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JERUSALEM, KHIRBAT KA'KUL (PISGAT ZE'EV H): EARLY ROMAN FARMSTEADS AND A MEDIEVAL VILLAGE

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INTRODUCTION

The continuing development of the Pisgat Ze'ev neighborhood of Jerusalem brought about further excavations in the area.[1] Khirbat Ka'kul (map ref. NIG 22370–90/63565–95; OIG 17370–90/13565–95; Figs. 1, 2) is a prominent hill on the eastern watershed of the Judean Hills, one kilometer west of 'Anata ('Anatot), 2 km southeast of Tell el-Ful (Giv'at Sha'ul) and 4.2 km northeast of the Damascus Gate in Jerusalem. It is situated between Wadi el-Khalaf to the south and Wadi 'Anata to the east. The site provides clear views to the east, over the Judean Desert into the Jordan Valley, and to the north, toward the Samarian Hills. The hill, which is still partially forested, has been utilized both for agriculture and quarrying, as evidenced by the terraces, winepresses, an olive press, cisterns, quarries and limekilns. The summit of the hill is covered with the remains of a substantial village, many of its walls still protruding above the surface.

The site has been noted and surveyed since the nineteenth century (Socin 1879:150; Conder and Kitchener 1883:117). The origin of the name Ka'kul is unclear, although it may allude to the limestone quarried at the site (Conder and Kitchener 1883:307; Albright 1924:138).[2] Following Dalman (1916:52–53), several scholars (Abel 1938:324–325; Simons 1959:321) identified the site with Gallim (1 Samuel 25:44). However, criticism by Albright (1936:23) and the lack of any First Temple period remains negate this identification and thus Gallim should be sought elsewhere.

An ancient road, known locally as *Shi'b Daghir* ('Road of the Blind'), passed at the base of the hill, west of Ka'kul (Federlin 1906:268–269; Dalman 1916:41–57; Albright 1924:140). This road, which was 5 m wide (Gibson and Edelstein 1985:150), led from Geb'a to the north–south watershed route from Jerusalem to Shekhem (Nablus). The point of juncture between the Road of the Blind and the watershed route was just south of the third Roman milestone from Jerusalem. These roads, Ka'kul itself and the other sites in the vicinity were surveyed in 1981 by Gibson as part of the

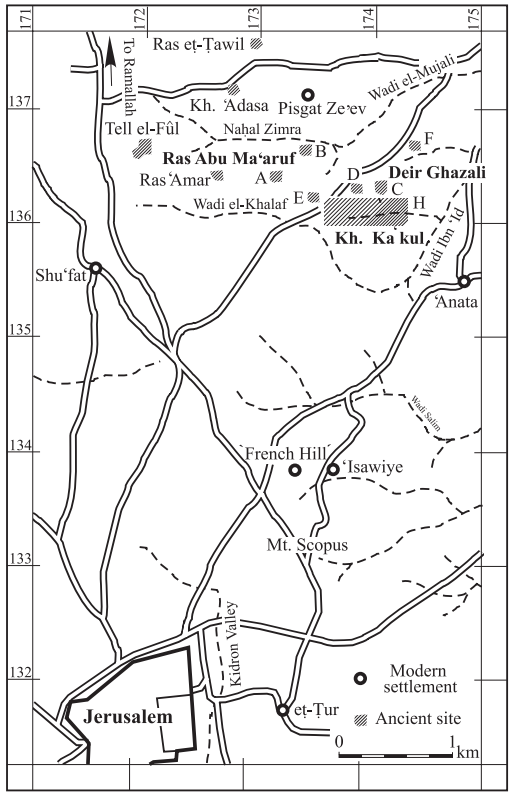


Fig. 1. Location map showing Kh. Ka'kul and other Pisgat Ze'ev sites.

Fig. 2. General view of Kh. Ka‘kul’s north side.

Jerusalem survey (Gibson and Edelstein 1985; Gibson 1995:239; Kloner 2001).

The major remains at the site were those of a medieval village, dating to the Crusader and Mamluk periods. Interestingly, in an area heavily documented in the twelfth and thirteenth centuries, no mention of a village at this site has been traced by the present author. Its absence from Crusader records and descriptions shows that it was, most probably, not occupied by Frankish settlers. Ka‘kul was, in all likelihood, an Arab village in an area heavily settled by a Crusader population (Prawer and Benvenisti 1960: Pl. 12/IX; Ellenblum 1995:504–507, Fig. 1). One reason for our inability to identify the site could be its name, which is possibly a later designation associated with the economic importance of the site as a quarry.

Ottoman records from the sixteenth century (Hutteroth and Abdulfatteh 1977) fail to mention Ka‘kul; this, we suggest, is due to the prior abandonment of the site as reflected in the material culture. Federlin (1906:269) describes the desertion of the site (translated by the author): “El-Haj ‘Abd er-Raḥman Abu Khader, the mukhtar of Shu‘fat, confirmed to me that he had a deed which went back a century and a half. This deed gave the ownership of a property situated south of Ka‘kul to a certain Lilah bint Ibrahim el-Qanuar of Ka‘kul....The mukhtar was able to deduce from the deed that the village of Ka‘kul was still inhabited for at least two centuries. According to the fellaḥin of Shu‘fat, the inhabitants of Ka‘kul emigrated toward the north, beside Nablus.”

Although the present annual rainfall is only 300–400 mm, the past agricultural wealth of this now semi-arid area is noted in a legend presented by Federlin (1906:269): “According to a legend well known in Shu‘fat, one of the last inhabitants of Ka‘kul, who left when he was very young, wanted to return to the village of his birth before dying. Mounted on an ass he was led by his grandson. When he arrived between Tell el-Ful and Som‘a (the hill south of Tell el-Ful), the old man, who had gone blind, crouched on the ass. ‘Why are you crouching?’ asked the grandson ‘So as not to damage the branches of the olives and other trees’. ‘But there aren’t any’, the child responded. The old man sighed and said, ‘In truth, my son, from here up until the village (Ka‘kul) all the ground was covered with olives and other trees’.” This agricultural abundance in the medieval period is also recorded in the fifteenth-century CE description of Francesco Suriano (1949:40), who mentions the adjacent village of ‘Anata (‘Anatot): “Leaving this city (Ramla) en route

for Jerusalem ... there is neither water to drink nor food for animals, but there are many wild trees, and carubs and woods, save in the valley of Anathot and Ramatha in which there are many vines and olive trees."

Quarrying in the area is mentioned by Robinson (Robinson and Smith 1867:438) in the mid-nineteenth century: "From the vicinity of Anata a favorite species of building stone is carried to Jerusalem; and we met several troops of donkeys loaded in this manner with materials of future dwellings; a hewn stone being slung upon each side of the poor animal. Larger stones are transported on camels." Some of the quarried stone could well have served as quicklime, which, combined with water, produced slaked lime, a major component of plaster and cement. The production of slaked lime, as represented by the kilns found at the site, was usually conducted close to where it was utilized, as transport of the dry quicklime blocks was much easier than that of the liquid slaked lime.

Excavation Strategy

In this salvage excavation we undertook to completely uncover the remains on and around the site of Khirbat Ka'kul (Plan 1). Prior to the excavation, an area of approximately 610 dunams, from Wadi el-Khalaf to the south, Wadi 'Anata to the east, the ancient road noted above to the west and the valley dividing the site from that of Deir Ghazali to the north, was surveyed. This formed the limits of the permit, but also represented the immediate geographical hinterland of Kh. Ka'kul. During the survey a number of tombs, agricultural installations and limekilns were recorded and subsequently excavated.

As many walls were visible on the summit of the hill, they were plotted and three areas were selected for excavation (A, B1, B2); they revealed medieval remains. It soon became evident that substantial remains existed at the site, and with the decision to conserve it, work was concentrated on defining its limits. This was achieved by a series of 2.5 × 2.5 m squares excavated at 30–40 m intervals around the visible remains. Their sterility then set the boundary of the site.

On the northern slope and on the western saddle were further remains that prompted investigation. These proved to be the remains of a Hellenistic- to Early Roman-period settlement, which was also divided into three areas (D, E, G).

Area C, located east of the summit of the hill, yielded several tombs and installations.

