DEFINING COOKING ACTIVITY AREAS OF BURGAZ DOMESTIC UNITS IN THE 4TH CENTURY B.C.

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ABSTRACT

DEFINING COOKING ACTIVITY AREAS OF BURGAZ DOMESTIC

UNITS IN THE 4TH CENTURY B.C.

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The main aim of this study is to define the cooking activity spaces in Burgaz at 4th Century B.C. by carrying out statistical analysis of artefacts come from floor levels. In this study the distribution of artefacts and the associations of these distributions with architectural remains are examined rather than architectural features. In order to defining cooking activity spaces, the spatial distribution of cooking wares and utilities were taken into consideration. The distributions of cooking wares were tried to associate with ashy areas that can be related to cooking activities. In this study, the spatial analysis of archaeological artefacts assemblages that found in four well preserved houses from NE Sector revealed during the excavations of Burgaz (1993-2003) was carried out and the space usage, especially cooking spaces, were identified in these houses.

ÖZ

M.Ö. 4. YÜZYIL BURGAZ EVLERİNDE PİŞİRME ALANLARININ BELİRLENMESİ

Atıcı, Nadire

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Bu tezin temel amacı, M.Ö. 4. yüzyıl'da Burgaz evlerindeki pişirme aktivitelerinin yürütüldüğü alanları, mekan tabanlarından ele geçen seramiklerin istatistiksel analizlerini yaparak belirlemektir. Bu çalışmada mimari yapıdan çok buluntuların dağılımları ve bu dağılımların mekanlarla olan ilişkileri irdelenmiştir. Pişirme aktivitelerinin yürütüldüğü alanlarının belirlenmesine yönelik olarak özellikle pişirme kapları ve pişirme ile ilişkili araçların mekansal dağılımları esas alınmıştır. Pişirme kaplarının dağılımı ayrıca pişirme ile ilişkili olabilecek küllü alanlarla ilişkilendirilmeye çalışılmıştır. Bu çalışmada Burgaz kazıları boyunca (1993-2003) NE sektöründe ortaya çıkarılan iyi korunmuş durumda olan dört farklı evde bulunan seramiklerin mekansal analizleri yapılarak bu evlerdeki mekan kullanımları, özellikle pişirme alanları tanımlanmıştır.

Anahtar Kelimeler: Burgaz, Knidos, Mekansal Analiz, Pişirme Aktiviteleri, Evsel Arkeoloji, Arkeolojik Buluntu Grupları, Antik Yunan Evleri.

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Date: 03.12.2003   Signature:

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CHAPTER I

INTRODUCTION

1.1. Definition of Problem

In particular, this study is an investigation of household domestic spatial organization. It is primarily a study of how spatial organization can be quantitatively received from the analysis of archaeological remains such as artefact and architecture.

One of the main interests of archaeology is how people in ancient time organized themselves into social groups[1]. So, ancient daily life and usage of domestic space become an important issue in archaeology. The architectural features can provide the information about ancient daily life and the artefacts found in and around those architectural remains[2]. In view of the fact that the architectural remains are only part of material and cannot give inclusive information about usage of domestic space[3], by analysing architectural features and the artefacts we can asses the usage of domestic spaces. The study of artefact assemblages and room function in a settlement is demanding and difficult task. Only recently these questions have been addressed in a

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[1] Renfrew and Bahn, 1996 p.17

[2] Nevett, 1999 p.50, Cahill 2002 p.70

[3] Jameson, 1990 p.92

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systematic way in the archaeology using both architecture and contents of houses.

Instead of focusing on specific architecturally defined room types, looking at the distribution of artefacts throughout the house can be useful to determine which activity were carried out in these rooms. Some recent studies of assemblages have used sophisticated statistical techniques to understand and explain the distribution of artefacts to help set up that indefinable link between behavior and its material remaining (Ciolek-Torrello 1984, Nevett 1999). As Ciolek-Torrello pointed out "artefactual remains of activities are far better implication of room function than are room size and other architectural features"[4], in this study the main purpose is studying household artefactural remains –especially pottery, to understand how society in Burgaz used their domestic space with which function, and whether they used a special space for cooking activity in the 4th century B.C. The main interest was not laid on the architecture, but the distribution of artefact studied in detail within domestic contexts.

Cahill, who studied on Olythian household, suggested that the same types of room, courtyards, kitchen complexes or androns had very different artefact assemblages in different houses, suggesting that they were used for different purposes and he also claimed that these rooms probably used for different

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[4] Ciolek-Torrello, 1984 p.134

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activities according to season or current composition and specific needs of the household[5]. So he mentioned multifunctionality for Olythian household spaces.

In this study I tried to investigate Cahill's suggestions on the case of Burgaz houses in the Fourth Century B.C. If Burgaz houses had special spaces for different activities or rooms were used as multifunctional. By examining the architecture, artefact and complete records of each room, I tried to reconstruct the activities in different houses, see which activities could be carried out in different rooms.

In order to define cooking activity areas in Burgaz houses in 4th century B.C. the spatial distribution of pottery which found on the floor levels have been analysed with the assumptions that:

1. The spatial distribution of pottery within a room is meaningful type of archaeological data.

2. Pottery when found on the floor levels generally indicates the usage of rooms and different type of pottery shows different type of activity.

3. By looking closely at all the distribution of floor level pottery from excavated houses we can draw a conclusion about patterns of usage.

Due to lack of such studies that deal with household organization in West Anatolia and Caria region limited me to compare my study case, Burgaz, with other West Anatolian settlements. For instance, in Bayraklı, Miletos, Klazomenai, and in Phokaia artefacts collected have not analysed for defining

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[5] Cahill, 2002 p.150

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space organization. During the excavation at Burgaz only few houses were completely excavated and some parts of floors of rooms were not preserved very well and much of the artefacts include fragments of pottery. So these situations also prevent us to make generalization about household organization of Burgaz at the Fourth century B.C.

In terms of identifying cooking activity areas in Burgaz houses especially distribution of cooking pots and their relationship with architectural features like ashy area were taken into account. In this study a catalogue of cooking pots (Chytra, lopas, baking tray, sauce pan, tripod, etc.) was prepared. This catalogue includes only some drawings and information of cooking pots that found on preserved floor levels used in the statistical analysis. In the catalogue the typology and parallels of cooking pots were not investigated. Such study will be carried out in a different research activity. (Appendix B).

1.2. Geographical and Historical Definition of Study Area

The site of Burgaz is situated 2 km northeast of modern Datça, in the Cnidian Peninsula (Figure 1). This ancient town located around Dalacak Cape which is surrounded by fortification walls and known as acropolis (Figure 2). Since the end of 19th century the site has been interested by some archaeologists[6].

G. E. Bean and J. M. Cook undertook a survey in the Cnidian Peninsula in 1950s and they found surface materials belonging to Archaic and Classical period in high density at Burgaz, and they also suggested that the greatest concentration of ancient remains was in this fertile countryside, apart from that at Tekir where Hellenistic Cnidus was located on[7]. Bean and Cook claimed that Burgaz was Archaic and Classic Cnidus and the city of Cnidians had been moved to Tekir in the 4th century B.C. from Burgaz[8]. They supported their idea by lack of find belonging to before 4th century B.C. in Tekir, and they also found Heredotos description about Cnidus more appropriate for Burgaz:

> Their land lies towards the open sea – and this is the part which is called Tripion – but begins at the Bybassian Chersonese; and the whole of the Cnidia except for whole of the Cnidia except for r, the part facing the north wind being bounded by the Ceramic Gulf, and that on the south by the sea towards Syme and Rhodes. This little bit, then, with the five stades across, the Cnidians began to dig while Harpagus was conquering Ionia, with the intention of making their land an island. The whole of it was to lie inside; for where the Cnidian

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[6] Tuna, 1983 pp.63-83

[7] Bean and Cook, 1952 p.175

[8] Ibid., p.202

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land terminates at the mainland, there is the isthmus which they began to dig[9].

Bean and Cook also suggested that since there were the abundance of late remains, Burgaz was not deserted after the move; it continued to be an important part of the Cnidia[10]. Besides the idea of moving of Cnidus from Burgaz to Tekir there are some ideas against this. N. Demand is one of the supporters of idea that Cnidus was not move. Demand argued that Bean and Cook interpreted Herodotus' passage wrongly that describe location of Cnidus. She also claimed that Cnidus at Tekir was typically in position of an archaic colony[11]. Demand maintained that Cnidus did not move, it was at Tekir since it was founded by the means of archaic and classical artefacts found in Tekir excavations[12].

In 1980s N. Tuna carried out an archaeological survey in Datça Peninsula, and he found Archaic and Classical pottery in high frequency and he brought up the importance of the city which had four harbours[13]. Tuna also has been conducting an archaeological excavation on Burgaz site since 1993 (Figure 2). The earliest evidences from the site come from the 8th century B.C. (Proto-geometric Period). According to the excavation results it is understood that Burgaz was first established as a planned settlement at 6th Century B.C.

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[9] Heredotos I. 174

[10] Bean and Cook, 1952 p.204

[11] Demand, 1989 pp.226-230

[12] Demand, 1990 p.148

[13] Tuna, 1982 p.358

and at the middle of the 5th century B.C. the settlement was replanned according to Hippodamic planning principles by reserving the Archaic settlement's streets and property boundaries traces. At the beginning of 4th Century B.C. there were some changes occurred in the plan of the 5th century B.C. settlement. In this phase some architectural features (walls, wells, etc.) were become invalid and new walls were added to the plan. The last occupation levels in Burgaz are belonging to the third quarter of 4th Century B.C. In this phase some alterations were occurred inside houses. Some rooms were divided by new walls or combined according to household needs. In this period some parts of houses used as workshops so plan of houses was changed. By the end of 4th century B.C. there is no any indication of occupation in Burgaz. It may suggest that Burgaz was abandoned by this period. After abandonment the site was used for sporadic habitation, agricultural processing, and storage activities in Hellenistic and Roman periods[14].

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[14] Tuna, 1999 p.430

Figure 1: Geographical Location of Burgaz (Cnidian Peninsula)
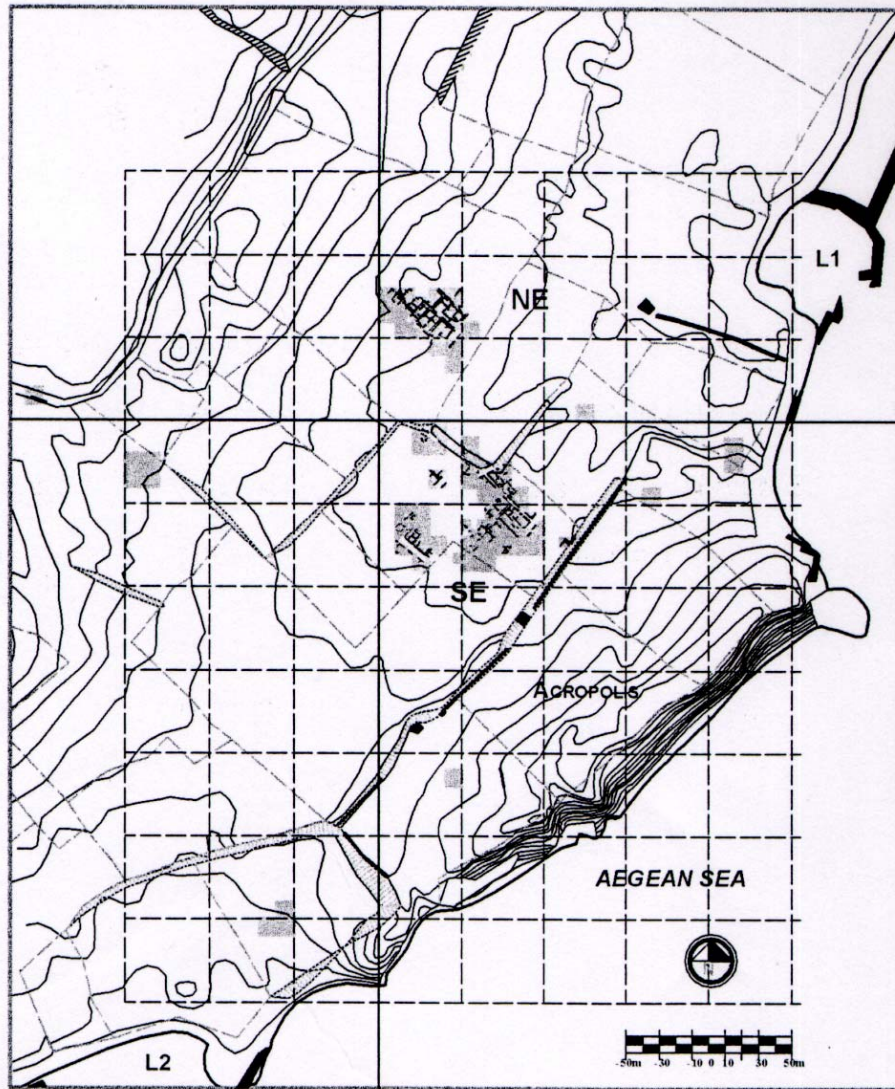
Figure 2: Site of Burgaz.

CHAPTER II

LITERATURE REVIEW

2.1. Formation Processes of House Floor Assemblages

By the influence of New Archaeology, floor assemblages of houses are used to understand past human life in recent archaeological studies. Schiffer has argued that different types of cultural and non-cultural formation processes are responsible for the composition of house floor assemblages, and these processes include use (habitation), abandonment, and post-abandonment stage[15].

Habitation stage includes three major depositional processes:

Primary deposition: Primary refuse objects were deposited in periodically cleaned-up areas, such as structure floors which consist mainly of small items[16]. In this deposition objects enter the archaeological record at their location of use, so primary refuse is the most informative depositional process for the domestic context[17].

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[15] Schiffer, 1995 p.206, Schiffer and LaMotta, 1999 p.19

[16] Schiffer, 1995, p.207

[17] Schiffer and LaMotta, 1999 p.21, Ault and Nevett, 1999 p. 48

Secondary deposition: This is a depletion process. It occurs by removing of refuse from an activity area and its deposition in a spatially removed location such as a midden, landfill, abandoned structure or cemetery[18].

Provisional discard process: It occurs by storing broken or worn-out objects to use for a useful purpose. This process is indication that some cultural deposition occurs within house structure dyring habitation phase[19].

Abandonment phase: The study of abandonment phase is important for archaeologist because abandonment processes influence the form and content of archaeological assemblages[20]. During the abandonment phase some changes occur in patterns of deposition. The conditions of abandonment period such as means of transport and distance to the next occupation locus affect the abandonment refuse accumulations[21]. If abandonment is unplanned and rapid floor assemblages include many portable, valuable and usable objects, in contrast if abandonment is slow and planned assemblages include large or broken objects[22]. In many settlements artefacts found on room floors consist of usable items which probably left as *de facto refuse* when the structure was abandoned[23]. *De facto refuse* includes the abandonment of still usable objects

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[18] Schiffer and LaMotta, 1999 p. 21

[19] Schiffer and LaMotta, 1999 p. 21

[20] Lightfoot, 1993 p.165

[21] Schiffer, 1995 p.208

[22] Schiffer and LaMotta, 1999 p.23

[23] Schiffer, 1995 p.208

in the place where they were last used in living context[24]. According to Schiffer *de facto refuse* objects are difficult to transport, easy to replace and have little residual utility and exhibit potential for additional uses[25]. Schiffer also has claimed that *de facto* deposition is an accretion and in contrast *curate behavior* is depletion. In *curate behavior* objects are transported to the new occupation locus. Curate behavior is the process of removing and transporting still usable or repairable items from abandoned activity area for continued use elswhere[26] In contrast of *de facto refuse* curatted objects are quite portable, have high replacement cost and are still usable and this behavior deplete *de facto refuse*[27].

Post-abandonment processes: The life of a structure does not end with its abandonment. After abandonment many processes of accretion and depletion can change house assemblages in the post-abandonment stage[28]. As Schiffer has suggested faunal and floral turbation, organic decay, pot hunting, archaeological excavation, and structural collapse can change house assemblages[29].

As a result, Schiffer and LaMotta have claimed that understanding the complete depositional history of a structure is the best way to successfully study on domestic structure.

