PRELIMINARY REPORT ON THE INAUGURAL SEASON OF EXCAVATION AT KHIRBAT AL-MUKHAYYAT*

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INTRODUCTION

Khirbat al-Mukhayyat (hereafter Mukhayyat), also called the Town of Nebo (Piccirillo and Alliata 1998: 53-83; Saller and Bagatti 1949: 204-217), is located approximately 9 km northwest of Madaba on a steep limestone promontory. The site overlooks the Dead Sea and Jordan Valley to the west and is framed by the Wadi Afrit to the east and the Wadi Mukhayyat to the west (Fig. 1). Material culture from a wide range of periods has been documented at and around the site, including Byzantine churches and mosaics, Hellenistic structures, a well-preserved Iron Age fortification system, and an array of tombs, caves, cisterns, and various agricultural installations.

Archaeological research at Mukhayyat has given us a broad understanding of certain occupation phases at the site (Michel 1998; Mortensen 2002, 2005; Mortensen and Thuesen 2007; Piccirillo 1988, 1989, 1993; Piccirillo and Alliata 1998; Ripamonti 1963; Saller 1941, 1966; Saller and Bagatti 1949; Schneider 1950; Thuesen 2009). Meanwhile, intensive surveys of the archaeological sites in the Nebo region (Glueck 1935; Graham and Harrison 2001; Mortensen 1992, 1996, 2009; Mortensen and Thuesen 1998; Mortensen et. al. 2013; Stockton 1967; Thuesen 2004) have provided a solid foundation for exploring the extensive occupation in the area. While this work has provided a significant contribution to our knowledge of the history of the region, the lack of systematic excavations and the absence of excavated material from a wide range of time periods has left a gap in our understanding of Mukhayyat's role within this archaeologically and historically important region. With this issue in mind, the Khirbat al-

Mukhayyat Archaeological Project (KMAP) was conceived to address this lacuna and explore broader themes, such as pilgrimage, economy, and landscape, across multiple cultural and historical periods. Additionally, KMAP has established as a Community Based Archaeological Program (CBAP) with the hope of engaging with the local community that resides near the archaeological site.

PREVIOUS RESEARCH AT MUKHAYYAT

The first mention of the site appears in the accounts of Félicien De Saulcy, dating to 1863, which are ordinarily credited with being the first instance where the name Khirbat al-Mukhayyat was recorded (De Saulcy 1865: 289-296). Mukhayyat was visited in 1872 by Henry B. Tristram (1874: 324) and in 1881 by Claude R. Conder (1889: 191-219). Alois Musil was the first to systematically explore the site in 1901, describing the remains in detail and creating the first topographic plan (1907: 334-340). The site was then further explored and documented in 1907 by Antonin Jaussen and Raphaël Savignac (1909-1914: 17-20). Nelson Glueck visited Mukhayyat in 1932, comparing its well-preserved fortifications to a Moabite fortress that he documented at nearby ʻAyun Musa (Fig. 1). Glueck also noted the rujm located to the east and the presence of a moat at the southern end of the site (1935:110-111).

Much of our current understanding of Mukhayyat is the result of the efforts of the Studium Biblicum Franciscanum. Systematic explorations by the Franciscans began in 1932 under the direction of Brother Jerome Mihaic who uncovered the mosaics in the Chapel of the Priest John on the eastern slope of the tall and the Church of Saint George on the acropolis (Saller and Bagatti 1949). In the 1960s, an expedition led by Julian Ripamonti conducted excavations at Rujm al-Mukhayyat as well as a survey of the area around the site that produced two Iron Age tombs (Saller 1966:165-298; 1963). Work continued in the early 1970s under the direction of Fr.

Michele Piccirillo. It was during this time that a comprehensive preservation and conservation program began that would involve all of the excavated mosaics and related architecture at the site (Piccirillo 1973, 1988, 1989, 1993; Piccirillo and Alliata 1998: 221-244). In the late 1980s and early 1990s, this work continued with intensive excavations on the acropolis, resulting in the recording of part of the occupational sequence at Mukhayyat (Michel 1998).

In more recent years, the Tall Madaba Archaeological Project conducted three survey seasons at Mukhayyat. The 2000 and 2001 seasons were devoted to topographic and surface collection surveys (Graham and Harrison 2001). The results of these two seasons have largely shaped the strategies for the renewed explorations at Mukhayyat. The 2012 season focused on preparing the site for excavation in future seasons and documenting the various caves, tombs, and architectural features visible on the surface.

HISTORY OF MUKHAYYAT

The ancient Town of Nebo is first mentioned on the mid-9th century BCE monumental stele known as the Mesha Inscription (Dearman 1997; Gass 2009; Gibson 1971; Pritchard 1950). Lines 14-18 indicate that Nebo was occupied by the Israelites during the early Iron IIB period, when it housed a sanctuary to YHWH, and that the Moabite king Mesha took this settlement and removed the Israelite cultic presence from the site (Routledge 2004: 135-136). Although the term Nebo is most often associated with Siyagha, or Mount Nebo, located 2.5 km northwest of Mukhayyat (Fig. 1), the Mesha Inscription implies that ancient Nebo was in fact a settlement, most likely a small town. Archaeological investigations at Mount Nebo have not uncovered any significant Iron Age occupation levels; thus, ancient Nebo must be associated with a nearby settlement containing substantial Iron Age remains. Mukhayyat is the most likely candidate for such a settlement, as evidenced by the presence of considerable quantities of Iron Age material

collected in 2001, the visible architecture at the site, and the previously excavated Iron Age tombs (Piccirillo and Alliata 1998: 110-127; Ripamonti 1963; Saller 1966).

The Mesha Inscription points to a strong cultic function for the site. Indeed, Mukhayyat may have been at the centre of a sacred landscape that has its roots in much earlier periods. A large stone circle dating to the Early Bronze I (ca. 3300-3000 BCE) was first documented by Conder (Fig. 1) during his survey east of the Jordan River (Conder 1889) and later investigated by Peder Mortensen while he was conducting his survey of the Mount Nebo region (Mortensen 2002, 2005; Mortensen and Thuesen 2007; Thuesen 2009). This prominent feature highlights the ritual importance of this area from an early time.

Apart from its possible role as the focal point of a sacred landscape, Mukhayyat also played an important part in monitoring movement from the Dead Sea and Jordan Valley to the Madaba Plain. Coupled with the stone tower at Rujm al-Mukhayyat (Fig. 1), the site commanded an important position along the east-west wadi systems that served as access points between the valley and the plain. As a result, Mukhayyat would have been crucial not only to local cultic activity but also for the control of trade goods and population movements along certain key routes in central Jordan.

Mount Nebo and the region surrounding it feature prominently in a variety of Jewish sources dating to the Late Hellenistic and early Roman periods. Most of these texts reiterate that this area is the location of the death and burial of the Prophet Moses. There are also a handful of texts that refer to inquiries about the tomb of Moses made by the Roman government in the 1st and 2nd centuries CE and their inability to locate it (Piccirillo and Alliata 1998: 65-69). Prior to the 2014 excavations, only scant remains dating to the Hellenistic period had been recovered. Excavations conducted in the late 1990s exposed a large double cistern on the site's acropolis

that dates to this period. In addition to this feature, a large collection of Late Hellenistic ceramics was also recovered (Michel 1998).