THE EARLY ROMAN (SECOND TEMPLE) PERIOD

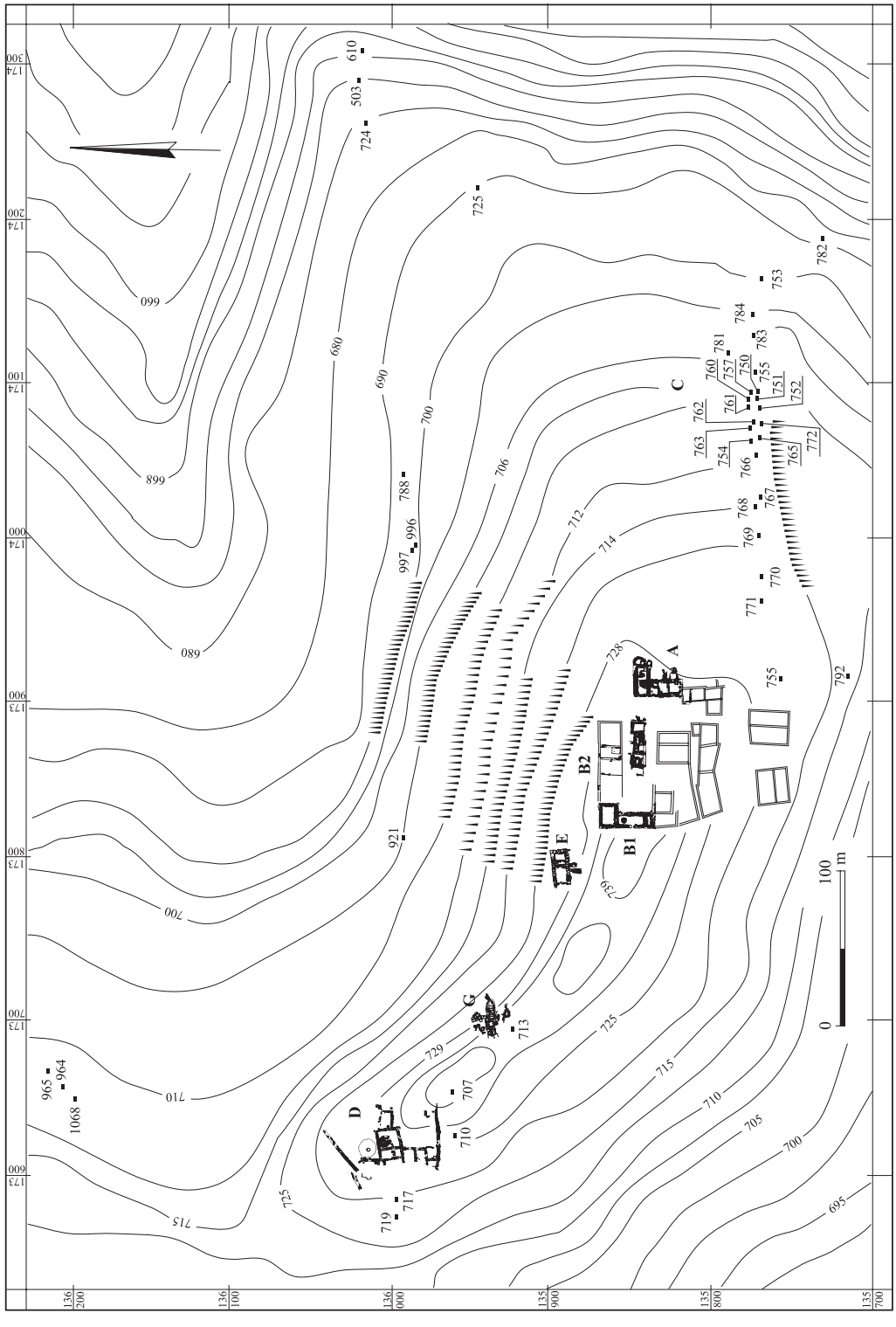
The most noteworthy remains from this period on the hill's summit are two *miqwa'ot* (ritual baths) in Area A and a columbarium in Area B1. A number of structures from this period were uncovered on the northern slope (Area E) and on the western saddle (Areas D and G).

The Architectural Remains

Area A

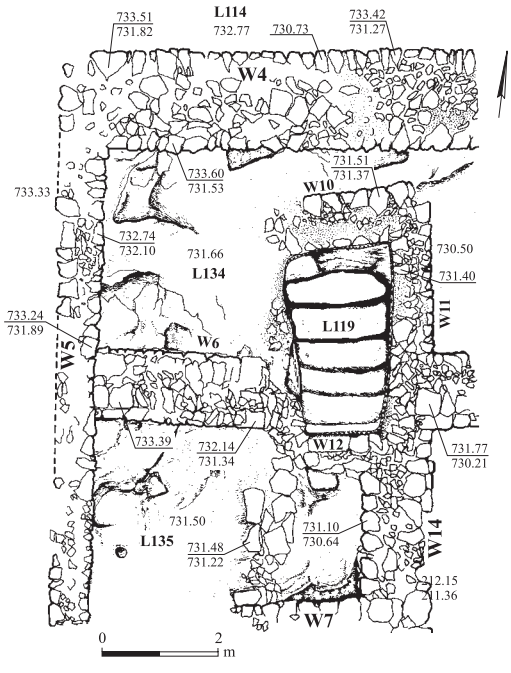
Cut below the floor of the Mamluk Room 134 (Plan 2) in the north of the area was a rock-hewn stepped pool (L119; Fig. 3; max. diam. 2.8 × 4.0 m, depth 2.52 m). Seven steps descended to the north, the two lowest ones wider than the others. The last step is deeper than those above; a supplementary step on its eastern edge allowed easy access to the bottom. The uppermost step was located south of W12, within L135. This wall was part of the later construction, built upon the second step of the pool. Two clear layers of plaster were evident, the lower one probably dating to the original quarrying and found only on the bottom part of the pool. The upper layer covered the entire installation. The plaster was dark gray and composed of ash, charcoal, gravel and slaked lime.

Interpretation and subsequent dating of the pool was impaired by the Mamluk pottery found in it. The nature of the construction, with the steps and the deeper, lower section, enabled us to suggest that it was originally a *miqwe* (ritual bath)—thus of the Herodian period. The plaster used to seal the walls was also typical of



Plan 1. Khirbat Ka'kul site plan—location of excavation areas, installations and surface walls.

that period (Porat 1989:74; Reich 1990:53–54). Similar contemporary *miqwa'ot* were found in Areas B2 and G and at other sites to the north of Jerusalem, Pisgat Ze'ev F (Shukron and Savariego 1993:52), three *miqwa'ot* at Ras Abu Ma'aruf (Seligman 1993b; 1999:140–141, 148–152, 161–162), 'Isawiya (Reich 1984), Qalandiya (Magen 1984:64) and Shu'faṭ (Onn and Rapuano1993:61).[3]



Plan 2. Area A, Second-Temple-period *miqwe.*

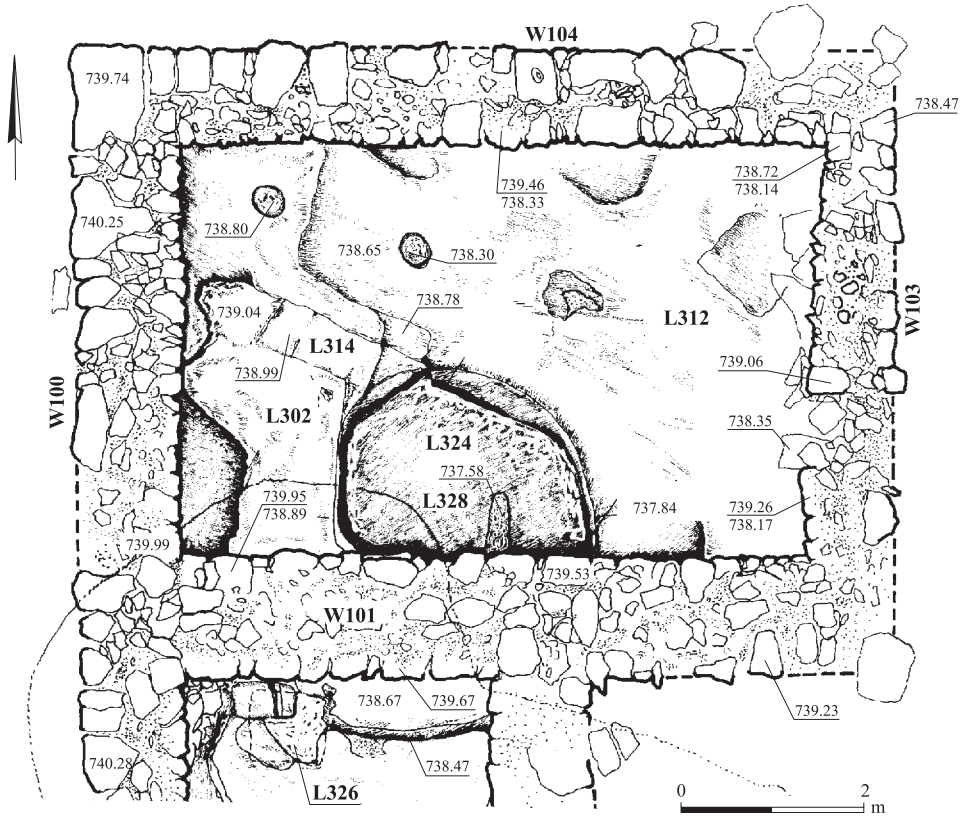
The extent of the construction from this period in Area A is unclear as later levels were built directly on bedrock after the removal of earlier remains.

Area B1

Various installations had been cut into the rock surface in this area prior to the construction of the Mamluk buildings. I suggest that these rock cuttings should be dated to the late Hellenistic period.

The rock surface inside the later Room 312 had been leveled (Plan 3) and a number of installations were cut into it. Two cupmarks (0.2 and 0.25 m deep) were in the northwestern section of the room. To their south were two steps (L314), descending to a lower surface. On its southern side was a semicircular shaft (L324; depth 1.2 m; Fig. 4); a channel (L328) at its bottom ran southward under W101. The use of both shaft and channel is unclear. The

Fig. 3. Area A. General view of area, looking south; in foreground, Room 134 and Pool 119.

