

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Theses, Dissertations, and Student Creative Activity,
School of Art, Art History and Design

Art, Art History and Design, School of

8-2018

Pottery and Purpose: Using GIS to Evaluate the 'Scroll' Jars at Qumran

Patricia A. Patton

University of Nebraska-Lincoln, trisha.a.patton@gmail.com

Follow this and additional works at: <http://digitalcommons.unl.edu/artstudents>



Part of the [Arts and Humanities Commons](#)

Patton, Patricia A., "Pottery and Purpose: Using GIS to Evaluate the 'Scroll' Jars at Qumran" (2018). *Theses, Dissertations, and Student Creative Activity, School of Art, Art History and Design*. 136.

<http://digitalcommons.unl.edu/artstudents/136>

This Article is brought to you for free and open access by the Art, Art History and Design, School of at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Theses, Dissertations, and Student Creative Activity, School of Art, Art History and Design by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

POTTERY AND PURPOSE: USING GIS TO EVALUATE THE 'SCROLL' JARS AT
QUMRAN

by
Patricia A. Patton

A THESIS

Presented to the Faculty of
The Graduate College at the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Master of Arts

Major: Art History

Under the Supervision of Professor Philip Sapirstein

Lincoln, Nebraska

August, 2018

POTTERY AND PURPOSE: USING GIS TO EVALUATE THE 'SCROLL' JARS AT QUMRAN

Patricia A. Patton, M.A.

University of Nebraska, 2018

Advisor: Philip Sapiststein

This thesis uses geographical information systems (GIS) to map the findspots of the so-called 'scroll' jars and associated artifacts at Qumran. The goal of this project is to contextualize the jars in order to evaluate their function. Past scholarship on the 'scroll' jars has typically assumed their purpose for storing scrolls more based on the name they were given when the first cave containing Dead Sea Scrolls was found by a Bedouin man, rather than any strong archaeological or textual evidence. The man did describe finding scrolls in one of the jars inside the cave before he removed them. Since then, few scholars have looked for evidence to confirm this function or examined alternative explanations for their production and use.

While scrolls may have been stored in some of these jars, it is difficult to imagine that this was their only function. They have been found not only in the caves surrounding Qumran but also within the settlement. No scrolls have been found in the settlement, however, yet there are a number of 'scroll' jars present. By mapping out the jars and other artifacts found in the same loci, within the settlement, it is possible to identify different functions besides storing scrolls. The frequency of their occurrence among common domestic pottery demonstrates that they were used in the settlement for food-related activities, most likely storage.

GRANT INFORMATION

Research supported by generous funding from the University of Nebraska - Lincoln. A scholarly grant from the Hixson-Lied College of Fine and Performing Arts and the School of Art, Art History, and Design Trabold fund allowed me to travel to Israel and visit the site of Qumran in person.

INTRODUCTION

Qumran is an archaeological site situated along the northwest shore of the Dead Sea—best known for its proximity to the caves where the Dead Sea Scrolls were first found in the 1940s. Since then the site has been excavated, and a variety of interpretations for its purpose and activity have been proposed. The most prominent scholarly interpretation is that Qumran was a place where a group known as the Essenes wrote and copied scrolls which they viewed as scripture. One of the most iconic artifacts from Qumran, followed by the scrolls themselves, are the ‘scroll’ jars. Although these jars appear in large quantities at Qumran, especially in the caves, they are practically unattested elsewhere in Israel. Qumran’s overall ceramic corpus is similar to contemporary sites such as Jericho and Jerusalem, but no other site has these ‘scroll’ jars, a fact which testifies to their peculiarity. Given their uniqueness, these jars should be examined further to understand how they functioned. A critical examination of these unusual ‘scroll’ jars offers new insight into the life of the sectarian group at Qumran. The jars are said to have been used to store sacred documents, even though no scrolls have been found inside them by archaeologists.¹ This identification has continued, largely unquestioned, until recently, as some scholars have started to argue against a primary function as storage for scrolls. This question will be the focus of this thesis. By using geographic information systems (GIS) to map out the find locations of the ‘scroll’ jars, I will demonstrate that these jars were regularly used in activities related to storing not scrolls but common goods for the community—namely food-stuffs.

¹ Recent excavations by Gutfeld and Price in Cave 53 have discovered scroll fragments in situ along with smashed jars. This indicates that the jars inside the caves were used to store scrolls.

Chapter one reviews a history of the research that has been done on Qumran, focusing on the interpretations of three scholars of Qumran with particularly influential views: Roland de Vaux, Jean-Baptiste Humbert, and Jodi Magness. Roland de Vaux was the original excavator of Qumran, and his interpretations set the stage for subsequent scholarship. Jean-Baptiste Humbert provides a related interpretation of the site but with key differences about some aspects of its function. Furthermore, as de Vaux's successor, Humbert has access to all of the excavated materials and records from Qumran. Jodi Magness agrees with de Vaux about the general nature of Qumran but expands on his original theories, integrating the evidence and research from the 70 years since de Vaux began excavating the site. The final part of this chapter revisits the scholarship on the 'scroll' jar problem and then lays out the primary findings of new research.

The second chapter discusses ceramics more generally, in three parts: 1) factors that affect ceramic production, 2) the relationship between vessel shape and function, 3) ceramics from Qumran including provenience studies and comparison to other sites. Provenience studies on Qumran's ceramics will be briefly presented to demonstrate that the majority of coarse ware and 'scroll' jars were manufactured with imported clay (or the vessels were made elsewhere). After addressing the first two parts of this chapter, their concepts will be applied to Qumran's ceramics and environment.

The third chapter presents my methodology, using GIS to map the findspots of the 'scroll' jars. It starts with an explanation of the different applications of GIS in archaeological research, then presents the case study that framed the basis for my project. I demonstrate that 'scroll' jars are frequently found in loci with coarse ware and therefore would have played a role in food storage, preparation, and consumption.

CHAPTER 1: HISTORY OF RESEARCH

Over the 70 years since the discovery of Qumran and the scrolls, many scholars have debated and attempted to fully understand the site and its environs. Major interpretations will be addressed in detail, from the perspectives of three influential scholars who have made extensive contributions to the current understanding of Qumran: Roland de Vaux, Jean-Baptiste Humbert, and Jodi Magness. Their interpretations share in common an agreement that at some point during the occupation of Qumran a sectarian group was present. However, their interpretations differ widely in other areas, such as the basic understanding of the function of the site. While the chapter is organized by the work of de Vaux, Humbert, and Magness, additional theories from various scholars will be introduced and briefly addressed in recognition of the complexity of both the site and the scholarly debate.

Father Roland de Vaux

Roland de Vaux, archaeologist and Dominican priest from the École Biblique et Archéologique Française de Jérusalem, was the first to conduct excavations at Qumran, from 1951-1957. Although Qumran had been known since antiquity,² it was not until the discovery of the Dead Sea Scrolls in 1946 that the site was thoroughly scrutinized. During his excavations, de Vaux understood Qumran to be related to the surrounding caves, and therefore the Dead Sea Scrolls, in some way.

His excavations revealed that this site was originally inhabited in the 8th-7th centuries BCE (Iron Age IIB). At this time, it consisted of a simple rectangular structure with a central

² Some early explorers to Qumran include: Ferdinand de Saulcy (1851), Henry Poole (1855), Charles Simon Clermont-Ganneau (1873).

courtyard surrounded by rooms (figure 1). One room contained a large cistern (locus 110) which continued to be used throughout Qumran's occupation.³ Other settlements, with nearly identical layouts, were set up in this region, such as Khirbet abu Tabaq, Khirbet es-Samra, and Khirbet el-Maqari. The Iron Age settlement was destroyed (approximately 586 BCE) and then abandoned for centuries.⁴

The second occupation is broken down into two phases: Period Ia and Period Ib.⁵ It is during these two periods that Qumran saw its greatest development. According to de Vaux, the site was reinhabited in 135 BCE until 104 BCE (Period Ia), after which it was drastically expanded (figure 2). The large cistern remained in use but additional ones were added, as were various rooms and work areas. An aqueduct was also constructed, collecting water from a pool among the cliffs northwest of the site and delivering it to cisterns at the site along an 800 meter channel.⁶ Although, as de Vaux states, there is no clear distinction in the excavated layers between Period Ia and Period Ib, the two periods are differentiated through changes in the settlement's construction. Period Ib began in 104 BCE and lasted until 31 BCE, when a major earthquake struck the region.⁷ Repairs are found throughout the settlement, indicating that extensive damage had occurred. In locus 49, a large stepped pool, cracks formed in the steps

³ Philip R. Davies (1982): 36.

⁴ De Vaux, Roland (1973): 2. See also Frank M. Cross, Jr. and J. T. Milik, "Explorations in the Judaean Buqe'ah," *Bulletin of the American Schools of Oriental Research*, no. 142 (April 1956).

⁵ The chronology of Qumran has been challenged by Magness. See Jodi Magness, "The Chronology of the Settlement At Qumran in the Herodian Period," *Dead Sea Discoveries* 2, no. 1 (1995). See also Dennis Mizzi, "Qumran Period I Reconsidered: An Evaluation of Several Competing Theories," *Dead Sea Discoveries* 22, no. 1 (2015) for further information regarding de Vaux's chronology being challenged.

⁶ Hidirolou and Grenache (2000): 139.

⁷ Flavius Josephus *Antiquities* 15.5 and Flavius Josephus *Wars* 1.19.

during the earthquake and were repaired when the inhabitants of Qumran returned. Additionally, a fire perhaps caused by the earthquake marks the end of Period Ib.

De Vaux claims that the inhabitants of Qumran abandoned the site for 30 years due to the destruction of the earthquake and fire. He also concludes that the site was abandoned for some time afterward due to a substantial amount of silt (about 75 cm) that accumulated over Period Ib.

⁸ Beginning in 4 BCE and continuing until 68 CE (Period II) the previous inhabitants returned to the settlement and renovated it. The renovations included filling in and abandoning some rooms, while others were altered and new rooms added. The function of the site during Period II appears consistent with the earlier Period Ia,b habitation, indicating that the same group had returned to the site. Furthermore, the ceramic typology discovered in Period Ia,b matches that found in Period II contexts, which provides further evidence that the inhabitants were from the same group.

In 68 CE the site came to a violent end. Roman soldiers sacked Qumran, as is evident from the presence of iron spearheads, marking Period III. Historical accounts also recall the presence of Roman soldiers in the region.⁹ The main area of the settlement was fortified during Period III, including the tower and a thick wall constructed in locus 37; these features attest to the new inhabitants wanting security. The western section, however, was not repaired, demonstrating that whoever took over the site was not engaged in agricultural activities.¹⁰

Roman soldiers briefly occupied Qumran until around 73 CE.¹¹ Periods I and II receive the most

⁸ Roland de Vaux (1973), 23; Jodi Magness (1995): 59.

⁹ Flavius Josephus *Wars* 1.15.

¹⁰ Joan Taylor (2006): 134-135.

¹¹ Taylor (2006) discusses the presence of artifacts found at Qumran and Ein Feshkha dating to Period III and the potential for refugees to have inhabited the site longer. Some artifacts mentioned by Taylor include a green faience bead and glass phial.

attention by scholars since they are associated with the materials discovered in the caves, and the majority of artifacts come from these two periods.

De Vaux developed what is known as the “Qumran-Essene” hypothesis, which proposes that during occupations Period Ia,b and II a Jewish sect called the Essenes lived at Qumran. While there, they copied (and perhaps even wrote) both canonical and non-canonical books of the Hebrew Bible. The Essenes were a sect that ascribed to strict purity rules and were known to forsake earthly delights such as wealth and luxury items. De Vaux identifies the group as Essenes because they are mentioned in the writings of Pliny the Elder and Flavius Josephus, two 1st century CE historians. Pliny the Elder mentions the presence of a group of Essenes in the Dead Sea region,¹² while Josephus details the sect’s religious activities and beliefs.¹³ De Vaux and many scholars who followed drew connections between the writings of Josephus, the scrolls, and the archaeological evidence at Qumran.

The Qumran Scrolls such as the *Community Rule* (1QS) among others, describes a way of life similar to what Josephus says about the Essenes, particularly when it comes to rules of purity.¹⁴ The *Community Rule* describes a community of men¹⁵ organized hierarchically and adhering to strict purity laws. The document describes how new members must hand over their property, earnings, and dine at communal meals. There are also restrictions imposed on these new members such as “He shall not touch the Drink of the Congregation until he has completed his *second year*” (1QS), which is reminiscent of a two-year initiation period for the Essenes

¹² Pliny the Elder, *Natural History* 5.73.

¹³ Flavius Josephus, *Wars* 8.1-14.

¹⁴ Géza Vermès (1997): 97-124.

¹⁵ In the *Community Rule* there is only one mention of *ishah* (woman) in the final hymn: “one born of woman.”

mentioned by Josephus.¹⁶ He further describes how the Essenes had community meals and ritually purified themselves.¹⁷ There are ten miqva'ot, a ritual immersion bath used to purify oneself before and after certain activities, attested at Qumran. These miqva'ot indicate that the inhabitants at Qumran were concerned with purity, much like the Essenes. There are also pottery kilns present at the site indicating that those who lived here produced their own pottery, perhaps as a way to ensure its purity.¹⁸ De Vaux theorized that because the Essenes followed strict purity laws regarding food and drink, they were forced to make their own pottery to avoid the potential impurity of imported wares.

Since the same materials were found in both the caves and the settlement, de Vaux concluded that they were from the same peoples. A connection between the settlement and the caves would mean that the inhabitants at Qumran wrote, or copied, the scrolls found in the nearby caves. Dead Sea scrolls such as *The Community Rule* appear to describe a communal life parallel to the accounts by Josephus and Pliny. De Vaux, therefore, put forth his “Qumran-Essene” theory by combining the written materials with archaeological evidence.¹⁹ Although he generated publications on Qumran, de Vaux passed away before being able to produce a final report of the site.

Jean-Baptiste Humbert

¹⁶ Flavius Josephus, *Wars* 2.138.

¹⁷ For a comprehensive list of parallels between the Essenes and the Dead Sea Scrolls see Todd S. Beall (1988) and Geza Vermes and Martin D. Goodman (1989).

¹⁸ The Essenes believed that by eating or drinking out of certain vessels one's body could become impure. In order to prevent this, they would manufacture their own pottery or use specific vessels that they knew to be 'pure'.

¹⁹ For a more detailed account of de Vaux's theory see de Vaux (1973).

Jean-Baptiste Humbert, current director of the archaeology laboratory at the École Biblique et Archéologique Française de Jérusalem and de Vaux's successor, proposed another interpretation of the site related to that of de Vaux, though he did not excavate there. In Qumran's earliest period, Humbert agrees with de Vaux that the site was a small Iron Age fortress, part of a network of fortifications established throughout the Buqei'ah (a valley to the west of Qumran, and east of Hyrcania).²⁰ After the fall of the Judean kingdom in the 6th century BCE, Qumran was abandoned for centuries. It was during the reign of John Hyrcanus (135-104 BCE) that Qumran, according to Humbert, was reestablished as a Hasmonean villa, one that was associated with the Hyrcania fortress to the southwest. During the Hasmonean period many fortresses were set up in the Dead Sea region and accompanied by a *villa rustica*. Others, however, included sites along the eastern shore of the Dead Sea such as Machaerus, as a way to build defenses against the Nabateans to the east.²¹

For Humbert, evidence of a villa can be seen in de Vaux's Period Ia plan, at the center of which is the standard layout marked by a central courtyard and adjoining rooms (figure 2).²² Other architectural features that contribute to the interpretation are the columns, some of which are provided with capitals. Although these items had been noted by de Vaux, he believed that they had been taken from nearby Masada or Herodion since the Essenes preferred a simple life and would have avoided Greco-Roman styles of architectural ornament.²³ Instead, de Vaux attributes these features to the Roman occupation in Period III.²⁴ Humbert, however, disagrees

²⁰ Jean-Baptiste Humbert (1994a): 14. See also Cross and Milik (1956).

²¹ Jean-Baptiste Humbert (1994a): 14.

²² Jean-Baptiste Humbert (1994b): 169.

²³ *Ibid.*, 172.

²⁴ The capitals were found in various places at Qumran, none were *in situ*. For example, there was a capital inserted into the shared wall between loci 13 and 14.

asserting they are too big to be conveniently transported as spolia and instead associated them with the hypothesized earlier villa upon which the Essenes expanded. Parallels in decor and style are drawn from other sites in the region such as Rujm el-Bahr where capitals, matching those at Qumran, were found.²⁵ It was only around 31 BCE, or slightly later, when Qumran would have become a sectarian community.²⁶ Humbert does not accept de Vaux's 30-year occupational gap.²⁷ Instead, he proposes that there were successive restorations that occurred at Qumran during this time by the new group of inhabitants.

During the Essene occupation, according to Humbert, Qumran was not strictly isolated as some scholars have thought.²⁸ Instead, he understands Qumran to function as a 'hub' or gathering center for Essenes living throughout the region. Qumran became a holy place, or as he puts it, a "substitution" for the Jerusalem temple.²⁹ Due to this sanctification of the site, Humbert identifies loci and features differently than de Vaux. For example, de Vaux identified loci 77 and 86-89 as being a "refectory" and pantry, respectively (figure 3).³⁰ Locus 89 contained nearly 1,000 dishes that de Vaux believed would have been used for communal meals. To Humbert, however, these loci represent rooms for worship. Both contain what de Vaux identified as "pillars" to support the roof, but Humbert points out that these are the only two rooms to have such pillars. Instead, he argues they should be identified as altars used in holocaust offerings, or some other kind of sacrifice and worship. De Vaux had identified burnt wood beams in locus 86

²⁵ Ibid, 173.

²⁶ Jean-Baptiste Humbert (1994a): 16.

²⁷ Jean-Baptiste Humbert (2006): 31.

²⁸ Ibid, 20.

²⁹ Jean-Baptiste Humbert (1994a): 15.

³⁰ The word "refectory" was first used by de Vaux. This term, and his use of *scriptorium* to identify locus 30, are terminology associated with monasteries. Through his use of these terms, de Vaux has been criticized as showing a religious bias to his interpretations because he was a Dominican priest.

that he interpreted as having been from the ceiling. Humbert, however, reconstructs this locus as possessing a wooden screen that separates the altar at the back of the room from the front of the room (figure 4).³¹ As for the near 1,000 dishes recovered from locus 89, they would have been used for offerings.³²

Furthermore, Humbert disagrees with de Vaux's chronology. Citing J.T. Milik,³³ Humbert notes that the graffiti found on a bowl in locus 89 cannot be dated before the first century CE on epigraphical grounds.³⁴ De Vaux had dated this material before 31 BCE and concluded that the room was sealed off because of the earthquake. If, according to Milik's date, locus 86-89 were still in use in the first century CE, Humbert concludes that these rooms must have been sealed off by the sect in order to protect them, perhaps from desecration, from the Romans. This also demonstrates that there was no break in chronology as de Vaux had proposed, since the room must have been functioning through the first century CE.

Additional areas of worship identified by Humbert include the open-air space in the northern section of the settlement, which is enclosed by a wall too poorly built to have been intended for defense purposes. He and other scholars have proposed that this wall functions as a boundary line, separating pure from impure.³⁵ Here, Humbert identifies another altar near the miqveh. It is represented not as a "pillar" but instead an aedicula, or small niche for a shrine. This enclosure contained jars that held burned animal bones.³⁶

³¹ Jean-Baptiste Humbert (2006): 36.

³² Jean-Baptiste Humbert (1994a): 21.

³³ J. T. Milik (1959): 55.

³⁴ Jean-Baptiste Humbert (2006): 31.

³⁵ Jean-Baptiste Humbert (1994b): 203. See also Joan Branham (2006) and in same work, Jean-Baptiste Humbert "Some Remarks on the Archaeology of Qumran," 22.

³⁶ Jean-Baptiste Humbert (1994a): 19. The question of animal sacrifices at Qumran has more recently been addressed by Magness (2016): 5-34 and Dennis Mizzi (2016): 51-70.

In sum, Humbert argues that in the first Hasmonean reoccupation after the Iron IIB period, Qumran functioned as a villa during the late 2nd century BCE, when de Vaux thought that Qumran was already an Essene community. Their views converge in the 1st century BCE and both agree that the Essenes inhabited the site until the Romans arrived in 68 CE. Unlike de Vaux, Humbert does not accept that the earthquake of 31 BCE caused a break in the occupation as demonstrated by his reevaluation of locus 86-89. His assessment of the archaeological evidence also resulted in his identification of loci 77, 86-89 as areas of worship, as opposed to de Vaux's "refectory" and pantry. Furthermore, he argues that Qumran was a center for Essenes living in the Dead Sea area which acted as a substitute for the temple in Jerusalem, where sacrifices and offerings would have taken place, in contrast with Jewish norms.

Jodi Magness

Archaeologist and professor at University of North Carolina-Chapel Hill, Magness is currently one of the most prominent proponents of de Vaux's "Qumran-Essene Hypothesis." She generally agrees with his interpretation of Qumran, while offering additional information in light of recent excavations and related work at the site, although she has not excavated at Qumran herself. She prefers the more neutral term 'sectarian' instead of 'Essene' to identify the community inhabiting the site. She addresses Humbert's proposal of Qumran as a Hasmonean villa by comparing Qumran's architecture to contemporary palatial and villa sites in Judea and Idumea. She demonstrates that there are significant differences between Qumran and the villas.³⁷

³⁷ Jodi Magness (1994): 416.

Additional evidence is the lack of interior decoration, and the fact that the ceramic corpus of Qumran lacks imported ware, which greatly contrasts with contemporary villas.³⁸

Magness argues that the timeline provided by de Vaux should be altered due to her review of the archaeological evidence. In a 2016 publication,³⁹ Magness and Dennis Mizzi (University of Malta) conclude that de Vaux's chronology should no longer be divided into occupational phases as laid out by both de Vaux and Magness herself. She has reevaluated her previous interpretations of the chronology and acknowledged its issues. Instead, she believes that Qumran was continuously occupied and has architectural subphases reflecting modifications at various points in time. Both de Vaux and Magness had argued that Qumran was abandoned between Periods Ib and II due to an earthquake and fire—or, for Magness, intentional destruction. In her original proposal for the chronological change at Qumran, Magness did not believe the archaeological evidence supported the abandonment of Qumran due to an earthquake and fire. Instead, she argued that the site had continued to be in use until around 9/8 BCE when it was abandoned for a short period. She cited a coin hoard which was buried and the presence of a layer of ash as evidence for humans having started the fire which resulted in the brief abandonment of the site.⁴⁰ Upon reevaluation of the archaeological data, however, Magness and Mizzi observed that only a few loci showed signs of having suffered damage, not the whole settlement. These loci, they argue, should be treated in a “micro-stratigraphic context,” which essentially means that some loci may have been damaged due to localized accidents and were in need of individual remediation, such as loci 10A, 89, 111. In locus 89 the inhabitants simply

³⁸ Ibid, 412-413.

³⁹ See Jodi Magness (1995) for details on her former chronology of Qumran. See also Mizzi (2015).

⁴⁰ Jodi Magness (1995): 62-63.

built on top of the debris. De Vaux also cited locus 130, an open-air space in the northwest of the settlement, as evidence of destruction. The presence of a layer of ash and pottery, he thought, were due to cleaning out the debris from the settlement. However, as Magness and Mizzi point out, de Vaux himself had even recorded that the pottery and ash were mixed with animal bones. Some of these bones had been deliberately placed in pots and covered with lids or plates, rather than having been deposited during the cleaning out of debris.⁴¹

It is here, too, that Magness's interpretation of the site differs slightly from de Vaux's. Loci throughout Qumran contained deposits of animal bones mixed with pottery and ash (locus 130 being the largest concentration), which de Vaux had interpreted as the remains of a ritual meal. Magness agrees with Humbert that these are most likely the result of sacrifices, in part due to the fact that some of the bones feature butcher marks and are charred.⁴² She has argued for the identification of an altar in locus 130, due to the presence of an ash-filled hole in the center of the eastern portion.⁴³

Like de Vaux, Magness sees a relationship between the scrolls found in the caves and the settlement nearby. After recognizing their connection, Magness examines the contents of the Dead Sea Scrolls to better understand Qumran. She, like many Dead Sea Scrolls scholars, does not take them to be a literal description of how the sect functioned but instead sees an idealized set of rules and standards.⁴⁴

An example of this is the toilet in locus 51. De Vaux had, as Magness points out, correctly identified the locus, which contains a hole in the ground with a single pipe. During

⁴¹ Mizzi and Magness (2016): 316-317.

⁴² Jodi Magness (2016): 9.

⁴³ Jodi Magness (2016): 23. In response to Magness see Alison Schofield (2016): 123-35.

⁴⁴ Jodi Magness (1998): 39.

excavations de Vaux had noted that he found reeds on the floor indicating that the room was once roofed.⁴⁵ Toilet practices are described in the *War Scroll* and *Temple Scroll*, as well as in the writings of Josephus. All three of these sources provide insight into the toilet habits of the sectarians—assuming that Josephus also describes the same group that composed the Dead Sea scrolls. For example the *War Scroll* states:

And there shall be a space of about two thousand cubits between all their camps for the place serving as a latrine, so that no indecent nakedness may be seen in the surroundings of their camps. (1QM7)

The *Temple Scroll*, however, provides additional and somewhat contradictory information:

You shall make for them latrines outside the city where they shall go out, north-west of the city. These shall be roofed houses with holes in them into which the filth shall go down. It shall be far enough not to be visible from the city, (at) three thousand cubits. (11QM46)

These sources impose a distance restriction on how close the toilet may be to the city.

The *War Scroll* describes how one must leave the city and dig a hole, while the *Temple Scroll* requires a permanent structure. Josephus on the other hand does not specify a distance restriction for the latrine, although privacy is a consideration:

On other days they dig a trench a foot deep with a mattock - such is the nature of the hatchet which they present to the neophytes and wrapping their mantle about them, that they may not offend the rays of the deity, sit above it. They then replace the excavated soil in the trench. For this purpose they select the more retired spots. And though this discharge of the excrements is a natural function, they make it a rule to wash themselves after it, as if defiled. (Wars 2:8)

The restrictions were intended to ensure purity for the city and modesty from God.⁴⁶

However, the presence of a toilet in locus 51 within the settlement at Qumran contradicts the distance restrictions in the scrolls. Furthermore, in light of the estimated population of 100 - 200

⁴⁵ Roland De Vaux et al. (2003): 30.

⁴⁶ Josephus *Jewish Wars* 2, chapter 8 and Géza Vermès (1997): 207.

living at Qumran,⁴⁷ one toilet would not have been enough to accommodate the demands of such a community. As Magness correctly notes, there must have been other places that served as toilets, perhaps on the outskirts of the settlement where the inhabitants would dig a hole.⁴⁸

Ultimately, Magness demonstrates that when understanding Qumran, one must not take the Dead Sea Scrolls literally in their instructions about the daily practices of the *yahad* (community).

Although Magness agrees with de Vaux's Qumran-Essene hypothesis, her thorough examination of his field notes and the archaeological remains of the site, coupled by recent excavations, have afforded her a better understanding. While she refers to the group at Qumran as 'sectarian' she acknowledges parallels between the Dead Sea Scrolls, first century historians that describe Essene practices, and the archaeological features (e.g. locus 51). She has presented a chronology that is far removed from de Vaux's occupation periods, one that is continuous but with architectural sub-phases within the structure. Furthermore, she has argued for the presence of sacrifices at Qumran due to the animal bone deposits. This differs from de Vaux's interpretation of the site, as he did not think sacrifices were offered but instead that the inhabitants held ritual meals. He also concluded that the ash present was the result of a fire that destroyed the whole site. In contrast, Magness has demonstrated the ash was mixed with the animal bones and pottery deposits, suggesting the presence of an altar.

⁴⁷ Magen Broshi and Hanan Eshel (1999): 330. Jean-Baptiste Humbert, however, states that 10-15 people lived at Qumran as "caretakers", see Jean-Baptiste Humbert (1994a). There are a range of population sizes offered depending on how it is being measured.

⁴⁸ To answer this question about where other toilet areas are located see Joe Zias, James Tabor, and Stephanie Harter-Lailheugue (2006). Soil samples taken from the northwest area of the settlement demonstrate that this must have served as a toilet area due to human parasites having been found. This area is also somewhat private. The authors point out that this area is about 400 meters away from the settlement and slightly uphill which would not be a typical location for a bathroom if Qumran were a *villa rustica* or secular pottery workshop.

Additional Interpretations

After de Vaux, the next major excavators were Yitzhak Magen and Yuval Peleg, who excavated at Qumran from 1993 to 2004. Magen and Peleg, unlike de Vaux, see Qumran as a Hasmonean military station instead of a Jewish sectarian community. During this period, similar fortresses were set up in the region to defend against invasions from the east.⁴⁹ Then, with Pompey's invasion in 63 BCE, the security needs changed and Qumran no longer served as a military outpost.⁵⁰ Some time after the military presence left Qumran, it then functioned as a clay collection center. Many large cisterns were set up to gather the silt and clay in the rainwater which was brought down from the Judaeian hills to the settlement via the aqueduct system.⁵¹ They identified such clay deposits in the bottom of cisterns 71, 56, and 58.⁵² Other cisterns, such as the stepped cisterns, served as purification baths for the potters, which would be necessary to prevent their contaminating the pottery. Therefore, clay was not only gathered at Qumran for distribution elsewhere, but pottery was also produced on site.⁵³ To address the manuscripts and artifacts found in nearby caves, Magen and Peleg claim that, with the invasion of the Roman army, fleeing Jewish refugees came across Qumran. They explain that at this time Qumran was already abandoned, and that the refugees stayed in the caves for a short time while reusing items from the settlement.⁵⁴

⁴⁹ Yitzhak Magen and Yuval Peleg (2006): 81.