In addition to its association with the Mesha Inscription and the Late Hellenistic/Early Roman literature, Mukhayyat is perhaps best known for its cultural material dating to the Byzantine period. The town housed a number of churches that catered to the local Christian population and the growing influx of pilgrims during the 6th through 8th centuries CE. Monasteries in and around Mukhayyat include the Monastery of al-Kanisah in the Wadi Afrit, the Monastery of the Theotokos in the Wadi Ayn al-Kanisah, and, of course, the Monastery of the Memorial of Moses on Mount Nebo (Fig. 1). The Monastery of al-Kanisah, dating to the mid-6th century CE, is located east of Mukhayyat, on a ridge overlooking the Wadi Afrit. This complex contained several tombs, a possible reliquary, and a bedrock-carved wine press (Piccirillo 1998: 205-209). The Monastery of the Theotokos is located 3 km west of Mukhayyat and contains a small chapel decorated with mosaics and inscriptions that reference the holy men of this region (Piccirillo 1994, 1995; Piccirillo and Alliata 1998: 209-217). The monastery at Mount Nebo is the largest in the area and formed the core of a network of monasteries east of the Jordan (Foran 2005; Piccirillo and Alliata 1998: 151-205; Saller 1941). It was certainly the main destination for pilgrims and travelers to the region. The Byzantine structures at Mukhayyat seem to go out of use in the 7th century CE (Michel 1998: 380), at which time the site appears to have been abandoned completely. Occupation at Mukhayyat only resumed during the Late Ottoman period, sometime in the late 19th century CE, and this new settlement was confined to the slopes on the northeastern side of the mound.

2014 Field Season Objectives

During the 2012 season, three potential fields of excavation were identified. Field A is located along the southern slope of the acropolis, Field B is situated at the top of a ridge to the south of the acropolis, and Field C comprises a flat area north of the acropolis. Several excavation units were opened in each of these three fields (Fig. 2). The primary objectives for the 2014 season were to 1) locate and explore the village associated with the Late Byzantine churches previously excavated on the site; 2) elucidate the occupational history of the site; and 3) investigate the extent of the Iron Age fortification walls already visible on the surface along the perimeter of the site.[1]

Although our main objectives for the 2014 season were focused on excavations, time and resources were also allocated to several other projects. Work resumed in the small Ottoman village to the north-east of the mound, where our objective was to systematically document each building, including a detailed description of all architectural features. In an effort to engage with the local community, one of our other objectives for the 2014 season was to lay the foundations for KMAP-CBAP in the nearby village of Faysaliyah.

Excavations Results

Field A

A trench consisting of five squares (A25, A35, A45, A55, and A65) was opened on the southern slope of the acropolis (Field A) in the hopes of exposing the remains beneath the Church of St. George and elucidating the occupational history of the site. To this end, three of the five squares were opened for excavation.

Excavations began in square A25 at the northern end of the trench. Three east-west walls were exposed in A25 (Fig. 3). Due to spatial constraints (less than 0.20 m within which to work),

the soil between the two earliest walls (W1001 and W1002) could not be fully excavated. Pottery from this area dates from the Iron Age to the Byzantine period and thus cannot aid in establishing a precise date for this architecture. The depositional sequence of the walls in A25 is a follows: W1001 (A25:14) was built first followed by W1003 (A25:10) and W1002 (A25:13) represents the final construction phase. W1001 was likely still exposed when W1003 was built as no foundation trench was identified between the two walls, and the bottom of W1003 clearly lies much deeper despite the fact that its exposure was impossible. W1001 also lies partially beneath W1002, and while W1001 runs across the entire square, W1002 does not reach the western baulk perhaps because it has eroded down the slope of the acropolis. A35, to the south of A25, was opened later in the season when further excavation in A25 became too difficult. Another east-west running wall, W1004 (A35:8), was uncovered; however, the bottom of this wall was not exposed (Fig. 3).

While it is not yet possible to determine the function of these walls, they did contribute in two key ways to the formation of the stratigraphic deposition in this area. Not only do they prevent the erosion of material down the slope, their deterioration provides a source for new material moving towards the base of the acropolis. These walls were likely part of a retaining system used to secure this part of the acropolis and support the paved courtyard annexed to the southern side of the Church of St. George.

The layers of rock tumble above these walls contained a number of objects, including a coin, two groundstone tools, a bead, and a jar stopper. Above these tumble deposits is what appears to be an intentional levelling layer for the top of the acropolis (A25:3, 4) done prior to the construction of the Byzantine church. This thick layer consisted of many boulders and decomposed limestone and our excavations seem to confirm what was recognized during the

earlier excavations to the west of the church (Michel 1998: 359-369), namely that the top of the acropolis was levelled prior to the construction of the Byzantine Church.

It should also be noted that square A65, at the southernmost extent of Field A, was opened part way through the 2014 season. No architecture or surfaces were found in this square. Many layers of tumble that had eroded down the hill were exposed.

Field B

Two excavation units (B14 and B25) were opened on the top of a ridge located to the south of the acropolis. Excavations quickly revealed that the visible wall lines in B14 do not belong to the Iron Age fortifications, as had been previously assumed, but instead are part of a large Hellenistic period structure (Fig. 4). The corner formed by walls W2001 (B14:4) and W2002 (B14:5) incorporates ashlars at the junction where the two walls meet. These walls were constructed of semi-hewn and hewn boulders measuring more than 1.00 m in length.

A third wall, W2003 (B14:10), was exposed running through the southwestern corner of B14. Stratigraphically, we cannot say with certainty if this wall was constructed earlier or later than W2001 and W2002, as none of the foundations of these walls were exposed and a surface (B14:14) extended between them. While this indicates that all of these walls were in use at the same time, the difference in construction techniques between W2003 and W2001/W2002 suggests that they were not constructed at the same time or, at the very least, had different functions. Unlike W2001 and W2002, W2003 was constructed in a boulder and chink fashion and was made of unhewn and semi-hewn cobbles. W2001 and W2002 likely represent the corner of a tower or bastion-like structure dating to the Hellenistic period.

There appears to be a secondary use of this space as there are several surfaces (B14:14=B25:7 and B14:9=B25:3/5) that were found sealing against the outer face of these

monumental walls. Though no architecture was unearthed in B25, there is occupational continuity with the surfaces from B14 extending through the entire area. In B25, these surfaces follow the natural slope of the site, which is unusual given the severity of the angle (more than 20°).

The surfaces that extend through B14 and B25 held a number of complete Hellenistic cooking pots that were found upright, a surprising fact considering the angle of the slope in B25. More than 20 cooking pots (Fig. 5) were found on or embedded into these surfaces. Additional finds from this occupation include three small Hellenistic bowls, four coins, groundstone tool fragments, ceramic figurine fragments (Fig. 6:1), a bone spatula (Fig. 6:2), two spindle whorls (Fig. 6:3-4), two ostraca (Fig. 6:10-11), a worked shark tooth, iron nail fragments, two beads, three jar stoppers, and a fragment of a stone vessel. The lack of Byzantine ceramics suggests a *terminus ante quem* of sometime in the Early Roman period for this area.

Field C

Two areas in Field C were selected for excavation in 2014. Eight 5 x 5 m squares were opened along a gently sloping hill to the north of the acropolis (Field C Central). Three additional squares were opened along the western edge of the mound (Field C West).

Field C Central

Our initial assessment of this area, prior to excavation, was that it was a good candidate for the location of the Byzantine settlement associated with Mukhayyat's churches. This assessment was further supported by the Byzantine ceramics collected in this area during the 2001 survey. However, after one season of excavation, we can state with certainty that there are no Byzantine structures in the central area of Field C. Instead, this area is dominated by ancient fill layers that are likely the result of the clearing of a large cave located nearby as well as agricultural activity.

All of these squares included numerous sloping layers of alternating pebbles, cobbles, and boulders (Fig. 7) that contained a mix of ceramic material. The overall impression is that these deposits represent ancient fill layers, resulting from the clearing of nearby areas for agricultural purposes or building activities. If the central part of Field C had once been occupied, any standing architecture was removed in antiquity.