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[24] Lightfoot, 1993 p.166

[25] Schiffer, 1995 p.208, Schiffer and LaMotta, 1999 p.22

[26] Lightfoot, 1993 p.166

[27] Schiffer and LaMotta, 1999 p.22

[28] Schiffer, 1995 p. 211, Schiffer and LaMotta, 1999 p. 24

2.2. Application of Quantitative Analytical Techniques

With the advent of Processual Archaeology in the mid-1960s and Behavioral Archaeology in the early 1970s the analysis of house floor assemblages started to have an important role in archaeological reconstruction. By the New Archaeology archaeologist started to deal with making inferences about past human behavior by studying the spatial and chronological distributions of artefacts[30]. After 1970s to understand behavior of prehistoric peoples the spatial analysis of artefacts came to play central role[31]. Recognizing that the spatial distributions of artefact classes within a site are meaningful type of archaeological data, several analytical techniques usually of a statistical nature were applied to the analysis of spatial distributions of artefacts within a site[32].

One of the earliest studies of analysing artefacts on occupation floors was carried out by James N. Hill in Broken K Pueblo. Broken K is a pueblo of ninety-five rooms in east-central Arizona[33]. Hill analyzed features and artefacts on room floors to explain room function. Much of the artefacts found directly on the floors of the rooms. These artefacts were quantified and manipulated using *Chi – Square Test* of association and Fisher *Exact Test* and *Factor analysis* was used to discover non-random cluster of pottery types. The

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[29] Schiffer and LaMotta, 1999 p.25

[30] Hill, 1970 p.103

[31] Whallon, 1973 p.266,Berry *et al,.* 1984 p.54, Vorrips 1990 p.1

[32] Cannon, 1983 p.786, Berry *et al,.* 1984 p. 54, Carr 1987 p.236

[33] Hill, 1970 p.106

principal assumption of Hill's method was that different kinds of artefacts show different kinds of activities are carried out within a community[34]. Analysing features and artefacts on room floors led Hill to make inferences about room functions. He inferred that large rooms which have more artefacts on floors as well as many kinds of artefacts than other rooms were used for basic habitation (preparing and serving food) and usually containing fire pits, featureless small rooms were used as storerooms and often semi subterranean rooms were used for ceremonial function[35].

Another analytical technique was used by Robert Whallon, Jr. Whallon used *Dimensional Analysis of Variance, which* requires a square or rectangular grid, on occupation floors at preceramic cave site of Guila Naquitz in the valley of Oaxaca, Mexico to analyze pattern of archaeological materials[36]. He has suggested that a dimensional analysis of variance can be used as the first step in the analysis of spatial pattern of an area. Three occupation levels were discovered in the seasonal camps of hunter-gatherers and Whallon presented only the results from one occupation level. 18 classes environmental items found on occupation floor were analyzed. These items were intercorrelated using the standard *Pearson's r coefficient* and five groups were revealed[37].

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[34] Hill, p.105, Schiffer, 1995 p. 53

[35] Hill, 1970 p.109

[36] Whallon, 1973 p.274

[37] Whallon, 1973 p.275

Whallon applied *nearest neighbor analysis,* which requires at least two-dimensional, horizontal, coordinates for all the items to be included in the analysis, on archaeological data from Protomagdelenian occupation floor at the Abri Pataud in south-western France.

For the spatial patterning of the items on the Abri Pataud occupation floors, Whallon selected four stone tool types (endscrapers, worked bone and antler, retouched blades, and backed blades).

Two methods were used for defining the shapes of spatial patterns of the tools. In first method the percentage of shared area was calculated and it was seen that endscrapers and worked bone and antler sharing a large proportion of their areas, retouched blades and backed blade a large proportion of theirs[38]. In the second method a circle with a radius equal to the defined "cut-off" points had been drawn around each item. The spatial relation among items was different from the first one, and it was seen that worked bone and antler, retouched blades, and partially backed blades were seen together.

Aubrey Cannon studied on artifactural assemblages which were collected from fifty-three household in Chanal, a Tzeltal Maya village in the Chiapan highland of Mexico to evaluate the effects of alternative quantification strategies on household inferences[39]. Correlation were used between associated material items and specialized activities in households (carpentry, religious cargo participation, and potting). Correlations were used to see presence /

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[38] Whallon, 1973 p.34

[39] Cannon, 1983 p.786

absence of these activities in households. Three different approaches were used in quantifying assemblages which related to the activities. These approaches were the total frequency and the diversity of specialized items, and the proportion of the entire household artefact inventory – that is the proportion of a household's artefact inventory related to an activity will be greater where activity is occurred[40].

The result of the study indicated that the diversity of artefact types present in an assemblage is most directly a function of the presence or absence of specialized activities in the household.

One of the important studies of floor assemblages was carried out by Richard Ciolek-Torrello to define activity assemblages and room function in Grasshopper Pueblo, Arizona by using *R- mode Factor analysis* and *Q- mode Cluster analysis*. He claimed that room floor assemblages are better indication of room function than room size and so that his investigations focus was on room floor assemblages.

Schiffer argued that Ciolek-Torrello's analysis was a creative exploration of the possibilities of using multivariable techniques on room floor assemblages to discern activities and room function[41]. By consideration of formation processes Ciolek- Torrello moved from activity reconstruction to inferences about community-wide social organization[42].

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[40] Cannon, 1983 p.787

[41] Schiffer, 1995 p.206

[42] Ciolek-Torrello, 1984 p.134, Schiffer 1995 p.205

Ciolek-Torrello used frequency of thirty classes of items found on each of sixty-seven late –abandoned ground floor rooms in his analysis. To examine relationship between the variables three R-Mode techniques (Factor analysis, Principal component analysis, and Multidimensional scaling) were used and to classify rooms into functional types the results of the factor analysis were used in a Q-mode procedure[43].

As a result of analysis six room types were defined in Grasshopper which are *Limited activity rooms* were used for limited food processing activities, probably as areas supplementary to habitation rooms, *habitation rooms* were used for food processing activities, *domestic storage rooms* were almost used for storage, manufacturing rooms were used for storing and discarding manufacturing materials, storage / manufacturing rooms and multifunctional habitation rooms[44].

In Greek archaeology generally, domestic architecture and artefacts were studied separately till 1980s. For instance, although a large number of houses were excavated in the Athenian Agora and in Olynthos, in Athenian Agora publications about pottery include almost noting about their architectural contexts. Only the typological framework of pottery was created for dating while most of the pottery was related to domestic activity (Sparkes and Talcott 1970). In Olynthos publications main interest was laid on phasing and clarifying houses form (Robinson 1946).

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[43] Ciolek-Torrello, 1984 p.136

[44] Ciolek-Torrello, 1984 pp. 144-45

In 1980s pottery started to be used in domestic studies. One of these studies was carried on in Halieis that is a small Archaic to early Hellenistic polis in Argolid in Greece. Pottery come from the excavation studied horizontally within spatially defined areas and pottery were divided in categories as cooking ware, fine ware, plain/coarse ware, storage ware, etc[45].

Ault studied on spatial distribution of cooking ware in one house at ancient Halieis to define food preparation areas by the examination of the distribution and frequency of cooking ware and he defined two separate rooms as kitchen and suggested that one of the rooms included a domestic hearth[46]. He also mentioned that the room in part open to the court contained a greater quantity of cooking ware and so he claimed that food preparation was carried out in this room during the unseasonable months[47].

The excavation of Olynthos, with its numerous well-preserved houses, is one of the most important in Greek archaeology: it is one of our principal sources for the everyday life and work of the inhabitants of a Classical city.

Nevett studied on house floor assemblages of Olynthian houses to identify use of domestic spaces. The ancient city of Olynthos is located on northern Greece. During the excavations more than 100 houses date to 5th and

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[45] Rudolph, 1987 p.273

[46] Ault, 1987 p.273

[47] Ibid, p.273

4th century B.C. were explored[48]. These houses provided workable samples to undertake statistical analysis. Nevett analysed the sample of fifty-two houses to isolate recurring assemblages of artefacts and architectural features, which give indication of how space was used[49]. And so artefacts and architectural features are organized into the categories and analysed on a room by room. In statistical analysis simple statistical test, *cross-tabulation* was used to create instances of association between pairs of architectural and artefactural variables[50]. SPSS program was used for analysis and the degree of association between each pair of variables was represented by the *Phi Square* value.

As results of the analysis some associations between different categories of artefacts were observed. For instance, it was seen that jewellery is correlated with loom weights and metal fittings, but association between jewellery and loom weights with female toilet ware was slightly lower. According to this observation Nevett interpreted this group as a collection of objects which are linked with female activities. In the analysis it was also observed that correlation between household and storage wares were strong, and this group was associated with female toilet wares and jewellery and Nevett explained this association as patterns of use or storage and observed that the large number of rooms includes different types of objects which were used for different purpose. As a result of this observation she suggested that these

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[48] Nevett, 1999 p. 53

[49] Nevett, 1999 p.61

[50] Ibid, p.62

rooms were multi-functional, different types of activities were taken place there at different times of the day or year[51].

Another study carried out on Olynthos houses was done by Nicholas Cahill. He has analysed the distribution of the finds in order to understand how the space in the houses was used. Rather than relying on identifications of rooms and house types he analysed architecture and artefacts together[52]. After outlining the broad characteristics that the houses have in common, Cahill selected thirteen individual houses to illustrate the variety that existed within the apparently uniform ranks of grid-planned boxes. The assemblages from each of these houses are described in detail, room by room in an attempt to reconstruct patterns of activity. He argued that individual households arrenged their spaces differently, architecturally similar spaces (courts, pastades, and kitchen complexes) were used in different ways depending on the needs of the household and he found the reflection of this diversity in the assemblages of artefacts found in different space[53].

Cahill described kitchen-complex as very important space for women's work. Kitchen complex typically consisted of a large room with a stone hearth, one or two smaller rooms. Cahill claimed that in the winter these complexes useful for household tasks (e.g. preparing food, weaving, washing, etc.)

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[51] Nevett, 1999 p.69

[52] Cahill, 2002 p.84

[53] Cahill, 2002   p.148

because hearts in the kitchen were used for heating rather than cooking and so this room became the warmest room of the house, in the summer cooking activity and other household tasks were taken place in the open spaces of the houses[54].

As we see from these studies, archaeologists used floor level artefacts in order to define space organizations and it was understood that analysing artefact and architecture together can give more information about ancient human behaviors. These studies also show us that different quantification methods can be used to determine such organizations.

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[54] Cahill, 2002 p.60

CHAPTER III

METHODOLOGY

Domestic architecture and artefacts found in domestic context are important in terms of giving information about ancient daily life. But generally, classical archaeologists have given little interest in the domestic architecture and its context in comparison with the attention that has been paid to public monuments before 1960s. When domestic architecture and the artefacts found in domestic context have been studied, they were viewed as isolated objects and they have been categorized and typologized but questions about the social life in the ancient world have been left out[55]. Archaeologists generally analysed domestic architecture and the use of space within these architecture without analysing the interaction between the two[56]. In architectural context studies more attention was paid on the appearance and construction of buildings, rather than on reconstructing the patterns of activity which took place within them. However, as Jameson suggested architectural structure alone cannot give an absolute view of organization of domestic space, and so the architectural evidences need to be related to other main aspects of the culture[57].

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[55] Ault and Nevett, 1999 p.43, Cahill, 2002 p.161

[56] Kent, 1999 p.2

[57] Jameson, 1990 p.92, Cahill, 2002 p.150

In the 1960s there was a turning point in the development of archaeology[58]. In *New Archaeology*, technology, social life, trade in ancient times started to be studied and little interest paid on artefact typology and classification. By the influence of *New Archaeology,* archaeologist started to deal with social relationship within houses. As Ault and Nevett suggested, in recent studies of domestic house some questions raised not only about the appearance of houses but also about the patterns of relationship taking place within them[59]. It is understood that data from the excavations give more information about ancient world life.

By development of *New Archaeology* archaeologists realized that archaeological data have great potential to be used for learning about past social and economic life. There is an increasing tendency amongst archaeologist to be concerned with making inferences about ancient human behavior.

With the advent of *Behavioral Archaeology*, which is based on the study of interaction between people and material objects and seeks to develop suitable method and theory for studying and explaining human social life in terms of behavior[60] in the early 1970s, description and explanation the relationship between human behavior and material culture in all times and places come to play a central role in archaeological reconstruction of past. The

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[58] Renfrew and Bahn, 1996 p.36

[59] Ault and Nevett, 1999 p. 44, Nevett, 1999 p.61, Cahill 2002 p.70

[60] LaMotta and Schiffer, 2001 p.15

analysis of ancient floor assemblages started to be used in archaeological reconstruction[61]. The analyzing house floor assemblage is indicative for the activities that took place in architectural spaces[62]. Since household floor assemblage can give significant information on domestic behavior and past human life, we asses the types of behavioral inferences that may be obtained from the analysis of house floor assemblages.

3.1. Domestic Contexts of Burgaz

The increasing numbers of Classical and Hellenistic Greek houses have been excavated at many different sites gave a chance to understand plan of the Greek houses. Greek houses of fifth, fourth, and third centuries are generally built around an open court and this court usually has a portico along at least one side[63]. According to the design of this portico three main types of houses were defined: prostas, pastas, and peristyle houses.

In the prostas houses, the portico consists of narrow porch that projects in front of the main range of rooms[64]. This type of house was defined on the basis of structure found at Priene. The portico is more incorporated into the architecture of the house as a whole in the pastas houses. In this type of houses

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[61] Whallon, 1973, Hill 1970, Ciolek-Torello, 1984, Nevett, 1999

[62] Schiffer, 1995 p. 201

[63] Nevett 1999, p.22

[64] Ibid, p.22

the portico is larger and it again stands in frond of the rooms[65]. Examples of this type of houses are seen in Olynthos. Another type of house is peristyle house. This house has a colonnaded porch and this porch runs around three or four sides of the court[66].

Greek houses generally were entered through a single street entrance. Architectural units (rooms) were situated around the court. By means of concentrating study of artifact found in rooms the architectural organizations of the houses were defined. Courts always include different kinds of artifacts that suggest that it played a major role in domestic organization. In this organization some architectural units are given Greek names, such as *oikos* and *andron*. The *andron* was most frequently used for drinking party which was largely male activity. In Greek houses the *androns* were generally situated in the one corner of the house next to the street[67]. There was an anteroom in front of the *andron* and this anteroom was entered directly from the court. The floor of the anteroom and *andron* was cement and the walls were decorated with red plaster. *Oikos* was the main living-room in Greek houses. Main household activities were taken place in this room. It was a combination of cooking area, washing area, and living room[68]. Other rooms which situated around the court were probably used for different purposes. Some rooms which were near the

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[65] Nevett 1999, p.22

[66] Ibid, p.22

[67] Ibid, p.18

[68] Ibid, p.10

streets were used as shops and these rooms were entered directly from the street.

The archaeological investigations at Burgaz were especially concentrated on domestic quarters. We have obtained the detailed information about domestic contexts of 4th century B.C. by accumulated systematic data since 1993. Settlement of Burgaz had an orthogonal plan. City was arranged in insulae that were defined by network of straight streets (Figure 2). The junctions of these streets are not always in the right angles. Main streets of Burgaz were covered with stone slabs. However, as a result of excavation dimension of any insula and how many houses were included in an insula was not completely revealed yet. The houses in an insula had different dimension and orientation in Burgaz.

There are two another important sites in western Anatolia in which 4th century B.C. settlements were excavated: Bayraklı (Smyrna) and Klazomenai. However, the plans of these sites are different from Burgaz settlement plan in some cases. Settlement of Bayraklı has grid plan that started from the second quarter of 7th century B.C. and this grid plan continued in the 4th century B.C.[69] The 4th century B.C. settlement was rebuilt on 7th century B.C. settlement. So the settlement had not systematic orthogonal plan as Burgaz. The streets of Bayraklı are not crossed in right angle[70] like that of Burgaz. The houses are located on insulae and they had a court and rooms were located around it.

