Symbols in Clay

A Study of Early Bronze IV Potters’ Marks from the Amman-Zarqa Region in Transjordan

Rikke Wulff Krabbenhöft

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Abstract


The present work examines the taxonomy and function of potters’ marks applied to pottery in the Amman-Zarqa region during the last phase of the Early Bronze Age, the so-called EB IV ca. 2350/2300–2000 BC. The study is anchored in a small data set gathered from 12 archaeological sites, in which 24 different mark types have been identified. These mark types - together with their associated vessel classes, circumstances of deposition, and geographical distribution - comprise the background against which previous suggestions regarding potters’ marks are evaluated. Evidence from ethno-archaeological sources concerning traditional potters’ rationales for marking vessels today is also included as part of the interpretive framework. The mode and scale of production is discussed on the basis of the ceramic evidence, the size and character of settlements located within the region, and the socio-economic setting of the EB IV period in general.

The conclusions reached for the function of the Amman-Zarqa potters’ marks suggest that marking practices may have been governed by other principles than those conventionally assumed for potters’ marks. However, there are many open questions still due to the small size of the sample, and more data is needed in order to review the observations made in this study. The conclusions allow for the negation of a non-Southern-Levantine origin of the Amman-Zarqa marking practice, while the exact nature of the potter’s activities and the rationale for marking his or her wares remains unclear. The size of ceramic production was modest, but the presence of small quantities of imported Amman-Zarqa pottery on two sites outside the region confirm that production regimes at times were directed towards larger markets than the local community. Although little is known about pottery exchange between sites in the Amman-Zarqa region, the micro-traditions of a particular mark type, alongside occasional correspondences between selected vessel features, facilitate in few cases the identification of manufacturing-based relationships. From these, two suggestions can be made regarding contacts between certain sites for the exchange of pottery, within and beyond the region.

Keywords: potters’ marks, Transjordan, Early Bronze Age, Family AZ pottery, tombs, production, Amman-Zarqa, Khirbat Iskandar, Tall Iktanu, Tall al-‘Umayri area, pottery exchange, depositional patterns, EB IV.

Rikke Wulff Krabbenhöft. Department of Archaeology and Ancient History, Box 626, Uppsala University, SE-751 26 Uppsala, Sweden.
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All pottery profiles have been redrawn from previous published drawings, except for CN 6, 12, 16, and 32 which were drawn by the writer. The drawings have been complemented whenever examination of the actual vessels revealed features not previously published. For references, see the Mark Type Catalogue (Appendix). The profiles of CN 10, 11, 17, 28, 29, 30, 31, 33, and 35-37 have been reversed so that their sections are shown on the right. CN 1 was only available by published photograph and could thus not be drawn.
List of abbreviations

Chronology
EB I Early Bronze I
EB II Early Bronze II
EB III Early Bronze III
EB IV Early Bronze IV
MB II Middle Bronze II

Ceramic families
AZ Amman-Zarqa
NC North Central
J Jericho-Jordan Valley
TR Transjordan

Vessel types
Hybrid hybrid jug/storage jar

Catalogue
M- mark type
CN catalogue number
int. interior
ext. exterior
Ø diameter
H height
W width
L length
VC vessel capacity
1. Introduction

1.1 Potters’ marks

The practice of marking ceramic vessels by use of incisions, impressions, and applications dates back at least to the 4th millennium BC in the Southern Levant (Kenyon 1960: 26-36; Betts et al. 1991; Lapp 1995). Potters’ marks are intentionally made markings applied to the vessel before firing, and are generally thought to represent something other than decoration. They usually diverge from the latter in terms of spatial arrangement and design, and are often found to cluster at certain periods and places, on particular wares and vessel forms. Markings like these are frequently found in Early Bronze Age contexts in Palestine and Transjordan (Fig. 1) but often their purpose remains obscure, and discussions of what activities the marks reflected are seldom attempted.

1.2 Why Early Bronze IV marks from the Amman-Zarqa region?

The potters’ marks from the last phase of the Early Bronze Age, the Early Bronze IV ca. 2350/2300-2000 BC, comprise an assemblage that has hardly been studied at all in terms of style, function, and distribution. In the initial stages of this thesis, potters’ marks from EB IV sites on either side of the Jordan River were collected as Palestine and Transjordan exhibit close links in material culture and society throughout the Early Bronze Age. However, it soon became apparent that although potters’ marks are found in both regions, the quantity published from sites in Palestine is too small for a meaningful analysis to be made.¹

¹ A total of eight potters’ marks have been published from a cave near Qedesh and from Ma’ayan Barukh - both in Upper Galilee (Tadmor 1978: fig. 3: 70-492 and fig. 4: 70-223; 70-387; 70-413; 70-486; Amiran 1961: fig. 7: 10, 13, 15, 18). Another two marks are found at Jericho (Kenyon 1960: fig. 106:2; 1965: fig. 19:30) in the southern Jordan Valley, while a total of four potters’ marks have been published from the sites of Arâq en-Na’sâneh (Dever 1974: pl. 11:3-4) and Khirbat al-Kirmil (Dever 1975: fig. 5:9-10) in the Central Hills. From the same region, come also two marks and five fragments from Jebel Qa’aqir (London 1985: 186, fig. 14; figs. A.9:7; A.10:20), alongside a single mark from the cemetery 2000 at Lachish
In Transjordan, marked pottery is more frequent, although still not overly abundant. All the potters’ marks furthermore cluster within one regional ceramic horizon associated with the Amman-Zarqa region, the so-called Family AZ recently defined by Palumbo and Peterman (1993; see also Palumbo 1990: 94; Helms 1989). The Transjordan material thus represents a homogenous sample of markings for which the same tradition or practice of application can be assumed. For these reasons, the Family AZ pottery has been chosen as a case study on potters’ marks from the EB IV period.

![Map of Palestine and Transjordan](image)

**Fig. 1.** Sites in Palestine and Transjordan mentioned in the text. Squares indicate modern cities while dots indicate Early Bronze Age sites. Not all of the latter have yielded potters’ marks. The Syrian sites of Ebla, Tall as-Sweyhat, Tall Djassa al-Gharbi, and Tall Abu Hafur are not shown on the map.

(Tufnell 1958: pl. 67:459). The 22 marks and fragments mentioned come from three different regional ceramic horizons in Palestine.
1.3 Aim and questions

The aim of this thesis is to examine the taxonomy and function of the Amman-Zarqa potters’ marks as well as the activities in which mark application took place. The study is anchored in a data set gathered from 12 archaeological sites, against which a number of suggestions regarding the function of potters’ marks elsewhere in the Levant have been tested. Ethno-archaeological sources concerning marking practices among traditional potters have also been drawn upon as part of the interpretive framework.

The questions to be addressed are:
- What was the function of the Amman-Zarqa markings?
- Which activities did they reflect?
- What was the scale of the Amman-Zarqa pottery production?
- Did the marking practice represent a loan from external, more sophisticated information technologies as suggested by S. W. Helms?

1.4 Methodology

The corpus of potters’ marks has been collected from various published and unpublished archaeological works regarding materials excavated in the Amman-Zarqa region as well as elsewhere in Transjordan. Additional information on the Khirbat Iskandar examples, in the form of raw data from the 1984 and 1987 field seasons was provided by Dr. S. Richard, Gannon University, Pennsylvania.

A portion of the published Amman-Zarqa pottery (including 25 marked vessels) in storage at the Jordan Archaeological Museum and at the Department of Antiquities’ storeroom in Tabarbor, Amman, was furthermore examined by the present writer on August 4-5 2008 for supplementary notes on the marks and host vessel features. Vessel capacities were subsequently calculated in AutoCAD using published profile drawings of the pottery. In the few cases where profile drawings were lacking, published photographs and measurements were used instead if adequate for this purpose. Data regarding mark types, ceramic attributes, types of contexts and site location were entered in a small database, which has formed the backbone for the comparisons of isolated features. The observations made for the Amman-Zarqa markings were then held against mark functions suggested for other archaeological assemblages from the Levant in order to see if an explanation for their use could be reached this way.

Potters’ marks are generally thought of as part of a system that has a semiotic meaning, in other words as language quality symbols of something. However, the perception of symbols varies according to the situation they occur in and the eye of the beholder. A mark may in other words not have
been conceived the same way by the user of the host vessel as it was by its maker. Once removed from a local sphere of use, it is furthermore possible that the potters’ marks no longer carried a meaning at all, besides being aesthetically pleasing and somewhat enigmatic. As it is extremely difficult to track the cognitive underpinnings of symbols based on the archaeological record alone - and this study has no intention of entering the long and winding road of semiotics – a primarily contextual approach has been pursued here. It is through examining the marks themselves, and the ceramic as well as depositional relationships they appear in, that the underlying principles of marking practices may be discerned. The question is whether the number of contexts included in the present study is adequate for such ends and if the patterns they form can be readily translated into situations informative of potters’ marks.

1.5 Chronology

The Early Bronze IV corresponds approximately to Dynasty VI of the Old Kingdom/First Intermediate Period in Egypt, and the Old Akkadian/Ur III periods in Mesopotamia (Table 1).


<table>
<thead>
<tr>
<th>Approx. BC</th>
<th>Southern Levant</th>
<th>Egypt</th>
<th>Western Syria</th>
<th>Mesopotamia</th>
</tr>
</thead>
<tbody>
<tr>
<td>3500-3050</td>
<td>EB I</td>
<td>Predynastic</td>
<td>Amuq F</td>
<td>Middle/Late Uruk</td>
</tr>
<tr>
<td>3050-2700</td>
<td>EB II</td>
<td>1-2 Dynasties</td>
<td>Amuq G</td>
<td>Jamdat Nasr/ED I</td>
</tr>
<tr>
<td>2700-2350/2300</td>
<td>EB III</td>
<td>Old kingdom</td>
<td>Hama K 5-1/ Mardikh IIA</td>
<td>ED II-III</td>
</tr>
<tr>
<td>2350/2300-2000</td>
<td>EB IVA-B</td>
<td>Old kingdom /1. Intermediate</td>
<td>Hama J8-1/ Mardikh IIB1-2</td>
<td>Old Akkadian/Ur III</td>
</tr>
<tr>
<td>2000-1750</td>
<td>MB IIA</td>
<td>Middle kingdom</td>
<td>Hama H/ Mardikh IIIA</td>
<td>Isin-Larsa/Old Bab.</td>
</tr>
<tr>
<td>1750-1550</td>
<td>MB IIB/IIC</td>
<td>2. Intermediate</td>
<td>Hama H/ Mardikh IIIB</td>
<td>Old/Middle Bab.</td>
</tr>
</tbody>
</table>

A commonly accepted date for the EB IV is 2350/2300 to 2000 BC, but discussions over its internal division (if it is bipartite or tripartite) have been ongoing since W. Dever (1973; 1980) suggested the latter in his revisions of the EB IV (see also Palumbo 2001: 238-240). Most of Dever’s material, however, came from tomb deposits and not from stratified occupation.
sequences which were few in 1980. Over the past 25 years, longer stratified sequences have been obtained from several sites in Transjordan such as Tall Umm Hammad (Helms 1986: 43; 1989: 32), Khirbat Iskandar (Richard and Long 2005: 273ff.), Tall Iktanu (Prag 1986), and Khirbat al-Batrawy (Nigro 2006) which all point to the existence of two main phases in the EB IV. The sequences from these sites support earlier notions made for the EB IV levels at Adir (Cleveland 1960) and ‘Ara’ir (Olávarri 1969). Thus, in the present study a bipartite division of the period into EB IVA (early) and EB IVB (late) is favoured. In the site descriptions in chapter 2, names and numbers assigned by the excavators have been maintained. Their correspondence to either EB IVA or B is recorded in the catalogue of mark types (see the appendix).

1.6 Terminology

The term Early Bronze IV was coined by G. E. Wright in his 1937 landmark study of Southern Levantine ceramics from the Early Bronze Age (Wright 1937: 3, 56ff.). It is, however, but one of several labels used for the period, and alternative names such as Middle Bronze I (Albright 1932); Early Bronze IV/Middle Bronze I (Dever 1973); Intermediate Early Bronze-Middle Bronze (Kenyon 1951:106; 1956: 41-42) and Intermediary Bronze Age (Lapp 1966) are equally represented in the scholarly literature. The various terms originally reflected different opinions as to whether the material culture of the period represented continuity with the Early Bronze Age or a complete break (see e.g. Richard 1980; Palumbo 1990 for summaries of the debate). Lately the conceptual boundaries of the intermediate terminologies has shifted, now emphasizing continuity with the Early and Middle Bronze Ages as well as the opposite (e.g. Prag 2009; Mazar 2006: 105, and note 2) which has only added to the confusion. As the EB IV term is favoured among most archaeologists working in Transjordan today, and since the present writer agrees with the view that the strongest affinities of the period lie within the Early Bronze Age cultural complex, this is the nomenclature used in the present study.

A potter’s mark refer to any pre-firing mark made by the potter (hence the name), but is neutral in terms of function. Marks for which particular functional aspects are assumed are here described by other names in order to avoid excessive confusion. Marks stating the identity of the manufacturer/workshop in relation to trade activities are called trademarks, while marks related to the organization of manufacture are referred to as production marks. Post-firing marks are not considered at all as they are absent from excavated EB IV contexts. Sherds with post-firing marks are sometimes found among the pottery from other periods (Amiran et al. 1978: 49; Genz 2001; 2002: 109ff.; London 1991: 398ff.) but they have seldom
been subjects of analysis, perhaps due to their small number and the difficulty in assessing whether they were applied while the vessels were actually in use or at some later point.

*Ceramic families* apply to the different regional pottery styles found in Palestine and Transjordan in the EB IV.

The *Amman-Zarqa region* is here used for the area stretching from the Zarqa River north of Amman to the town of Al ‘Al on the Madaba Plain. To the east and west the region is delineated by the edges of the Transjordan plateau. The *Southern Levant* encompasses Palestine (Israel and the Palestinian territories) situated west of the Jordan River, and Transjordan (the Hashemite kingdom of Jordan) situated east of it. Whenever the *Levant* is referred to it includes these areas together with Lebanon and Syria. *The Near East* covers a larger geographical area, and includes besides the Levant also Turkey, Iraq, Iran, and the Arabian Peninsula.

### 1.7 Source criticism and key problems

Several problems have been encountered with the Amman-Zarqa materials. First, the number of potters’ marks is extremely low; only 45 examples have been found in the current survey of the literature.\(^2\) Furthermore, the published pottery descriptions do not always include drawings or photographs ideal for the study of potters’ marks, and at times other relevant information regarding the host vessel or its context is left out. Fortunately, a good deal of the marked pottery was available for study at the Jordan Archaeological Museum and the storeroom of the Department of Antiquities in Tabarbor, Amman. Without this opportunity, more potters’ marks would have had to be excluded from the study than has been the case and important information would have been missed. The potters’ marks which had to be left out include one example from an isolated tomb excavated at Tla’ al-‘Ali in 1984 (Suleiman 1985: pl. 30:2) as the finds could not be located in 2008. Since no illustration of the mark has ever been published nothing further could be done with it.\(^3\) Another potter’s mark from the tomb at Abu

\(^2\) Of these 45 marks, 42 have been included in the present study while three were left out (see the main text). In addition, two potters’ marks from Tall al-‘Umayri (London 1991: 388 and fig. 21:14-15) were disregarded despite London’s suggestions of an EB IV date. One of the marks (fig. 21:14) is clearly from a sealed EB III context as the bin 5K96:26 it was found in, was later covered by the EB III surface 5K96:10 (Daviau 1991: 105ff.; Cash and Trenchard 1991: 508). The other mark (fig. 21:15) is also from an EB III context; a layer of mudbricker debris 5K97:6 with little further information (Daviau 1991: 147; Cash and Trenchard 1991: 511). Typologically, the ledge handles carrying the marks could easily predate the EB IV, and the mark types themselves are also more in line with the EB III period than with the EB IV.

\(^3\) The potter’s mark is described as herring bone incisions, but the exact appearance of the mark is unknown as it is not shown on the photograph of the jug. Other marks of similar design are treated in chapters 3 and 4.
Ridin/Na’ur (Abu Shmais and al-Al-Nabulsi 2004: field no. 2) had to be omitted for similar reasons. The marks from the cemetery at al-Bassah came to the present writer’s attention too late to be added to her application for the Department of Antiquities, and while two marks could be included in the study due to adequate published illustrations, a third could not (Waheeb and Palumbo 1994: fig. 2:1). A few more unpublished Family AZ vessels with potters’ marks were also seen at Tabarbor, but as these had been confiscated from illicit digging they were not available for study (pers. comm. A. Al-Shami, Department of Antiquities, Jordan).

Second, the archaeological situation in the Amman-Zarqa region during EB IV prevents much insight to the dynamics of pottery manufacture. The Family AZ pottery is mainly known from relatively small assemblages recovered from isolated tombs, cemeteries and from surface surveys. Small scale excavations have been conducted on a few settlements along the River Zarqa and further south (Nigro 2007; 2009; Palumbo et al. 1996; Harrison 1995: 101ff.), but so far the amount of pottery published from these contexts has been rather limited as well. No installations, such as kilns4 or other tangible evidence of potting activity areas have hitherto been encountered in the Amman-Zarqa region. This circumstance, together with the small amount of pottery recovered and the contexts involved, makes it difficult to examine aspects of manufacture from other angles than the pottery itself and its distribution.

Third, there is the actual state of the material. The preservation of marks and host vessels varies. In some cases only handles or parts of handles are found; in others the entire vessel is present. Very incomplete potters’ marks cannot be placed with certainty within the typological framework and have limited comparative value, while handles and body fragments are mute about additional host vessel features.

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4 Kilns are seldom found in excavations, despite the overwhelming amounts of sherds attesting to their existence. The only EB IV kilns known to the present writer from Transjordan are the four kilns uncovered in an industrial quarter at Tall Iktanu (Prag 1988).
2. Background

2.1 The EB IV in Transjordan

Around 2350/2300 BC, the first urban-like societies of the Southern Levant came to an end after a period of almost 800 years during which large walled settlements arose, flourished and declined. In the archaeological record a dramatic change can be observed from a nucleated to a dispersed settlement pattern involving the establishment of many new villages and hamlets in the countryside and even in the marginal zones where considerably narrower ranges of resources were available. Several of the large, important EB III sites were abandoned completely, while others such Tall al-Handaquq South (Chesson 1998) and Khirbat az-Zaraqun (Palumbo 2001: 241; Richard et al. 2010: 107) continued well into the EB IV, although as modest representations of their former selves. In Central Transjordan urban traditions only seem to have prevailed at Khirbat Iskandar (e.g. Richard and Boraas 1988; Richard et al. 2010: 1-2), and in the Amman-Zarqa region, the large fortified EB III town of Khirbat al-Batrawy at the River Zarqa gave way to a walled village during the EB IV after a short period of abandonment (Nigro 2007; 2009). Other walled villages were established at Jabal ar-Rahil (Palumbo et al. 1996) and at ar-Ruseifah (Albright 1934: 15; Glueck 1939: 205-206; Palumbo 1990: 57ff.), both within 10 km of Khirbat al-Batrawy. Elsewhere along the River Zarqa, numerous EB IV sherd scatters suggest the presence of small open villages or hamlets in this northern most part of the region (Palumbo 1990: maps 17-18). No obvious settlements have been exposed in the area of modern Amman itself, but unstratified sherds from the Amman Citadel suggest that such occupation once existed here (Dornemann 1983: 13). Except from the Amman Citadel finds, isolated tombs and cemeteries completely dominate the archaeological record in this area (Palumbo 1990: 59-60; See also ch. 2 for references).

5 The urban horizon of the EB II/III is punctuated by different phases of growth and decline. In Transjordan, large, important sites such as Tall Tall Abu-Kharaz, Tall as-Sa’idiyyah and Tall al-Handaquq North dwindled or ceased to exist already by the end of the EB II (Fisher 1994; Mabry et al. 1996: 122), while other sites like Bāb adh-Dhrā’ and Khirbat az-Zaraqun reached their absolute zenith during the EB III (Rast and Schaub 2003; Genz 2002: op. cit.; see also Philip 2001: 183).

6 The spread of the modern capital makes it difficult to understand whether the tombs were associated with any settlements. Palumbo has cautioned that this dearth of settlements may be deceptive; building activities involving heavy bulldozing can easily remove any trace of a
Further south, EB IV presence is mainly defined by single standing structures besides tombs (Harrison 1995: 204ff., 1997: 17), and at Tall al-ʿUmayri, occupation changed from large village to a smaller, and perhaps more transient community (Harrison 1995: 127). According to the current picture of the EB IV sites and their distribution, sedentary farming communities in the Amman-Zarqa region cluster along the River Zarqa, while in the areas where water supply was sparse (primarily in the central and southern parts of the region), a more pronounced mobile pastoral segment is indicated by the presence of few, consistently small and isolated settlements in the landscape, as well as a proliferation of single standing structures and burial grounds.