The only clear cultural contexts in this area come from two bedrock features, C100 and C200, excavated in squares C37, C38, C46 and C47 (Fig. 8). That the bedrock contained the best preserved cultural material is further proof of the limited occupation in this area. C100 is a small stepped rectangular installation cut into the bedrock. The first of these rock-cut steps (C37:14) measures 1.12 m wide, 0.30 m deep, and 0.25 m high. The second step measures 1.18 m wide, 0.30 m deep, and 0.24 m high. The final step is 1.17 m wide, 0.62 m deep, and 0.11 m high. At the bottom of the steps are two piers and a threshold providing access to the main room of the chamber. The north pier measures 0.40 m wide and 1.07 m high, with the southern one measuring 0.36 m wide and 0.82 m high. The space between the piers is 0.77 m wide. This threshold area leads into the main room which is roughly rectangular in shape. The length of the room is 2.16 m and its width is 1.31 m. The feature appears to have been open to the sky as there are no signs of any kind of roofing material. The eastern edge incorporates a slight bedrock overhang. Plaster found along this wall may have been used to maintain the integrity of the overhang.

The soil that filled this installation contained numerous artefacts, including 12 coins, several iron nails and an iron sickle blade (Fig. 6:12), two beads, a small ceramic lamp (Fig. 6:9), a stone spindle whorl (Fig. 6:8), a clay loom weight, a painted juglet, a fragment of a bone spatula (Fig. 6:5), and several groundstone tools (Fig. 6:13-15). The ceramic assemblage from

C100, characterized by several examples of cooking pots and amphorae, suggests a Hellenistic date for the final use of this installation. The ceramic and artefact assemblages from C100 bear a striking resemblance to that from Field B, indicating that the occupation in these two areas is contemporary. The exact function of the feature remains unclear. While it may have functioned as a tomb in an earlier period, in its final use phase the room appears to have served as a storeroom for household items.

To the southwest of the rock-cut installation is a circular, plaster-lined reservoir (feature C200, C46:10). This reservoir is cut into the bedrock and measures 3.84 m in diameter (Fig. 8). The eastern half of C200 was excavated down to a depth of 1.90 m, but the bottom was not reached. At the top of the reservoir, a hard-packed beaten earth surface was found sealing in its contents. This surface (C47:14) was 0.15 m at its thickest along the northern edge of the reservoir. Below the surface were a series of cobble and boulder layers mixed with loosely-packed soil all of which yielded Iron Age and Hellenistic pottery. The reservoir walls widen from top to bottom and are plastered in their entirety. Numerous samples of the plaster were collected and will be submitted for analysis. The objects recovered from C200 include a well-preserved bronze kohl jar (Fig. 6:9), a stone pounder (Fig. 6:16), and a small, poorly hewn stone bowl (Fig. 6:17).

It is difficult to discern the relationship between this feature and the nearby rock-cut chamber; however, it is not unreasonable to assume that they were in use at the same time as they both yielded similar pottery. Moreover, the complete lack of structural remains from the other squares in the central part of Field C implies that the reservoir cannot be directly associated with any contemporary buildings.

Field C West

Although this area was not initially selected for excavation, the presence of wall lines on the surface suggested the presence of architecture on the western edge of the mound. After it was determined that the central area of Field C was mainly comprised of fill layers with mixed cultural context, three additional squares (C2, C12, and C21) were opened along the fortification wall that circumscribes the site.

C2 yielded arguably the most significant remains of the 2014 field season. In the eastern half of the square, a large plaster-lined installation (feature C300), framed at the surface by walls W3002 (C2:21, 22) and W3003 (C2:9), was excavated (Fig. 9). C300 consists of 10 steps plus the landing at the bottom, all of which are lined with thick plaster. Two steps are located at the top of the installation, on the northeastern side, and are oriented to the west. From there, a small flat area opens up to a much smaller step to the south. This 4th step is bounded on both sides by plastered ledges which restrict the width of the step. Below are seven additional steps, all oriented towards the south. These steps widen considerably after the 4th step, as they span the full width of the pool. The main chamber, which is located to the south of the 4th step, is plastered in its entirety. All of the corners are rounded as are the steps themselves.

The 5th step is a transitional step, measuring 1.48 m wide. The 6th, 7th, and 8th steps are nearly identical in size, measuring ca. 2.05 m wide, although the 8th step is slightly larger and higher. The 9th step is approximately 0.78 m wide and is located near the centre of the staircase at the bottom of the pool. On either side of this step is a final step, the 10th step, that measures 2.13 m wide, which leads to the bottom landing of the pool. In total, one descends nearly 3.5 m from the top of the installation to the landing at the bottom.

Feature C300 appears to have functioned as a ritual bath. A cistern, located directly east of the installation, is likely the source of water that was used to fill the pool. Given its depth, a person could easily be fully submerged when standing on the bottom steps. There is no drain at the bottom of the pool. Similar installations have been uncovered at Tall al-'Umayri (Herr et al. 1991: 37-52), Herodium (Netzer 1981: 47-50, ill. 79), Macharaeus (Corbo and Loffreda 1981: 269-274, fig. 33), Jericho (Netzer 2001), and Qumran (Magness 2002).

The soil layers inside the pool were carefully excavated in order to preserve any potentially significant cultural remains that would help identify and date the feature. One coin was recovered on the 3rd step. Once analyzed, this coin will provide an absolute date for the feature, or at least its *terminus ante quem*. Two carnelian beads were recovered in the soil immediately above the bottom of the installation (C2:34). Other finds include groundstone tools (Fig. 6:19-20), stone basin fragments (Fig. 6:18), a small ceramic bowl, a globular juglet, and a fragment of a bone spatula (Fig. 6:6). The ceramic and artefact assemblages recovered from C300 are also very similar to that from C100 and Field B, indicating that all three of these areas were occupied during the Hellenistic period.

West of feature C300 is a large wall, W3004 (C2:16), that forms part of the Iron Age fortification system. It appears to follow an offset-inset layout, with the walls measuring roughly 1.90 m thick. Parts of the same wall were exposed in both C12 (W3005; C12:15) and C21 (W3006; C21:3). In the latter case, the western face is clearly footed on bedrock, and the eastern face of the wall is founded on hard-packed soil. Further exploration of this fortification system is required.

C12 also yielded a stone-lined channel (C400; C12:6) capped with in flat-lying stones. At present, this feature does not appear to be connected to C300, but further excavation may reveal

that this channel was used to transport water into the pool. The ceramics recovered from C12 and C21 date mainly to the Iron II period which suggests that this is indeed part of Mukhayyat's Iron Age fortification system. Only a single surface (C12:14) was uncovered in the western part of Field C, and it remains unexcavated. More work will be conducted here in order to elucidate the nature of the Iron Age occupation on this area of the site.

MACRO-BOTANICAL REMAINS ANALYSIS

The first season of excavation at Mukhayyat provided the opportunity to implement a comprehensive soil sampling and analyzing strategy designed to provide strong comparisons to other sites in Jordan. The initial hypothesis for Field C Central material was based on the assumption that excavations in this area would produce substantial Byzantine remains. This field was expected to yield a pattern of plant use that reflects a strong reliance on a locally-based (evident plant processing) and focused mixed-cultivation strategies (summer and winter crops) with potential irrigation technology employed (Ramsay and Smith 2013: 59). It was also hypothesized that a secondary emphasis on *Vitis vinifera* (common grape) and *Olea europea* (olive), the two economically most important crops during the Byzantine period, may be evident (Jacquat and Martinoli 2001). This proposed emphasis is expected due to the presence of grape processing installations, dating to the Byzantine period, in the region around Mukhayyat. The hypothesis for Fields A, B, and C West was that plant remains will largely reflect the construction debris and filling episodes of the various phases represented by the architecture. Southern Jordan has been the focus of paleoethnobotanical studies of material dating to the Early Roman and Late Byzantine periods; however, only limited work has been undertaken in the more agriculturally productive Madaba Plains region (see LaBianca and Lacelle 1986: 123-140). The

long term goal for this study is to resolve this unevenness and provide comparative material for the paleoethnobotanical record from Southern Jordan.