⁵⁰ Ibid, 84.

⁵¹ Ibid, 88-89.

⁵² Jan Gunneweg and Marta Balla (2010): 41.

⁵³ Ibid, 94.

⁵⁴ Yitzhak Magen and Yuval Peleg (2006): 112-113.

Another interpretation of Qumran comes from Yizhar Hirschfeld, an Israeli archaeologist. Hirschfeld identifies Qumran as having functioned as a fortified manor house from the first century BCE until the first century CE. By comparing the architectural layout of Qumran with other sites in the region such as Horvat Mazad, Rujum el-Hamiri, and Khirbet el-Muraq, Hirschfeld concludes that Qumran was part of a “kingdom-wide phenomena” where a number of manor houses were built.⁵⁵ Qumran, like the aforementioned sites, contains a tower, residential rooms, and agricultural areas. Citing the column bases and capitals, along with the few fine wares discovered at Qumran, Hirschfeld states these items attest to the wealth of the owner(s) who were probably of upper-class Jewish origin. Unlike many Qumran scholars, Hirschfeld does not take into account the scrolls in the surrounding caves. He does acknowledge that the same type of pottery at Qumran is found in the caves but denies a connection because no scrolls were found in the settlement.⁵⁶ Hirschfeld hypothesizes that the group of Essenes worked on the Qumran estate and lived nearby.

The final interpretation of Qumran reviewed here is that of Robert Donceel and Pauline Donceel-Voûte, archaeologists and professors in archaeology and art, whose interpretation of Qumran is similar to Humbert’s in that they identify the site as having been a *villa rustica* that participated in trade. Having been tasked to assist in the publication of de Vaux’s field notes, they were able to examine many uncataloged artifacts including coins, glass, metal and pottery. These items were the focus of their interpretation, since they do not offer any new chronology

⁵⁵ Y. Hirschfeld (1998): 167, 189.

⁵⁶ Ibid, 188.

but rather appear to support the framework proposed by de Vaux.⁵⁷ This examination led them to understand Qumran in light of these “luxury” goods. They identified mold-blown glass objects that appear related to workshops on the Phoenician coast. Some of these glass items have surface decorations that are similar to vessels from Herculaneum.⁵⁸ Donceel and Donceel-Voûte also suggest that the pottery of Qumran, thought to be unique by de Vaux, may not be in light of additional excavations in the area. They identify the pottery kilns as having produced plain wares locally, using clay extracted from around the site.⁵⁹

These additional scholarly interpretations of Qumran do not account for the scrolls. They either ignore them or deny any direct connection between them and the settlement, which opens up a wide array of possible interpretations like those presented above. Jodi Magness has responded to some of these alternate views, pointing out flaws in their reasoning and assessments of Qumran. Jars of the same typology have been found in both the caves and settlement, and the proximity of the settlement to the caves makes it difficult to treat the two as if completely distinct locations of unrelated activity. In fact, the only access to caves 7, 8, and 9 is through the settlement itself.⁶⁰ The continued research at Qumran has nonetheless provided valuable data, particularly the work done on provenience studies of the ceramics, which has provided insight into how the inhabitants interacted with their surroundings.⁶¹ Although the paradigm about

⁵⁷ In the article "The Archaeology of Khirbet Qumran" they state: "Considering the chronological frame proposed by Father de Vaux, certain glass discoveries from Khirbet Qumran are bound to carry weight in research on the origins of the glass-blowing technique and industry."

⁵⁸ Robert Donceel and Pauline Donceel-Voûte (1994): 7.

⁵⁹ Pauline Donceel-Voute (1994): 31. The question of ceramic provenance will be discussed in the following chapter.

⁶⁰ Atkinson and Magness (2010): 325.

⁶¹ Jan Gunneweg and Marta Balla (2003, 2010), Jacek Michniewicz (2009), Joseph Yellin et al (2001).

Qumran has shifted in recent years from viewing the site as an isolated community to one that interacts with its surroundings⁶² the consensus is still that Qumran was a sectarian settlement.⁶³

The 'Scroll' Jar Problem

It was in late 1946 or early 1947 when the first of the Dead Sea Scrolls were discovered by Muhammad edh-Dhib and his cousins while herding sheep along the northwest shore of the Dead Sea. As the story goes, Muhammad had thrown a rock into one of the caves (what has become known as Cave 1) and heard the shatter of ceramics. Inside the cave he discovered 10 (this number is not certain) jars, at least one of which contained scrolls. Over the decades, these jars have played an integral part in connecting the caves surrounding Qumran with the settlement. These jars are referred to as 'scroll' jars due to the story told by Muhammad. Given the unverified nature of his story, this identification should be used with caution. Muhammad's story, if accurate, is one of only two instances that scrolls were ever found stored inside jars in the Qumran vicinity.⁶⁴ This fact gains significance when considering that the entire site of Qumran has been excavated and numerous additional caves containing the same type of jars have since been discovered. Because of Muhammad's story, the jars in which the scrolls were allegedly found have not only retained their name of 'scroll' jars, but many scholars have accepted that as their primary, if not only, function. However, only a few have actually

⁶² Dennis Mizzi "The Glass From Khirbet Qumran: What Does It Tell Us About The Qumran Community?" describes how the glass at Qumran is found throughout the Dead Sea region reflecting typical glass use for the time in Palestine.

⁶³ Dennis Mizzi (2011): 41.

⁶⁴ Joan Taylor (2011) mentions Bedouins had discovered scrolls stored inside jars in caves 1Q and 11Q. Excavations in 2017 by Oren Gutfeld (Hebrew University) and Randall Price (Liberty University) have revealed a new cave with manuscript fragments and 'scroll' jars (forthcoming).

addressed this issue in any detail. Scholars that have addressed this issue focus on the jars within the caves, demonstrating their function for storing scrolls, but ignore the ones in the settlement. While others examine their shape for function and apply that to all the jars, not taking into account the context in which they were found. This is where my analysis can make a contribution. But first, a brief survey of those who have examined the jars is needed.

Minna and Kenneth Lonnqvist have argued that the ‘scroll’ jars at Qumran were manufactured to store the scrolls based on a similar practice attested in Egypt.⁶⁵ Already noted by J.T. Milik in the 1950’s, similarities between the ‘scroll’ jars and jars from Deir el-Medina were identified. Two jars from Deir el-Medina were discovered in 1905 that feature plain, cylindrical bodies with three loop handles attached at the rim and shoulder of the vessel (figure 5). These jars, like the ‘scroll’ jars at Qumran, do not have any kind of exterior decoration. The jars were found still with a bowl-shaped lid tied shut. Inside the jars were 33 papyrus scrolls and 95 folios that dated between 181 BCE and 101 BCE. The documents consisted of contracts, deeds of sale, and some liturgical texts.⁶⁶ The authors also refer to other sites in Egypt where manuscripts were stored in jars such as Elephantine and Nag Hammadi. However, they only describe the practice of storing scrolls in jars and do not describe in detail the jars themselves. While the scholars mention the potential for cylindrical jars in the settlement to have held contents other than scrolls they do not explore these alternatives.

Joan Taylor, another scholar who addresses the ‘scroll’ jars at length, also adheres to the idea that these jars were meant for storing the scrolls. Taylor identifies the Dead Sea Scrolls as being “the surviving, extant fraction of a huge manuscript cemetery that cannot have been

⁶⁵ Minna Lonnqvist and Kenneth Lonnqvist (2011): 476-479.

⁶⁶ Ibid, 478. J.T. Milik (1950): 507-508.

quickly hidden away at one critical moment in time.”⁶⁷ Essentially, Taylor argues that Qumran and the caves served as an Essene *genizah* processing site. Specifically, the marl caves (4Q, 5Q, 7Q-10Q) are the processing and temporary storage area for the scrolls and the natural caves (1Q-3Q, 6Q and 11Q) are for permanent storage. The scrolls were no longer of use to the various communities from which they came, but because they contained the name of God they could not be destroyed.⁶⁸ Instead, they were preserved by being placed in jars and housed in caves. Due to their sacred nature, this was also why the scrolls were processed outside of the settlement. While Taylor admits that perhaps not all jars were used to store scrolls, she does stress the relationship between the manuscripts and the jars in the caves. Like previous scholars, Taylor does not offer an alternative function for the jars in the settlement.

Further evidence of the natural caves being used for permanent storage has recently (2017) been published by Joan Taylor, Dennis Mizzi, and Marcello Fidanzio. They are revisiting the artifact assemblages of the caves, beginning with cave 1Q. To do this, they are first attempting to identify all the artifacts that were found in the caves before they were disturbed and then reconstructing, approximately, where they were located. Doing this provides a better understanding for the function of the caves. Review of first-hand accounts of visitors to cave 1Q before excavations revealed that the scrolls (represented by 77 fragments) must have been stored in the 54 (or more) ‘scroll’ jars due to the stratigraphy of the cave. These accounts describe how the pottery sherds and scroll fragments were underneath a layer of collapse debris (which broke

⁶⁷ Joan Taylor (2011): 272.

⁶⁸ Due to the name of God being present on manuscripts, these objects are considered pure and sacred. Therefore, they must be stored accordingly. However, there are many scrolls that do not contain God’s name and this must be accounted for.

the jars) and 15 centimeters of animal feces.⁶⁹ The scrolls were not preserved, the authors note, because once the jars were smashed the scrolls were exposed to rodents and white ants that fed on them. The dimensions of the cave are modest, measuring approximately 2 meters at its widest, 8 meters long, and 3.8 meters at its maximum height.⁷⁰ What is striking in their publication is the proposed reconstruction of the jar assemblage (figure 6). Given the dimensions and quantity of the jars, the authors demonstrate that there is hardly any space left in the cave for additional activities. Since in the reconstruction there is no pathway provided for someone to walk to the back of the cave, this suggests long term storage. These recent findings echo, to a degree, Taylor's *genizah* theory.

An additional scholar to address the 'scroll' jars in detail is Jodi Magness. She argues that these distinctive jars served as markers, identifying the contents inside as pure. These contents were not just scrolls, but also pure food and drink. In addition to their cylindrical bodies, other distinctive features of the jars include a carinated shoulder, short neck, wide mouth and ring base. Sometimes handles may be found on the jars; when they are they are small, pierced ledge handles.⁷¹ Bowl-shaped lids or cloth would be used to close the jars and protect the contents inside. These bowl-shaped lids were, perhaps, designed to protect the contents from moisture by forcing the liquid to simply roll off the lid and down the side of the jar. The *Community Rule* of the Dead Sea Scrolls describes how the community was concerned with purity of food and drink:

⁶⁹ Joan Taylor, Dennis Mizzi, Marcello Fidanzio (2017): 304.

⁷⁰ Ibid, 297.

⁷¹ Jodi Magness (2004): 150.

“After he has entered the Council of the Community he shall not touch the pure Meal of the Congregation until one...” (1QS vi)

And:

“He shall not touch the Drink of the Congregation until he has completed...” (1QS vi)⁷²

These are only a few examples of the restrictions regarding access to pure food and drink. The shape of the jars was designed to allow the community to maintain purity rules surrounding the jars’ contents. The wide mouth and short neck, Magness points out, would have allowed the contents to be scooped out rather than poured. The sect at Qumran believed that by pouring from a pure vessel into an impure one the impurity could be transferred:

“And furthermore the pouring does not separate the impure {from the pure}...”

(4QMMT)

Therefore, scooping the contents with a utensil or cup would have prevented such transfers of impurity. These features are also useful in inspecting the contents.⁷³ Furthermore, Magness claims that the cylindrical jars in the caves were also used to store pure food and drink. This measure was taken to ensure they would not become impure through exposure to moisture or the death of an individual because they thought even sealed vessels could be rendered impure.

⁷⁴ Magness’s approach not only examines the shape of cylindrical jars but also the Dead Sea Scrolls to demonstrate their function. Magness is the only scholar to address the jars found in both the caves and the settlement and thoroughly examine their multiple functions.

⁷² Dead Sea Scroll translations from Geza Vermes (1997): 106.

⁷³ Jodi Magness (2004): 152.

⁷⁴ Ibid, 154.

For decades, ‘scroll’ jars at Qumran have retained this speculative identification, while relatively few scholars have directly addressed this issue. The recent interest and reevaluation of them, however, is growing. It is clear that *some* of the cylindrical jars at Qumran may have served primarily for storage for the Dead Sea Scrolls. It is also plausible that this was not the only function of the type. An additional avenue of research to identify the jars' functions is to integrate evidence for local production and compositional analyses. Some of these analyses such as provenience studies have been done, and while clay sources are identified there is no further consideration as to the ecological aspects of ceramic production. Some of these considerations will be taken up in the following chapter. Furthermore, in the decades of research on Qumran, there has been no comprehensive contextual analysis of the artifacts. By examining where the jars are found and the artifacts recovered nearby, a better understanding of their function can be determined. This contextual analysis of findspots throughout the settlement is the method of my analysis, presented below.

CHAPTER 2: CERAMIC PRODUCTION AND CONSUMPTION AT QUMRAN

Ceramic sherds are the most ubiquitous find at archaeological sites belonging to pottery-producing societies in part due to their nearly indestructible nature.⁷⁵ Their quantity and resilience make them valuable to the interpretation of a site, by establishing a chronology, cultural affiliation, trade, activities of daily life, and the like. The manufacture, distribution, and consumption of ceramics all contribute to the understanding of ancient peoples. This chapter is divided into three sections: 1) factors that affect ceramic production, 2) the relationship between vessel shape and function, and 3) ceramics from Qumran, including provenience studies and comparison to other sites.

Ceramic Production

It is easy to take the utility of ceramics for granted without giving serious consideration to what goes into their creation. While past scholarship on ceramics was focused on generating quantitative lists, classifications, and seriations of ceramic types, there was often little contextualization or consideration for how the pieces were made. Scholarship began to change in the 1960s by taking into consideration the environment and the technology, as well as the purposes for the creation of ceramics. As any potter today can attest, creating a vessel takes time, resources, skill, and forethought. While the general methods for creating ceramics has not fundamentally changed for the past several millennia, the technology and availability of different resources to potters have.

⁷⁵ J. L. Kelso and J. Palin Thorley (1945): 82.

Essential components of ceramics include clay, water, and fuel for fire. The clay must have a chemical composition which contains enough plastic and non-plastic materials in order to be molded into the desired shape and then fired.⁷⁶ To achieve this, the potter may add temper, meaning a material that makes it more or less elastic and potentially strengthens the clay. Coarse clays may also be levigated to remove large particles. Levigation is a process in which the clay is mixed with water and left to stand, allowing the larger particles to sink to the bottom and the finer extracted from the top. Depending on the purpose of the vessel, however, the potter may adjust the tempering material. For example, cooking pots are usually tempered with non-plastics in order to make them resist breakage when repeatedly heated and cooled. One way this can be done is by creating large voids of 5-10mm by tempering the fabric with organic materials such as grass, which burn out during firing.⁷⁷ In other cases cooking pots are tempered with volcanic materials, improving their mechanical resistance to heating.⁷⁸ In contrast, storage jars or water pots would not need to utilize such inclusions.

Acquiring clay from a suitable source is an important first step to ceramic production. While ease of access may certainly encourage pottery production to take place nearby, this is not always the case.⁷⁹ Despite this common practice, there are cases where potters are willing to travel great distances in order to gather clay.⁸⁰ According to ethnographic data there are three primary ways of acquiring clay.⁸¹

⁷⁶ Dean E. Arnold (1985), Prudence Rice (1996a, 1996b), Anna O. Shepard (1980).

⁷⁷ O.S. Rye (1976): 113 and Dean E. Arnold (1985): 23.

⁷⁸ Michela Spataro (2015): 69.

⁷⁹ Keith Nicklin (1979): 441.

⁸⁰ Using ethnographic data, Nicklin notes present African tribes walking as far as 15 miles to gather clay. For an in-depth look at access to resources see Arnold (1985) chapter 2.

⁸¹ Keith Nicklin (1979): 444-446.

- 1) Itinerant potters. These potters travel either with dried clay or relocate to clay sources and manufacture ceramics on the spot. When potters travel with clay they may go to areas where clay sources are not readily available and fulfill requests from the people.
- 2) Importation. Where clay sources may not be readily available, or perhaps a certain kind of clay or color of clay is preferred, the material will be imported. Importing clay, however, can be heavy and expensive (whole vessels may also be imported).
- 3) Clay gathering expeditions. Groups will travel together to obtain clay. The frequency at which these expeditions are done depends on the demands of production.

While access to clay is critical to its manufacture, easily accessible water is equally if not more important considering water is essential for the manufacture of pottery. Therefore, water must be abundant enough both to support ceramic production and the needs of those living at or near the site. In regards to ceramic production, either freshwater or saltwater can be used. Water is added to the clay to reach the desired elasticity. However, water may contain soluble salts such as sodium and potassium that will increase their presence in the clay.⁸² Water, therefore, is also important for maintaining plasticity of the clay while working with it but also for processing it through levigation.

The final component is fuel for firing the clay. Wood is a common source of fuel but other sources such as dung can also be used. Essentially any combustible material can be used

⁸² Dean E. Arnold et al (1991): 71.

for firing. Due to the variety of available fuels, this resource does not determine where pottery production takes place.⁸³ However, the different types of fuel have different firing properties that may cause some potters to prefer certain fuels over others. Additionally, not all pottery is fired in the same way. Pottery can be fired in open-air pits or kilns. Depending on the firing technique and preferences of the potter, some pottery may be fired for a very short period of time (15 minutes) while others are fired for much longer (hours or days).⁸⁴ The longer the firing process, the more fuel will be required. It is also difficult to maintain a consistent temperature over a long firing period without a kiln. An open-air pit would be suitable for a quick firing where the potter may not be able to control the temperature for long due to factors such as weather or wind. Often coarse-textured or extremely thin-walled pottery is fired using this method.⁸⁵ A kiln, on the other hand, can be used for both fine-textured and coarse-textured pottery due to the controlled temperature.

In regards to fuel for firing, the potter must consider the length of time required and select a fuel (and method) appropriately. Grass, for example, is a quick-burning fuel whereas dung is slow burning.⁸⁶ When considering the type of fuel and method of firing, the potter must also consider how that fuel and temperature may affect the vessel(s). Some fuels, as well as different temperatures, may cause discoloration of the vessel(s).⁸⁷ As previously mentioned, fuel resources can have great variability, but, like clay, there may be preferences among potters for

⁸³ Keith Nicklin (1979): 446.

⁸⁴ Ibid, 447, and Dean E. Arnold (1991): 125.

⁸⁵ M. S. Tite (1999): 188.

⁸⁶ Ibid, 188 and Frederick R. Matson (1965): 210.

⁸⁷ Anna O. Shepard (1980): 76.

higher-quality fuels. If these fuels are not readily available nearby then importing (or expeditions in search) of these materials may be required.

The potter must also decide on a method for actually shaping the ceramic object. There are generally three ways to create a vessel: hand-building, molding, and wheel-throwing. Hand-building can consist of slab or coil construction, where the vessel is gradually built up over time from rolls or strips of clay. This method is one often employed by households, where constructing the vessel can be carried out intermittently between the potter's other responsibilities, and with minimal equipment. Molding involves creating a two-piece mold in order to shape the vessel. Wheel-throwing, however, allows for faster production of vessels, and is often associated with full-time pottery production or specialization, in part because of the investment in facilities.⁸⁸ There are advantages and disadvantages with each method. For example, hand-building allows the potter to create large vessels that would not be possible to construct on a high-speed wheel. In contrast, the wheel assists in creating more symmetrical and uniform vessels at a faster rate. Molding also can allow the potter to construct more vessels in a shorter amount of time, depending on the particular technique.⁸⁹ Among artifacts, one can identify when a sherd or vessel has been either hand-built or wheel thrown due to the fine grooves circling it.⁹⁰

⁸⁸ M. S. Tite (1999): 216.

⁸⁹ Dean Arnold (1985): 204.

⁹⁰ J. L. Kelso and J. Palin Thorley (1945): 84.

Ceramic Function and Form

Mediterranean ceramics can be divided generally into two groups: utilitarian (also referred to as unslipped, culinary, common or coarse ware) and fine ware. Since the following chapter focuses on coarse ware that is what I will be focused on in this chapter. Coarse ware is often unslipped or unpolished and bears minimal decoration.⁹¹ Other factors must be considered when identifying coarse ware, such as porosity. A water storage jar will be manufactured with high porosity to help keep the water cool by the slow evaporation of its contents through the pores.⁹² Archaeological context must also be considered to better establish a vessel's function. Looking at where ceramics are found and the associated artifacts may give clues as to how they functioned. This will be addressed in the following chapter in regards to the 'scroll' jars at Qumran.

By examining the shape of a vessel one may be able to determine its general function. In some cases, however, it may not be possible to assign specific functions to excavated vessels.⁹³ Several physical attributes can indicate how a vessel functioned. The base of a jar, for example, in relation to diameter and height, will indicate its stability. Another feature affecting how easy or difficult is it to remove the contents is the relative constriction of the orifice. There are two ways that contents can be removed: scooping or pouring. Depending on the function, the mouth of the jar will either be constricted (storing liquids) or wide (solids). If the vessel is intended to hold liquids, and therefore have its contents poured out, this will likely have an impact on the

⁹¹ Anna O. Shepard (1980): 251.

⁹² Dean Arnold (1985): 22.

⁹³ Frederick R. Matson (1965): 204. See Shepard (1980) pp. 225-248 for detailed analysis on numerous ceramic shapes. See also David J. Hally (1986) pp. 278-281.

overall shape of the vessel.⁹⁴ An example of this can be seen among jugs which can vary in shape but may have narrow bases, long narrow necks, and globular bodies. The rounded shape of the body, accompanied by either one or two handles opposite each other, helps direct the flow of the liquid when pouring. The narrow neck, in turn, constricts the liquid to prevent spillage.

Pottery at Qumran and its region

During the Hasmonean period, instead of obtaining imported ceramics, pottery workshops were established throughout the kingdom.⁹⁵ This is evidenced by the local standardizations found at sites such as Beth-zur, Samaria, and Shechem. When the Romans took control during the first century BCE there was a shift in the ceramic corpus, and new types of ceramics appeared due to trade networks. The shapes and appearance of Arretine and Pompeian Red ware imported from western Mediterranean production centers became influential.⁹⁶ An example can be seen among the late first century BCE to first century CE ceramics at Gamla, where local pottery workshops began reproducing Roman-style cooking vessels.⁹⁷ Some earlier (Hellenistic) types of ceramics were supplanted by the end of the first century BCE by new pottery traditions of the Augustan period. This resulted in the appearance of new forms that continued through the first century CE and lasted until resistance rose against Rome. This resistance may have influenced the decline of such wares.⁹⁸ Although in minimal quantity, imported western terra sigillata and Roman mold-made oil lamps have been excavated at sites

⁹⁴ David J. Hally (1986): 278, 280.

⁹⁵ Ehud Netzer and Rachel Bar-Nathan (2002): 195, and Bar-Nathan (2006): 272-273.

⁹⁶ Paul W. Lapp (1961): 223

⁹⁷ Andrea Berlin (2006): 151.

⁹⁸ Ibid, 226 and Ehud Netzer and Rachel Bar-Nathan (2002): 80.

surrounding Qumran, such as Jericho, Herodion, and Jerusalem—yet not at Qumran itself.⁹⁹

Interestingly, even with this apparent availability of imported fine ware, the residents of Qumran deliberately chose not to acquire these Roman imports. Minor morphological changes are seen among bowls and plates during the Hasmonean and Herodian (165 BCE - 4 BCE) period, even though workshops in the region were creating Roman-style dishes. What does change, however, is the quantity of such items. During the Hasmonean period there were more bowls and plates than in the Herodian period. This may reflect a change in eating habits due to some unknown law or purity restrictions being observed.¹⁰⁰

A frequent coarse ware type in the Hasmonean to early Roman period is a small bowl (Bar-Nathan's type J-BL3, figure 7) with an average diameter of 10 cm, a height of 4 cm, and an incurved rim. This type of bowl is especially common during the Hasmonean period at Jericho, where it is almost always found with small plates, with approximately 2,000 intact examples of the two types from the site.¹⁰¹ Similar bowls are found at nearby sites such as Jerusalem and Qumran. At Jericho and Jerusalem, these bowls are found associated with water installations, such as ritual baths, often in large quantities, suggesting they played a role in ritual purity.¹⁰² At Qumran, 708 of these bowls were found in the 'pantry'¹⁰³ (locus 89) but there is also mention of these bowls having been found in a pool (locus 58).¹⁰⁴ In fact, such bowls have been found at almost every site in the second and first centuries BCE in Palestine, attesting to their regional

⁹⁹ Jodi Magness (1994): 42. See also Hillel Geva (1983).

¹⁰⁰ Ehud Netzer and Rachel Bar-Nathan (2002): 79.

¹⁰¹ Ibid, 86.

¹⁰² Rachel Bar-Nathan (2006): 272.

¹⁰³ The identification of this room is debated by Humbert, see previous chapter for details or refer to Humbert (2006).

¹⁰⁴ Rachel Bar-Nathan (2006): 272.

popularity under Hasmonean rule. Other bowl types found at Jericho and Qumran are also found at Oboda workshop.¹⁰⁵

The majority of ceramic types from Qumran are monotonous and morphologically similar to ceramics at other contemporary sites. For example, Qumran and Jericho's pottery repertoire appear to follow similar developments and contain many of the same items, while Jericho features a large ceramic assemblage with parallels throughout the region.¹⁰⁶ Qumran's ceramic corpus is mostly comprised of large numbers of cups, bowls, plates, jugs, juglets, lids, cooking pots, jars, and other coarse ware. While these items lack fine decoration, they often have a whitish slip over them.¹⁰⁷

Only a few ceramic types at Qumran rarely appear at other sites, notably the 'scroll' jars, which are either an ovoid or cylindrical shaped jar with a bowl-shaped lid. Jericho and Qumran appear to reflect the same ceramic tradition that may have been based out of Jerusalem.¹⁰⁸ Not only do they share the same type of bowls but also storage jars (for comparison of ceramics between Qumran and Jericho see figure 8). Of particular interest is the presence of 'archive' or 'genizah' jars (figure 9) at Jericho that are said to be the same type of jar as the 'scroll' jars at Qumran.¹⁰⁹ Additionally, at Masada similar 'scroll' jars were found. Scroll fragments were found at Masada (not in jars) but not at Jericho.

Because of the morphological similarities among the pottery in Jericho and Qumran, studies have been done comparing the ceramic materials in order to identify where they were

¹⁰⁵ For details on the workshop see Yuval Goren and Peter Fabian (2008).

¹⁰⁶ See Ehud Netzer and Bar-Nathan (2002) for detailed comparisons.

¹⁰⁷ Ibid, 40.

¹⁰⁸ Rachel Bar-Nathan (2006): 264.

¹⁰⁹ Rachel Bar-Nathan (2002): 24-26. No written material was found in these jars.

made—whether Qumran, Jericho, or elsewhere.¹¹⁰ Israel has a well-known clay source, the Motsa formation, outcropping along a north-south line in the Judean Hills from approximately Ramallah to Hebron. It appears to be one of the most exploited clay sources in the region, although others are available such as the Taqiye formation, whose distribution during any period seems to be restricted to the south.¹¹¹ The Motsa formation has been exploited since as early as the Chalcolithic period (4,300-3,300 BCE).¹¹² Provenience studies were conducted on both Jericho's and Qumran's ceramic corpus using petrographic and neutron activation analysis. Petrographic analysis is the process of taking a thin section of ceramic materials to identify the composition of the clay fabric through visual microscopic inspection, while instrumental neutron activation analysis (INAA) is a nuclear process that identifies the elements within a sample with high precision.¹¹³

Jan Gunneweg and Marta Balla¹¹⁴ conducted INAA on samples of ceramics from Qumran and Jericho. During this study, they sampled a variety of ceramics including different jars ('scroll', ovoid, storage), lids, cups, bowls, inkwells, juglets, and other items from Qumran. For reference, 37 samples were taken from throughout Qumran, Jericho, and the Motsa clay formation.¹¹⁵ Some items taken for reference included kiln linings, clay balls, pottery pieces, puddle clay from Qumran, and Dead Sea mud. These samples serve as reference materials for

¹¹⁰ See Jacek Michniewicz (2009) and Jan Gunneweg and Marta Balla (2003).

¹¹¹ Yuval Goren (1996): 53. Additionally, the Taqiye formation is inferior to the Motsa formation due to its high concentration of montmorillonite.

¹¹² Yuval Goren (2008): 385.

¹¹³ Jan Gunneweg and Marta Balla (2003): XVI.

¹¹⁴ Jan Gunneweg and Marta Balla (2003).

