Stone Grinding Tools of the Northern Highlands of Jordan in Classical and Early Islamic Periods Case Study: Barsinia

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Abstract: The paper describes and discusses the forty-two grinding stones found during the 2006 and 2007 excavation seasons at the site of Barsinia in northern Jordan. The basic types are identified and while most of them are known from as early as the Neolithic period, one type, the rotary basalt quern, seems to be a new arrival during the Late Byzantine period.

Introduction

Ancient rural sites of the northern highlands of Jordan were equipped with facilities, such as threshing floors and presses, for the preparation of agricultural products for consumption and sale.[1] Archaeological studies in the region dealing with ancient agricultural production have mainly focused on the production and processing of two main crops, grapes and olives. The main reason for this is that the best evidence for agricultural activities lies in the structures of wine and olive presses which occur throughout the rural areas (El-Khouri 2009: 34, fig.7).[2] Accordingly, presses, their shapes and types, processes of production as well as pottery vessels that were used for associated storage have been carefully studied.[3]

Historically, the production and processing of cereals was as important as grapes and olives. Wheat and barley occupy first place amongst the winter cereals on the plains of the region, however, they are less profitable on the slopes, and tend to accelerate soil erosion. This research aims to clarify the understanding of the processing of cereals by studying types of stone vessels and tools that were made and used for this activity during the Roman, Byzantine and Early Islamic periods in the northern highlands of Jordan. Materials were collected during the first and second seasons of excavations at the rural site of Barsinia (Figure 1). The vessels and equipment were considered to be good evidence for agricultural life in rural societies. They provide evidence for the procedures used in producing cereal foodstuff. This paper sheds more light on shapes, types, function and materials of these objects.

Climate and Geography

Jordan's northern highlands separate the Jordan Valley and its margins from the plains of the eastern desert. With altitudes varying from 300 to 1250 m above sea level, the highlands receive Jordan's highest rainfall and have a generally wet and cool climate, with agro-ecological zones ranging from semi-arid to semi-humid. The northern highlands consist of dissected limestone, and contain a wide range of soil types. These are mainly clay soils and are considered the most rain-fed productive soils of Jordan. The major soils are terrae rossae or red Mediterranean soil (Rusan et al. 2005: 24-26). Lithic subgroups occur on the shallow eroded areas of the hilltops and upper slopes from which most of the residual soils have been eroded (Rusan et al. 2005: 32-34).

Modern agriculture and farming in the region is affected by several factors, primarily the shortage of fundamental resources, especially water, and the variety in climatic conditions, with hot weather during summer and freezing in winter. However, most of the area, in particular the plains around Irbid and Ramtha, is capable of yielding crops without irrigation. These plains are the major cereal producing areas in the region.

A recent study of the environment in the time of the Decapolis suggested that the agricultural productivity of the ancient fields did not differ significantly from that of modern times (Lucke et al. 2005).

Ancient Agriculture and Cereal Production

Almost all ancient villages in the northern highlands undertook two principal types of cultivation: field crops, primarily wheat, along with barley, lentils and chickpeas, and fruit, with olives, grapes and figs most important.

Agriculture was the economic base in the region, especially when ancient settlements reached their peak in Roman and Byzantine periods. During these times the population relied on crop production for economic prosperity, since agricultural produce was the most abundant commodity, or resource, available. Most of the ancient wells, pools

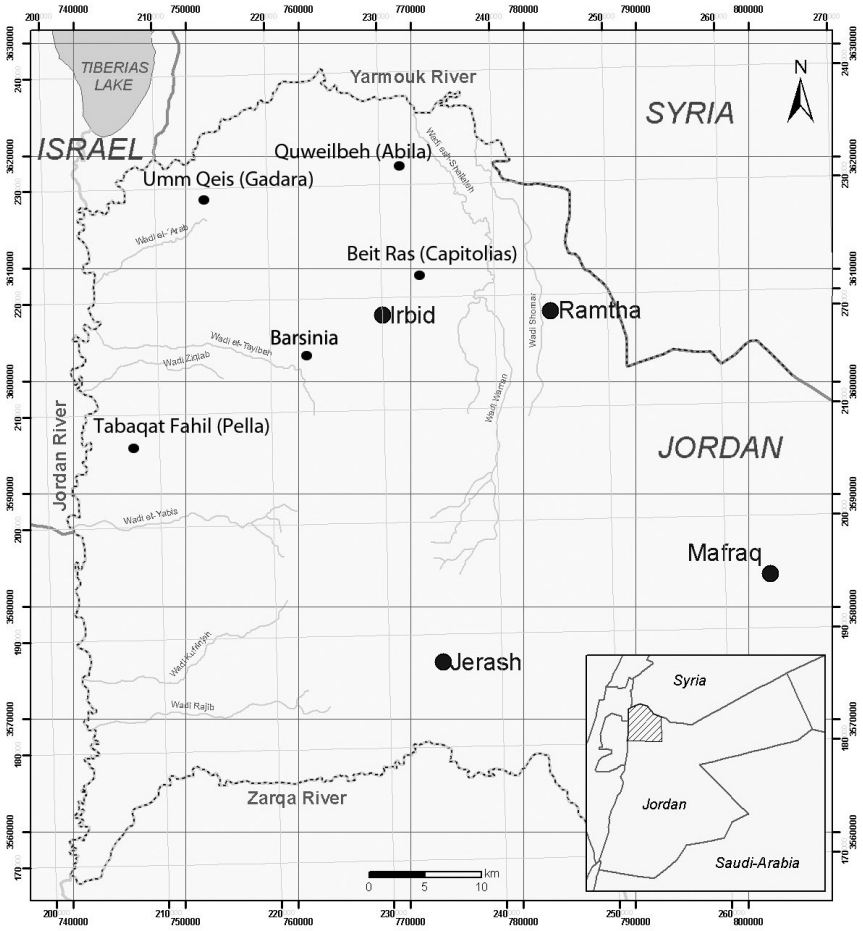

Figure 1: *Map of Barsinia and other main sites in the region of northern highlands of Jordan*

and cisterns that are still seen today were constructed by the agrarian society to develop its own flourishing agricultural and pastoral industries. The results of archaeological surveys in the region show that these installations were built in Roman and Byzantine periods,[4] but neglected in later times when sites were abandoned, especially in the Ottoman Period.