A sampling strategy was introduced that will best represent the diverse set of activities that produced the macro-botanical record at the site. This strategy employed a random distribution pattern that would assess the richness of the botanical assemblage by sediment layer. Three samples were collected from soil layers that were deemed arbitrary by the excavators and five samples were taken from loci with obvious archaeological importance (e.g. *in situ* features, architectural installations, and occupational surfaces). A standard 10 litres was used for each sample, except where this volume could not be recovered such as the interior of vessels or small ash lenses. Consultation was utilized in the case of architecture so that appropriate control samples could be collected.

All recovered soil samples (n=284) were floated in a tank of water propelled by a motor in order to separate the heavy (ceramics, stone, bone and other materials) and light (macrobotanical remains) particles. The heavy fraction was sorted into 4.75 mm and 2 mm portions and examined in order to recover cultural material. In future seasons, the heavy fraction will be weighed and the pieces of cultural material counted in order to assess its density. The light fraction was sorted into 2 mm, 1 mm, 0.5 mm and 0.09 mm portions, and only the 2 mm portion was analyzed. The smaller size fractions will be analyzed in the future.

Following the sorting process, the light fraction samples were identified to specific taxa where possible. Family level designations were utilized to account for the wild seeds present. Often the plant remains recovered in soil samples reflect secondary depositions that do not reveal the function of the structure or object in which they were found. Therefore, these identifications were used to develop a series of ratios that can be indicative of particular cultural processes that

impact the record in a general pattern. These ratios are: seed vs. charcoal (number of firing episodes and wood fuel availability), wheat vs. barley (food vs. fodder, intensification, and environmental moisture level), diversity of taxa vs. richness of taxa (density of remains in sediment, aeolian/fluvial vs. intentional deposition, and the number of firing processes).

Following field analysis of 40 samples, it is possible to come to certain preliminary conclusions about the macro-botanical remains at Mukhayyat. Of the 40 samples analyzed, 3 samples were from Field A, 3 from Field B, and 34 from Field C. The three Field A samples reflect a mix of activities with low numbers of cereals (both barley and wheat), legumes, and olive pits and an overall low density of archaeological material. The one find of *Phalaris sp.* (canary grass) could be indicative of irrigation (Fatkin et al 2011: 260) but this is too preliminary to state definitively.

The three Field B samples all came from contexts associated with the intact Hellenistic cooking pots that were uncovered *in situ*. The interior of one of the vessels from square B25 (14.106) produced a concentration of cereals and legumes that were badly preserved. The interior of one of the vessels from B14 (14.199) was largely composed of intact charcoal pieces, indicating a single depositional event. The plant remains recovered from the soil underneath this vessel reflect a mix of firing activities (cereals, legumes and fruit). The remaining samples from these cooking pots have been sent to the Archaeobotany lab at Ohio State University for further analysis.

Of the 34 samples from Field C, 28 reflect the contents of installations C100, C200, and C300. The samples collected from C100 likely represent an intentional filling event due to the large number and the diversity of seeds in the assemblage. Additionally, the sample taken from the floor of this installation is composed completely of cultivated seeds: *Phoenix dactyifera*

(date), *Vitis vinifera* (common grape), *Triticum aestivum/durum* (bread/macroni wheat), *Triticum diccocum* (emmer wheat), *Lens culinaris* (lentils), and *Hordeum vulgare* (common barley), and there is no evidence of processing. This is likely not a domestic surface but may reflect burned storage or cooking activities (Cartwright 2000: 101-2). Palmer and van der Veen have noted the association between economic crop plants and intentional depositions in Roman ossuaries throughout the Eastern Mediterranean (2000: 197). The samples taken from the surface and fill associated with C200 indicate an intentional filling event. Those taken from C300 suggest an aeolian or fluvial deposition.

Vitis vinifera (common grape) was present in the highest numbers in the economic plants outside of cereals and legumes, although it does not make up a significant portion of the seed count in any of the Field C excavation units. A concentration of 31 grape pips, associated with burnt pottery sherds dating to the Iron Age, was recovered from square C21.

There is a significant diversity in the agricultural practices at Mukhayyat as evidenced by the excavations in Field C. There are both hulled and naked varieties of six-rowed barley as well as emmer and bread/macaroni wheat. Rather than an intense focus on a selection of varieties, there is evidence of a more diverse strategy. Emmer is a culturally appreciated variety by the Romans and it was only later that *T. aestivum/durum* (bread/macaroni wheat) became the standard staple. *Phoenix dactyifera* (date) was relatively common in the Field C assemblages which could indicate a long-term practice of orchard cultivation although they also are well preserved in dried form (Ramsay and Smith 2013: 61). Few *Olea europea* (olive) were recovered. This preliminary study confirms the presence of a steady mixed-cultivation subsistence pattern during the Hellenistic period at Mukhayyat.

OTTOMAN VILLAGE DOCUMENTATIONS PROJECT

During the summer of 2014, work in the Ottoman Village at Mukhayyat, located on the eastern slopes of the mound, was focused on the four standing buildings present in this area of the site. These buildings were constructed after 1881 and were still in use in the late 1930s (Picirillo and Alliata 1998: 39; Saller and Bagatti 1949: 36). The structures were documented using the Historic American Building Survey method which is the standard for documenting heritage buildings in North America (National Parks Service 2011). Each of the buildings, walls, and features were first labeled so that they could be referred to with ease. A record for each building was created using forms that were specifically designed for this purpose. Only one building could not be recorded as it was locked. Coordinates were recorded for each structure and preliminary drawings of the architecture and certain features was also undertaken. More detailed drawings will be completed in future seasons.

The buildings are in various states of preservation from complete to half standing. They were all built using the boulder and chink method. Several reused, dressed Byzantine stones were incorporated into these walls. Pottery is used as chinkstones in some places and more recent repairs have been made with rolled up garbage bags. All the doorways within the buildings except for one had an arch behind it.

Although the first building (OV100) was locked, the arch above the door was documented because of its decoration. The stone at the top of the arch has a number of symbols carved into it (Fig. 10): a cross inscribed in a circle, a common symbol in Byzantine art, and a crescent moon with a star, an Islamic motif often used in the Ottoman period (McQuitty 2008, 561). The second building (OV200) was the largest and had five different rooms with three areas entirely separated from each other, indicating a high level of privacy and different functions for these rooms.

OV300 was built in the southern aisle of the Byzantine Church of Amos and Kasiseus. One of the doorways in this structure contains a reused Byzantine stone with a Greek inscription (Saller and Bagatti 1949: 180-181; Di Segni 1998: 445). The last building (OV400) had an arch with a hook built into it and walls that are on average 0.20 m wider than the other buildings. This structure conforms to McQuitty's stone-built barrel-vaulted style of building (2008: 548). The data collected as part of the Ottoman Village Documentation Project season will allow a better understanding of vernacular architecture during the Late Ottoman Period in Jordan.