¹¹⁵ There are advantages and disadvantages to any analysis. In the case of provenance studies on ceramics, as discussed above, clay is often tempered with other materials. This may result in a different chemical makeup than the raw material. Or clay can be levigated, removing particles that can help to identify sources.

comparison with their tested samples, yielding five distinct chemical groups.¹¹⁶ The majority of ceramics belong to groups I, II, and III and therefore will be discussed further. Groups IV and V contained very few items; Group IV was identified as an Edom chemical group of southern Jordan and Group V is an additional chemical similar to Group III and local to Jericho. While the latter two groups represent intriguing results, they include few items and, more importantly, no ‘scroll’ jars, and therefore will not be addressed here. Group I are ceramics produced using locally available clay sources; Group II are made from the Motsa clay formation, specifically from Beit ‘Umman near Hebron; and Group III consists of ceramics with a chemical match to the Jericho pottery, indicating that the people at Qumran either used the same clay source as Jericho or that Jericho potters manufactured vessels and then sent them to Qumran.¹¹⁷ Therefore, Gunneweg and Balla conclude that some of the coarse ware—including ‘scroll’ jars in Group I—were made from the local clay source, while the rest of the pottery sampled was either created using raw clay transported from near Jerusalem or Jericho, or that the vessels were made at those locations and then imported into Qumran (and Jericho).

Additional petrographic and chemical (INAA) studies conducted by Jacek Michniewicz and Mirosław Kryzysko¹¹⁸ focused on identifying the provenience for ‘scroll’ jars and comparing ceramics between Qumran and Jericho. The studies present different results that disagree with the study by Gunneweg and Balla, namely that Gunneweg and Balla’s ‘reference groups’ local to Jericho and Qumran are a misunderstanding and that there is no distinction between the pottery made at Jericho vs. Qumran.¹¹⁹ In this study, four petrographic groups were identified in

¹¹⁶ See Jan Gunneweg and Marta Balla (2003) for details on study.

¹¹⁷ Jan Gunneweg and Marta Balla (2003): 10, 14, 18-22.

¹¹⁸ Jacek Michniewicz (2009) and Jacek Michniewicz and Mirosław Kryzysko (2003).

¹¹⁹ Jacek Michniewicz (2009): 118.

Qumran and Jericho pottery: Group I being comprised of slightly silty foraminiferos clay, Groups II and III both consist of a rich clay tempered with quartz-carbonate sand or carbonate sand, and, lastly, Group IV which is a silty ferruginous terra rose clay.¹²⁰ Michniewicz concluded that the clay used to make the ‘scroll’ jars and the coarse ware (Groups II and III) at Qumran was a rich clay source which is not found nearby. Additionally, the same clay source was used in Jericho’s ‘genizah’ jars. Furthermore, Michniewicz has identified sources of rich clay including the Motsa formation, and Zarqa Ma’in on the eastern side of the Dead Sea.¹²¹

The results raise interesting questions given what is known about pottery production and resources. Typically, potters will exploit clay resources closest to them (averaging a 7 km radius).¹²² The Motsa formation is about 24 km as the crow flies from both Jericho and Qumran, although over rugged terrain. However, transportation of either clay or whole vessels by sea would be more cost efficient since Zarqa Ma’in is approximately 20 km as the crow flies from Qumran.¹²³ As mentioned above, Michniewicz’s work has demonstrated that the majority of vessels at Qumran, including most of the ‘scroll’ jars, were made with pure clay from Petrographic Groups II and III which matches the Motsa Formation and clay from Zarqa Ma’in.¹²⁴ Since this clay is not available anywhere near Qumran, it was either imported to the site or whole vessels were brought in. Unfortunately, Michniewicz’s study did not include any pottery wasters. Gunneweg and Balla’s study, however, had two wasters. They report that the wasters did not chemically match clay found at Qumran, nor did they match one another.¹²⁵ Since the

¹²⁰ Jacek Michniewicz (2009): 117.

¹²¹ Ibid, 141.

¹²² Dean Arnold (1985):50. While long distance travel for exploiting clay is not impossible, it is uncommon.

¹²³ Ibid, 55-56.

¹²⁴ Jacek Michniewicz (2009): 137, 139.

¹²⁵ Jan Gunneweg and Marta Balla (2003): 10.

wasters were inconclusive they tested kiln linings and oven covers. The results of these items found that these items were made of locally sourced clay (Chemical Group I).¹²⁶ The findings and differences in the provenience studies are striking, but on one point they agree: a large number of ceramics at Qumran were made from a pure clay source such as the Motsa Formation (or Zarqa Ma'in).

The inhabitants at Qumran were either importing the clay or whole vessels. Local manufacturing of ceramics at Qumran is attested by the presence of pottery kilns (locus 64 and 84) and a throwing-wheel (locus 70). Given the community's concerns with purity, perhaps they imported the clay in order to ensure their vessels were pure.¹²⁷ Unfortunately, with the lack of pottery wasters it will be difficult to verify and distinguish vessels manufactured on site or imported. As described above, the choice of clay fabric may reflect the intended function of the vessel, e.g. high porosity for water vessels or clay with additional non-plastics to increase thermal shock resistance. Perhaps a more comprehensive petrographic and chemical study of Qumran's ceramics in relation to their potential use may be able to identify vessel function, particularly on the 'scroll' jars. Until such a study can be done, an examination of the distribution of the 'scroll' jars and associated artifacts will help determine their function.

¹²⁶ Ibid, 8.

¹²⁷ Although pottery wasters are important to identifying what clay was being manufactured on site, they may not always be accurate. Gunneweg and Balla take this into consideration, explaining that two pottery wasters may be the result of a potter testing the clay and the results failing. This would then cause the potter to use a different clay. Furthermore, Gunneweg and Balla explain that during the 1950's when the excavations were taking place, pottery wasters were not considered important and therefore many others may have been discarded.

Future Considerations

Applying various aspects of ceramic ecology will help scholars to better understand the site of Qumran. Since ceramics were made at the site, given the presence of a kiln and potential throwing-wheel, further research could include looking at potential fuel sources to fire the kiln. As described above, kiln firing would require more fuel to burn for a longer period. Potential fuel sources near or at Qumran would include palm trees and dung. Future research could examine how these fuel sources burn and whether or not they affect the pottery during the firing process (i.e. discolor) or not.

Additional considerations could include using geographic information systems (GIS) software to calculate the total amount of water held in the cisterns (and miqva'ot) brought in by the seasonal rainfall through the aqueduct system. This volume could be compared to a calculation of how much water would be used for drinking, pottery production, lost through evaporation, as well as how much water is absorbed in clothing during ritual purification.¹²⁸ Considering that rainfall is meager and occurs only between February and April, the amount of water the inhabitants would have to receive in order to survive for the remaining months would have to be substantial.¹²⁹

Perhaps having the greatest potential, however, for future research at Qumran would be to compare the site ceramics with those in Jordan. Most research regarding Qumran's ceramics compares them to other sites within the territories controlled by the modern state of Israel. While this research is very informative, the increasing access to sites and archaeological information about Jordan promises a wealth of possibilities for ceramic comparisons and further

¹²⁸ Dennis Mizzi (personal communication).

¹²⁹ David Stacey (2007): 229.

petrographic/INAA analyses, which may help to confirm whether or not clay was being brought in from the eastern shore of the Dead Sea as hypothesized above. Accessibility and comparison to Jordanian ceramics and clay may also produce similar typologies between the two areas. As demonstrated previously, the different components that make up ceramic ecology offer a variety of ways to understand a site and its inhabitants. By applying the concepts of ceramic ecology at Qumran there are a number of research opportunities for current and future scholars that will create a better understanding of the inhabitants.

CHAPTER 3: MAPPING THE FINDSPOTS OF THE ‘SCROLL’ JARS

Although scholars can understand a great deal about a past society through analyzing artifacts in their own right, an artifact’s relationship to its immediate context and broader surroundings tell a more complete story. The contextual and spatial approach to the archaeological site of Qumran is the focus of this chapter. I will 1) introduce how geographic information systems (GIS) have been applied in archaeological work, 2) present a case study that used a similar approach that was ultimately the inspiration for the methodology of my project, 3) introduce the contextual element of the ‘scroll’ jar problem, and 4) present my project details and findings.

Applications of GIS in Archaeology

The applications of geographic information systems (GIS) in archaeology have risen over the past two decades with the advances and accessibility in both technology and software design. Spatial studies before the use of digital GIS were often done visually by examining distribution maps. Features or artifacts of a site would be mapped in an attempt to identify a relationship through patterning and arrangement.¹³⁰ While still useful, GIS has developed well beyond the function of distribution maps. Frequently GIS has been used for its predictive-modeling capabilities. This function is useful to archaeologists because it allows them to apply known patterns and relationships to areas as a way to predict the likely locations of undiscovered archaeological sites, under the assumption that sites tend to develop in environments that are

¹³⁰ For an overview on the use of spatial technologies in archaeology see Wheatley, David, and Mark Gillings (2013).

hospitable to human habitation.¹³¹ Environmental variables are weighted to determine which area has the highest potential for attracting and sustaining communities that eventually leave behind an archaeological site.¹³² This application is not only useful for identifying potential sites for exploration by survey, but also in Cultural Resource Management (CRM) for preservation.

An example of predictive modeling work in the context of CRM can be seen in work by Kenneth Kvamme at the Piñon Canyon Maneuver Site, an U.S. Army base located in southeastern Colorado. Predictive modeling was used to identify archaeological resources (specifically open-air lithic scatters) in the area before the army base was expanded. Piñon Canyon was a hunter-gatherer region, meaning that socio-cultural data was difficult to apply within the predictive model. The model was based on the assumption that there is a relationship between locational decisions and environmental factors.¹³³ To begin, elevation contours, drainage locations, and a sample of known open-air site locations were digitized. The environmental variables selected were 1) slope, 2) aspect, 3) local relief, 4) view, 5) shelter index, and 6) distance to water.¹³⁴ The model was employed to identify areas as “site-likely” and “site unlikely” across the 460 km² region. The research concluded that the performance of the model identifying future site samples is 78 to 94% correct.¹³⁵ The model was then utilized to identify archaeological resources. Of the forty-six sampling units, 479 sites were correctly identified by the model.

¹³¹ Konnie L. Wescott and R. Joe Brandon (2000): 6.

¹³² Ibid, 131-132.

¹³³ Kenneth Kvamme (1992): 22.

¹³⁴ Ibid, 26-27.

¹³⁵ For details on statistical analyses including descriptive statistics, sample performance curves, and univariate distributions see pages 28 through 34.

This example can be discussed within the broader context of landscape archaeology, the study of spatial relationships among humans and their physical environments. GIS can be used in landscape archaeology through quantitative analysis such distance models, and mapping archaeological sites in a region, as well as managing environmental data.¹³⁶ Researchers can then examine the way past social systems related to their environments. This spatial analysis method is useful for regional intersite analysis. Using technological indices such as flake and core size, Frederick Munday compared Mousterian lithic assemblages in the Levant and determined that Mousterian flint knappers were economically motivated in their time, work, and flint resources. The greater the distance from raw material sources, the more cores would be reduced which increased the number of flakes. In addition, these flakes showed signs of being worked more. The variability found among the assemblages, therefore, were not due to cultural factors as previously thought by some scholars but had more to do with availability of resources.¹³⁷

In this same vein, intrasite spatial analysis has proven an effective use of GIS in archaeology for investigations into diverse topics such as the post-depositional movement of artifacts, searching for joins among fragments, technological change, or indexing the variability between two sites.¹³⁸ This approach focuses on relationships within individual sites and examines spatial organization by means of site structure or distribution of artifacts.

¹³⁶ Kathleen M. Allen, Stanton W. Green, and Ezra B. W. Zubrow (1990): 29.

¹³⁷ Frederick C. Munday (1984): 33-34.

¹³⁸ Harold J. Hietala and Paul A. Larson (1984): 2-3.

Case Study

If the function of the ‘scroll’ jars at Qumran remains unclear from the compositional analyses surveyed in the previous chapter, a more promising approach is a contextual, intrasite analysis along the lines of several recent studies of densely occupied settlements in the Mediterranean world. Nicholas Cahill’s *Household and City Organization at Olynthus* provided the primary model for the methodology applied at Qumran. Located in northern Greece, the city of Olynthus was primarily occupied during the 5th and 4th centuries BCE. The site measures approximately 900 meters north to south and 400 meters east to west.¹³⁹ It was one out of a number of Chalcidian communities that revolted against the Athenian Empire in 432 BCE. It was during this time that a number of other Chalcidian communities such as Meciycberna, Singus, and Gale moved to Olynthus.¹⁴⁰ The purpose of this migration was to create a fortified city to defend from an attack. In 348 BCE, Olynthus was captured by Philip II of Macedon, who sold the inhabitants into slavery, leaving the city abandoned. This sudden destruction left many artifacts in place even after potential looting and post-depositional processes.¹⁴¹ However, some parts of the city were still inhabited after the destruction.¹⁴²

It is because of both this preservation and thorough recording by its excavators that artifact assemblages may be reconstructed. Additionally, Olynthus is one of the most completely excavated Greek cities to date.¹⁴³ These factors make Olynthus a valuable site for understanding Greek city planning and household organization. Cahill’s combined method of mapping the

¹³⁹ Nicholas Cahill (2002): 25-27.

¹⁴⁰ Ibid, 36.

¹⁴¹ Nicholas Cahill (2000): 498.

¹⁴² Paul Clément (1935): 196.

¹⁴³ Nicholas Cahill (2002): 32.

artifacts and examining their spatial relationships both to each other and the rooms that they were found in provides a more accurate and nuanced interpretation. In Greek architecture, rooms often have specific functions. Archaeologists examine the architectural layout and features of a room in order to identify it. This identification, unfortunately, limits our understanding of how the room functioned. Additional information about how Greek houses are organized comes from ancient literary sources such as Xenophon's *Oeconomicus* and legal speeches of Lysias. These sources portray men's and women's spaces in the Greek household as strictly segregated.¹⁴⁴ These sources, while providing important information, describe an idealized household organization.¹⁴⁵ Cahill calls for a more flexible understanding of how spaces were actually used. Rooms, like artifacts, can be used in various ways.

Analysis of artifact assemblages is not new to archaeology. Usually such examination involves some form of statistical analyses to identify correlations between artifacts and behavior. As Cahill points out, however, these statistics do not account for the variety in which spaces and artifacts can be used. Furthermore, there are issues as to how artifacts are quantified. There are certain artifacts, such as loomweights, that are only significant in groups of at least a dozen. Therefore, it is important to clearly define and qualify assemblages that may indicate behavior.¹⁴⁶

In regards to room identification, house ESH 4 provides an example of a home where there is a discrepancy between the architectural evidence and the artifact assemblage. House ESH 4 is a large home with what appears to be two kitchen-complexes. Kitchen-complexes are typically made up of a large room (4.6 x 5.6 m) with one or two smaller adjacent rooms and are

¹⁴⁴ Nicholas Cahill (2002): 169-178.

¹⁴⁵ Ibid, 193.

¹⁴⁶ Ibid, 71.

often located away from the main entrance of the home. At least one of the smaller rooms would be paved and have a door or maybe a flue and the other would contain a bathtub.¹⁴⁷ While these complexes varied throughout Olynthus, Cahill points out that the most distinctive architectural feature among some of these complexes was the pillar-partition between the flue and the larger room. While many flues showed evidence of being used for cooking—containing ash and foodstuffs—many others did not. In house ESH 4, there were two kitchen-complexes identified (figure 10). One is located on the northern side of the house and contained the typical architectural features of a kitchen-complex: the pillar-partition, flue, larger room, and a bath. The artifacts found in this complex included a coin hoard, meat hook, and terracotta fragments, among other things. The combination of both the artifacts and the architecture indicate that this room was used only occasionally for cooking as the artifact assemblage was more sparse than the southern kitchen-complex. The second kitchen-complex, located on the southern side of the house, is an atypical kitchen-complex arrangement and is much smaller. It did, however, contain a bath and an area that may be a flue. The location of this complex within the home is uncommon as it has a door opening onto the street and is therefore more public. The artifact assemblage includes typical objects associated with food processing and weaving, among other women's work: mortar, grindstones, terracotta figurine, and thirty-nine loom weights. This southern kitchen-complex, while being architecturally distinct from the northern kitchen-complex, appears to have been a more important workspace for such activities.¹⁴⁸ This example serves to demonstrate that one must examine the artifact assemblages (if available) in addition to the architecture to identify how a space is used.

¹⁴⁷ Ibid, 80. Nicholas Cahill (2000): 500.

¹⁴⁸ Nicholas Cahill (2002): 158-160.

Cahill's approach of mapping out the artifacts will be applied to my research at Qumran. While I will not be mapping out all the artifacts like Cahill, my research will focus on mapping the loci where cylindrical jars have been found and every artifact within those same loci. Although Olynthus and Qumran are two very different sites, the same methodology used at Olynthus can be applied to Qumran—making Olynthus a model for my analysis. During excavations at Olynthus, as at Qumran, large numbers of artifacts were discovered. The large number of artifacts support a contextual analysis, which might be inconclusive without such quantities of material. Additionally, the excavators at both sites recorded their findspots, at least what room they came from. These details allow for intrasite analysis to be done, which would not have been possible where excavators did not take such notes. Both sites were also extensively excavated, which is another important factor allowing for intrasite analysis. Such extensive excavations allow patterns and activities to be identified because the entirety of the site has been exposed. If in contrast only a fraction of a site has been excavated, relatively little of the architecture and artifacts are likely to have been recovered, which would make intrasite analysis less reliable because the exposed architecture and artifacts may not be representative of the whole. An additional comparison between Olynthus and Qumran is that both were violently destroyed and abandoned, and, while the occupants of both sites had some time to react, they still left behind many items, many of which would be excavated relatively close to their original context.¹⁴⁹ These parallels between Olynthus and Qumran demonstrate how Cahill's method is applicable to Qumran. By applying his method, I hope to better understand how these jars functioned within the site.

¹⁴⁹ Nicholas Cahill (2002): 45.

Project Methodology

My objective is to examine the spatial distribution and relationship of the ‘scroll’ jars as a way to test and expand previous interpretations of their function. During his excavations, de Vaux produced a series of site maps labeling each locus (figures 11 and 12). He mapped out the settlement according to each occupation period, revealing how the settlement expanded and changed during periods Ib and II.¹⁵⁰ Despite the decades of research that has followed, no one has examined the spatial distribution of the so-called ‘scroll’ jars as a way to identify their function. I decided to plot the find locations of the ‘scroll’ jars along with artifacts found within the same locus (or room), using GIS software in a method similar to Cahill’s at Olynthus. By contextualizing the finds, in this case the ‘scroll’ jars, a better understanding for how they functioned became apparent. Additionally, by mapping out the find locations, patterns appear that will give us an idea as to how the artifacts within the loci relate to one another. At the end of this section, I will list each locus that contained a cylindrical jar(s) with a brief description to contextualize each location. The maps created by de Vaux were the base maps for my GIS analysis, with ArcMap software for visualization and data management.

Since the maps used in the project are from the 1950s, they first needed to be cleaned up before being brought into ArcMap. This process was done in Adobe Photoshop. The original maps (figures 11 and 12) had labels obstructing the loci and made them appear crowded. The maps were scanned and opened in Photoshop, so that the labels could be removed using the Eraser tool. This tool erased the numbers by removing pixels from the image itself, leaving

¹⁵⁰ It is important to keep in mind here the different chronologies proposed by scholars. De Vaux argued there were three main settlement periods of Qumran from 130 BCE - 68 CE that included a 30 year gap. However, Magness and Mizzi propose a continuous occupation without a gap.

behind a white background. Next, the black-and-white contrast of the maps was enhanced to make the image more crisp (figure 13).

Once edited, the images were imported into ArcMap. In order to digitize the many loci, a polygon shapefile was created. Then, beginning with the Period Ib map, every locus was traced using the “create feature” tool in the Editor of ArcMap. After the polygons were created, I proceeded to “create features” (points) to plot artifacts throughout the site (for screenshots of workspace see figures 14, 15, 16, and 17). Given the variety of artifacts, there are many different point shapefiles that had to be created. I chose to divide the shapefiles by artifact type and then material for the metal and glass objects. For example, all the cups coming from multiple loci were listed under one point shapefile. This was done in order to better visualize the diversity of items discovered in each locus. Although these items come from different loci but are grouped by type, the shapefiles in ArcMap allow the user to list additional information, in this case, loci, per item. I did, however, group together metal and glass objects in their own point shapefiles and items like “clay ball” in a “Misc.” shapefile. Given the variety of items within those two categories, I found this grouping necessary to prevent the map from becoming too cluttered to be legible. While this information is not displayed on the maps, the information can be retrieved by selecting the feature/point. Since the program lists all of the points and polygons in the Table of Contents window of the program (figure 15), grouping miscellaneous artifacts together also kept this part of the “workspace” clear along with being convenient to access. One can simply select a point, e.g. cylindrical jars, and a list of all the loci in which they are found will appear. The same process described above was applied to Period II, although in this case the artifacts associated with Period Ib were copied onto Period II since de Vaux does not make a distinction

between which artifacts are associated with which period except in cases where loci were not present in both Period Ib and II, or present in one and not the other (see above).

Chronological ambiguities of artifacts

Acquiring data for this project was challenging. Given the time at which the excavations were completed (1951-1956), the location of artifacts discovered throughout the site are only approximately recorded. Therefore, in order to gather information of where the ‘scroll’ jars were discovered and what artifacts they were discovered with, de Vaux’s field notes had to be consulted.¹⁵¹ Even so, challenges were present as de Vaux’s notes often lack specific information about where the items were found within each locus. Therefore, the locations of the artifacts presented in my project are approximations. Additionally, de Vaux frequently did not indicate with which occupation phase (Period Ib or II) the artifacts were associated. In his notes he may state, “We distinguished three levels...” and then occasionally list what items came from which level. Unfortunately, de Vaux does not state whether “level 1” corresponds to occupation Period Ib and though one may assume as much, the association may be wrong. Additionally, the terminology used when describing “levels” varies throughout his notes such as using the terms “upper floor” and “lower floor.” Again, he does not explicitly state which “floor” corresponds to which occupation period in his chronology. Often, though, de Vaux does not identify levels at all in his descriptions of the loci.

¹⁵¹ De Vaux’s field notes were published posthumously in: Roland de Vaux et al., *The excavations of Khirbet Qumran and Ain Feshkha: synthesis of Roland de Vaux’s field notes* (Göttingen: Fribourg, 2003). De Vaux passed away before he was able to publish a final report on Qumran which is one aspect that makes it such a complicated site. Additionally, the materials he excavated have not been fully published and access to them is restricted.

Given the ambiguities of de Vaux's layers, many of the artifacts that were mapped appear in both the Period Ib and II distribution maps. As previously discussed, from Period Ib to II Qumran underwent architectural changes. Additional loci were constructed in Period II and therefore the cylindrical jars that were mapped in Period Ib also appear in II.

Although the bulk of the artifacts recovered are associated with those two periods, my research would have benefited from more chronological precision, which might have revealed changes in function and distribution of the 'scroll' jars relative to the architecture. For example, locus 1 of Period Ib is a large, rectangular room but in Period II its size is reduced by half when locus 2 is constructed. Yet de Vaux does not make clear which items from locus 1 were discovered in Period Ib or Period II.

In addition to chronological challenges, the identification of what is and is not a 'scroll' jar is debatable.¹⁵² The original list I used to map cylindrical jars and their findspots came from de Vaux's field notes, which as already demonstrated above, can be difficult to decipher. Another issue was encountered when trying to generate this list of jars and loci since de Vaux's field notes provide only a "...list of selected items and small finds" indicating that, unfortunately, not *everything* is published. In regards to cylindrical jars, this is made clear when comparing de Vaux's field notes to a list of cylindrical jars provided by Gregory L. Doudna in *The Legacy of an Error in Archaeological Interpretations*.¹⁵³ This list identifies 'scroll' jars/cylindrical jars that, in some cases, de Vaux identified as only a "jar" in his field notes. Doudna's list also left out others that de Vaux referred to as "cylindrical jars/vessels" in his notes. Doudna explains

¹⁵² This is evidenced in Gregory L. Doudna's *The Legacy of an Error in Archaeological Interpretations* footnote 28 where he explains why some 'scroll' jars were left out of his list on the basis of identification.

¹⁵³ One jar KhQ2989 is listed by Doudna and other scholars as coming from locus 41. However, this jar is not listed in de Vaux's notes.

this selection was made based on whether or not such jars were confirmed to be ‘scroll’ jars.¹⁵⁴

Ultimately, the list I worked from was a combination of both de Vaux’s field notes and Doudna’s list.

Since my interest is focused on the cylindrical jars found within the settlement, I mapped out only the loci in which they were found. Mapping every artifact in the site, while beneficial for analysis, was simply beyond the scope of this project.¹⁵⁵ Analysis of the cylindrical jars in the caves would also be beneficial for understanding their function. Some of the same artifacts listed below were also found in the caves that contained cylindrical jars. Cave 1Q for example, contained some utilitarian pottery such as a cooking pot, juglet, bowls, and a plate. Taylor, Mizzi, Fidanzio state that out of the 21 caves with jars identified in 1952, 11 also contained some amount of pottery associated with dining/food related activities like jugs, cups, bowls, and cooking pots.¹⁵⁶ Additionally, the recent discovery of a new cave, Cave 53 (or 12Q), has reported a number of storage jars, linen, and ‘scroll’ jars having been discovered inside.¹⁵⁷ Cylindrical jars were discovered in 20 loci of the settlement in addition to one trench (“South Trench and Southern End”).¹⁵⁸ From those 20 loci and the trench, a total of 511 artifacts were discovered; not including the three coin hoards found in locus 120, raising the total of coins and artifacts to 1,251.¹⁵⁹ Without making any assumptions about terms such as “levels” corresponding to de Vaux’s occupation periods, of the 511 excavated artifacts coming from loci

¹⁵⁴ Gregory L. Doudna (2006): 151, see footnote 28.

¹⁵⁵ It is also worth noting that some items from the excavations were not kept. Additionally, not everything has been published. Therefore, the readily available information is incomplete.

¹⁵⁶ Joan Taylor, Dennis Mizzi, Marcello Fidanzio (2017): 320. Taylor, Mizzi, and Fidanzio are currently reevaluating the caves.

¹⁵⁷ Oren Gutfeld, Randall Price (forthcoming).

¹⁵⁸ For information on list of loci with cylindrical jars see below.

¹⁵⁹ Three coin hoards were found: 1) contained 223 coins, 2) 185, and 3) 153.

where cylindrical jars were found, approximately 40 came from explicitly stated periods¹⁶⁰—meaning that approximately 8% of those artifacts were assigned a period, and 92% were not. Of the 40 finds with specified periods, 23 came from Period Ib, 13 from Period II, and 4 perhaps from Period III.¹⁶¹ However, it is impossible to draw any general conclusions about the distribution of the majority of the excavated finds from such a small number of chronological associations.

Anyone who has worked with Qumran can testify to the puzzling nature of the stratigraphy, or lack thereof. De Vaux had proposed that Qumran was inhabited in three main phases: Period Ia and Ib, II, and III. Period Ia and Ib date to 135 BCE to 31 BCE, though there is no clear distinction between Ia and Ib other than changes in the settlement's construction. Evidence for a major earthquake is present throughout the settlement such as cracks in a stepped pool (locus 49) that were repaired. De Vaux also found evidence for a fire and therefore concluded that because of the earthquake and fire, the site was abandoned for 30 years. Period II marks the return of the residents (4 BCE to 68 CE). Although alterations had been made to the site, de Vaux concluded that it was the same group of people from Period Ia,b that had returned in Period II. In 68 CE the site came to a violent end at the hands of Roman soldiers. Period III, therefore, is a post-destruction layer and is easily identifiable. There is, however, no stratigraphy defining Periods I and II making it difficult to tell the two apart. One way to deal with these issues is to look at the architectural changes that took place between periods. Magness and Mizzi have argued against de Vaux's chronology and instead for one that is continuous, but

¹⁶⁰ This number is from de Vaux's field notes where he explicitly assigns/proposes dates for items in addition to Doudna's list of cylindrical jars in which he proposed periods for each one.

¹⁶¹ Three artifacts are listed as coming from the surface. This may be Period III but one cannot be certain as they may also be the result of various post-depositional effects (e.g. looting).

during which the settlement's architecture was modified. They identified three distinct architectural phases. By looking at Qumran as a place that was continuously inhabited but altered, the issue of which period artifacts came from becomes easier to deal with. According to the maps by de Vaux, of the 21 loci (including the trench) that contained cylindrical jars, seven were either altered or added in Period II: loci 1, 2, 6, 17, 34, 41, and 43. Locus 1, a room framed by four walls with a door connecting to loci 4, is present in both Period Ib and II, but during Period II it was reduced since locus 2 was constructed. With the construction of locus 2, locus 1 is essentially cut in half by the construction of a wall. Locus 1 is now the western half and locus 2 is the eastern and the two are connected by a door. With this reorganization of space, to reach locus 1 one must enter from locus 4 and go through locus 2. Locus 17 is also present in both Period Ib and II (and III). It is a small locus which de Vaux describes as a staircase and landing that appears to have undergone a number of alterations. He notes that during Period II this locus included a doorway leading to locus 30. Loci 2, 6, 34, and 41 are constructed in (or assigned to) Period II. The settlement appears to become more segmented during this time. Walls are being constructed within earlier loci to create more rooms. Locus 43 is identified as a wall belonging to Period III. Since Period III is a post-destruction layer, it is stratigraphically identifiable. During this period, walls are removed creating less segmented areas, and sections of the site went unused. The other loci—8, 13, 30, 45, 59, 61, 80, 81, 84, 91, 104, 120 and 124—were present in both Period Ib and II.

