35. Fireplace with pebble floor and its location inside structure at Aşıklı Höyük. Kvæstad 2010, 82.

Fig. 36. Schematic section of sounding at Aşıklı Höyük. Hearths marked in black. Figure prepared by Oberendorff. Düring 2005, 24.

Fig. 37. Musular building with hearth, bench and red painted floor. Özbaşaran, M., Duru, G., Kayacan, N., Erdoğdu, B., Buitenhuis, H. 2007.

Fig. 38. Fırın from Köşk Höyük. Öztan, 2002, 62.

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Fig. 41. Fire installation from Güvercinkayası. Photographed during visit to the site in 2014.

Fig. 42. Idealised houseplan types from Güvercinkayası, indicating positions of ovens, round hearths and storage vessels. Based on architecture plan of the site published in Oxford Handbook of Ancient Anatolia, p. 804 (to be seen also in Fig. 1 of this thesis). a) with oven in cornerand round hearth in room centre, b) with two ovens and no hearths, c) oven in corner, round hearth in centre and „anteroom" or „porch" with oven d) with oven in corner, hearth in centre and separate space at the far edge of the room. Position of grinding stones is not indicated, but according to Pavlů et al. (2007, 35) they were often discovered in vicinity of ovens and hearths

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Fig. 51. 18J SB-30. Tepecik archive.

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Fig. 53. Double fire installation in 18J. Tepecik archive.

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Fig. 57. 17L SB-2 oven. Top left: upper building phase. Top right: stone platform. Bottom: repairs of the oven floor. Tepecik Archive

Fig. 58. 16K/17K SB-24. Tepecik archive

Fig. 59. 16L SB-31 alcove oven. Tepecik archive

Fig. 60. 17K/J SB-2 fire installation. Tepecik archive

Fig. 61. 16K SB-5. Tepecik archive

Fig. 62. 16J/K SB-25 Fireplace with inclined floor. Tepecik archive

Fig. 63. 17J/K SB-14 fireplace. Tepecik archive

Fig. 64. 17J/K SB-13 fire installation. Tepecik archive

Fig. 65. 15J SB-20 fireplace. Tepecik archive

Fig. 66. 15J SB-15. Tepecik Archive

Fig. 67. 15K SB-20 fireplace. Tepecik archive

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Fig. 69. Oven section with visible floor levels, remains of still standing oven wall, depression in the floor and pebble layer. Tepecik archive

List of tables

Vocabulary of Turkish terms frequently used in this thesis and/or relevant to the topic:

Ağaç sopa long, thin wooden stick used to roll, move and spread the bread dough (Seen in Fig. 27)

Ateş çukuru fire pit (Uzdurum 2013) – see Fig. 34

Çalı çırpı brushwood, typically used for firewood or kindling (seen in Fig. 14)

Fırın general term for „oven“ in Turkish/a type of oven that is accessed from the front/Arabic equivalent 'furn' (Avitsur 1977, 239)

İskelet numarası skeleton number

Kerpiç packed mud used to make mudbricks/the term can also mean mudbrick

Kislik tandır winter oven, in areas with harsh winters, the winter oven space was also „*the space where one had slept, using the heat from cooking for warming up the living spaces as well.*“ (Harmansah 2007, 10)

Közluk/kül çukuru ash tray, ash collecting area connected to fireplace

Ocak fireplace/hearth/horse-shoe shaped plaster hearth (Anderson & Ertug-Yaras 1998)