COMMUNITY ENGAGEMENT

Community-based participatory research (CBPR) is a method that engages local and descendant communities as partners and stakeholders in archaeological research. Often, archaeology is seen as a luxury by the communities where projects take place; CBPR aims to make archaeology reciprocal and relevant to communities in tangible economic, social, and political ways (Atalay 2010:418). As Sonya Atalay notes of her own CBPR program (2010:420) at the site of Çatalhöyük, Turkey, CBPR relies upon three principles: 1) reciprocity and clear benefits to all partners; 2) power sharing on all levels of planning, research, and output; and 3) applied knowledge and research, or action.

The 2014 inaugural season of the KMAP-CBAP at Mukhayyat aimed to investigate the capacity for CBPR with the nearby village of Faysaliyah. The methods for gauging the level of community engagement and participation in the CBAP were simple: to approach community members and speak with them about their association with the site, including their families' history in the region, their own understanding of foreign archaeologists working in the region in the present and in the past, and any ways they felt an archaeological project might benefit their community. In general terms, the 2014 season aimed at gauging the larger project's ability to

contribute to capacity, education, and knowledge-building within Faysaliyah. During this process, senior members of the Mukhayyat team facilitated informal, unstructured interviews; community members led discussions and were not considered to be subjects of the discussion. An interpreter, who was known to all involved community members, was provided by the Madaba Archaeological Directorate.

From the outset, regardless of the ultimate products of the KMAP-CBAP, the primary aims are to: solicit, and re-solicit, community feedback on the project at all stages, revisit the stated community wishes for the product deliverables, and maintain a transparency as to project methods and goals. We are keenly aware that, in order for a project to be truly driven by community involvement, we must accept the level (or lack) of participation by the community as stakeholders in the project, as determined by them.

Results

In total, five informal discussions and project introductions were conducted with seven community members (Table 1). All discussion participants were afforded anonymity, though none requested it. Participants gave permission for Mukhayyat staff to take rough, hand-written notes during these discussions; no recording devices were used. All members who participated in the discussion expressed interest in continuing these discussions more formally in subsequent seasons.

Also during the 2014 season, senior staff of the Mukhayyat team (Foran and Lewis) introduced the project to the Director of the Madaba Archaeological Directorate, Mr. Bassem al-Mahamid, and obtained his permission to gauge local interest in a community-based project. In addition, current members of the KMAP-CBAP Steering Committee met (Foran, Dolan, Lewis) and established goals for the 2016 season.

Future Work

Subsequent seasons of the KMAP-CBAP will build upon the foundational introductions and conversations between project staff and community members in order to guide the following goals. These goals will be reformulated throughout the project and are designed to facilitate and guide data collection, information reciprocity, and community feedback. They seek to: a) collect and report information from community participants in the project in order to identify their personal goals, objectives, and expected/ideal outputs and level of involvement; b) collect and report on pre- and post-project socio-economic realities of participants; c) collect and report information from non-participating community members, both pre- and post-project, in order to understand their level of knowledge regarding the project, and its goals, outputs, and value; d) collect and report information on the traditional activities within a study area around the proposed project location. This ethnographic information will be used to inform a better understanding of potential project effects on the community, as well as identify potential research goals that may be of benefit to the community today; e) collect and report information on levels and trends of consumption of traditional foods; f) provide a comparative and self-reflexive study of the project and its impact on the community, from an individual to a group level, from inside and outside of the project participants.

It is hoped that the above goals, if accepted by the community during the 2016 season, will enable discussions on how the project may dovetail with local education, knowledge, and economic goals. Reciprocally, this information will aid in creating an ethnography of the site of Mukhayyat and make the project and site not only historically and archaeological relevant, but socially relevant in the present.[2]

CONCLUSIONS

The 2014 excavation season at Mukhayyat succeeded in uncovering several different structures and features previously unknown at the site. Although many of our original objectives were not met, the occupational history of the site is now more complete.

The excavations in Field A, on the southern slope of the acropolis, revealed multiple east-west walls that are associated with the construction of the Church of St. George on the top of the acropolis in the 6th century CE. It appears that a large area to the south of the church was levelled off in order to create a large outdoor space that was perhaps used for rituals performed in the building.

Work in Field B, to the south of the acropolis, uncovered part of a large defensive structure that likely dates to the Hellenistic period. The excavation of these walls was not completed during the 2014 field season; therefore, an exact date has not yet been determined. However, it is clear that the area ceased to be defensive in nature and was reused for a different purpose as more than 20 complete cooking pots were recovered.

Excavations in Field C, north of the acropolis, indicate that this area was not used for habitation during the Late Byzantine period. On the contrary, it seems that the residents of Mukhayyat used this location as a space for dumping soil and stones, perhaps in preparation for agricultural activities. The bedrock that lay under the successive fill layers contained two distinct installations, both associated with the use of the site during the Hellenistic period. To the west of the main excavation area, the presence of a large, plastered, stepped pool associated with a cistern are further testament to the Hellenistic occupation at Mukhayyat.

Although excavation formed the focus of our work, resources were also allocated to the documentation project focused on the Late Ottoman remains to the northeast of the mound. In

addition to meticulously documenting all of the architectural features of these buildings, an effort was made to track the use and deterioration of these structures as well as complete the recording of the reuse of ancient building materials within these late 19th century structures.

A significant amount of recent illicit excavations were noted around the site during the 2012 season. We have continued to document (and subsequently record in MEGA-Jordan) this activity. In an effort to dissuade the local residents from pursuing this type of activity and to include them in our work at Mukhayyat, we took preliminary steps during the 2014 field season to develop a community-based archaeology project in the nearby village of Faysaliyah. By working closely with the schools and community groups in the village, we hope to educate the people of this region about our work and encourage them to actively participate in our research.

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BIBLIOGRAPHY

Atalay, S.
2010 We don't talk about Çatalhöyük, we live it. World Archaeology 42(3): 418-429.

Cartwright, C.
2002 Grape and Grain: Dietary Evidence from an Early Bronze Age store at Tell el-Sa'idiyah, Jordan. PEQ 134 (2): 98-117.

Conder, C. R.
1889 The Survey of Eastern Palestine I: The 'Adwân Country. London: The Committee of the Palestine Exploration Fund.

Corbo, V. and Loffreda, S.
1981 Nuove scoperte alla fortezza di Macheronte. LA 31: 257-286.

De Saulcy, F.
1865 Voyage autour de la Mer Morte et dans les Terres Bibliques, I-II. Paris: Librairie religieuse de Pouget-Coulon.

Dearman, A.
1997 Roads and Settlements in Moab. BA 60 (4): 205-213.

Di Segni, L.
1998 The Greek Inscriptions. Pp. 425-467 in M. Picirillo and E. Alliata (eds.), Mount Nebo: New Archaeological Excavations 1967 – 1997. Jerusalem: Studium Biblicum Franciscanum.

Fatkin, D., Adelsberger, K., Farahani, A., Fischer, A., Witcher Kansa, S., Lev-Tov, J., Morgan, C., Porter, B.W., Routledge, B.E., and Wilson, A.T.
2011 Digging Deeper: Technical Reports from the Dhiban Excavation and Development Project (2004-2009). ADAJ 55: 249-266.

Foran, D.
2005 The Monks of the Eastern Desert: Mount Nebo and its Monastic Communities (unpublished dissertation) Toronto: Pontifical Institute for Mediaeval Studies.

Gass, E.
2009 Die Moabiter Geschichte und Kultur eines ostjordanischen Volkes im. 1. Jahrhtausend v. Chr. Wiesbaden: Abhandlungen des Deutschen Palästina-Vereins Band 38.

Gibson, J. C.
1971 Textbook of Syrian Semitic Inscriptions Vol. I Hebrew and Moabite Inscriptions. Oxford: Clarendon Press.