Results of the intrasite spatial analysis

It will be useful to briefly examine the loci in which the jars were found to better contextualize them.¹⁶² While plotting the locations of artifacts throughout the site, it became apparent that the majority of cylindrical jars excavated by de Vaux were found on the communal side (east/northeast side) of the settlement, with the only exceptions being three jars, one in locus 104, locus 120, and one in locus 124 (figure 18 and figure 19). De Vaux questioned if locus 124 was a dump site, which might mean the jar had been used elsewhere.¹⁶³ The cylindrical jars at Qumran are often associated with numerous coarse wares of shapes connected to dining or food storage: cups, jars, bowls, jugs/juglets, goblets, terrines/casserole dishes, cooking pots, and plates.¹⁶⁴

Another type of storage jar found at Qumran are bag-shaped jars, a type used for storing food or drink common in Judea during this period.¹⁶⁵ These jars feature a bag-shaped body and rounded base requiring that they either be placed in a stand or on a soft floor to stand upright. They also have a tall, narrow neck and two handles for pouring out their contents. The narrowness of their neck would have been ill-suited for storage of scrolls as it would have been difficult to insert or remove documents from these types of vessels. This is starkly contrasted with the ‘scroll’ jars that have straight sides and a ringed base which would allow them to stand on their own. Their wide mouths allow for contents to be scooped rather than poured out. While their shape is conducive to storing scrolls, as one could easily place and retrieve them, the wide

¹⁶² While this paper only seeks to briefly describe the loci in which these artifacts were found, the source of this information contains more details, see De Vaux et al. 2003.

¹⁶³ De Vaux wrote, “It appears that this pottery had been thrown there after the earthquake, during the cleaning of the building.”

¹⁶⁴ Fragments of objects were also mapped.

¹⁶⁵ Jodi Magness (2015): 82.

mouth of these jars, as noted by Magness, may have to do with purity regulations.¹⁶⁶

Unfortunately, while mapping the artifacts in each locus, there is no description provided when a bag-shaped jar is found. So, while there were a number of these types of storage jars recovered at Qumran, no information is provided as to where they are found within the settlement.¹⁶⁷

Some of these loci appear to have operated as a kind of dining or food storage area. Those items lend further credit to understanding these loci as places where dining or food storage activities may have occurred and therefore would have been unsuitable for storing scrolls. Some of the loci in which the jars and coarse ware dishes were found also contained ovens. The loci in which the cylindrical jars were found, in addition to some surrounding loci, will now be briefly described in order to contextualize the jars and demonstrate their relationship with coarse ware items:

- Although loci 1, 2, 4, 13 and 30 are argued to be a “library complex”¹⁶⁸ due to the presence of the plaster benches and inkwells that fell from the second story, it must be noted that loci 2, 13, and 30 contained ovens.¹⁶⁹ Among loci 1, 2, 13, and 30 a total of

¹⁶⁶ See chapter 1, or Magness (2015) for details.

¹⁶⁷ Some publications have provided illustrations of bag-shaped jars having been found in specific loci such as de Vaux (1973) and Gunneweg and Balla (2006), but there is no comprehensive list or series of publications providing information as to where these jars have been found throughout the site like there was for the ‘scroll’ jars. Perhaps this could be taken up by future research on the site.

¹⁶⁸ De Vaux (1973): 29-30, refers to locus 30 as “scriptorium.” Sidnie Crawford (forthcoming).

¹⁶⁹ De Vaux et al (2003): 12, 17-18, and 23-24. The presence of an oven in locus 2 is more questionable. De Vaux wrote, “In the southwest corner lay the remnants of, perhaps, an oven.” Additionally, the presence of an oven in locus 2 may also date to Period III (Sidnie Crawford, personal communication). In locus 13, the presence of an “oven” is somewhat an anomaly. De Vaux states, “The installation does not appear to be connected with the “oven”: the chimney itself is later; its function as an “oven” is therefore not the original one.” This begs the question, what was this structure? For locus 30, de Vaux wrote, “25/5/53. We opened a trench against the eastern wall: about 20cm under the floor an oven and a curious plastered installation appeared on the south.” For the oven in locus 30, see also Magness (2013). While the purpose is to not argue against this theory, it is important to note these installations.

eight¹⁷⁰ cylindrical jars were found. Although de Vaux does not theorize how loci 1 and 2 functioned, locus 13 he stated could have been a courtyard and locus 30 an assembly room.¹⁷¹ Among these loci a total of 127 objects were excavated.¹⁷² Of those 127 items, 75 are coarse ware items. Locus 30 contained the most with 24 coarse ware items (figure 20). Loci 1, 2, 13, and 30 contained additional storage jars or at least fragments of such jars, some of which may have been the bag-shaped type.

- De Vaux did not assign locus 6 any function or identification (figure 21). However, he does note a bench-like structure being present and a column drum having appeared to be reused. In the middle of this locus, in the lowest floor level, there was a hole bored out that contained cinders and potsherds. The surrounding loci: 5, 40, 46, and 146 appear to be storerooms which are present in both Period II and III.¹⁷³ 25 objects were found in this locus, 18 of which were coarse ware. One of those objects was a fragment of a storage jar of unspecified type.
- Locus 8/8A makes up the southwest portion of the tower. De Vaux identified this locus as having been a storage unit that was accessible by stairs or a ladder that descend into it. The middle of this small room contained a pilaster perhaps for supporting the floor above or functioning as a staircase. This locus contained 15 items, 12 of which are coarse ware, including one storage jar of unspecified type (figure 22).

¹⁷⁰ One was a fragment of a cylindrical vessel.

¹⁷¹ De Vaux (1973): 6-7, 11.

¹⁷² This total number (and the following totals in this bulleted section) do not include coins but does include the cylindrical jars.

¹⁷³ De Vaux (1973): 26.

- Locus 13 also contained an “oven” although de Vaux wrote that this oven appeared to be later.¹⁷⁴ What is also interesting about locus 13 is that de Vaux recorded one of the jars being “full of soil” (which was recorded for a jar in 1Q) and that another appeared to have been broken when it was placed there.¹⁷⁵ The use of a broken jar is unusual but perhaps speaks to the importance of the jars themselves. In this loci 19 objects are listed, 10 of which are coarse ware items (see figure 20).
- Locus 17 did not contain many artifacts: two jars (one a cylindrical jar), a plate, nails and a door hinge. De Vaux describes this locus as a landing with stairs. Underneath the stairs the excavators discovered a door, whose south doorjamb on the wall connected to locus 30, and whose north doorjamb connected to the tower indicating the door opened up to locus 25 to the east. Of the two jars in this locus, the one cylindrical jar (KhQ794) was found embedded in the reinforcement wall of the tower (figure 23).
- Locus 34 is identified as features of a workshop.¹⁷⁶ The cylindrical jar found inside of it is noted as having been found standing up in a basin. De Vaux notes multiple basins in this room. These basins (along the southern wall) would have been filled with water through a channel connected to a cistern. There were 22 objects excavated from this locus, 8 of which were coarse ware (figure 24). One of the objects was a jar fragment.
- Loci 41, 43, and 45, like the other loci, contained cylindrical jars but also a number of coarse ware pottery (figures 25, 26, and 27). De Vaux identified locus 41 (along with

¹⁷⁴ In addition to the ovens in loci 2, 13, and 30, there are 11 other ovens are present throughout the settlement: 14, 22, 25 (maybe), 38/41, 64, 77, 100, 101, 105, 109, and 125.

¹⁷⁵ De Vaux et al. (2003): 17. Due to the broken nature of one of the jars, de Vaux wrote, “...but surely they were not for holding liquids, since the first had already been broken at the time that it was set in place.”

¹⁷⁶ De Vaux (1973): 16.

locus 38) as a kitchen due to the presence of multiple fireplaces.¹⁷⁷ Locus 41 contained 11 items, only 2 of which are coarse ware. Locus 43 dates to Period III (during the Roman occupation of the site).¹⁷⁸ It is made up of a partial wall (figure 26) and it was underneath this wall that a cylindrical jar was found embedded into the floor. De Vaux concluded that this jar was associated with an earlier period. This area of the settlement underwent major construction changes between Periods Ib and II. Perhaps the jar is associated with loci 62, 66, or 74 considering locus 43 was constructed during Period III in approximately the same area. Additionally, loci 62, 66, and 74 were present during both Period Ib and II. This locus contained 17 objects, 7 of which are coarse ware. Locus 45, particularly, contained a large number: 93 items. Of these 93, 72 are coarse ware. While de Vaux does not assign a function to this room perhaps it was a pantry or another storeroom given the amount of pottery discovered. In addition to the one cylindrical jar, locus 45 contained 7 storage jars of other types.

- Locus 59 is a small room in the eastern side of the settlement where de Vaux recorded having found many *in situ* pots, jugs, bowls, etc. 19 out of the 26 items coming from this locus are coarse ware (figure 28). De Vaux identified loci 44, 45, and 59-61 as a series of storerooms and workshops.¹⁷⁹ These surrounding loci also contained numerous amounts of coarse ware (see locus 45 above and 61 below). Locus 44 contained 19 coarse ware items. One fragment of a storage jar was discovered.

¹⁷⁷ Ibid, 7.

¹⁷⁸ The artifacts of this locus were not mapped because the majority of items from the site came from Periods Ib and II.

¹⁷⁹ De Vaux (1973): 7.

- De Vaux found three jars embedded in the floor of locus 61 with a circle of stones forming a mouth. He also notes removing a cylindrical jar that was embedded in the southwest corner, this jar was, “set upon a badly fired cylindrical vessel (sic), previously used as silo, like the larger holes in the same line along the southern wall.” It appears de Vaux understands the jars in this locus to be used for storing grain or at least foodstuffs. This locus contained a large number of coarse ware items, 35 out of 49 total objects (figure 29). Locus 61 contained two other non-cylindrical storage jars.
- Locus 80 contained a mixture of animal bones and pottery along with a cylindrical jar that was embedded up to its neck with a lid. Additional objects from this locus consisted of other jars, bowls, and plates. Out of the 11 objects from this locus, 8 were coarse ware (figure 30). Two other non-cylindrical storage jars were recorded from this locus.
- Locus 81 is another locus for which de Vaux does not identify a function (figure 31). He describes a “rectangular plastered plateau” as containing a jar in the center and two jars embedded in the floor. Unfortunately, he does not say whether the cylindrical vessel found here was one of the embedded jars. This locus is adjacent to the ‘refectory’ (locus 77) where de Vaux describes communal meals having taken place. It contained 16 items, 7 of which were coarse ware items. Locus 77 contained 23 coarse ware items.¹⁸⁰ Other surrounding loci include: 79 (no objects listed), 86 that had an upper story which contained 10 coarse ware items while the main floor had 3, 88 had 4 coarse ware items, and 91 is a large cistern (see below). Four other storage jars were found in this locus.

¹⁸⁰ These items, however, need to be evaluated more closely to ensure they come from periods Ib and II instead of III. During period III, an oven was constructed along the north wall of locus 77 indicating cooking having occurred. Therefore, some of these coarse ware items may be from such activities.

- Locus 84 is described as “...being the space between the kiln 64 and locus 63.” This locus contained a small potter’s kiln. There were only seven objects found in this locus including: jars, an embers scoop, and couple pieces of coarse ware (figure 32).

Surrounding this locus are: locus 63 which appears to be a small square room that contained only two items (a bowl and potsherd); locus 64, which is a large potter’s kiln; and locus 80 (see above).
- Locus 91 is identified as a cistern (figure 33). Inside this cistern were an array of items including bronze rods, coarse ware dishes, and a bronze case, among others. These materials, de Vaux states, were dumped in the cistern during cleaning by the Romans during period III. Therefore, nothing can be said of their function or relation to each other.
- Described as being, “...a hole, intended to receive fill.” locus 104 contained 15 items (figure 34). Given de Vaux’s identification of this locus no function or relationship among these artifacts can be determined.
- Locus 120, as previously mentioned, contained the coin hoards in three pots (figure 35). Beside the entrance of locus 120 were found a jug and next to that was a jar that was embedded up to its shoulder surrounded by a circle of stones (similar to locus 61). This locus may have been used as a storeroom. Three other storage jars of unspecified type were found in this locus.
- Locus 124, along the western side of the complex, contained a number of sherds that had inscriptions on them in addition to coarse ware items (figure 36). De Vaux interpreted this locus to be where the sect threw out the debris after the earthquake. Like locus 91,

no function or relationship can be drawn from these items. This locus contained four other storage jars and two jar fragments.

- The last locus is the South Trench and Southern End. This area and its artifacts were not mapped as part of my project because they do not appear on de Vaux's Period Ib and II maps. However, it is important to at least mention the South Trench and its contents. Located at the south end of the terrace, de Vaux excavated a trench that ran east-west, eventually meeting with the building around loci 71, the large cistern. In this trench a number of artifacts were found including animal bones and pottery sherds. Two cylindrical jars and six other jars are reported as coming from this trench.

In review, the site contains a large amount of coarse ware items, not just in the loci that have cylindrical jars. However, these jars frequently appear in loci that contain a variety of coarse ware items. There are a few instances where cylindrical jars are present with not much else such as locus 17 and 84. Although these loci do not offer much information in the way of relationships among artifacts, their presence in these loci are helpful in demonstrating the variety of rooms and context the jars were found in. There are other instances where a cylindrical jar is present in what appears to be a dump site as is the case with locus 91, 104, 124, and South Trench. Extracting distribution information from such loci is nearly impossible. Some loci such as 13, 30, and 34 contained cylindrical jars, but these loci had different functions, which may be a testament to cylindrical jars having been used for storage of things other than food and scrolls. Other loci, such as 8/8A, 41, 45, 59, 61, and 120 were identified as either storerooms or part of a kitchen complex. The presence of cylindrical jars in such rooms demonstrates that they are

highly likely to have functioned in some way related to food activities—and at the very least these locations would be unsuitable for the storage of scrolls.

‘Scroll’ jars with inscriptions were also briefly examined in an attempt to extract additional evidence as to how they may have functioned. Within the settlement, there are three ‘scroll’ jars that were discovered with inscriptions: KhQ621 in locus 34, KhQ1401 in locus 84, and KhQ2553 in locus 124.¹⁸¹ KhQ621 has the name “Yohanan” along with the first letter of a second name. KhQ1401 does not have a name but instead the Roman numerals “LXI”. KhQ2553 is a sherd (the whole jar may not have been present) that has the longest inscription and has been considered a writing exercise. It contains four lines of text: 1. Shime'on son of Yonatan, 2. Mattatyah, 3. sons of Joseph. 4?¹⁸² The initial theory was that if names appeared on a significant number of ‘scroll’ jars then that would perhaps indicate, or at least allude to, a need to store things—in this case pure food and drink—in distinct containers owned by specific individuals, those who were sectarian members who could partake in the ‘pure meal’. The idea of storing pure food and drink in these jars for a special meal was argued for by Magness.¹⁸³ After examining the ‘scroll’ jars with inscriptions, however, it became clear that there were only three jars with inscriptions, two of which contained names. Given the variety and small number of inscriptions, no conclusive statement can be made about these jars’ function in regards to this information; whether they belonged to particular sectarians who may have owned them (or their contents), or were somehow in charge of them.

¹⁸¹ See Andre Lemaire (2003): 347, 354, and 367 for further details on the jars.

¹⁸² Andre Lemaire (2003): 367.

¹⁸³ Jodi Magness (2015): 82-85, and Magness (2004).

Given the frequency at which the cylindrical jars are found within the communal/domestic area of the site, and that they are found in loci with numerous coarse ware items, the cylindrical jars must have played a role in the activities related to food preparation and consumption that took place in the settlement. The findspots indicate that the jars within the settlement most likely functioned for storage of food or drink, among other things. Given that they are found among other types of storage jars: jugs/juglets, stone vessels, and bag-shaped jars, perhaps they were used to distinguish pure food from non-pure, as argued by Magness.¹⁸⁴ Furthermore, the frequency with which the jars are found associated with coarse ware in the caves lends support to Magness' argument that pure food and drink, in addition to scrolls, may have been kept in the jars. Storing foodstuffs, I conclude, was the primary function in the settlement for the jars. Further research on multiple caves would need to be done in order to determine if those jars also served a food-related function in addition to storing scrolls.

¹⁸⁴ Magness (2004): 152.

CONCLUSION

Qumran is a unique site given its proximity to the caves and relationship with the scrolls. For decades the site has been scrutinized in order to better understand the people who once lived here and wrote the scrolls. Over these decades, the scrolls have been at the center of scholarship. In regards to the site, until relatively recently it and the materials discovered there have been given equal attention. This is in part because the same materials found within the settlement have been found inside the caves that contained the scrolls—demonstrating a connection. One of the key artifacts linking the settlement and the caves are the ‘scroll’ jars. These jars were named as such because according to the Bedouin man scrolls were found inside them, but this was reported only anecdotally on two occasions. Such jars have been found in large quantities not only in the caves but also distributed throughout the settlement. While these jars are numerous at and around Qumran, they have not been discovered at any other site, making them unique to Qumran.

It has only been recently that these ‘scroll’ jars have been given increased scrutiny. Scholars have argued that the jars were manufactured for storing the scrolls, while others agree they have a special purpose—one surrounding purity—they expand their function from just housing scrolls to storing pure food and drink. However, most research on the jars has focused on the ones in the caves, where the scrolls were found. This approach often ignores the jars that show up throughout the settlement and therefore does not offer a complete view of their function. It is clear that some jars played a role in housing scrolls while others, such as those in the settlement, had a different function.

By examining the distribution of the jars within the settlement it became clear that the majority of jars were found on the domestic (east) side of the site, while only a few were found in the more industrial (west) side. The majority of those found on the industrial side were among debris that had been cleared after a destructive event, rendering their function in that location inconclusive. The jars on the domestic side, however, were excavated within Period Ib and II occupation levels. As demonstrated above, these jars are found among large amounts of coarse ware, demonstrating a relationship with dining/food activities. Given the artifacts found in these rooms, they may have functioned as some kind of pantry or general food/liquid storage. Nonetheless, these rooms would have been ill-suited for housing scrolls.

Magness has previously argued a similar function except that given their unique form, some of the jars were used for storing pure food and drink. While it is difficult to prove that they were in fact used for storing *pure* food and drink, it is clear they were used in storing food/liquid of some sort. On the domestic side of Qumran, in 13 loci the jars are found with at least one other storage vessel. This may demonstrate a need, as Magness proposed, for keeping certain foods/liquids separate from each other. What is interesting to note is that while the ‘scroll’ jars in the settlement are often found among other storage jars and coarse ware, in the caves there are no reports of the bag-shaped jars, but there are instances of coarse ware. It is without a doubt that at least some of the jars in the caves housed scrolls but did they also store pure food and liquid as Magness proposes? Perhaps the lack of other storage jars in the caves suggests so. Given Qumran’s strict purity rules, if these jars were in fact used for storing pure goods it would explain why they are found exclusively at the site and in the caves.

Additionally, the majority of ceramics found at Qumran were discovered to have been made with a rich clay such as the Motsa formation or Zarqa Ma'in. Andrea Berlin has briefly suggested that the Motsa clay source, found near Jerusalem, may have been considered 'pure'.¹⁸⁵ On the eastern side of the Dead Sea further research is recommended to 1: examine potential similar ceramic typologies with Qumran and 2: assess whether or not clay (or whole vessels) may have been brought in from Jordan's Zarqa Ma'in clay source or if the inhabitants at Qumran were getting most of their clay from the Motsa formation. Whether storing pure or everyday goods, these unique jars present in both the caves and the settlement were used for storing more than just scrolls.

¹⁸⁵ Andrea Berlin (2006): 142.

Figures

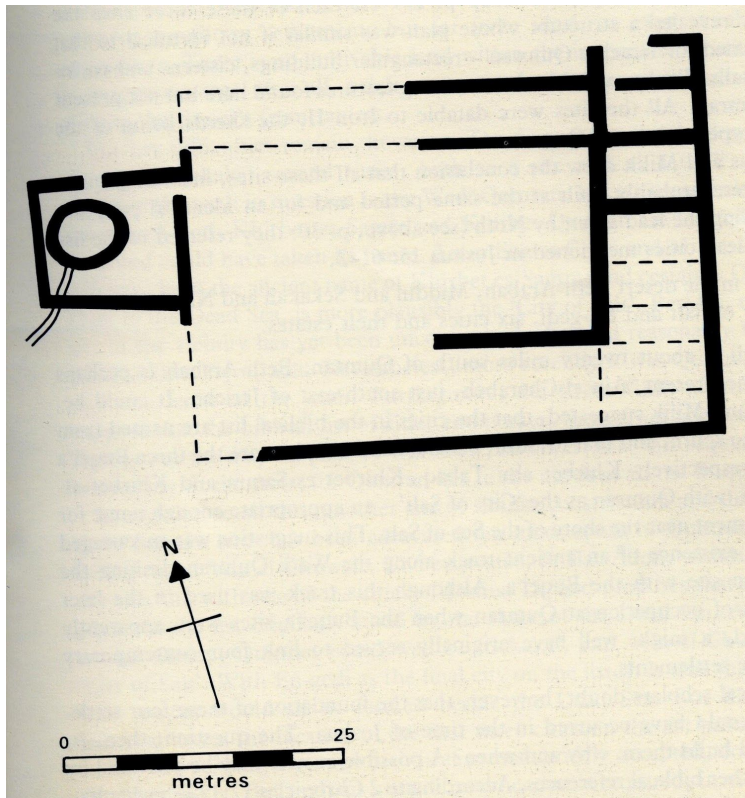


Figure 1. Image source: Davies, Philip R. *Qumran. Cities of the Biblical World*: Guildford, Lutterworth, 1982. "Plan 1 The Israelite Period. A simple enclosure surrounded by rooms, with a single round cistern adjoining the western wall."

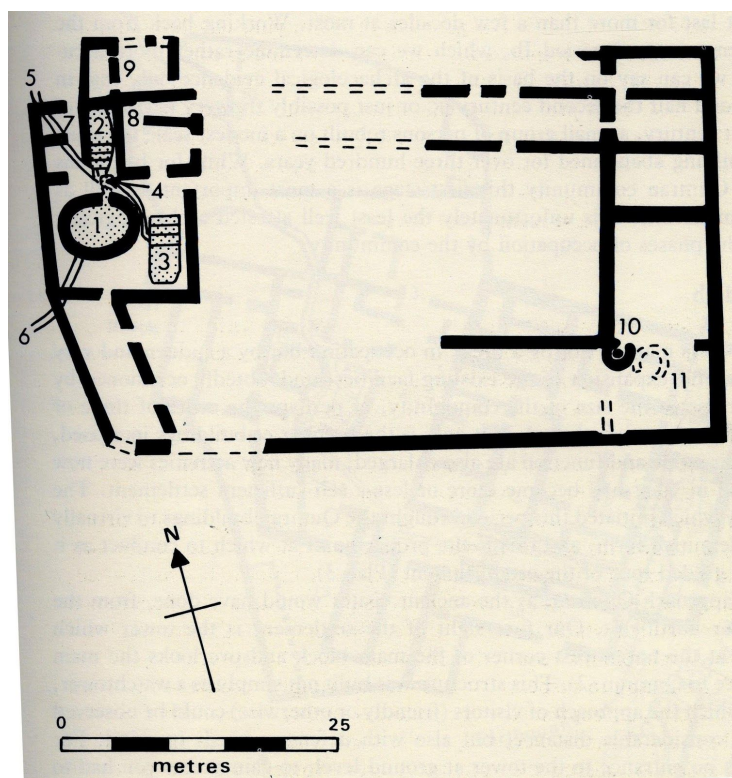


Figure 2. Image source: Davies, Philip R. *Qumran. Cities of the Biblical World*: Guildford, Lutterworth, 1982. “Plan 2 Period Ia. The major development here is the addition of two rectangular cisterns alongside the Israelite one, with an additional inlet channel for collection water.”

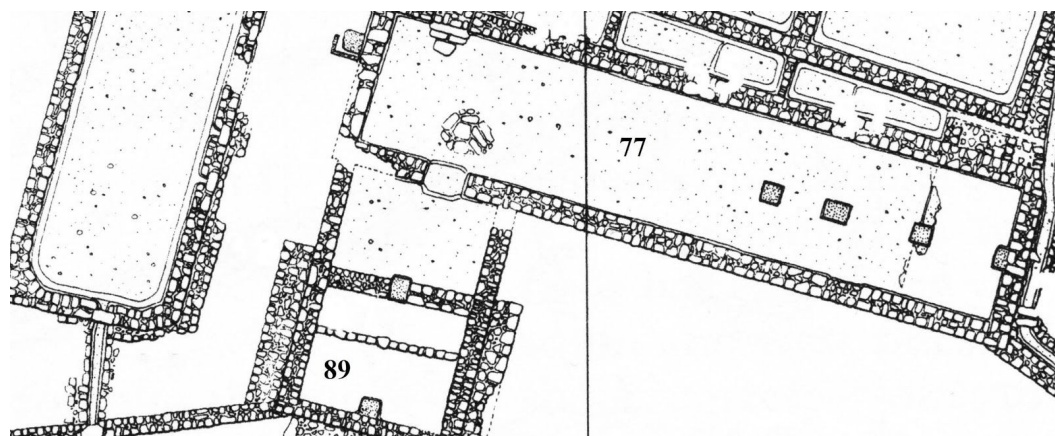


Figure 3. The ‘pantry’ (locus 89) and refectory (locus 77). Image source: edited by author. De Vaux, Roland. *The excavations of Khirbet Qumran and Ain Feshkha: synthesis of Roland de Vaux’s field notes*. Edited by Alain Chambon and Jean-Baptiste Humbert. Translated by Stephen J. Pfann, Göttingen, Fribourg, 2003.