Ancient records that mention agriculture in the region are few. One of the earliest records was written by Varro (1934: 274), the Roman writer who described the region, especially the area close to Gadara, in the second half of the first century BC. According to his description the region was considered very fruitful, with seed yields as high as a hundred to one. Varro compared the region, with its fertile soil, to other regions in Italy, Syria and Africa.

Similar information was provided in the first century AD by Josephus, who described the geography and agricultural products of Peraea[5] as follows:

> *In short, if Galilee, in superficial area, must be reckoned inferior to Peraea, it must be given the preference for its abundant resources; for it is entirely under cultivation and produces crops from one end to the other, whereas Peraea, though far more extensive, is for the most part desert and rugged and too wild to bring tender fruits to maturity. However, too, there are tracts of finer soil which are productive of every species of crops; and the plains are covered with a variety of trees, olives, vine and palm being those principally cultivated. The country is watered by torrents descending from mountains and by springs which never dry up and provide sufficient moisture when the torrents dwindle in the dog-days. (BJ III.44–46)*

Such a description of soil and the agrarian nature of Peraea could be appropriate for most parts of north Palestine and the northern highlands of today's Jordan (Joseph. *BJ* II.252).

Ancient agriculture in the region could be also recognized through traces of ancient stone terraces. Contour terraces (also termed *mas□at□eb*) were constructed by placing at intervals rows of stones along the contours of a slope to inhibit soil erosion. This simple technique, which started as early as Iron Age II,[6] indicates that ancient land-use was similar to that of the present day.

Archaeological excavations in the region, such as those conducted in a number of rural sites of the Classical and Early Islamic Periods,[7] showed that the diet in the Late Roman and Byzantine periods contained only a moderate amount of meat and animal proteins, but was high in plant foods, especially wheat (el-Najjar, et al. 1999: 6; al-Shor-

Figure 2: *Silo from Hellenistic levels at Barsinia. Photo by Hussein Dibajeh*

Figure 3: *A large size oven (Tabun), found in the Umayyad context, season 2007, at Barsinia. Photo by Yousef Al-Zobi*

man 2003: 60–63; Rose & Burke 2004: 182). In addition, the excavations at Barsinia uncovered many other indications of high cereal production, such as silos[8] (Figure 2) and large ovens used mainly for baking bread[9] (Figure 3).

Archaeobotanical analysis of carbonized seeds from some of the major excavated sites in the region namely, Abila (Fuller 1987: 64), Capitolias (Lenzen & McQuitty 1989: 195; Lenzen 2002: 37–38), and Gadara (Weber 2002: 36–38), have shown the presence of olives, grapes, wild plum, berry, dates and many kinds of cereals such as barley and wheat, as well as pulses such as peas and lentils.

Grinding Stone Tools

Grinding tools used to process grain have a long tradition of production in the northern highlands. Some objects found at ancient sites in the region are comparable to tools in use until a few decades ago, with specific similarities in shape and function.

The stone assemblage on which this research is based was collected during two seasons of excavations at Barsinia. The site, located about 15 km west of the modern city of Irbid, is one of the prominent rural sites in north-western Jordan, and produced a number of stone objects with different uses. It was settled from Iron Age II until recent times; however, archaeological excavations in 2006 and 2007 established that the site flourished especially during the Hellenistic, Roman, Byzantine and Umayyad periods. The assemblage under study was found in a context dating from the first century AD to the Early Islamic periods. It provides a good sample of the main types, shapes and materials of the objects that were used at rural sites in the region.

	Locus																		
Area-Square	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total
Unstr.	7																			7
A.A1																				0
A.B1						1				1										2
A.C1									1										3	4
A.D1						1	2				5	2								10
A.B2																				0
A.C2						1														1
A.A9							1	1												2
A.B9		1		3			1													5
A.B10																				0
B.A2								1												1
B.B2																				0
B.A3	1																			1
B.B3																				0
B.A4																				0
B.B4			1																	1
C.A1									1			1								2
C.A2						2				1										3
C.A3				1			1													2
C.A4									1											1
Total	8	1	1	4	0	5	5	2	3	2	5	3	0	0	0	0	0	0	3	42

Table 1: *presents the frequencies of stone objects in the various loci and areas of excavation*

Figure 4: *Courtyard at Barsinia, where grain processing took place, a rotary basalt quern and a mortar were in situ. Photo by Hussein Dibajeh*

The assemblage consists of 42 objects made of basalt and limestone. Basalt was clearly the preferred material, since it was used for all but two of the objects; the remaining two items were made of fine-grained, hard limestone. The nearest source of basalt is in the vicinity of Umm Qeis (Gadara), the Golan Heights and Galilee.

The artefacts were made in various forms, and were discovered in a variety of loci and areas of the excavation (Table 1). Some were found in situ; for example, in courtyards (Figure 4) or in small rooms (Figure 12).

Typology

Stone objects are difficult to date typologically. Their daily use necessitated durability giving them long use-lives and few dramatic changes in typology. Accordingly, the objects were dated based on their context.

Of the 42 objects in our stone assemblage, 24 were found in 2006 and 18 in 2007 (Table 2). The majority of stone objects (43%) are pestles, 28.5% are mortars and bowls, and 28.5% are grinding stones. They can be categorized into the following types according to their main shapes and functions.

1. Rotary Basalt Querns. Seven items belong to this type: five upper or hand-stones (Figure 5: 1–5; Table 2), of which only one is intact (Figure 5: 1), and two fragments of lower querns (Figure 5: 6–7). All are made of basalt, and most have naturally rough surfaces. These rotary querns could be dated to the Late Byzantine and Umayyad periods, mainly from the sixth to eighth centuries AD. They were used in pairs to grind cereals into flour. Both the upper and the lower parts were circular; usually the grinding surfaces of