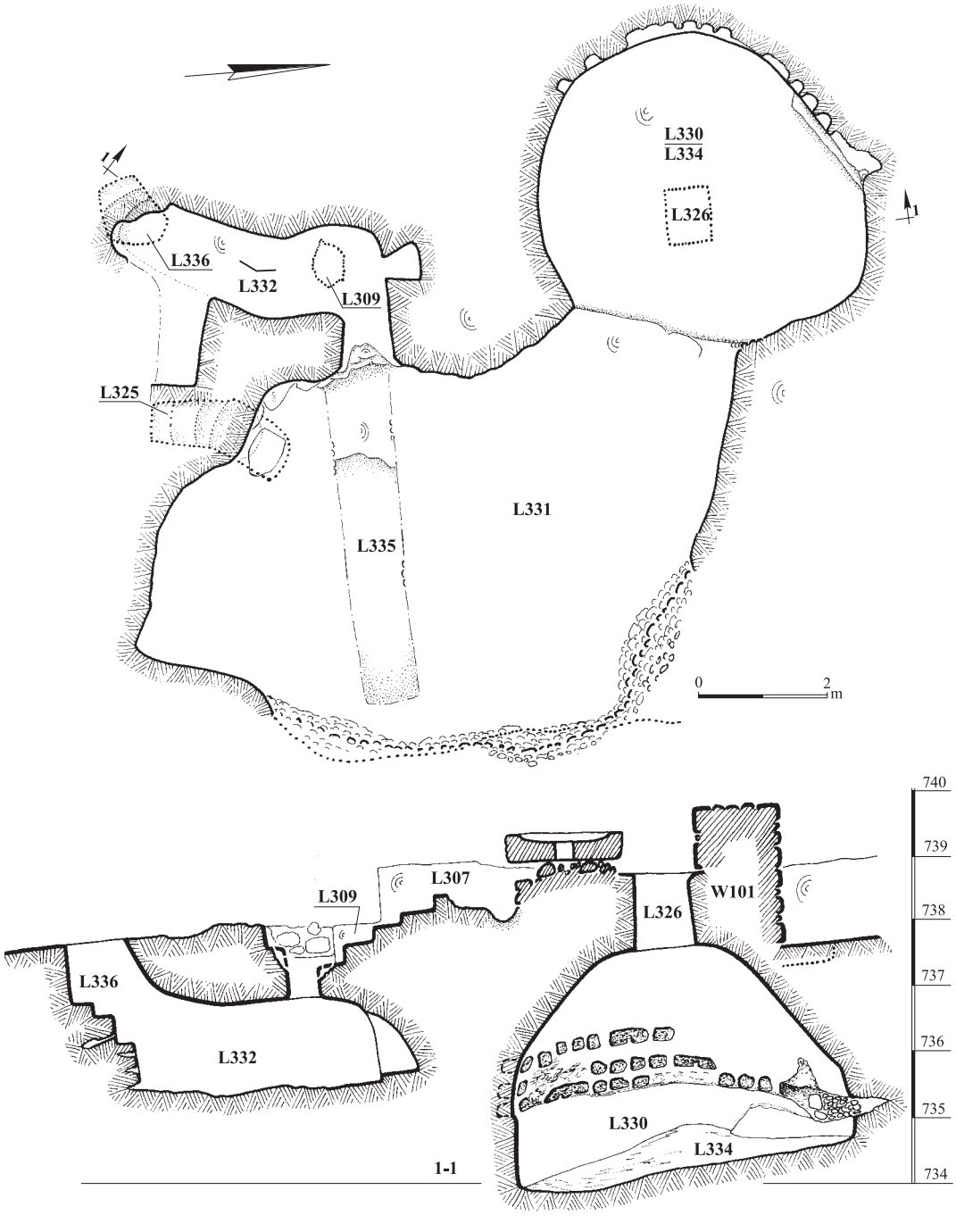


Plan 3. Area B1.

Fig. 4. Area B1. Pit 324, looking south.

walls of Room 312, which delimited the area, prevented a full investigation of these features.

To the south (Plan 4), L307 contained a number of staircases and shafts that dropped into a cave. In the northwestern corner was a square shaft (L326; 0.87 × 0.94 m), which opened into a space that served as a columbarium and later as a cistern (L330). A channel, probably belonging to the cistern, ran into it from the east (see Plan 3). The bell-shaped columbarium/cistern (4.5 ×



Plan 4. Plan and section of columbarium.

5.3 m, depth 4.5 m; Fig. 5) contained numerous small niches cut in its walls, indicating its use as a columbarium. The walls and the niches were later plastered over and all fissures were filled with a mixture of cobbles and plaster. The constituents of the plaster seem to be gravel, ash, charcoal and slaked lime, used typically in water installations (e.g., cisterns and *miqwa'ot*) of the Second Temple period. The refurbishment of the columbarium shows that it was reused as a cistern. Columbaria are frequent in the Jerusalem area; nearby examples include two in 'Isawiya (Edelstein 1982:29; Mazor 1984) and another at Shu'faṭ (Onn and Rapuano 1993:71).[4]

To the south of L330, three rock-cut steps (L309; Fig. 6) descended through a roughly cut, probably unfinished hole, into a subterranean corridor (L332). This hewn corridor (see below) connected, in turn, to another round shaft (L336; depth 2.3 m) that was covered by a later wall (W109; see Plan 11). Opposite this shaft, on the eastern edge of the locus, was a second staircase (L325), descending three steps into the main cave (L331). The location of these steps seem to relate to W102 (see Plan 11) and may belong to the later, Mamluk phase of the construction. Wall 106 (see Plan 11), which belonged to a late phase of the Mamluk presence, covered at least part of the upper step.

The large cave (L331; 5.5 × 10.0 m; Plan 4) east of the columbarium seems to have been hewn within a partially natural cavern. Formation of the cave cut the eastern wall of the cistern and thus curtailed its use. The floor of the cave, reached only in a small trench, was probably paved with flat flagstones. A raised opening (L335) in the western part of the cave led to Corridor 332, which was hewn on a north–south axis and connected Staircase 309 and Shaft 336. Chisel marks were clearly evident on the walls of the corridor, at whose northern end was a rock-cut niche. The need for both the shafts and the corridor is unclear. Unlike the other rock cuttings and installations, the large cave (L331) seems to be Mamluk, as it cuts through the wall of Columbarium/Cistern 330 and interconnects with the later oil press via Staircase

Fig. 5. Area BI. Columbarium 330 and Shaft 326, looking southwest.

Fig. 6. Area BI. Staircase 309.

325. The cave and the cistern were probably used for storage in the Mamluk period.

The dating of these rock-cut installations is difficult. All the pottery down to bedrock and within the caves is dated to the Mamluk period; nonetheless, the following factors suggest a date in the late Hellenistic/Second Temple period:

1) The rock-cut installations do not relate to the later walls. The circumambulation of the crushing basin shows poor planning and is beyond comprehension, had the oil press and the installations been contemporary.

2) Comparable examples of columbaria date no later than the Second Temple period.

3) The plaster used in the cistern is typical of the Second Temple period in the region (Magen 1985:22; Seligman 1999:160).

4) The channel (L328) at the base of L324, which passes under W101, contained late Hellenistic pottery.

5) The Second-Temple-period dating of other rock-cut installations on the summit (*Miqwe* 119 above, and *Miqwe* 433 below), provided circumstantial evidence.

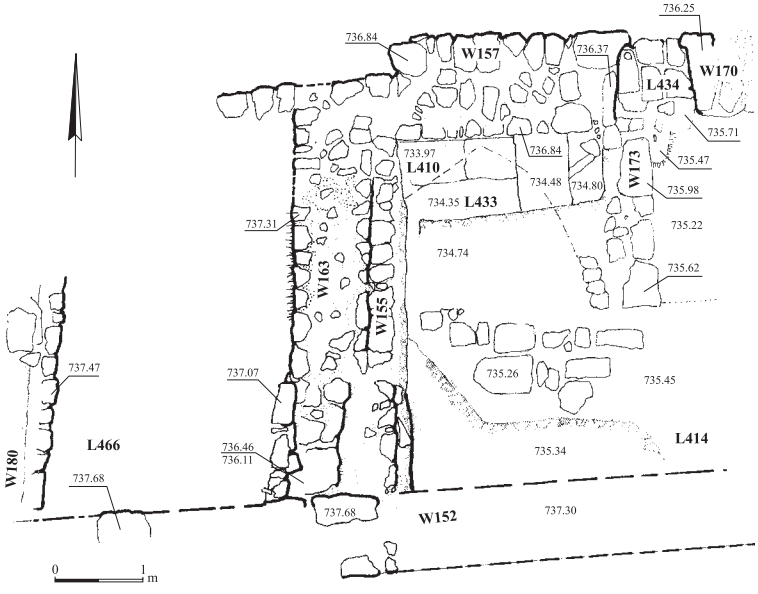
Area B2

A rock-cut installation (L433) was found under vault L410 (Plan 5; Fig. 7) and only partially exposed.[5] It comprised three steps leading down from the east and a wider step from the south. Remains of dark gray plaster were still evident. This unit was interpreted as part of a *miqwe*, into which two walls (W157, W163) of a later date were built. Although the pottery within the installation was dated to the Mamluk period, this *miqwe* belongs to the Second Temple period, due to its character and the type of plaster employed.