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[69] Akurgal, 1993 p.51

[70] Akurgal, 1980 p.101

Houses have 6 or 8 rooms[71] so they are bigger than Burgaz's houses. In contrast Burgaz and Bayraklı, 4th century B.C settlement of Klazomenai had an arranged Hippodamic Plan[72]. The site was divided into rectangular insulae and these insulae were bordered by streets that intersected in right angle according to Hippodamic plan principles[73]. According to limited excavation it was observed that each insula probably include 6 houses that are in the same dimension. Houses of Klazomenai have a court like Burgaz and Bayraklı. However, while in Burgaz and Bayraklı rooms are located around the court, in Klazomenai Rooms are situated on the north and south of the court and it is claimed that rooms on north used as basic habitation rooms (Oikos, andron, etc.) and rooms on south for storage and as workshops[74]. The plans of Burgaz houses are closer to Halieis houses that belong to 4th century B.C. than Klazomenai and Bayraklı. Halieis houses are entered directly from the streets or avenues and the entranceways are directly opened to the court[75] same as Burgaz houses. Rooms are located around the court and the usages of these rooms are different from each other. This differentiation probably occurs because of different size of houses like Burgaz.

Burgaz houses had foundation of stones on which were walls of sun –dried mud brick. Roofs were formed by rooftiles. Houses are rectangular in shape

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[71] Akurgal, 1986 p.2

[72] Işık, 1987 p.49

[73] Ibid, p. 49

[74] Ibid, p.29

[75] Boyd and Rudolph, 1978 p.347

and have a court, which was probably an open space, as other Greek houses and rooms were situated around this court. The court formed the focus of the house. Normally the largest single space in the house and it served to link the different parts of the house together. The court was probably one of the chief living areas of houses and it generally includes a well as water supply to collect rainwater. Rooms are different in size and divided or combined as necessary. The houses were mostly entered directly from the street[76]. The floors of houses are commonly beaten earth, clay or *horosan* which is a kind of mortar made by brick dust and lime. Between the houses there was *peristasis* for drainage and sometimes for entering the houses.

The excavation of Burgaz is mainly conducted in two sectors. In SE (Southeast) sector because of destruction of later activities the houses were not well preserved, but the results of the excavation revealed that there were main streets that mostly covered with stone slabs. The exact size of an insulae was not revealed yet in this sector.

Houses from NE sector are in a better state of condition preserved and their stratigraphies are well known comparatively. In this study four houses from northeast (NE) sector in Burgaz were selected for defining spatial distribution of artefacts on floors (Figure 3).

House NE-1: This house is the biggest house of Burgaz and it is in the size of 20.85 X 12.87m and on the direction of southeast – northwest. There is

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[76] Tuna, 1998 p.434

a big open area in the middle of the house, which is defining as court, and rooms are located on the south and north of the court. The pottery which were come from the floor levels that used in statistical analysis were dated to mid-fourth and third quarter of 4th century B.C.

The first construction phase of this house is belonging to 6th century B.C. According to excavation reports it is observed that in the first phase it was used as two small separate houses and in the middle of the 5th century B.C. these two small houses were combined and rooms were probably reorganized according to household needs. It is observed from small soundings insides the rooms that the floor levels were raised during the occupation periods. It was revealed that the early floors generally made of clay, whereas the later floors made of clay and *horosan*. The latest floor levels that were revealed dated to middle of the 4th century B.C. In court floor was made of pebble and *horosan* while clay and *horosan* were used on floors of rooms.

House NE-2: This house is smaller than the NE-1 and it lies on southeast – northwest direction and it is in the size of 17.74 X 10.38m. There is a court in the middle and five rooms are located around this court. The court was divided by some walls to get small spaces probably for different activities. The floor pottery used for spatial analysis is dated to third quarter of 4th century B.C.

According to the results of excavation, it is understood that the house fist settled in 6th century B.C. levels. The general plan of the house mostly

stayed constant during the occupation phases, but in the beginning of the 4th Century B.C. some changes taken place in the court of the house. In this phase court was divided into separate areas for different kind of activities by adding new walls. After the abandonment of the house at the end of 4th century B.C., the outer wall of northeast side was abolished and combined with a house, which was situated at its northeast and included to iron heart, and became a part of iron workshop. The floors of this house mainly made of *horosan* and clay and there is white stucco remains in RoomA.

House NE-3: This house is in the size of 12.30 X 8.98m and on the contrary of NE-1 and NE-2 it lies on the northeast-southwest direction. Court of this house is situated on the south and three rooms located around the court.

It was settled in 6th century B.C. levels as other houses excavated in NE sector. As other houses this house also was revised in the beginning of the 4th Century B.C. In this phase a wall divided the court, which was a big area in the 5th Century B.C., in order to create a new space probably for different activities. The rooms, situated at the northeast part, had pebble and horosan floor whereas the room which lay parallel to the court had *horosan* floor. There were found a lot of red stucco in the northwest room and this may suggests that this room was used as andron. The court had a well surrounded by big slab stones and big ashy area. Clay, *horosan*, pebbles were used as floor material in different part of the court at the latest occupation phase.

House NE-4: This house is one of the smallest houses (11.58 X 10.14m). It has a simple plan, there is a court on the west and there are two

rooms on the east. From the excavation reports it is observed that there were some changes occurred in other houses from NE sector through the time, but there were not any alteration recognized on the plan of this house during the occupation periods. There were only floors raised from the 5th Century B.C. to 4th century B.C. The floor pottery of NE-3 and NE-4 are dated to third quarter of 4th century B.C.

The four houses described here represent a small portion of the variety of household organization and artefact at Burgaz. In order to defining cooking activity areas of these four houses distribution of cooking wares and utilities were examined.
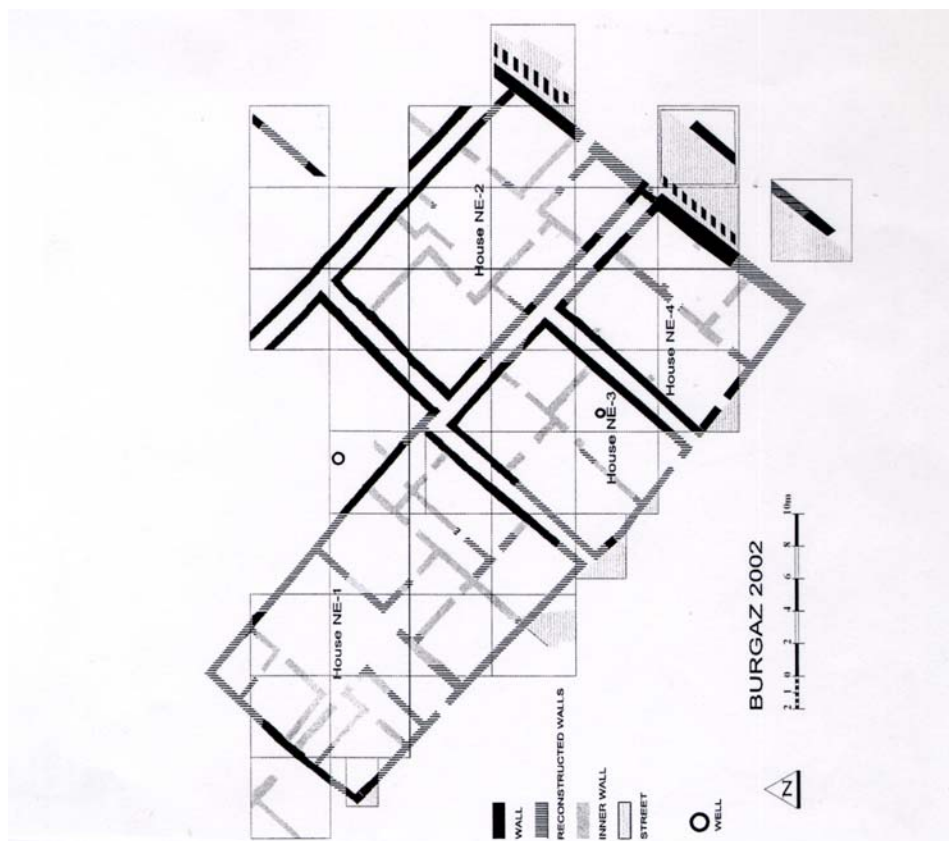
Figure 3: General Plan of NE Sector of Burgaz.

3.2. Ancient Kitchen and Cooking Wares

It is only recently that material has started to be examined for understanding the methods of ancient Greek cooking. B.A. Sparkes studied literary and artistic evidences and tried to establish the ancient Greek kitchen. He worked on the scenes on black and red figure vases which depicted pounding of grain with pestle, cutting of meat and fish, and on terracotta figurines that show the everyday activity of baker, butcher and cook[77].

Sparkes mentioned that bread and anything eaten with bread were the two types of Greek food. He also argued that bread, porridge and goats are important in Greek diet, besides these a great variety of vegetables was also included (beans, garlic, lentils, radish, and salads) and fresh and pickled fish provided the chief dish[78].

In Greek kitchen different kinds of utilities were used for different activity. The clay was used for kitchen articles contains particle of sand or grit and it is rough relatively water-tight and resistant to fire[79]. Since bread is important in Greek diet the most important activity was grinding. The cereal was ground on grinding stone that generally made of a dark, highly coarse, volcanic stone[80]. For pounding and rubbing mortar and pestle were used in Greek kitchen. Pestle was a long implement, narrow in the middle and it made

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[77] Sparkes, 1962 p.122

[78] Ibid, p.123

[79] Ibid, p.124

[80] Ibid, p.125

of wood and mortar is a large bowl generally made of stone and terracotta. Dried fish, peas, beans, and drugs were pounded in them[81]. Another activity in Greek kitchen is kneading the dough. For kneading kneading-tray or table that was usually round and made of stone, wood or terracotta was used[82]. The hardest process in the Greek kitchen is breadmaking[83] and for this process ovens that set on legs and made of clay were used. Ovens were portable and had two parts- floor and baking cover part. For baking bread a small heap of lighted coals set down on the floor and baking cover was placed over them and when the inside of the cover became ho enough the dough was set down on the warm floor and the cover fitted over it and then the coals were heaped over the sides of the cover and the bread was left to bake[84]. In the Greek kitchen lekanai which were large bowls with capacious body, two horizontal handles were used for kneading of dough and other types of mixing. These bowls were also used for liquids as well as solids[85].

In order to cooking by dry heat, such as to grill, fry and roast, braziers that have handles for ease of transport and for hanging when not in use and supplied with four feet to allow small lumps of charcoal underneath were used. To help the flame a simple fan was employed in Greek kitchen[86]. For boiling

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[81] Sparkes, 1962 1962 p.126

[82] Ibid, p.126

[83] Ibid, p.127

[84] Ibid, p.128

[85] Ibid, p.128

[86] Ibid, p.129

and stewing the commonest cooking pots of antiquity chytra and lopas were used. Chytra is footless and it was used as kettle and also used as saucepan in which meat and soup were boiled. Lopas that has vertical handles and deep rounded body like the chytra and has rounded bottom were used stewing[87]. Chytra and lopas were probably set in heating devices due to their bottom. Brazier and lazana (tripod) were two of these devices. Lazana was supporting cooking pots (lopas, chytra) over a source of fire[88].

In Greek houses, by the fourth century B.C., kitchens were becoming common as we see in Olynthian houses' kitchen complex. Before this century the majority of houses have no exposed any trace of a fixed heart of kitchen[89]. As Sparkes argued that ovens, braziers and grills were portable, they could be set in any part of the house and the cooking activity could be taken place in this part of the house.

The pottery included in this study provides a representative selection of the cooking wares from the 4th Centruy B.C. floor levels of NE houses which were used in statistical analysis. The wares presented here have been considered according to their usage and forms. As cooking wares have conservative shapes throughout centuries, these wares have been dated according to their contexts and for identifying their colours *Munsell Colour Catalogue* was used (see Appendix B).

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[87] Sparkes,1962 p.130

[88] Morris, 1985 p.398

[89] Sparkes, 1962 p.132

Lopas (Plate I, Figure 17)

Lopas is a shallow lidded cooking pot and it serves to describe the shall-like shape. It usually has flattened bottom and high-swung handle. It is not only suitable for stewing but also for frying a method of cookery apparently little practiced in more severe days[90]. This form became very popular from the late 5th throughout 4th century B.C. Lids are sloping or shallow, suitable for a lopas[91].

Chytra (Plate II-III, Figures 18-19)

Chytra is one of the fire-resistant cooking pots. The ordinary chytra is almost has globular and deep body. It is neckless, with flaring rim, and it has narrow mouth and strap or swung handle. It is generally used for heating water or making soup. The shape of chytra is extremely conservative throughout the 6th and 4th century B.C.

Sauce Pan (PlateIV, Figure 20)

This is another common type of cooking pot which can be found in Burgaz houses. Its rim looks like lopas, but the body is different. The body is deep like chytra and it also has two swung handles.

Baking Tray (Plate VI, Figure 22)

It is flat-bottomed and has low vertical rim.

Tripod (Plate VII, Figure 23)

It serves to hold large cooking wares over the fire.

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[90] Sparkes and Talcott, 1970 p.227

[84] Ibid, p.227

By analysing not only the architecture but also the artefacts, we can see patterns in how household spaces were actually used; rather than relying on conservative identification of rooms. The cases analysed in this study are the assemblages of artefacts associated with rooms' floors. Pottery that used in statistical analysis is recorded as floor level assemblages in the excavation reports. In Burgaz excavation artefacts are collected systematically and it is seen that artefacts of upper levels are mixed but when reached floor levels we can see that artefacts are homogenous that they are dated to same period. Floor levels artefacts of Burgaz are collected approximately in 5cm deposit above the floor. In Burgaz excavation pottery found during the excavation were collected completely, then these pottery were classified roughly as cooking ware, storage ware, daily use coarse ware, drinking ware, etc. After this classification identifiable pottery sherds (rim, bottom and some body sherds) are taken in order to recording their all properties are recorded in inventory form. Other pottery sherds are counted and then are discarded. Some parts of floors of houses were not preserved in these parts artefacts show mixture characteristics. So in this study only artefacts found preserved 4th Century B.C. floors were analysed. In analysis not only recorded pottery but also discarded pottery were taken into consideration.

3.3. Statistical Procedure

Many archaeologists tend to link the use of quantitative methods to the *New Archaeology* in whatever disguise[92]. In some recent studies different quantification methods were employed to determine spatial organization of houses (Ciolek-Torrello 1984, Nevett 1999). As the spatial patterning of archaeological remains reflects the spatial patterning of past activities[93], the variables employed in this study are generally types of pottery found on floors of four houses from NE sector of Burgaz to determine functional aspects of Burgaz houses in terms of cooking activities.

In this study the "*Block modelling*" statistical technique was used in the statistical analysis. This model is a multirelational network and its presents the ties between classes rather than giving information about individual classes[94]. A block model has two components. The first one is mapping which describes the assignment of actors to positions and the second one is matrix that specifies the presence or absence of ties between and within positions on each relation[95]. Image matrix and reduced graph are two useful way to summarize ties between positions in block modelling. Image matrix specifies the presence or absence of ties between positions. If there is a hypothesized tie between positions a block containing 1; if there is no hypothesized tie between positions block containing

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[92] Vorrips, 1990 p.1

[93] Schiffer, 1995 p. 25

[94] Wasserman and Faust, 1994 p. 395

[95] Ibid, p.396

0 (zero)[96]. Another way to present the ties between and within position is in a reduced graph. In this graph positions are presented as nodes and ties between positions define the arc between nodes[97]. In this study ties between groups that reduced by block modelling were represented by a reduced graph. To define association between artefact groups and rooms, the distribution of artefact groups were represented by *"signed chi-square index"*[98] and to maximize the variation between groups, and for depicting spatial association of pottery *"Ward method"*[99] of a clustering program throughout software of SPSS for windows was used.

The main aim of the statistical analysis in this study is to segregate constant assemblages of artefacts and architectures in use at the latest phase of usage of Burgaz houses, which can give information about how rooms were used. The pottery that was used in statistical analysis recorded as floor assemblages in the field reports of the Burgaz excavation. In the statistical analysis 37 types of pottery were selected and 2412 pottery from floor levels were used. To define spatial distribution of pottery on floors at Burgaz three different analyses were undertaken. The first two analyses were undertaken in generally, not each house analysed separately and in third analysis assemblages of each house analysed separately. In first analysis each pottery type that comes from floor levels was counted separately according to each room.

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[96] Wasserman and Faust, 1994 p.396

[97] Ibid, p.391

[98] Güvenç, 2000 p.131

According to results of each analysis distribution maps of artefacts according to rooms were prepared. In these maps the artefact group that have high concentration were taken into account. Each artefact group was symbolized with different color.