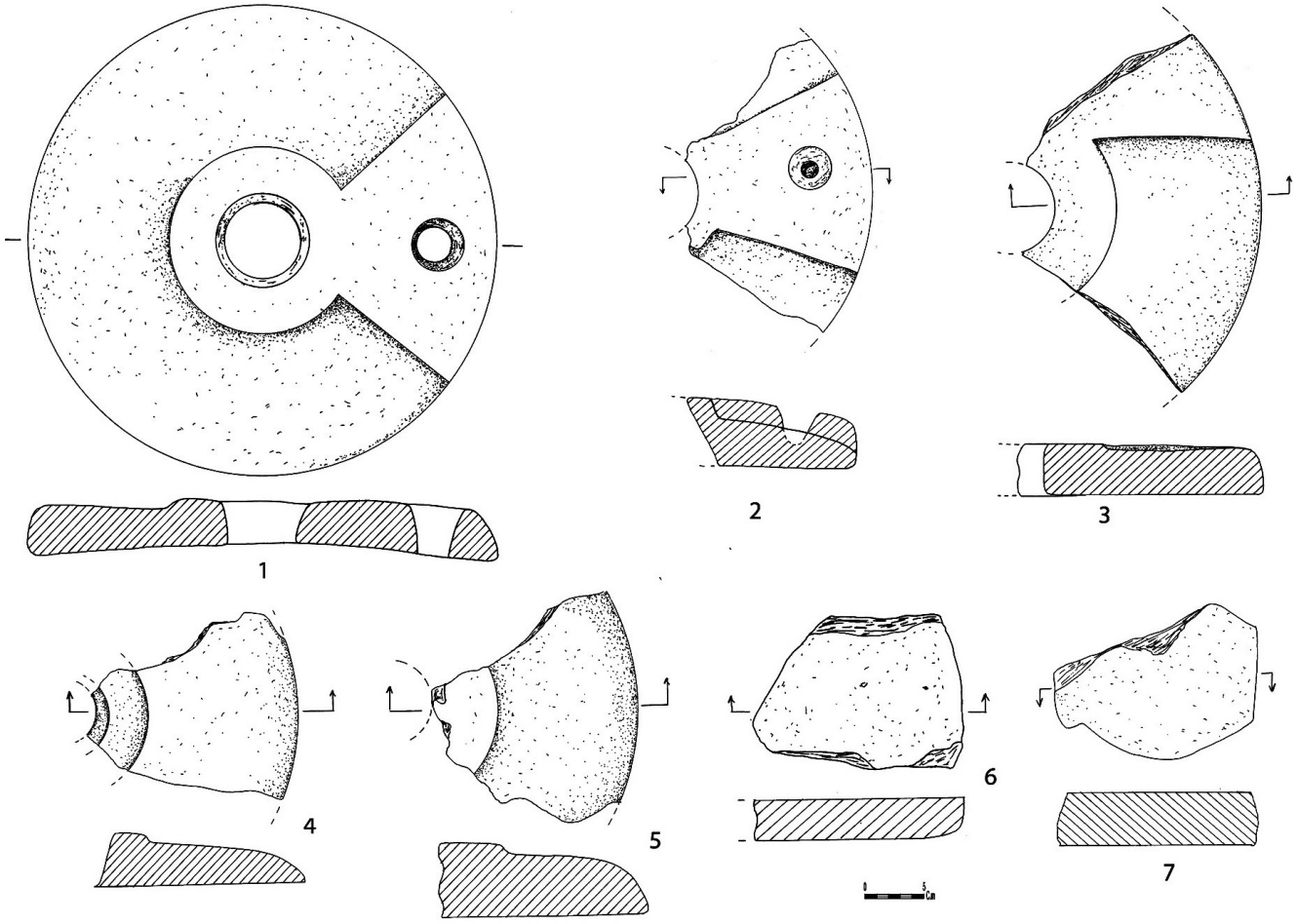

Figure 5: *Rotary basalt querns*

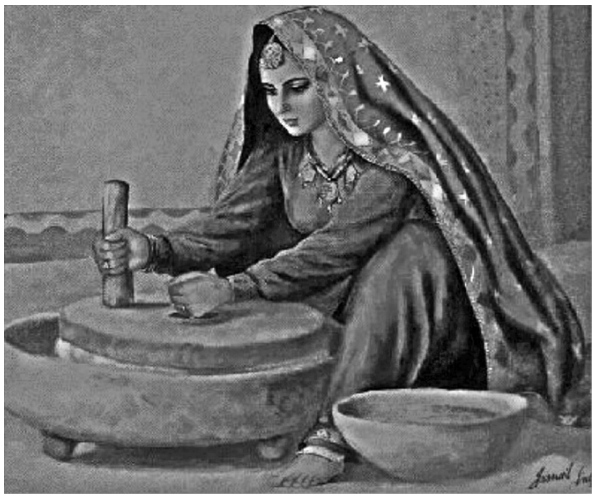

Figure 6: *Upper stone of a rotary quern, with schematic draw of a complete rotary quern, showing grain processing into flour. Photo by Hussein Dibajeh*

the upper and lower stones fit into each other. The upper stones are pierced in the centre, and have a hole at one side to allow a wooden handle to be attached (Figure 6). The thickness of the upper stone increases around the central and side holes; therefore, the central hole seems to have a small, high neck. The raw material of all fragments is very coarse and full of large pores. Both fragments of the lower stones have flat surfaces. One piece of the upper stones has slightly concave surface, but the surface in the other four pieces is flat. Diameters range between 38 and 42 cm, and thicknesses of the upper pieces range from 2.5 to 6 cm. The thickness of the two lower pieces is between 3.5 and 4.4 cm. The intact upper stone weighs 10 kg. A popular style of rotary basalt quern was still in use in northwestern Jordan until just a few years ago.

2. Grinding Slabs (Querns). A total of five pieces (Figures 7 & 8: Table 2) were retrieved, all fragmentary and made of basalt. They are usually elongated and have a protruding edge. They can be dated to the Byzantine and Umayyad periods, mainly from the fifth to the eighth centuries AD. The size and the curve of the outer face fits into the palm of the hand, where it was held during use. Cross-sections are convex or semi-triangular, and working faces are flat or slightly convex. This convexity was probably the result of use, since greater pressure is usually placed on the lateral edge of the tool.