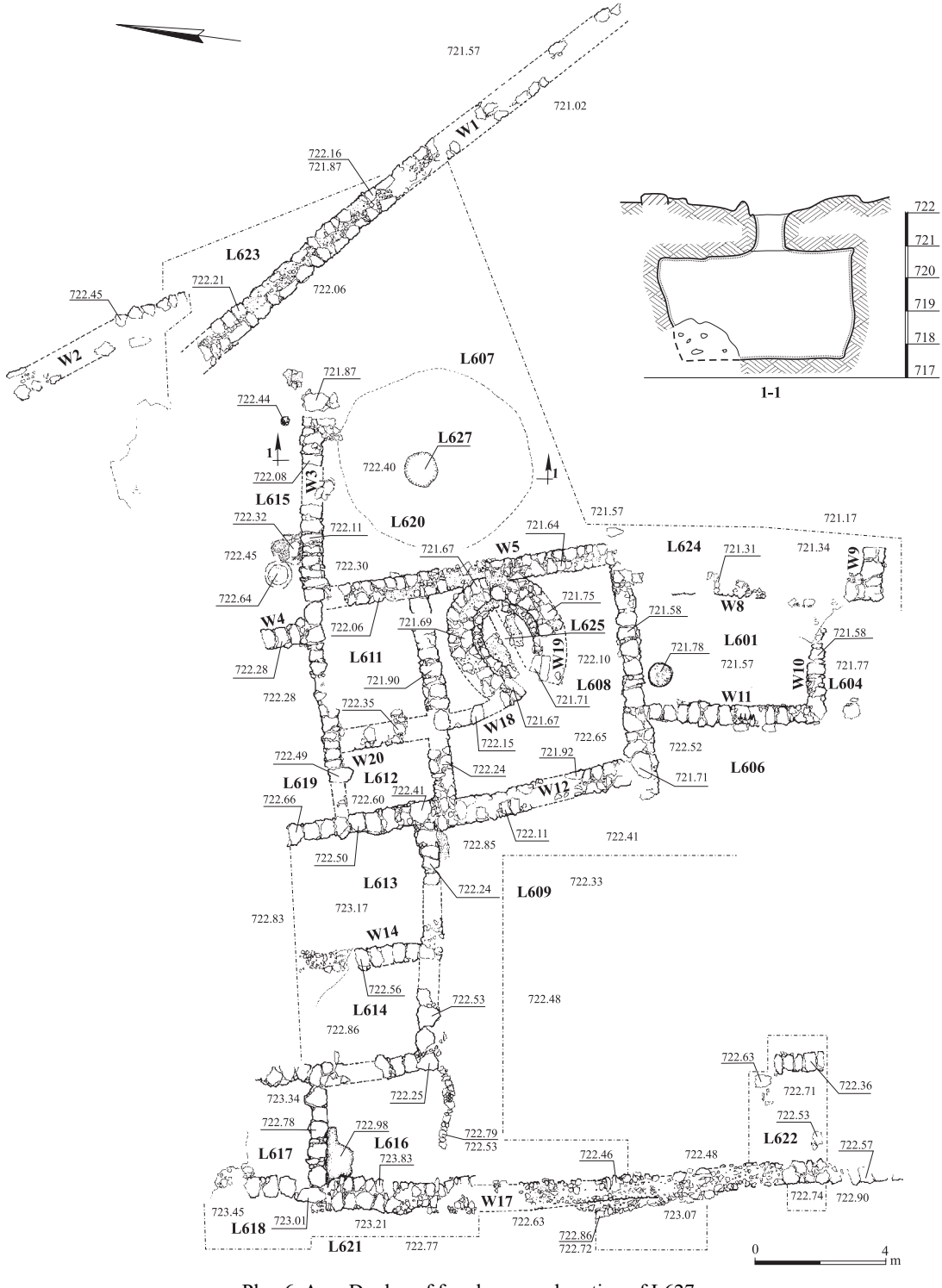
Area D

A complex of buildings was exposed on the western brim of the hill (Plan 6; Fig. 8). Preservation was poor; a maximum of two-

Fig. 7. Area B2. *Miqwe* 433 below Vault 410.



Plan 5. Area B2, the western room.



Plan 6. Area D, plan of farmhouse and section of L627.

Fig. 8. Area D. General view, looking west.

Fig. 9. Area D. *Ṭabun* in Room 603, looking south.

Fig. 10. Area D. Oven(?) 625, looking northeast.

course stone walls remained and the northern part of the site was completely eroded. The walls were built of roughly cut field boulders in one or two rows; the core was rubble filled. The sporadic remains of plaster uncovered, probably covered all the walls. The structure, c. 20 × 30 m, consisted of several rooms and a large water cistern (L627). No entrances were found as only the foundation level of the building was excavated; the floor was evident in a very limited area.

The southern room (L601; 3.3 × 5.0 m) had no clear floor, although part of a floor fill was found in the northern corner of the room. Remains of plaster were discovered on some of the walls. A *ṭabun* was exposed in the northwestern corner (Fig. 9). This room contained large quantities of pottery.

To the north was a large room (L608; 5.5 × 6.0 m). A large installation (L625) in the shape of a horseshoe was built in the northeastern corner, against the walls; its entrance was in the southwest (Fig. 10), flanked by a monolith on

either side. An internal, insulating wall was built against the outside wall of the installation and a channel faced with two rows of stones led from the entrance to the rear. A lime fill sealed the gap between the channel and the internal wall. The stones inside the installation were heavily burnt, indicating that it was an oven or a kiln. The complete absence of slag or wasters suggests that baking was the function of the unit.

To the north was a row of seven rooms. Only one room had a clear floor level (L616), while the others had suffered heavy erosion on their northern side. Room 615 had a *ṭabun* in the southern corner and a plastered bathing installation beside it, against W3. The 'bath' was provided with a step or a seat on its southern side (Fig. 11).

On the eastern side of W5 was a round shaft (diam. 1 m) that accessed a drum-shaped cistern (L627) cut into the rock, with a capacity of c. 100 cu m (diam. 6 m, height 3.5 m). The cistern was lined with a layer of dark gray plaster, common in the Second Temple period. Another, unexcavated cistern was located to the north.

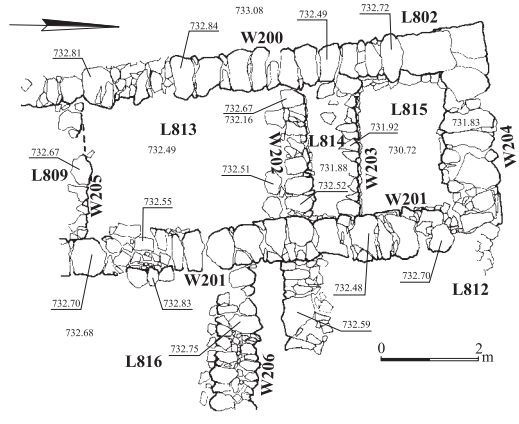
Fig. 11. Area D. Hip-bath in Room 615, looking southeast.

Area E

A prominent wall, visible above the surface on the northern slope, attracted us to this area, where only limited excavations had taken place (Plan 7). The uncovered building comprised a number of terraced rooms, enclosed with massive walls of large fieldstones. Patches of plaster discerned on the outer face of the western wall (W200) indicate that all the walls were originally plastered.

The upper room (L813; 3.0 × 4.2 m) had a plastered floor; entrance into the room was unclear. The finds included two pinched lamps and a complete storage jar (B8018) that was sunk into the floor (Fig. 12).

Fig. 12. Area E. Storage Jar 8018 in Floor 805, looking north.



Plan 7. Area E, plan.

To the north, two steps divided the area into two rooms (Fig. 13). The lower, northern room (L815; 2 × 3 m) was bordered by Walls 200, 204, 203, 201, surrounding a plastered floor. The higher area (L814) was built south of W203; its plastered floor was at the same elevation as the top of this wall. To the south, the floor seems to pass under W202, indicating that the room may be earlier than that to its south (L813).

The rooms on the eastern side of the building were only partially excavated; a plastered floor (L816), equivalent to L813, was reached. Only further investigation can assess the function and dimensions of this structure; I tentatively propose that this was a terraced, domestic residence.

Fig. 13. Area E. Rooms 805, 804 and 807, looking southeast.