The change in settlement patterns was accompanied by a change of economic regimes as well. The large-scale production of copper, agricultural goods, and ceramics for local as well as international markets observed in the EB II/III (Tubb and Dorrell 1993, 1994; Hauptman et al. 1999; Philip 2001: 186ff.) did not continue into the EB IV. Instead, the period is characterised by a primarily domestic mode of production involving an often wide range of subsistence strategies including small-scale mixed farming and animal herding (Palumbo 1990: 23ff.; Falconer and Magness-Gardiner 1984; Falconer et al. 2007: 266-267; Harrison 1996: 169ff.). The manufacture of metal items, ceramics, and flint tools continued to be specialized activities (Falconer 1987b; Goren 1996; Adams 2000), with larger villages and small towns acting as possible regional hubs for trade and exchange between communities (Palumbo 1990: 132). The uniform ceramic horizon which characterized the EB II/III was replaced by emerging pronounced regional ceramic styles in the EB IV, although many former vessel types continued to be present (Richard 1980: 13ff.). Changes also occurred in mortuary practices, as the EB IV saw the reintroduction of single settlement, especially in the case of small one-period sites where occupation layers are often shallow.

Copper production continued in the Wādi Faynan with a trade pattern similar to that of previous periods, judging by the discovery of Transjordan pottery on several EB IV sites in the Negev (Goren 1996). An important technological advancement in the EB IV which clearly points to the presence of craft specialisation is the introduction of tin bronze technology, up to this point absent in the Southern Levant (Stech et al. 1985; Richard 2006). Pottery making probably involved part-time specialists, who engaged in other activities outside the potting season.

The fortified town of Khirbat Iskander in northern central Transjordan is a likely candidate for a regional centre (Richard et al. 2010: 277). The settlement is located near the ancient (and present) main north-south trade route in Transjordan, and contacts with the Dead Sea Plain, the Jordan Valley, the Amman-Zarqa region as well as northern Palestine (the Beth Shean area) are evident from the ceramics found at the site (Richard 2000; Goren 2010). A possible regional centre in the Amman-Zarqa region could be Jabal ar-Rahil and perhaps ar-Ruseifah, but more excavation is needed before any conclusions as to the nature of these settlements can be drawn.
interments in rock-cut shaft tombs\textsuperscript{9} and a noticeable spread of formal burial grounds. Some of these were clearly associated with nearby settlements, while others appear to be isolated in the landscape (Palumbo 2001: 246-247; Chesson and Schaub 2007: 258). Multiple burials were still somewhat common, but involved a limited number of interments (up to seven individuals) in contrast to the collective burials of previous periods which often contained several dozens of bodies. Secondary disarticulated burials continued to be the norm, with primary burials being less frequently attested. The most common grave goods were ceramics, but stone beads and objects of copper/bronze have also been found. Objects of noble metals as silver and gold are seldom attested (Palumbo 1990: 120-126; Waheeb and Palumbo 1993: 153).

No real consensus has yet been reached for the EB IV in terms of social and historical picture, although several models have been presented over the past decades from pastoral-nomadism (Dever 1980) to more rural paradigms (e.g. Falconer 1987a; Finkelstein 1989: 135-137; Palumbo 1990: 130-131). In broad strokes can be said that the period represents a rural episode with sedentary as well as more mobile population segments. Mixed subsistence strategies of agriculture, animal herding and exchange/trade of certain commodities formed the economic basis of these societies, but the emphasis on the different components and their integration varied significantly from one region to another. With its dispersed settlement pattern, regionalized pottery styles and reintroduction of earlier tomb types (shaft tombs), the EB IV resembles the EB I at the very beginning of the Bronze Age. The pronounced ruralisation of both periods can be seen as adaptive responses to the socio-economic disintegration of the societies that preceded them, initiating a process of gradual recovery which eventually led to socio-economic reintegration and the first urban-like entities in the EB II/III, and later again, the massive cities of the MB IIB/C (Falconer 1987a: 315ff.; 1994: 319-320).

At the turn of the second millennium BC, the material culture characteristic of the EB IV phased out. Settlements such as Abu en-Ni‘aj, Bāb adh-Dhrâ’, and Khirbat Iskandar were abandoned never to be occupied to a great extent again (Falconer \textit{op. cit.}; Rast and Schaub 2003; Richard and Boraas 1984), while a few sites like Tall al-Hayyât in the Jordan Valley demonstrate a smooth transition in to the MB IIA (Falconer 1987b).\textsuperscript{10} In the

\textsuperscript{9} Shaft tombs were also common in the EB I. Other tomb types in Transjordan during the EB IV include cisterns, cairns, and possible reuse of EB I dolmens (Dabrowski \textit{et al.} 1996; Prag 1995; Palumbo 2001: 247).

\textsuperscript{10} About 19\% of the EB IV settlements in Northern Transjordan and the Jordan Valley continued into the MB IIA. The percentage is based on 233 sites (Palumbo 1990, fig. 14). Samples from other regions are considerably smaller, and here the Middle Bronze Age materials have not been broken down into distinct phases. In North Central Transjordan 20\% of the 10 EB IV sites registered were occupied sometime during the Middle Bronze Age; in
Amman-Zarqa region, most of the settlements mentioned earlier were abandoned for good (Nigro 2007: 347, table 1; Harrison 1997: 27ff.; Palumbo et al. 1996: 423). MB IIA pottery sherds were noted by Gluck at the surface of ar-Ruseifah (Glueck 1939: 206), but no structures or other remains from this period were recognized, and today the site is practically destroyed. A few MB IIA sherds were found at the Amman Citadel, but the majority of the Middle Bronze assemblage from this site stem from the MB IIB/C where a fortified settlement with a glacis appear to have been constructed at the site (Dornemann 1983: 15-19). Further south, and after a hiatus of several centuries, the site of Tall al-‘Umayri (Herr and Clark 2007: 123) was resettled again when a large fortified settlement was established during the MB IIC.

2.2 Ceramic ‘families’ and pottery exchange

The EB IV ceramic horizon of Transjordan and Palestine is currently divided into eight regional groups or so-called families according to their stylistic features and main geographical areas of distribution (Amiran 1960; Dever 1971; 1973; 1980; Palumbo and Peterman 1993). Of these, four are present in Transjordan (Fig. 2): Family NC in the northern Jordan Valley and extending across the plateau to south-east of Irbid;\(^{11}\) Family J in the central and southern Jordan Valley;\(^{12}\) Family TR on the plateau in central and Southern Transjordan; and Family AZ in the Amman-Zarqa region. An additional ceramic family for the Northern Transjordan plateau has been suggested by Kamlah (2001).

Initially, when the EB IV pottery corpus was defined primarily by tomb deposits, the traits of the individual families were thought to reflect spatial as well as temporal differences (Dever 1973; 1980). The latter view was later revised as hallmark types of different ceramic families appeared intermingled in stratified occupation sequences from Transjordan sites (Falconer and Magness-Gardiner 1984; Helms 1986, 1989; Richard and Boraas 1988; Richard 2000). Although the families are now considered as largely contemporaneous, the individual regional styles and their geographical boundaries remain intact (Richard 2000: 413; Palumbo 2001: 251).

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South Central Transjordan the percentage was 53.5% of a total of 45 sampled sites (Palumbo 1990, fig. 13).

\(^{11}\) Family NC (North-Central) is not restricted to Transjordan, but is also found in northern Palestine; in the Jezreel Valley, the Beth Shan area and in lower Galilee (Dever 1980: 46ff.).

\(^{12}\) Like Family NC, the Family J (Jericho/Jordan Valley) also extends beyond Transjordan. In Palestine it is present in an area south of Beth Shan, along the Jordan River to the Dead Sea, and in the Central Hills (Dever 1980: *op. cit.*).
Until 1987 it was thought that the EB IV ceramic production was largely autonomous, with potters on individual sites producing all the vessels needed locally. However, Neutron Activation Analysis of a small sample of sherds from surface collections and controlled excavations of a cluster of EB IV settlements in the Jordan Valley came up with surprising results regarding Family NC pottery production and distribution (Falconer 1987a: 223-313;
While certain pottery types were produced basically on every site, the characteristic and widely distributed “trickle-painted“ fine ware - a hallmark of the NC horizon - were manufactured on one site only, the large village of Tall Abu en-Ni’aj. Another site, Tall al-Hayyât, received moreover most of its pottery from various different sources, except from cooking pots which were locally produced. The patterns of pottery exchange (Fig. 3) suggest some economic integration of rural communities in the Jordan Valley, with smaller settlements like Tall al-Hayyât being dependent on larger villages for the exchange and trade of certain goods (Falconer 1987b: 256-258).

According to Palumbo (1990: 82), the analyses conducted by Falconer and others call for a modification of EB IV ceramic regionalism as reflecting mainly cultural exchange between neighbouring communities, as the ceramic style of a particular region may be due to economic exchange as well. The presence of identical vessel forms and decorative repertoires on a number of sites could consequently result from one or few manufacturing centres ‘exporting’ their pottery to a number of other sites, supplementing the repertoire of locally produced wares. If Palumbo’s notions are correct, then patterns of exchange similar to those demonstrated by Falconer for the central Jordan Valley, may be found in other regions as well. Whether this is the case remains to be seen, just as it remains to be demonstrated if the hallmark pottery types of other ceramic families can be assigned to the production regimes of only a few sites.

The settlements were Khirbat al-Hammeh; Tall al-Hayyat; Tall Abu an-Ni’aj; Dhahrat Umm al-Marat; and Tall Umm Hammad.

In Palestine, another possible source of “trickle-painted” fine wares could be Tall ‘Artal located near Tall Abu en-Ni’aj but west of the Jordan River (Falconer 1987a: 310, citing Hess 1984).
2.3 Family AZ pottery

The Family AZ pottery was made by compound forming methods as was indeed the majority of EB IV pottery. Bases and bodies were made by hand – the latter most likely by coiling - while necks and rims were made separately on a slow-turning support, and added subsequently. The line along which the neck was attached is often still visible on the interior of the vessel. Traces of the join on the exterior were hid by smoothing or decoration. The wares can be divided into three categories: Grey/pale brown very high fired, cream/brown medium/high fired, and red low/medium fired (Palumbo and Peterman 1993: 27; Palumbo et al. 1996: 400). The second category is atypical for the Amman-Zarqa region, and is so far only attested from Jabal ar-Rahil (Palumbo et al. 1996: op. cit.). All three wares have mainly inorganic temper (e.g. basalt, chert, limestone, quartz, calcite, and crushed sherds = grog) with a high density of inclusions.

Surface treatment after the initial forming usually only includes smoothing/wiping of the exterior and interior. Slipping is rare (although self-slip cannot always be excluded), and the cream slip found on some of the red and brown wares from Jabal ar-Rahil is so far unique for this site (Palumbo et al. 1996: 410-411). The red-slighted jug from Site 73 (Younker et al. 1993: pl. 5a) is also an oddity and may reflect southern influences where red slipped wares are more common (Richard 2000: 410; Prag: 1974: 78-79). Decoration includes horizontal bands of single and multiple straight or wavy incisions on the shoulders of jugs and jars. Punctated or slashed bands, and applied “coin roll” thumb-impressed bands are frequently found at the neck/shoulder junction, masking the join of the two vessel parts.\textsuperscript{15} Similar decoration is often seen below the rim on hole-mouth jars. Painting is extremely uncommon, only two examples are known to the present writer: a storage jar from al-Musheirfah (Ibrahim and Qadi 1993, fig. 6:3), and a jug from Umm al-Bighal (Helms 1989, fig. 6:4). Pattern combing is equally rare, attested once at Umm al-Bighal (Helms and McCreery 1988: fig. 20:2) and near Khirbat al-Batravy (Prag 1995: fig. 3:1).

The two standard vessel types of the Family AZ repertoire are jugs and hybrid jug/storage jars (hereafter hybrids).\textsuperscript{16} Jugs have globular, occasionally squat, bodies with flat bases (Fig. 4). The necks are narrow and tall, cylindrical concave or less often straight. Rim forms are flaring plain, pinched or recessed. A single flat strap handle runs from below the rim to the

\textsuperscript{15} Palumbo and Peterman (1993: 29) consider “coin roll” bands to be a decorative feature absent on storage jars in the Family AZ, however this is not the case; see Helms (1989: fig. 5: 7, 10), and Zayadine (1978: fig. 3: 1).

\textsuperscript{16} The term “hybrid jug/storage jar” is borrowed from Richard (2000) and hints at the vessels’ unusual combination of two envelope ledge handles and a flat strap handle. The former are often seen on storage jars, while the latter is typical of jugs. The hybrid jug/storage jar is unique for the Family AZ assemblage.
shoulder (Helms and McCreery 1988: figs. 8-12; Dajani 1967/68: pl. 40, figs. 2:1, 4; Hadidi 1982: pl. 79:1; Zayadine 1978: figs. 3:2, 3; Suleiman 1985: pl. 30:2; Ibrahim and Qadi 1995: fig. 7:4-5; Abu Shmais and Al-Nabulsi 2004: fig. 6; Waheeb and Palumbo 1993: fig. 5: 7-8; 1994: fig. 2: 1, 8-10; Younker et al. 1993: pl. 5a).

Fig. 4. Common Family AZ vessel types. From left: four-spouted lamp, amphoriskos, jug, hybrid, storage jar, and hole-mouth jar. After Helms (1989: figs. 3:2-3 5:5, 10; 6:2) and Ibrahim and Qadi (1995: fig. 7:2).

Hybrids have globular, at times high-shouldered ovoid, bodies, flat bases, and two horizontal, so-called folded “envelope” ledge handles with pinched lapped, spaced, or overlapping flaps placed mid-body on either side. Necks are narrow, tall and most often cylindrical concave. Rim forms include flaring plain, pinched or folded rims. Like the jugs, hybrids also have a single flat strap handle from below the rim to the shoulder. The handle is placed at a 90 degree axis from the ledge handles on the body (Helms and McCreery 1988: figs. 13-16; Dajani 1967/68: pl. 40: figs. 1-2; Hadidi 1982: pls. 79:3, 80:5; Ibrahim and Qadi 1995: fig. 6:1-2; Waheeb and Palumbo 1993: figs. 3, 4:4-5, 5:9; Palumbo and Peterman 1993: fig. 3; Richard 2000: fig. 3:8; Prag 1971: 26:10). The jugs as well as the hybrids sometimes carry potters’ marks.

Another vessel type often attested is the globular storage jar with flat base, and short, often straight neck. Rim forms are flared plain, pinched, or recessed, and like the hybrid, the storage jar has two horizontal folded “envelope” ledge handles placed mid-body with a similar range of flaps (Helms and McCreery 1988: figs. 17-20; Dajani 1967/68: pl. 40; Hadidi 1982: pls. 79:2, 80:4; Zayadine 1978: fig. 3:1; Suleiman 1985: pl. 30:3; Ibrahim and Qadi 1995: figs. 6:3, 7:1,3; Waheeb and Palumbo 1993: fig. 4:6; Prag 1995: fig. 3:1). The flat- or round-based four-spouted lamp found throughout Transjordan and Palestine during the EB IV is also frequent in the Family AZ assemblage (Helms and McCreery 1988: figs. 6, 7:1-7; Hadidi 1982: pl. 79:6-7; Zayadine 1978: fig. 4:8-10; Ibrahim and Qadi 1995:
fig. 9; Abu Shmais and Al-Nabulsi 2004: fig. 7; Waheeb and Palumbo 1993: fig. 6).


The strongest parallels to the Family AZ assemblage is found in Family J which has closely related jug and jar forms and a similar repertoire of decorations (Palumbo and Peterman 1993: 30; see also Kenyon 1965: figs. 28:11; 53:9; 63:5; 67:4-5; Prag 1990: fig. 6: 1; 1974: fig. 6: 5-6; fig. 8:5, 7; Helms 1986: fig. 19: 6-7, 9). The absence of spouted vessels within the assemblage is noticeable (Palumbo and Peterman 1993: 29), especially since such vessels are very common in other regional repertoires.

2.4 Proposed functions and previous studies

Potters’ marks are frequently mentioned in publications and interim reports from Early Bronze Age sites in the Levant, but until recently analysis concerned primarily stylistic traits and their cross-referencing. Despite this, there has not been a lack of suggestions when it comes to the reasons for mark application – although not always tested against the actual material discussed including the use of trademarks (Petrie 1891: 42; Amiran et al. 1978: 49; London 1991), marks as means of monitoring ceramic output (Nodet 1988), indications of vessel capacity (Helms 1987), numerical notation (Guy and Engberg 1938: 12; Fargo 1979), early script (Bliss 1898:42; Bliss and Macalister 1902: 82f.), ownership (Oates 1982: 207), vessel contents (Genz 2001; 2002: 116-117), and origin of contents (Mazzoni 1988: 90ff.).

In a paper dealing with possible devices for economic control, S. W. Helms (1987) examined 14 potters’ marks from the EB IV cemetery of Umm al-Bighal near Amman. When correlating mark designs and vessel capacities, he found that certain designs clustered around vessels of the same volume. Several small jugs were marked with diagonal crosses while the only hybrids in the sample both carried three vertical lines. Two jugs with volumes falling in between these clusters were marked with combinations of diagonal crosses and three vertical lines (1987: 45ff., fig. 7). Based on his volumetric analysis, Helms argued for the presence of a measuring system at
Umm al-Bighal, with marks indicating the capacity of individual vessels. Vessels with stylistically different potters’ marks were considered as reflecting another parallel measuring system, although such vessels were at times found in the same tombs as his key examples and had similar volumetric properties. Helms did not address the issue of parallel measuring systems further, nor did he discuss the socio-economic environment in which they could have operated. In search of the origins for the potters’ marks, Helms considered it possible that ideas regarding numeration had diffused from Syria where sophisticated recording techniques were clearly in use (1987: 48).

G. London (1991) brought up Helms’ study of the Umm al-Bighal marks in her treatment of 24 EB III potters’ marks from Tall al-‘Umayri, and pointed out that in a measuring system all vessels of the same size would have identical marks, which is not the case at Umm al-Bighal. Moreover, anyone familiar with the current shapes and sizes would be able to estimate vessel capacity fairly well from the vessel itself, without the aid of a mark. For the Umm al-Bighal assemblage, London instead saw a connection between marks and vessel decoration, arguing that “each potter had a particular combination of shoulder [decoration] and handle marks” (London 1991: 393). For the Tall al-‘Umayri materials, London worked along the same line of thought, but the fragmentary state of the material prevented her from analyzing how different vessel features (incl. mark designs) related to each other (London 1991: 391).

R. Kolinski (1993/94) examined 57 Early Dynastic potters’ marks from Tall Djassa al-Gharbi and Tall Abu Hafur in Syria, and was able to eliminate several of the suggestions mentioned in the beginning of this section. Since marks were often placed at the bottom of the vessels, they were hardly used as labels of any kind (e.g. in relation to vessel contents), nor were they indicating vessel capacity as identical mark designs were found on pots of different dimensions. Numerical notation was also eliminated as there was no evidence of the merging or repetition of signs in order to indicate different units. If marks were indicating ownership the customer would have had to place an order with the potter in advance which is theoretically possible. However, since none of the excavated living loci contained clusters of identical marks this was hardly the case (1993/94:13). The marks were thus most likely related to the activities of the potter, either in the sense of trademarks or tied to the manufacture process in some way, i.e. as

17 Helms thought specifically about Ebla, an important mid-third millennium city-state in Syria. Large archives of cuneiform texts were found in palace G, including recordings of economic transactions (Matthiae 1980; Akkermans and Schwartz 2003: 235-244). The potters’ marks from palace G has been studied by Mazzoni (1988), who interpreted the marks applied on closed vessel forms as indicating vessel contents or the origins of these contents. The marks applied to open vessel forms were thought to represent trademarks (Mazzoni 1988: 88ff.).
production marks. As Kolinski pointed out, the main problem with the theory of trademarks is that the number of active potters assumed for a site rarely matches the many different mark designs found (1993/94: 15). Possible explanations could be that some of the marked pottery was imported or that it was produced at the site by itinerant potters. If tied to the manufacture process rather than the identity of the potter, the marks could have indicated the last vessel of a day’s batch for example, in order to keep track of the drying stages for batches created over several days.


A total of 117 EB I potters’ marks from tomb deposits at Bāb adh-Dhrā’ in Transjordan were examined in a paper by N. Lapp (1995), and mainly discussed in terms of design, chronological horizon and extra-site parallels (Fig. 5). Although she summarized previously suggested mark functions, these were considered little relevant for the Bāb adh-Dhrā’ marks which were instead interpreted as mainly decorative elements. Lapp noted that within the individual tombs there seemed to be preference for a certain design, perhaps reflecting the conventions of a family or clan (1995: 566). Another 30 potters’ marks from the EB II/III town sites of Bāb adh-Dhrā and nearby Nymayra were also discussed (1995: op. cit.), but remained inconclusive due to the limited sample.