Örnek numarası sample number

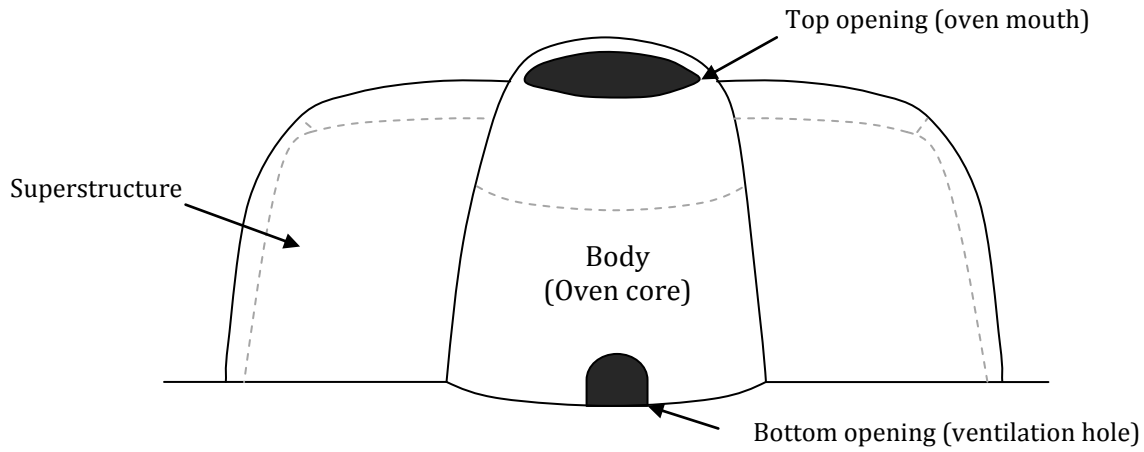
Sabit buluntu immoveable feature (Tepecik terminology)

Sac/saç shield for baking bread used by nomads (Cribb 2004, uses term 'saç')/ Arabic equivalent 's*ā*j'– see Fig. 27, 28

Sıva plaster

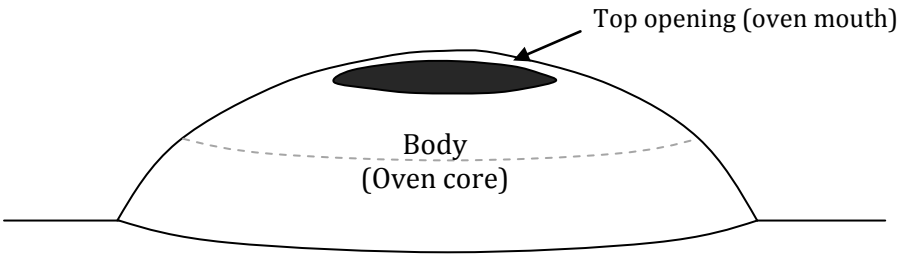
Tandır ventilated underground oven used for bread making (Anderson & Ertug-Yaras 1998)/ large hollow clay structures, beehive shaped

	(sometimes tipped) with one large „loading hole“ at the top and one smaller „ash removal hole“ at the base (Parker & Uzel 2007)/Arabic equivalent 'tannūr'
Tandır evi	oven-house (Harmansah 2007)
Tandır ekmeği	a type of bread baked in tandır oven
Tezek	animal dung (Nesbitt 1995)/dung cake used as fuel in traditional Anatolian villages (Anderson & Ertug-Yaras 1998)/dried dung burnt as fuel (Cribb 2004)
Tezeklik	space used for dung fuel storage (Harmansah 2007)
Ufak buluntu	small find (Tepecik terminology)
Yufka	thin 'pide' unleavened bread cooked on a domed metal shield (saç) (Cribb 2004)



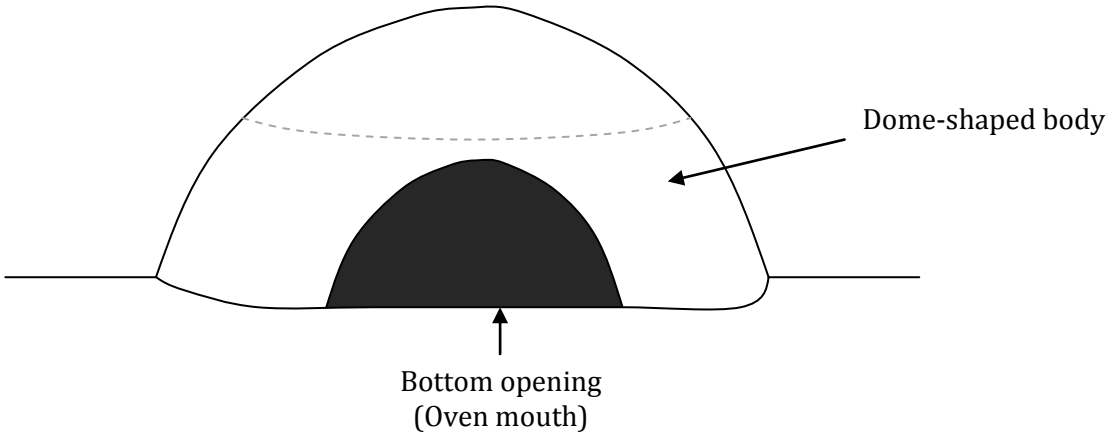
Tannur (alt. tannour, tandoor, Arabic: تنور, Turkish: tandır) is a type of clay oven known from Near-Eastern archaeological sites as well as from ethnographic record (McQuitty 1994, Mulder-Heymans 2002, Parker 2011). It has conical or cylindrical form with one opening at the base for air ventilation and one larger one at the top (mouth) for fuel and inserting the food. The body (clay cone) can be inserted into mudbrick or pisé superstructure for support and heat isolation. A tannur can sometimes be inclined to enable better access to the oven. A coating of pottery sherds can be added to the body as additional thermal isolation layer. Another common variant of the tannur is sunk-in, when the core is placed underground and its mouth is at floor level.