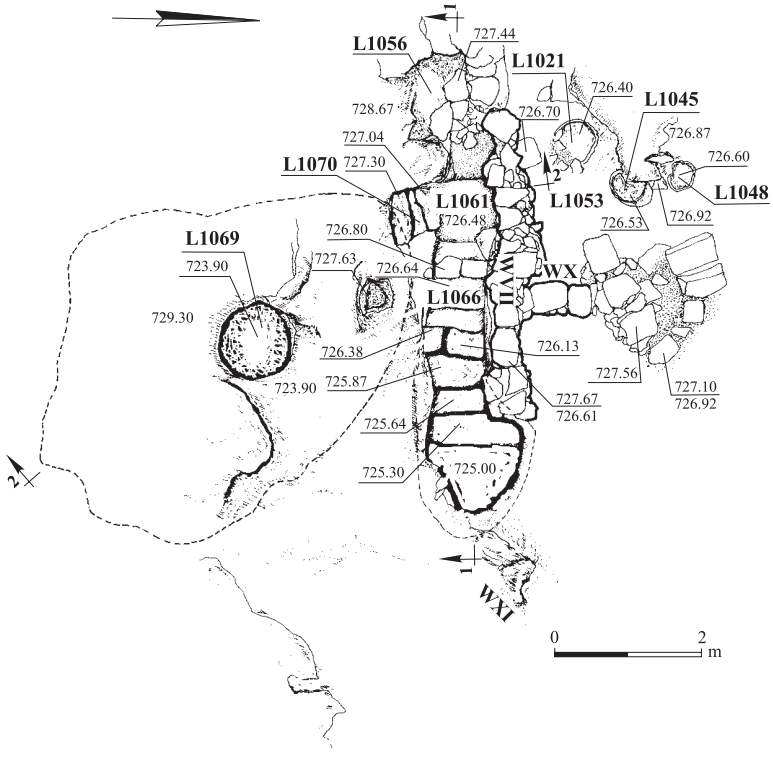
Area G

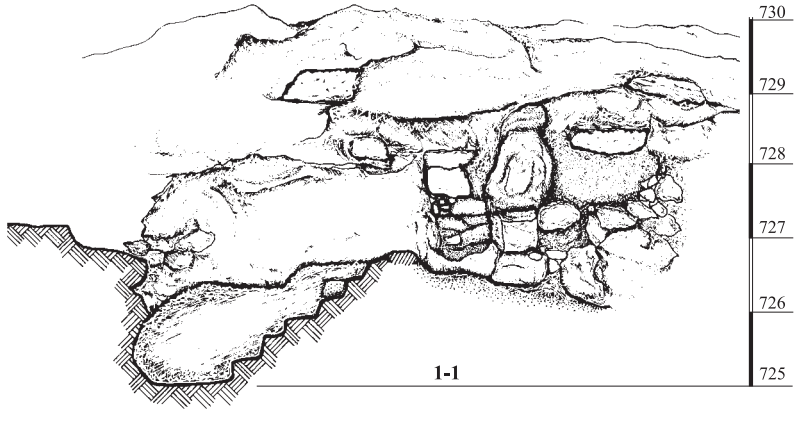
Alongside the Byzantine winepress (L713; see below) and northeast of Area D was a small area that contained a cistern (L1069), a *miqwe* (L1066), and a number of walls, belonging to a poorly preserved building (Plan 8). The reason for this location was clearly the presence of a bedrock outcrop, into which the *miqwe* and the cistern beside it could be hewn.

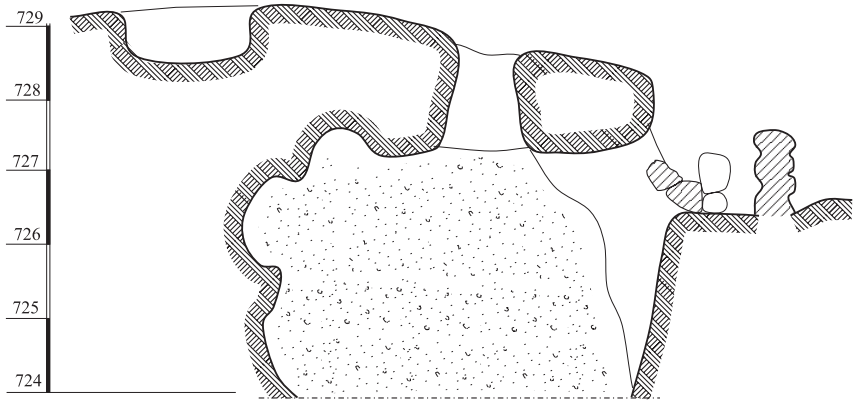
Indeed, it was the cistern that attracted me to this area. It was of irregular shape (diam. c. 4.5 m, height 3.5 m) and had two entrances. The first was a circular shaft (L1069; diam. 1 m, length 1.3–1.8 m); the second (L1070) opened into the cistern from the north (height 1.3 m, width 0.8 m) and had been partially blocked at some stage with large stones. Both entrances were covered and sealed with plaster, leaving open only their upper 0.7 m. The interior surface of the cistern was lined with two layers of plaster. The upper layer was gray and composed of ash, gravel, sherds and lime. The lower was similar, but contained pieces of charcoal and a few crushed sherds. The blockage seems to relate to the upper plaster layer, though heavy damage at the join made establishment of direct association difficult.

To the north of the cistern was a spherically shaped stepped pool (L1066; 4.0 × max. 1.3 m, depth 1.6 m; Fig. 14). The pool was hewn into bedrock and set against the rock face, into which the cistern had been cut. The upper part of the northern and eastern walls was built of fieldstones. Seven steps widen gradually, descending to the eastern, oval immersion area (1.65 × 1.80 m). All the surfaces were coated with two layers of gray plaster, containing lime, gravel, ash and a few crushed sherds. The shape and construction of this pool points to its identification as a *miqwe*.

Fig. 14. Area G. General view, looking west.







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Plan 8. Area G, plan and sections of *Miqwe* 1066 and Cistern 1069.

Three ovens (L1021, L1045, L1048; Fig. 15), built of clay and supported by surrounding stones, were found to the northwest of the *miqwe,* along with many cooking pots. They may have been used to heat water for a bath taken before immersion in the *miqwe*. A light, crushed chalk floor (L1053) covered the surface associated with the ovens.

All the other remains were too fragmentary to provide further architectural information. Although it can be suggested that the *miqwe* stood within some sort of a structure, the latter's plan cannot be ascertained.

A number of phases, represented by various floors and minor wall changes, were evident. The upper level (Loci 1015, 1025, 1031, 1037; see List of Loci) covered the ovens and contained pottery that was dated to the first and second centuries CE (see below). The floors below the ovens (L1020, L1053; see List of Loci) were clearly dated by the pottery to the first century BCE.

It is not certain whether Cistern 1069 was cut before the hewing of *Miqwe* 1066. However, one of the two plaster layers in the *miqwe* was associated with the blocking of the cistern entrance (L1070) and thus, with the upper plaster layer of the cistern itself. It is possible that the upper shaft entrance (L1069) was cut for use at this stage, though it may still have been in use during the utilization of the Byzantine winepress (L713, see below). It is evident that at this time the *miqwe* was filled with rubble, as no Byzantine pottery was recovered from it.

Conclusions

The late Hellenistic and Early Roman areas contained structures and installations, representing various aspects of rural life that included dwellings, *miqwa'ot*, cisterns, winepresses(?), tombs, a columbarium and an oven, possibly belonging to a bakery. These elements give the impression of a Jewish village, set in the milieu of contemporary settlements in the immediate region, for example Tell el-Ful (Lapp 1978), 'Anatot (Biran 1983), the farmhouse of Phase 1 at Ras Abu Ma'aruf (Seligman 1993b; 1999:131–141, 144–146, 148–149) and the nearby olive-press complex at Pisgat Ze'ev E (Shukron and Savariego 1993), all within the agricultural hinterland of Hasmonean and Herodian Jerusalem.

The local or even rural nature of the ceramic assemblage is noteworthy. The vessels represent basic, subsistence types, and almost no fine or luxury wares were discovered. This is somewhat

Fig. 15. Area G. Ovens 1021, 1045, 1048, looking west.

surprising, considering the proximity of the site to the contemporary and affluent urban center in Jerusalem (Avigad 1983). It clearly illustrates the hierarchical structure of the settlements, with Jerusalem ranking first and the village at Ka'kul, on a lowly rung of the ladder.

The various installations in Areas A, B1 and B2 are difficult to date, due to later construction that leveled all previous remains. The rationale for dating some of these units to the Second Temple period was noted above. Easily datable were Areas D, E and G, as they consisted of a single phase. For reasons detailed below, I can differentiate chronologically between these areas, though the dating should not exclude the possibility that there was some chronological overlap. Area D was the earliest to be occupied in the second century BCE. It was followed by Area E, which was inhabited from the late second century to the mid-first century BCE. The few coins from this period were found in Area G (see Berman, this volume: Nos. 2, 3). These and the ceramics date the area from the mid-first century BCE to the early first century CE.

The Ceramics from Areas D, E and G

Analysis and distinction between late Hellenistic and Early Roman pottery is notoriously difficult due to the lack of published material from stratigraphic sites.[6] The nature of the Ka'kul remains do not, unfortunately, bridge this gap, as the site was shallow and largely single phased. The only exception was Area G, where two strata were distinguished.

The majority of the ceramics from these three areas is datable to the last phase of the Hellenistic period and the Early Roman period, up to the turn of the millennium. As many of the types appear in all three areas, the use of typological presence and absence would cause us to conclude that the three areas were contemporary. However, I wish to demonstrate how quantification analysis allows us to reach chronological conclusions, thus producing a 'horizontal stratigraphy' and dividing the areas into three consecutive periods from the second century BCE to the first century CE.