Last but not least, H. Genz (2002) examined 266 complete potters’ marks from Khirbat az-Zaraqun in northern Transjordan in his PhD thesis on the Early Bronze Age pottery from the site (2002: 109-117; see also Genz 2001). All the potters’ marks came from the last urban phase at the site, i.e. the EB III period, and were applied to various vessel forms. Like Kolinski (1993/94), he found no evidence in support of the marks as owners’ marks or as signifying vessel capacity. The 57 different mark designs attested were

18 The total assemblage of EB III potters’ marks when fragments were included amounted to a staggering 545.

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Furthermore far too many to represent individual makers, even when a certain influx of imports and itinerant potters was allowed for (Genz 2002: 115-116). For some reason Genz did not discuss the marks in relation to other aspects of manufacture; instead he concluded that the identification of vessel contents was the most likely explanation since all easily visible marks were applied to closed vessel forms where contents would be hard to determine from the outside. The designs did not hold a fixed meaning, but was assigned one ad hoc within the household when needed (2002: 116-117). Although Genz’ suggestions may be valid for closed forms with visible markings (the majority of the total assemblage), they do not explain why open forms were occasionally marked, nor do they apply well to the closed forms that had marks on the bases.

2.5 Ethno-archaeological evidence of potters’ marks

When ethno-archaeological studies of contemporary traditional potters contain information about marking practices, potters’ marks are typically related to situations of manufacture and marketing, with the purpose of distinguishing the output of one economic unit (household/workshop) from that of another. The marks never indicate vessel capacity, content, or ownership (Lindblom 2001: 19). Although all activities of the past are not necessarily repeated in the ethno-archaeological present (Arnold 1998: 28), the latter can nonetheless provide interpretive insights to aspects of ceramic production not readily extractable from the material record itself.

In a study of ceramic technology at Tall al-‘Umayri, London (1991) discussed the use of potters’ marks among former and current village potters in Cyprus, when commenting on the marking practices observed at ‘Umayri. At Agios Dimitrios, a village in the Troodos Mountains, the potters marked their products until a few decades ago. This was mainly done when sales were made outside the local community (so that consumers could identify the potter’s work from year to year), or when several potters fired their wares together by the end of the season in order to maintain kiln efficiency and save fuel (1991: 392). In Kaminaria, a village not far from Agios Dimitrios, the marking of vessels were not restricted to the above mentioned situations, and happened more often. The village used to house 20 different potters, but at the time of London’s visit in 1986 there was only one active potter left. She nonetheless continued to mark all her wares as she had always done, although there was no longer any need for it (1991: 391).

Marking practices among potters in central Peru were studied by C. Donnan (1971) as a modern analogy to potters’ marks attested on the pottery of the ancient Moche culture, ca 100-800 A.D. (Fig. 6). In Taricá, pottery was manufactured by several families, with each family acting as an individual economic unit. When production was carried out by family
members only, vessels were never marked. However, when a non-family member joined the work group, one or both parties would mark their pots with a so-called *signál* in order to distinguish between the individual outputs until the wares were sold. The same practice was observed when potters from different families fired their pots together, or shared the same work space and storage facilities (1971: 465). A *signál* had no particular meaning to the individual potter and its design could be changed whenever needed. The markings were neither intended for consumers’ identification of the manufacturer, nor did it state anything about the quality of the vessel. The function of *signáles* was solely to avoid confusion between assemblages of different potters prior to their retailing (1971: 465). There was no difference in marking practice between stationary potters producing for a market centre or itinerant potters making vessels for individual consumers.

Two different aspects of marking are present in the above mentioned examples; the trademarks are directed at the consumers and states the identity of the manufacturer (and perhaps the quality of the product?) while the production marks are primarily for the potters themselves in situations where more than one economic party is involved, in order to avoid confusion and potential disputes.

![Fig. 6. Left: Marks used by the Akamba in Kenya. After Gill (1981: fig. 23; illustrated in Lindblom 2001: 19, fig. 1). Right: Marks on ancient Moche pottery in Peru. After Donnan (1971: fig. 3).](image)

Similar concerns are found among potters elsewhere in the world where recordings of mark practice have been made (see e.g. Lindblom 2001: 19-20). The Dogon potters in Mali mark their products when they fire their wares together (Bedaux 1986: 126), and in Kenya, the Akamba potters often use trademarks (Lindblom 1920: 135 and 538f.). While working with the family, young potters use their mothers’ marks, but when they marry and thus get a household on their own, they create a new mark (Lindblom 2001: 19, citing Gill 1981: 60). Trademarks were also in use on the Nicobar Islands, and whenever a new mark was created, similarities with already existing designs were carefully avoided (Man 1894: 26).
3. Sites with Family AZ potters’ marks

Several archaeological sites in northern and central Transjordan have yielded marked Family AZ vessels (Fig. 7). In the following chapter each site and find context will be presented. The order of sequence is according to site type rather than chronology of excavation or geographical location, starting with isolated tombs; then cemeteries; and finally settlements. Only vessel types and their quantities will be mentioned in this chapter, as the Family AZ ceramic repertoire has already been described in section 2.3. The abbreviation CN refers to the catalogue number of the potter’s mark in question, while M- followed by a number indicates its type of design (see Fig. 10). Details regarding the individual marked vessels are presented in the catalogue of potters’ marks (Pp. 96-103). Distances from the Amman citadel to the sites mentioned below are as the crow flies.

3.1 Hussein Sports City (Amman)

In 1972 when widening the Amman-Sweileh Road near Hussein Sports City, a bulldozer exposed a bilobate shaft tomb cut into the adjacent limestone rock (Zayadine 1978).19 One of the tomb chambers (tomb 2) had been heavily destroyed by the bulldozer, and had furthermore been robbed in antiquity. EB IV sherds were found scattered inside and outside the tomb. Additional finds from within the chamber comprised a four-spouted lamp, a small copper plaque and fragmentary human bones (ibid: 62).

Tomb 1 had suffered only partial roof collapse from the bulldozing without any substantial damage to the tomb contents. In contrast to tomb 2, the entrance to this tomb still had its blocking stone in situ. The chamber itself was a 3.10 x 2.75 m large, almost square room with a dome-shaped ceiling. Along the southern wall was a low wide bench with two shallow basins cut into the rock. The smaller basin contained the long bones from an adult, a copper or bronze pin, a couple of beads of a greenish paste, and a broken four-spouted lamp. Immediately above the basin was a niche with another four-spouted lamp. The larger basin contained a riveted copper dagger as well as a number of poorly preserved human bones of which only

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19 Two tomb-chambers placed opposite each other, but sharing one and the same vertical shaft.
a skull fragment and a vertebra could be identified. Among the bones were found more rivets and two beads (*ibid*: 59ff.).

In the northern half of the chamber, two groups of pottery vessels had been placed in the north-western corner and in the centre, respectively. A hook tanged javelin of bronze was found in association with the first group of pottery, and around both groups were the scattered bones of one or more adults (*ibid*: 61-62). The group of vessels in the north-western corner comprised a storage jar and a jug, of which the latter (CN 10) had a potter’s mark. The jug contained a few human bones, and the jar held the complete skeleton of a rodent. The centrally placed group of vessels consisted of one storage jar and two jugs; the smallest one (CN 31) carried a potter’s mark. Inside this jug were a few fragments of human and rodent bones (*ibid*: 62).

**Hussein Sports City, Tomb 1**


*Pottery*: 2 storage jars, 3 jugs and 2 four-spouted lamps.

*Potters’ marks*: M-8 on jug (CN 10). M-20 on jug (CN 31).

*Other finds*: 1 pin (copper/bronze); beads of green paste; 2 beads (unknown material); 1 copper dagger; 1 bronze javelin (hook tanged). Human bones found in basins and on the floor (from at least 2-3 individuals).

### 3.2 Jabal at-Taj (Amman)

A few years before the discovery of the Hussein Sports City tomb, another shaft tomb had been uncovered at Jabal at-Taj in downtown Amman, during the construction of a civil defence shelter in 1968 (Dajani 1967/68). When the Department of Antiquities arrived, the shaft had already been demolished and the tomb contents greatly disturbed. As a result, the original positions of the grave goods and the buried individual(s) within the semi-circular 2 x 2 m tomb chamber are unknown. A complete jug and the sherds of four restorable vessels – including one storage jar, two hybrids, and yet another jug – were retrieved from the chamber as the only grave goods from the tomb.

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20 The dagger is Philip’s Type 3 (1989: 104ff.). This type is found in EB IV contexts throughout the southern Levant.

21 The javelin is Philip’s Type 5 (1989: 75ff.). Like the dagger mentioned in note 20, this kind of javelin is also typical for the EB IV.

22 This mark was not described in the published report (Zayadine 1978:66, no. 6). The incised design is extremely faint.

23 The exact number of individuals is uncertain. There is no information about the bones except from their presence.
(ibid: 68ff.). One of the jugs (CN 11) as well as one of the hybrids (CN 20) each had a potter’s mark.

**Jabal at-Taj**


Pottery: 1 storage jar, 2 jugs and 2 hybrid jug/storage jars.

Potters’ marks: M-8 on jug (CN 11). M-12 on hybrid (CN 20).

Other finds: Human bones.

3.3 Jabal al-Jofah (Amman)

Less than 1 km north-west of Jabal at-Taj, a third isolated tomb was discovered on Jabal al-Jofah in 1980 during sewerage construction work (Hadidi 1982). The blocking stone was still in place at the bottom of the shaft which led to the 2.8 x 4.3 m almost rectangular tomb chamber. The ceiling was dome-shaped with traces of chiselling. Inside the chamber, two alcoves were cut further into the rock along the southern and northern wall, creating benches with a height of approx. 65 cm. Both benches were scattered with human remains as well as sherds, and on the northern bench stood a complete hybrid with a potter’s mark (CN 1). On the floor, centrally placed between the two benches and in a 10 cm thick layer of huwwar, several complete and restorable vessels were found: one jug, one hybrid, two storage jars, and two four-spouted lamps with traces of burning (ibid: 283). None of the vessels on the floor had potters’ marks, but it should be noted that the hybrid jug/storage jar had a ‘groove’ centrally on the flat strap handle (ibid: 285, no. 3).24 No other finds have been reported from the tomb.

**Jabal al-Jofah**

Structure/Dimensions/Features/State: Shaft tomb. Size: 2.8 x 4.3 m. 2 alcoves with benches. Context intact.

Pottery: 2 storage jars, 2 hybrids, 1 jug and 2 four-spouted lamps.

Potters’ marks: M-1 on hybrid (CN 1).

Other finds: Human bones found on both benches (at least 2 individuals).

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24 The groove is unfortunately not visible on the published photograph which only shows the strap handle in profile (Hadidi 1982: pl. 79:3). The Jabal al-Jofah pottery has not been available for study, and thus no comparison can be made of the groove described by Hadidi, and the known examples of deep incisions centrally on strap handles (see sections 4.1 and 5.6).
Fig. 7. Map of EB IV sites with Family AZ potters’ marks. The bulls-eye indicates the gravitation point for marks found within the Amman-Zarqa region. Based on Palumbo (1990: maps 21-22; 25-26; 30-31), Dabrowski et al. (1995: fig. 1), and Madaba Plains Project (http://www.casa.arizona.edu/MPP/umsites/picksitemap.html#anchor5728676).
3.4 al-Musheirfah

The cemetery al-Musheirfah is located immediately north-east of Amman, by the Wâdi Sail az-Zarqa (Ibrahim & Qadi 1995). The site was discovered in 1978 when a bulldozer exposed several tombs on the northern and north-western slopes of a hill during construction work. The exact extent of the cemetery is unknown, but it runs at least 300 x 150 m along the north side of the hill and down the slope. At least a dozen more tombs have been noticed during road and house construction activities in the area (ibid: 83). On the hilltop is now situated a modern cemetery which hampers further investigation, but large concentrations of EB IV sherds and flint implements have been found on the surface among the modern graves. A bulldozer section further downhill did also reveal dark gray and brown occupation layers with pottery, flint flakes, ground stone tools and animal bones. The pottery forms found here were similar to the ones found in the tomb area, suggesting that the settlement on the hill and the cemetery were associated. A shallow, earlier EB deposit was also found on the northern slope (ibid: 81ff.).

Salvage excavations were conducted in four different areas (A-D), in which a total of eight shaft- and cistern tombs were cleared during two seasons in 1978 and 1991. Of the eight tombs excavated, two contained vessels with potters’ marks; tombs A1 and C1. Most of the other tombs were empty, except from tomb B4 where over 1000 stone beads and a storage jar were found associated with the skeletal remains of one individual. The majority of the beads probably represented manufacture debris as they were only 1 mm in section (ibid: 97). The excavation of Tomb D in 1991 produced two four-spouted lamps and the bones of one individual (ibid: 87).

Tomb A1 was situated north of the shaft it shared with tomb A2. From the entrance with its blocking stone in situ, a 30 cm high step lead down into a circular chamber, measuring approx. 3 m in diameter. At its northern end was a 0.6 m high and 1.35 m deep bench. The ceiling was dome-shaped, reaching a height of 1.8 m. The northern side of the chamber had been damaged by bulldozing, filling part of it with stones and red soil. Several complete and restorable vessels – one hybrid, two storage jars, and two jugs - were found on the floor of the chamber together with a copper pin and a tanged javelin. The only vessel with a potter’s mark was the hybrid (CN 40). On the bench were the remains of a single individual, accompanied by a small knife of bronze and a riveted copper dagger (ibid: 84, 87ff.).

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25 According to Palumbo and Peterman (1993: 31, note 3) this settlement could be the fortified EB IV settlement ar-Ruseifah mentioned by Glueck (1939: 205-206).

26 The javelin is Philip’s Type 9 (1989: 73ff.), which is common in the southern Levant during most of the third millennium BC.

27 The knife is Philip’s Type 26 while the dagger is Type 3 (Philip 1989: 104-106, 109).
cubic spindle-whorl was also found, but it is unclear whether it came from
the floor or the bench (*ibid*: 88).

**al-Musheirfah, Tomb A1**

Structure/Dimensions/Features/State: Shaft tomb. Size: 3 m Ø. excl. the bench. Height 1.8 m. Step and bench. Context disturbed (bulldozing).

Pottery: 2 storage jars, 1 hybrid and 2 jugs.

Potters’ marks: M-24 on hybrid (CN 40).

Other finds: 1 copper pin, 1 copper javelin (tanged), 1 bronze knife, 1 copper dagger, 1 ceramic spindle-whorl. Human bones found on the bench (1 individual).

In Tomb C1, the shaft as well as the roof of the chamber had been demolished completely by bulldozing. As a result, the tomb was only preserved to a height of 1 m. The chamber was slightly oval, and measured approx. 2.5 x 1.85 m. The freshly broken sherds from an amphoriskos and a hybrid were found on the floor, below the cave-in matrix (*ibid*: 86). These represented the only finds. The hybrid had a potter’s mark (CN 21).

**al-Musheirfah, Tomb C1**

Structure/Dimensions/Features/State: Shaft tomb. Size: 2.5 x 1.85 m. Context disturbed (bulldozing).

Pottery: 1 amphoriskos and 1 hybrid.

Potters’ marks: M-13 on hybrid (CN 21).

Other finds: None.

### 3.5 Umm al-Bighal (Amman)

In 1982 the construction began of a new water reservoir in the district of Umm al-Bighal (Helms and McCreery 1988). The area had previously been surveyed without any finds of ancient remains except for a cistern of uncertain date. However, when the removal of a small hill was begun, two concentrations of shaft tombs about 100 m apart were discovered on its northern and southern slopes (*ibid*: 319).

A total of 26 tombs were registered and cleared during the salvage excavations; some of them were completely intact, while others had received damage to parts of their chamber or lost the shaft as the result of bulldozing. Preliminary observations of the skeletal remains indicate that most of the tombs were used for single burials. A few tombs contained two individuals, and one contained four (*ibid*: 321 and figs. 4-5).
The pottery assemblages from the cemetery resemble those found in other EB IV tombs in the Amman area, with four-spouted lamps, jugs, storage jars and hybrid jugs/storage jars (ibid: figs. 6-20). The presence of two hole-mouth jar fragments is unusual as such vessels are common in settlement contexts, but rarely found in tombs (ibid: 324). Only the pottery has been published from Umm al-Bighal (ibid: 342ff.), and within this assemblage are 14 jugs and hybrid jug/storage jars with potters’ marks. Of these, one is an unprovenanced find from the cemetery area (Helms 1989: 21, text for fig. 2), while the other 13 examples came from seven different tombs.

Tomb 1 belonged to the group of tombs located on the southern slope of the hill (Helms and McCreery 1988: fig. 3). Of the shaft itself only the entrance to the tomb chamber at its very bottom was preserved. The chamber was 3 m in diameter and contained the skeletal remains of two individuals; one was placed along the north wall of the chamber, the other along the south-west wall. On the floor between them was found four jugs, two hybrids, and two storage jars (ibid: 342ff.; fig. 4:1). Both hybrids (CN 2; 3) as well as three of the jugs carried potters’ marks (CN 14; 17; 39).

**Umm al-Bighal, Tomb 1**

**Structure/Dimensions/Features/State:** Shaft tomb. Size: 3 m Ø. Context intact.

**Pottery:** 2 storage jars, 2 hybrids and 4 jugs.

**Potters’ marks:** M-2 on hybrid (CN 2). M-3 on hybrid (CN 3). M-8 on jug (CN 14). M-9 on jug (CN 17). M-23 on jug (CN 39).

**Other finds:** 1 unknown object. Human bones (2 individuals).

Tomb 3 was also located in the southern group of tombs (ibid: fig. 3). A small section of the north-west side of the chamber had been demolished but most of it was intact, with the big blocking stone sealing the entrance still in place. The shaft was not preserved. The chamber size was identical to that of tomb 1 and contained the scattered bones of one individual. Two lamp niches was cut into the rock on the eastern side of the chamber; one still held a four-spouted lamp. Two jugs, one hybrid, and one storage jar were placed centrally on the floor about 1 m from the entrance. Both jugs (CN 13; 23) were marked. A third jug (CN 4) with a potter’s mark was found a little further away (ibid: 342ff; fig. 4:3).

28 An additional object (catalogue no. 90) is indicated on the tomb plan, but it is missing in the published catalogue (1988: fig. 4:1). Additional finds from the tombs not commented on by Helms and McCreery include three unpublished bronze pins which figure on the Umm al-Bighal inventory list from the Archaeological Museum in Amman. However, it is unknown to the present writer where exactly the pins were found.

29 There is furthermore an object indicated by a triangle on the tomb plan, but there is no explanation as to what the symbol stands for.
Umm al-Bighal, Tomb 3


Pottery: 1 storage jar, 1 hybrid, 3 jugs, and 1 four-spouted lamp.

Potters’ marks: M-8 on jug (CN 13). M-14 on jug (CN 23). M-4 on jug (CN 4).

Other finds: 1 unknown object. Human bones (1 individual).

Tomb chamber 4B of the bilobate structure 4A/4B was situated approx. 20 m east of tomb 3 (*ibid*: fig. 3). The cylindrical shaft was preserved, but only the blocking stone to tomb 4A remained *in situ*. No blocking stone was found associated with tomb 4B. The plan of this chamber was oval; it had a level ceiling, and measured 4.4 x 3.6 m. The only osteological find was a skull found by the southern wall. Two four-spouted lamps stood on the floor, one at the centre of the chamber and another about 50 cm away from a lamp niche cut into the eastern wall. Below the niche was placed a jug (CN 8) with a potter’s mark. One storage jar was found right in front of the entrance with the sherds from a second similar vessel nearby (*ibid*: 342ff.; fig. 4:4B).

Umm al-Bighal, Tomb 4B


Pottery: 2 storage jars, 1 jug and 2 four-spouted lamps.

Potters’ marks: M-8 on jug (CN 8).

Other finds: Human bones (1 individual).

Tomb 6 was found close to tomb 4 (*ibid*: fig. 3). It had an unusually long east-running passageway (ca. 10 m) leading to the blocked entrance of the tomb. A step down, the chamber was circular and approx. 3 m in diameter, with a dome-shaped ceiling. Most of the southern half of the tomb was taken up by a 1 m wide bench. The skeletal remains of one individual were found here, while another concentration of skull fragments was distinguished in the northern half of the chamber. A lamp niche had been cut into the wall opposite the bench. The actual floor level does not seem to have been reached.30 All the pottery – one jug, one hybrid, one storage jar, and one four-spouted lamp - was placed next to the entrance, along the north-west wall (*ibid*: 342ff.; fig. 4:6). Of the four vessels, the jug (CN 19) carried a potter’s mark. There were no other grave goods.

30 This is at least what it looks like on the tomb plan.
Umm al-Bighal, Tomb 6


Pottery: 1 storage jar, 1 hybrid, 1 jug and 1 four-spouted lamp.

Potters’ marks: M-11 on jug (CN 19).

Other finds: Human bones (at least 2 individuals).

Tomb 10 marked the western boundary of the tombs excavated on the southern slope (ibid: fig. 3). The entrance was sealed by a big slab of stone in the passageway about 0.5 m away from the actual opening to the chamber. A great part of the chamber had been bulldozed, but the 2 x 3 m area closest to the opening was intact. A jug (CN 23) with a potter’s mark was found immediately in front of the entrance, together with few sherds of a storage jar. Further inside the chamber were found several sherds of a jug lying 1 m apart. A four-spouted lamp was found together with the southern-most concentration of jug sherds (ibid: 342ff.; fig. 5:10).