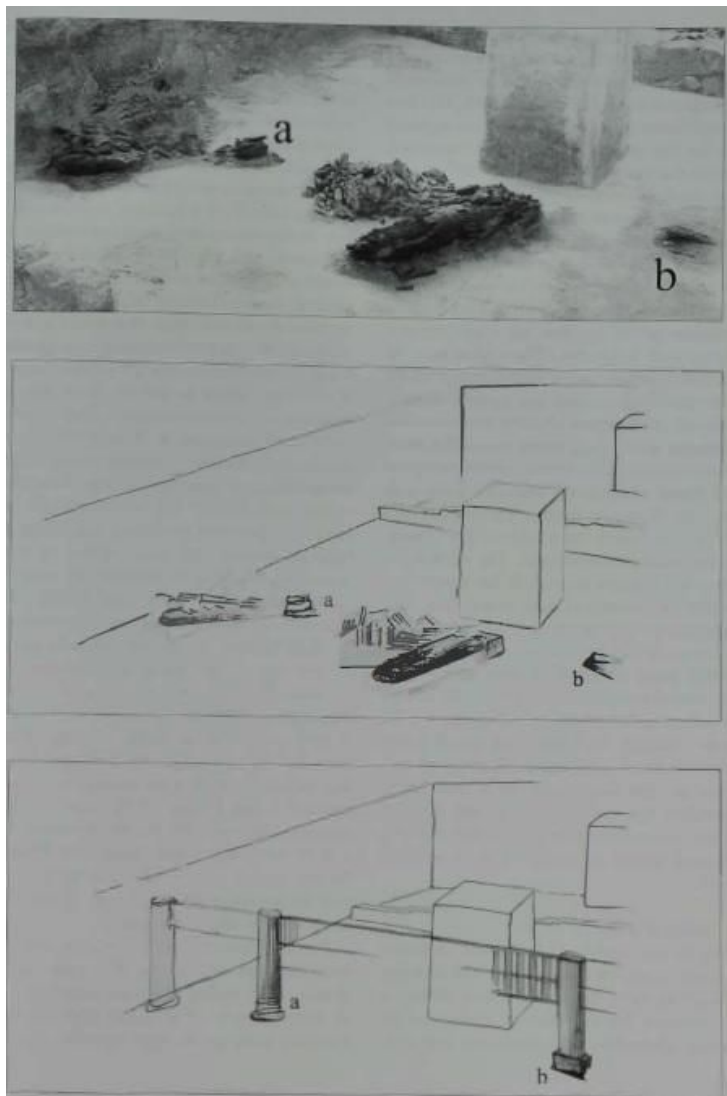


Figure 4. Image source: Humbert, Jean-Baptiste. "Some Remarks on the Archaeology of Qumran." In *The Site of the Dead Sea Scrolls: Archaeological Interpretations and Debates, Proceedings of a Conference held at Brown University, November 17-19, 2002*, 19-39. Vol. 57. Boston: Brill, 2006. "Fig. 1.8 Top: Locus 86 - Photo details EBAF-12 186: the burnt wood furniture *in situ*. Middle: Drawing of the wood fragments based on the above photo. Bottom: Reconstruction of a wooden screen in locus 86. (J.-B. Humbert)"

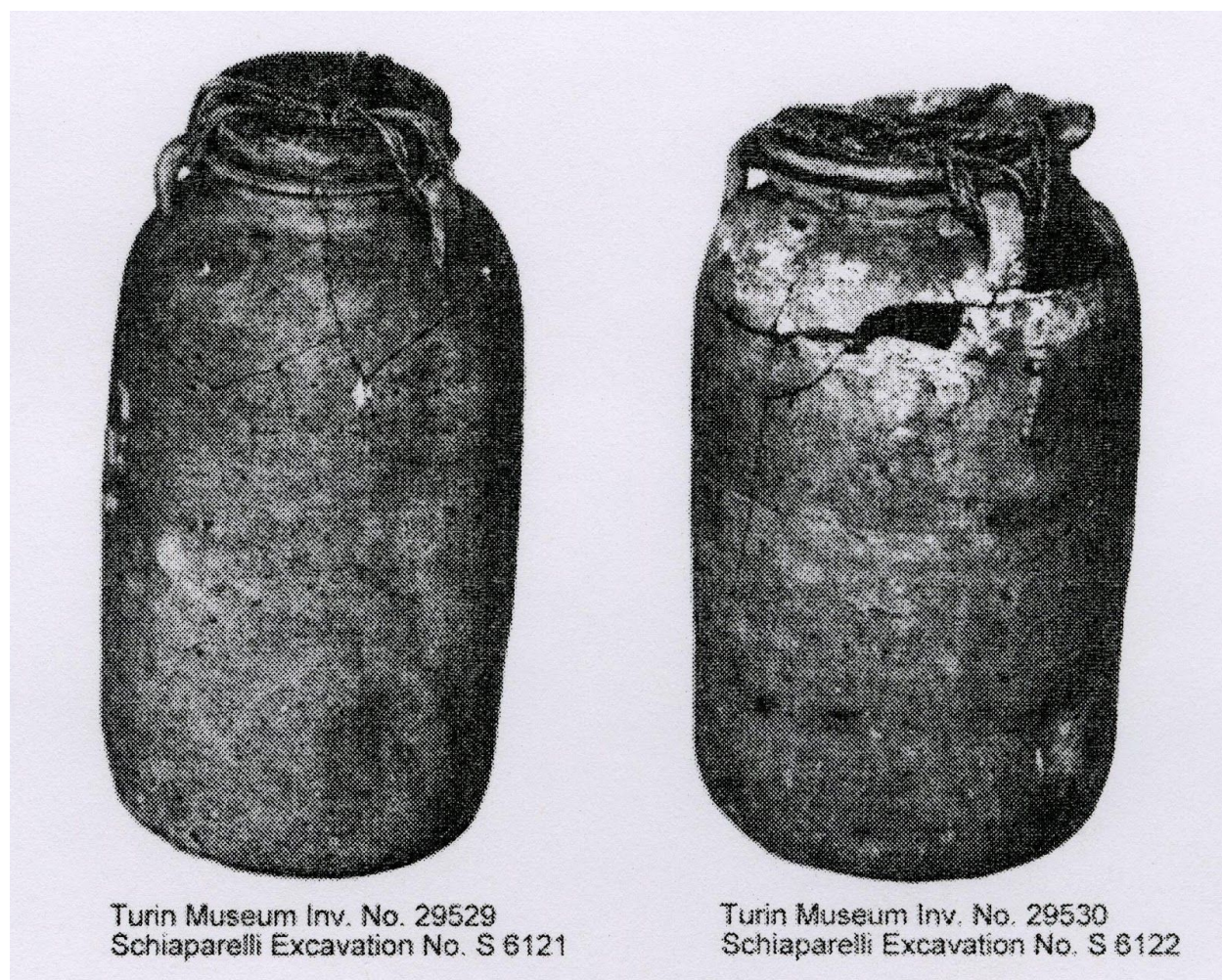


Figure 5. Image source: Lonnqvist, Kenneth, and Minna Lonnqvist. "Parallels to be Seen: Manuscripts in Jars From Qumran and Egypt." *The Dead Sea Scrolls in Context: Integrating the Dead Sea Scrolls in the Study of Ancient Texts, Languages, and Cultures 2* (2011): 471-87. "Fig. 3 The Deir el-Medina Jars from Schiaparelli's Expedition to Egypt in 1905. Published with permission of The Egyptian Museum at Turin, Italy."

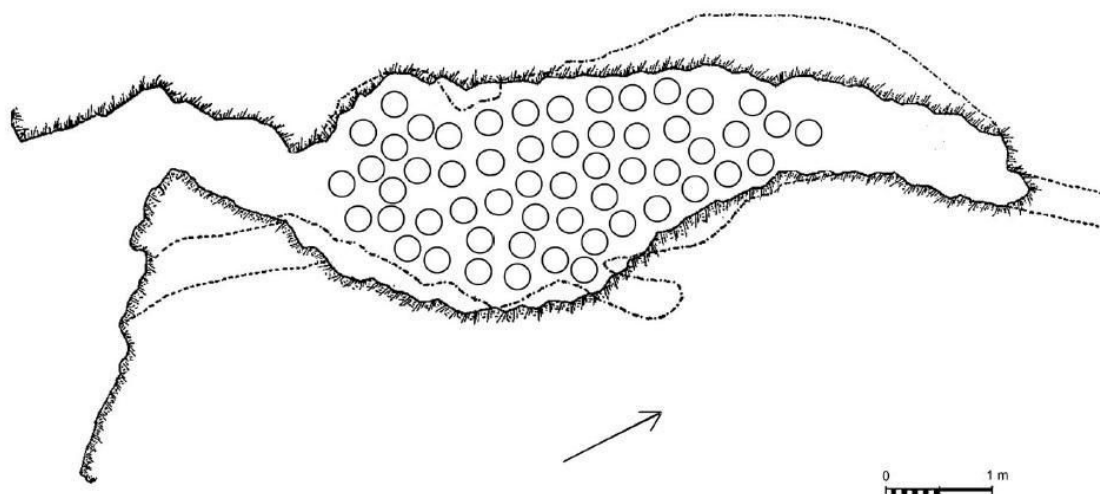


Figure 6.

Image source: drawing by Joan Taylor. Taylor, Joan, Dennis Mizzi, and Marcello Fidanzio.

"Revisiting Qumran Cave 1Q and Its Archaeological Assemblage." *Palestine Exploration Quarterly* 149, no. 2 (2017): 295-325. "Fig. 15. Plan of cave with suggested distribution of jars arranged in the area of containment. Drawing: J. E. Taylor."

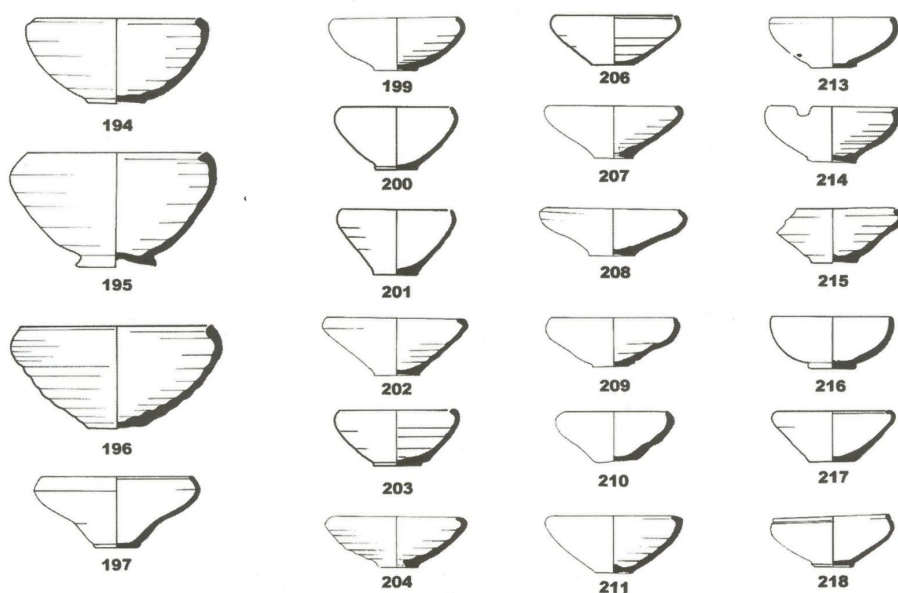


Figure 7. Image source: Netzer, Ehud, and Rachel Bar-Nathan. *Hasmonean and Herodian Palaces at Jericho: Vol 3: The Pottery*. Jerusalem: Israel Exploration Society, 2002. "Catalogue Plate 14"

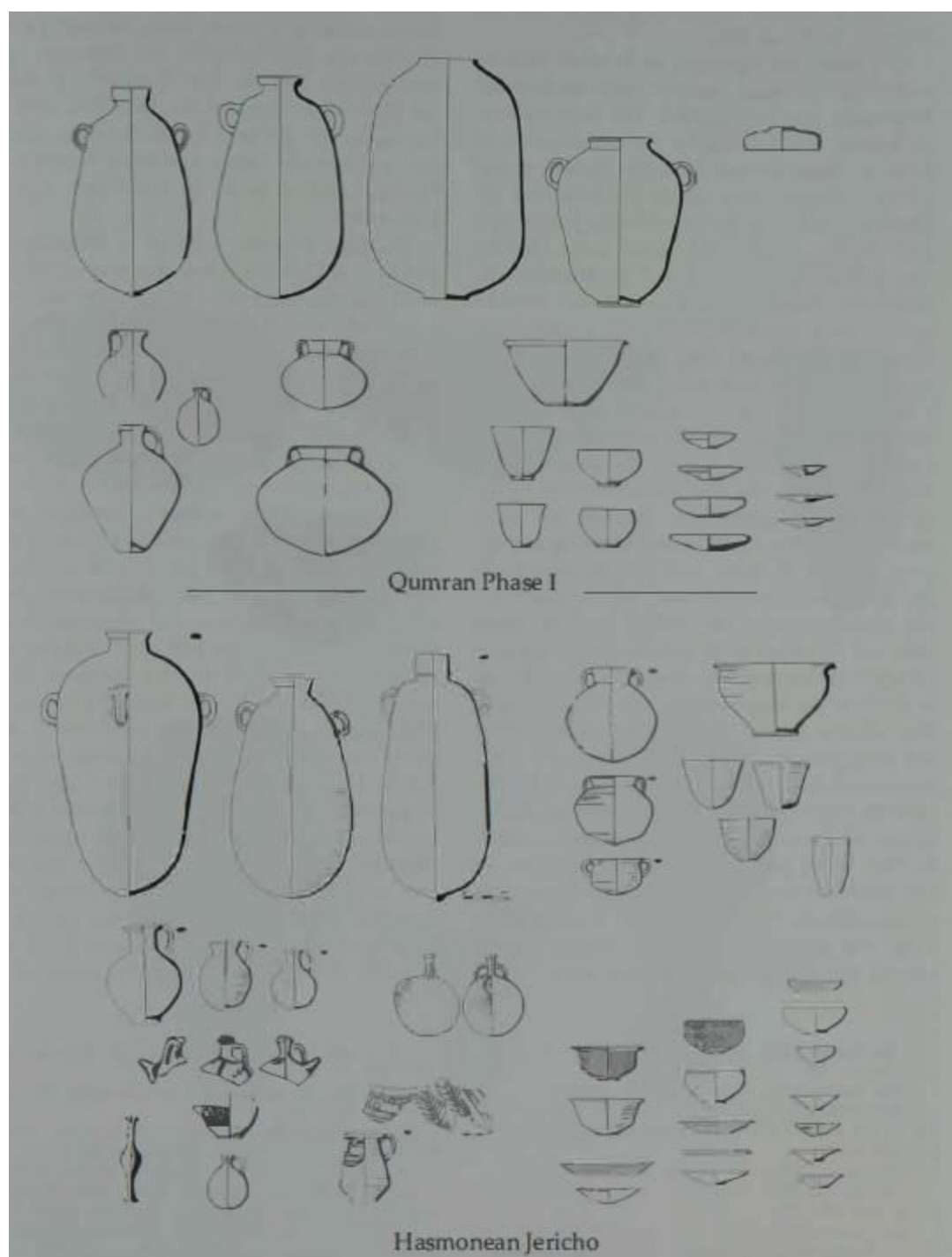


Figure 8. Image source: Bar-Nathan, Rachel. "Qumran and the Hasmonaeen and Herodian Winter Palaces of Jericho: The Implication of the Pottery Finds for the Interpretation of the Settlement at Qumran." In *Qumran - the Site of the Dead Sea Scrolls: Archaeological Interpretations and Debates: Proceedings of the Conference Held at Brown University, November 17-19, 2002*, 263-78. Leiden: Brill, 2006. "Fig. 15.1. Comparison between the pottery of Qumran I and the pottery of Hasmonean Jericho."

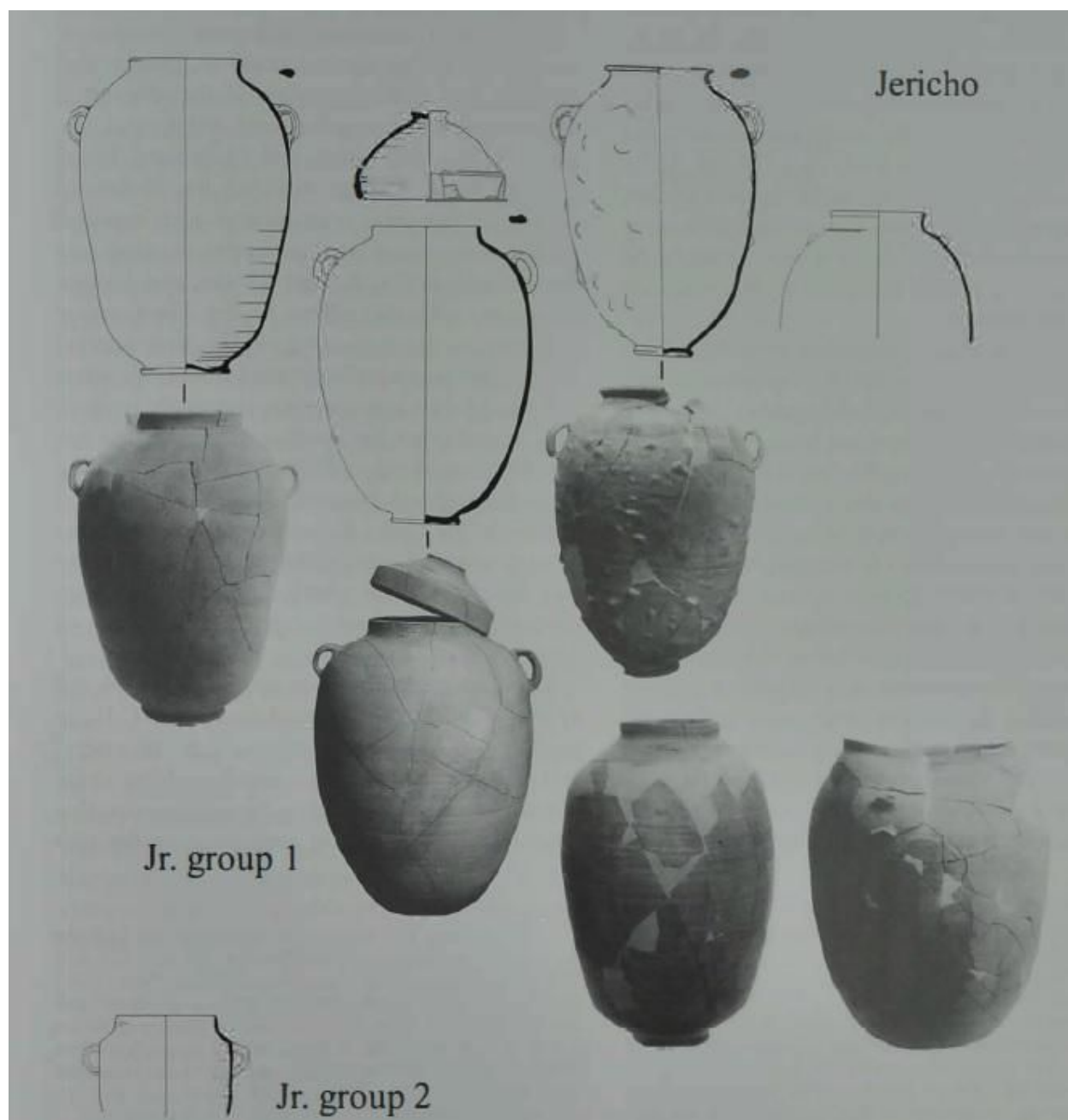


Figure 9. Image source: Bar-Nathan, Rachel. "Qumran and the Hasmonaean and Herodian Winter Palaces of Jericho: The Implication of the Pottery Finds for the Interpretation of the Settlement at Qumran." In *Qumran - the Site of the Dead Sea Scrolls: Archaeological Interpretations and Debates: Proceedings of the Conference Held at Brown University, November 17-19, 2002*, 263-78. Leiden: Brill, 2006. "Fig. 15.7. Jericho "scroll jars".

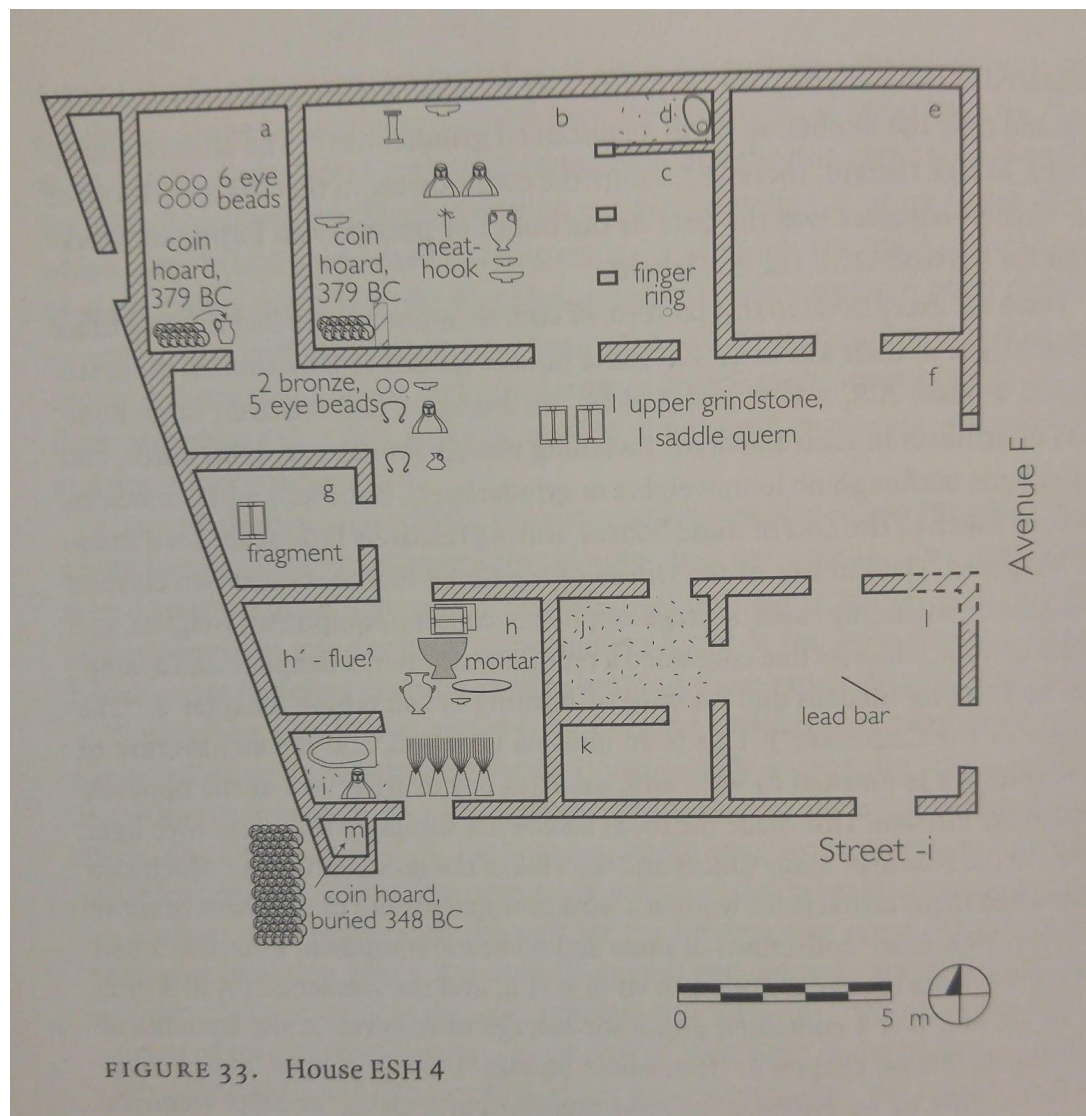


Figure 10. Image source: Cahill, Nicholas. *Household and city organization at Olynthus*. New Haven, Yale University Press, 2002. "Figure 33. House ESH 4"

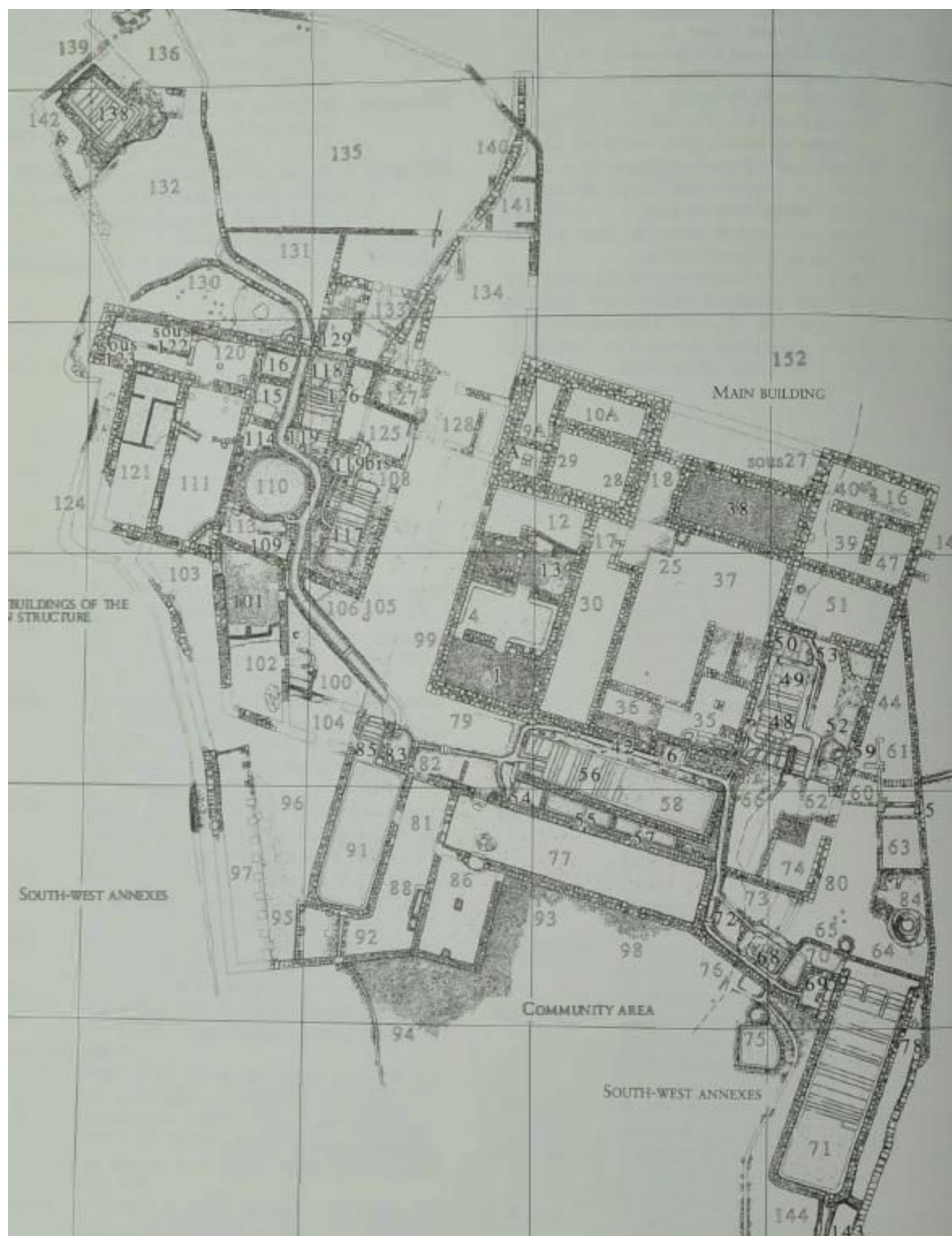


Figure 11. Image source: De Vaux, Roland. *The excavations of Khirbet Qumran and Ain Feshkha: synthesis of Roland de Vaux's field notes*. Edited by Alain Chambon and Jean-Baptiste Humbert. Translated by Stephen J. Pfann, Göttingen, Fribourg, 2003. "Figure III. Plan of Khirbet Qumran during Period Ib (H.-M. Couasnon o.p.)"

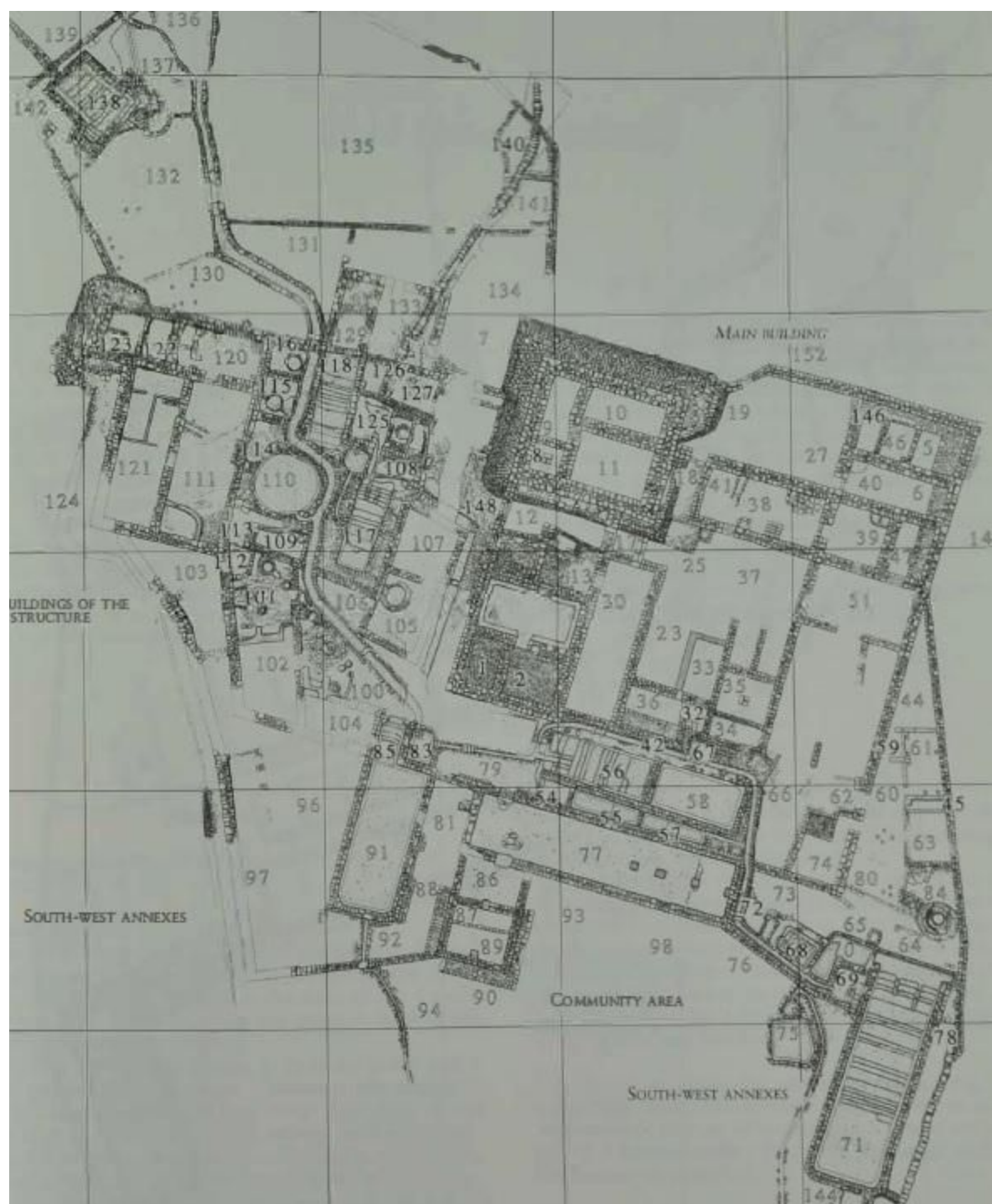


Figure 12. Image source: De Vaux, Roland. *The excavations of Khirbet Qumran and Ain Feshkha: synthesis of Roland de Vaux's field notes*. Edited by Alain Chambon and Jean-Baptiste Humbert. Translated by Stephen J. Pfann, Göttingen, Fribourg, 2003. "Figure III. Plan of Khirbet Qumran during Period II (H.-M. Couasnon o.p.)"