Ground plan of the core:	circular, round
Form of chamber:	conical, cylindrical
Construction material:	clay, sometimes with coating of pottery sherds, can be plastered with mud
Main elements:	bottom opening for ventilation, top opening for access
Additional elements:	the core can be inserted into pisé or mudbrick superstructure
Archaeological example from Turkey:	Kenan Tepe



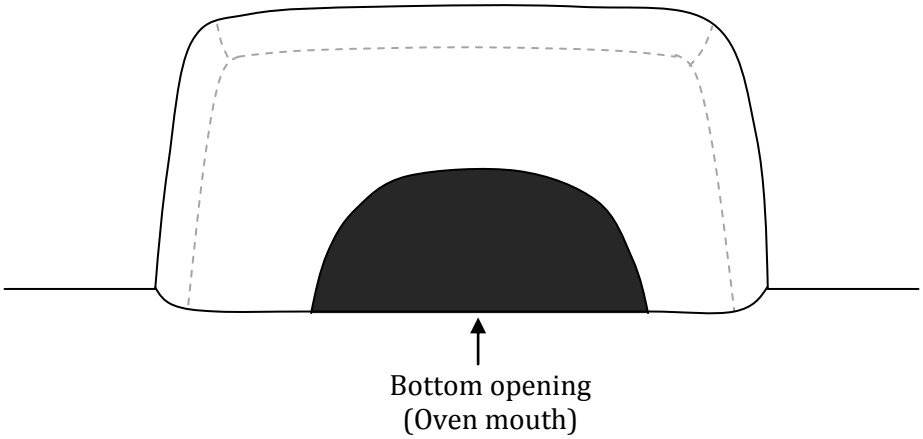
Tabun (alt. taboon, Arabic: تابون) is a clay oven as well; its form is best described as oblate or flattened igloo. It can have same openings as tannur (at bottom and top). A typical tabun consists of a large clay pan placed upside down upon small stones with dung-fuel or brushwood heaped around and over it (Rova 2014, 125). It is usually smaller than tannurs (because of its construction which would not support a higher dome) and it is externally fuelled. Ethnographic record has shown that this type is most common in Palestine, but also appears in Syria and other parts of Middle East (Mulder-Heymans 2002 – Negev & Gibson 2005).

Ground plan of the core:	circular, round
Form of chamber:	flattened low dome
Construction material:	clay, it can have mud plastering
Main elements:	top opening for access, it can also have the bottom opening, the whole feature can rest on small rocks instead of having a bottom ventilation hole
Additional elements:	pottery lids can be used with the feature
Archaeological example from Turkey:	N/A (more common in Palestine)



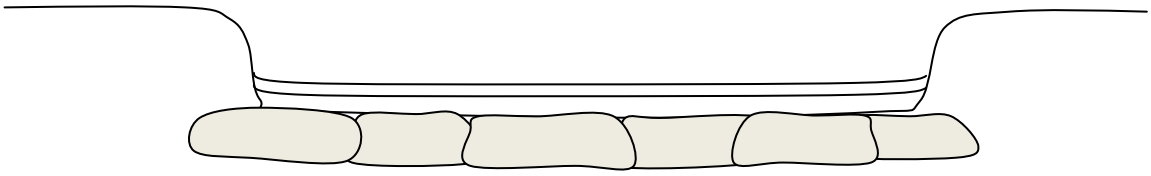
Domed ovens made of mud bricks can also be encountered by archaeologists working in the Near East. It has been attested at some of the sites that domed ovens could be used for institutional feeding (examples: Tell Brak and Tell Hamoukar)- this type of oven is suitable to prepare larger amounts of food. Ethnographically, if domed oven is used to make bread, it is usually leavened bread baked on the oven floor (different from unleavened "pancakes" baked on the walls of tannur). Domed ovens are accessed from the front.