Umm al-Bighal, Tomb 10


Pottery: Sherds from 1 storage jar, 2 jugs (only 1 complete), and 1 four-spouted lamp.

Potters’ marks: M-15 on jug (CN 24).

Other finds: None.

Tomb 11 was located near, and slightly south of tomb 10 (ibid: fig. 3). Its chamber had equally suffered extensive damage and only the north/northeastern part was left, measuring 4.4 m in length and 2 m in width. The entrance to the chamber as well as the shaft leading to it was not preserved. A concentration of sherds was found in the southern-most area; among these were a marked, flat strap handle (CN 27) which probably belonged to a hybrid, as well as the sherds from another hybrid (ibid: 342ff.; fig. 5:11).31

Umm al-Bighal, Tomb 11


Pottery: Sherds from 2 hybrids.

Potters’ marks: M-17 on hybrid (CN 27).

31 Items 51 and 53 on the illustration are not listed in the catalogue, but are likely to represent pieces of pottery since they are shown with the same square symbol used for vessels.
Tomb 19 belonged to the group of tombs on the northern slope (*ibid*: fig. 3). Only a very small part of the southern-most part of this tomb or shaft was preserved, extending 1.2 m in length and 0.8 m in width.\(^3\) Within this area, about 0.5 m from the wall, was found a single complete jug (CN 5) carrying a potter’s mark (*ibid*: 342ff.; fig. 5:19).

**Umm al-Bighal, Tomb 19**

*Structure/Dimensions/Features/State:* Shaft tomb. Size: 1.2 x 0.8 m (preserved). Context disturbed (bulldozing).

*Pottery:* 1 jug.

*Potters’ marks:* M-5 on jug (CN 5).

*Other finds:* None.

**Umm al-Bighal, surface find**

*Potters’ marks:* M-x1 on fragment of hybrid (CN 41).

### 3.6 Abu Ridin/Na’ur

During the widening of the Na’ur main road in 2001, a bilobate tomb was uncovered by a bulldozer in the area of Abu Ridin/Na’ur about 13 km south-west of Amman (Abu Shmais and al-Al-Nabulsi 2004). A surface survey of the western slope of the limestone terrace into which the tomb was cut revealed a number of shaft tombs along its ridge. Several were robbed, and some had been reused as shelters or for water storage in modern times (*ibid*: 147). The salvage excavation of the uncovered bilobate tomb was conducted in heavy rain with rapid flooding of the chambers, affecting the position of the contents. Both chambers had been cut by the bulldozer with most damage inflicted to tomb 2 of which half had been demolished. From this chamber the fragmentary bones of an adult were recovered as the only finds (*ibid*: 149; 153).

Tomb 1 was less disturbed, with only a small part of its western-most tip missing. A 3 m deep shaft led to the entrance of the chamber. The plan of the chamber was circular and measured 2.65 m in diameter. The ceiling was dome-shaped, with traces of smoke. Three blocking stones were found pushed into the chamber followed by silt from the shaft. The floor was covered by a soil layer mixed with human bone fragments, pottery sherds and tiny pieces of copper. Two concentrations of bones – the remains of two

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\(^3\) The estimated diameter is little over 1 m which suggests that the feature is not a tomb chamber, but the shaft to a tomb. A paper note kept in the vessel at the Archaeological Museum in Amman had “shaft” written on it.
adults (one male > 50 years, and one female > 25 years) - were found in the eastern and western half of the chamber, respectively. The grave goods consisted of four jugs - of which two (CN 18; ?) had potters’ marks - one four-spouted lamp, and one bronze pin. The copper fragments probably came from a no longer preserved staff or stick as they are all rounded in profile (ibid: 150ff.). Later on, the chamber was reused for the interment of a child (age > 10). The soil layer associated with this burial contained pieces of Byzantine pottery (ibid: 153).

Abu Ridin/Na’ur, Tomb 1

Structure/Dimensions/Features/State: Shaft tomb. Size: 2.65 m Ø. Context disturbed (later reuse + modern bulldozing).

Pottery: 4 jugs and 1 four-spouted lamp. Byzantine sherds (from later reuse).

Potters’ marks: M-10 on jug (CN 18). M-? on jug (no CN).

Other finds: 1 bronze pin, fragments of copper fittings. Human bones (3 individuals, including 1 from later reuse).

3.7 Al-Bassah

The cemetery of al-Bassah was discovered during work along the road from Wâdi es-Sir to ‘Iraq al-Amir, about 15 km west of Amman (Waheeb and Palumbo 1994). In 1994 salvage excavations were conducted at the site with the clearing of four tombs, disturbed by bulldozing. All tombs, except one, were shaft tombs dating to the EB IV and MB II periods. Tomb 3 was a cistern tomb. The contents of tombs 1 and 4 were sparse, with fragments of bone and few sherds representing the only finds (ibid: 57; 61). Tomb 2 contained the skeletal remains from three individuals and an interesting mix of typical EB IV vessels from the Amman area as well as vessels characteristic of the late third millennium in Syria (ibid: 57-59). One of the EB IV jugs had a potters’ mark which is not illustrated in the publication (see section 1.7). Tomb 2 will therefore not be described in further detail.

33 Unfortunately, only one of these potters’ marks could be included in the present study. The other mark is not illustrated in the publication, and there is no detailed information regarding its appearance. The present writer saw only one marked jug from the Abu Ridin/Na’ur pottery assemblage at the Tabarbor storeroom in Amman.

34 Whether the ‘Syrian’ al-Bassah jugs are actual Syrian imports or local imitations is yet to be determined. This is the first attestation of Syrian influenced pottery in EB IV contexts from the Amman-Zarqa region, and the presence of such vessels at al-Bassah raises new questions regarding intra- and inter-regional exchange during this period. So far no settlement has been found in the proximity of the al-Bassah cemetery. For parallels to these jugs from Syria and Palestine, see Fugmann (1958) and Kenyon (1965) as cited in Waheeb and Palumbo (1994: 61).
Tomb 3 was a cistern tomb, of a round baggy shape and with the opening in the centre of the roof. The chamber had suffered some destruction, but an area of 2 x 2.5 m and 1.6 m in height could be traced. The eastern wall had a lamp niche. Two consecutive layers were excavated: Layer 1 was a 20 cm deep locus of brown-red soil mixed with small stones. Within this matrix were found two jugs resting on their sides. Both jugs (CN 28; 29) carried potters’ marks. Layer 2 was a 25 cm deep locus of soft and smooth red soil with no associated finds. The deposits had been affected by water seepage (ibid: 59-61).

al-Bassah, Tomb 3


Pottery: 2 jugs.

Potters’ marks: M-18 on jug (CN 28). M-19 on jug (CN 29).

Other finds: None.

3.8 Site 73 (Tall al-‘Umayri Survey)

Site 73 is situated approx. 20 km south of Amman, in the Madaba region (Younker et al. 1993). The cemetery was found during a survey by the Madaba Plains Project in 1987 where at least a dozen rock-cut tombs from several periods were noted. In 1992, the site was revisited and three shaft tombs (1, 11 and 12) were excavated in order to ascertain whether EB IV remains were present. Tomb 1 had been robbed and contained only a few Early Bronze and Iron Age sherds, indicative of its original date as well as its later reuse. Tomb 12 had suffered a considerable roof collapse which also involved the shaft. The chamber contained few disturbed skeletal remains, EB IV pottery and the bronze blade of a riveted dagger (ibid: 212ff.).

Tomb 11 was a bilobate structure with two chambers of which the northern one still had its blocking stones in situ. This chamber was square and measured 3.2 x 2.8 m, with the ceiling reaching a height of 1.8 m. The soil fill which went almost up to the ceiling, contained fragmentary skeletal remains as well as two jugs, one small hemispherical cup and one four-spouted lamp (ibid: 212). Both jugs (CN 16; 32) had potters’ marks. The south chamber was slightly larger but of similar design. Of its original contents were left only a few EB IV sherds. The chamber had been reused in the Middle Bronze Age and contained the secondary burials of up to seven adults with grave goods (ibid: 213).

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35 Cistern-tombs have no shaft leading to the chamber. The entrance in the roof was usually covered with a stone slab placed directly on the ground.
Site 73, Tomb 11 (northern tomb chamber)

Structure/Dimensions/Features/State: Shaft tomb. Size: 3.2 x 2.8 m. Context intact.

Pottery: 2 jugs, 1 cup, and 1 four-spouted lamp.

Potters’ marks: M-8 on jug (CN 16). M-20 on jug (CN 32).

Other finds: None.

3.9 Site 135 (Tall al-‘Umayri Survey)

In 1992, a vast cemetery was discovered during the construction of a water reservoir on the Madaba Plain, 10 km south of Amman, and 500 m south-east of the site of Tall al-‘Umayri (Waheeb and Palumbo 1993). The extent of the cemetery was later estimated to 500 m north-south and 400 m east-west, encompassing an area of 20 ha with as much as a thousand shaft tombs and cisterns (Dabrowski et al. 1996: 90). During the salvage excavations, five shaft tombs together with eighteen cisterns were documented and cleared in the reservoir area (Waheeb and Palumbo 1993). All the cisterns as well as three tombs belonged to the EB IV period; one tomb dated to the MB II, while another was empty and thus indeterminable. The tombs and cisterns were dug randomly among each other, apparently over a short period of time since they seldom cut each other. The majority of the cisterns contained silt deposits and sherds; only two contained small quantities of human bones (ibid: 147ff.). In 1994, excavations were resumed by the Madaba Plains Project in an area to the south of the reservoir. Here, another five shaft tombs and two cisterns dating to the EB IV were uncovered. The finds consisted of pottery, one bronze dagger and one spindle whorl (Dabrowski et al. 1996: 90).

Tomb 13 is the only fully published tomb from Site 135 so far (Fig. 8). It was found in the southeast corner of the 1992 excavation area, and consisted of a main chamber (west) with a large alcove (east). The main chamber was reached directly from the sealed entrance. It measured 3.3 x 3 m and had an almost level ceiling, reaching a height of 1.6 m. The floor was a beaten surface of huwwar. All the pottery had been placed in this chamber, to the right of the entrance and in front of it. A group of five lamps had been placed

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36 The purposes of the cisterns are not fully known. They were rarely used for burials, and seem primarily to have served as storage facilities or other additional space for those who used the cemetery (Harrison 1995: 128; Dabrowski et al. 1996: 92 who also considers the possibility of the cemetery as being a rallying point for pastoral nomads). The cistern at al-Bassah described above was clearly used as a tomb (Waheeb and Palumbo 1994: 59). This was also the case for one cistern, B3, at al-Musheirfah (Ibrahim and Qadi 1995: 85).

37 None of the finds are illustrated (the pottery consists of one jug and six lamps) and there is no information as to which tomb held what finds.
on the floor a little aside of the other vessels, together with a hook tanged javelin of copper and fragments from other metal items. Three of the lamps had been used with traces of burning visible on the spouts (Waheeb and Palumbo 1993: 149-152). The group of larger vessels consisted of one storage jar, two jugs and six hybrids. The latter (CN 17; 30; 33; 35-37) all had potters’ marks. Two of the hybrids and the jugs had furthermore a bronze band applied mid-strap handle. All vessels except for the jugs had “scum lines” on the interior, suggesting that they held some sort of liquids. Two hybrids had been knocked over, probably due to roof fall (ibid: 151).

The alcove measured 2.1 x 1.7 m and functioned as a wide bench, raised 20 cm above the floor level of the main chamber. The ceiling was slightly dome-shaped and had a maximum height of 1.4 m. Five concentrations of disarticulated and partially articulated bones from several individuals covered most of the bench. Beneath them was a thin layer of soft marl which may have served as bedding (ibid: 151). The grave goods found in direct association with the bones comprised of two bronze/copper daggers; one with a long narrow blade, and a second with a shorter blade and three rivets. Together with the daggers were several other bronze- and copper items including

Fig. 8. Tomb 13 from Site 135. After Waheeb and Palumbo (1993: fig. 2).

38 The javelin is Philip’s Type 5 (1989: 75).
39 Philip’s Type 3 and 4 (1989: 104-107). The latter is most common in southern Palestine during the EB IV and is seldom found in Transjordan. Both daggers have accentuated blade centre-lines, an attribute which appears to be a southern Levantine imitation of Syro-Mesopotamian decorated ‘prestige’ daggers (Philip 1989: 106, also commented by Waheeb and Palumbo 1993). The lines on the shortest dagger are incised, while the lines on the longest dagger appear to be cast-in.
two pins, an awl, a headgear-band with a “buckle” which may have formed the rim of a cap of leather or another fabric, and many copper fittings with traces of wood inside. A large number of simple stone beads as well as disc-shaped, biconical, and barrel-shaped carnelian beads were also found. So was a single bead of silver and a bone pendant (ibid: 151ff.).

**Site 135, Tomb 13**

**Structure/Dimensions/Features/State:** Shaft tomb. Size: 3.3 x 4.7 m (incl. the alcove). Alcove with bench. Context intact.

**Pottery:** 1 storage jar, 6 hybrids, 2 jugs, and 5 four-spouted lamps.

**Potters’ marks:** M-8 (CN 17); M-20 (CN 30; 33; 35; 36); and M-21 (CN 37). All on hybrids.

**Other finds:** 1 hook tanged copper javelin, 2 bronze/copper daggers, 2 bronze/copper pins, 1 copper awl, 1 copper headgear band, 1 copper “buckle”, 5 copper bands (for vessel attachment), several copper strips, plaques and fittings, 1 silver bead, various carnelian and other stone beads, 1 bone pendant. Human bones (up to 5 individuals).

3.10 Tall al-‘Umayri

Tall al-‘Umayri is located about 15 km south of Amman, on the northern edge of the Madaba Plain. The site comprises three separate mounds situated around a spring; the only water source found in the immediate surroundings. Today, the area receives an annual average rainfall of ca. 400 mm (Harrison 1995: 97 and fig. 3). Although noted by travellers of the late 19th and early 20th centuries and shered several times by archaeologists during systematic surveys from 1960-1980, no actual excavations were begun on the site until 1984 (ibid: 99ff.; von Rabenau 1978: 49; Franken and Abujaber 1989). Since then, twelve seasons of excavations conducted by the Madaba Plains Project have uncovered 22 strata stretching from the Chalcolithic period to Islamic times. The primary periods of occupation are found on the West mound and date to the Bronze and Iron Ages (Geraty et al. 1990: 60; Herr and Clark 2009).

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40 Only two other examples are known from the Southern Levant; one from tomb 4 at Khirbat Umm Zaytuna in a MB II context (Waheeb et al. 1994: 69), and one from tomb L2 at Jericho dated to the EB IV (Kenyon 1965: 144-148, fig. 41:8). Both of these are undecorated in contrast to the band from tomb 13 which is decorated in repoussé with lines of small holes (Waheeb and Palumbo 1993: 159).

41 The many bronze fittings have parallels from Abu Ridin/Na’ur (Abu Shmais and al-Al-Nabulsi 2004: 151) as well as from several of the Jericho tombs where they are thought to represent the remains of ceremonial staves or “sceptres” belonging to important individuals (Waheeb and Palumbo 1993; Shay 1983: 32).

42 The stone beads were concentrated in one area on the bench, while the carnelian beads were found in three different places. It is impossible to link these concentrations with particular skeletal parts on the tomb plan.
During the EB II/III (strata 20-19) the settlement on this mound developed into a 4-5 ha large village, primarily sustaining itself by a mixed farming regime involving the cultivation of a variety of plants (cereals, pulses and fruits) and animal husbandry involving primarily caprids, but also small numbers of cattle and pigs (Harrison 1995: 161ff.). However, when the village was at its peak disaster stroke and a layer of destruction with tumbled walls and fires ends this last phase of EB III occupation in stratum 19 (ibid: 108ff.; Herr and Clark 2007:122).

Strata belonging to the EB IV period were uncovered on the southern slope in Field D, directly overlying and partly dug into a layer of destroyed EB III houses. The EB IV remains of stratum 18 were in comparison to the previous occupation quite ephemeral, consisting of two cobbled-walled dwellings, each with a central pillar base to support the roof, and separated from each other by a wide exposure surface; a layout indicating that by this time, the settlement density in Field D had been reduced considerably. The grinding equipment, flint tools and animal bones found within the western most house suggest that the inhabitants continued farming and stock-raising. However, the transient character of the dwellings indicates a larger degree of mobility, with habitation and farming activities perhaps limited to particular seasons during the year (Harrison op cit: 125ff.).

Above the two houses, and following a period of abandonment, stratum 17 was characterized by a series of small stone walls possibly representing either field delineations or animal pens. No surfaces were found associated with the walls, and no clear domestic units could be distinguished (ibid: 108ff.; Mitchel 1989: 287-292). The end of this strata is marked by another period of abandonment, before the establishment of a major settlement by the time of the Middle Bronze Age IIC (strata 16-15); a period during which the occupation at Tall al-‘Umayri reached urban proportions (Herr and Clark 2007: 123; Geraty et al. 1990: 79).

The ceramic finds from strata 18 and 17 are extremely scarce, but resemble the EB IV repertoire defined for the Amman-Zarqa region (Palumbo and Peterman 1993) including sherds from jars with incised or punctated decoration at the neck/shoulder junction, pieces of flat strap handles and/or folded envelope handles as well as fragments of holemouth jars with recessed rims (Harrison 1995: 159-160 and pl. 14: 15-22; Herr 1989: 301ff. and figs. 19.2-19.3). The pottery readings combined with the

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43 Harrison has four phases for the EB III occupation at Tall al-‘Umayri. Later studies have revised the number of phases to three.

44 It should be kept in mind that the conclusions reached for the EB III and IV levels in Field D are based on a limited area of exposure, measuring 25 x 12.5 m. No EB levels have yet been reached on the top of the mound in Field A, B and H, where substantial remains from the Iron and Middle Bronze Ages cover earlier layers.

45 The faunal sample from stratum 18 is extremely limited, comprising a total of 27 bones from caprids and unidentified large mammals. None of the recovered faunal material from stratum 17 could be identified (Harrison 1995: 162).
stratigraphy in Field D suggest that stratum 18 dates from the early EB IV while stratum 17 was deposited slightly later, after a period of abandonment (Harrison 1995: 125; Herr 1989: 301-302). From strata 17 came a fragmentary strap handle (CN 42) with a potter’s mark, but unfortunately nothing further can be said about the find circumstances, except that given the nature of strata 17, a refuse context is likely.

Tall al-‘Umayri, Field D, stratum 17, sq. 5K77

Structure/Dimensions/Features/State: Find associated with field or animal pen walls. Probable refuse context.

Pottery: EB IV sherds (hole-mouth jars, storage jars, hybrids and/or jugs) mixed with intrusive sherds from later periods due to modern plowing.

Potters’ marks: Mx-2 on either hybrid or jug (CN 42).

Other finds: 2 ceramic loom weights, 1 stone (loom weight or digging stick weight), 1 half of stone spheroid, 1 incised stone, 1 small grinder, and 1 ceramic burnishing tool.

3.11 Tall Iktanu

The site of Tall Iktanu lies at the edge of the foothills in the south-east Jordan Valley, about 12 km north-east of the Dead Sea and 28 km south-west of Amman. The settlement is placed on top of two natural spurs (the north and the south mounds) near the perennial of Wâdi Hesban, in close proximity to fertile alluvial soils. The area receives today marginal rainfall with an annual average of 164 mm (Prag 1986: 61; 2004: 445). The remains on the north mound were first explored by the American Palestine Exploration Society in 1876 (Merrill 1881: 236). Since then the site has been surveyed several times (Mallon 1929: 230ff.; Mallon et al. 1934: 151; Glueck 1951: 394-395; Prag 1971; Yassine et al. 1988: 195ff.), and in 1966 K. Prag (1971) began excavations on the south mound. No further field seasons were carried out until she, after a long break, resumed excavations in 1987 with three more field seasons conducted up to 1990 (Prag 1988; 1990; 1991).

The north mound has revealed occupation phases belonging to the Early Bronze Age (EB I and EB IV), the Late Bronze and Iron Ages as well as to the Persian period. On the south mound, occupation consisted of shallow layers from the EB I, followed by extensive settling in the EB IV, where eventually an 18 ha well-planned village emerged with blocks of rectangular

46 The date of strata 18 and 17 has shifted back and forth between EB III and EB IV in various publications on Tall al-‘Umayri (EB IV in Mitchel 1989: 282ff.; EB III in Daviau 1991: 87; EB IV again in Harrison 1995, and Herr and Clark 2007). An EB IV date is now favoured, well in line with the ceramic finds.
houses and courtyards divided by narrow unpaved lanes (Area A, B and H). The subsistence regime was mixed, with goat/sheep and barley comprising the main food resources (Prag 1990; 1993: 269). Two phases of occupation could be distinguished in Area A, separated by a brief period of abandonment during which a layer of fairly clean yellowish-brown soil was deposited (Prag 1971: 132). On the lower slopes were found two areas (C and E) with evidence of pottery manufacture and food processing activities. These areas seem to have been in use during Phase 1 as well as in Phase 2 (Prag 1990: 122-123).