[99] Shennan, 1997 p.241

CHAPTER IV

THE SPATIAL ANALYSIS OF THE ARCHAEOLOGICAL ASSSEMBLAGES

4.1. Analysis I: Analysing Individual Pottery Types Throughout The Site

In the first step of the analysis by using *Block Modelling* congruent artefact layer groups were determined. Then these groups were worked up on database and in this case, nine different assemblage groups were revealed:

Assemblage 1 produced by blockmodeling consists of Amphora, Oinochoe, Lekane, cup, cooking ware, bowl, and plate, Skyphos, Kylix, and Krater and there is a strong association between these components suggesting that these pottery type co-presents with each other.

Assemblage 2 includes Pithos, Hydria, Mortar, daily use Krater, saltcellar and association between them is strong. This assemblage also has strong association tie with Assemblage 1.

In Assemblage 3 Situla, Stamnos, Lopas, baking tray, tripod, cooking ware lid, and lekanis are seen together. This assemblage includes mostly the remains of cooking activities.

These three groups show strong association with each other.

Assemblage 4 consists of Olpe, brazier, and Kantharos association between them is weak. In this assemblage variables show different activities (e.g. cooking, drinking and pouring).

Assemblage 5 includes Lekythos and ladle. This group has strong association with assemblage 1.

Assemblage 6 includes Pitcher and Askos and there is a weak association between these two components.

In Assemblage 7 Lebes/Dinos and Amphoriskos are observed together.

Assemblage 8 consists of Loutherion and Pyxis and Assemblage 9 includes Chytra, fraying pan and Stemless and there is no strong association between them. Assemblages 4,5,6,7,8,and 9 are difficult to interpret as indication of specific activity, because these groups include different type of pottery representing different type of activities. The ties between these assemblages represented in a reduced graph in Figure 4. As seen in the graph there is strong association between assemblages 1-2-3, and between assemblages 1-5 assemblages and 4-9. Assemblage 1, Assemblage 2, Assemblage 3, Assemblage 5 and Assemblage 7 also have strong ties within them. So we can say that assemblages 1,2,and 3; assemblages 4 and 9, and assemblages 1 and 5 are co-present with each other. The reduced graph also shows that there is a weak association between assemblages 5 and 9, and assemblages 5 and 7. Assemblages 6 and 4 also have weak association within them.

In the third step of the analysis the distribution tables of these groups

according to the rooms were produced. Then these distributions were represented by using "*signed chi-square index*" in the fourth step and rooms that have similar distribution were defined by using cluster analysis. For depicting spatial association of pottery Ward method was used on SPSS. The results of blockmodelling were then used in Ward method to classify rooms in to functional types.

According to this analysis Assemblage 1, which is consisting of household and storage wares, was not associated with any room. Room 1F, 3C, 1Ba, 1Ia and 2E correspond with Assemblage 2 representing household activities. Rooms 1F, 2Fc, 2Fd are highly correlated with density of Assemblage 3 that mostly related to cooking activities. Room 1F, which correlated with Assemblage 2 and Assemblage 3 may suggest that cooking and household activities were carried out in this room. There was a high frequency of Assemblage 4 in rooms 2Fa, 2C, 3B, Assemblage 5 in 1H, Assemblage 6 in 3A, 2Fd, Assemblage 7 in 1D, Assemblage 8 in 2A, 2B, 2Fb and Assemblage 9 in room 4C (Figure 5).

As a result of this analysis it was seen that household, storage, and cooking wares are relatively closely correlated and this may suggesting that these wares were used together and different activities were taken place in same spaces.

In order to defining cooking activity areas the distribution of cooking wares were taken into account. There is no any indication of correlation between cooking wares and ash, which is indicative of residues from cooking.

In the court of third house (NE-3) there was an ashy area but there is no concentration of any group. In terms of distribution of cooking wares there is no a significant clue that show a special cooking area, only in 2Fc there is a concentration of cooking wares. May be this part of court was used for cooking but there is no ash in this area. The distribution of different types of pottery in many of the individual rooms may indicate that they were definitely multi-functional, in the sense that different activities were performed in these rooms at different times of day.

4.2. Analysis II: Analysing Pottery Groups Throughout The Site

In the second analysis pottery found on the floor levels were classified according to their usage. Since the number of amphorae was more than other types, amphorae were taken as a single class. In this classification eleven classes were produced:

Storage Wares (SW): Pithos, Situla, Stamnos.

Cooking Wares (CW): Lopas, Chytra, baking tray, frying pan, saucepan, lid, and tripod.

Daily use Coarse Ware (DCW): Hydria, Oinochoe, Pitcher.

Preparing and Reserving Food Wares (PRFW): Lekane, Mortar, Cup, daily use krater.

Food Serving Wares (FSW): Bowl, plate, ladle, saltcellar.

Drinking Wares (DW): Skyphos, Kylix, Stemless, Bolsal, Kantharos.

Drinking Service Wares (DSW): Krater, Lebes / Dinos.

Pouring and Dipping Wares (PDW): Olpe, Oinochoe, Askos.

Oil Wares (OW): Lekythos

Toilet Wares (TW): Pyxis, Lekanis, Amphoriskos.

Same statistical process used in first analysis was employed in this analysis. As a result of analysis six groups were produced and these groups were represented on a dendogram (Figure 6):

Group1: PDW, OW, TW. These pottery types observed in less quantity in excavated rooms' floors.

Group2: DCW, PRFW

Group3: SW

Group4: CW, DW, and Amphora

Group5: FSW

Group6: DSW

According to these results it was seen that Group1 is not highly correlated with any room. Rooms 1F, 2Fd, 3Da, and b have high concentration of Group2 that contains pottery associated with daily household and food preparation activities. Rooms 1Ia, 1Bb, 2E, and 3C have high frequency of Group3 that apparently represents the storing of food pottery. Group4 is dominant group in rooms 2C and D, 4A and C. This group contains pottery associated with cooking and drinking activities. Besides these pottery it also include amphora that is a storage ware. Group5 that representing food serving activity correlated with 1A, Ba, E, IB and G, 2Fb, and Group6, which contains drinking service pottery, correlated with 1H (Figure 7).

Again taking into consideration cooking wares it was understood that there is a strong association between cooking wares, drinking wares, amphorae, which are one of storage ware, and food serving wares. The rooms that are correlated with cooking wares have not ashy area.

According to this analysis it was seen that cooking activity was not carried out in a special space as a single activity. It was taken place together with other activities (e.g. storing and drinking). It was also understood that these activities could be carried out in different part of a house. For instance, according to this analysis these activities taken place in two rooms of house NE-2 (C, D) and house NE-4 (A, C).

4.3. Comparison of Analysis I and II:

Statistical analysis which were done in order to identifying cooking activity areas in Burgaz houses showed different correlations between pottery groups and rooms in the some cases, but association between artefacts almost indicated same frame (e.g. daily use coarse ware, food preparation ware, and cooking ware). In the second analysis more rooms were correlated with pottery than that of in first analysis. In House NE-1 five units (rooms) were correlated with pottery groups in the first analysis whereas in the second analysis the number of units increased to nine. According to these analyses there is no a special units for cooking activities. It seems to be that cooking and other household activities were taken place in the same spaces. In the House NE-2

eight units were identified in first analysis and in second analysis seven units were correlated with pottery groups. The most important difference between analyses is seen in room 2Fc. While this unit was associated with mostly cooking wares in first analysis, in the second analysis this unit was correlated with drinking service wares. Three units of House NE-3 were identified in first and second analyses. In the first analysis rooms 3A, B, and C were correlated with pottery groups whereas in the second analysis rooms 3Da, Db, and C were correlated with pottery groups. Room 3C showed same characteristics. According to the analysis this room could be used as storage room. Although unit 3Db have ashy area, there is no correlation between cooking pots and ash. It seems to be a multifunctional area. Unit 4C in House NE-4 was not seen in strong association with any pottery groups in the first analysis but in the second analysis it was associated with cooking, drinking wares, and amphorae (Group4), and room 4A also was associated with same wares.

4.4. Analysis III: Analysing Pottery Groups House by House

In the third analysis each house was analysed separately. Pottery for each house was grouped as in second analysis. For each house, in the first step of the analyses frequencies of pottery groups (observed values), in the second step expected values of groups, in the third step difference between observed and expected values and in the fourth step the degree of this difference, which presented with value between -1 and 1, were calculated (-1 shows lower degree and +1 shows higher degree than expected values). Finally, by using *Signed*

Chi Square Index presence / absence of groups according to each room was indicated. In this index strong relationship between room and pottery groups have higher value.

The functions of each room can be defined on the basis of their association with pottery groups.

4.4.1. House NE-1:

By following procedures presented above distribution of pottery groups in house NE-1 was revealed (Table 1). The results of this analysis have some similarities with second analysis:

Whereas in the second analysis Room1A associated with food service ware (FSW), in the third analysis this room is strongly correlated with drinking ware (DW). This room also correlated with food serving ware (FSW), but this association is not strong as that of drinking ware. Room1Ba seems to have strong association with FSW same as in second analysis. In Room1Bb there is high frequency of amphorae and storage wares (SW). In Room1D Amphorae, in Room 1E FSW, in Room 1F daily-use coarse wares (DCW), preparing and reserving food wares (PRFW), and cooking wares (CW) have high values. Distribution of pottery groups of this rooms again same as second analysis. Although Room1G has association with CW in the third analysis, in the second analysis this room is associated with FSW. Same as the second analysis Room1H is correlated with drinking service wares (DSW), Room1Ia with have

correlation with SW and oil ware (OW) and Room1Ib is associated with FSW (Figure 8).

According to this analysis we can say that Room 1A and 1Ba were used as a dinning room, 1Bb as storage room and 1E was used for food serving, 1F for food preparation and cooking and 1G for cooking.

4.4.2. House NE-2:

In the third analysis the distribution of pottery groups (Table 2) nearly indicated same results with second analysis. In third analysis Room2A was correlated with DSW and FSW same as in second analysis (Figure 9). Although in the second analysis Room2B had not association with any pottery groups, in the third analysis this room was associated with PRFW. In the second analysis there was concentration of CW, DW, and Amphorae in room 2C; in the third analysis there is only high frequency of Amphorae was observed in this room. Room2D that include ashy area was in association with cooking wares in the third analysis whereas in the second analysis this room had similar pottery distribution with Room2C (CW, DW, and Amphorae). Another room that had same distribution in both analyses was Room2E. It was observed that this room had high concentration of storage ware. Court (F) of this house, which was divided into four locuses, indicated different pottery distribution. Room2Fa and 2Fb were associated with FSW in the third analysis; in the second analysis only Room2Fb was associated with FSW. Room2Fc was

correlated with DSW in both analyses. And lastly, Room2Fd, which was associated with DCW and PRFW in the second analysis, had association DCW, CW, FSW, and PRFW.

According to these results we can observe that drinking and eating activities were carried out in room 2A. Room2C was probably used for different activities especially for storing. Room 2D seems to be used mostly for cooking but there may be storing food activity may be carried out and it is observed that room 2E was used as storage area. The court of this house (2F) seems to be used for different household activities (e.g. cooking, food preparation and serving food and drink).

4.4.3. House NE-3:

The distribution of pottery in house NE-3 was analysed in the third analysis (Table 3, Figure 10). According to this analysis, it is observed that Room3A which has no relation with any pottery group in the second analysis; had association with DCW, CW, PDW, and Amphorae in the third analysis. Whereas in the second analysis there was no concentration of any pottery group in Room3B; in the third analysis this room was correlated with DW. Same as the second analysis Room3C indicated high frequency of SW in the third analysis. Room3Da was associated with amphorae in the third analysis; same room had concentration of DCW and PRFW in the second analysis. Room3Db that contains ashy area as a residue of cooking activity related to

FSW, PRFW, DSW, SW, and CW in the third analysis, in the second analysis this room had same distribution with Room3Da.

4.4.4. House NE-4:

Distribution of pottery groups of this house showed differences in two analyses. In the third analysis (Table 4) Room4A was in relation with Amphorae and DCW, but in the second analysis this room showed concentration of CW, DW, and amphorae. In the third analysis Room4B that was not correlated with any pottery group associated with CW and SW. Finally, although Room4C was related with CW, DW, Amphorae like Room4A in the second analysis, in the third analysis it was observed that this room was correlated with DW (Figure 11).

4.5. Use of Domestic Units of Burgaz and Cooking Activity Areas

It was seen that analysing each pottery type without making a group according to their usage throughout the site could not give specific information about rooms' functions in the first analysis. It was understood that many of the rooms have the distribution of different types of pottery in this analysis. In this case we can mention about multifunctionality. By grouping pottery according to their usage in the second analysis, and by considering that the size and pottery assemblage of each house is different; analysing these groups house by house in the third analysis informed us about room functions. According to

these analyses we can asses the function of room by interpreting the distribution of pottery groups. From the analysis it was understood that in house NE-1, Room A was probably used for drinking activity. We can say that this room used by men for the symposium (andron). As we mentioned before in Greek houses the *androns* were generally situated in the one corner of the house next to the street in this house Room A is situated in the southwest corner of the house that next to the street. However it is claimed that the andron is located on near or opposite the entrance[100]. Room Ba was used probably as food service room to the Room A. Room1Bb seems to be used for storing food or drinking. In house NE-1 we can see food service activity took place in different place (e.g. Room E, Room Ib). It was seen that Room D was used as storage room, which was connected to the court. In this house Room F seems to be used as multifunctional area. This room was probably the main living room (oikos) where different household activities are (preparing and cooking food) taken place and this room is situated on northwest corner of house. We can take in consideration the distribution of cooking ware in order to defining cooking activity area in this house. According to third analysis we can say that cooking activity was mostly carried out in the Room G and may be sometimes in the Room F, but there is no any residue of fire in these rooms.

The function of all of the rooms of House NE-2 was defined by the analyses. In this house RoomA was used probably as dining room that can be described as andron. According to the excavation reports it was observed that

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[100] Işık, 1987 p.32

there are white stucco pieces on the walls of this room. As we mention above in ancient Greek houses the walls of androns are generally decorated with red or white stuccos and these rooms were situated next to the street near the entrance, this room is most probably an andron. In Klazomenai white or red stuccos plastered the walls of andron[101]. In RoomB food preparation activities were taken place (Figure 12). In this house RoomC was most likely used as storage room and also RoomE was used with same function. RoomD that contains ashy area was certainly used for cooking activities and this room can be an oikos (Figure13), in which main household activities taken place. The court of this house serves multifunctional purpose. Cooking activities were also carried out in the one part of the court (RoomFd, Figure 14).

RoomA in the House NE-3 seems to have multifunctional aspect. It was observed that cooking activity and other household activity were carried out in this room. Court of this house (RoomD) contains ashy area and it was also used for different activity like cooking, storing, and preparing food. RoomB seems to be used as andron that has pebble and *horosan* floor like cement and red stucco fragments were found in (Figure 15). RoomC was likely used as storage room.

According to the analyses it was observed that RoomA in House NE-4 was most likely used for daily household activity, RoomB served function of cooking and storing, and RoomC (court) again used as multifunctional area (Figure 16).

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[101] Işık, 1987 p.32

CHAPTER V

CONCLUSION

Since the assemblages of artefacts found on the room floors reveal the use of space rather than the architecture[102] in this study, by focusing attention on the quantitative analysis of artefacts of activities found on Burgaz houses' room floors, it is tried to draw a picture about room functions. Instead of focusing on specific architecture, I looked at the distribution of artefacts throughout the houses to determine which activities were taken place.

As we see in the results of the statistical analysis each of four houses have different type of space organizations. This differentiation happens certainly due to the size and need of the houses. NE-1 and NE-2, which are the bigger houses than NE-3 and NE-4 nearly, have different rooms for different types of activities. Whereas in NE-1 and NE-2 only court of houses have multifunctional purposes, in NE-3 and NE-4 besides the courts some other rooms serve multifunctional purposes. So we can say that in larger houses, which have more rooms, each space organized for different household activity, while in small house there is no enough room to separate spaces for different activities.

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[102] Cahill, 2002 p.150

With the purpose of defining cooking activity areas in Burgaz domestic units by looking the distribution of cooking ware in house NE-1 RoomG and in House NE-2 RoomD seem to be used as cooking activity places. In these two houses different units were also used for cooking activity (Room1F, Room2Fd). This can be due to that cooking was commonly done on portable terracotta brazier in a corner of a room or court in different time of day or season[103]. In NE-3 and NE-4 cooking activities were carried out in the multifunctional areas.