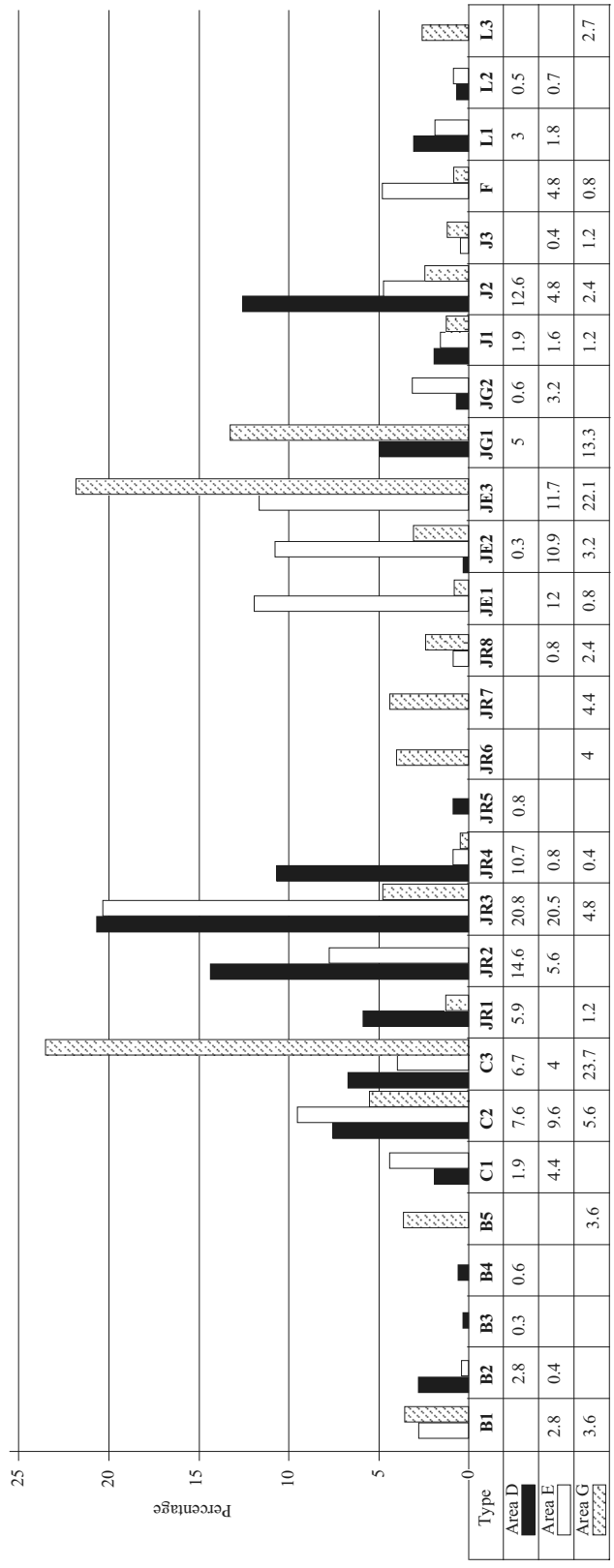
Quantitative Method.— The system used to calculate the number of vessels is based on the theory of estimated vessel equivalents (EVE), as summarized by Orton (1980:161–167; Orton, Tyers and Vince 1993:166–181). All the rims were collected and their relative proportion in the total assemblage was calculated by the percentage of preserved rims (Fig. 16). The total gives a minimum estimate of the number of vessels present in any given site and from this the EVE percentage was calculated, producing a more valuable statistic to sherd or rim counts. The calculation of EVE's tends to discriminate against open vessels, especially bowls, in that their number is under-represented, even though this bias is constant over the whole sample. For this reason, a rim count was also conducted, the results not greatly different from the EVE, though the relative proportion of the open vessels is greater. The EVE percentages are shown in graphic form to allow quantification analysis of the typological differences between areas.

Bowls

A number of bowl types were found. Though absolute numbers were small, the commonest was a shallow plate of a thin metallic ware (B1; Figs. 18:1; 19:1, 2). This vessel, dating from the end of the second century to the first century BCE, occurred in Areas E and G. None came from Area D, showing that the area may have been abandoned prior to the appearance of this type. (The Roman letters, following the site's name in the comparisons, denote the stratum/layer at the site).

Comparisons: Jericho (Netzer and Meyers 1977: Fig. 9:8; Bar-Nathan 1988: Fig. 4:21, 25:16), Bethany, Cistern 61 (Saller 1952: Fig. 12:5, 6), Qumran Ib (de Vaux 1956: Fig. 1:9, 10), Tell el-Ful IVB (Lapp 1978: Pl. 77:20, 21), Machereus II (Loffreda 1980: Pl. 97:52), Jerusalem, Upper City (Avigad 1983: Pl. 46).

The most frequent bowl in Area D was round walled with an everted rim (B2; Fig. 17:2), the immediate successor to the Hellenistic 'fish-plate'. Here the relationship is reversed with



Type	B1	B2	B3	B4	B5	C1	C2	C3	JR1	JR2	JR3	JR4	JR5	JR6	JR7	JR8	JE1	JE2	JE3	JG1	JG2	J1	J2	J3	F	L1	L2	L3
Area D		2.8	0.3	0.6		1.9	7.6	6.7	5.9	14.6	20.8	10.7	0.8					0.3		5	0.6	1.9	12.6			3	0.5	
Area E	2.8	0.4				4.4	9.6	4		5.6	20.5	0.8				0.8	12	10.9	11.7		3.2	1.6	4.8	0.4	4.8	1.8	0.7	
Area G	3.6				3.6		5.6	23.7	1.2		4.8	0.4		4	4.4	2.4	0.8	3.2	22.1	13.3		1.2	2.4	1.2	0.8			2.7

B = Bowls; C = Cooking pots; JR = Jars; JE = Jars, elongated; JG = Juglets; J = Jugs; F = Flasks; L = Lamps.

Fig. 16. Estimated vessel equivalents (EVE) frequency by type.

only a single example in Area E and a total absence in Area G. This, I believe, bears a chronological significance.
Comparisons: Bet Ẓur II (Lapp 1968: Fig. 24:13–14)

Other bowls only in Area D were the infrequent carinated bowl (B3; Fig. 17:3) and the large bowl with an incurved rim (B4; Fig. 17:4), dating to the second century BCE. A later version of the latter bowl is the small bowl with an incurved rim of fine ware (B5; Fig. 19:3) from Area G, often associated, as here, with *miqwa'ot* (Avigad 1983:74, Pl. 45). This first-century BCE type is found with Type B1 both here and in the Upper City of Jerusalem (Avigad 1983: Pl. 46).
Comparisons: B3—Bet Ẓur II (Lapp 1968: Fig. 24:12); B4—Bethany, Cistern 61 (Saller 1952: Fig. 12:4), Qumran Ib (de Vaux 1954: Fig. 3:2), Bet Ẓur II (Lapp 1968: Fig. 24:11), Jericho (Bar-Nathan 1988:115, Fig. 4:8, 9); B5—Tell el-Ful IVB (Lapp 1978: Pl. 77:15, 16), Machereus II (Loffreda 1980: Pl. 97:47, 48), Jericho (Bar-Nathan 1988: Figs. 4:10; 25:3), Jerusalem, Upper City (Avigad 1983: Pl. 59, 211).

Two fragments of disc bases that belonged to pseudo-Terra Sigillata plates (B6; Fig. 19:4) were retrieved from Area G, Loci 1009 and 1025. These bowls were not included in the quantification, as no rims were found. This type's range extended from the first century BCE to the first century CE (Gunneweg, Perlman and Yellin 1983:79–80)

Cooking Pots
Four types of cooking pots were differentiated: (1) a globular cooking pot with a short, straight neck (C1; Fig. 18:3), found only in Areas D and E; (2) a squat, globular cooking pot with a high, everted neck (C2; Figs. 18:2; 19:5, 6), uncovered in all three areas; (3) a squat, globular cooking pot that has a short, sometimes slightly everted neck and an external ridge on the rim (C3; Fig. 19:7, 8)—this type is very common in the upper levels of Area G and comprises 23.6% of the assemblage; (4) a squat cooking pot with a tall, straight neck and a single handle (C4; Fig. 17:6)—a single, complete example is from Area D, L603.

Types C1 and C2 are Hellenistic, current as of the second century BCE. Type C1 does not seem to extend into the first century BCE, though Type C2 is common throughout this period until the end of the first century BCE. Type C3 is a later development, dating from the first century BCE and continuing into the first century CE. It is especially common around the turn of the millennium. There is a gradual tendency for straightening the rim, as evidenced in the upper level of Area G (L1025).
Comparisons: C1—Tell el-Ful IVA (Lapp 1978: Pl. 79:17), Ṭirat Yehuda (Yeivin and Edelstein 1970: Fig. 8:11); C2—Bethany, Cistern 61 (Saller 1952: Fig. 12:1, 2), Qumran Ib (de Vaux 1956: Figs. 1:16; 3:5), Bet Ẓur II (Lapp 1968: Fig. 24:2), Tell el- Ful IVB (Lapp 1978: Pl. 78:1–8), IVC (Lapp 1978: Pl. 78:9, 10), Machereus I (Loffreda 1980: Pl. 95:20), Jericho (Bar-Nathan 1988: Figs. 3:3; 23:2), Jerusalem, Upper City (Avigad 1983: Pl. 59); C3—Bethany, Cistern 61 (Saller 1952: Fig. 12:14), Jericho (Netzer and Meyers 1977: Fig. 6:14; Bar-Nathan 1988: Fig. 23:3), Tell el-Ful IVB (Lapp 1978: Pl. 78:11), IVC (Lapp 1978: Pl. 78:16), Machereus II (Loffreda 1980: Pl. 95:21, 23, 24); a later development of C3—Herodium (Bar-Nathan 1981: Pls. 1, 2, 4, 5), Jericho (Bar-Nathan 1988: Fig. 23:4); C4—Bethany, Cistern 61 (Saller 1952: Fig. 12:3), Qumran Ib (de Vaux 1954: Fig. 2:22).