Figure 8: *Upper- Grinding Slab (no. 8)*

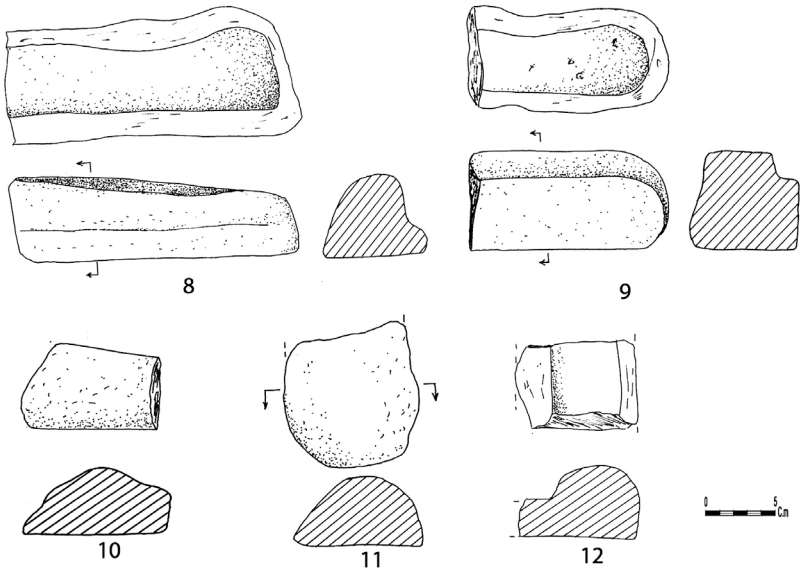

Figure 7: *Upper- Grinding Slabs*

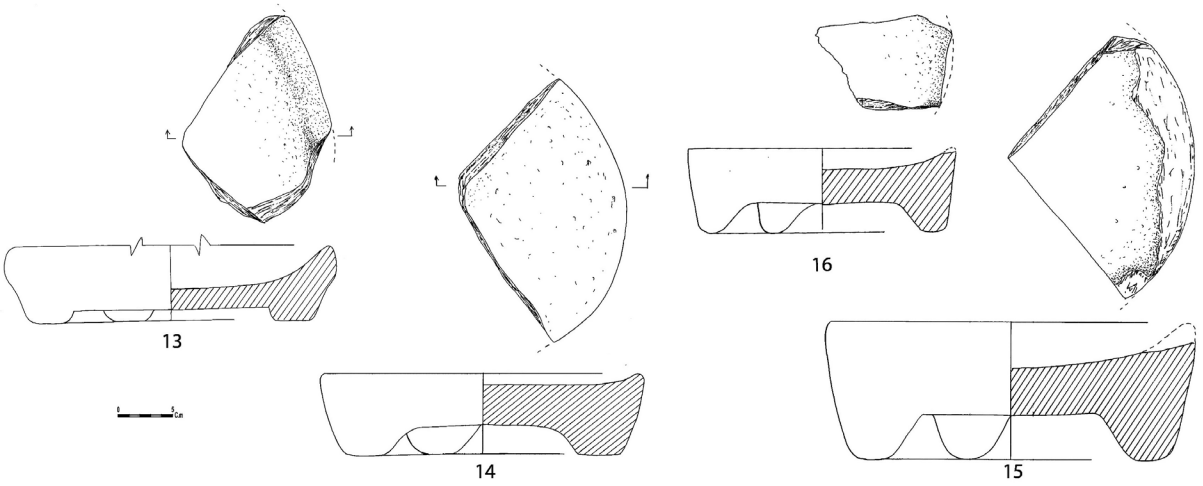

Figure 9: *Tripod Querns*

3. Tripod Querns. Four fragments of basalt tripod querns were retrieved (Figure 9:13-16; Table 2), ranging from 23 to 40 cm in diameter and 2 to 5 cm in thickness. Each piece is round and usually has three stump legs with heights between 2.4 and 4.6 cm. Leg height depends occasionally on the diameter of the mortar itself. The querns have slightly concaved polished surfaces, probably the result of use. The four querns have been dated to the period from the Late Roman to the Late Byzantine, that is from the fourth to seventh centuries AD. Similar examples were found at Hammath Teberias (Johnson 2000: fig. 26:52–53) (mortars from the Byzantine and Umayyad periods), Jerusalem (Hover 1996: fig. 27), Dor (Gut-Zilberstein 1993: fig. 6.42:11), and Jerash (Clark et al. 1986: fig. 24). Footed querns of this type are similar to mortars from Iron Age assemblages however, Iron Age mortars have higher ridge walls[10].