If we look at the Olynthos and Haileis we see that houses kitchens have heart and flue, so it is easy to define cooking activity areas in these sites. But in Burgaz houses there is no any heart or flue so that we have to consider only the distribution of cooking wares and ashy areas which is an indication of cooking to define cooking activity areas. And so, we can suggest that cooking was done on portable brazier or with small open fire on the floor in the Burgaz houses. Although in Bayraklı and Klazomenai 4th century B.C. houses were excavated there is no such study that deal with space organization by analyzing artefacts. So, interpretations about space organization of these settlements are limited with architectural considerations.

This study showed us that using analytical techniques on house floor assemblages that observed abundantly in excavations could provide us more information about space organization. Artefacts that seem to be meaningless when they collected in the excavation become meaningful by application

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[103] Jameson, 1990 p.99, Cahill, 2002 pp. 155-156

quantification methods on them and I think this study will be a baseline for feature studies of West Anatolian household organizations.

In this study we have to think about that the houses at Burgaz were not abandoned suddenly. Abandonment phase of Burgaz probably occurred slowly. So as Schiffer and LaMotta suggested in the abandonment phase floor assemblages include mostly broken objects[104]. Since abandonment of Burgaz was planned, people, who lived at Burgaz, probably took their precious and valuable objects with them and they left broken and unprecious objects in their houses so our interpretation about room function is limited with these fragmentary artefacts.

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[104] Schiffer and LaMotta, 1999 p.23

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APPENDICES

A. Statistical Results

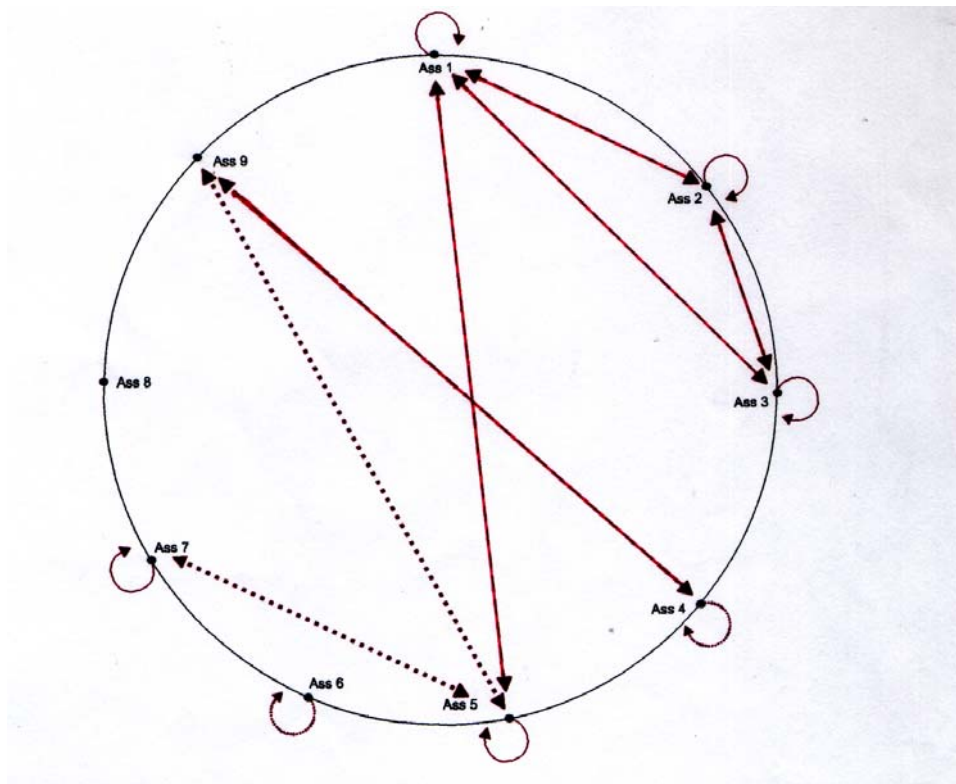Figure 4: Reduced Graph Showing Ties Between Assemblages Groups

(Analysis I).

Figure 5: Distribution Map of Pottery Types (Analysis I).

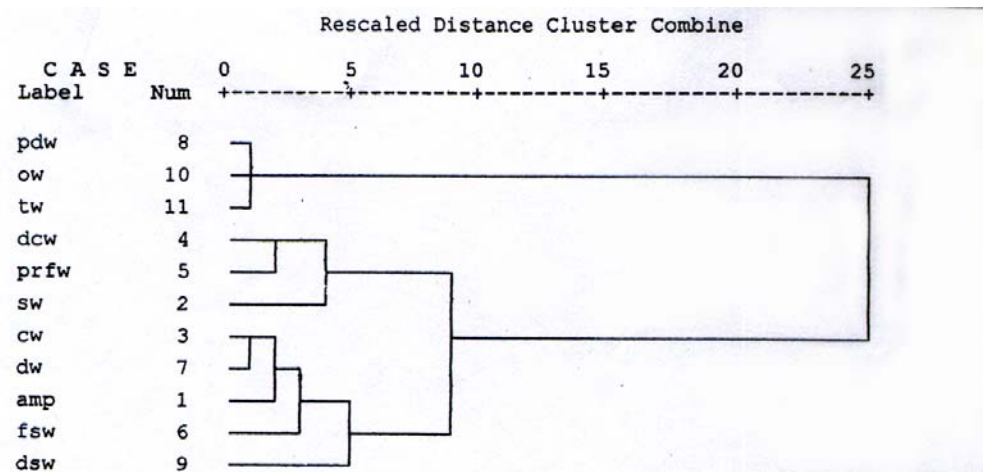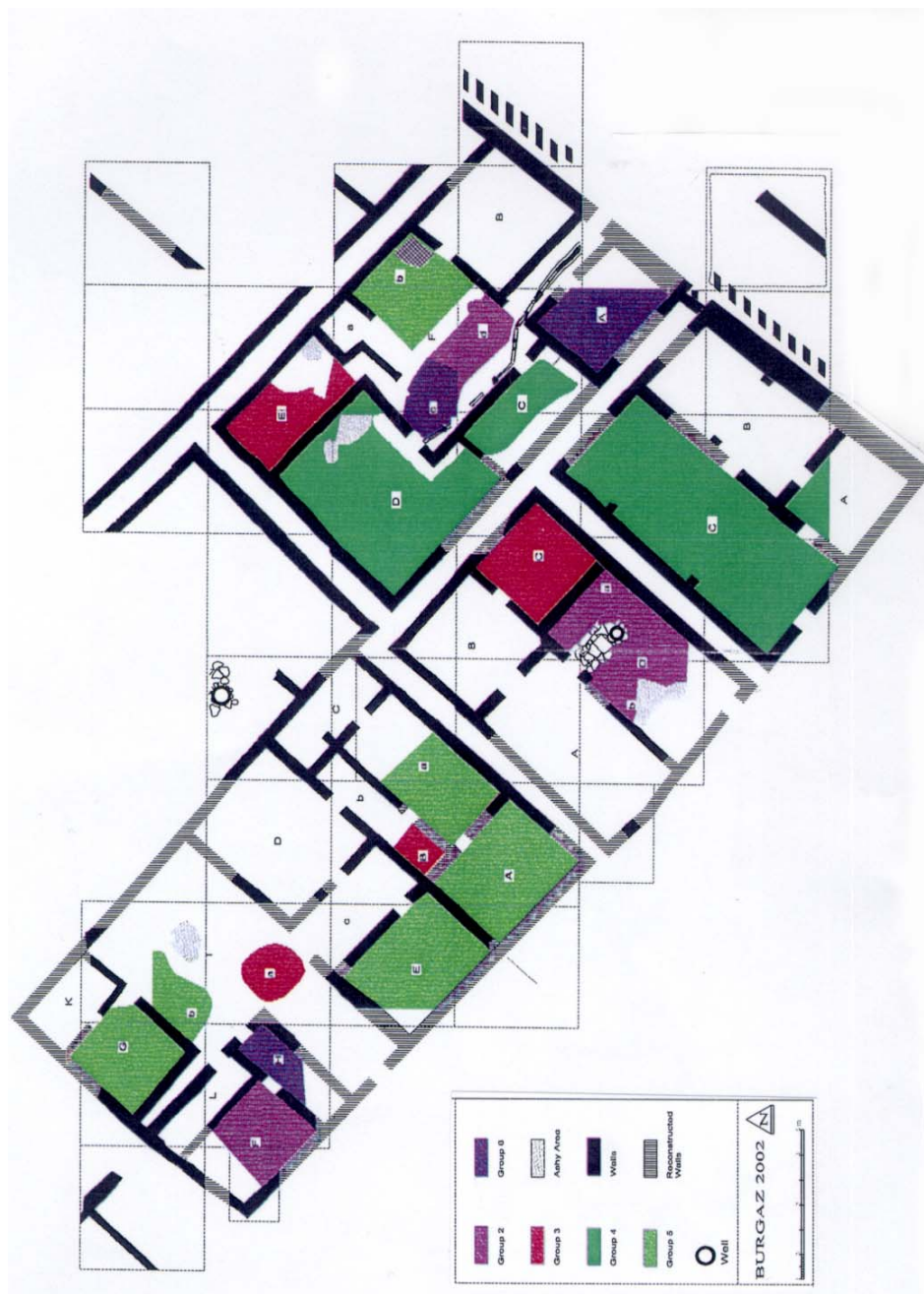Figure 6: Dendogram Showing Produced Pottery Groups (Analysis II).

Figure 7: Distribution Map of Pottery Groups (Analysis II).

Table 1: Distribution of Pottery Groups in House NE-1 (Analysis III).

ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW	TW	TOTAL	
Room1A	2	0		0	1	5	3	0	0	0	0	11	0,0127
Room1Ba	4	7	2	4	4	64	4	0	0	0	0	89	0,10277
Room1Bb	36	5	4	0	6	6	5	0	1	1	0	64	0,0739
Room1D	90	0	6	1	13	20	2	0	1	2	1	136	0,15704
Room1E	1	0	2	0	0	16	3	0	0	0	0	22	0,0254
Room1F	122	16	25	9	40	26	10	1	2	0	1	252	0,29099
Room1G	48	0	14	0	4	24	5	0	0	0	0	95	0,1097
Room1H	29	1	1	2	9	5	2	0	4	2	0	55	0,06351
Room1Ia	2	3	0	0	2	3	1	0	0	1	0	12	0,01386
Room1Ib	50	8	6	2	7	47	9	0	1	0	0	130	0,15012
TOTAL	384	40	60	18	86	216	44	1	9	6	2	866	1
	0,443418	0,0461894	0,069284	0,020785	0,099307	0,249423	0,050808	0,001155	0,0104	0,006928	0,0023095	1	

ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW	TW
Room1A	4,8775982	0,5080831	0,762125	0 228637	1 092379	2,743649	0,558891	0,012702	0,1143	0,076212	0,0254042
Room1Ba	39,464203	4,1108545	6,166282	1 849885	8 838337	22 19861	4.52194	0,102771	0,9249	0,616628	0,2055427
Room1Bb	28,378753	2,9561201	4,43418	1 330254	6 355658	15 96305	3,251732	0,073903	0,6651	0,443418	0.147806
Room1D	60,30485	6,2817552	9,422633	2,82679	13 50577	33 92148	6,909931	0,157044	1,4134	0,942263	0,3140878
Room1E	9,7551963	1,0161663	1,524249	0 457275	2,184758	5,487298	1,117783	0,025404	0,2286	0,152425	0,0508083
Room1F	111,74134	11,639723	17,45958	5,237875	25,0254	62,8545	12,8037	0,290993	2,6189	1,745958	0,5819861
Room1G	42,124711	4,3879908	6,581986	1 974596	9,43418	23,69515	4.82679	0,1097	0,9873	0,658199	0,2193995
Room1H	24,387991	2,5404157	3,810624	1 143187	5,461894	13 71824	2,794457	0,06351	0,5716	0,361062	0,1270208
Room1Ia	5,3210162	0,5542725	0,831409	0 249423	1,191686	2,993072	0.6097	0,013857	0,1247	0,083141	0,0277136
Room1Ib	57,644342	6,0046189	9,006928	2 702079	12 90993	32 42494	6,605081	0,150115	1,351	0,900693	0,3002309

ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW	TW
Room1A	-2,877598	-0,508083	-0,762125	-0 228637	-0 092379	2,256351	2,441109	-0,0127	-0,1143	-0,07621	-0,025404
Room1Ba	-35,4642	2,8891455	-4,166282	2 150115	-4,838337	41,80139	-0,52194	-0,10277	-0,9249	-0,61663	-0,205543
Room1Bb	7,6212471	2,0438799	-0,43418	-1 330254	-0 355658	-9,963048	1,748268	-0,0739	0,3349	0,556582	-0,147806
Room1D	29,69515	-6,281755	-3,422633	-1,82679	-0,505774	-13 92148	-4,90993	-0,15704	-0,4134	1,057737	0,6859122
Room1E	-8,755196	-1,016166	0,475751	-0 457275	-2,184758	10,5127	1,882217	-0,0254	-0,2286	-0,15242	-0,050808
Room1F	10,258661	4,3602771	7,540416	3 762125	14,9746	-36,8545	-2,8037	0,709007	-0,6189	-1,74596	0,4180139
Room1G	5,8752887	-4,387991	7,418014	-1 974596	-5 43418	0,30485	0,17321	-0,1097	-0,9873	-0,6582	-0,2194
Room1H	4,6120092	-1,540416	-2,810624	0 856813	3 538106	-8,718245	-0,79446	-0,06351	3,4284	1,618938	-0,127021
Room1Ia	-3,321016	2,4457275	-0,831409	-0 249423	0,808314	0,006928	0,3903	-0,01386	-0,1247	0,916859	-0,027714
Room1Ib	-7,644342	1,9953811	-3,006928	-0 702079	-5,909931	14,57506	2,394919	-0,15012	-0,351	-0,90069	-0,300231

ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW	TW
Room1A	-1	-1	-1	-1	-1	1	1	-1	-1	-1	-1
Room1Ba	-1	1	-1	1	-1	1	-1	-1	-1	-1	-1
Room1Bb	1	1	-1	-1	-1	-1	1	-1	1	1	-1
Room1D	1	-1	-1	-1	-1	-1	-1	-1	-1	1	1
Room1E	-1	-1	1	-1	-1	1	1	-1	-1	-1	-1
Room1F	1	1	1	1	1	-1	-1	1	-1	-1	1
Room1G	1	-1	1	-1	-1	1	1	-1	-1	-1	-1
Room1H	1	-1	-1	1	1	-1	-1	-1	1	1	-1
Room1Ia	-1	1	-1	-1	1	1	1	-1	-1	1	-1
Room1Ib	-1	1	-1	-1	-1	1	1	-1	-1	-1	-1