The pottery repertoire from Tall Iktanu falls within the Family J tradition, which displays a mix of northern as well as southern ceramic traditions (Prag 1971; Richard 2000: 413). Among the pottery excavated in 1966 were four handle fragments with potters’ marks. Three of these (CN 15, 25, 38) came from sealed Phase 1 pits in the courtyard of a house (Prag 1971: 129, fig. 15B, and 134). The fourth (CN 26) was a surface find (ibid: fig. 19:19). The upper part of an unmarked Family AZ hybrid was found in Phase 2 (ibid: fig. 26:10; Palumbo and Peterman 1993: 25).

Phase 1 is chronologically assigned to the first half of the EB IV period, while Phase 2 belong somewhere in the beginning of the second half (Prag 1974: 81; 1993: 269).

Tall Iktanu, Phase 1 House (1966 excavations)

Structure/Dimensions/Features/State: Pits in courtyard. Secondary Phase 1 context (refuse) sealed by Phase 2 remains.

Pottery: EB IV sherds (from hole-mouth jars, cups, bowls, small lug-handled jars, storage jars and jugs).

Potters’ marks: M-8 on fragmentary strap handle (CN 15). M-16 on fragmentary strap handle (CN 25). M-22 on fragmentary strap handle (CN 38).

Other finds: Fragments of animal bone.

Tall Iktanu, surface find

Potters’ marks: M-16 on fragmentary strap handle (CN 26).

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47 It is uncertain to which ceramic family the vessels for the Iktanu potters’ marks should be assigned, since only the strap handles are preserved. Potters’ marks are occasionally found on Family J pottery (e.g. the two marks from Jericho, mentioned in chapter 1). The ware described for the handles could fit both families. The interpretation of the strap handles as belonging to the Family AZ is based entirely on the more frequent occurrence of potters’ marks within this regional assemblage, and is to be considered tentative.

48 There is no information as to exactly which pit(s) the potters’ marks came from, except that it could be either pits 2, 3, 5, 6, 8 or 12. The pits contained typical household refuse such as broken pottery, pieces of bone, and ashy soil.
3.12 Khirbat Iskandar

Khirbat Iskandar is situated approx. 56 km south of Amman, where the Wâdi al-Wâla cuts the Transjordan plateau. The primary water source is a perennial stream fed by the Ras al-Walâ which is located immediately east of the site. The area receives around 200 mm rainfall annually. The site itself is strategically placed at an important crossing point for the main route connecting the south of Transjordan with the north, today as well as in antiquity. The mound covers an area of 2.7 hectares and is about 20 m high (Richard and Boraas 1984). In 1936, N. Glueck (1939: 128) conducted the first systematic survey of the site, describing its massive fortifications and house foundations. 49 Several decades after Glueck’s survey, P. Parr (1960) excavated a sondage trench to bedrock on the eastern crest of the mound, which revealed strata from the EB IV as well as the Late Chalcolithic/EB I (ibid 1960: 130ff.). No further work was carried out on the site until 1981 when S. Richard launched a still on-going archaeological project which has so far conducted 10 seasons of excavation, survey and restoration (Richard 1982; 1990; Richard and Boraas op cit; 1988; Richard and Long 1995, 2005: Richard et al. 2007; Long and Libby 1999).

Excavations in Area B - the highest point within the fortifications - have uncovered the domestic neighbourhood of the latest EB IV settlement (Phase A). A formidable destruction layer with roof collapse exceeding 30 cm at places separates these houses from an earlier occupation level (Phase B), where a large building of public character was found built up against and incorporating the northern most fortification wall. 50 Below Phase B, and sealed by another massive destruction layer, is an EB III occupation level (Phase C) which was built on top of yet another settlement, perhaps dating to

49 Glueck (1939: 128) traced the settlement across a secondary wâdi where an area (the “eastern sector”) equally large as the present day site was described. The mound of Khirbat Iskandar comprises in other words only the western part of a settlement which was originally much larger, covering about 5 hectares. He also found EB IV sherds scattered on the surface in the vicinity north and west of the site as well as across the wâdi to the south. According to Glueck, the best preserved remains were according to him in the “western sector” He also noted upon the many cultic installations in the vicinity of the site, such as stone circles and standing stones (so-called menhirs). The “eastern sector” described by Glueck is today under intensive cultivation making it difficult to explore the nature of remains in this area (Richard and Boraas 1984: 64).

50 The non-domestic nature of the structure is indicated by the large number of vessels found (over 100) and the presence of food offerings. Its architectural plan also differs from those observed for the Phase A domestic structures, and is so far unique at Khirbat Iskandar. The building consisted of a large central room flanked by an oblong bench-lined room on the west side and a large room on the east side. The many vessels were concentrated to the bench-lined room and the partly excavated central room. The three rooms extend over squares B7-B8 and B11-B13. A volumetric study of 35 storage jars from the building arrived at a storage capacity well above 800 litres (Richard and Long 2007: 77ff.; Richard 2000). In 2010, excavations revealed a southern section of the building, with two narrow rooms west and centre, and a third larger room on the eastern side (unpublished field notes).
the same period (Phase D). Other excavated areas are A and C which are located on the mound’s upper southern slopes. Work here has concentrated on the transverse inner fortification wall dividing the settlement in an upper and lower town, and the associated gateway complex which both date to the EB IV period. Excavations have also been conducted on three cemeteries (Areas D, E, H and J) located in close proximity to the site. The majority of the excavated tombs are contemporary with the EB IV settlement on the mound, with only one tomb dating to the EB I and none to the EB II/III yet. A so-called “high place” with a cultic installation was uncovered on a nearby summit (Richard 1990: 40ff; Richard and Boraas 1988: 114ff.; Richard and Long 2007). The floral and faunal remains, as well as the food processing equipment found in Phases A and B indicate that the subsistence regime of the EB IV population involved mixed farming with animal husbandry of sheep/goats and to a lesser extent cattle and pigs, as well as cultivation of wheat, barley and olive (Metzger 2010; Long and Cordova 2010: 29ff.).

While most of the pottery found at Khirbat Iskandar can be assigned to the Family TR, a considerable amount of non-local pottery types are also present, indicative of contacts between Khirbat Iskandar and regions further north and south. Among the many vessels discovered in the collapse matrix of the Phase B public building (Fig. 9) were several Family A-Z jars, jugs and hybrids; the latter ones all had potters’ marks (Richard 2000: 404ff.). One hybrid (CN 7) was found in the bench-lined room, a narrow room measuring 5.3 x 2 m with flagstone benches along its east, west and south walls. It was either placed on one of the benches or on the floor, as the rest of the pottery found in the room (Richard 1990: 41; unpublished field data, square B8). Many of these vessels were empty and seem to have been kept in storage until they were needed. The assemblage includes containers for serving/eating/drinking as well as for the storage of food and liquids. Miniatures and special-use vessels were also found (Richard 2000: 400ff.). A part of the room was clearly used for actual storage of produce, as several vessels contained carbonized grains of wheat and barley (Richard 1986:8).

Khirbat Iskandar, Bench Room (BR) in Phase B public building

Structure/Dimensions/Features/State: Room. Size: 5.3 x 2 m. Benches. Primary context sealed by EBIV destruction.

Pottery: 14 bowls, 3 cups, 5 platters, 9 “teapots”, 3 flask pitchers, 2 bottle amphoriskoi, 5 small jars, 15 storage jars (including 1 hybrid), 3 jugs, 1 vat, and 3 four-spouted lamps. Numerous sherds (vessels in process of being restored).

51 Phase D is not securely dated and may be EB II. The EB I strata observed by Parr have not been reached yet. An EB I tomb was excavated in one of the cemetery areas in 1987 lending further support to the presence of an EB I component on the site (Richard 1990: 54).
52 Olive cultivation seems to have been a main agricultural activity. Large numbers of olive tree pollen, olive pits, and olive wood samples have been recovered from the site.
**Potters’ marks:** M-7 on hybrid (CN 7).

**Other finds:** Various.\(^{53}\)

To the east, and connected with the bench room by a narrow doorway, was a central room measuring 5.3 m x 7.2 m. Among the pottery vessels found on the floor was a marked hybrid (CN 34), which had been placed close to the doorway in the south wall. Several vessels were also found in and around two pits cut from the floor, including the sherds of yet another marked hybrid (CN 9). This vessel was most likely placed on the floor in the proximity of Pit 3, since parts of it were found in the collapse matrix adjacent to the pit as well as within it. When the roof collapsed the vessel was smashed, and the sherds scattered. Pit 3 was situated along the north wall, close to which was found a pair of goat horns as well as a painted bowl containing a bovine hoof. Other features in the central room consisted of an 80 cm deep, stone lined bin in the south-west corner, and a stone lined hearth with an associated ash pit (pit 2) and a large flagstone platform (Richard 1990: 41ff.; unpublished field data: squares B8, B11, and B12).

**Khirbat Iskandar, Central Room (CR) in Phase B public building**

**Structure/Dimensions/Features/State:** Room. Size: 5.3 x 7.2 m. Bench along northern wall. 2 centrally placed pits (incl. pit 3), 1 bin in south-west corner, 1 hearth north of bin. Primary context sealed by EBIV destruction.

**Pottery:** 5 bowls, 1 platter, 2 “teapots”, 1 flask pitcher, 1 bottle amorphiskos, 6 small jars, 22 storage jars (including 2 hybrids), 1 crucible, and 1 four-spouted lamp. Numerous sherds (vessels in process of being restored).

**Potters’ marks:** M-20 on hybrid (CN 34). M-8 on hybrid (CN 9).

**Other finds:** 2 goat horns and 1 bovine hoof (animal offerings).

In addition to the marked Family A-Z hybrids coming from the building, two fragmentary strap handles (CN 6; 12) with potters’ marks turned up in balk trim and clean up loci for the square in which the bench room and part of the central room were excavated (unpublished field data: square B8). Although it is reasonable to assume that these two potters’ marks came from the same context as the others, nothing certain can be said on this matter. Khirbat Iskandar appears to have been settled during most of the EB IV, beginning with the Phase B occupation which was destroyed, and ending with the

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\(^{53}\) Various other objects were found in the building, but the raw data needs to be processed further. The finds include grinders and querns, spindle whorls, loom weights, flint tool fragments, and a shark tooth needle fragment (unpublished materials field data: B7-B8 and B11-B12).
Phase A occupation which was abandoned by the end of the period (Richard 2000: 413; Richard et al. 2010: 278).

**Khirbat Iskandar, square B8, Balk trim and clean up loci**

**Potters’ marks:** M-6 on fragmentary strap handle (CN 6). M-8 on fragmentary strap handle (CN 12).

![Fig. 9. The public building from Phase B, Khirbat Iskandar. *= marked vessels. H = hearth. P = pits. Based on Richard and Long (2005: fig. 6) and unpublished field recordings.](image)

3.13 Summarizing the contexts

The geographical distribution of Family AZ potters’ marks is restricted to a dozen sites in the Amman-Zarqa region, the Jordan Valley, and in central Transjordan, from al-Musheirfāḥ at the upper River Zarqa drainage to Khirbat Iskandar at the Wādi al-Wāla. The majority of the attestations are found within a 20 km radius of Amman - or within 10 km of the point of gravitation (see fig. 6) - in tomb deposits and at Tall al-ʿUmayri. These assemblages include Family A-Z vessels only and fall well within the geographical horizon defined by Palumbo and Peterman (1993: 30), although without incorporating its northern most sites. Outside the Amman-
Zarqa region, moderate quantities of imported Family AZ pottery are found at Tall Iktanu and Khirbat Iskandar, intermixed with the local ceramic forms of the Families J and TR, respectively.

The tomb materials are the most frequent, with a total of 30 marks from 16 different tombs (and a single additional surface find). The majority of the tombs were of the shaft type; several contained several individuals while others produced only grave goods without any recovered osteological remains. It is not possible to assess whether burials were primary and/or secondary due to the generally poor preservation of the bones and the activities associated with repeated interments which may have caused the repositioning of earlier burials. In some of the tombs, water seepage had clearly moved the contents around, and ancient robbing - and perhaps also modern bulldozing - has in certain cases resulted in loss of original contents. On only two occasions could separate concentrations of pottery within a tomb be discerned, and in most of the undisturbed deposits, the pottery was placed more or less together. The grave goods varied from one or two vessels to rather wealthy assemblages containing several pots, weapons and jewellery alongside more formal items of power such as a head emblem of copper and staffs with copper fittings.

The settlement materials count 12 marks from three different sites. The potters’ marks from Khirbat Iskandar came from a public building as well as from less secure contexts probably associated with it. Within the building was found large amounts of pottery; in the Bench Room some vessels contained cereals, but most of the pots appear to have been stowed away without contents. Additional vessels were placed in the Central Room, alongside evidence of animal offerings and a number of pits clearly associated with the use of the building. Marked vessels were found in both rooms; they contained no apparent traces of liquids or carbonized food remains. Most of the potters’ marks from Tall Iktanu came from pits associated with a Phase 1 house; one was a surface find. The pits’ debris had the character of refuse containing bits of pottery mixed with animal bone fragments and ash, and was deposited in the courtyard area of a house. The single potter’s mark found at Tall al-‘Umayri came from another type of refuse context with sherds scattered over the surface of an animal pen or on a field. The faunal remains from the EB II/III phases at Tall al-‘Umayri affirm the presence of pigs at this site, but no such bones have been identified from the very limited samples retrieved from the phases belonging to the EB IV. The limited exposure of stratum 17 prevents further considerations to be made regarding the nature of the stone delineations.

The sherds could have ended up in an animal pen together with edible household scraps used for fodder for pigs (see e.g. Zeder 1991: 31). The practice of spreading garbage including sherds over fields as manure for crops is also a possibility (see Wilkinson 1989).
Jars, hybrids, jugs and four-spouted lamps are the most common vessel forms in the abovementioned deposits. The Family AZ vessels found at Tall Iktanu and Khirbat Iskandar are most likely imports. Chronologically, the pottery is associated with stratified occupation layers from early EB IVA to early EB IVB. The vessels from Phase B at Khirbat Iskandar and the possible Family AZ handle fragments from Tall Iktanu Phase 1 represent the earliest finds, while the unmarked hybrid and a possible Family AZ storage jar from Phase 2 at Tall Iktanu represent the latest. Family AZ pottery is absent in Phase A at Khirbat Iskandar, but this circumstance could reflect changes in the local socio-economic setting, and does not necessarily attest to the actual time span of Amman-Zarqa ceramic production during the EB IV. The tomb materials cannot be dated more precisely than to the EB IV in general.

55 The inverted rill-rimmed platter bowl present in Phase B at Khirbat Iskandar (Richard 2000) and in Phase 1 at Tall Iktanu (Prag 1988: fig. 5:11) is strictly associated with the EB IVA (Richard op cit: 403-404). Similar platter bowls have been found at Bāb adh-Dhrā (occupation phase 3 in field X and tombs A52 and A54) and at Ara’ir (level VIB) in deposits contemporary with Iskandar Phase B and Iktanu Phase 1 (Schaub and Rast 1989: 501-502; Olávarri 1969: fig. 1: 16-21).
4. Mark taxonomy

The first step towards an analysis of the 42 potters’ marks included in the study concerns the arrangement of mark designs into typological groupings. The establishing of taxonomic criteria is always somewhat subjective, and the present classification of mark motifs should be considered as one out of several possible arrangements, depending on how individual mark elements are defined and weighed against each other. No marks can be considered as completely identical, due to variations in the execution of their elements as well as the spatial arrangement of these (Lindblom 2001: 46), and some degree of generalization has been exerted in the cases where mark designs are taken to represent the same concept. While such an approach benefits comparative goals it may at the same time obscure the potential significance of minor variations.

4.1 Mark elements and typological groupings

When broken down into smaller entities, the potters’ marks basically consist of aggregations and variations of one or several particular elements, chosen by the potter to create a certain design. An element can be understood as “the smallest, self-contained component used to build the mark” (Lindblom op. cit.). Such elements are here identified according to mode of execution and general appearance. The Family AZ mark assemblage contains the following four basic elements:

- Incisions, wavy \~\~\~ or linear | — / \ 
- Combinations \| == /= / \ 
- Slashes \ / \ 
- Punctuates •

The primary division into typological groupings has been made according to these categories of elements, with further sorting based on the individual designs they create, e.g. parallel vertical lines; X-patterns; herringbone-patterns etc. The sequence of mark types within a particular element category does not follow any fixed pattern or rule, besides that identical
designs are always kept together (Fig. 10). The last two potters’ marks illustrated in Fig. 10 are very fragmentary with only a small part of their motifs preserved. As they are difficult to assess any further, they have been excluded from the present typological arrangement, forming a category of their own designated as M-x.
In close proximity to the potters’ marks on CN 34-37 there is a deep incision from the lower part of the handle to the shoulder of the vessel. The exact reason for this feature is unclear, but it could be a way of securing the handle better with no relation to the potter’s mark at all. In M-21, however, the loop of the X-pattern encloses the deep incision, incorporating what seems to be a practical feature into the actual mark.\(^{56}\)

Surprisingly few potters’ marks consist of combinations of more than one of the four basic elements mentioned above. Only five mark types, M-3 to M-5, M-15 and M-17, or 12% of the total assemblage contain several elements. There is in other words a strong preference for the use of a single repeated element for mark compositions without the intermixing of others. Compositions usually consist of sequences of incised lines or punctations, while certain designs such as closed geometric figures (e.g. circles and triangles) are avoided all together although easily made. Semi-circular shapes are rare, and appear only the in the trident-like design of M-24 and in the loop of M-21.

\(^{56}\) Presumably, the incision was already present by the time the mark was applied (if we accept the explanation of the incision as a way of fastening the handle better), and the design was then made around it. The loop of the design may have been influenced by the presence of the incision in this particular instance. In the other cases where the deep incision occurs, the mark design is identical to the one seen on several other handles without such incisions.
4.2 Modes of execution

The four elements observed for the potters’ marks were made by different techniques, and sometimes involved the use of different tools. Incised designs were made with a pointed instrument e.g. a piece of bone or a stick, while slashes could have been made with a similar or a more gouge-like tool, producing a wider cut (Rice 1987: 146). None of the marks with slashes have been inspected first hand, and their identification as such is based solely on the published descriptions and drawings (Helms 1987; 1989; Helms and McCreery 1988; Prag 1971). Mark execution by combing is a variant of the incision technique, and involved the use of a device with multiple points for making bands of parallel incisions (Rice op cit: 146). It is a technique used quite often for shoulder decorations in the Amman-Zarqa region, but it is seldom applied for potters’ marks. Punctations are almost as common as incisions, and were made by impressing a pointed instrument or a fingernail into the clay (ibid: 145). Ideally, markings as well as decorations would be made when the clay had become leather-hard, so that distortion of impressions and unwanted sharp edges for incisions could be avoided (Rye 1981: 21). This is not always the case in the Family AZ corpus where the thrown-up edges of some of the incised designs indicate that marking sometimes took place while the clay was still plastic.

4.3 Mark location

The potters’ marks are always found on the most visible parts of the vessels. All are applied to the strap handles, with the exception of M-24 on CN 40 which is located on the vessel shoulder. Furthermore, no marks appear only in the lower section of the strap handle, and when handles are of a particularly angled shape, the mark is usually placed on the easily spotted upper section. On CN 32-37 the potters’ marks were clearly applied after the strap handle was attached to the vessel, as their designs extend over the handle attachment point onto the shoulder. The single shoulder mark, M-24, was made prior to handle attachment as the upper part of the design ended up being covered by the strap handle (now visible since the handle is missing).

57 The execution mode of M-9 has no parallels among the rest of the mark types. One of the marks from Khirbat al-Kirmil in Palestine was partly made by combing (Dever 1975: fig. 5:9), but the design is completely different from M-9.
4.4 Organization of catalogue entries

The catalogue of Family AZ potters’ marks (see the Appendix) contains 42 entries which refer to the marks illustrated in Fig. 10. These entries have been arranged according to the typological considerations mentioned in section 4.1. The major headings refer to the elements upon which the main taxonomic groups are based, while minor headings specify each individual mark type found within the groups. Each entry provides information about the vessel to which the potter’s mark was applied, and is arranged as follows: Catalogue no. / Site / Inv. no. / Mark state / Vessel form / Vessel condition / Decoration / Vessel dimensions and capacity / Fabric / Colour / Date / Remarks / Reference.