Glueck, N.
1935 Explorations in Eastern Palestine: II. AASOR 15: ix, 1-149, 151-161, 163-202.

Graham, A. and Harrison, T.
2001 The Khirbet el-Mukhayyat 2000 Topographic Survey. LA 51.

Herr, L. G., Gerarty, L.T., LaBianca, O., and Younker, R.W.
1991 Madaba Plains Project: The 1987 Season at Tell el'Umeiri and Vicinity and Subsequent Studies. Berrien Springs: Andrews University Press.

Jacquat, C. and Martinoli, D.
1999 Vitis vinifera L.: wild or cultivated? Study of the grape pips found at Petra, Jordan; 150 B.C.-A.D. 40. Vegetation History and Archaeobotany 8: 25-31.

Jaussen, A. and Savignac, R.
1909-1914 Mission Archéologique en Arabie (mars-mai 1907). Paris: Leroux.

Labianca, O. and Lacelle, L.
1986 Environmental Foundations: Studies of Climatical, Geological, Hydrological, and Phytological Conditions in Hesban and Vicinity. Berrien Springs: Andrews University Press.

Magness, J.
2002 The Archaeology of Qumran and the Dead Sea Scrolls. Grand Rapids, MI: William B. Eerdmans Publishing Company.

McQuitty, A.
2008 The Ottoman Period. Pp. 539-568 in R. B. Adams (eds.), Jordan: An Archaeological Reader London: Equinox Publishing.

Michel, A.
1998 Trois campagnes de fouilles à Saint-Georges de Khirbat al-Mukhayyat (1995-1997) Rapport Final. LA 48: 357-416.

Mortensen, P.
1992 A Survey in the Mount Nebo Area 1992. LA 42: 344-346.

Mortensen, P.
1996 Mount Nebo Survey. AJA 100 (3): 511.

Mortensen, P.
2002 Archaeological Excavations at "Conder's Circle" at 'Ayn Jadidah near Mount Nebo. LA 52: 471-472.

Mortensen, P.
2005 Archaeological Excavations at "Conder's Circle" at 'Ayn Jadidah near Mount Nebo. LA 55: 485.

Mortensen, P.
2009 New Light on the Paleolithic Landscape around Mount Nebo. SHAJ 10: 917-920.

Mortensen, P., Mortensen, I.D., and Thuesen, I.
2013 Mount Nebo, an Archaeological Survey of the Region: Vol. I The Palaeolithic and the Neolithic Periods. Aarhus: Aarhus University Press.

Mortensen, P. and Thuesen, I.
1998 The Prehistoric Periods. Pp. 85-99 in M. Picirillo and E. Alliata (eds.), Mount Nebo: New Archaeological Excavations 1967 – 1997. Jerusalem: Studium Biblicum Franciscanum.

Mortensen, P. and Thuesen, I.
2007 Investigating "Conder's Circle" at 'Ayn Jadidah, near Mount Nebo. SHAJ9: 451-456.

Musil, A.
1907 Arabia Petraea. Wein: Hölder.

National Parks Service.
2011 Historic American Buildings Survey Guide to Field Documentation.

Netzer, E.
1981 Greater Herodium. Qedem 13. Jerusalem: Institute of Archaeology, Hebrew University of Jerusalem.

Netzer, E.
2001 Hasmonean and Herodian Palaces at Jericho, Final Reports of the 1973-1987 Excavations, Volume I: Stratigraphy and Architecture. Jerusalem: Israel Exploration Society.

Palmer, C. and van der Veen, M.
2000 Archaeobotany and the social context of food. Acta Palaeoethnobotany 42 (2): 195-202.

Piccirillo, M.
1973 Campagna archeologica a Khirbet el-Mukhayyet (Città del Nebo) agosto-settembre 1973. LA 23: 326-340.

Piccirillo, M.
1988 La capella del Prete Giovanni di Khirbet el-Mukhayyat (villaggio di Nebo). LA 38: 297-315.

Piccirillo, M.
1989 Madaba le chiese e i mosaici. Milan: Edizioni Paoline.

Piccirillo, M.
1993 The Mosaics of Jordan. Amman: American Center of Oriental Research.

Piccirillo, M.
1994 Le due iscrizioni della cappella della Theotokos nel Wadi Ayn al-Kanisah sul Monte Nebo. LA 44: 521-538.

Piccirillo, M.
1995 La chapelle de la Theotokos dans le wadi Ayn al-Kanisah au Mont Nébo en Jordanie. Bulletin de l'Association pour l'Antiquité Tardive 4: 38-44.

Piccirillo, M.
1998 The Monastic Presence. Pp. 193-219 in M. Picirillo and E. Alliata (eds.), Mount Nebo: New Archaeological Excavations 1967 – 1997. Jerusalem: Studium Biblicum Franciscanum.

Piccirillo M. and Alliata, E.
1998 Mount Nebo: New Archaeological Excavations 1967-1997. Jerusalem: Studium Biblicum Franciscum.

Pritchard, J. B.
1950 Ancient Near Eastern Texts Relating to the Old Testament. Princeton: Princeton University Press.

Ramsay, J. and Smith, A. M.
2013 Desert Agriculture at Bir Madhkur: The First Archaeobotanical Evidence to Support the Timing and Scale of Agriculture During the Late Roman/Byzantine Period in the Hinterland of Petra. Journal of Arid Environments 99: 51-63.

Ripamonti, J.
1963 Investigationes sobre la tomba de Moises. Caracas: Universidad Central de Venezuela.

Routledge, B.
2004 Moab in the Iron Age: Hegemony, Polity, Archaeology. Philadelphia: University of Pennsylvania Press.

Saller, S. J.
1941 The Memorial of Moses on Mount Nebo, I-II: Text and Plates. Jerusalem: Studium Biblicum Franciscum.

Saller, S. J.
1966 Iron Age Tombs at Nebo, Jordan. LA 16: 165-298.

Saller, S. J. and Bagatti, B.
1949 The Town of Nebo (Khirbet el-Mekhayyat). With a Brief Survey of Other Christian Monuments in Transjordan (SBF Collectio Maior 7), Jerusalem: Studium Biblicum Franciscum.

Schneider, H.
1950 The Memorial of Moses on Mount Nebo, III: The Pottery. Jerusalem: Studium Biblicum Franciscum.

Stockton, E.
1967 Stone Age Culture in the Nebo Region. LA 17: 122-128.

Thuesen, I.
2004 Messages in Stone: The Megaliths of Nebo Region in Jordan. Pp. 105-117 in K. von Folsach, H. Thrane, and I. Thuesen (eds.), Neandethals and Modern Humans. An Ecological and Evolutionary Perspective. Cambridge: Cambridge University Press.

Thuesen, I.
2009 From Jericho to Mount Nebo: Results of Recent Excavations at Conder's Circle. SHAJ 10: 603-609.

Tristram, H. B.
1873 The Land of Moab: Travels and Discoveries on the East Side of the Dead Sea and the Jordan. 2nd ed. London: Murray.

FOOTNOTES

[*] Specific contributions were made by individual authors to the following sections: Macro-botanical Remains Analysis (A. Buffington), Ottoman Village Documentation Project (T. Wight), and Community Engagement (J. Lewis).

[1] The 2014 season was conducted between May 18 and June 16, with Debra Foran acting as Project Director, Annlee Dolan as Associate Director, Jennifer Lewis as the Director of the Community Based Archaeology Program and Steven Edwards as Field Supervisor. An archaeological field school was also run with students from Wilfrid Laurier University and the University of Toronto. Kholood Agrabawi served as the representative for the Department of Antiquities.