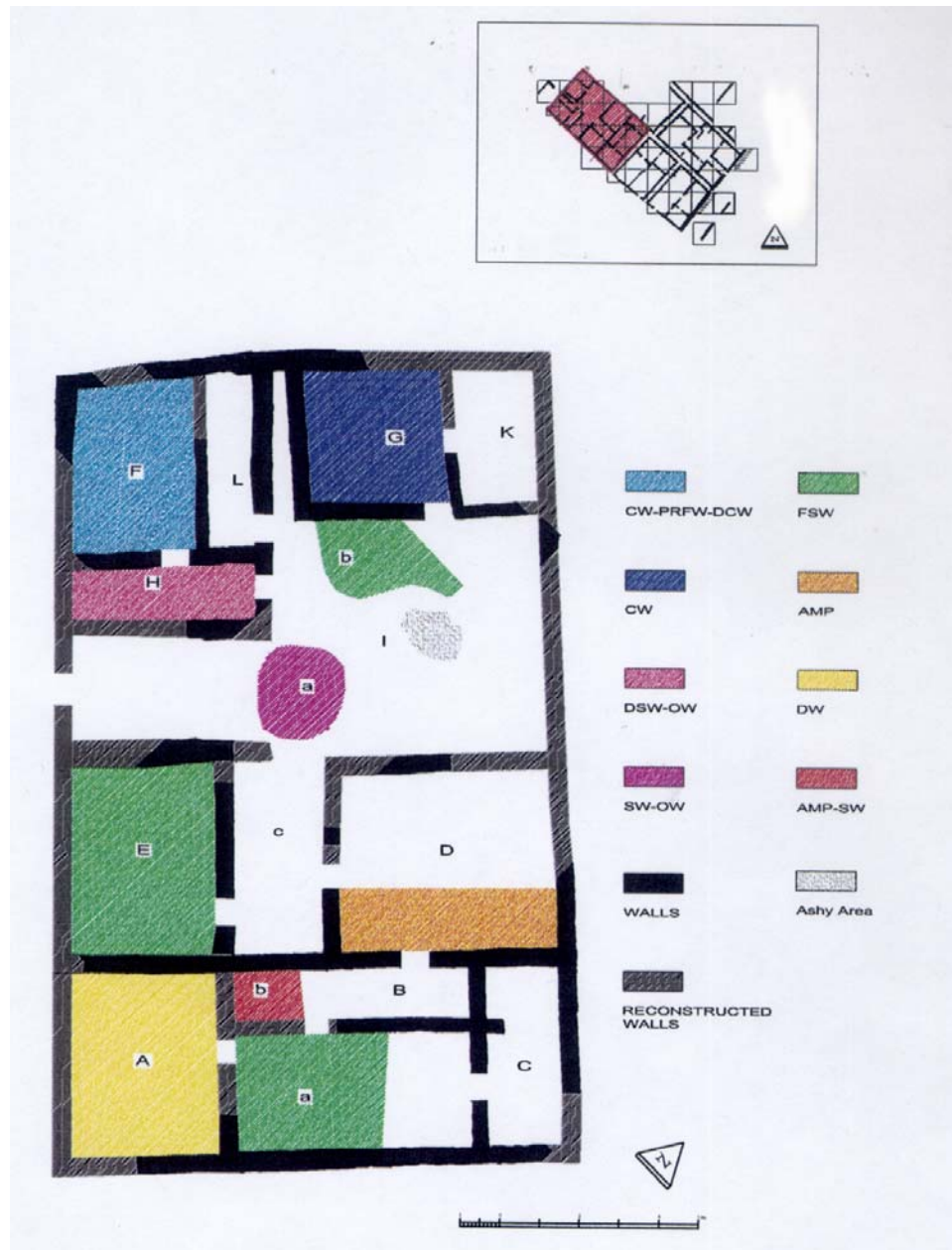| ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW	TW
Room1A	-1,7	-0,5	-0 8	-0,2	0,0	1,9	10,7	0,0	-0,1	-0,1	0 0
Room1Ba	-31 9	2,0	-2,8	2,5	-2,6	78,7	-0,1	-0,1	-0,9	-0,6	-0 2
Room1Bb	2,0	1,4	0 0	-1,3	0,0	-5,2	0,9	-0,1	0,2	0,7	-0,1
Room1D	14,6	-5,3	-1,2	-1,2	0,0	-5,7	-3 5	-0,2	-0,1	1,2	1,5
Room1E	-7,9	-1,0	0,1	-0,5	-2,2	20,1	3,2	0,0	-0,2	-0,2	-0 1
Room1F	0,9	1,6	3,3	2,7	9,0	-21,6	-0,6	1,7	-0,1	-1,7	0 3
Room1G	0,8	-4,4	8,4	-2,0	-3,1	0,0	0,0	-0,1	-1,0	-0,7	-0 2
Room1H	0,9	-0,9	-2,1	0,6	2,3	-5,5	-0,2	-0,1	20,6	6,9	-0 1
Room1Ia	-2,1	10,8	-0 8	-0,2	0,5	0,0	0,2	0,0	-0,1	10,1	0 0
Room1Ib	-1 0	0,7	-1,0	-0,2	-2,7	6,6	0,9	-0,2	-0,1	-0,9	-0 3

Figure 8: Distribution Map of Pottery Groups in House NE-1 (Analysis III).

Table 2: Distribution of Pottery Groups in House NE-2 (Analysis III).

ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW	TW	TOTAL	
Room2A	5	0	0	0	0	3	0	0	1	0	0	10	0,017361
Room2B	33	0	6	1	4	3	1	0	0	0	0	48	0,083333
Room2C	67	1	7	3	2	9	3	0	0	0	0	112	0,194444
Room2D	66	1	23	0	1	6	4	0	2	1	0	104	0,180556
Room2E	75	9	1	2	6	5	1	1	0	0	1	102	0,177083
Room2Fa	15	0	2	0	1	5	0	0	1	0	0	24	0,041667
Room2Fb	25	0	11	3	5	16	2	1	1	0	1	66	0,114583
Room2Fc	41	1	10	2	6	6	2	0	5	0	0	73	0,126736
Room2Fd	4	0	13	5	4	8	1	1	0	1	0	37	0,064236
TOTAL	354	12	73	16	29	61	14	3	10	2	2	576	1
	0,6145833	0,0208333	0,1267361	0,0277778	0,0503472	0,105903	0,024306	0,005208	0,017361	0,003472	0,003472	1	

ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW	TW
Room2A	6,1458333	0,2083333	1,2673611	0,2777778	0,5034722	1,059028	0,243056	0,052083	0,173611	0,034722	0,034722
Room2B	29,5	1	6,0833333	1,3333333	2,4166667	5,083333	1,166667	0,25	0,833333	0,166667	0,166667
Room2C	68,833333	2,3333333	14,194444	3,1111111	5,6388889	11,86111	2,722222	0,583333	1,944444	0,388889	0,388889
Room2D	63,916667	2,1666667	13,180556	2,8888889	5,2361111	11,01389	2,527778	0,541667	1,805556	0,361111	0,361111
Room2E	62,6875	2,125	12,927083	2,8333333	5,1354167	10,80208	2,479167	0,53125	1,770833	0,354167	0,354167
Room2Fa	14,75	0,5	3,0416667	0,6666667	1,2083333	2,541667	0,583333	0,125	0,416667	0,083333	0,083333
Room2Fb	40,5625	1,375	8,3645833	1,8333333	3,3229167	6,989583	1,604167	0,34375	1,145833	0,229167	0,229167
Room2Fc	44,864583	1,5208333	9,2517361	2,0277778	3,6753472	7,730903	1,774306	0,380208	1,267361	0,253472	0,253472
Room2Fd	22,739583	0,7708333	4,6892361	1,0277778	1,8628472	3,918403	0,899306	0,192708	0,642361	0,128472	0,128472

ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW	TW
Room2A	-0,1458333	-0,208333	-1,267361	-0,277778	-0,503472	1,940972	-0,243056	-0,052083	0,826389	-0,034722	-0,034722
Room2B	3,5	-1	-0,083333	-0,333333	1,5833333	-2,083333	-0,166667	-0,25	-0,833333	-0,166667	-0,166667
Room2C	18,166667	-1,333333	-7,194444	-0,111111	-3,638889	-2,861111	0,277778	-0,583333	-1,944444	-0,388889	-0,388889
Room2D	2,0833333	-1,166667	9,8194444	-2,888889	-4,236111	-5,013889	1,472222	-0,541667	0,194444	0,638889	-0,361111
Room2E	13,3125	6,875	-11,92708	-0,833333	0,8645833	-5,802083	-1,479167	0,46875	-1,770833	-0,354167	0,645833
Room2Fa	0,25	-0,5	-1,041667	-0,666667	-0,208333	2,458333	-0,583333	-0,125	0,583333	-0,083333	-0,083333
Room2Fb	-14,5625	-1,375	2,6354167	1,1666667	1,6770833	9,010417	0,395833	0,65625	-0,145833	-0,229167	0,770833
Room2Fc	-3,8645833	-0,520833	0,7482639	-0,027778	2,3246528	-1,730903	0,225694	-0,380208	3,732639	-0,253472	-0,253472
Room2Fd	-18,739583	-0,770833	8,3107639	3,9722222	2,1371528	4,081597	0,100694	0,807292	-0,642361	0,871528	-0,128472

ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW	TW
Room2A	-1	-1	-1	-1	-1	1	-1	-1	1	-1	-1
Room2B	1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1
Room2C	1	-1	-1	-1	-1	-1	1	-1	-1	-1	-1
Room2D	1	-1	1	-1	-1	-1	1	-1	1	1	-1
Room2E	1	1	-1	-1	1	-1	-1	1	-1	-1	1
Room2Fa	1	-1	-1	-1	-1	1	-1	-1	1	-1	-1
Room2Fb	-1	-1	1	1	1	1	1	1	-1	-1	1
Room2Fc	-1	-1	1	-1	1	-1	1	-1	1	-1	-1
Room2Fd	-1	-1	1	1	1	1	1	1	-1	1	-1

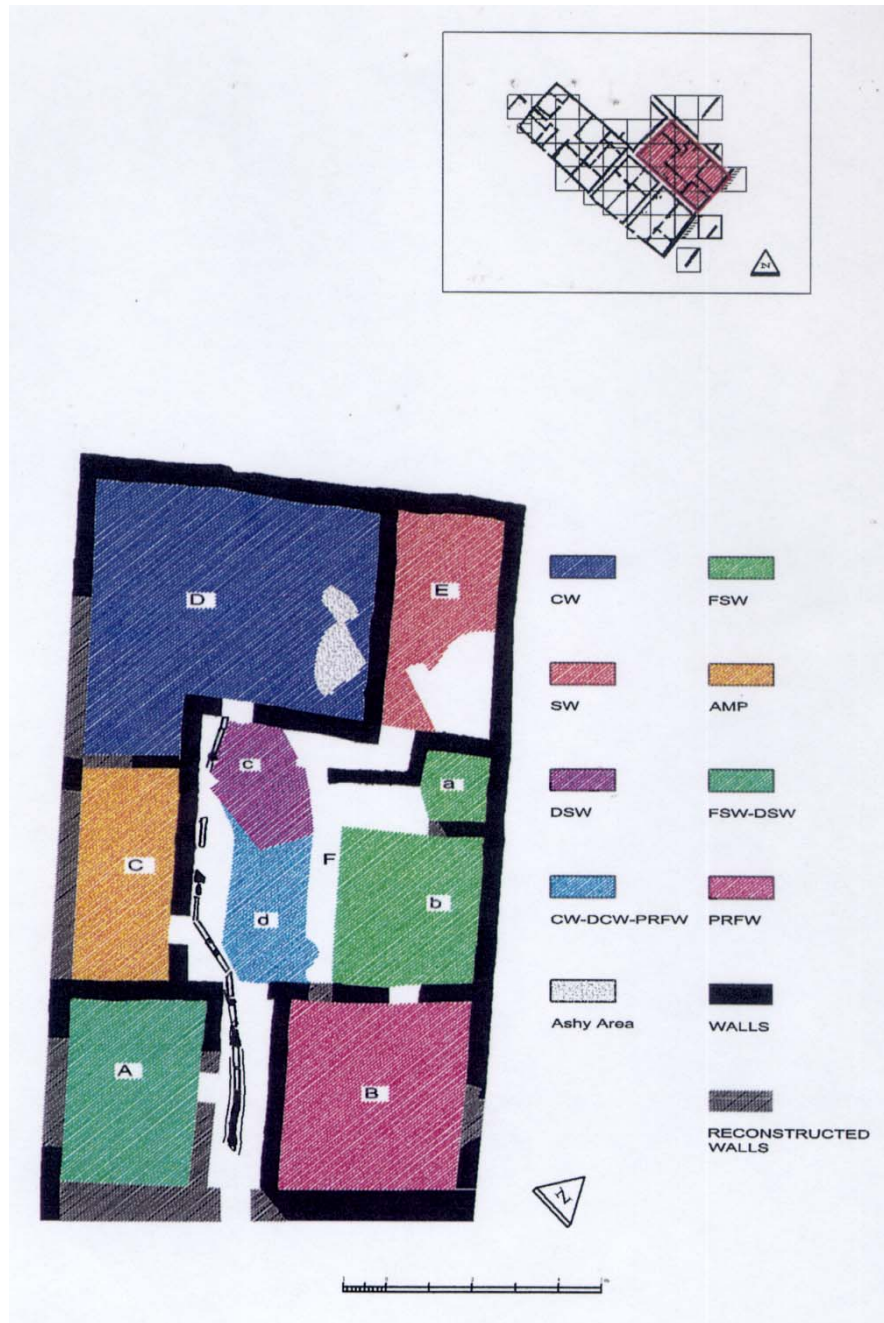| ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW	TW
Room2A	0,0	-0,2	-1,3	-0,3	-0,5	3,6	-0,2	-0,1	3,9	0,0	0,0
Room2B	0,4	-1,0	0,0	-0,1	1,0	-0,9	0,0	-0,3	-0,8	-0,2	-0,2
Room2C	4,8	-0,8	-3,6	0,0	-2,3	-0,7	0,0	-0,6	-1,9	-0,4	-0,4
Room2D	0,1	-0,6	7,3	-2,9	-3,4	-2,3	0,9	-0,5	0,0	1,1	-0,4
Room2E	2,8	22,2	-11,0	-0,2	0,1	-3,1	-0,9	0,4	-1,8	-0,4	1,2
Room2Fa	0,0	-0,5	-0,4	-0,7	0,0	2,4	-0,6	-0,1	0,8	-0,1	-0,1
Room2Fb	-5,2	-1,4	0,8	0,7	0,8	11,6	0,1	1,3	0,0	-0,2	2,6
Room2Fc	-0,3	-0,2	0,1	0,0	1,5	-0,4	0,0	-0,4	11,0	-0,3	-0,3
Room2Fd	-15,4	-0,8	14,7	15,4	2,5	4,3	0,0	3,4	-0,6	5,9	-0,1

Figure 9: Distribution Map of Pottery Groups in House NE-2 (Analysis III).

Table 3: Distribution of Pottery Groups in House NE-3 (Analysis III).

ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW	TOTAL	
Room3A	34	3	8	3	0	3	2	1	0	0	54	0,156977
Room3B	31	1	4	0	5	6	7	0	1	0	55	0,159684
Room3C	0	3	1	0	1	2	2	0	0	0	9	0,026163
Room3Da	90	1	12	3	18	17	7	0	2	1	151	0,438953
Room3Db	21	7	11	2	14	13	4	0	3	0	75	0,218023
TOTAL	176	15	36	8	38	41	22	1	6	1	344	1
	0,511628	0,043605	0,104651	0,023256	0,110465	0,119186	0,063953	0,002907	0,017442	0,002907	1	0,002907

ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW
Room3A	27,62791	2,354651	5,651163	1,255814	5.965116	6,436047	3,453488	0,156977	0,94186	0,156977
Room3B	28,13953	2,398256	5,755814	1,27907	6.075581	6,555233	3,517442	0,159884	0,959302	0,159884
Room3C	4,604651	0,392442	0,94186	0,209302	0.994186	1,072674	0,575581	0,026163	0,156977	0,026163
Room3Da	77,25581	6,584302	15,80233	3,511628	16,68023	17,99709	9,656977	0,438953	2,633721	0,438953
Room3Db	38,37209	3,270349	7,848837	1,744186	8.284884	8,938953	4,796512	0,218023	1,30814	0,218023

ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW
Room3A	6,372093	0,645349	2,348837	1,744186	-5.965116	-3,436047	-1,453488	0,843023	-0,94186	-0,156977
Room3B	2,860465	-1,398256	-1,755814	-1,27907	-1.075581	-0,555233	3,482558	-0,159884	0,040698	-0,159884
Room3C	-4,604651	2,607558	0,05814	-0,209302	0.005814	0,927326	1,424419	-0,026163	-0,156977	-0,026163
Room3Da	12,74419	-5,584302	-3,802326	-0,511628	1,319767	-0,997093	-2,656977	-0,438953	-0,633721	0,561047
Room3Db	-17,37209	3,729651	3,151163	0,255814	5.715116	4,061047	-0,796512	-0,218023	1,69186	-0,218023

ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW
Room3A	1	1	1	1	-1	-1	-1	1	-1	-1
Room3B	1	-1	-1	-1	-1	-1	1	-1	1	-1
Room3C	-1	1	1	-1	1	1	1	-1	-1	-1
Room3Da	1	-1	-1	-1	1	-1	-1	-1	-1	1
Room3Db	-1	1	1	1	1	1	-1	-1	1	-1