Each site name is in the catalogue followed by a (T) or (S) indicating whether it represents a tomb/cemetery or a settlement. In the cases where only handle fragments have been found no vessel form is indicated, since it cannot be determined if the fragments came from a jug or a hybrid. Information regarding the ware is included whenever possible, just as decoration and other surface treatment is mentioned when present. The measurements of external height, rim- and base diameter are given in centimetres. Vessel capacities for complete/restored vessels are indicated in litres. For pottery not examined by the present writer (indicated by an * after the inventory no.), the external height of the vessel on the published profile drawing (or in the case of CN 1, a photograph-to-scale) has served as the guideline from which additional vessel dimensions have been assessed in AutoCAD. The dimensions recorded for fragmentary handles concern only width and length. Fabric inclusions are indicated as S (small < 1 mm), M (medium 1-2 mm), or L (large > 2 mm) when such observations have been possible. The colour report is according to the Munsell Soil Color Charts (rev. ed. 2000) and refers to the exterior of the vessel. In the few instances where potters’ marks have been retrieved from stratified contexts, they have been assigned to either EB IVA (early) or EB IVB (late) alongside the excavators’ original phase designations. Marks from tomb deposits have been assigned to the EB IV period in general.
It is time to return to the questions outlined in chapter 1, but before doing so it seems appropriate to briefly recap some of the various functions suggested for potters’ marks. Different aspects of administration of goods or containers have been proposed with markings thought to represent early script, numerical notation, ownership, vessel content or capacity (Bliss and Macalister 1902; Fargo 1979; Oates 1982: 207; Mazzoni 1988: 90ff.; Guy and Engberg 1938: 12; Genz 2002: 116-117; Helms 1987). Others have focused on the activities of the potter, suggesting that markings were made in particular situations during the manufacture process, either for practical reasons relating to production itself, or for stating the identity of the potter/workshop at later marketing (Kolinski 1993/94; Nodet 1988; Lindblom 2001: 133; London 1991: 393). Some interpretations exclude a functional aspect, and see the marks as mainly decorative elements (Lapp 1995).

When ethno-archaeological studies of contemporary traditional potters contain information about marking practices, the marks distinguish the production of one “economic unit” (household or workshop) from another, being either production- or trademarks used when working/firing facilities are shared; sales are handled by middlemen; or potters travel to markets outside the local community (Donan 1971; London 1991: 391-392; Lindblom 2001: 19-21; Bedaux 1986: 126; Lindblom 1920). The amount of marked pottery found in individual Early Bronze Age contexts rarely exceeds 15% of the total ceramic corpus in question (e.g. Genz op cit; Nodet op cit; Lapp op cit), suggesting that either potters only marked part of their output, or that some potters used marks while others did not.

While some of the above mentioned suggestions can be evaluated according to the depositional circumstances of the corpus under study, there are no excavated production loci in the Amman-Zarqa region from which aspects of manufacture can be examined. The activities of the potter can thus primarily be studied from the end products themselves, i.e. the markings and the vessels they were applied to. It is with these issues in mind that we shall now turn to the analysis of the Family AZ potters’ marks.
5.1 Family AZ mark type attestations

The Family AZ mark assemblage comprises a total of 42 potters’ marks. Their geographical distribution involves 12 different sites on the Transjordan Plateau, from al-Musheirfah at the upper drainage of the River Zarqa to Khirbat Iskandar east of the Dead Sea. All the marks were made when the clay was still slightly plastic or leather hard, involving four different elements of incisions and impressions. The sorting of marks according to these elements and their designs resulted in 24 different mark types of which only three are repeated more than once (Table 2): M-8 is attested ten times, followed by M-20 which is found seven times, and M-16 which occurs twice. The remaining 21 designs are so-called singletons, i.e. they are attested only once. The majority of these marks display considerable variation, but some overlapping of designs is also present, e.g. between M-2, M-3, and M-4 for which three vertical linear incisions appear to be the main element; M-10 and M-11 both display a “herringbone” pattern; M-18 and M-19 both include a vertical punctated line along each side of the strap handle.

Table 2. Attestations of individual mark types and associated vessels.

<table>
<thead>
<tr>
<th>Mark Type</th>
<th>Jug</th>
<th>Hybrid</th>
<th>Strap handle frag.</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
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<td>_</td>
<td>1 (2.4)</td>
</tr>
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<td>_</td>
<td>1</td>
<td>_</td>
<td>1 (2.4)</td>
</tr>
<tr>
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<td>_</td>
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<td>_</td>
<td>1 (2.4)</td>
</tr>
<tr>
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<td>1</td>
<td>_</td>
<td>_</td>
<td>1 (2.4)</td>
</tr>
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<td>_</td>
<td>_</td>
<td>1 (2.4)</td>
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<td>_</td>
<td>1</td>
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<td>2</td>
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<td>_</td>
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<td>_</td>
<td>1</td>
<td>_</td>
<td>1 (2.4)</td>
</tr>
<tr>
<td>M-14</td>
<td>1</td>
<td>_</td>
<td>_</td>
<td>1 (2.4)</td>
</tr>
<tr>
<td>M-15</td>
<td>1</td>
<td>_</td>
<td>_</td>
<td>1 (2.4)</td>
</tr>
<tr>
<td>M-16</td>
<td>_</td>
<td>_</td>
<td>2</td>
<td>2 (4.8)</td>
</tr>
<tr>
<td>M-17</td>
<td>_</td>
<td>_</td>
<td>1</td>
<td>1 (2.4)</td>
</tr>
<tr>
<td>M-18</td>
<td>1</td>
<td>_</td>
<td>_</td>
<td>1 (2.4)</td>
</tr>
<tr>
<td>M-19</td>
<td>1</td>
<td>_</td>
<td>_</td>
<td>1 (2.4)</td>
</tr>
<tr>
<td>M-20</td>
<td>2</td>
<td>5</td>
<td>_</td>
<td>7 (16.7)</td>
</tr>
<tr>
<td>M-21</td>
<td>_</td>
<td>1</td>
<td>_</td>
<td>1 (2.4)</td>
</tr>
</tbody>
</table>
5.2 Parallels from the Levant

Comparative materials from contemporary sites in the Levant are scarce. A mark resembling M-12 and M-13 (short vertical incisions forming two horizontal rows) is seen on a jug from Jericho (Kenyon 1960, fig. 106:2). The Jericho mark has 10 incisions, while the Amman-Zarqa examples have seven and nine, respectively. M-8 (incised X) is found on two four-spouted lamps from Arâq en-Na’sâneh (Dever 1974: pl. 11:3-4) and on at least two cooking pot fragments at Jabal Qa’aqir (London 1985: 186, fig. 14). Farther away in northern Syria, similar marks are attested on jars from Ebla (Mazzoni 1988, figs. 5:7 and 7:1) and Tall as-Sweyhat (Holland 1977: figs. 6:17, 7:7, 9:5). From these two sites come also a few examples of M-2 (three vertically incised lines) applied to jars (Mazzoni 1988: fig. 8:3; Holland 1977: figs. 6:7, 7:2). The slightly more complex design of M-22 (punctated trident) have no exact contemporary parallels, but a storage jar from Tall as-Sweyhat carries an incised trident (Holland 1977: fig. 6:11), just as incised reversed tridents have been found on jars at Ebla (Mazzoni 1988: figs. 9: 3, 5, 7; 7:3). Incised tridents go back at least to the EB II/III (Fargo 1979: fig. 5: d; Genz 2001: fig. 4; Petrie 1891: pl. 5: 49; Bliss 1898: 30: 54; Kolinski 1993/94: figs. 2:c-f; 6:f; London 1991: fig. 21.8: 13; Potts 1981: fig. 5:54a, 58) and are found throughout the Near East.

5.3 Vessel types represented

The Family AZ potters’ marks occur on two categories of vessels exclusively; the jug and the hybrid jug/storage jar. This notion is completely in line with previous studies of the pottery (Palumbo and Peterman 1993; Helms 1989). As mentioned earlier, mark location always involves the strap handle of the vessel, with the only exception being CN 40 which has a mark on the shoulder. As the strap handle is missing on this vessel, it is unknown if the shoulder marking was part of a larger design also including the handle.

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58 M-22 is strictly speaking a ‘closed’ trident, but visually it resembled a trident once the strap handle was in place as the handle covered the horizontal line of the design.
Both types of vessels were intended for holding liquids (e.g. water, wine, beer, plant- or animal oils/fats), judging from their closed forms, the strap handle, and - in rare cases – the evident “stretching” of rim and mouth to form a spout (e.g. on CN 37). Only seldom have organic residues been observed on the interior of the vessels, such as the greenish “scum” lines inside all the hybrids and one storage jar at Site 135 (Waheeb and Palumbo 1993: 154-158). None of these or any other Family AZ vessel for that matter has been subjected to chemical analysis. In terms of use, the jugs were ideal for temporary storage and handling of contents as they could easily be lifted and poured from, while the hybrids would have been for long-term storage and had to be tipped when full from whatever surface they rested on. The strap handle on the hybrids, which is a feature normally absent on EB IV storage jars, improved the grip and provided better control of the vessel when tipped.

5.4 Relative marking frequency

It is impossible to reconstruct the exact ratio of marked to unmarked vessels within the Family AZ corpus, but a relative frequency can at least be assessed from the published tomb deposits available as they represent closed contexts from which all pottery retrieved has been saved (Table 3). When this is said, it should be kept in mind that tomb deposits are hardly representative of actual manufacture patterns as they contain only a certain range of vessel types. Vessels for cooking and eating are for example almost completely absent, although they were no doubt part of the standard household repertoire. On the other hand, jugs and hybrids - the only two vessel types to have received markings - are among the most common grave goods; it is therefore likely that the rate of marked vessels in the current corpus is considerably higher than would have been the case if a larger sample including occupation contexts could be studied.

Table 3. Family AZ tomb deposits with percentages of marked vessels.

<table>
<thead>
<tr>
<th>Location</th>
<th>Total vessels</th>
<th>Marked vessels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hussein Sports City</td>
<td>11 vessels</td>
<td>2 jugs with marks = 18%</td>
</tr>
<tr>
<td>Jabal at-Taj</td>
<td>5 vessels</td>
<td>1 jug and 1 hybrid with marks = 40%</td>
</tr>
</tbody>
</table>

59 Pottery sherds retrieved from occupation layers are always counted and registered, but for practical reasons usually only the diagnostic sherds are kept. While this provides us with a total of sherds, it hardly gives a reliable total of vessels, as pots for which no diagnostic sherds are found remain unnoticed. Despite that all sherds from the public building at Khirbat Iskandar have been saved, much of this pottery is still in the process of being restored. The quantity of Family AZ vessels found within the building therefore remains uncertain, and so does the ratio of marked to unmarked vessels.
Jabal al-Jofah total: 7 vessels 1 jugs with mark = 14%
Tla’ al-‘Ali total: 3 vessels 1 jug with mark = 33%\(^{60}\)
Kh. al-Batrawy tomb total: 4 vessels 0 with marks = 0%
al-Musheirfah total: 9 vessels 2 hybrids with marks = 22%
Umm al-Bighal total: 60 vessels 10 jugs, 3 hybrids, 1 frag. with marks = 23%
Abu Ridin/Na’ur total: 5 vessels 2 jugs with marks = 40%\(^{61}\)
al-Bassah total: 10 vessels 3 jugs with marks = 30%\(^{62}\)
Site 73 total: 9 vessels 2 jugs with marks = 22%
Site 135 total: 14 vessels 6 hybrids with marks = 43%
Total 137 vessels 21 jugs, 13 hybrids, 1 frag. with marks = 25%

The relative ratio of marked to unmarked vessels in the Family AZ corpus retrieved from tombs is 1:4 which is rather high compared to assemblages from other Early Bronze Age contexts. The ratio at Khirbat az-Zaraqun is 1:6 (Genz 2002: 114), a figure also met at Tall Djassa al-Gharbi (Kolinski 1993/94: 14), while it is 1:7 for the EB IB tombs at Bāb adh-Dhrā’ (Lapp 1995: 565, table 1).\(^{63}\) When jugs and hybrids are considered on their own aside from other Family AZ vessel types, the rate is 1:2. In other words every second jug and hybrid was marked. This high frequency, and the circumstance that no other vessel types carried potters’ marks, suggests that marking either had something to do with the function of these particular vessels or with their production.

5.5 Correlation of potters’ marks and vessel features

Potential patterns of marking can be explored by a comparison of mark types and their associated vessel features, and may lead us to an explanation for the application of marks in the first place. Helms (1987: 47) found for example a correspondence between particular mark types and vessel capacity at Umm al-Bighal, and accordingly thought the marks denoted vessel volume.\(^{64}\) London on the other hand, saw a connection between vessel decoration and mark types and arrived at the conclusion that “each potter

\(^{60}\) This example is only included here since all Family AZ deposits are considered. As mentioned in chapter 1 it has otherwise been left out of the study together with another two marks from Abu Ridin/Na’ur and al-Bassah.

\(^{61}\) See note 59.

\(^{62}\) See note 59.

\(^{63}\) The Khirbat az-Zaraqun ratio is based on 266 restorable vessels. Of these, 48 were marked.

\(^{64}\) The mark motifs analyzed by Helms correspond to M-2, M-4, M-8 and M-20 in the present study.
had a particular combination of shoulder [decoration] and handle marks” (London 1991: 393). She also considered it likely that the work of individual potters in general could be identified by way of vessel features such as dimensions and decoration (ibid: 393). The following correlation (Table 4) includes mark types as well as decoration, rim forms, rim diameters, effective vessel capacity, and ledge handle types which is only relevant for hybrids.65 For illustrations of the various types of shoulder decorations found on marked jugs and hybrids, of rim forms, and ledge handles: see Plates I-II. For marked vessels in general, see Plates III-VII. All the above mentioned features could be determined for 33 complete and restored vessels. When blank spaces occur in Table 4 below, it is due to handle fragments for which no additional vessel features are preserved.

Table 4. Correlation of mark types and selected vessel features.

<table>
<thead>
<tr>
<th>Mark type</th>
<th>CN</th>
<th>Decor.</th>
<th>Rim form</th>
<th>Rim Ø</th>
<th>VC (litres)</th>
<th>Ledge handle</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-1</td>
<td>1</td>
<td>L</td>
<td>VI</td>
<td>9.9</td>
<td>11.9</td>
<td>-</td>
</tr>
<tr>
<td>M-2</td>
<td>2</td>
<td>N</td>
<td>III</td>
<td>11.0</td>
<td>10.2</td>
<td>d</td>
</tr>
<tr>
<td>M-3</td>
<td>3</td>
<td>N</td>
<td>III</td>
<td>12.2</td>
<td>21.3</td>
<td>d</td>
</tr>
<tr>
<td>M-4</td>
<td>4</td>
<td>H</td>
<td>iii</td>
<td>10.8</td>
<td>7.1</td>
<td>-</td>
</tr>
<tr>
<td>M-5</td>
<td>5</td>
<td>Q</td>
<td>iii</td>
<td>10.5</td>
<td>3.6</td>
<td>-</td>
</tr>
<tr>
<td>M-6</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M-7</td>
<td>7</td>
<td>E</td>
<td>III</td>
<td>12.3</td>
<td>23.8</td>
<td>b</td>
</tr>
<tr>
<td>M-8</td>
<td>8</td>
<td>Q</td>
<td>iv</td>
<td>9.9</td>
<td>1.3</td>
<td>-</td>
</tr>
<tr>
<td>&quot;</td>
<td>9</td>
<td>J</td>
<td>II</td>
<td>13.0</td>
<td>36.0</td>
<td>b</td>
</tr>
<tr>
<td>&quot;</td>
<td>10</td>
<td>C</td>
<td>vi</td>
<td>10.3</td>
<td>3.4</td>
<td>-</td>
</tr>
<tr>
<td>&quot;</td>
<td>11</td>
<td>G</td>
<td>ii</td>
<td>10.0</td>
<td>3.8</td>
<td>-</td>
</tr>
<tr>
<td>&quot;</td>
<td>12</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>&quot;</td>
<td>13</td>
<td>D</td>
<td>iv</td>
<td>11.0</td>
<td>4.1</td>
<td>-</td>
</tr>
<tr>
<td>&quot;</td>
<td>14</td>
<td>L</td>
<td>iii</td>
<td>10.8</td>
<td>2.8</td>
<td>-</td>
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<td>15</td>
<td>-</td>
<td>-</td>
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<td>-</td>
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<tr>
<td>&quot;</td>
<td>16</td>
<td>A</td>
<td>vi</td>
<td>9.2</td>
<td>1.9</td>
<td>-</td>
</tr>
<tr>
<td>&quot;</td>
<td>17</td>
<td>D</td>
<td>II</td>
<td>11.5</td>
<td>11.3</td>
<td>b</td>
</tr>
<tr>
<td>M-9</td>
<td>18</td>
<td>K</td>
<td>iv</td>
<td>12.4</td>
<td>8.7</td>
<td>-</td>
</tr>
<tr>
<td>M-10</td>
<td>19</td>
<td>H</td>
<td>vi</td>
<td>10.3</td>
<td>6.3</td>
<td>-</td>
</tr>
<tr>
<td>M-11</td>
<td>20</td>
<td>Q</td>
<td>iv</td>
<td>11.2</td>
<td>6.3</td>
<td>-</td>
</tr>
<tr>
<td>M-12</td>
<td>21</td>
<td>H</td>
<td>IV</td>
<td>12.2</td>
<td>14.2</td>
<td>d</td>
</tr>
<tr>
<td>M-13</td>
<td>22</td>
<td>C</td>
<td>IV</td>
<td>12.2</td>
<td>9.5</td>
<td>b</td>
</tr>
<tr>
<td>M-14</td>
<td>23</td>
<td>M</td>
<td>V</td>
<td>12.7</td>
<td>4.7</td>
<td>-</td>
</tr>
<tr>
<td>M-15</td>
<td>24</td>
<td>A</td>
<td>vii</td>
<td>9.4</td>
<td>3.6</td>
<td>-</td>
</tr>
<tr>
<td>M-16</td>
<td>25</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>&quot;</td>
<td>26</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

65 “Effective capacity” takes into account that vessels would normally not have been filled to the brims for practical reasons (Senior and Birnie 1995: 320-321). Here, the corner point at the neck/shoulder junction was considered a realistic filling point; the necks are therefore not included in the calculated capacities.
The internal variation of the features examined within the Family AZ corpus of marked vessels is prominent, and no consistent pattern can be discerned between potters’ marks and other vessel features. Indeed, few of the vessels with similar mark types display other corresponding features, and often links can only be suggested on the basis of this very attribute, given that the mark is of a particular assertive style and execution (see section 5.6). When other connections appear, they are never coherent, but alternately involve decoration, rim forms, dimensions or ledge handle types. The analytical strength of some the chosen vessel features is however questionable, since rim forms and ledge handle types have only been observed on the most general level, without closer inspection and measuring. When matches occur they may therefore represent common potting trends rather than specific, individual traits. Despite this discouraging situation, the following observations should be mentioned:

1) Corresponding mark types are seldom followed by a match in shoulder decorations. Six different decorative schemes are found among the seven attestations of M-20, with two vessels, CN 32 and 33, having no decorations at all, while another two, CN 31 and 35, have an identical band of slashes at the neck/shoulder junction. For M-8 only two vessels out of nine, CN 13 and 17, have similar shoulder decorations. If one allows for a slight variation in mark type such as M-2 and M-3 which both involve three vertical lines, the two hybrids CN 2 and 3 actually make the best match with their similar band combings, and with further parallels found in rim forms and ledge handle types. They also have the same provenience as both come from tomb 1 at Umm al-Bighal. Although the mark designs are not completely identical, it is likely that CN 2 and 3 have a common origin of manufacture.

2) An overlap in design between M-2, M-3 and M-4 was noted upon in section 5.1, and based on the above, M-2 and M-3 indeed seem to be
connected while M-4 cannot be convincingly included. Another overlap in design is seen between M-16 and M-17 found at al-Bassah. As both vessels, CN 28 and 29, have identical rim forms and close overall dimensions, it is not implausible that M-16 and M-17 represent variants of each other, with the vessels coming from the same production unit. Another two vessels, CN 19 and 20, also appear related. Both have marks with herringbone design, M-10 and M-11, and their volumetric properties are the same. The rest of the vessel features go apart. CN 19 and 20 were found at Umm al-Bighal and Abu Ridin/Na’ur, located approx. 15 km from each other.

3) M-8 and M-20 which are the only frequently attested markings both appear on the volumetrically smallest as well as the largest containers in the corpus. When all mark types are concerned, the greatest variety of designs is found among medium-sized and large jugs (3-5 litres and 5-9 litres), and among small and large hybrids (9-12 litres and > 20 litres). The above mentioned volumetric match between CN 19 and 20, which carry two variants of herringbone incisions, is unique.

4) The vessels with M-8 and M-20 often display a variety of vessel features. Three different pairs of identical rim forms are found for M-8 (CN 8+13; 9+17 and 10+16). Of these CN 9 and 17 also have identical ledge handles. Although the matching rims and ledge handles could suggest that CN 9 and 17 are related, the present writer is not fully convinced about the validity of this observation since the potters’ marks diverge in mode of execution and the shape of the strap handles are quite different (a feature otherwise not considered here). For M-20, identical rim forms are found on CN 30, 34 and 36, while the ledge handles of CN 33, 35, and 36 matches. The repertoire of shoulder decorations have already been commented on. As we shall see in section 5.6 some of the vessels with M-20 appear to stem from the same potter, despite their varying features.