Figure 10: *Tripod Querns (nos. 15, 16)*

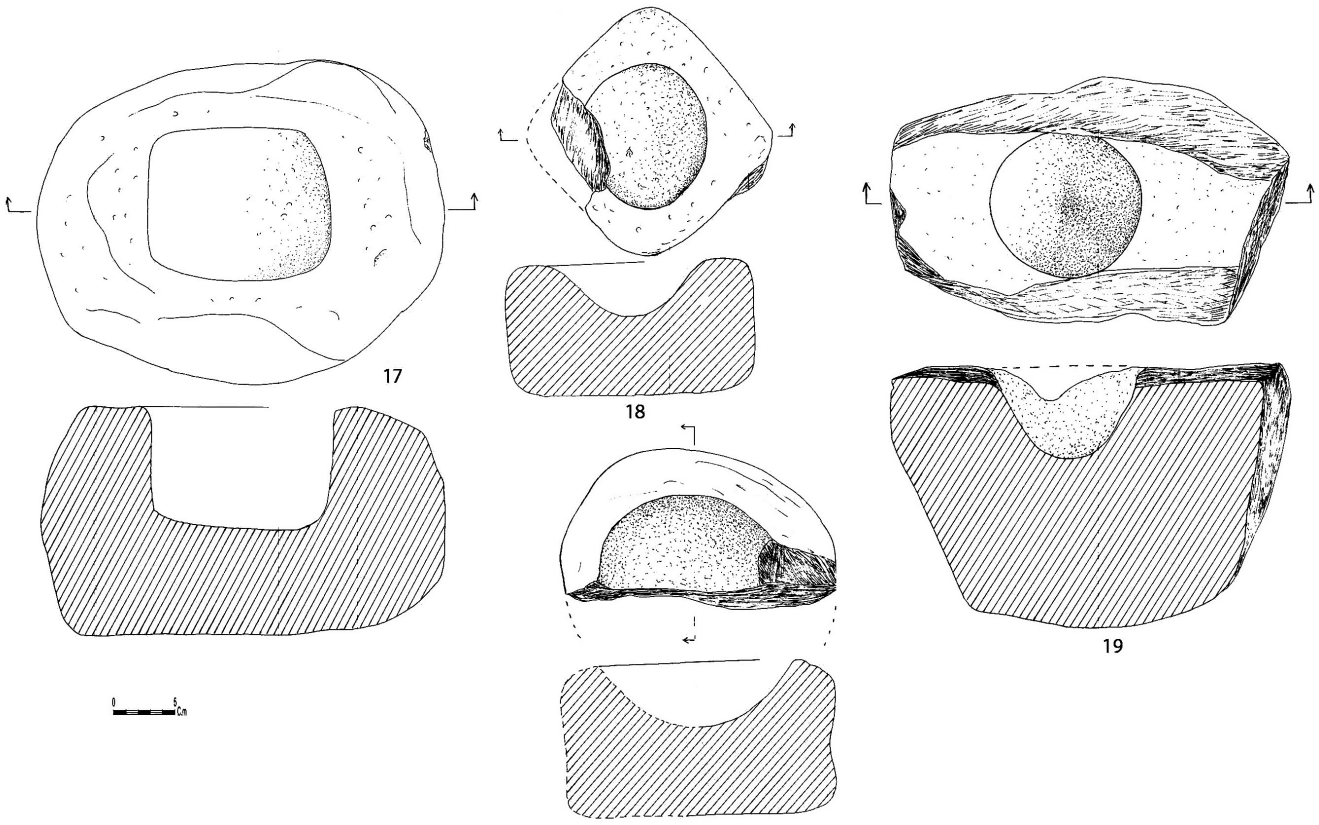

Figure 11: *Boulder mortars*

Figure 12: *Boulder mortar (no. 17) in one of the rooms at Barsinia, Area A, Sq. B1, Loc. 12. Photo by Hussein Dibajeh*

4. Boulder Mortars. Four pieces, two of which are made of basalt (Figure 11: 17,18) and two of limestone (Figure11: 19–20) (Table 2). They vary in depth from 4.5 to 10 cm, depending on the diameter of the mortar. These mortars are roughly made, and their outer surface is not well finished, but more attention was given to the inner hollow. They can be dated to the Byzantine and Early Umayyad periods, mainly from the fourth to the eighth centuries AD. The diameter of the opening is relatively small compared to the diameter of the rim, and the depth is relatively shallow compared to the height of the vessel. The base is not completely flat, and the hollow in the center is either cubic as in no.17 or hemispherical as in nos.18–20. The width of the hollow is between 12 and 15 cm, while height ranges from 11 to 19 cm. The walls and base are very thick.

Figure 13: *Boulder mortars (nos. 17, 18, 20). Photo by Hussein Dibajeh*

5. Basalt Bowls (Vessels). These vary considerably in shape (Figures 14, 15; Table 2). One bowl (Figure 14: 21) has a ring base and triangular ledge handles attached to the rim, one bowl has stumped legs (Figure 14: 22), and two bowls have flat bases (Figure 14: 23 & 24). These bowls are dated to the Late Roman and Early Byzantine periods, mainly from the third to fifth centuries AD. They are all made of basalt, and usually have nicely worked bases and rims and are highly refined compared to the deep mortars. Some vessels (Figure 14: 22 & 23) have asymmetrical