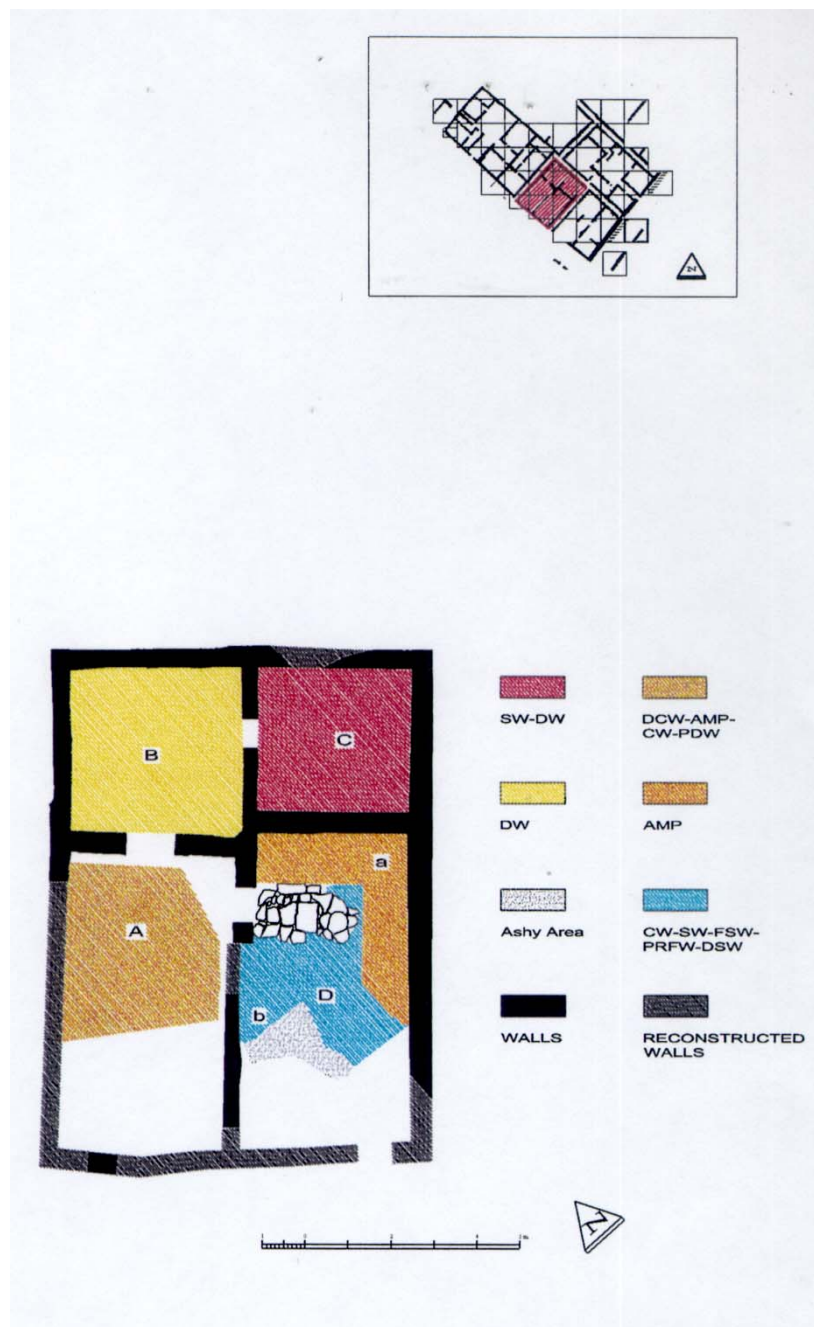| ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW
Room3A	1,5	0,2	1,0	2,4	-6,0	-1,8	-0,6	4,5	-0,9	-0,2
Room3B	0,3	-0,8	-0,5	-1,3	-0,2	0,0	3,4	-0,2	0,0	-0,2
Room3C	-4,6	17,3	0,0	-0,2	0,0	0,8	3,5	0,0	-0,2	0,0
Room3Da	2,1	-4,7	-0,9	-0,1	0,1	-0,1	-0,7	-0,4	-0,2	0,7
Room3Db	-7,9	4,3	1,3	0,0	3,9	1,8	-0,1	-0,2	2,2	-0,2

Figure 10: Distribution Map of Pottery Groups in House NE-3 (Analysis III).

Table 4: Distribution of Pottery Groups in House NE-4 (Analysis III).

ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW	TOTAL	
Room4A	49	0	0	1	1	1	0	0	0	0	52	0,122642
Room4B	30	1	17	0	4	3	1	0	1	0	57	0,134434
Room4C	212	0	45	2	8	21	19	4	3	1	315	0,742925
TOTAL	291	1	62	3	13	25	20	4	4	1	424	1
	0,686321	0,002358	0,146226	0,007075	0,03066	0,058962	0,04717	0,009434	0,009434	0,002358	1	

ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW
Room4A	35,68868	0,122642	7,603774	0,367925	1,59434	3,066038	2,45283	0,490566	0,490566	0,122642
Room4B	39,12028	0,134434	8,334906	0,403302	1,747642	3,360849	2,688679	0,537736	0,537736	0,134434
Room4C	216,191	0,742925	46,06132	2,228774	9,658019	18,57311	14,85849	2,971698	2,971698	0,742925

ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW
Room4A	13,31132	-0,122642	-7,603774	0,632075	-0,59434	-2,066038	-2,45283	-0,490566	-0,490566	-0,122642
Room4B	-9,120283	0,865566	8,665094	-0,403302	2,252358	-0,360849	-1,688679	-0,537736	0,462264	-0,134434
Room4C	-4,191038	-0,742925	-1,061321	-0,228774	-1,658019	2,426887	4,141509	1,028302	0,028302	0,257075

ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW
Room4A	1	-1	-1	1	-1	-1	-1	-1	-1	-1
Room4B	-1	1	1	-1	1	-1	-1	-1	1	-1
Room4C	-1	-1	-1	-1	-1	1	1	1	1	1

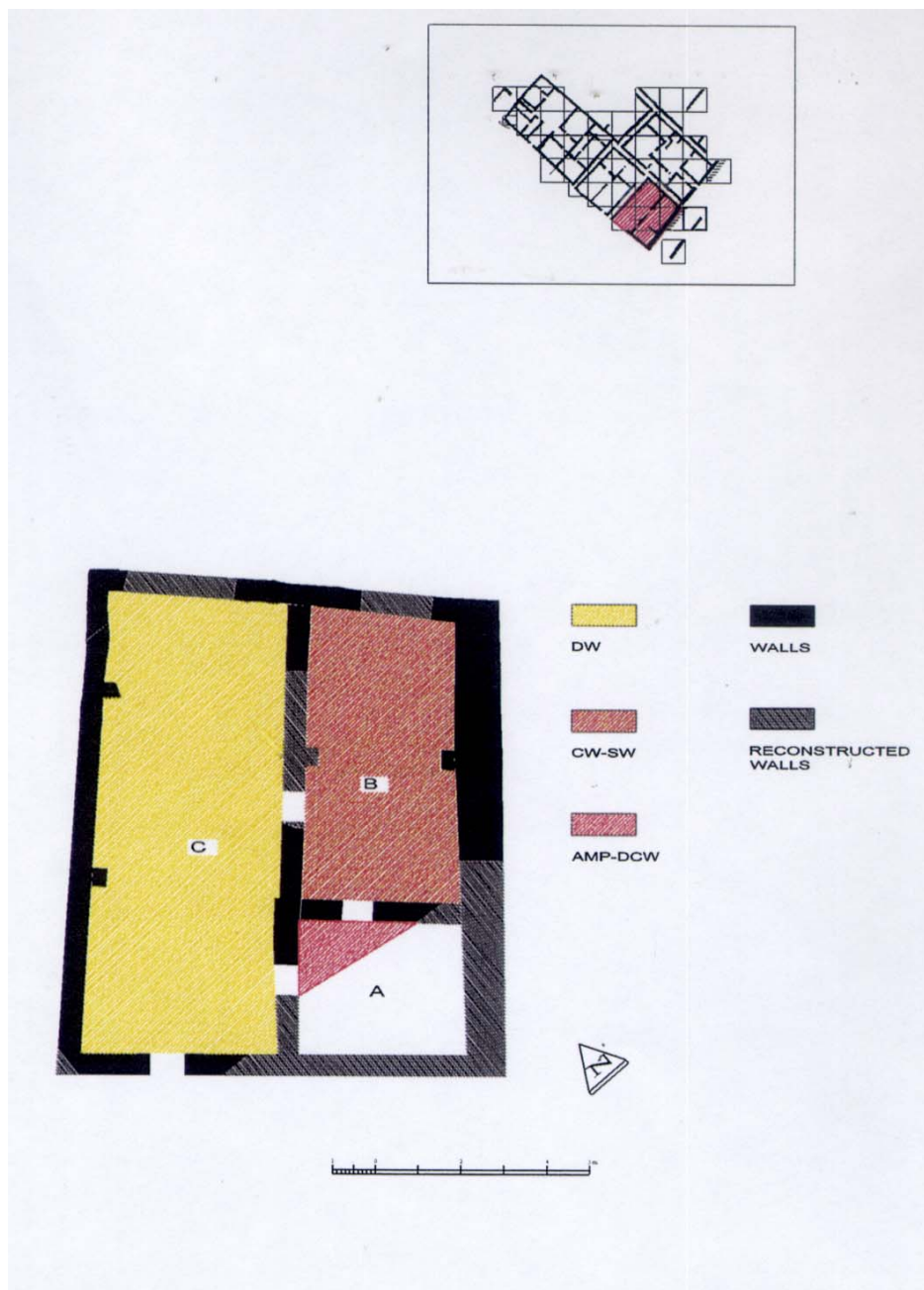| ROOMS	Amphora	SW	CW	DCW	PRFW	FSW	DW	PDW	DSW	OW
Room4A	5,0	-0,1	-7,6	1,1	-0,2	-1,4	-2,5	-0,5	-0,5	-0,1
Room4B	-2,1	5,6	9,0	-0,4	2,9	0,0	-1,1	-0,5	0,4	-0,1
Room4C	-0,1	-0,7	0,0	0,0	-0,3	0,3	1,2	0,4	0,0	0,1

Figure 11: Distribution Map of Pottery Groups in House NE-4 (Analysis III).

Figure 12: RoomB Suggested As Food Preparation Room in NE-2 House.

Figure 13: RoomD Suggested As *Oikos* in NE-2 House.

Figure14: RoomFd a Part of NE-2 House's Court Used for Cooking Activity.

Figure 15: RoomB in NE-3 House Suggested As *Andron*.

Figure 16: RoomC (court) of NE-4 House Used As Multifunctional Area.

Catalogue of Cooking Wares

Pl.I-1 (Lopas)

S-curved rim with flattened bottom.

Inv. No: BZ.01.NE.5.6.D7A.35

Diam. of lid: 25cm

High: 8cm

Colour: 5 YR 5/6 – Yellowish Red

Context: Third quarter of 4th Century B.C.

Pl.I-2 (Lopas)

High flaring rim; low shoulder angle.

Inv. No: BZ.02.NE.4.5.D5.13

Diam. of lid: 27cm

High: 6,4cm

Colour: 10R 5/6- Red

Context: Third quarter of 4th Century B.C.

Pl.II-1 (Chytra)

Deep globular body, two strap handles.

Inv. No: BZ.01.NE.3.6.C5.8

Diam. of lid: 9,4cm

High: 9,1cm

Colour: 2,5YR 4/6- Red

Context: Third quarter of 4th Century B.C.

Pl.II-2 (Chytra)

Inv. No: BZ.01.NE.5.6.A5.9

Diam. of lid: 6cm

High: 8,6cm

Colour: 5YR 5/4- Reddish Brown

Context: Third quarter of 4th Century B.C.

Pl.III-1 (Chytra)

Slightly flaring rim, deep shoulder, swung handle

Inv. No: BZ.01.NE.5.6.D6B.15

Diam. of lid: 11,4cm

High: 4,2cm

Colour: 2,5YR 6/8- Light Red

Context: Third quarter of 4th Century B.C.

Pl.III-2 (Chytra)

Inv. No: BZ.02.NE.4.5.D4.11

Diam. of lid: 21cm

High: 6,5cm

Colour: 5YR 6/6- Reddish Yellow

Context: Third quarter of 4th Century B.C.

PlateIV-1(Sauce pan)

Inv. No: BZ.02.NE.4.6.D4.15

Diam. of lid: 11,6cm

High: 10,3cm

Colour: 5YR 5/4- Reddish Brown

Context: Third quarter of 4th Century B.C.

PlateIV-2 (Sauce pan)

Inv. No: BZ.02.NE.4.6.C6.10

Diam. of lid: 20cm

High: 3,8cm

Colour: 5YR 5/8- Yellowish Red

Context: Second half of 4th Century B.C.

PlateV-1 (Other Cooking Wares)

Inv. No: BZ.02.NE.4.6.A6B.5

Diam. of lid: 17cm

High: 2,3cm

Colour: 10R 5/6- Red

Context: Third quarter of 4th Century B.C.

PlateV-2 (Other Cooking Wares)

Inv. No: BZ.02.NE.4.6.A7B.2

Diam. of lid: 14cm

High: 3cm

Colour: 2,5YR 5/4- Reddish Brown

Context: Second half of 4th Century B.C.

PlateVI-1 (Baking Tray)

Inv. No: BZ.02.NE.4.6.A6.12

Diam. of lid: 51,4cm

High: 2,8cm

Colour: 2,5YR 5/6- Red

Context: Third quarter of 4th Century B.C.

PlateVII-1 (Tripod)