5.6 Mark type micro-traditions: the case of M-20

For typologically similar mark types, the style and execution of each example can aid the recognition of assertive styles or so-called micro-traditions.66 For M-20 (punctuated X) three such possible traditions can be identified due to their distinct appearances and modes of execution (Fig. 11).67 One example is M-20a on CN 31 from Hussein Sports City, which has punctuations of oblique stance on the upper part of the X-pattern, turning smaller and less oblique in the lower section. Another is M-20b found on CN

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66 The term micro-traditions is borrowed from stylistic analyses of pottery (e.g. London 1985) where it refers to vessel decoration. It has here been applied to potters’ marks.
67 Other micro-traditions may be found for M-8, but it is difficult to tell since the mark execution is rather simple and can easily be reproduced. The present writer’s distinction between M-8a and M-8c is entirely based on the spatial arrangement of the design.
30 from Site 135. This mark also has punctations of oblique stance, but the design of the X-pattern is different and more unbalanced, with the diagonal “lines” crossing at a low point rather than at the centre. M-20a as well as M-20b was made with a pointed tool.

---

**Fig. 11. Three different micro-traditions for M-20. From left to right: M-20a on CN 31 (Hussein Sports City); M-20b on CN 30 (Site 135); and M-20c on CN 33 (Site 135).**

The third micro-tradition, M-20c, is among other places found in the Site 135 tomb deposit as was CN 30, but it is of a significantly different style and execution. The X-patterns seen on CN 33, 35 and 36 have horizontally aligned punctations of a slightly curved shape which resemble finger-nail impressions. The lower ends of the X-pattern always extend slightly beyond the strap handle onto the shoulder. CN 35 and 36 in addition display a rather uncommon feature in the proximity of the markings; a deep vertical incision made when the strap handles were attached to the vessels. A fourth vessel, CN 34 from Khirbat Iskandar ca. 40 km south of Site 135, carries an M-20 of the same specific execution.\(^{68}\) Even the deep vertical incision in the strap handle is present. From Site 73 which is only located 4 km from Site 135, a similar example of M-20 is found on CN 32, though without the strap handle incision. Although there is a lack of correspondence in other vessel features (mentioned in section 5.5), the distinct potters’ marks and the occasionally present unusual handle fixation technique strongly suggest that CN 32-36 all came from the same manufacturing context.

It is however not only M-20c for which this micro-tradition is observed, it also applies to a slightly different mark type M-21, seen on CN 37 which comes from Site 135 like many of the other above mentioned vessels. Here

\(^{68}\)CN 34 has only been available to the present writer in drawing, preventing a more thorough examination of the mark execution. However, photographs of CN 33, 35 and 36 were sent to S. Richard, director of the Khirbat Iskandar excavations, who confirmed their resemblance to the mark and strap handle fixation of CN 34 (Richard, pers. communication).
the X-pattern ends in a loop, but the punctations are of the same stance and shape as on CN 32-36. Equally revealing is the strap handle with its deep vertical incision. If the notions of M-21 as being linked to this group of vessels are correct, then a single production unit used slightly different markings, as variations of the same basic theme (a punctated X).

When several micro-traditions are observed for the same mark design, do these differences then represent temporal and/or geographical differences? Were the potters adhering to this theme connected in some way, or was it used independently in different parts of the region? None of these questions can at present be answered in full, but in the case of Site 135, where two micro-traditions (M-20b and -c) were found together, tradition or a hereditary aspect may be involved – that is, if CN 30 and CN 33, 35, 36 (and probably also CN 37) were not deposited at the same time. That at least two different sets of grave goods could be present in the tomb is suggested by the embellishment of some vessels with copper bands (CN 17, CN 30 as well as two unmarked jugs), while others had none. It should be mentioned though that all the pottery was found together, and not in different concentrations. A sequence of events is however indicated by the bones which seem to have been rearranged as new interments took place, with skeletal remains already present being gathered in different piles and set aside along the wall of the alcove. It is possible that the vessels previously deposited in the main chamber were moved on such occasions as well and placed together with the latest grave goods at the chamber entrance.

5.7 Depositional patterns

None of the settlement contexts in which potters’ marks occur are characterized by discrete clusters of particular mark types, and the only consistent depositional pattern discerned is one of mark variety whenever more than one vessel is found (Table 5). At Tall Iktanu and Tall al-‘Umayri the marked vessels occur in domestic refuse contexts, while at Khirbat Iskandar Family AZ vessels have only been found in a public building with high concentrations of local as well as non-local pottery. However, much of the pottery from this occupation level remains to be examined, and it cannot be excluded that more Family AZ vessels are found in domestic contexts at the site as well.

No clusters can be detected for the tomb deposits either (Tables 5 and 6), except for an overweight of M-20 in tomb 13 at Site 135. In this tomb, as well as in most other tombs containing several marked vessels, the mark repertoire nonetheless always involves different types. Eight of the tomb deposits only had one marked vessel; whether these single occurrences reflect preferences for certain marks or if they are due to completely different matters is impossible to tell.
Table 5. Mark type distribution – tomb and settlement deposits*

<table>
<thead>
<tr>
<th>Site/Mark type</th>
<th>M-1</th>
<th>M-2</th>
<th>M-3</th>
<th>M-4</th>
<th>M-5</th>
<th>M-6</th>
<th>M-7</th>
<th>M-8</th>
<th>M-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hussein S. C.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Jabal at-Taj</td>
<td></td>
<td></td>
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<td></td>
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<td>1</td>
<td></td>
</tr>
<tr>
<td>Jabal al-Jofah</td>
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<tr>
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<tr>
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<tr>
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<tr>
<td>Bighal 4B</td>
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*The two unidentified mark types Mx-1 and Mx-2 from Umm al-Bighal (surface find) and Tall al-‘Umayri are excluded from the above table.
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*The two unidentified mark types Mx-1 and Mx-2 from Umm al-Bighal (surface find) and Tall al-‘Umayri are excluded from the above table.
Table 5 cont. Mark type distribution – tomb and settlement deposits*

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*The two unidentified mark types Mx-1 and Mx-2 from Umm al-Bighal (surface find) and Tall al-‘Umayri are excluded from the above table.

When the tomb deposits are scrutinized further, it also becomes apparent that the sum of marked vessels within a tomb is independent of the number of interments - at least in the cases where estimates of individuals can be made (Table 6). Two concentrations of pottery (each with one marked vessel) were found in the tomb at Hussein Sports City, but this configuration
is not repeated in other deposits. At Jabal al-Jofah two or more individuals were buried with six vessels of which only one was marked, while the grave goods for two individuals in tomb 1 at Umm al-Bighal included five marked vessels. The single individual in tomb 3 from the same site received three marked vessels alongside other pottery.

Furthermore, there is no obvious connection between the frequency of marked vessels in a tomb and its relative wealth. al-Musheirfah A1 and the tombs at Hussein Sports City, Site 135 and Abu Ridin/Na’ur contained additional grave goods such as weapons, beads, and pins of copper/bronze. At Site 135 and Abu Ridin/Na’ur were also found other, more evocative insignia of social status, including fragments of copper fittings for ceremonial staffs or “sceptres”, a headgear band of copper, and a bead of silver. The wealth of tomb 13 at Site 135 in particular stands out from any of the other tomb deposits, but the proportion of marked pottery within the tomb (43%) is not significantly different from that of e.g. tomb 3 at Umm al-Bighal, al-Musheirfah C1, or the tomb at Jabal at-Taj which all contained no other grave goods but pottery (2 to 6 vessels).

Consequently, no overarching patterns for the Family AZ potters’ marks can be detected from the funerary contexts, and it is noticeable that when correspondences occur, they relate to specific rather than general situations. There is no preference for particular mark types within the tombs, and the rate of marked vessels varies considerably from one tomb to another without having any apparent relation to the number of individuals buried nor their social status. In settlement contexts, the range of mark types is similarly varied, and the spatial distribution of marked vessels includes private as well as public buildings. These contexts come from different sites, and the concentrations of potters’ marks to either one may be due to the lack of fully processed data. If not, then people of different social spheres had access to imported Family AZ vessels at Tall Iktanu and Khirbat Iskandar. Interregional distribution involved marked as well as unmarked vessels, either being commodities themselves or serving as containers for other goods traded – i.e. liquid substances.

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69 Different concentrations of grave goods is a feature sometimes observed for multiple burials in the EB IV period. Single interments were clearly the norm during this time, and the grouping of grave goods may have been a way to “individualize” the burials when tomb chambers were used for more than one individual (Palumbo 2001: 250). Of the tombs considered six had multiple interments for certain, but concentrations of grave goods could only be discerned in the Hussein Sports City and Jabal al-Jofah tombs. As mentioned in section 4.6, there may have been different assemblages of grave goods in tomb 13 at Site 135, although all the vessels were found placed together.

70 Three bronze pins were also found at Umm al-Bighal, see note 28.
Table 6. Contents of tombs with marked pottery

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Symbol key: x present; - none; ( ) likely.
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Symbol key: x present; - none; ( ) likely.
Table 6 cont. Contents of tombs with marked pottery

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<td>5</td>
<td>10/?</td>
<td>18/19</td>
<td>8/20</td>
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<tr>
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</table>

Symbol key: x present; - none; ( ) likely.
5.8 Discussion

With a corpus of only 42 potters’ marks it is hardly possible to discern trend from coincidence, and the conclusions drawn from the following discussion are thus tentative and are to be reviewed as more Family AZ pottery comes to light.

5.8.1 Early script and numeration

If we consider the reasons for applying marks, then some of the common hypotheses can readily be eliminated due to the high number of singletons within the assemblage. Of at least 24 different marks, the only types attested twice or more are M-8, M-20, and M-16, while a few additional mark types, M-2/3, M-10/11, and M-18/19, form potential pairs although without being exact representations of each other. For systems of early script and numerical notation one would expect a greater range of frequently repeated mark types than is the case for the Amman-Zarqa corpus. In terms of numeration, one would also assume a certain use of composite signs for the number of units involved, but composite Family AZ marks are rare. The practical usefulness of elaborate designs such as M-9, M-14, M-16, M-17 and M-20 for numerical indication is also highly questionable.

5.8.2 Labels indicating vessel contents

As mentioned in section 5.3 only jugs and hybrids received potters’ marks. The frequency with which they were marked (every second jug and hybrid found), could suggest a connection between mark application and 1) the presumed function of these types of vessels, or 2) their production. In terms of vessel function, one of the most common suggestions for markings is the labelling of vessel contents. This interpretation presupposes that the potter knew the future purpose of the vessel as well as a potential system used for labelling contents. In other words, the potter would have produced and marked the vessels according to specific demands. An emphasis on particular vessel types for mark application is in itself not sufficient evidence to suggest that the marks functioned as labels of contents. As M. Lindblom pointed out in his work on Middle and Late Helladic Aeginetan potters’ marks: “marks representing contents should be related to containers well suited for transport and should originate in an environment where an agrarian surplus production can be demonstrated” (Lindblom 2001:19). One would furthermore assume a limited, but frequently repeated mark repertoire reflecting the range and perhaps quality of the contents in question.

At present, no agricultural surplus production beyond household level can be demonstrated for the few excavated EB IV settlements in the Amman-Zarqa region (Palumbo 1996: 393ff.; Nigro 2009: 672; Harrison 1995:
158ff.), and tangible evidence of the production and handling of liquids is limited, besides the presence of jugs and hybrids. The only example of a feature associated with such activities is a paved installation from a house at Khirbat al-Batrawy, which may have been used for small-scale processing of wine (Nigro 2009: 671). No installations associated with olive oil production—an important commodity during the EB II/III periods (Nigro 2009: 669-670; Harrison 1995: 168-169)—have been found. The Family AZ ceramic corpus also lacks spouted basins and vats—vessel types thought to be connected with olive oil processing (Griegson 1998: 265). The production of other liquids such as beer, plant oils, and animal fats may not have left distinctive traces in the archaeological record. Neither jugs nor hybrids appear particularly well suited for stacking and transport over larger distances, but they are nonetheless found as far away as Khirbat Iskandar, located about 35 km from the southernmost site with potters’ marks in the Amman-Zarqa region.

The above mentioned notions are not compellingly in favour of marks functioning as labels for traded commodities. There is an emphasis on visibility when it comes to mark location (on handles or shoulders) which suggest that the marks were meant to be seen or felt (as one grabbed the handle), but the number of different mark types in the Family AZ corpus appears too high to represent a generally accepted labelling system for liquids, even if a reasonable assessment of different qualities of the same product is taken into consideration. The frequency of repeated markings is moreover extremely limited with only two mark types being attested more than twice. The indication of vessel contents can thus hardly have been the original intention with the markings, although it is fully possible that they received such a meaning secondarily, assigned by the consumer.

5.8.3 Vessel capacity indication
The correlation of vessel capacities and mark types in Table 4 has clearly demonstrated that the potters’ marks had nothing to do with indicating vessel capacity. The volumetric properties of pots sporting the same mark type vary considerably (1.25 to 36 litres for M-8; 1 to 20 litres for M-20) and moreover, different mark types are sometimes found on vessels of similar dimensions.

71 This situation could be due to the predominance of tomb pottery in the corpus. Tomb deposits often contain a particular selected range of vessels, and very large vessel types such as basins and vats may have been considered unsuitable grave goods.
5.8.4 Ownership

Interpretations of marks as indicating ownership presuppose - as in the case of vessel contents - that the potter made marked vessels on demand. However, if the marks identified the owner, then one would expect pots from the same context to display identical mark types. This is not the case. At Khirbat Iskandar, five hybrids associated with the public building carried marks of four different designs, and at Tall Iktanu none of the handle fragments from the courtyard pits of a house displayed identical marks either. A similar pattern is found for the tomb deposits where at least two different mark types are present whenever several marked vessels occur, and none besides one deposit (tomb 13 at Site 135) reveal a clear preference for a particular type of mark. The need for stating ownership within a private household must furthermore have been minimal, since no other economic parties besides the family would be involved. In public contexts different economic parties cannot be ruled out. However, the marked vessels from the public building at Khirbat Iskandar were probably imported as finished goods, with little probability of any pre-manufacture contact between potter and consumer. Based on the above observations there is no reason to assume that the potters’ marks signified ownership.

5.8.5 Trademarks

In the case of trademarks, one has to assume that a potter used only one particular mark for his/her products, and that the design was not copied by other potters active at the same time within the same community (Kolinski 1993/94:14). However, there has often been a discrepancy between the archaeological evidence and the estimated scale of production, with the quantities of different mark types exceeding the number of potters expected for the site in question (Genz 2002: 115-116; Kolinski op cit). It has already been mentioned that a majority of the pottery excavated within the Amman-Zarqa region comes from funerary contexts which cannot be readily associated with a particular settlement. This means that the character and temporal duration of the individual communities that produced the pottery found in the tombs largely escape us. In the cases where actual cemeteries have been excavated, one can nonetheless get an idea about the size of the community from the number of tombs and individuals involved.

At Umm al-Bighal - a site which appears to have been excavated in its entirety and which had the largest pottery concentration of the sites under

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72 When marks of the same type are found within a larger area, it does not automatically suggest that they were all made by the same potter, as especially simple mark designs are prone to occur independently at different sites.

73 Two possible exceptions are the al-Musheirifah and Site 135 tombs for which ar-Ruseifah and Tall al-Umayri could be the habitation foci.
study - the modest size of the cemetery (26 tombs) suggests that it was used by a small community of no more than perhaps 10-15 households, depending on the time span involved. If the individual mark types indeed represent trademarks, then at least 10 different production units were responsible for the pottery found in the tombs. This number is far too high for a community of the size suggested above - even if the vessels were produced over several generations. It is of course possible that the quantity of producers can be explained by part of the pottery being obtained from outside the community; an issue which cannot be resolved without further analysis of the clay used for the vessels. As has been the case for several other suggested mark functions discussed in this chapter, the singletons also present a problem when it comes to trademarks. Whether one look at Umm al-Bighal in isolation or at the entire Family AZ mark corpus, the circumstance that only a few mark types are duplicated speak against such a function.

Another issue in conflict with the idea of trademarks is the narrow range of vessel types involved. If the marks represented trademarks one would expect to find markings on the entire vessel repertoire produced, not just a small part of it. Some of the Amman-Zarqa potters also appear to have varied their marks - if the present writer’s suggestions regarding M-2/3, M-20c/21, and possibly M-18/19 are correct. Although the variation in all three examples was slight, and the overall scheme of the mark designs was maintained, the flexibility exerted nonetheless muddles the principle of trademarks. Additional doubt is raised with the sole example of M-24 which was partially hidden by the strap handle on the vessel. If the mark design stated the identity of the manufacturer, it seems odd that anyone would deliberately obscure it.

5.8.6 Production marks
As opposed to trademarks, production marks were used only during the manufacturing process, and were directed at the potters themselves – either as a way of keeping track of different production sequences e.g. drying stages, or as means of distinguishing between the outputs of different potters when sharing the same workspace, storage- or firing facilities (Kolinski 1993/94: 15; Donnan 1971: 465; London 1991: 392; Bedaux 1986: 126). As all the vessels in a batch produced and fired together with outputs of other potters would have to be marked, it is strange that non-repeated mark types in the Family AZ corpus outweigh repeated ones. It is however possible that potters occasionally introduced new marks as the demand for a fixed design was basically non-existing; the mark only meant something to those
involved in that particular production session when it was applied. Design changes of production marks have been observed among traditional potters in modern Peru as well as in Mali (Donnan: *op cit*; Bedaux *op cit*).

Speaking against the function as production marks is the elaborateness of some of the mark designs (e.g. M-9, M-14, M-17, M-21 and M-24) which was hardly required if the purpose was to avoid confusion between different outputs. The great concern for visibility (as indicated by strap handles being the favoured location for markings) could furthermore suggest that other concerns were in play. The line of reasoning regarding the lack of markings on the entire repertoire of vessel types produced, which was mentioned earlier for trademarks, also has its merits here. This is probably the strongest argument against the Family AZ marks as representing production marks.

5.8.7 Extreme specialization?

Questions arise why only part of the vessels produced received markings. Does this reflect the circumstance that some potters specialized in the production of jugs and hybrids only? If these two containers represented the only range of vessels produced by certain potters, then the above refusals of production marks and trademarks suddenly stand less strong, although some questionmarks persist for both. However, the techniques and proportions involved in the production of hybrids for example are exactly the same as those employed for other storage jars (in fact only the strap handle and the slightly longer, more straight neck of the hybrid separate the two). As common household types there is no obvious reason why they should not have formed part of many potters’ production repertoires together with a variety of other domestic vessel types. Extreme specialization cannot be fully excluded, but from the materials at hand there is no good indication that this was the case.

5.8.8 Reflections on mark function

As it turns out, the function of the Amman-Zarqa markings are hard to explain by way of any of the above mentioned suggestions. Either this situation is caused by the small sample and its predominance of singletons which hampers much interpretation, or else, the rationale for marking vessels was governed by other principles than those conventionally associated with potters’ marks. The marking of vessels clearly reflected the activities of the potter, but since the reason for mark application is ambiguous it cannot be discerned whether these activities were tied to strategies of manufacture

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74 If an Amman-Zarqa potter used different and non-related mark designs, then such connections could easily go unnoticed due to the lack of standardized vessel features (even seen among vessels thought to have originated within the same production environment).
and/or marketing as indicated by modern analogies, or to something else. Furthermore, it is difficult to evaluate the degree of influence events in the community may have had on the marking of vessels. Seasonal feasting, the preparation of particular produce, or other communal happenings could have stimulated the production of particular wares associated with liquids such as jugs and hybrids. In contexts like these, markings may have been applied as a way of emphasizing the significance of the occasion. Tradition and custom are powerful influences, and potters could also have continued previous marking practices simply because they were traditions of old and therefore deemed appropriate. In both situations sketched out above, it may have been the act of marking, rather than the particular mark applied, that was important.

5.8.9 Mode and scale of ceramic production in the Amman-Zarqa region

In the EB IV period, the organization of ceramic production is thought to have involved independent, and probably kinship-based, workgroups producing primarily for unrestricted local consumption, but at times also for regional consumption as seen in the case with the Jordan Valley sites where Tall Abu en-Ni’aj has emerged as the only production centre for “trickle-painted” fine wares which were distributed to neighbouring sites in the region. The potters at Tall Abu en-Ni’aj were not highly specialized in “trickle-painted” fine wares, as they continued to produce a variety of other vessel types of which most were consumed locally (Falconer 1987b: 255ff.).

The scale of production refers to the number of individuals involved in a production unit and their recruitment, as well as the resources used, and the size of the output (Rice 1987: 180ff.; Costin 1991: 15). Independent, kinship-based workgroups are not huge production units; their labour levels are informally organized and restricted to a small number of individuals, and the resources invested in e.g. technical equipment and work facilities are often modest. Standardization is limited, and the size of the output is generally low, but can vary according to the amount of time invested in manufacturing, the local demand for pottery at the site in question, and its economic integration with other sites in the area. In rural economies potters are often part-time crafts-specialists, timing the majority of their production to periods with few agricultural and pastoral activities (Rice op cit.; Costin op cit).