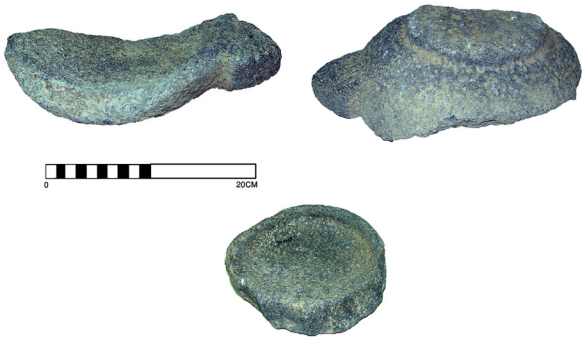

Figure 15: *Basalt bowls (vessels) (nos. 21, 22). Photo by Hussein Dibajeh*

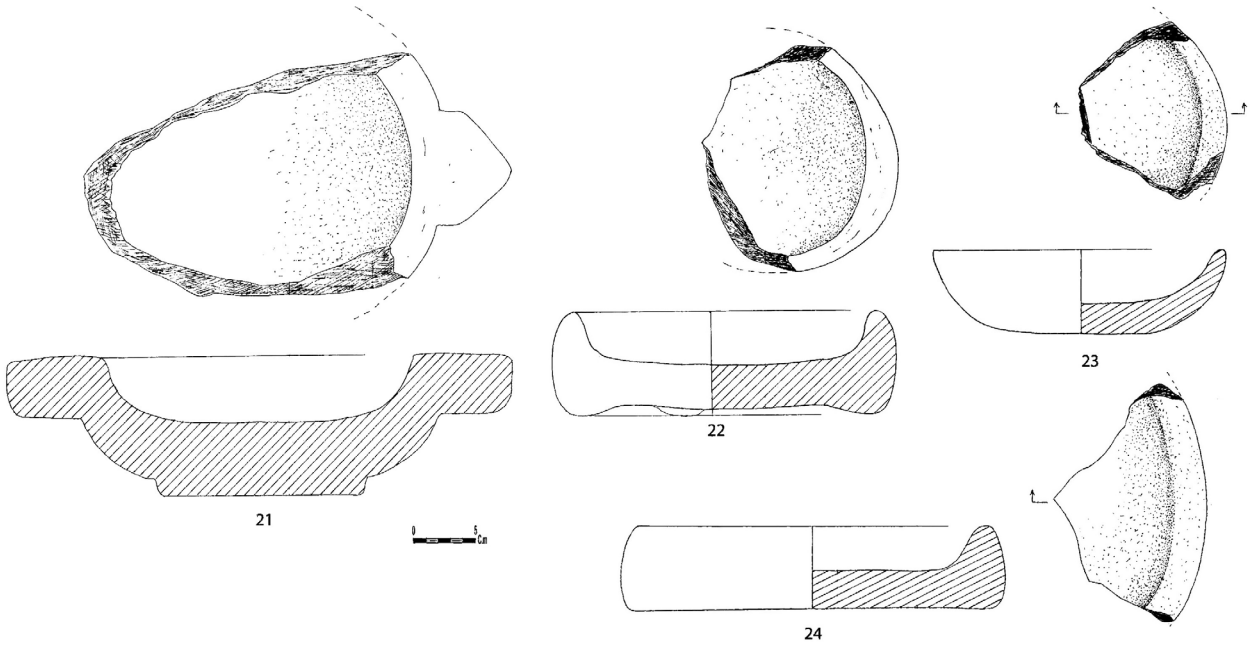

Figure 14: *Basalt bowls (vessels)*

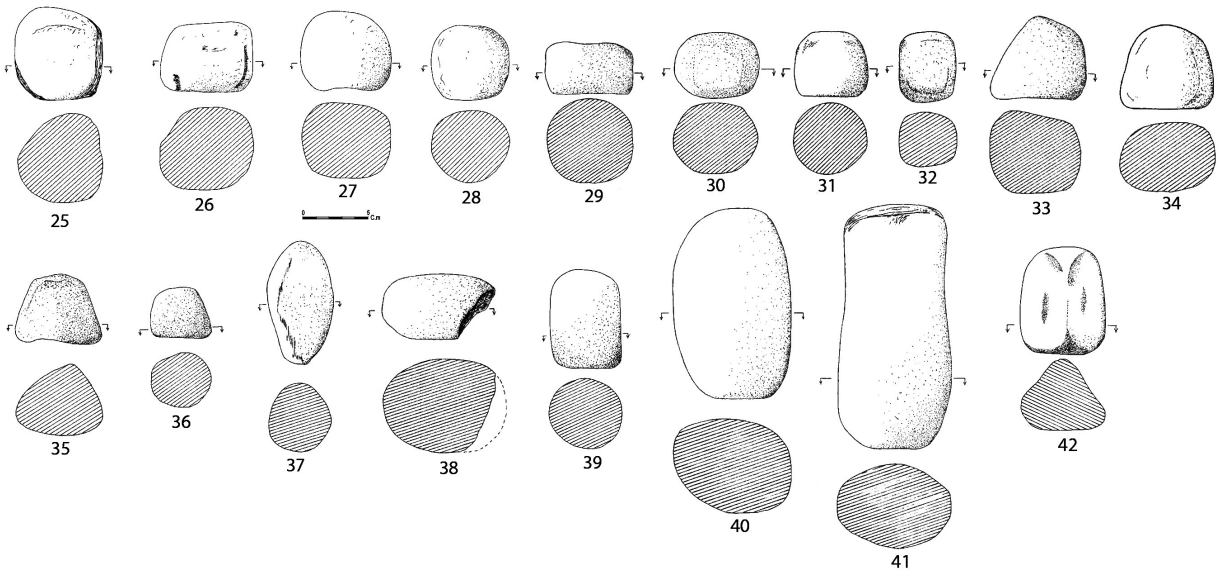

Figure 16: *Basalt pestles*

diameters or rims, and the inside of each bowl is highly polished and smoothed. Diameters are between 20 and 30 cm, while the depth of the hollows are between 4 and 5 cm. The distinction between bowl and deep mortars is determined on depth and the thickness of the base: bowls are shallow and their bases are usually of the same thickness of the bowl's wall, while deep mortars are made of large blocks of stone and have a relatively small working surface and a thick base. It appears that stone bowls, which are characterised by a somewhat larger flat working surface, were used for grinding, while mortars were probably used mainly for pounding (Ben-Ami 2005: 363). Earlier examples of stone bowls and mortars were produced as early as the Kebaran period (e.g. Ein Gev 1 and Kharaneh IV A; Stekelis and Bar-Yosef 1965: 176f; Muheisen 1988: 358; Wright 1991: 22, Table 3), and become common in the Natufian period (Wright 1991: 28). In the Bronze Age stone bowls and mortars became more popular; many examples were found at Yoqne'am, produced in the Middle and Late Bronze Ages. They were made of basalt, with simple rims; most of them are shallow and all are smooth on the interior. The most common type of base is the concave disc base (Ben-Ami 2005: 363–4). The earliest appearance of stone bowls at Yoqne'am is in MB IIC (Ben-Ami 2005: 368). A bowl similar to no. 21, but with a decorated handle, is found in Jerash (Clark et al. 1986, pl. XXXII.A).

6. Pestles. The eighteen pestles in this class are all made of basalt but have different shapes (Figure 16: 25-42 and Table 2). The most common shape is cuboid with rounded edges, others are oval or semi-rounded, conical or truncated cone, and triangular in section. Less common shapes are irregular cylindrical or elongated[11] with triangular, circular or square with rounded edges sections. The pestles are dated from the 1st century AD until the Late Umayyad period. Similar pestle shapes came from different strata showing that they were produced over at least a 600-year span without significant change in their main forms. Most pestles fit into the palm of the hand and only two pestles are large elongated with semi-rounded sections, more suitable for grinding or pounding in deep mortars (Figure 16: 40-41). Most pestles, especially the ones of the cuboid or oval shapes, have more than one working edge. The pestles weigh between 400 and 1100g and are therefore unsuitable for heavy pounding of tough materials. They sometimes have a shiny base, the result of continuous grinding and crushing of cereals and other materials against the upper surface of the stone mortar or bowl. Basalt pestles with smooth or very smooth bases were common in the Middle and Late Bronze Age. Examples of pestles similar in shape with the ones at Barsinia were found atYoqne'am[12] (Ben-Ami 2005: 366, photo V5). There, Classical pestles are elongated and cylindrical in form, while most pestles of Hellenistic – Byzantine periods are made of basalt and tend towards a squat cuboid form (Ben-Ami 2005: 364).

Concluding Comments

The grinding stone assemblages that were found in Roman – Early Islamic contexts at Barsinia showed a wide diversity of shapes. They could be categorized into basalt rotary querns, upper-grinding slabs, tripod querns, boulder mortars, basalt bowls (vessels) and pestles. Basalt was the material of preference for producing the grinding stones at the site. This may be expected as the nearest source of basalt to the site is the vicinity of Umm Qeis, only a few kilometers north of the site.

The typology of grinding stones is largely determined by their functional role; changing fashion or tradition did not affect their basic form. However, slight changes have occurred over the 12,000 year period from Neolithic to Medieval times. Forms, such as tripod mortars, boulder mortars, and bowls were in the region from the Kebaran Period but became more common in the Natufian and af-

terwards. Rotary basalt querns seemed to be a new arrival during the Late Byzantine period. Its use continued until the Late Islamic period or even until few decades ago. This technological development facilitated increased cereal production which reflects a larger population in the region.

The tripod querns show similarities to the Iron Age footed mortars, however, the main difference between both is that the Iron Aged mortars have a higher ridge walls.

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Endnotes

1 References for picking and gathering grapes are found in Mat 7:16; Luke 6:44; 1; Corith 9:7; Revelation 14:18–19, gathering figs Mark 11:13; Luke 6:44; James 3:12; Revelation 6:13, planting, gathering and selling wheat Mat 3:12; 13:25–26, 30; Luke 3:17; 16:7; Revelation 18:13, producing crops, vine, olives and palm (Josephus (BJ III.44–46)), fruitful soil (Varro 1934: 274).