[2] Achieving these goals relies upon two crucial and integrated aspects that are of primary importance to the 2016 and subsequent seasons: Research Ethics Approval from Wilfrid Laurier University's (WLU) Office of Research Services (ORS); and the continued participation—as interview participants, educators, students, hosts, and recipients—of Faysaliyeh community members. Interview Guides, Consent Forms, and Interview Schedules have already been completed and will be submitted to WLU's ORS for approval prior to the 2016 season.

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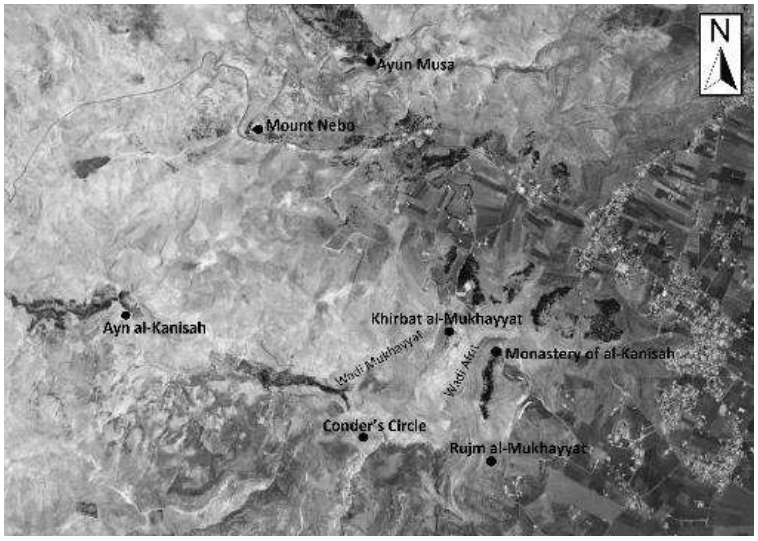