Ground plan:	circular
Form of chamber:	dome
Construction material:	mud bricks
Main elements:	oven "mouth"- bottom opening trough which the oven was accessed
Archaeological example from Turkey:	Arslantepe



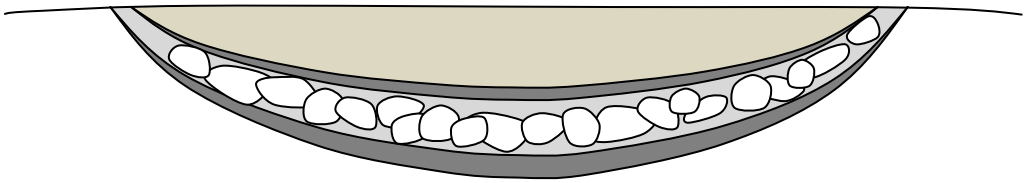
Fırın (Latin: furnus, Hebrew: furna and Arabic: furun) is a type of fire installation with dome-like chamber and large "door" located at its front, from which the oven is accessed. According to Avitsur's ethnographic research (1977, 239), it is usually not built straight on the ground but on a raised bed of stones or plaster, which is true also for some of the archaeological examples (e.g. Tepecik fırıns were built on low stone platforms). The main characteristics of ethnographically attested fırıns is that the food (leavened bread) is baked on the floor, near the hearth and usually while the fire is going (Avitsur 1977, 239).

Ground plan:	horseshoe, rectangular, trapezoid
Form of chamber:	domed
Construction material:	clay
Main elements:	dome-like chamber with flat roof, large bottom opening, it can be built on raised platform of stones or plaster, can have small ventilation opening in the dome
Archaeological example from Turkey:	Köşk Höyuk, Ulucak Höyuk, Çatalhöyük, Güvercinkayası



Ocak (hearth): Fireplaces can have many dirrerent forms and show different level of complexity. They are distinguished from ovens because of their open form (Dibble et al. 2009, 185) without upper construction (roof). Hearths are known throughout all periods and from all types of settlement from campsites to settled villages. They can be used for cooking, heating and as light source at night. They are less permanent in nature than ovens, and are traditionally associated with mobile groups (Jongsma & Greenfield 2003, 22-23), although sedentary communities also use them. They can be found accompanying ovens as additional utilities (for example with tandır, a smaller ocak can be used to boil water).

Ground plan:	various ground plans are known: rectangular, circular, irregular, etc. Hearth can be very variable
Form of chamber:	-
Construction material:	the hearths can have flat stone foundations, pebble foundations, isolation layer of pottery sherds, plastered floors, stone lining, etc.
Main elements:	kerb, where the stone is started and maintained
Additional elements:	hearths can have ash refusal pit adjacent to them, also ventilation holes
Archaeological example from Turkey:	Almost all sites feature hearths, examples from sites discussed in this thesis: Aşıklı Höyük, Musular, Pınarbaşı, Güvercinkayası, Köşk Höyuk, etc.



Earth oven, also known as fire pit or roasting pit (Turkish- ateş çukuru): This feature used for preparing food without need of any constructed installation, consists of following layers: oven pit, layer of glowing coals, layers of hot rocks as heating element, layer of green plant material for packing. On these layers, the food is placed and covered with another layer of packing. Then the whole surface is covered with earth and the food is baked thanks to heat from the hot rocks (Black & Thoms 2014).

Ground plan:	circular, oval, ellipsoid
Form of chamber:	-
Construction material:	layers of
Main elements:	a pit with charred remains, small stones
Archaeological example from Turkey:	Aşıklı Höyük