2 The large number of these presses in the region provides evidence for an extensive wine and olive trade either with the nearby cities or more distant areas. It is also an indication of the development of the wine industry, especially during the Late Roman and Byzantine periods (Rose and Burke 2004: 184).

3 Good examples of wine and olive presses were found at sites such as the Irbid-Beit Ras region (Lenzen 2002: 37) and in a survey by I. Melhem (1992)

4 As shown in the West Irbid Survey (el-Khouri et al. 2006), Zeiraqoun Survey (Kamlah 2000), Irbid-Beit Ras Survey (Lenzen 2002: 37), and Hisban Survey (LaBianca 1990: 236; Geraty & LaBianca 1985: 327).

5 Peraea extended in the middle of the 1st c. AD to include the north eastern part of Jordan as well

6 Gary et al, http://www.casa.arizona.edu/MPP/p119/p119.html

7 In particular the sites of S□a´ad, al-Yas□ileh and Ya'amun.

8 Two silos were uncovered, dated to the late Hellenistic periods.

9 Samples of wheat flour were collected next to the large oven at the site.

10 Ben-Tor 1987: fig. 58:2; Lamon and Shipton 1939: 14; Yadin 1958: pls. LIX: 12, 17, LXII: 5; Yadin 1960: pls. LXXVII: 2-6, CIV: 13, CXXXVI: 12

11 For examples of elongated and cylindrical pestles, see Davis (1982: fig. 3.3:4-8), Franken & Steiner (1990: figs. 2-23:5, 2-29:11, 2-35:3-5), Kirkbride (1966, fig. 7:4,6) and Lamon & Shipton (1939: pl. 106: 7-9). Polished along the whole length, or polished only on their working edges. A Persian bell-shaped pestle, see Davis (1982, fig. 3.2, 3.4:5-6) and Kirkbride (1966: fig. 7:1-3).

12 At Yoqne'am the pestles were divided into two basic groups according to their general shape. The most common from the pestle has a cylindrical or conical shape (Ben-Ami 2005: 364, fig. V.7: 13-20), and the other one is characterized by a rounded form (Ben-Ami 2005: 364, fig. V.7: 8-12). The former could be used for grinding or pounding in bowls and narrow mortars, while the latter could be used only for grinding and therefore accompanied only bowls. Conical pestles appear at Yoqne'am as early as MB IIC, while the spherical form is found mainly in LB II contexts.