Storage Jars
The abundance of jars was noted both at Bet El (Lapp 1968:78) and at Tell el-Ful (Lapp 1978:102). At Ka'kul, jars form over 50% of the assemblage in Areas D and E, while in Area G they constitute 35%, a discrepancy probably due to different site functions.

The baggy storage jars with two shoulder handles are of four main types: (1) an everted,

round rim and a wide body with four handles (JR1; Fig. 20:2): (2) a narrower vessel with two handles and a shorter, round rim (JR2; Figs. 17:7–9; 18:4); (3) a baggy storage jar with a square rim (JR3; Figs. 17:10, 11; 18:5, 6; 19:9). This type develops via a short collar to the elongated collar type which will be discussed below; (4) an everted square rim (JR4; Figs. 17:12; 21:10).

The baggy storage jars with elongated collar are subdivided into three rim collar lengths: short (JE1; Figs. 18:10; 19:15), medium (JE2; Figs. 18:8, 9; 20:1) and long (JE3; Fig. 19:16, 17).

As all types are present in all areas, significant quantitative variability between the types suggests a chronological sequence for the storage-jar types, as well as for the areas. Dominant in Area D are Jars JR1 to JR4, with a high proportion of both round and square rims. The collared-rim type is represented by a single example of the medium collar (JE2). In Area E the frequency of round rims (JR1 and JR2) drops while the square rim (JR3) is dominant. The collar-rim types now appear and each of the three variants (JE1–JE3) form c. 10% of the assemblage. Square rims (JR3) compose c. 5% of the vessels in Area G, the prevailing type being the long collar rim (JE3), which has a 22% occurrence rate.

Since many of the types are present in all the areas, and the functions of the vessels are identical, i.e., storage, we suggest that this quantitative difference has chronological reasons. With the decline of the round rim (JR1, JR2) the collar rim (JE1–JE3) becomes common, the lengthening of the variant occurring with time. The square rim, being the intermediate type, is typical of all the areas.

The round rim (JR1 and JR2) is a Hellenistic type common from the fourth century BCE, declining probably toward the end of the second century BCE, with a few survivals into the beginning of the first century BCE. The square rims (JR3, JR4) flourish in the second and early first centuries BCE, and then dwindle. Collar rims, although present at the end of the second century BCE become prominent only at the beginning of the first century BCE. They elongate over time, the long collar (JE3) dominant from the mid- to late first century BCE. From the end of the first century BCE this type develops into the long necked, baggy storage jar with a ridge at the base of the neck, a type that is prevalent at the beginning of the new millennium (Bar-Nathan 1981:57). Similarly to nearby Tell el-Ful (Lapp 1978:102), round rims are absent by the time the long collar rims appear.

Comparisons: JR1—Bet Ẓur II (Lapp and Lapp 1968: Fig. 2:6), Jericho (Bar-Nathan 1988: Pl. 1:1), Jerusalem, Upper City (Avigad 1983: Pl. 44); JR2—Bet Ẓur II (Lapp and Lapp 1968: Fig. 22:3, 16), Bet El I (Lapp 1968: Pl. 69:1), Tell el-Ful IVA (Lapp 1978: Pl. 73:24), IVB (Lapp 1978: Pl. 73:25–30, 35), IVC (Lapp 1978: Pl. 73:23); JR3—Bethany, Cistern 61 (Saller 1952: Fig. 10:2), Qumran Ib (de Vaux 1954: Fig. 1:2), Bet Ẓur II (Lapp and Lapp 1968: Fig. 22:1, 2), Bet El I (Lapp 1968: Pls. 68:1–16; 69:3, 4), II (Lapp 1968: Pl. 69:11), Tell el-Ful IVA (Lapp 1978: Pl. 73:1–7, 19–22), IVB (Lapp 1978: Pl. 73:818), IVC (Lapp 1978: Pl. 74:4), Jericho (Bar-Nathan 1988: Pl. 1:3), Jerusalem, Upper City (Avigad 1983: Pl. 60); JR4—Bethany, Cistern 61 (Saller 1952: Fig. 10:1), Bet El I (Lapp 1968: Pl. 69:5), II (Lapp 1968: Pl. 69:10), Tell el-Ful IVA (Lapp 1978: Pl. 74:1, 2), IVB (Lapp 1978: Pl. 73:33, 34, 36, 37), Jerusalem, Upper City (Avigad 1983: Pl. 60); JE1—Bet Ẓur II (Lapp and Lapp 1968: Fig. 22:4), Bet El I (Lapp 1968: Pl. 69:5, 10), II (Lapp 1968: Pl. 69:10), Tell el-Ful IVB (Lapp 1978: Pl. 72:15, 16, 19–22, 26, 28), IVC (Lapp 1978: Pl. 72: 2, 3, 8–13), Jericho (Bar-Nathan 1988: Pl. 1:4); JE2—Bethany, Cistern 61 (Saller 1952: Fig. 10:3–5), Qumran Ib (de Vaux 1954: Fig. 1:4), Bet El II (Lapp 1968: Pl. 69:13–15, 20, 22), Tell el-Ful IVB (Lapp 1978: Pl. 72:17, 18, 23–25, 27, 29), IVC (Lapp 1978: Pl. 72:4–7, 14), Machereus I (Corbo and Loffreda 1981: Pl. 35:15), Jericho (Bar-Nathan 1988: Pls. 1:5, 18:1), Jerusalem, Upper City (Avigad 1983: Pl. 60); JE3—Herodium (Bar-Nathan 1981: Pl. 1:1), Qumran (de Vaux 1953: Fig. 2:5), Bet El II (Lapp 1968: Pl. 69:16–19, 21, 23), III (1968: Pl.

70:2, 3), Tell el-Ful IVC (Lapp 1978: Pl. 72:30, 31), Machereus I (Loffreda 1980: Pl. 92:1, 3–5; Corbo and Loffreda 1981: Pl. 35:16), Jericho (Bar-Nathan 1988: Pls. 1:6, 18:2), Jerusalem, Upper City (Avigad 1983: Pl. 60).

An uncommon wide-mouthed ovoid jar probably with a ring base (JR5; Fig. 17:13) was found only in Area D.
Comparisons: JR5—Qumran Ib (de Vaux 1956: Fig. 2:10), Jericho (Bar-Nathan 1988: Pls. 2:2, 17:1–3).

A group of jars, found mainly in the fill (L1007) of Cistern 1069 in Area G and in the winepress (see below, L712–L714) all have long necks and a variety of rims. JR6 (Fig. 19:11) has a square, folded rim; JR7 (Fig. 19:12) has a deep groove under the rim and the last, JR8 (Figs. 18:7; 19:13) has an everted, square rim. These jars are dated from the second to the fourth centuries CE and point to the continued use of the cistern after the abandonment of the *miqwe*. Sherds found in the cistern indicate that it was open and probably in use throughout the Mamluk period.
Comparisons: JR6—Samaria (Kenyon 1957: Pl. 72:3); JR7—Caesarea (Peleg and Reich 1992: Fig. 16:4); JR8—no analogies identified.

Jugs
Various types of jugs were encountered in the three areas; however, they are most frequent in Area D. Broadly, the jugs can be divided into jugs with an everted, triangular rim (J1; Fig. 17:17), jugs with an everted rim (J2; Figs. 17:16, 18; 18:12, 13; 19:18) and jugs with a narrow, stepped neck (J3; Fig. 18:11). No clear chronological development is noticeable and the jugs seem to have a lengthy history from the Hellenistic period well into the Early Roman period and beyond.
Comparisons: J1—Bethany, Cistern 61 (Saller 1952: Fig. 13:1, 2), Herodium (Bar-Nathan 1981: Pl. 4:8), Jericho (Netzer and Meyers 1977: Fig. 6:8l; Bar-Nathan 1988: Pls. 2:1, 21:1–4), Qumran Ib (de Vaux 1956: Fig. 1:5), II (de Vaux 1954: Fig. 4:12), Machereus (Loffreda 1980: Pl. 94:14); J2—Qumran II (de Vaux 1956: Fig. 4:3), Bet Ẓur I (Lapp and Lapp 1968: Fig. 25:2–6), II (Lapp and Lapp 1968: Fig. 22:18), Bet El I (Lapp 1968: Pl. 70:4–23), II (Lapp 1968: Pl. 70:28–31), Machereus I (Loffreda 1980: Pl. 94:13, 15), Jericho (Bar-Nathan 1988: Pls. 1:3, 21:7–9, 19); J3—Bethany, Cistern 61 (Saller 1952: Fig. 13:10), Herodium (Bar-Nathan 1981: Pl. 4:18), Jericho (Bar-Nathan 1988: Pl. 21:12), Jerusalem, Upper City (Avigad 1983: Pl. 211).