The context of ceramic production in the Amman-Zarqa region involved smaller agro-pastoral communities (< 3 ha) in which no more than perhaps one or two workgroups would have been active at the same time. The ceramic output was modest, judging from the ceramic assemblages retrieved from Khirbat al-Batrawy, Tall al-‘Umayri and Jabal ar-Rahil, with little
indication of standardization (see e.g. table 4, rim variation for CN 32-37 which are thought to belong to one and the same production environment).\textsuperscript{75} Due to the lack of excavated production loci, the resources invested in facilities and equipment can only be inferred from the pottery itself (e.g. that it was part hand-made/part wheel-made, suggesting the use of a slow wheel) and the pyro-technology involved (kiln firing). None of this is atypical for EB IV pottery in general. That the output of some manufacturing regimes exceeded what was required for local consumption is indicated by the presence of Family AZ pottery in other regions. The quantities we are dealing with are however not overwhelming and suggest occasional rather than perpetual exchange. The patterns of exchange between Amman-Zarqa communities, as well as between this region and communities elsewhere are poorly known, but the origins of at least one of the imported Family AZ vessels at Khirbat Iskandar can be pinpointed to the area around Tall al-‘Umayri, since vessels with similar specific markings (M-20c) have been found on Site 73 and Site 135. Only mineralogical or chemical analysis can reveal whether the other Family AZ vessels from Khirbat Iskandar came from the same area. It is also possible that pottery was exchanged between the two Amman-Zarqa communities burying their dead at Umm al-Bighal and Abu Ridin/Na’ur, as suggested by the presence of volumetrically identical vessels with related mark types (M-10 and M-11) on these sites.

5.8.10 Origins of the Family AZ marking practice

In his study of the pottery from Umm al-Bighal, Helms (1987: 48) suggested Syria as a possible source for the potters’ marks observed on some of the vessels. The reason for this should be seen in his interpretation of these markings as representing a measuring system for vessel capacity (Helms 1987: 48); a notion which could have been influenced by recording technologies in use at e.g. Ebla during the third millennium BC. The critique against Helms’ suggestions put forward by London (1991) is re-confirmed in the current study where a larger corpus of marks has been examined, and no indication has been found of the marks as referring to the volumetric properties of the vessels. The marking of vessels in the Amman-Zarqa region during the EB IV therefore most likely harks back to older traditions in Transjordan and Palestine for which there is ample evidence (e.g. Tufnell 1958; Kenyon 1960; Fargo 1979; Nodet 1988; Lapp 1995; Genz 2001; 2002). The rationale for marking vessels may have changed over time, as did the production environments, so even though a long tradition of potters’ marks is attested, the practices underlying the discrete mark corpora need not have been the same.

\textsuperscript{75} It should be kept in mind that the EB IV occupations on Tall al-‘Umayri as well as Jabal ar-Rahil have only been exposed to a very limited extent.
6. Summary and conclusions

The aim of this thesis has been to examine the taxonomy and function of potters’ marks used within the Amman-Zarqa region during the Early Bronze IV, ca. 2350/2300 – 2000 BC, and the activities of which they were part. The dynamics of pottery production and distribution within this region during the EB IV are poorly known, and most of the pottery has been retrieved from chance finds from cemeteries and isolated tombs, rather than from excavations of settlements. The assemblage of potters’ marks involves only 42 marks of which the majority have been found on pottery deposited at funerary sites within a 20 km radius of Amman. A few marks are attested from sites outside the region, at Tall Iktanu and Khirbat Iskandar, where modest quantities of imported Amman-Zarqa pottery have been uncovered. This pottery horizon is attested from early EB IVA to the beginning of EB IVB, but may have lasted longer since this time span is based on pottery found in stratified occupation layers outside the region. Within the Amman-Zarqa region itself, marked pottery occurs only in refuse- and tomb contexts which cannot be dated more precise within the EB IV.

A total of 24 different mark types have been identified within the mark assemblage. Of these, only M-8 and M-20 are repeated several times. The marks were all made before the vessels were fired, when the clay was turning from plastic to leather hard. The modes of mark execution fall into four groups including incisions, combings, slashes and punctations.

Only two vessel categories within the Amman-Zarqa pottery repertoire received markings: the jug and the hybrid jug/storage jar, which both are associated with liquids. All the potters’ marks except one, were applied to the flat strap handle on the vessels, running from the rim to the shoulder; a choice of location easy to see as well as feel when grabbing the handle. Vessels of these types were often marked; in fact 50% of all the Family AZ jugs and hybrids found carry potters’ marks, which is an extraordinarily high frequency. When all vessel categories are considered, the ratio of marked to unmarked vessels is 1:4 which is also significantly higher than ratios obtained for other mark assemblages elsewhere. This circumstance is probably caused by the predominance of tomb deposits in the sample, as jugs and hybrids often outweigh other vessel categories in funerary contexts found within the Amman-Zarqa region. If a larger sample from occupation contexts could be studied, the ratio would no doubt be lower.
The mode and scale of production in the Amman-Zarqa region involved independent, and probably kinship-based, informally organized production units producing for unrestricted local and at times non-local consumption. Standardization was limited with potters not being overly systematic about vessel features, and the number of active pottery manufacturing workgroups within most communities probably didn’t exceed one or two at the same time, given the small size of the sites (< 3 ha) and an overall modest ceramic output. In terms of exchange patterns, at least one of the imported marked vessels found at Khirbat Iskandar appears to have originated in the area around Tall al-‘Umayri, judging from the presence of vessels here with the same, rather specific potter’s mark. Furthermore, two vessels found at Umm al-Bighal and Abu Ridin/Na’ur in the Amman area may be linked through their related potters’ marks and volumetric properties.

A number of different suggestions regarding the function of potters’ marks have been tested against the Amman-Zarqa mark corpus in the hope of reaching a plausible explanation for its use. The idea of marks as indicating vessel contents was at first appealing, due to the emphasis on jugs and hybrids for marking and the marks’ prominent location on the handle. However, the many different mark types, of which only a few are repeated, hardly fit a generally accepted labelling system for liquids. Suggestions regarding script and numeration can be rejected on similar grounds. A correlation of vessel features and mark types revealed that the potters’ marks did not indicate vessel capacity either, as vessels with the same mark type often have different volumetric properties. In the case of vessels marked with M-8 for example, the effective vessel capacity varied from 1.25 litres to 36 litres. Clearly, the Amman-Zarqa markings were not accounting devices of some sort, and therefore they should not be considered a sudden phenomenon adapted from more complex information technologies in Syria. The marking of vessels in Transjordan is attested from the EB I and onwards, and the Amman-Zarqa corpus falls well within these traditions.

Ownership as a potential mark function can also be refuted, as none of the contexts with several marked vessels demonstrated a preference for a particular mark type, except for Tomb 13 at Site 135. In the tombs there were furthermore no correspondence between the sum of marked vessels and the number of interments, nor was there any difference in the frequency of marked vessels contained in ‘wealthy’ deposits as opposed to ‘non-wealthy’ ones. That the marks functioned as trademarks is also dubious, again due to the few repeated mark types in the corpus as well as the indication of some potters varying their mark designs. If one accepts that jugs and hybrids were not the result of extreme specialization (for which there is currently little evidence), then the lack of markings on other vessel types produced could also negate that the marks represented trademarks. For production marks, changes in mark designs would not be a problem as the design in itself had no particular meaning. However, the latter argument raised against
trademarks also applies to production marks, as one would expect the entire production repertoire to be represented among the marked vessels. The elaborateness of some mark types as well as the conservatism exerted regarding mark location also appears odd within the context of production marks.

In conclusion, the question of the Amman-Zarqa markings’ function remains open as basically all the suggestions tested in the thesis fall short of fitting the archaeological material, even the ones concerning production- and trademarks which are the only mark functions supported by ethno-archaeological evidence. The negative result could be due to the modest size of the sample as well as its relatively large proportion of singletons. The marking of vessels clearly reflects the activities of the potter, but the exact context of marking is still obscure due to the lack of compelling evidence for a particular function. If this circumstance is independent of the size of the sample, then one has to think along other lines when it comes to the Family AZ potters’ marks, taking into consideration that the reasons for applying marks may not have been governed by practical principles founded in strategies of production or sale, despite the focus on these aspects among traditional potters using marks today. Events within the community (e.g. seasonal feasting or the handling of particular produce) could have influenced the marking of wares associated with such occasions, perhaps in order to express the significance of the event. It is also possible that some potters marked their vessels simply because it was deemed appropriate in terms of tradition. In both scenarios, it could have been the act of marking - rather than the marks themselves - that was important.

As vexing as it is, the nature of the Amman-Zarqa markings eludes us for now. Nonetheless, the present work provides an onset for further studies with observations to be reviewed as more Family AZ pottery comes to light. For already excavated materials, the mapping of local fabric groups by petrographic or chemical analyses would also be highly interesting for some of the issues discussed in the thesis, e.g. the suggested connections between certain sites and the question of extreme specialisation.
Bibliographical abbreviations

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<td>SHAJ</td>
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**Internet sources**

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Catalogue of mark types

Wavy incisions

M-1. Four parallel, vertically incised wavy lines


Linear incisions (long)

M-2. Three parallel, vertically incised lines


M-3. Three parallel, vertically incised lines with horizontal rows of punctates above


M-4. Three parallel, vertically incised lines with incised X above

M-5. Incised “lattice” pattern below one horizontal row of short oblique incisions

5. **Site:** Umm al-Bighal (T). **Inv. no.:** J. 14471. **Mark state:** Partly chipped off. **Vessel type:** Jug. **Vessel condition:** Complete. **Vessel dimensions:** H: 19.4; Ø rim: 10.5 cm; Ø base: 16 cm; VC: 3.6 litres. **Fabric:** Gritty ware, S-M sized inclusions (black and white), black core. **Munsell:** Reddish brown 5YR 5/3 to 5YR 5/4. **Date:** EB IV. **Remarks:** Poor visibility of ext. due to white incrustation. **Reference:** Helms 1987: fig. 5:19; Helms 1989: fig. 3:11; Helms and McCreery 1988: fig 10:1

M-6. Two parallel vertically incised lines with incised V above

6. **Site:** Khirbat Iskandar (S). **Inv. no.:** ISK84-B8124; 124-10; 124-12 (*). **Mark state:** Complete. **Vessel condition:** Only strap handle with part of rim and neck preserved. **Handle dimensions:** L: 8.8 cm; W: 3.4 to 4.5 cm. **Fabric:** Gritty ware, M sized inclusions (black and white + grog). **Munsell:** Unknown, colour is very pale brown (photo). **Date:** Kh. Iskandar, Phase B = EB IVA. **Reference:** Unpublished, courtesy of S. Richard

M-7. Incised Y

7. **Site:** Khirbat Iskandar (S). **Inv. no.:** AP 304 (*). **Mark state:** Complete. **Vessel type:** Hybrid jug/storage jar. **Vessel condition:** Complete. **Decoration:** Horizontal band of slashes at neck/shoulder junction, and one horizontal incised wavy line on the shoulder. **Vessel dimensions:** H: 39.6 cm; Ø rim: 12.3 cm; Ø base: 21 cm; VC: 23.8 litres. **Fabric:** Gritty ware. **Munsell:** Unknown, described as grey/pale brown. **Remarks:** Ledge handles have three pinched-lapped flaps. **Date:** Kh. Iskandar, Phase B = EB IVA. **Reference:** Palumbo and Peterman 1993: fig. 3

M-8 (a-c). Incised X

8. **Site:** Umm al-Bighal (T). **Inv. no.:** Unknown (*). **Mark state:** Complete. **Vessel type:** Jug. **Vessel condition:** Complete, lower body and base reconstructed. **Vessel dimensions:** H: 15 cm; Ø rim: 9.9 cm; Ø base: 10.5 cm; VC: 1.3 litres. **Fabric:** Gritty ware. **Munsell:** Unknown. **Date:** EB IV. **Reference:** Helms 1987: fig. 5:72; Helms 1989: fig. 5:6; Helms and McCreery 1988: fig. 8:2

9. **Site:** Khirbat Iskandar (S). **Inv. no.:** AP 360 (*). **Mark state:** Complete. **Vessel type:** Hybrid jug/storage jar. **Vessel condition:** Complete. **Decoration:** Four horizontal incised lines on the shoulder. **Vessel dimensions:** H: 45cm; Ø rim: 13 cm; Ø base: 27.5 cm; VC: 36 litres. **Fabric:** Gritty ware. **Munsell:** Unknown, described as grey/pale brown. **Date:** Kh. Iskandar, Phase B = EB IVA. **Remarks:** Angular strap handle. Ledge handles have three spaced flaps. **Reference:** Richard 2000: fig. 3:8

10. **Site:** Hussein Sports City, Amman (T). **Inv. no.:** J. 13195. **Mark state:** Complete. **Vessel type:** Jug. **Vessel condition:** Complete. **Decoration:** Horizontal band of slashes at neck/shoulder junction, incised horizontal line on the shoulder (the latter is not illustrated on the published drawing). **Vessel dimensions:** H: 20.4 cm; Ø rim: 10.3 cm; Ø base: 14.8 cm; VC: 3.3 litres. **Fabric:** Gritty ware, S-M sized inclusions (black and white + grog). **Munsell:** Light brownish gray 10YR 6/2. **Date:** EB IV. **Remarks:** Very faint potters’ mark (not mentioned in the publication). Angular strap handle. **Reference:** Zayadine 1978: fig. 3:4; Pl. 10:4

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Comblings

**M-9. Short multi-directional combings**

18. **Site:** Umm al-Bighal (T). **Inv. no.:** J. 14474. **Mark state:** Complete. **Vessel type:** Jug. **Vessel condition:** Complete. **Decoration:** Two horizontal band combings at neck/shoulder junction and two more on the shoulder. Groups of short oblique combings separate the two upper bands from the two lower. Trace of brown paint in trickles on neck and body. **Vessel dimensions:** H: 28 cm; Ø rim: 12.4 cm; Ø base: 21 cm; VC: 8.7 litres. **Fabric:** Gritty ware, M-L sized inclusions (black and white). **Munsell:** Reddish yellow 5YR 7/6. **Date:** EB IV. **Remarks:** Angular strap handle. **Reference:** Helms 1987: fig. 5:22; Helms 1989: fig. 3:11; Helms and McCreery 1988: fig. 12:2

“Herringbone” incisions

**M-10. Three-row “herringbone”**

19. **Site:** Abu Ridin/Na’ur (T). **Inv. no.:** T. 3728. **Mark state:** Complete. **Vessel type:** Jug. **Vessel condition:** Complete. **Decoration:** One incised horizontal line at neck/shoulder junction and two on the shoulder. **Vessel dimensions:** H: 24.6 cm; Ø rim: 11.5 cm; Ø base: 19.2 cm; VC: 6.3 litres. **Fabric:** Gritty ware, S-M sized inclusions (black and white + grog), black core. **Munsell:** Very pale brown 10YR 7/3. **Date:** EB IV. **Reference:** Abu Shmais and al-Nabulsi 2004: fig. 6; field no. 1

**M-11. Four-row ”herringbone”**

20. **Site:** Umm al-Bighal (T). **Inv. no.:** J. 14475. **Mark state:** Complete. **Vessel type:** Jug. **Vessel condition:** Complete. **Vessel dimensions:** H: 23.2 cm; Ø rim: 11.2 cm; Ø base: 18.3 cm; VC: 6.3 litres. **Fabric:** Gritty ware, S-M sized inclusions (black and white + grog). **Munsell:** Very pale brown 10YR 8/3. **Date:** EB IV. **Reference:** Helms 1987: fig. 5:23; Helms 1989: fig. 4:1; Helms and McCreery 1988: Fig. 9:4

Linear incisions (short)

**M-12. Seven vertical incisions arranged in two horizontal rows**

21. **Site:** al-Musheirfah (T). **Inv. no.:** T. 1275. **Mark state:** Small piece is missing. **Vessel type:** Hybrid jug/storage jar. **Vessel condition:** Restored to complete when first published; at present the neck and rim need further restoration. **Decoration:** Three incised horizontal lines on the shoulder. **Vessel dimensions:** H: 33 cm; Ø rim: 12.2 cm; Ø base: 20.5 cm; VC: 14.2 litres. **Fabric:** Gritty ware, S-M sized inclusions (white). **Munsell:** Red 2.5YR 5/6. **Date:** EB IV. **Remarks:** Ledge handles have three overlapping flaps. **Reference:** Palumbo and Peterman 1993: fig. 1:2; Ibrahim and Qadi 1995: fig. 6:2; Pl. 7:5

**M-13. Nine vertical incisions arranged in two horizontal rows**

22. **Site:** Jabal al-Taj, Amman (T). **Inv. no.:** J. 11683. **Mark state:** Complete. **Vessel type:** Hybrid jug/storage jar. **Vessel condition:** Complete. **Decoration:** Faint horizontal band of slashes at neck/shoulder junction (not on the published drawing, but seen on the actual vessel), and one incised horizontal line on the shoulder. **Vessel dimensions:** H: 31 cm; Ø rim: 12.2 cm; Ø base: 17 cm; VC: 9.5 litres. **Fabric:** Gritty ware, M-L sized inclusions (black and white + grog). **Munsell:** Light reddish brown 5YR 6/4 to reddish yellow 5YR 6/6. **Date:** EB IV. **Remarks:** Preserved ledge handle has three pinched-lapped flaps. The pot is no. 3 in the
published catalogue, but no. 2 on the illustrations. Reference: Dajani 1967/68: figs. 1:2; 2:2; Pl. 40

**M-14. Multiple vertical incisions arranged in seven horizontal rows**


Linear incisions and slashes

**M-15. Eight vertical incisions arranged in a horizontal row, with oblique slashes above/below**


Slashes

**M-16 (a-b). Slashes arranged in two vertical rows**


Punctates and slashes

**M-17. Five vertical rows of punctates above three vertical rows of slashes**


Punctates

**M-18. Two punctated vertical rows, upper part joined by punctated horizontal line**

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M-19. Two punctated vertical, slightly curving rows


M-20 (a-c). Punctated X


beyond the handle. Deep vertical incision on lower half of strap handle. Ledge handles have 4 spaced flaps. Reference: Unpublished, courtesy of S. Richard


M-21. Punctated X with lower ends joining in a loop


M-22. Punctated X with lower ends separated by punctated vertical line

38. Site: Tall Iktanu (S). Inv. no.: Unknown (*). Mark state: Incomplete (upper mid section preserved). Vessel condition: Only upper mid section of strap handle preserved. Handle dimensions: L: 5.7 cm; W: 5.3 cm. Fabric: Gritty ware, M-L sized inclusions (gray, white and red). Munsell: Unknown, colour described as gray-drab. Date: Tall Iktanu, Phase 1 = EB IVA. Reference: Prag 1971: fig. 19:17

M-23. Three punctated horizontal lines above punctated X

**M-24. Punctated trident-like pattern**

40. **Site**: al-Musheirfah (T). **Inv. no.**: T. 1271. **Mark state**: Complete. **Vessel type**: Hybrid jug/storage jar. **Vessel condition**: Complete, except for missing strap handle. **Decoration**: Two horizontal bands of stabs at neck/shoulder junction. **Vessel dimensions**: H: 38.5 cm; Ø rim: 13 cm; Ø base: 21.5 cm; VC: 16.3 litres. **Fabric**: Gritty ware, M sized inclusions (white). **Munsell**: Red 10R 4/6. **Date**: EB IV. **Remarks**: Potters’ mark situated on the shoulder, right below the strap handle. Upper horizontal line of mark hardly visible when handle in place. Ledge handles have three overlapping flaps **Reference**: Palumbo and Peterman 1993:fig. 1; Ibrahim an Qadi 1995: fig. 6:1; pl. 7:2

**Misc. incomplete mark designs**

**M-x1. Vertical rows of punctates**

41. **Site**: Umm al-Bighal (T). **Inv. no.**: Unknown (*). **Mark state**: Incomplete. **Vessel condition**: Only neck, shoulder and very upper part of strap handle preserved. **Decoration**: Applied band with thumb indentations at neck/shoulder junction. Short combings on neck and shoulder. **Vessel dimensions**: H: ca. 9.5 cm (rim to shoulder); Ø rim: 12.5 cm. **Fabric**: Gritty ware. **Munsell**: Unknown. **Date**: EB IV. **Remarks**: Unprovenanced find from the cemetery area. **Reference**: Helms 1987: fig. 5:35; Helms 1989: fig. 2:4; Helms and McCreery 1988: fig. 15:3

**M-x2. Punctated X?**

42. **Site**: Tall al-‘Umayri (S). **Inv. no.**: Unknown (*). **Mark state**: Incomplete (upper part preserved). **Vessel condition**: Only upper part of strap handle preserved. **Handle dimensions**: L: 2.6 cm; W: 5.5 cm. **Fabric**: unknown. **Munsell**: Light red 2.5YR 6/8. **Date**: ‘Umayri, Phase 2 or 3 = EB IV. **Remarks**: Pink slip 5YR 7/3. **Reference**: Herr 1989: fig. 19.3:8; Harrison 1995: pl. 14:18
Plates

Plate I – Neck/shoulder decorations

Schematized vessel drawings reworked from Helms (1989, fig. 7).
Plate II – Rim forms and ledge handle types

Hybrid jug/storage jars

Jugs

a – three pinched-lapped flaps
b – three spaced folded flaps
c – four spaced folded flaps
d – three overlapping folded flaps
Plate III – Jugs with potters’ marks
Plate IV – Hybrid jug/storage jars with potters’ marks
Plate V – Handle fragments with potters’ marks
Plate VI – Vessel examples