Table 2: The register of the objects

Obj. No.	Reg. No.	Type	Stone	Dimensions (cm)	Discription	Date of Locus	Weight kg
1	Br.06.A.D1.10	Rotary basalt quern (Upper grinding stone)	Basalt	40 (d), 7.3 (d) of central hole, 2.2-3.6 (d) of small hole, 4.2 thick	Complete rounded upper part of a basalt grinding stone, pierced in the centre and on the side, where a wooden stick used to be fixed. Very coarse basalt, slightly concave working surface. Working surface is finer than top surface.	L-Byz - Umm	10.00
2	Br.07.0.9	Rotary basalt quern (Upper grinding stone)	Basalt	ca. 38 (d) 6 thick ca. 3.5 (d) of central hole	Flat working surface, made of coarse basalt. Small hole on side for wooden beam	Surface collection	
3	Br.06.A.D1.10	Rotary basalt quern (Upper grinding stone)	Basalt	42 (d), 3.8-4.0 thick	Very coarse basalt, with a flat working surface	L-Byz - Umm	2.50
4	Br.07.C.A1.11	Rotary basalt quern (Upper grinding stone)	Basalt	ca. 40 (d), 2.5-4.5 thick	Fragments of an upper grinding stone, with lower flat working surface. Coarse basalt. Irregular body thickness	L-Byz - Umm	1.30
5	Br.07.C.A2.5	Rotary basalt quern (Upper grinding stone)	Basalt	ca. 40 dia., 4.5-5.2 thick	Fragment of an upper grinding stone, with flat surface. Coarse basalt	Umm	1.20
6	Br.07.B.A2.7	Rotary basalt quern (Lower grinding stone)	Basalt	3.5 thick	Fragment of a lower grinding stone, with flat coarse surface. Reshaped	L-Byz - Umm	0.40
7	Br.07.C.A3.6	Rotary basalt quern (Lower grinding stone)	Basalt	4.4 thick	Fragment of a lower grinding stone, with flat surface. Traces of use on both sides	L-Byz - Umm	1.00
8	Br.06.A.C2.5	Longitude upper grinding slab	Basalt	8.5 - 10 (w), 22.6 (l) (broken), estimated whole (l) ca. 34	Fragment of upper longitude grinding stone. Made of very coarse basalt	Byz (5th c)	1.90
9	Br.06.A.B9.1	Longitude upper grinding slab	Basalt	14.5 (l) x 7.8 (w) x 6.7 thick	Fragment of upper grinding stone, with flat surface	L-Umm	1.10
10	Br.07.C.A2.5	Longitude upper grinding slab	Basalt	9.8 (w) x 4.8 (h) x 8 (h) (broken)	Fragment of upper grinding stone, with flat surface. made of coarse basalt	Umm	
11	Br.07.C.A3.3	Longitude upper grinding slab	Basalt	10 (l) x 10 (w) (broken) x 5 thick	Fragment of upper grinding stone, with flat coarse surface. Made of coarse basalt	L-Byz - Umm	0.70
12	Br.07.C.A2.9	Longitude upper grinding slab	Basalt	5.5 thick	Fragment of an upper longitude grinding basalt stone with coarse flat surface	L-Byz - Umm	0.40
13	Br.07.0.4	Tripod quern	Basalt	8 (h), 2 thick, foot (h) 2.4	Shallow mortar, with rounded polished interior surface. Broken side. Small foot (stump leg). Small protruding notch on upper edge on the foot side.	Surface collection	2.00
14	Br.07.0.6	Tripod quern	Basalt	30 x 9.5 (h), 4.6 thick, ca. 36 (d), foot: 8 (w) x 3.2 (h) x 5 (l)	Fragment of rounded shallow grinding vessel with smooth interior	Surface collection	6.00
15	Br.06.A.C1.8	Tripod quern	Basalt	ca. 36 (d), 5 thick, 12 (h), 4.6 foot (h)	Fragment of basalt circular mortar, with small foot at the side and smooth working flat surface. Broken rim	Byz. (4th-6th century)	4.20
16	Br.06.A.B1.5	Tripod quern	Basalt	23 (d) 3.5 thick, 8 (h) foot 2.8 high	Fragment of basalt mortar with rounded leg at a side	Umm (7th century)	0.95
17	Br.06.A.B1.9	Boulder mortar	Basalt	26.5 (l) x 33 (w) x 18.5 (h), central perforation: 15 x 12.5 x 10 (h)	Deep grinding mortar made of very coarse basalt. Rounded roughly dressed exterior walls and falt bottom	Byz. (4th-6th century)	18.00
18	Br.07.0.1	Boulder mortar	Basalt	20 (d), 11 (h), perforation: 6 (d)	Deep basalt mortar with rounded thick and roughly dressed exterior walls, polished interior surface. Parts of exterior walls are broken. Irrigular base. Made of coarse basalt	Surface collection	4.00
19	Br.06.A.D1.10	Boulder mortar	Limestone	19 (w) x 32 (l)x 21 (h), 12 (d) x 7.5 depth of inside hole	Deep mortar, with rounded thick and roughly dressed exterior walls, polished interior surface. Broken sides	L-Byz - Umm (6th-8th century)	17.00
20	Br.07.0.4?	Boulder mortar	Limestone	21.4 (d), 12.5 (h), 5 depth	Fragment of deep mortar. Smooth inside, uneven walls outside, uneven flat base.	Surface collection	4.90
21	Br.07.0.2	Bowl	Basalt	39 complete width with handle, 29 outer dia, 24 inner dia.	Shallow bowl with protruding small triangular lug handle (ledge handle). Smooth surface	Surface collection	4.80
22	Br.06.A.D1.11	Bowl	Basalt	ca. 17 (d), 9 (h), 4.4 (thick)	Fragment of shallow semi rounded basalt bowl, with thin walls, and thick base. Smooth interior surface. One small foot	Byz. (4th-5th century)	2.00
23	Br.06.A.D1.11	Bowl	Basalt	ca. 22 (d), 7.5 (h) x 2.5 (thick)	Fragment of shallow bowl, with rounded roughly dressed exterior walls, polished interior surface, and flat base	Byz. (4th-5th century)	0.80
24	Br.06.A.C1.18	Bowl	Basalt	40 (d), 6.3 (h), 3.8 (thick)	Fragment of shallow basalt bowl, with thick short walls, flat base, and smooth interior surface	3rd-4th century AD	1.20
25	Br.06.A.B9.3(2)	Pestle	Basalt	7.1 (h) x 6.8 (w) x 6.7 (l)	Intact conical with flat apex, and polished bottom surface. Made of smooth basalt. Traces of use on three sides	L-Byz - Umm	
26	Br.06.A.B9.3 (3)	Pestle	Basalt	7.2 x 6.2 x 5.4	Intact pestle, traces of use on one side	L-Byz - Umm	
27	Br.06.A.D1.10	Pestle	Basalt	6 x 7 x 6 (h)	Intact rounded basalt pestle. Traces of use, on concave surface	L-Byz - Umm	
28	Br.07.B.A3.0 (1)	Pestle	Basalt	5.8 x 5.8 x 5.3	Intact rounded basalt pestle. Smooth surface. Traces of use on all	Top soil collection	
29	Br.06.A.D1.6 (2)	Pestle	Basalt	4 (h) x 6.7 x 6.7	Intact rounded basalt pestle, highly polished and one flat surface. Traces of use on both lower and upper surfaces.	After L-Umm	
30	Br.07.C.A1.8	Pestle	Basalt	6.6 x 5.5 x 5.1	Intact basalt pestle with smooth surface	1st-2nd c pottery lamp, reused?	
31	Br.06.A.B9.6	Pestle	Basalt	5.5 x 5.5 x 5 (h)	Intact basalt pestle, with smooth surface and flat base	R 3rd c	
32	Br.06.A.A9.6 (2)	Pestle	Basalt	5.5 (h) x 3.5 x 3.5	Roughly rounded basalt pestle	R 3rd c	
33	Br.06.A.D1.10 (2)	Pestle	Basalt	6.7 x 7.5 x 6.5 (h)	Intact rounded basalt pestle. Made of coarse basalt. Traces of use on lower surface.	L-Byz - Umm	
34	Br.06.A.C1.18 (1)	Pestle	Basalt	6.3 x 5.6 (h) x 4.6	Conical shape pestle with flat base and smooth surface. Traces of use on two surfaces	ER ESA pottery	
35	Br.06.A.B9.3 (1)	Pestle	Basalt	5 (h) x 6 x 4.8	Intact conical pestle with flat apex, and polished bottom surface. Made of smooth basalt. Traces of use on three sides. Triangular	L-Byz - Umm	
36	Br.06.A.C1.18	Pestle	Basalt	3.8 (h) x 4.6 x 4.2	Conical shaped pestle, rounded section, traces of use on one	ER ESA pottery	
37	Br.07.B.B4.2	Pestle, elongated?	Basalt	9.3 (h) x 5.2 x 4.3	Intact pestle, with smooth surface. Maybe used as polishing or rubbing stone as well	Umm	
38	Br.06.A.A9.7a	Pestle	Basalt	5 (h) x 8.7 x 7.1	Pestle with broken side, opposite surfaces are flat, highly polished. Traces of use on both sides	ER 1st c BC	
39	Br.06.A.B1.5	Pestle, elongated	Basalt	7.5 (h) x 5.5 x 5.8	Pestle with smooth surface. Traces of use on both surfaces. Made of smooth basalt	Umm 7th c pottery lamp	
40	Br.06.A.D1.6 (1)	Pestle, elongated	Basalt	9.2 x 7 x 14.5 (h)	Intact roughly rounded and polished pestle, made of smooth basalt. Traces of use on lower surface	post L-Umm	
41	Br.07.0.8	Pestle, Elongated	Basalt	19 (h) x 9 x 6.5	Intact pestle, with smooth surface. Traces of use on one side	Surface collection	1.80
42	Br.07.C.A4.8	Pestle	Basalt	8.2 (h) x 6 x 6.1	Triangular section, traces of use on all sides, smooth convex	L-Byz - Umm	