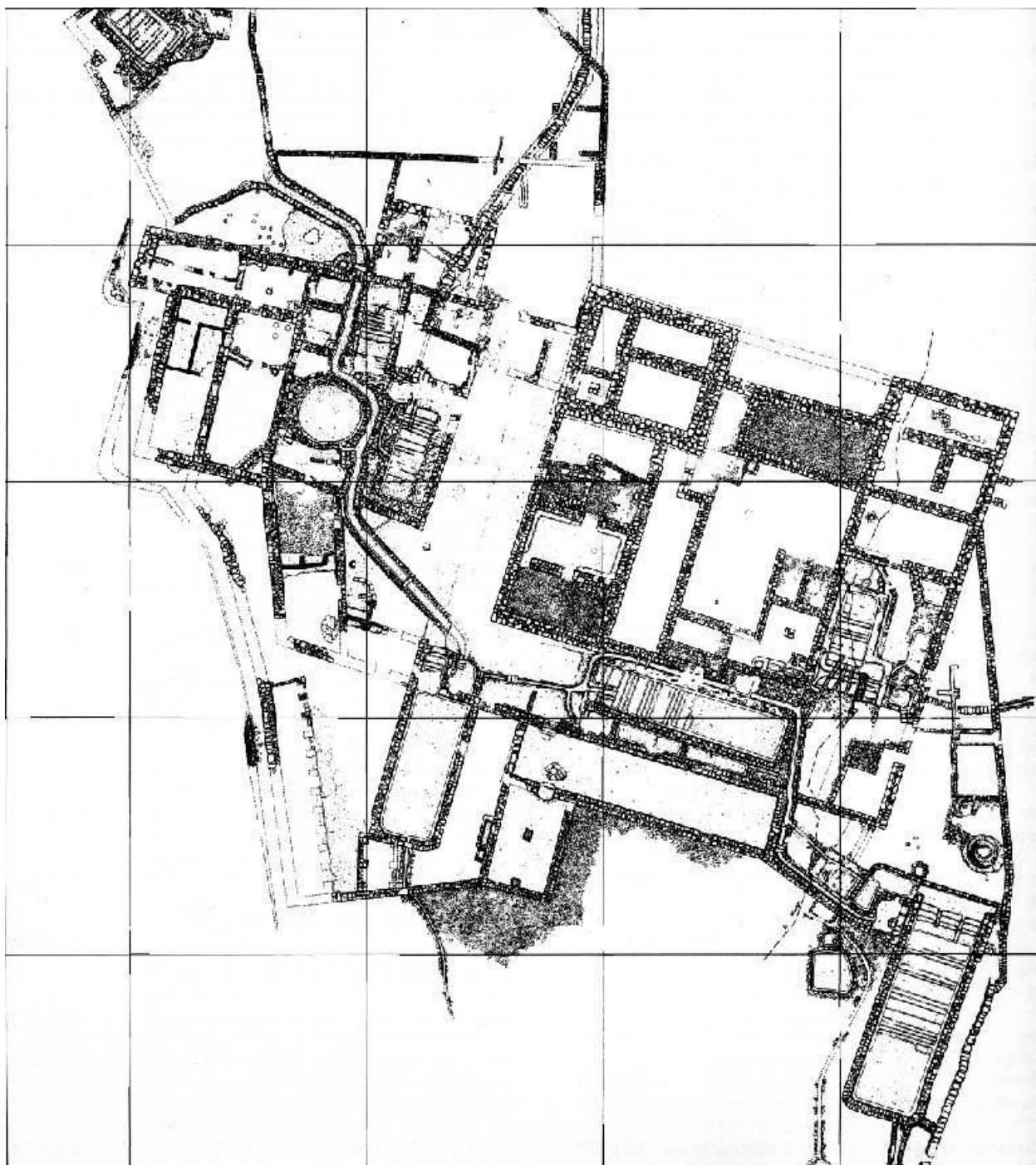


Figure 13. Image source: edited by author. De Vaux, Roland. *The excavations of Khirbet Qumran and Ain Feshkha: synthesis of Roland de Vaux's field notes*. Edited by Alain Chambon and Jean-Baptiste Humbert. Translated by Stephen J. Pfann, Göttingen, Fribourg, 2003. "Figure III. Plan of Khirbet Qumran during Period Ib (H.-M. Couasnon o.p.)" page 8. Compare to original maps in Figure 11.

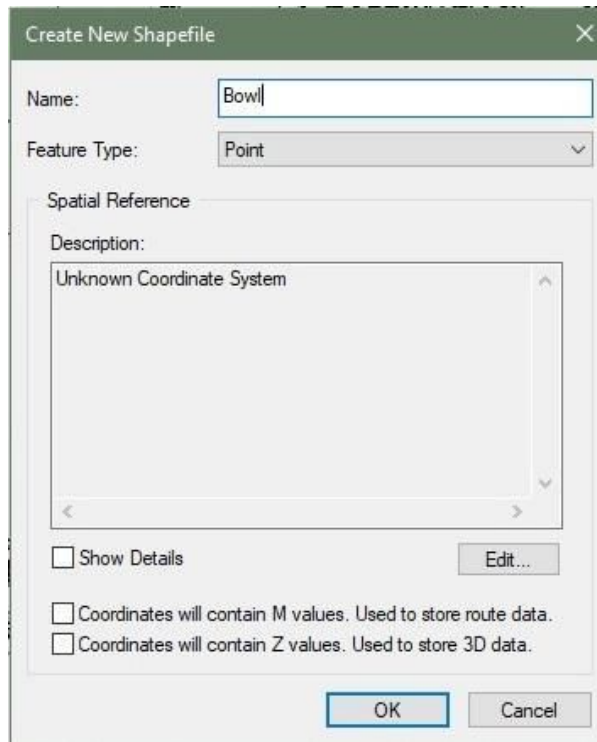


Figure 14. Image source: screenshot of author's work. Create New Shapefile window in ArcMap program. Creating shapefiles to plot artifacts on maps.

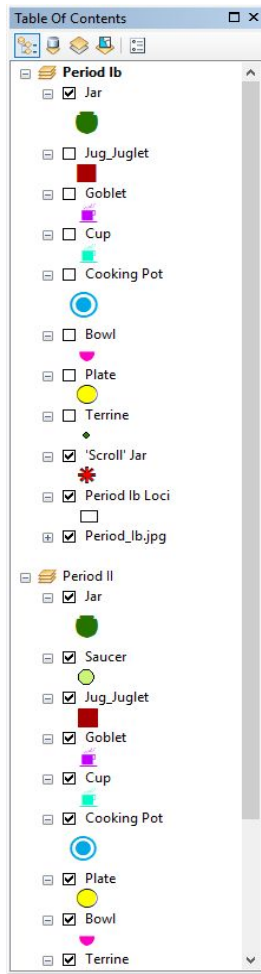


Figure 15. Image source: screenshot of author's work in ArcMap. Table of Contents window lists the layers of artifacts and keeps workspace organized.



Figure 16. Image source: screenshot of author's work in ArcMap. Edited map with some loci labeled.

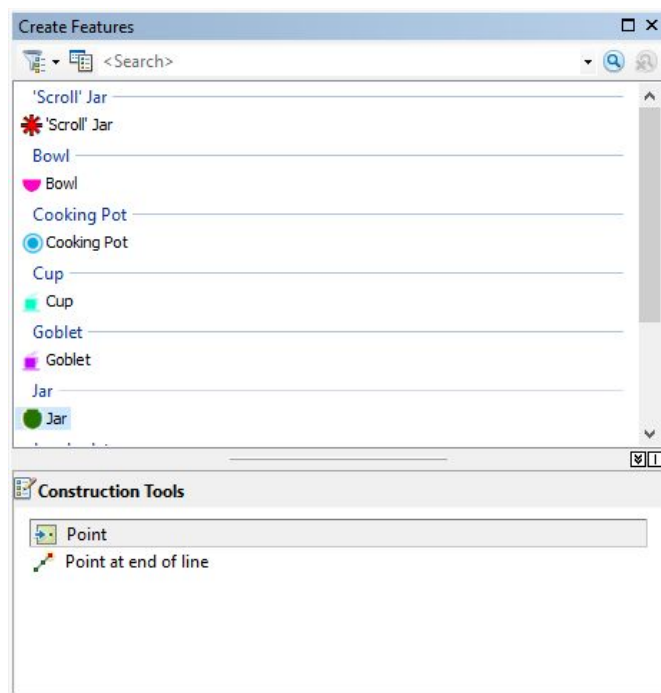


Figure 17. Image source: screenshot of author's work in ArcMap. "Create Features" window.

Period Ib 'Scroll' Jar Distribution

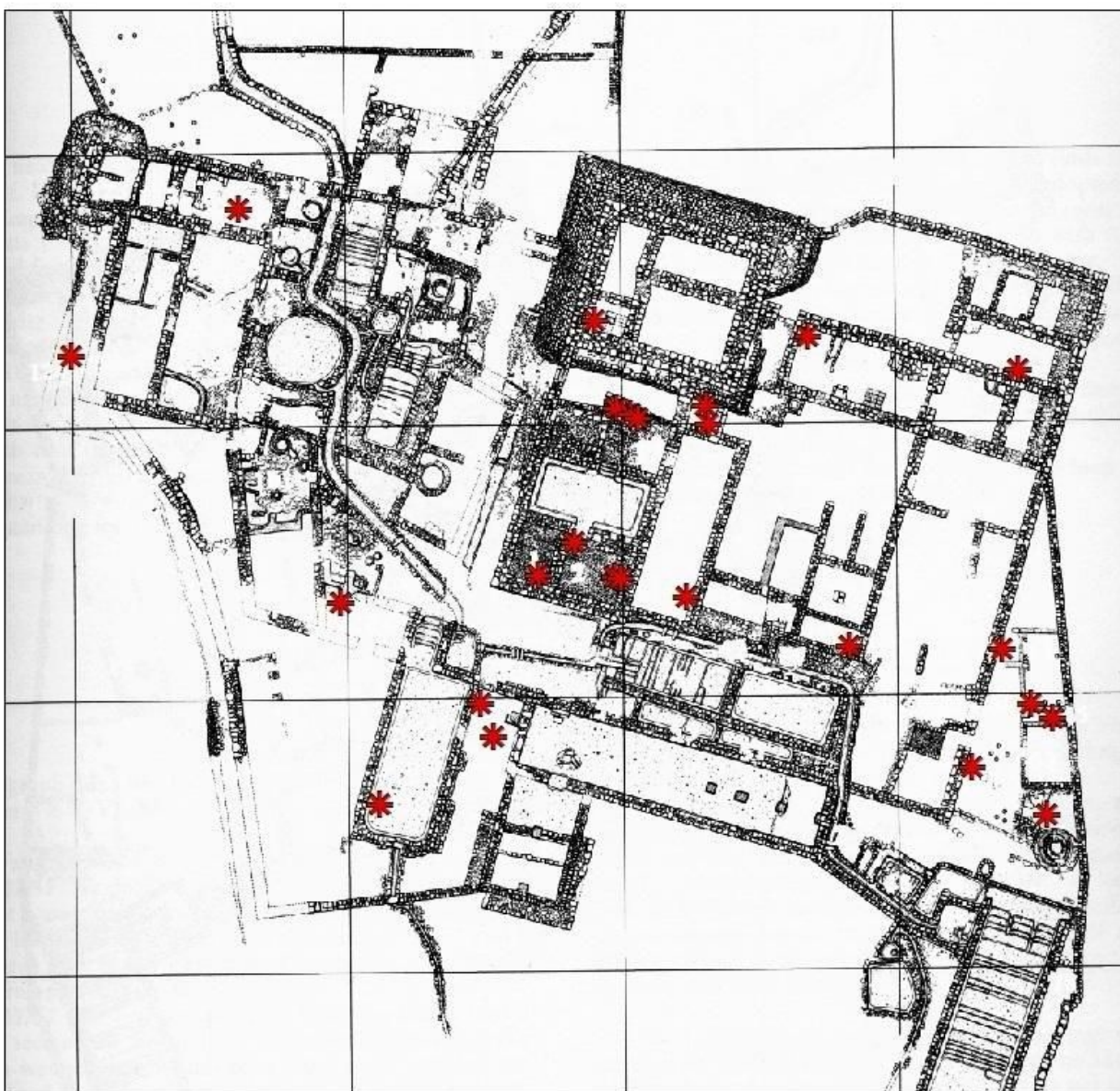


Legend

* 'Scroll' Jars

Figure 18. Image source: author.

Period II 'Scroll' Jar Distribution



Legend

★ 'Scroll' Jars

Figure 19. Image source: author.

Locus 6 Artifact Distribution

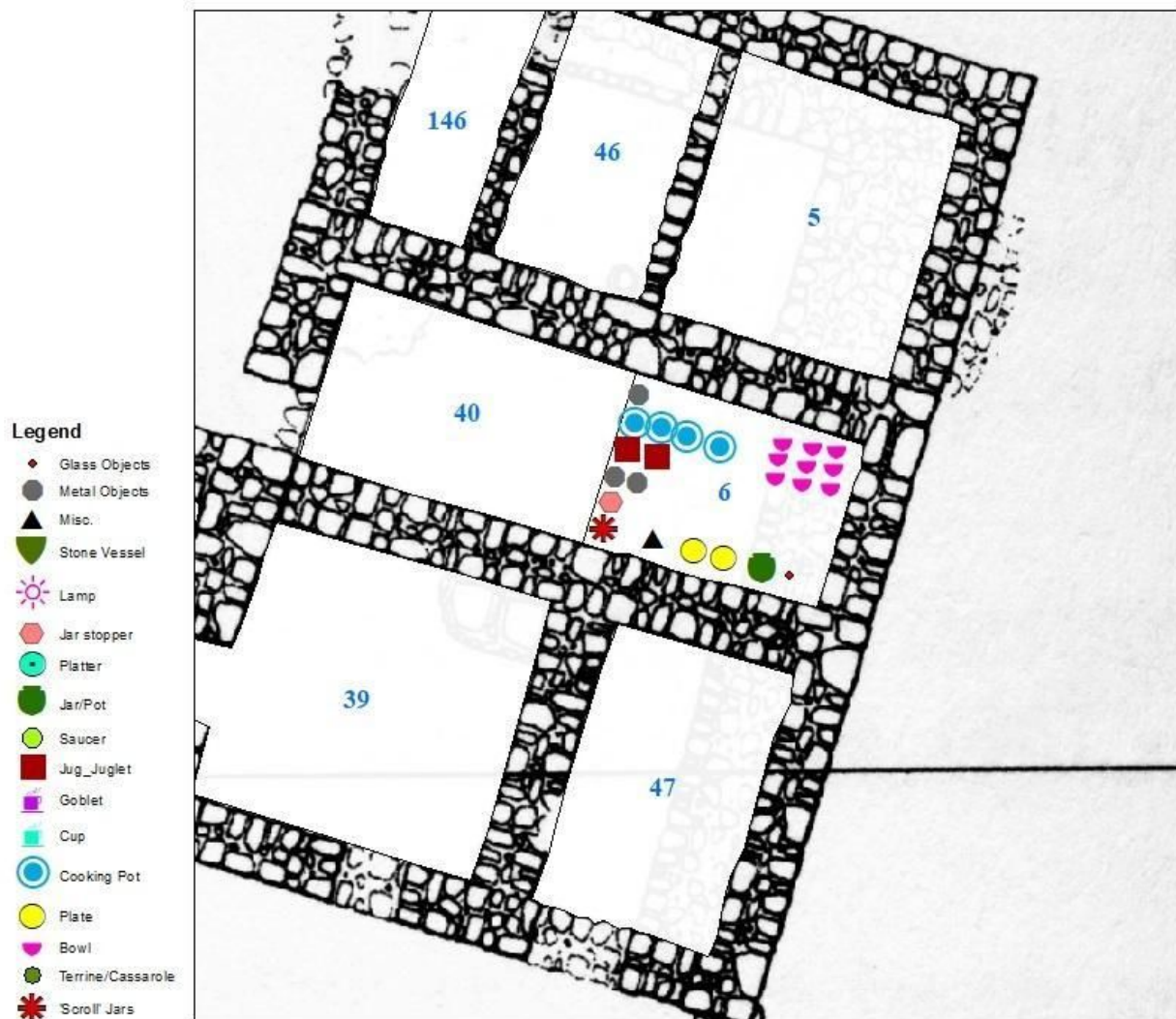
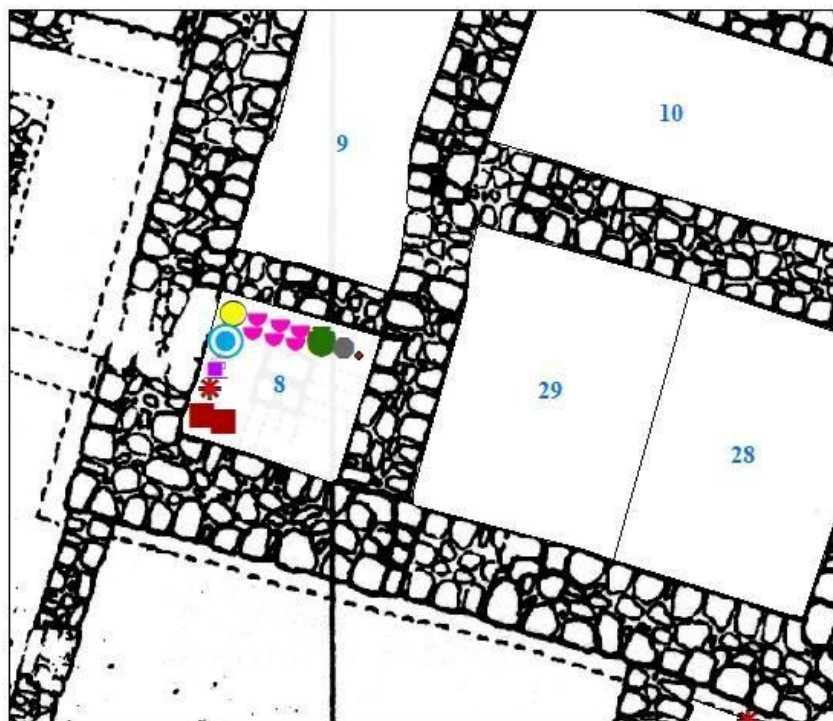


Figure 21. Locus 6 does not occur in Period Ib. Image source: author.

Locus 8/8A Artifact Distribution

Period Ib



Period II

Legend

- ◆ Glass Objects
- Metal Objects
- ▲ Misc.
- Stone Vessel
- ☼ Lamp
- ⬡ Jar's top
- Platter
- Jar/Pot
- Saucer
- Jug/Juglet
- Goblet
- Cup
- Cooking Pot
- Plate
- Bowl
- Terrine/Casseroles
- ✱ 'Scroll' Jars

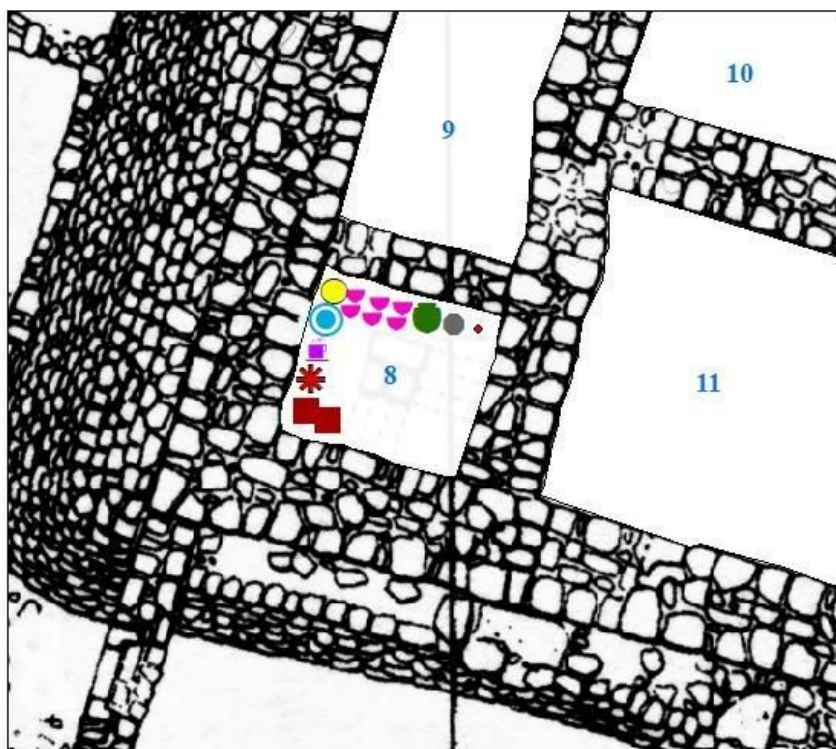


Figure 22. Locus 8 occurs in both Period Ib and II. Image source: author.

Locus 17 Artifact Distribution

Period Ib



Period II

Legend

- ◆ Glass Objects
- Metal Objects
- ▲ Misc.
- Stone Vessel
- ☼ Lamp
- ⬡ Jar's stopper
- Platter
- Jar/Pot
- Saucer
- Jug/Juglet
- Goblet
- Cup
- Cooking Pot
- Plate
- Bowl
- Terrine/Casseroles
- ★ Scroll Jars

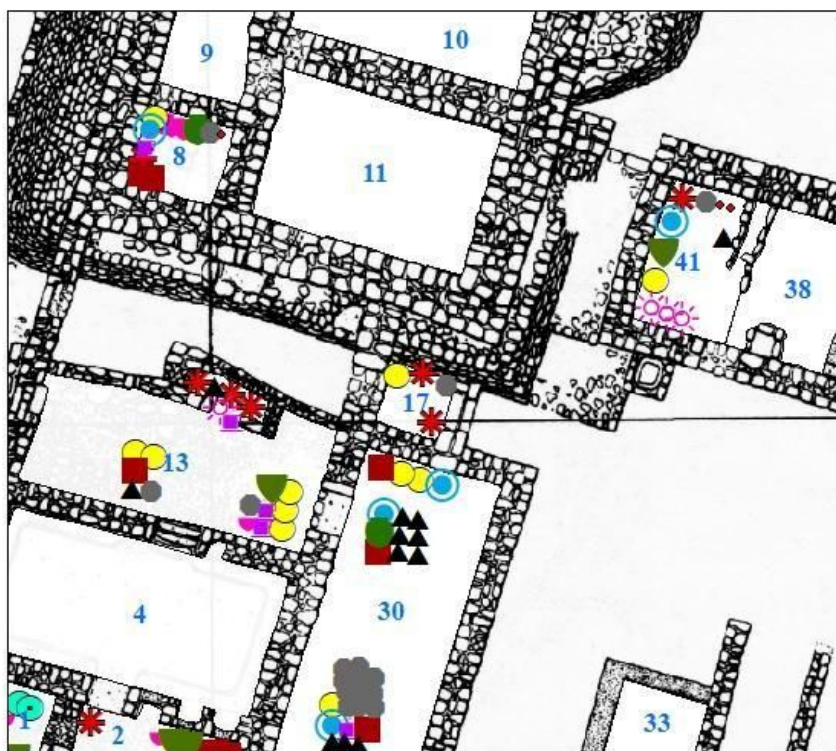


Figure 23. Image source: author.

Locus 34 Artifact Distribution

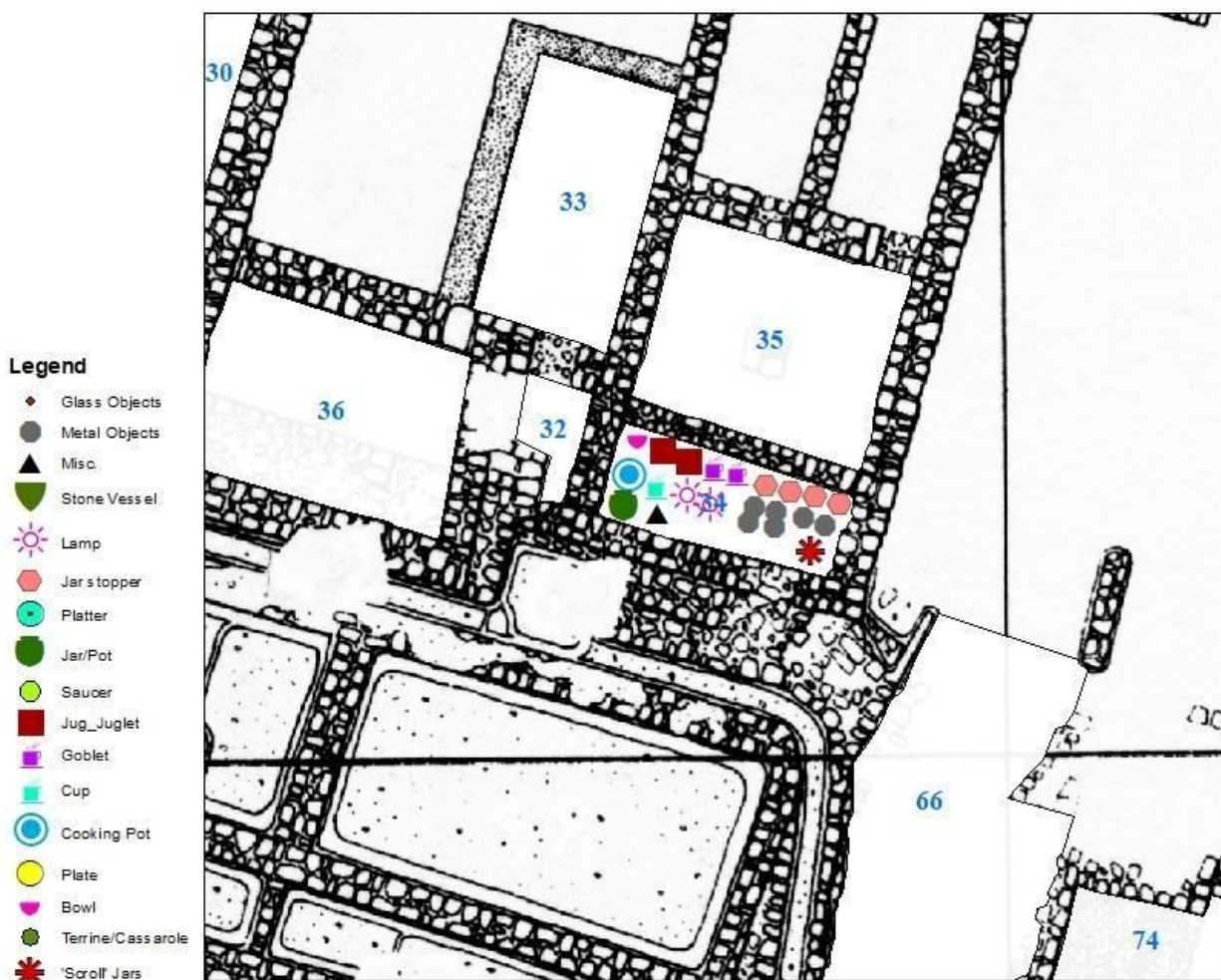


Figure 24. Locus 34 does not appear in Period Ib. Image source. Author.

Locus 41 Artifact Distribution

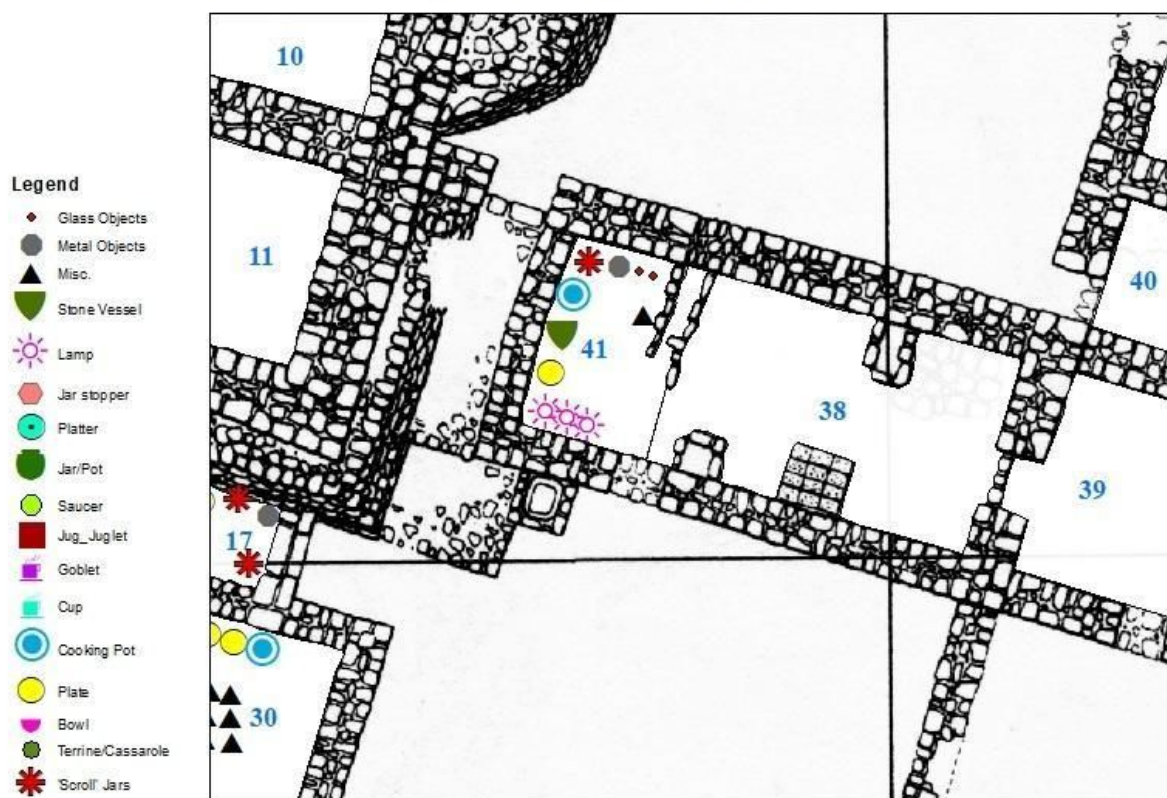


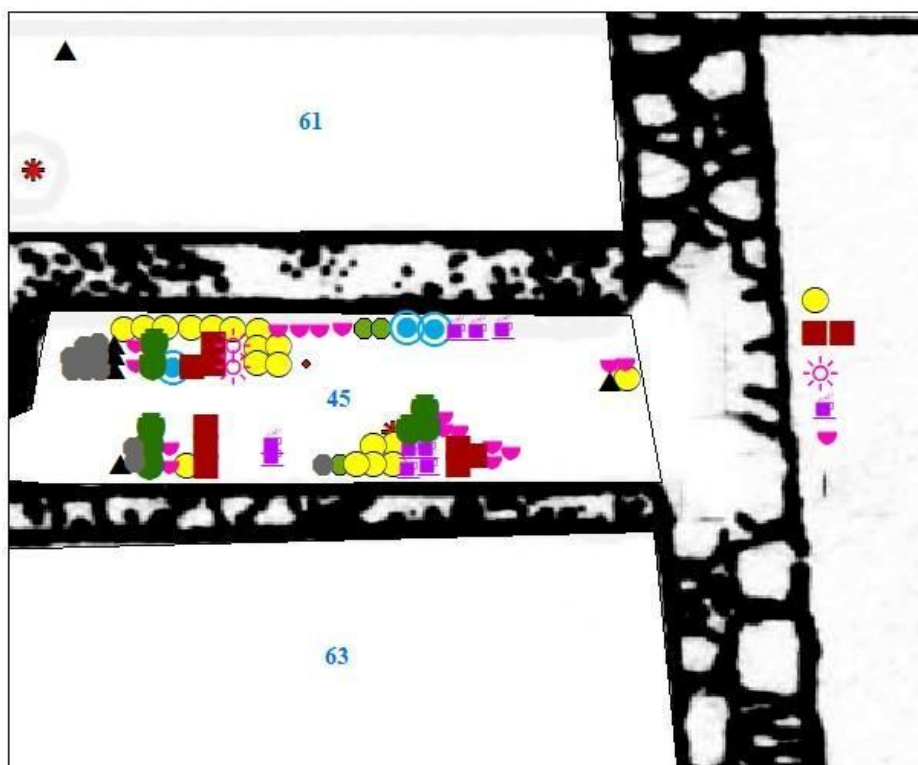
Figure 25. Locus 41 does not occur in Period Ib. Image source: author.