Inv. No: BZ.02.NE.3.6.B7.3

High: 18cm

Colour: 7,5YR 6/4- Light Brown / 10YR 6/2-Light Brownish Gray
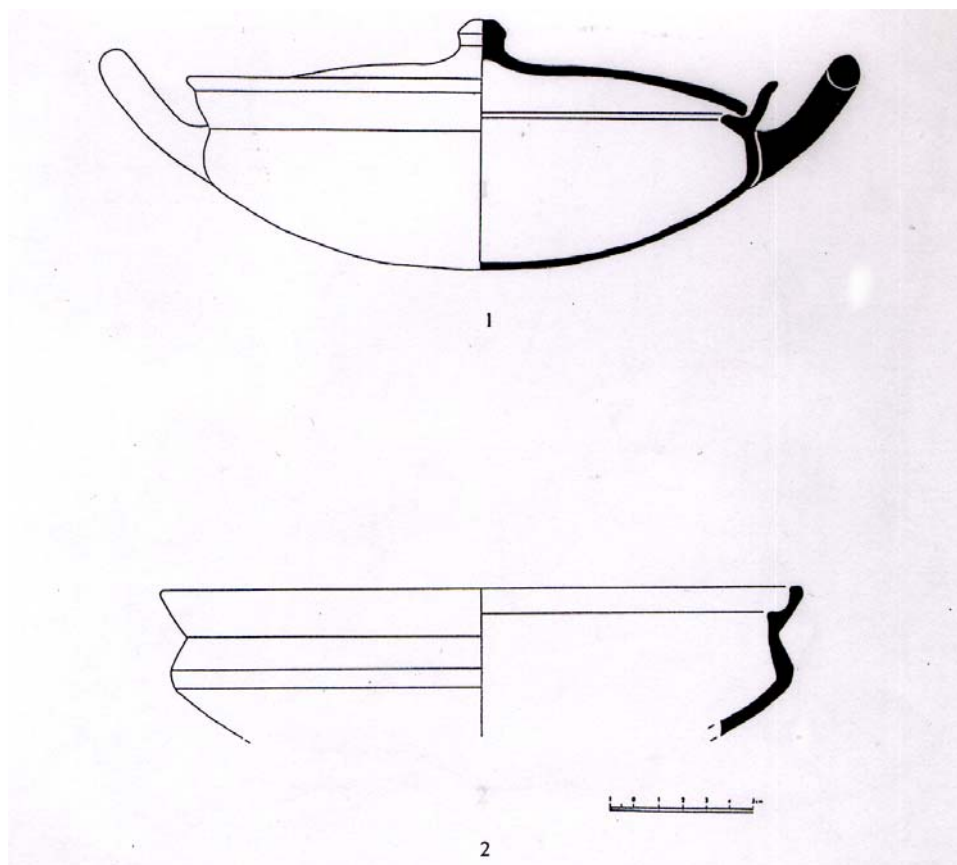
Context: Third quarter of 4th Century B.C.
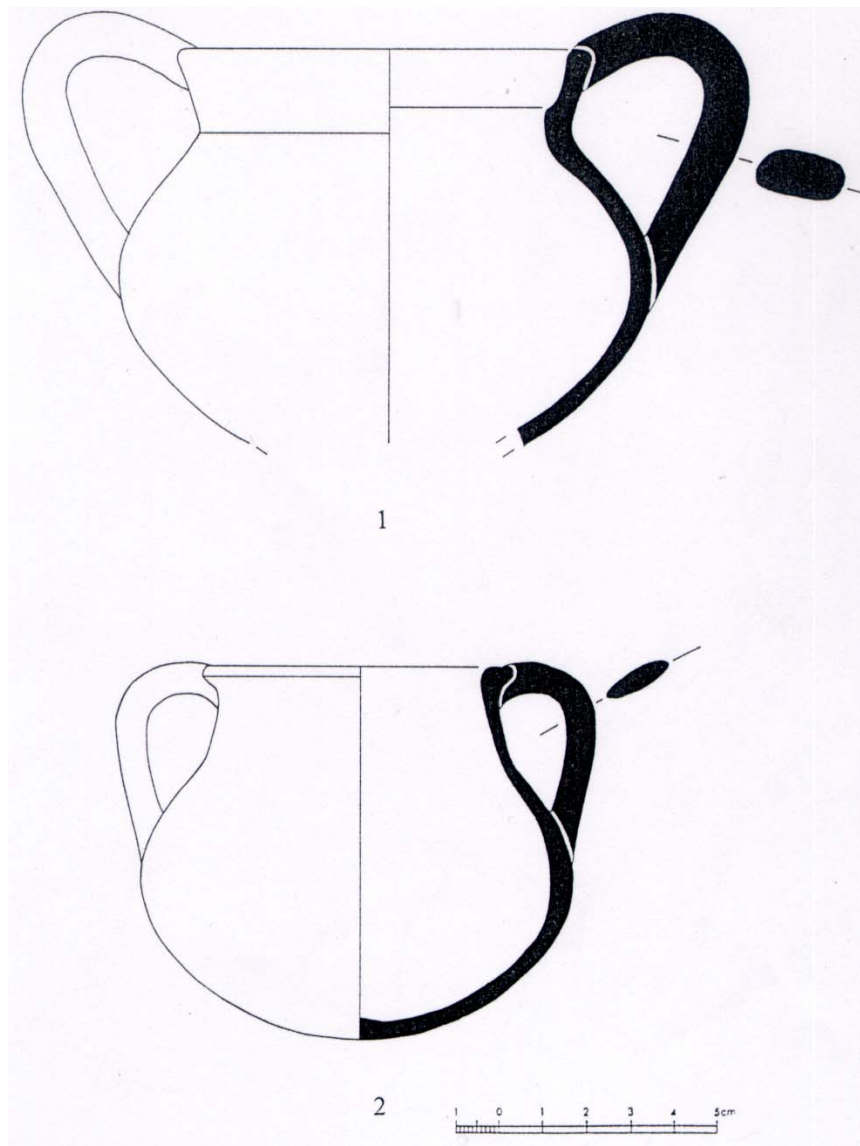
Plate I

Figure17: Lopades from Burgaz Excavation

Plate II

Figure 18: Chytrai from Burgaz Excavation

Plate III

Figure 19: Chytrai from Burgaz Excavation

Plate IV
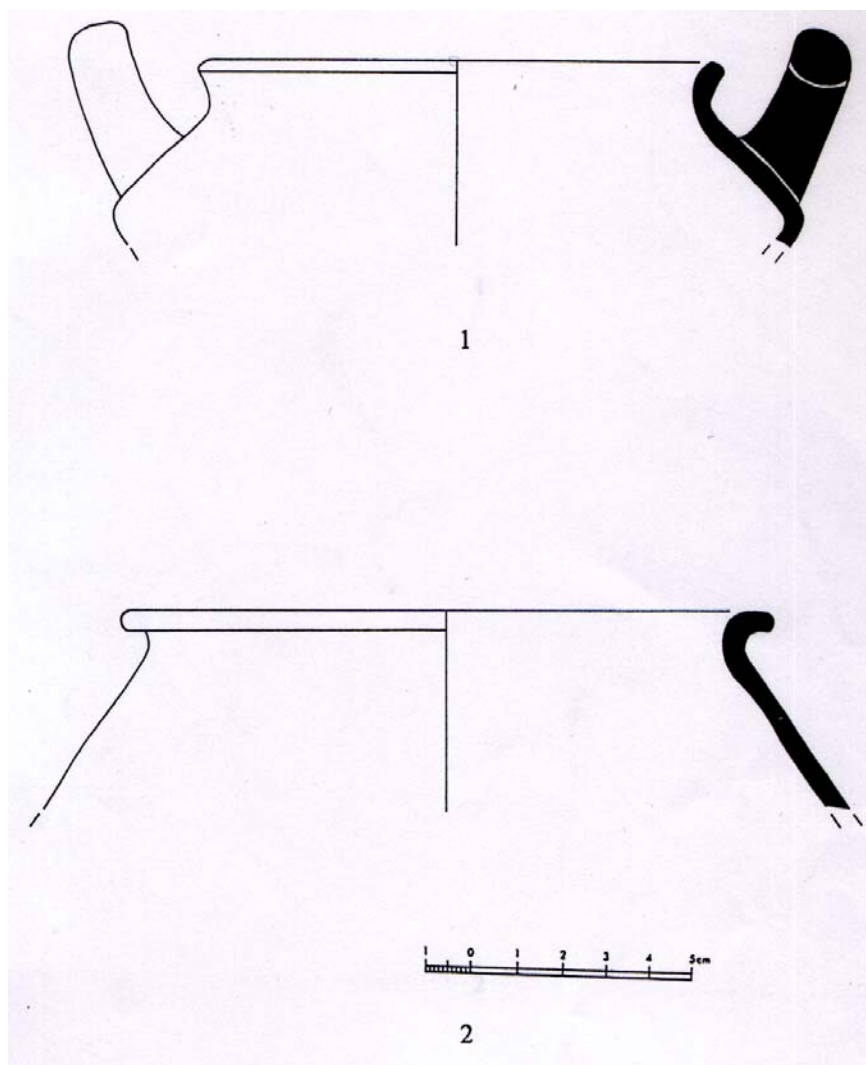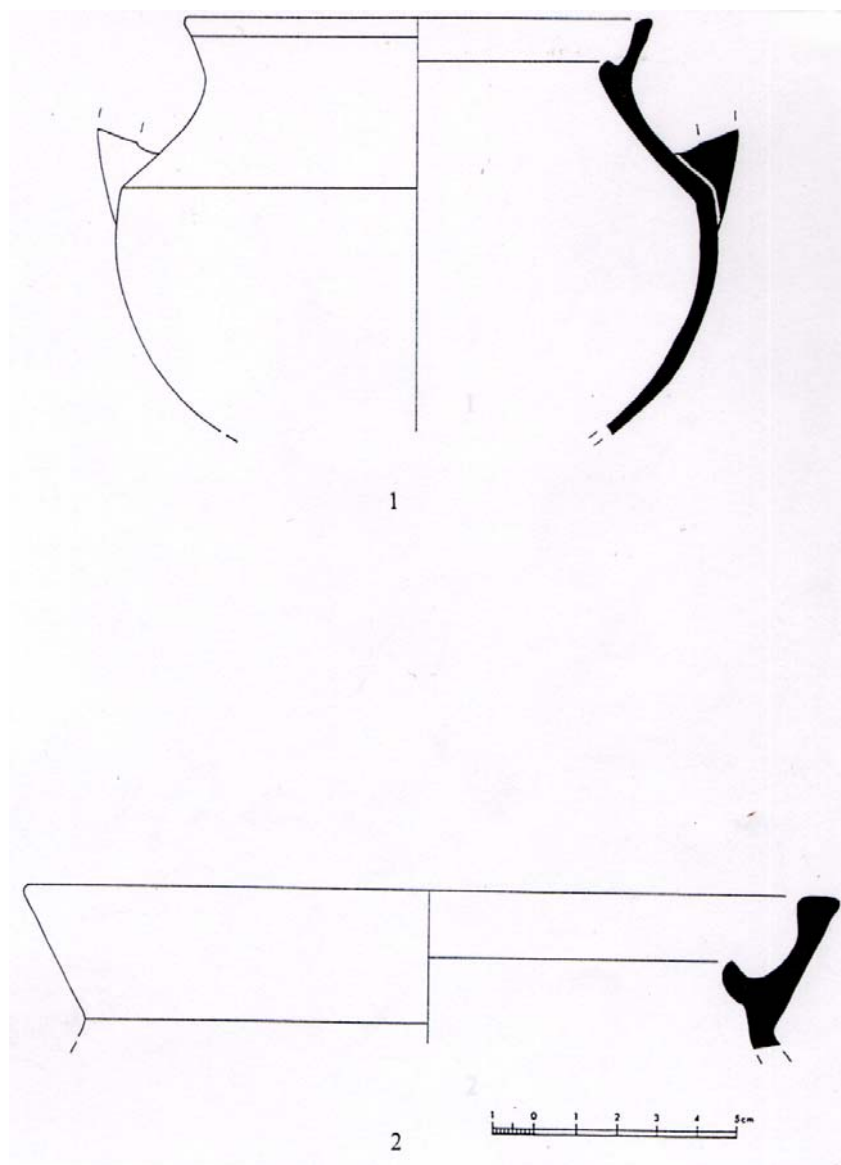
Figure 20: Sauce Pans from Burgaz Excavation

Plate V
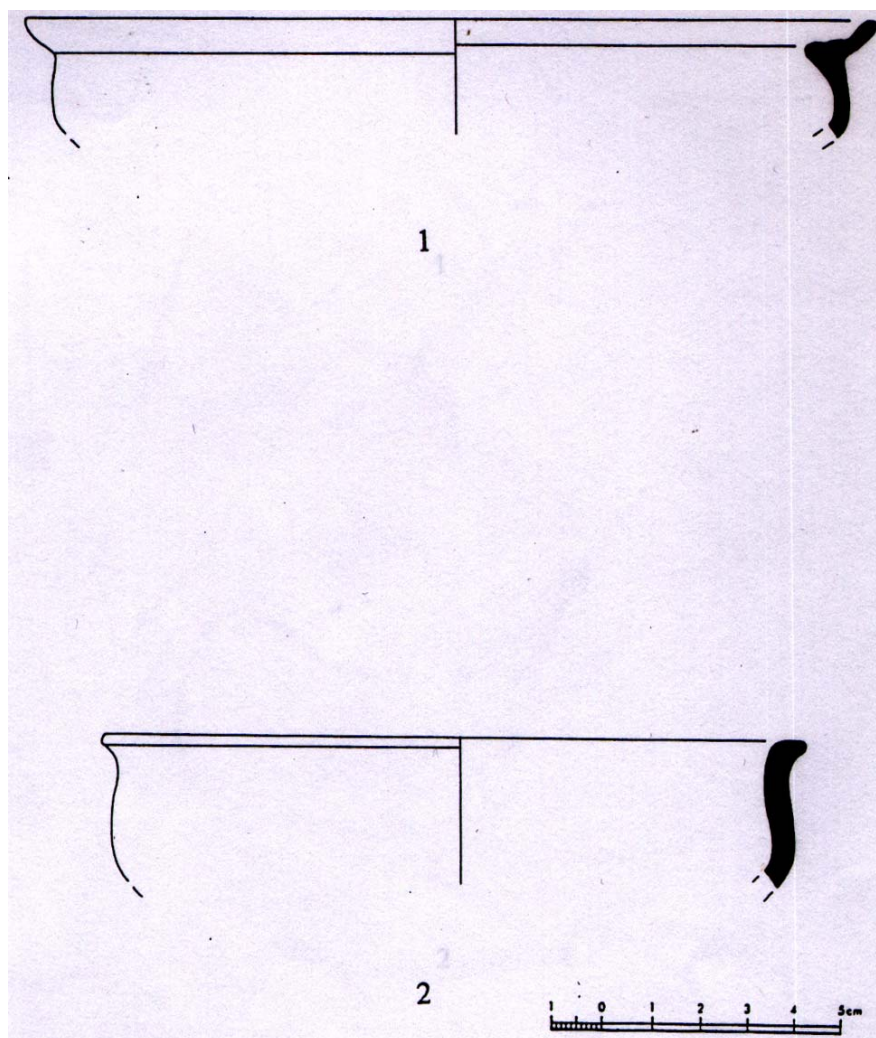
Figure 21: Other Types of Cooking Wares from Burgaz Excavation.

Plate VI

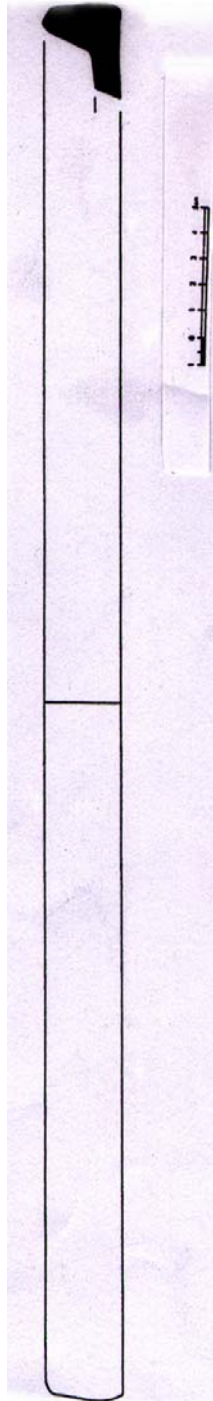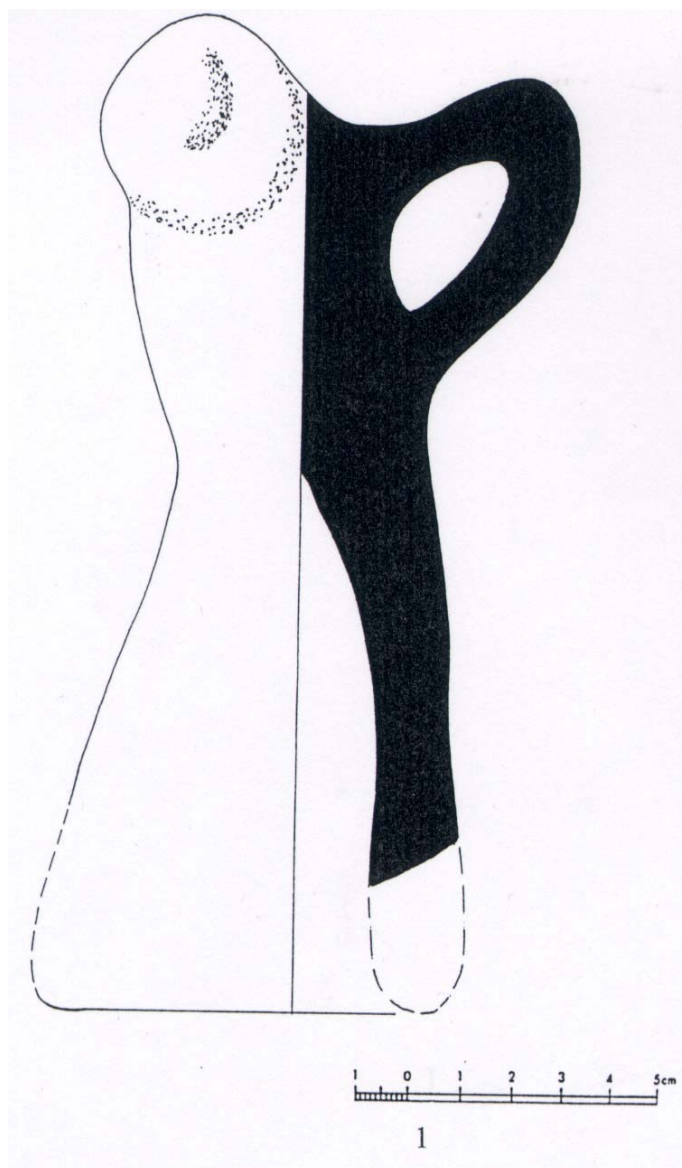Figure 22: Baking Tray from Burgaz Excavation.

Plate VII

Figure 23: Tripod from Burgaz Excavation.