Fig. 1: Map of the Nebo area

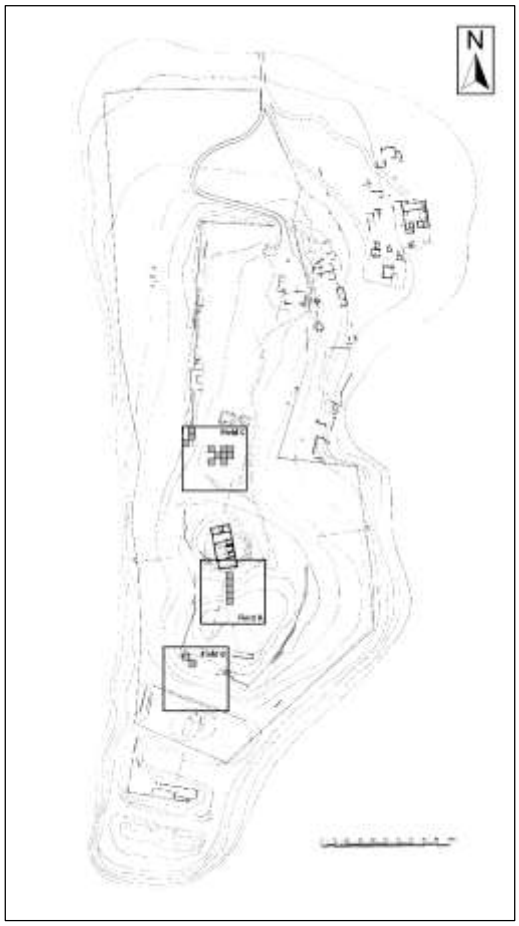

Fig. 2: Plan of Mukhayyat with 2014 excavation areas

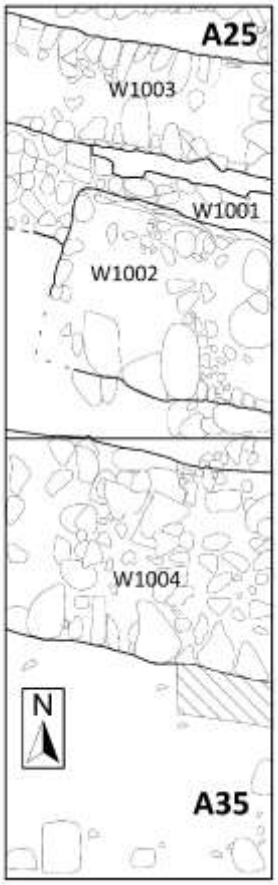

Fig. 3: Plan of Field A excavations

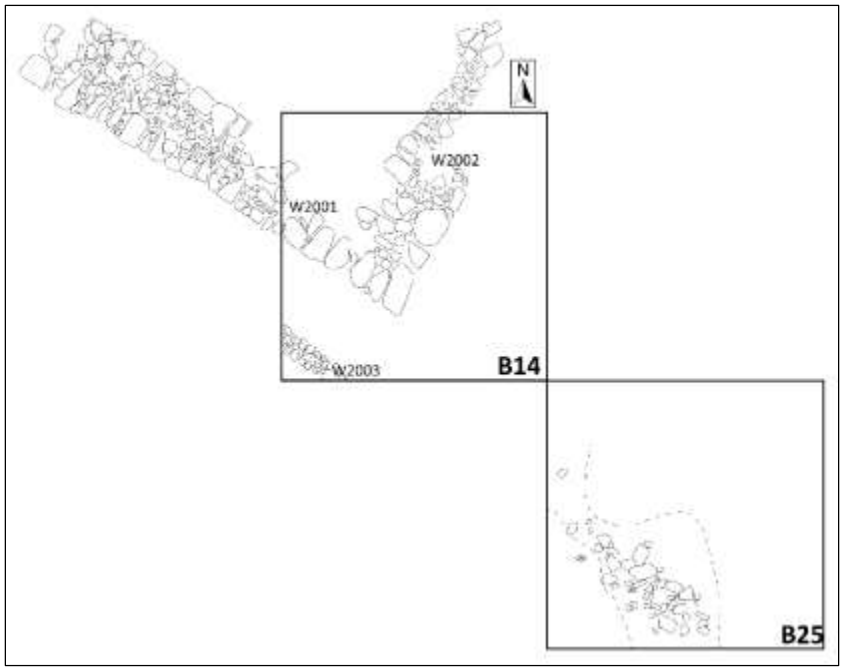

Fig. 4: Plan of Field B excavations

Fig. 5: Hellenistic cooking pots from Field B

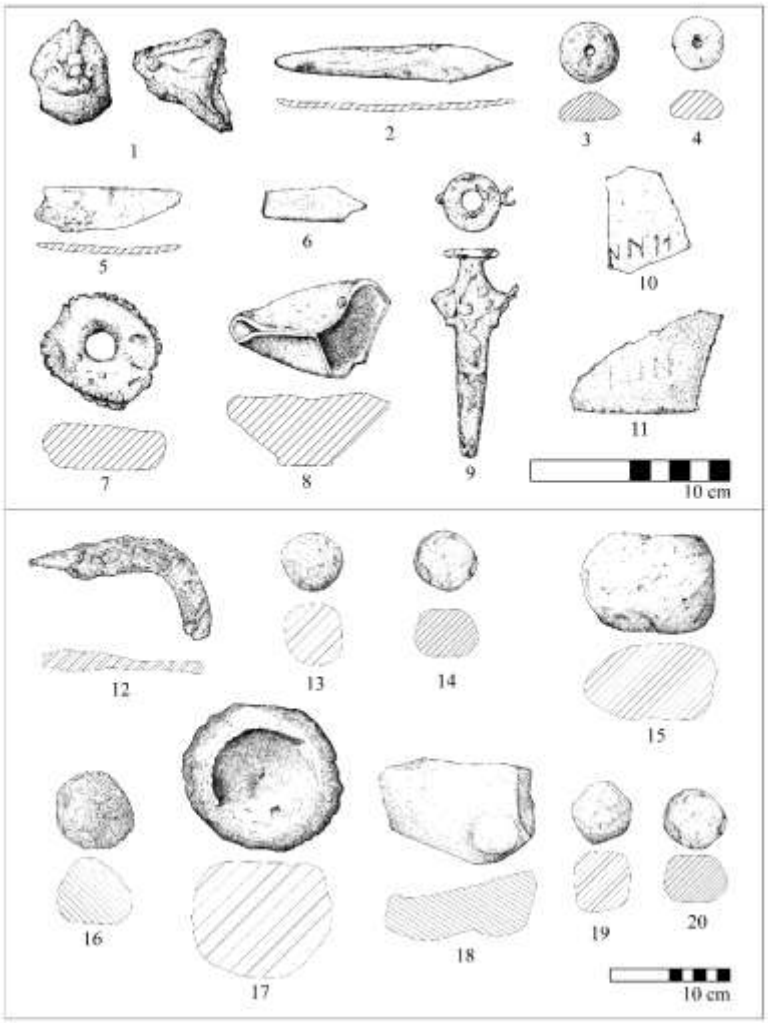

Fig. 6: Objects from Fields B and C

Fig. 7: Fill layers from Field C Central Area

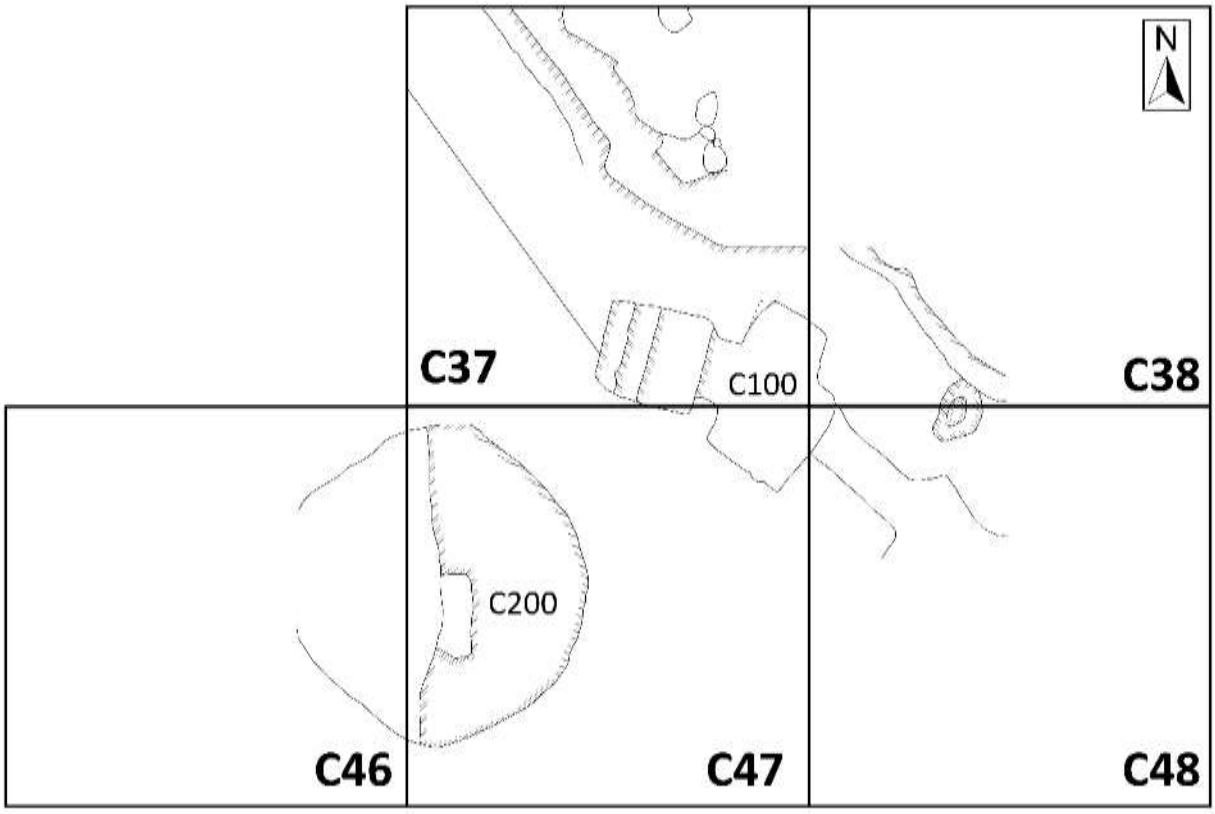

Fig. 8: Plan of Field C Central excavations

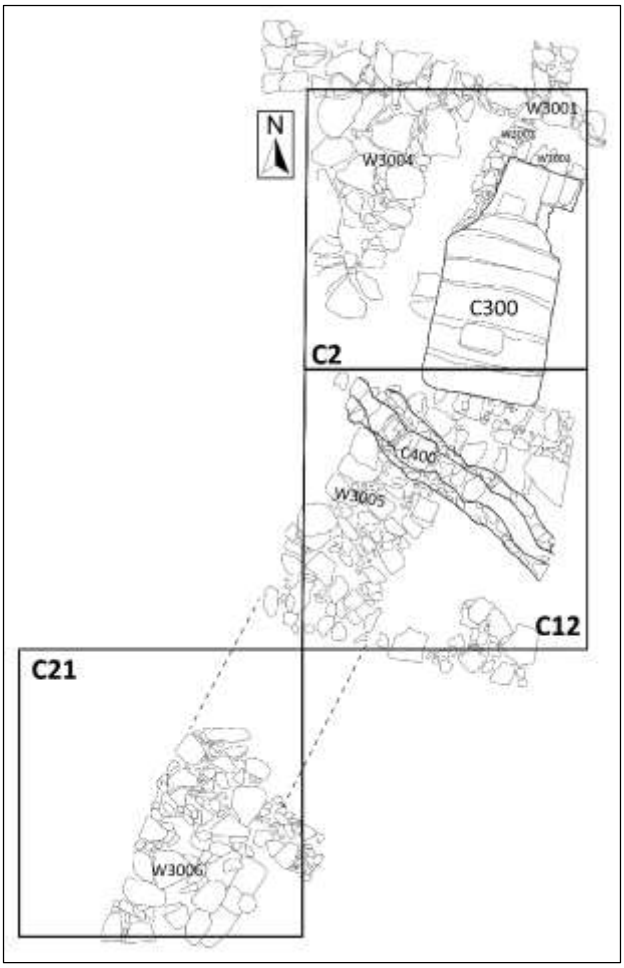

Fig. 9: Plan of Field C West excavations

Fig. 10: Decoration of archway of OV100

TABLES

Individual	Date of Conversation	Home community	Comments
A	May 26, 2014	Faysaliyah	Worker with the Venezuelan team in 1960s (Ripamonti); same family as translator
B	May 26, 2014	Desert	Museum employee
C	May 26, 2014	Faysaliyah	Museum employee; translator
D	May 26, 2014	Faysaliyah	Worker on KMAP; previously worked at Tell Madaba
E	May 27, 2014	Faysaliyah area	Worker with the Venezuelan team in 1960s (Ripamonti); brothers; here for more than 45 years; brother of Individual F
F	May 27, 2014	Faysaliyah area	Worker with the Venezuelan team in 1960s (Ripamonti); brothers; here for more than 45 years; brother of Individual E
G	May 27, 2014	Faysaliyah area	Worker with the Venezuelan team in 1960s (Ripamonti)

Table 1: Summary of 2014 discussions with community members