Figure 26. Image source: De Vaux, Roland. *The excavations of Khirbet Qumran and Ain Feshkha: synthesis of Roland de Vaux's field notes*. Edited by Alain Chambon and Jean-Baptiste Humbert. Translated by Stephen J. Pfann, Göttingen, Fribourg, 2003. "Figure III. Plan of Khirbet Qumran during Period III (H.-M. Couasnon o.p.)" page 10.

Locus 45 Artifact Distribution

Period Ib



Period II

Legend

- ◆ Glass Objects
- Metal Objects
- ▲ Miso.
- ▼ Stone Vessel
- ☼ Lamp
- ⬢ Jar stopper
- Platter
- Jar/Pot
- Saucer
- Jug/Juglet
- Goblet
- Cup
- Cooking Pot
- Plate
- Bowl
- Terrine/Cassarole
- ✱ Scroll Jars

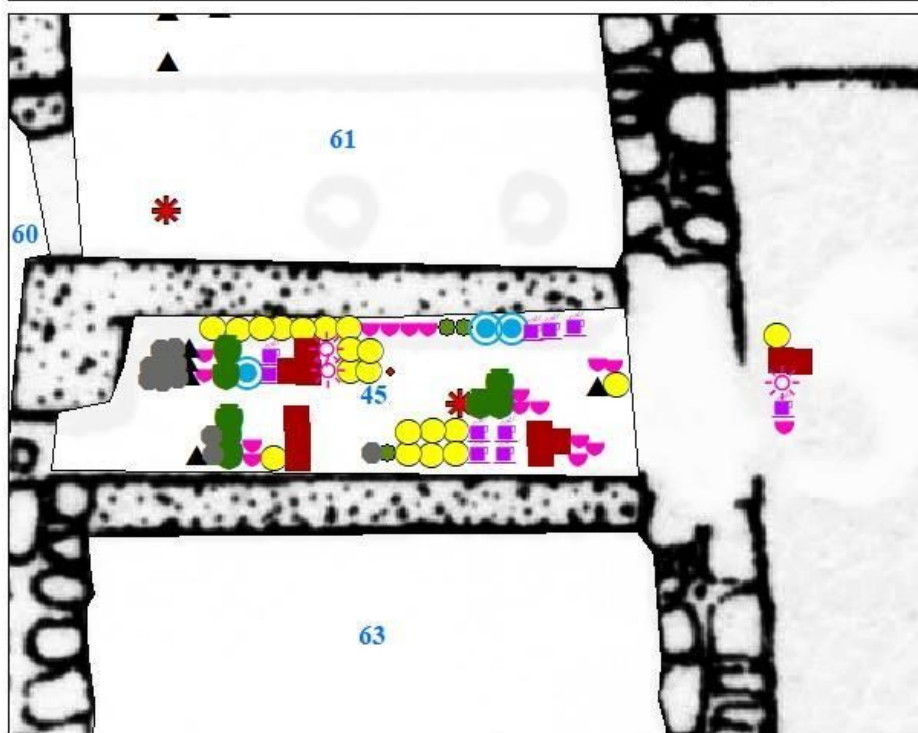


Figure 27. Locus 45 occurs in both Period Ib and II. Image source: author.

Locus 59 Artifact Distribution

Period Ib



Period II

Legend

- ◆ Glass Objects
- Metal Objects
- ▲ Miso
- Stone Vessel
- ☼ Lamp
- Jar stopper
- Platter
- Jar/Pot
- Saucer
- Jug_Juglet
- Goblet
- Cup
- Cooking Pot
- Plate
- Bowl
- Terrine/Cassarole
- ✱ Scroll Jars

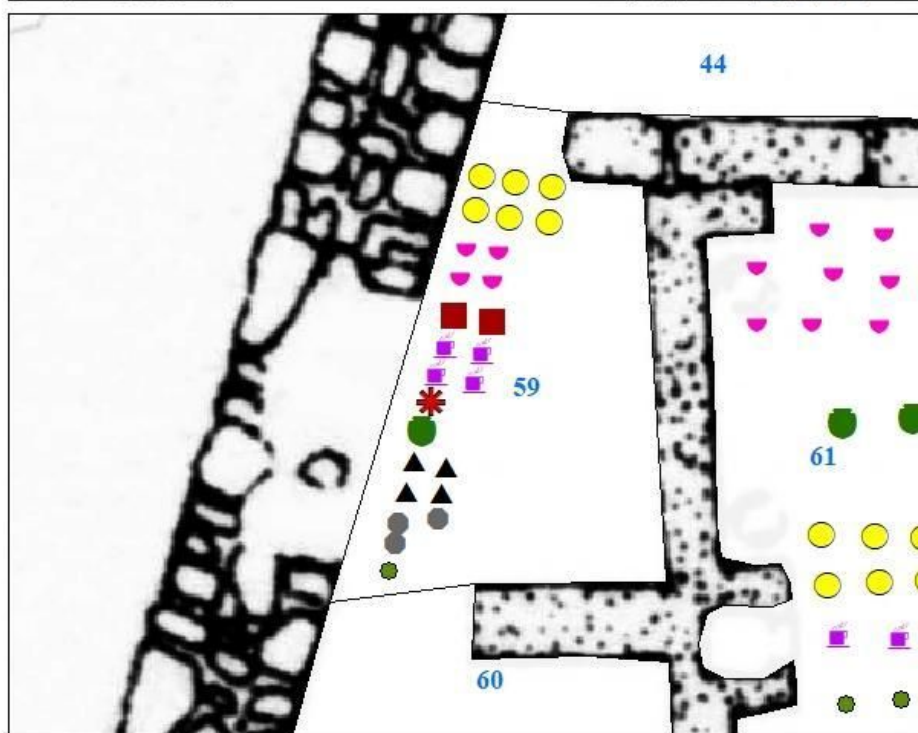
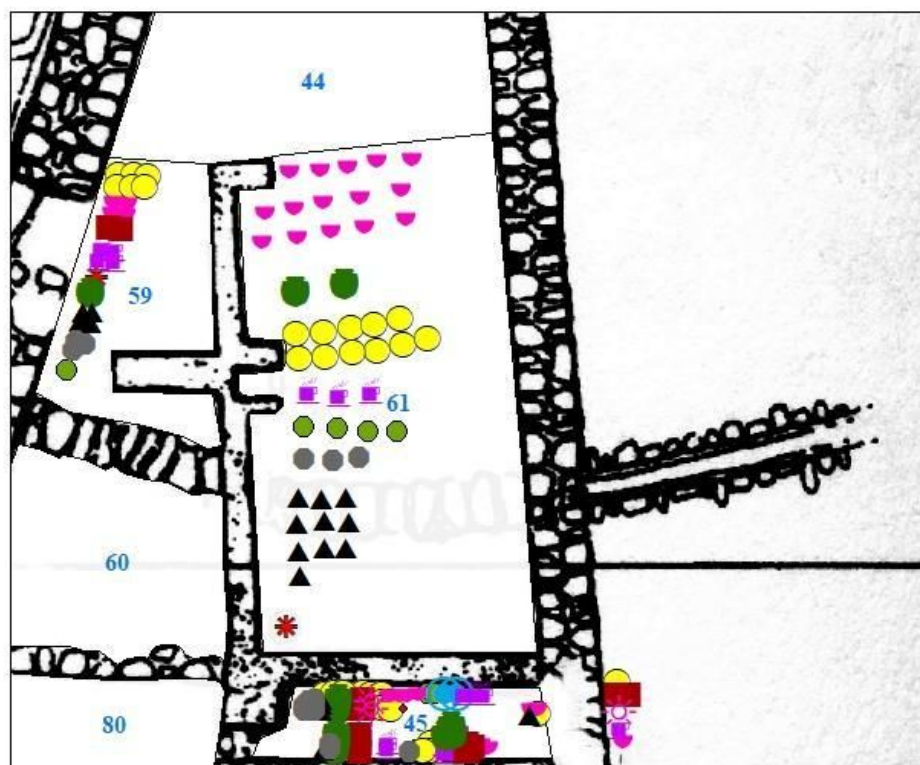


Figure 28. Locus 59 occurs in both Period Ib and II. Image source: author.

Locus 61 Artifact Distribution

Period Ib



Period II

Legend

- ◆ Glass Objects
- Metal Objects
- ▲ Miso
- ▼ Stone Vessel
- ☼ Lamp
- ⬡ Jar stopper
- Platter
- Jar/Pot
- Saucer
- Jug/Juglet
- Goblet
- Cup
- Cooking Pot
- Plate
- Bowl
- Terrine/Cassarole
- ✱ Scroll Jars

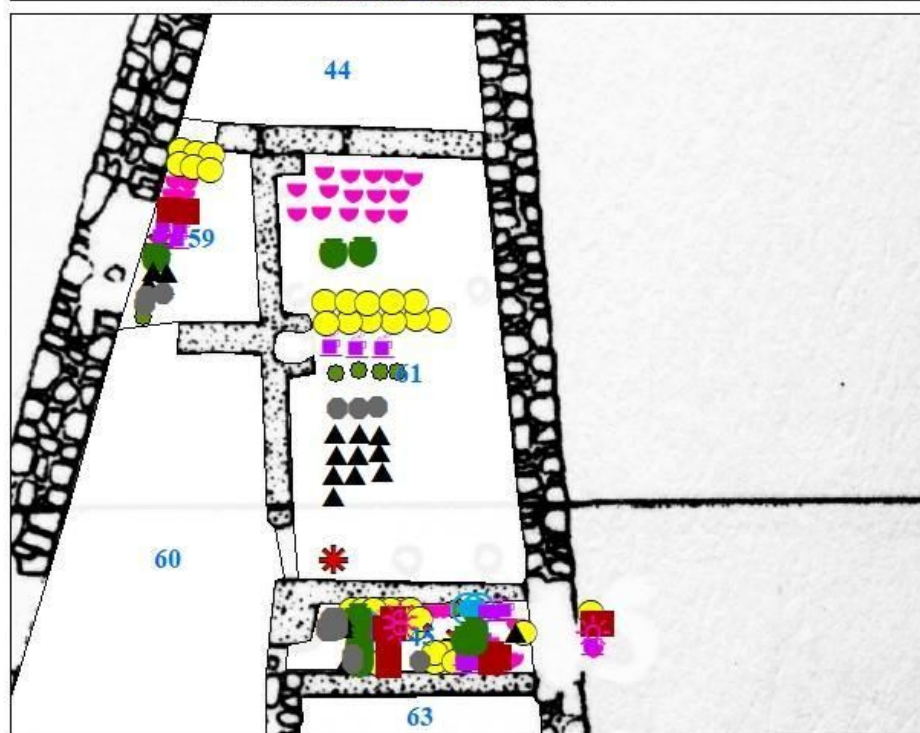
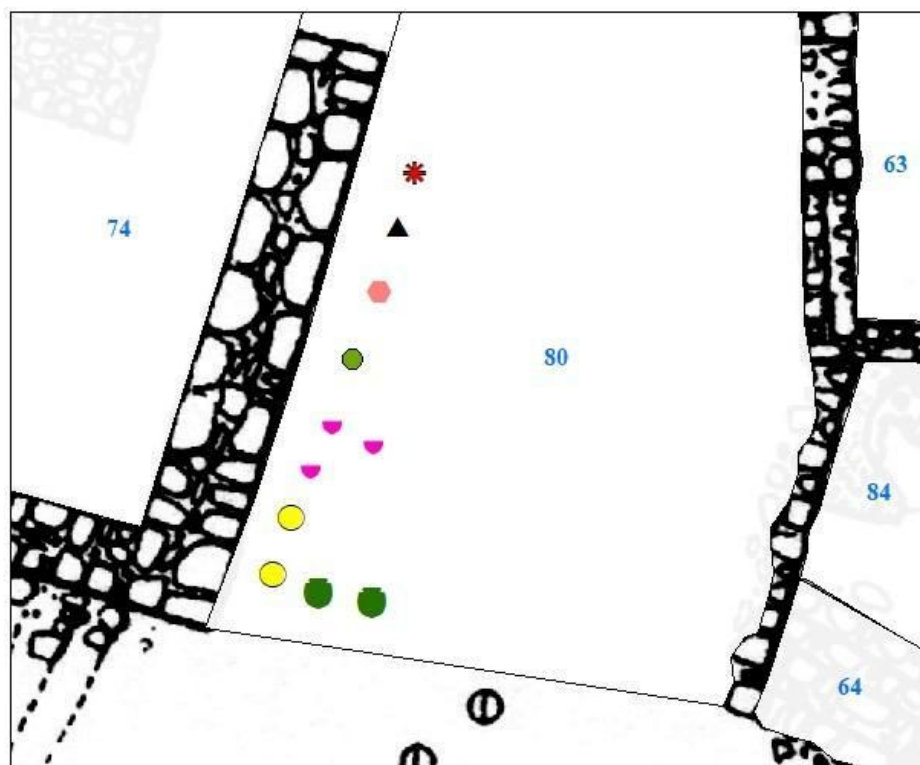


Figure 29. Locus 61 occurs in both Period Ib and II. Image source: author.

Locus 80 Artifact Distribution

Period Ib



Period II

Legend

- ◆ Glass Objects
- Metal Objects
- ▲ Miso.
- Stone Vessel
- ☼ Lamp
- ⬡ Jar stopper
- Platter
- Jar/Pot
- Saucer
- Jug/Juglet
- Goblet
- Cup
- Cooking Pot
- Plate
- Bowl
- Terrine/Cassarole
- ✱ Scroll Jars

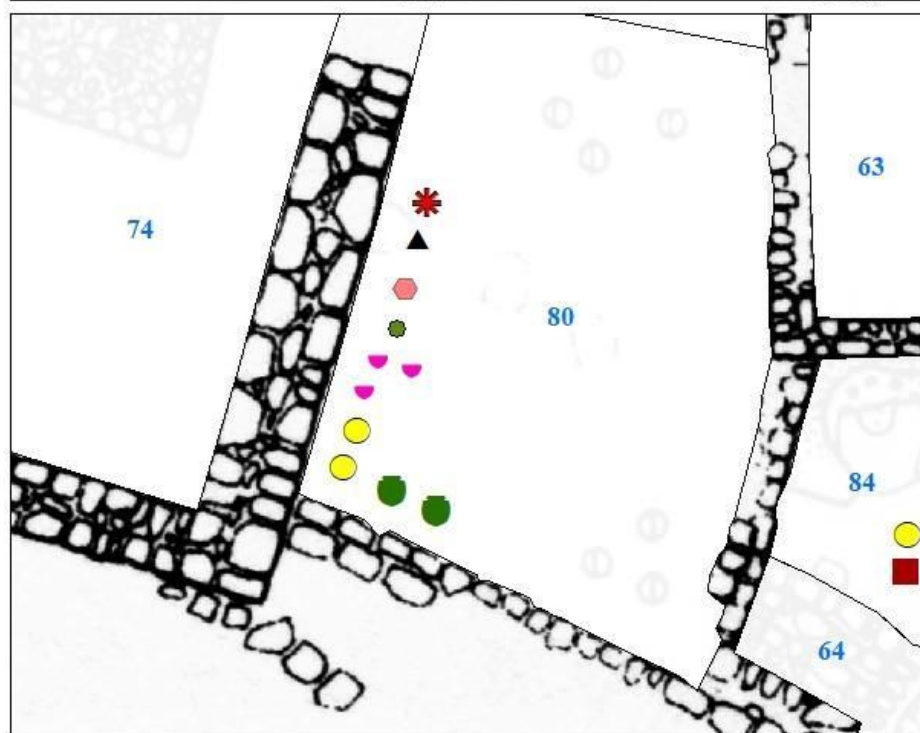
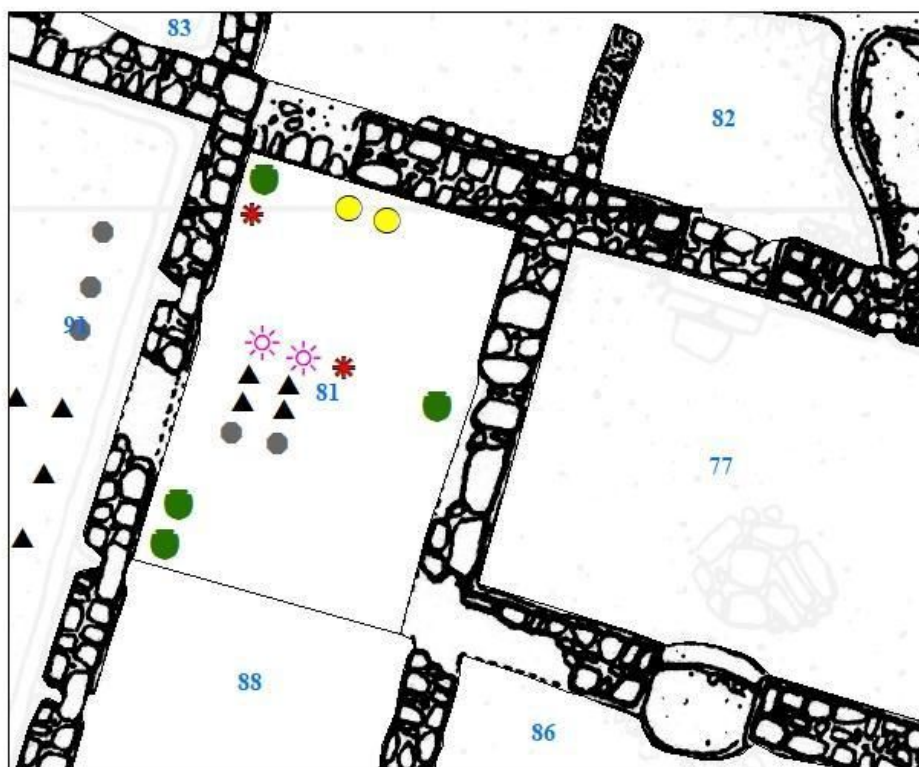


Figure 30. Locus 80 occurs in both Period Ib and II. Image source: author.

Locus 81 Artifact Distribution

Period Ib



Period II

Legend

- ◆ Glass Objects
- Metal Objects
- ▲ Miso.
- Stone Vessel
- ☼ Lamp
- Jar stopper
- Platter
- Jar/Pot
- Saucer
- Jug/Juglet
- Goblet
- Cup
- Cooking Pot
- Plate
- Bowl
- Terrine/Cassarole
- ✱ Scroll Jars

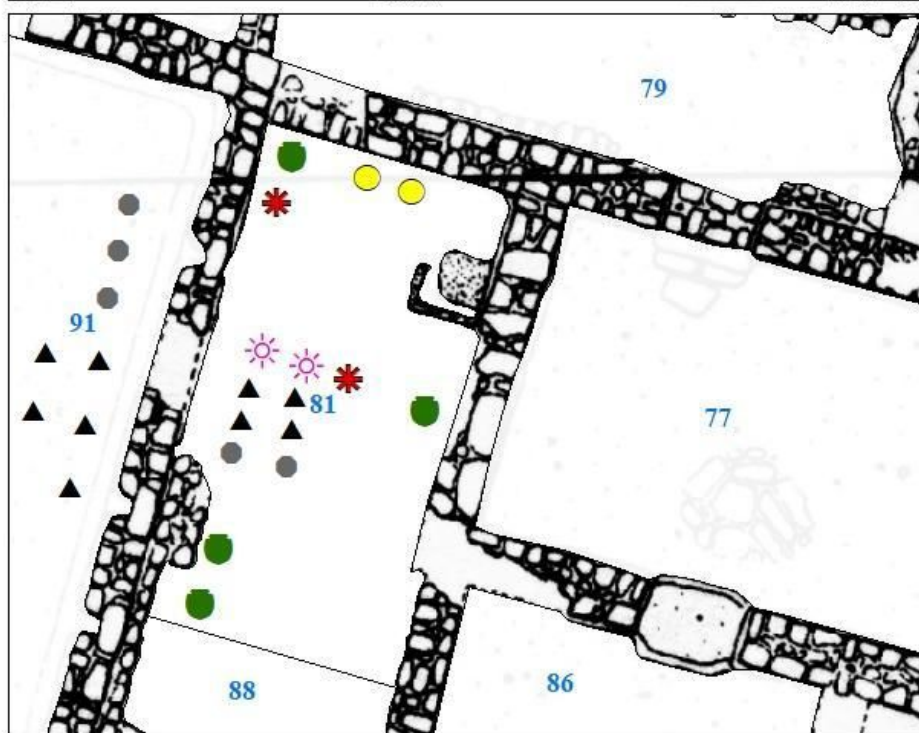
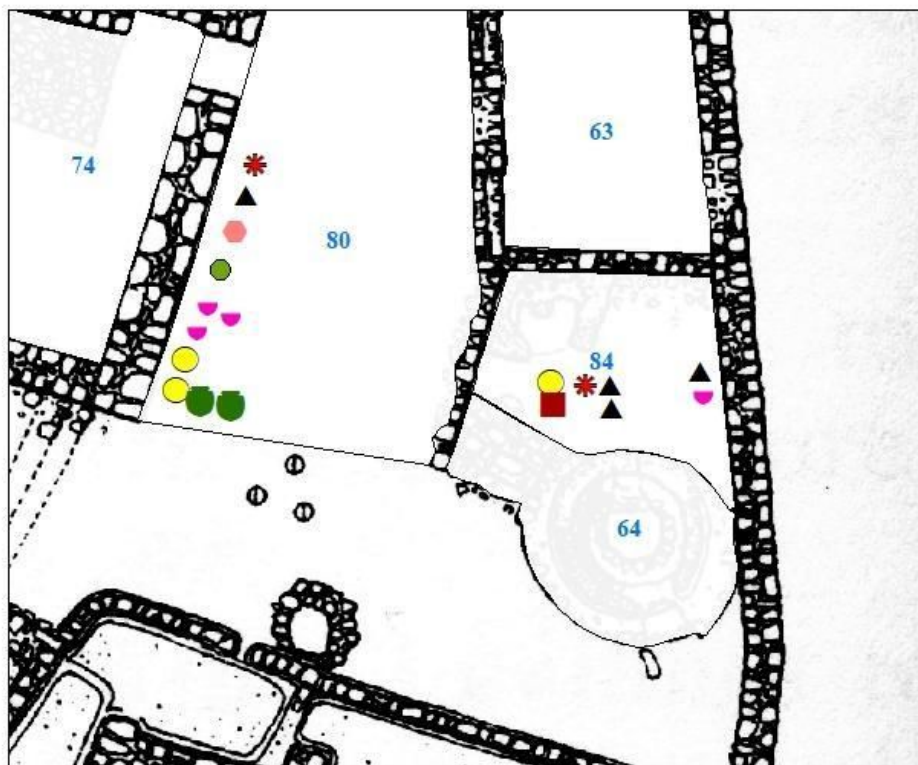


Figure 31. Locus 81 is present in both Period Ib and II. Image source: author.

Locus 84 Artifact Distribution

Period Ib



Period II

Legend

- ◆ Glass Objects
- Metal Objects
- ▲ Miso
- ▼ Stone Vessel
- ☼ Lamp
- ⬡ Jar stopper
- ⬢ Platter
- Jar/Pot
- Saucer
- Jug/Juglet
- Goblet
- Cup
- Cooking Pot
- Plate
- Bowl
- Terrine/Cassarole
- ✱ Scroll Jars

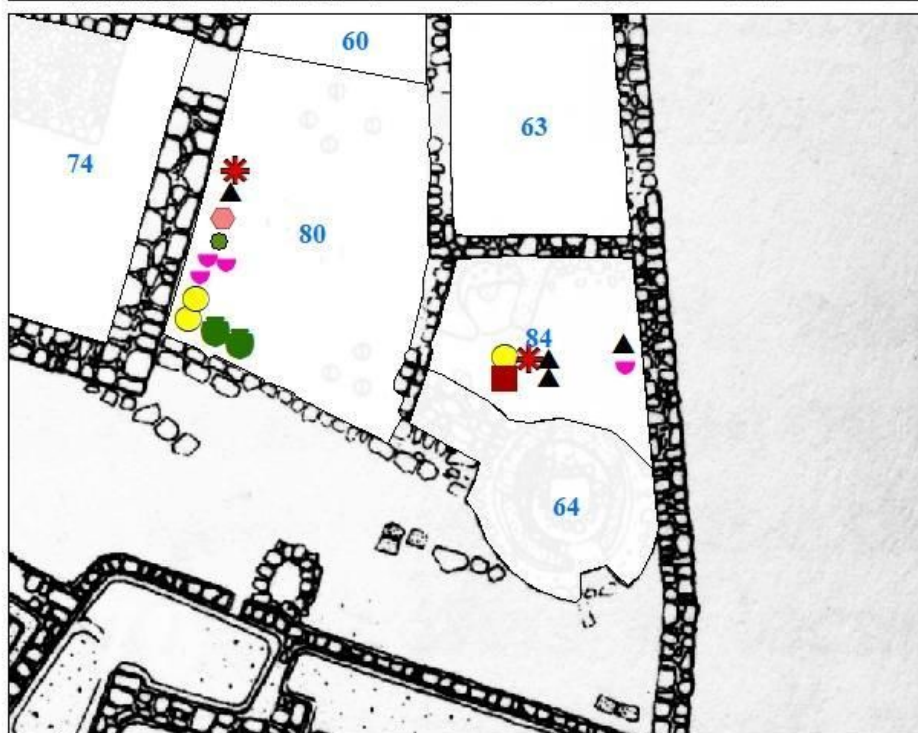
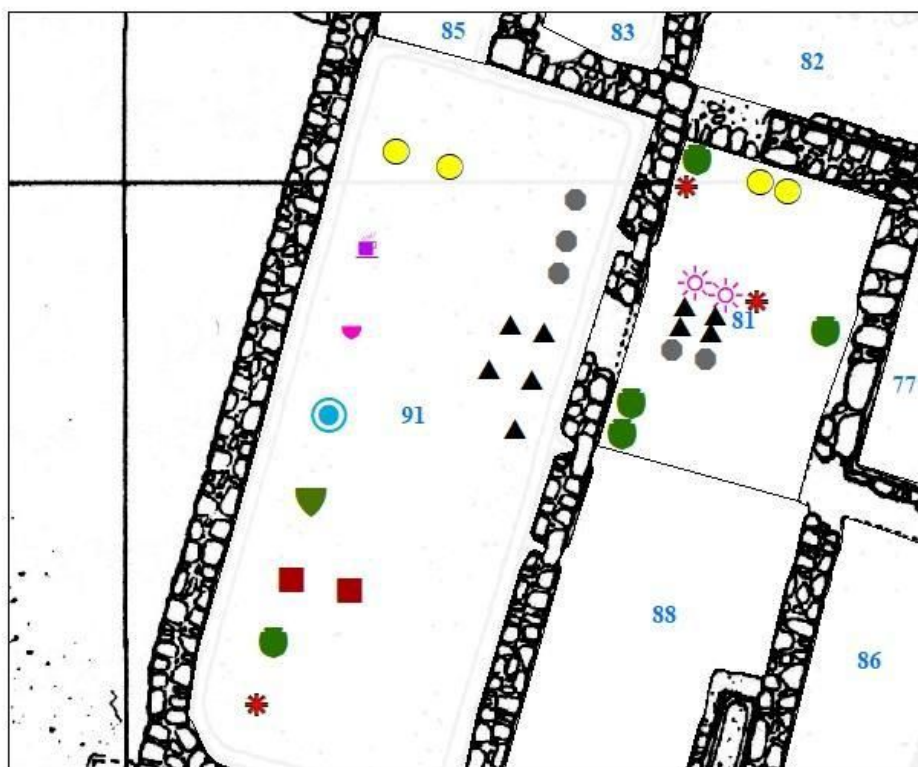


Figure 32. Locus 84 is present in both Period Ib and II. Image source: author.

Locus 91 Artifact Distribution

Period Ib



Period II

Legend

- ◆ Glass Objects
- Metal Objects
- ▲ Miso.
- ▼ Stone Vessel
- ☼ Lamp
- Jar stopper
- Platter
- Jar/Pot
- Saucer
- Jug_Juglet
- Goblet
- Cup
- Cooking Pot
- Plate
- Bowl
- Terrine/Cassarole
- ✱ Scroll Jars

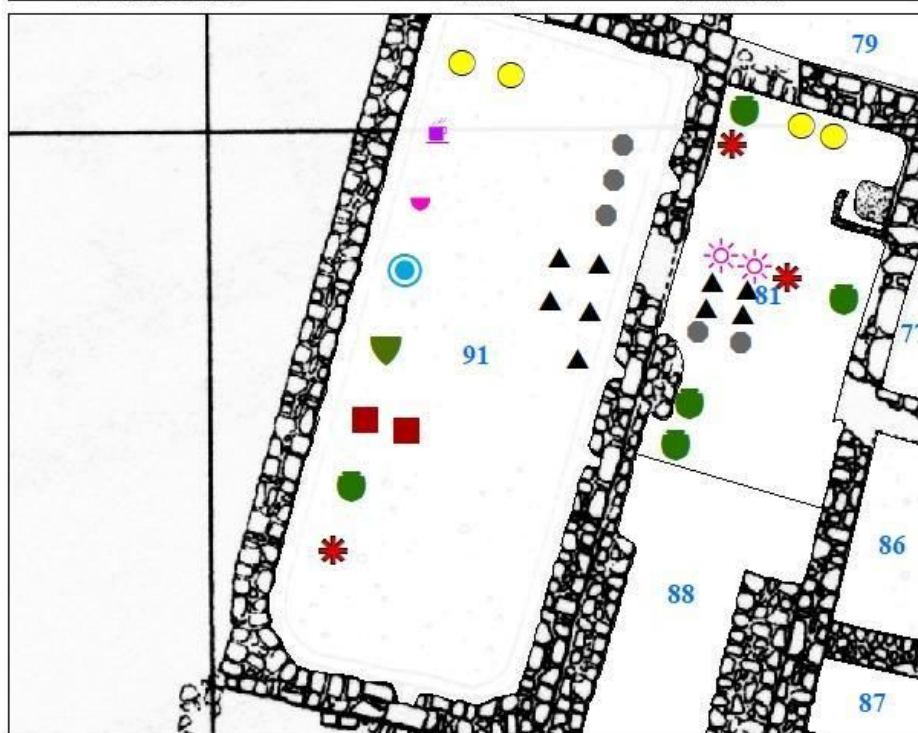
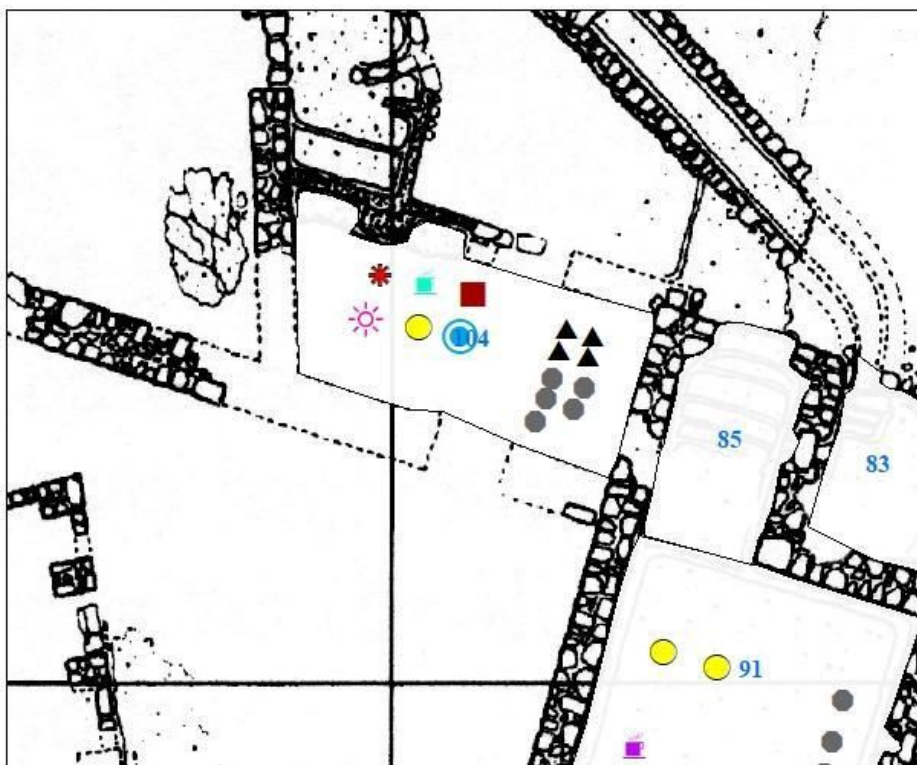


Figure 33. Locus 91 is present in both Period Ib and II. Image source: author.

Locus 104 Artifact Distribution

Period Ib



Period II

Legend

- ◆ Glass Objects
- Metal Objects
- ▲ Miso
- ▼ Stone Vessel
- ☀ Lamp
- ◊ Jar stopper
- Platter
- Jar/Pot
- Saucer
- Jug/Juglet
- Goblet
- Cup
- Cooking Pot
- Plate
- Bowl
- Terrine/Cassarole
- ✱ Scroll Jars

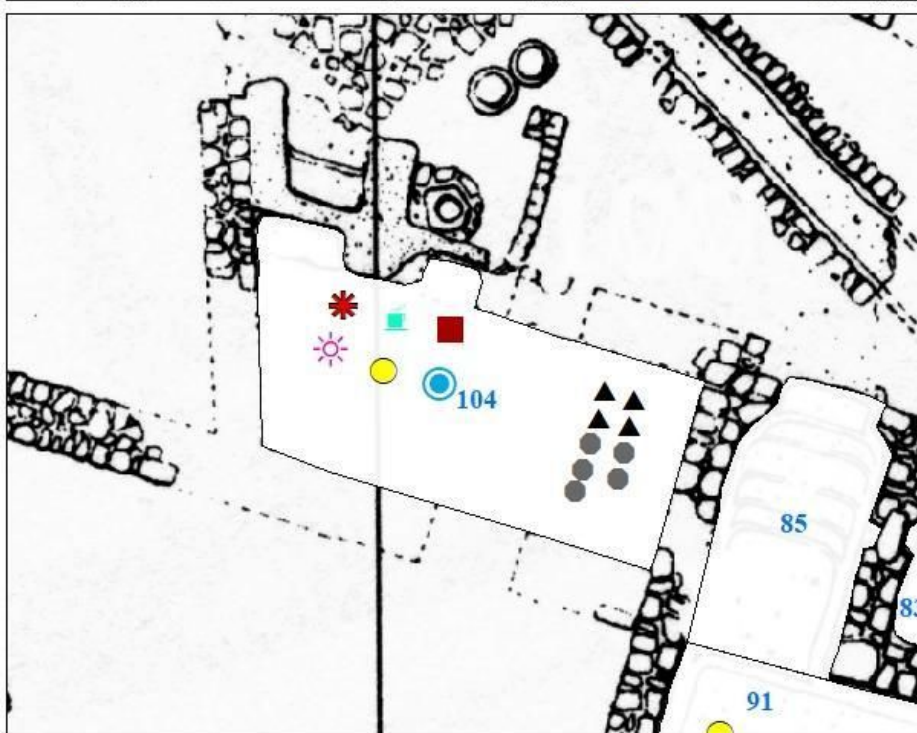
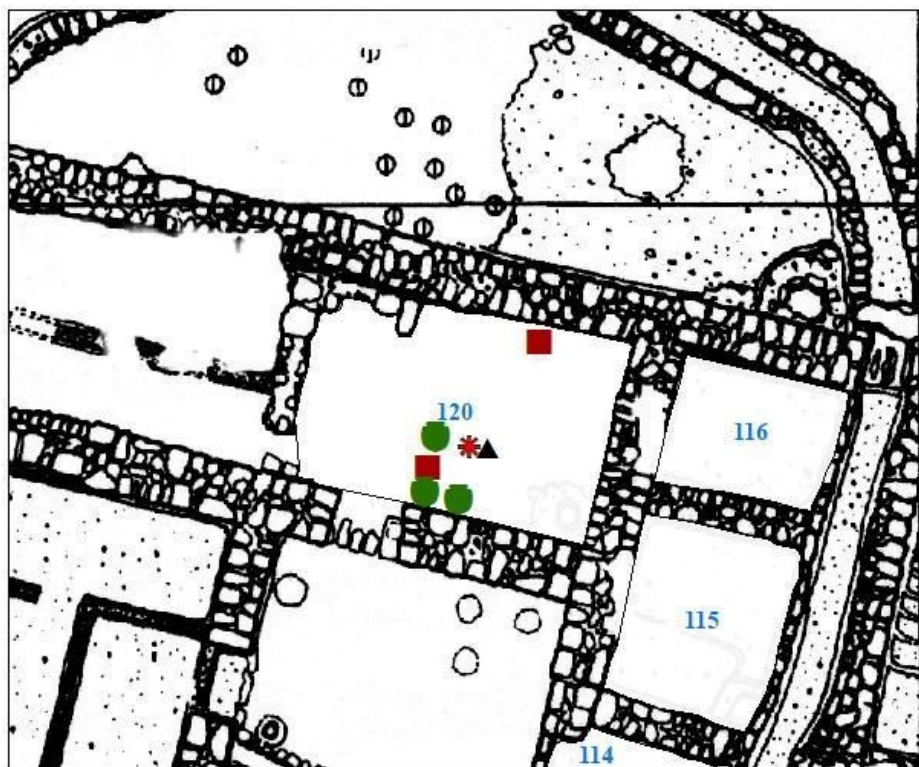


Figure 34. Locus 104 occurred in both Period Ib and II. Image source: author.

Locus 120 Artifact Distribution

Period Ib



Period II

Legend

- ◆ Glass Objects
- Metal Objects
- ▲ Miso.
- ▼ Stone Vessel
- ☼ Lamp
- ◊ Jar stopper
- Platter
- Jar/Pot
- Saucer
- Jug/Juglet
- Goblet
- Cup
- Cooking Pot
- Plate
- Bowl
- Terrine/Cassarole
- ✱ Scroll Jars

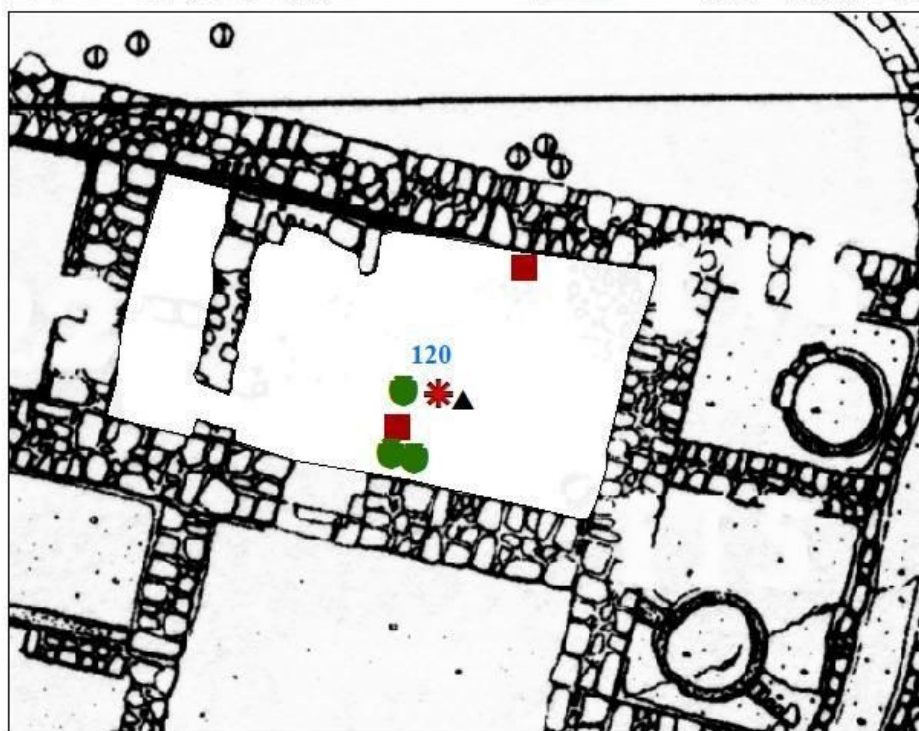
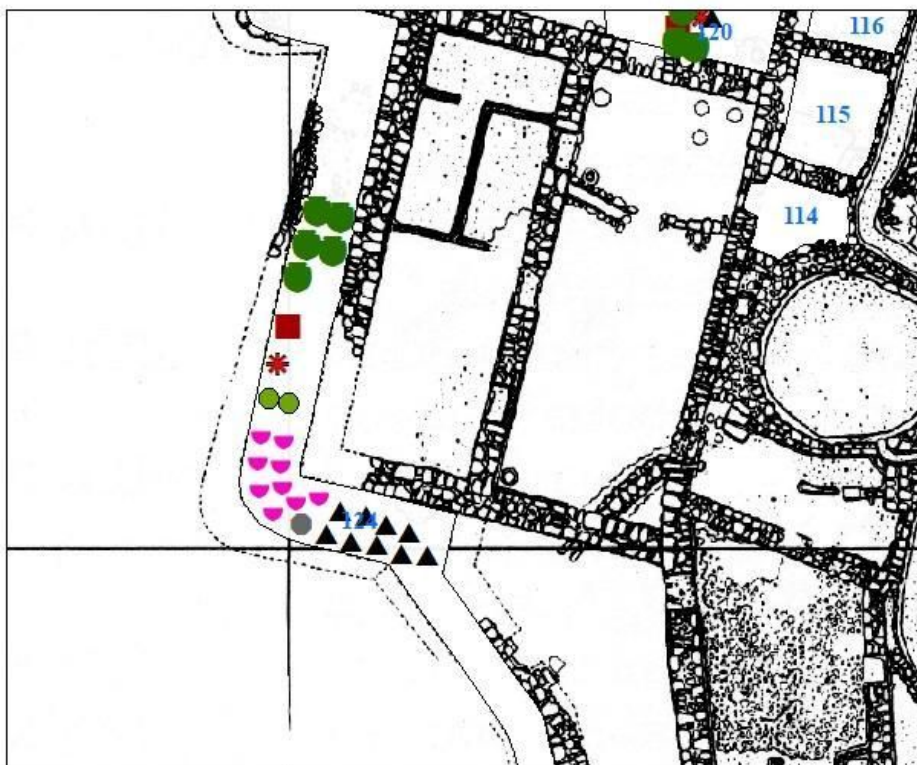


Figure 35. Image source: author.

Locus 124 Artifact Distribution

Period Ib



Period II

Legend

-  Glass Objects
-  Metal Objects
-  Misc.
-  Stone Vessel
-  Lamp
-  Jar stopper
-  Platter
-  Jar/Pot
-  Saucer
-  Jug/Juglet
-  Goblet
-  Cup
-  Cooking Pot
-  Plate
-  Bowl
-  Terrine/Casseroles
-  Scroll Jars



Figure 36. Image source: author.

Bibliography

Allen, Kathleen M., Stanton W. Green, and Ezra B. W. Zubrow. *Interpreting space: GIS and archaeology*. London: Taylor & Francis, 1990.

Arnold, Dean E. *Ceramic Theory and Cultural Process*. Cambridge University Press, 1985.

Arnold, Dean E., Hector Neff, and Ronald L. Bishop. "Compositional Analysis and "Sources" of Pottery: An Ethnoarcheological Approach." *American Anthropologist* 93, no. 1 (March 1991): 70-90.

Atkinson, and Magness. "Josephus's Essenes and the Qumran Community." *Journal of Biblical Literature* 129, no. 2 (2010): 317-342.

Bar-Nathan, Rachel. "Qumran and the Hasmonaeon and Herodian Winter Palaces of Jericho: The Implication of the Pottery Finds for the Interpretation of the Settlement at Qumran." In *Qumran - the Site of the Dead Sea Scrolls: Archaeological Interpretations and Debates: Proceedings of the Conference Held at Brown University, November 17-19, 2002*, 263-78. Leiden: Brill, 2006.

Beall, Todd S. *Josephus description of the Essenes illustrated by the Dead Sea scrolls*. Cambridge: Cambridge University Press, 1988.

Berlin, Andrea. *Gamla I: The Pottery of the Second Temple Period: The Shmarya Gutmann Excavations, 1976-1989*. Jerusalem: Israel Antiquities Authority, 2006.

Branham, Joan. "Hedging the Holy at Qumran: Walls as Symbolic Device." In *The Site of the Dead Sea Scrolls: Archaeological Interpretations and Debates, Proceedings of a Conference held at Brown University, November 17-19, 2002*, 117-31. Vol. 57. Boston: Brill, 2006.

Broshi, Magen, and Hanan Eshel. "Residential Caves At Qumran." *Dead Sea Discoveries*, vol. 6, no. 3, Jan. 1999, pp. 328-348.

Cahill, Nicholas. "Olynthus and Greek Town Planning." *The Classical World* 93, no. 5 (2000): 497-515.

----. *Household and city organization at Olynthus*. New Haven, Yale University Press, 2002.

Clément, Paul. "The american excavations at Olynthus." *L'antiquité classique* 4, no. 1 (May 1935): 193-98.

Cross, Frank M., Jr., and J. T. Milik. "Explorations in the Judaeen Buqe'ah." *Bulletin of the American Schools of Oriental Research*, no. 142 (April 1956): 5-17.

Davies, Philip R. *Qumran. Cities of the Biblical World*: Guildford, Lutterworth, 1982.

De Vaux, Roland. *Archaeology and the Dead Sea scrolls*. Oxford, Publ. for the British Academy by Oxford University Press, 1973.

----. *The excavations of Khirbet Qumran and Ain Feshkha: synthesis of Roland de Vaux's field notes*. Edited by Alain Chambon and Jean-Baptiste Humbert. Translated by Stephen J. Pfann, Göttingen, Fribourg, 2003.

Donceel, Robert, and Pauline Donceel-Voûte. "The Archaeology of Khirbet Qumran." *Annals of the New York Academy of Sciences* 722, no. 1 (1994): 1-38.

Donceel-Voute, Pauline. "Les Ruines de Qumran Reintrepretees." *Archeologia* 298 (1994): 24-35.

Doudna, Gregory L. "The Legacy of an Error in Archaeological Interpretation." In *Qumran - the site of the Dead Sea scrolls: archaeological interpretations and debates: proceedings of the conference held at Brown University, November 17-19, 2002*, 147-57. Vol. 57. Boston: Brill, 2006.

Geva, Hillel. "Excavations in the Citadel of Jerusalem, 1979–1980: Preliminary Report." *Israel Exploration Journal*, vol. 33, 1983, pp. 55–71. 1/2.

Goren, Yuval. "The Southern Levant in the Early Bronze Age IV: The Petrographic Perspective." *Bulletin of the American Schools of Oriental Research*, no. 303 (1996): 33-72.

----. "The Location of Specialized Copper Production by the Lost Wax Technique in the Chalcolithic Southern Levant." *Geoarchaeology* 23, no. 3 (2008): 374-97.

Goren, Yuval, and Peter Fabian. "The Oboda Potters Workshop Reconsidered." *Journal of Roman Archaeology* 21 (2008): 340-51.

Gunneweg, Jan, and Marta Balla. "Neutron Activation Analysis Scroll Jars and Common Ware." In *Khirbet Qumrân Et De Aïn Feshkha II: Etude D'anthropologie, De Physique Et De Chimie*. Academic Press Fribourg / Editions Saint-Paul Fribourg Suisse, 2003.

----. "Was the Qumran Settlement a Mere Pottery Production Center? What Instrumental Neutron Activation Revealed." *Holistic Qumran: Trans-Disciplinary Research of Qumran and the Dead Sea Scrolls*, Leiden, Boston, MA, 2010, pp. 39–61.

Hally, David J. "The Identification of Vessel Function: A Case Study from Northwest Georgia." *American Antiquity*, vol. 51, no. 02, 1986, pp. 267–295.

Hidiroglou, Patricia, and Claude Grenache. "Aqueducts, Basins, and Cisterns: The Water Systems at Qumran." *Near Eastern Archaeology* 63, no. 3 (2000): 138-139.

Hietala, Harold J., and Paul A. Larson. *Intrasite spatial analysis in archaeology*. Cambridge: Cambridge University Press, 1984.

Hirschfeld, Yizhar. "Early Roman Manor Houses in Judea and the Site of Khirbet Qumran." *Journal of Near Eastern Studies* 57, no. 3 (1998): 161-89.

Humbert, Jean-Baptiste. "Qumrân, une nouvelle hypothèse pour interpréter les ruines." *Le Monde de la Bible* 86 (1994a): 12-21.

----. "L'espace Sacre a Qumran: propositions pour l'archeologie." *Revue Biblique* 101 (1994b): 160-214.

----. "Some Remarks on the Archaeology of Qumran." In *The Site of the Dead Sea Scrolls: Archaeological Interpretations and Debates, Proceedings of a Conference held at Brown University, November 17-19, 2002*, 19-39. Vol. 57. Boston: Brill, 2006.

Josephus, Flavius. *The Jewish War*. London: Penguin, 2003.

Kelso, J. L., and J. Palin Thorley. "Palestinian Pottery in Bible Times." *The Biblical Archaeologist* 8, no. 4 (1945): 81-93.

Kvamme, Kenneth L. "A Predictive Site Location Model on the High Plains: An Example with an Independent Test." *Plains Anthropologist* 37, no. 138 (1992): 19-40.

Lemaire, Andre. "Inscriptions Du Khirbeh, Des Groites Et De 'Ain Feshkha." In *Khirbet Qumrân Et De Aïn Feshkha II: Etude D'anthropologie, De Physique Et De Chimie*. Academic Press Fribourg / Editions Saint-Paul Fribourg Suisse, 2003.

Lapp, Paul W. *Palestinian Ceramic Chronology: 200B.C.-A.D. 70*. New Haven: American Schools of Oriental Research, 1961.

Lonnqvist, Kenneth, and Minna Lonnqvist. "Parallels to be Seen: Manuscripts in Jars From Qumran and Egypt." *The Dead Sea Scrolls in Context: Integrating the Dead Sea Scrolls in the Study of Ancient Texts, Languages, and Cultures* 2 (2011): 471-87.

Magen, Yitzhak, and Yuval Peleg. "Back to Qumran: 10 Years of Excavations and Research, 1993-2004." In *The Site of the Dead Sea Scrolls: Archaeological Interpretations and Debates, Proceedings of a Conference held at Brown University, November 17-19, 2002*, 55-113. Vol. 57. Boston: Brill, 2006.

Magness, Jodi. "The Community at Qumran in Light of Its Pottery." *Annals of the New York Academy of Sciences*, vol. 722, no. 1, 1994, pp. 39-50.

----. "The Chronology of the Settlement At Qumran in the Herodian Period." *Dead Sea Discoveries* 2, no. 1 (1995): 58-65.

----. "Two Notes on the Archaeology of Qumran." *Bulletin of the American Schools of Oriental Research*, no. 312 (1998): 37-44.

----. "Why Scroll Jars?" In *Religion and Society in Roman Palestine Old Questions, New Approaches*, 146-62. London: Routledge, 2004.

----. "Was Qumran a Fort in the Hasmonean Period?" *Journal of Jewish Studies* 64, no. 2 (2013): 228-41.

----. *The Archaeology of Qumran and the Dead Sea scrolls*. Grand Rapids, Mich, Eerdmans, 2015.

----. "Were Sacrifices Offered at Qumran?" *Journal of Ancient Judaism* 7, no. 1 (2016): 5-34.

Matson, Frederick R. *Ceramics and Man*. Aldine Pub. Co., 1965.

Michniewicz, Jacek. *Qumran and Jericho pottery: a petrographic and chemical provenance*

- study*. Wydawn. Nauk. UAM, 2009.
- Milik, J. T. "Le Giarre dei Manoscritti della Grotta del Mar Morto e dell'Egitto Tolemaico." *Biblica* 31, no. 4 (1950): 504-08.
- . *Ten Years of Discovery in the Wilderness of Judaea*. London: SCM Press, 1959.
- Mizzi, Dennis. "The Glass From Khirbet Qumran: What Does It Tell Us About The Qumran Community?" *The Dead Sea Scrolls: Text and Context* 90 (2010): 99-198.
- . "60 Years of Qumran Archaeology." *Strata: Bulletin of the Anglo-Israel Archaeological Society*, vol. 29, 2011, pp. 31-50.
- . "Qumran Period I Reconsidered: An Evaluation of Several Competing Theories." *Dead Sea Discoveries*, vol. 22, no. 1, 2015, pp. 1-42.
- . "The Animal Bone Deposits at Qumran." *Journal of Ancient Judaism* 7, no. 1 (2016): 51-70.
- Mizzi, Dennis, and Jodi Magness. "Was Qumran Abandoned at the End of the First Century BCE?" *Journal of Biblical Literature* 135, no. 2 (2016): 301-20.
- Munday, Frederick C. "Middle Paleolithic Intersite Variability and its Relationship to Regional Patterning." In *Intrasite Spatial Analysis in Archaeology*, 32-43. Cambridge University Press, 1984.
- Netzer, Ehud, and Rachel Bar-Nathan. *Hasmonean and Herodian Palaces at Jericho: Vol 3: The Pottery*. Jerusalem: Israel Exploration Society, 2002.
- Nicklin, Keith. "The Location of Pottery Manufacture." *Man*, vol. 14, no. 3, 1979, pp. 436-458.
- Rice, Prudence M. "Recent Ceramic Analysis: 1. Function, Style, and Origins." *Journal of Archaeological Research* 4, no. 2 (June 1996a): 133-163.
- . "Recent Ceramic Analysis: 2. Composition, Production, and Theory." *Journal of Archaeological Research* 4, no. 3 (September 1996b): 165-202.
- Rye, O. S. "Keeping Your Temper Under Control: Materials and the Manufacture of Papuan

- Pottery.” *Archaeology & Physical Anthropology in Oceania*, vol. 11, no. 2, July 1976, pp. 106–137.
- Schofield, Alison. "An Altar in the Desert?" *Journal of Ancient Judaism* 7, no. 1 (2016): 123-35.
- Shepard, Anna O. *Ceramics for the Archaeologist*. Washington, D.C.: Carnegie Institution of Washington, 1980.
- Spataro, Michela. *Ceramics, cuisine and culture: the archaeology and science of kitchen pottery in the ancient Mediterranean world*. Oxford: Oxbow Books, 2015.
- Stacey, David. "Some Archaeological Observations On The Aqueducts Of Qumran." *Dead Sea Discoveries* 14, no. 2 (2007): 222-43.
- Taylor, Joan, Dennis Mizzi, and Marcello Fidanzio. "Revisiting Qumran Cave 1Q and Its Archaeological Assemblage." *Palestine Exploration Quarterly* 149, no. 2 (2017): 295-325.
- Taylor, Joan E. "Buried Manuscripts and Empty Tombs: The Qumran Genizah Theory Revisited." 'Go Out and Study the Land' (*Judges 18:2*) 148 (2011): 269-315.
- . "Khirbet Qumran in Period III." In *The Site of the Dead Sea Scrolls: Archaeological Interpretations and Debates, Proceedings of a Conference held at Brown University, November 17-19, 2002*. 133-146. Vol. 57. Boston: Brill, 2006.
- Tite, M. S. "Pottery Production, Distribution, and Consumption: The Contribution of the Physical Sciences." *Journal of Archaeological Method and Theory* 6, no. 3 (1999): 181-233.
- Vermes, Geza, and Martin D. Goodman. *The Essenes, according to classical sources*. Sheffield: JSOT Press, 1989.
- Vermès, Géza. *The Complete Dead Sea Scrolls in English*. New York: Penguin, 1997.
- Wescott, Konnie L., and R. Joe Brandon. *Practical Applications of GIS for Archaeologists: a predictive modeling toolkit*. London: Taylor & Francis, 2000.
- Wheatley, David, and Mark Gillings. *Spatial Technology and Archaeology The Archaeological*

Applications of GIS. London: CRC Press, 2013.

Yellin, Joseph, et al. "Pottery of Qumran and Ein Ghuweir: The First Chemical Exploration of Provenience." *Bulletin of the American Schools of Oriental Research*, no. 321, 2001, pp. 65–78.

Zias, Joe, James Tabor, and Stephanie Harter-Lailheugue. "Toilets at Qumran, the Essenes, and the Scrolls: New Anthropological Data and Old Theories." *Revue de Qumran* 22, no. 88 (December 2006): 631-40.