Juglets
Globular juglets (JG1; Figs. 17:19; 19:19) with cup mouths were found in Area D and most frequently in Area G. This type exists throughout the Hellenistic and Roman periods. A second juglet type has an inward tapering neck (JG2; Fig. 17:14); this variant, most common in Area E, has few parallels.
Comparisons: JG1—Bethany, Cistern 61 (Saller 1952: Fig. 13:5), Herodium (Bar-Nathan 1981: Pl. 4:24), Qumran Ib (de Vaux 1954: Fig. 3:20), Tell el-Ful IVB (Lapp 1978: Pl. 76:13–18), IVC (Lapp 1978: Pl. 76:19), Machereus I (Corbo and Loffreda 1981: Pl. 35:10, 11), Jerusalem, Upper City (Avigad 1983: Pl. 59, 211), Jericho (Bar-Nathan 1988: Pls. 2:8, 22:4–6); JG2—Herodium (Bar-Nathan 1981: Pl. 4:25)

The fill of the winepress (L712–L714; see below) contained a number of juglets with a ridge on the neck, to which the handle was attached (Fig. 19:23, 24). This infrequent type appears in the late first century BCE and continues till the third century CE in the Galilee (Fernandez 1983:30).
Comparisons: Jerusalem, Upper City (Avigad 1983: Pl. 211), Jericho (Bar-Nathan 1988: Pl. 22:7).

Flasks and Unguentaria
A few flasks with twisted handles (F; Fig. 18:15) came from Areas E and G. These are dated from the first century BCE to the first century CE. Two fusiform unguentaria (Fig. 19:21, 22), dated similarly to the flask, were only found in Tomb 965 (see below).
Comparisons: F—Bethany, Cistern 61 (Saller 1952: Fig. 11:4), Herodium (Bar-Nathan 1981:

Pl. 4:13), Jericho (Netzer and Meyers 1977: Fig. 9:8; Bar-Nathan 1988: Pls. 2:12, 22:2, 3), Qumran Ib (de Vaux 1954: Fig. 3:18), Bet Ẓur II (Lapp and Lapp 1968: Fig. 23:1), Tell el-Ful IVA (Lapp 1978: Pl. 76:1–3), IVB (Lapp 1978: Pl. 76:4–7, 10), IVC (Lapp 1978: Pl. 76:8, 9); fusiform unguentaria—Jericho (Netzer and Meyers 1977: Fig. 6:17, 18; Bar-Nathan 1988: Pls. 2:16–18, 22:8–11), Tell el-Ful IVB (Lapp 1978: Pl. 77:1–3), IVC (Lapp 1978: Pl. 77:4), Jerusalem, Upper City (Avigad 1983: Pl. 211).

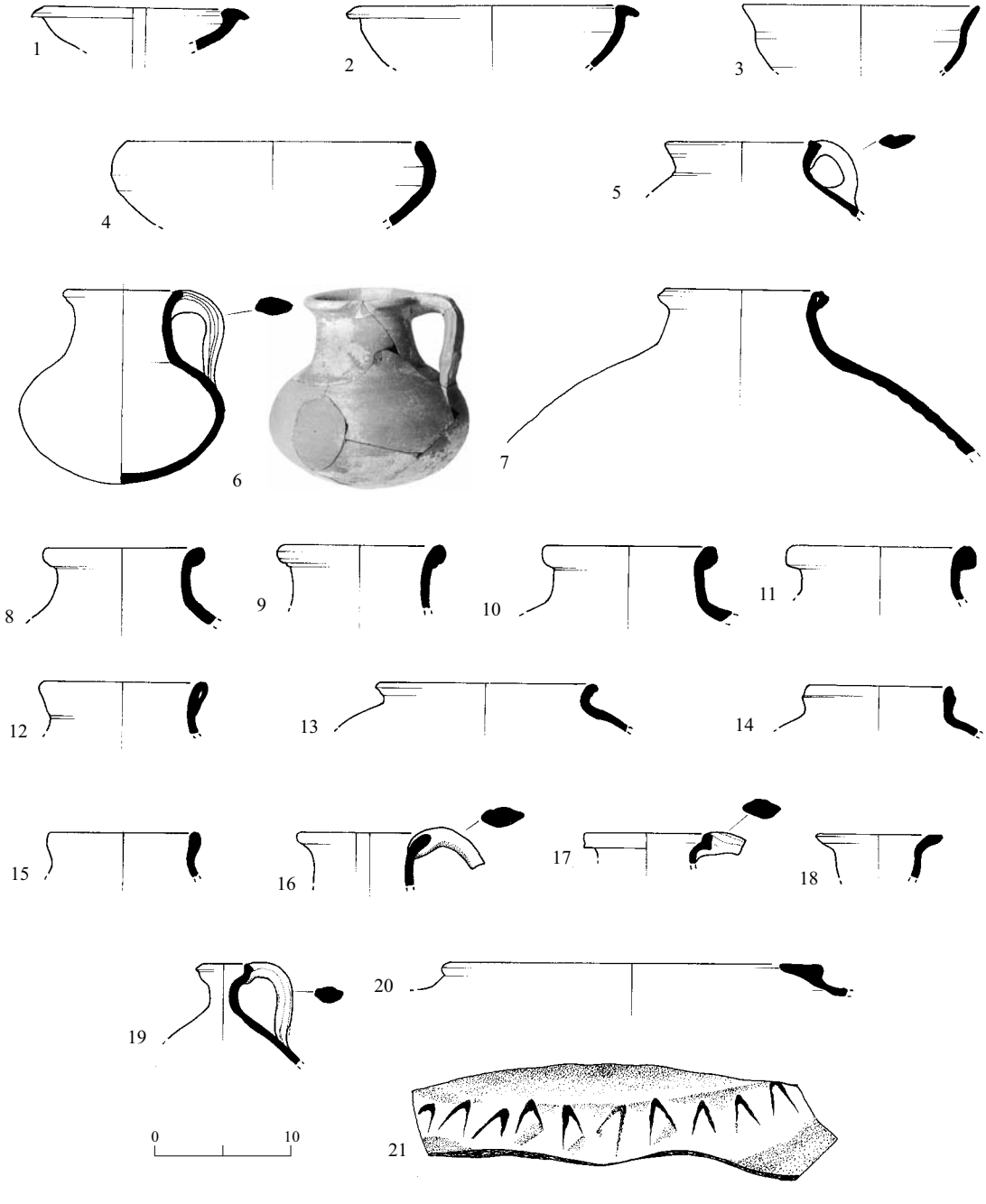


Fig. 17. Area D. Pottery.

◂ **Fig. 17**

No.	Reg. No.	Locus	Vessel (Type)	Fabric	Description
1	7162/6	619	Bowl (B2)	Light brown (7.5YR 6/4) ware; pink (7.5YR 7/4) slip	Many small white, few medium black grits and grog
2	7148/2	613	Bowl (B2)	Reddish-yellow (5YR 7/6) ware and slip	Gray core; some small white grits
3	7100/4	606	Bowl (B3)	Light red (2.5YR 6/8) ware; light red (2.5YR 6/8) ext. slip; pink (7.5YR 7/4) int. slip	Some small and medium white grits
4	7109/1	607	Bowl (B4)	Light red (2.5YR 6/6) ware; no slip	Many small white grits
5	7160/1	617	Cooking pot (C1)	Red (2.5YR 5/8) ware; self slip	Some medium white grits
6	9241	603	Cooking pot (C4)	Light red (2.5YR 6/8) ware; self slip	Many small white grits
7	7150/1	613	Jar (JR2)	Pink (7.5YR 7/4) ware; no slip	Many small white grits
8	7171/1	611	Jar (JR2)	Dark gray (7.5YR 4/1) ware; light gray slip	Many small white grits
9	7105/3	605	Jar (JR2)	Reddish-yellow (5YR 6/6) ware and slip	Gray core; many small and medium white grits
10	7140/9	615	Jar (JR3)	Reddish-yellow (5YR 6/6) ware; gray core; reddish-yellow (7.5YR 7/6) slip	Many small and medium white grits
11	7160/3	617	Jar (JR 3)	Reddish-yellow (5YR 6/6) ware; gray core; pink (10YR 7/4) slip	Many small white grits and grog
12	7128/5	608	Jar (JR4)	Light reddish-brown (5YR 6/4) ware; gray core; very pale brown (10YR 7/4) slip	Many small white grits
13	7157/2	620	Jar (JR5)	Light red (2.5YR 6/8) ware; gray core; pink (7.5YR 7/4) slip	Some small white grits
14	7110/1	608	Jar	Pink (7.5YR 7/4) ware; reddish-yellow (7.5YR 7/6) slip	Few medium white grits
15	7109/2	607	Jar	Reddish-brown (5YR 5/4) ware; very pale brown (10YR 7/3) slip	Many small and few large white grits
16	7152/2	616	Jug (J2)	Light red (2.5YR 6/6) ware; no slip	Many small white grits
17	7100/6	606	Jug (J1)	Reddish-yellow (5YR 6/6) ware; pink (5YR 8/4) slip	Few small white grits
18	7113/1	608	Jug (J2)	Reddish-yellow (5YR 7/6) ware; no slip	Some medium grog
19	7138/1	613	Juglet (JG1)	Light reddish-brown (5YR 6/4) ware; very pale brown (10YR 8/3) slip	Gray core; some small white grits
20	7148/2	613	Jar	Light red (2.5YR 6/6) ware; light red (2.5YR 6/8) slip	Gray core; many small white grits
21	7153/6	613	Jar	Light red (2.5YR 6/8) ware; reddish-yellow (7.5YR 7/6) slip	Gray core; many small white grits

Lamps

Three lamp types were recovered. The first is an open saucer lamp (L1; Fig. 21:1), which, along with some other forms, is probably a Persian remnant. It was retrieved from Areas D and E. Typical late Hellenistic pinched lamps (L2; Fig. 21:2) were found only in Area E. The sole lamp type in Area G was the round delphiniform shape with a short nozzle, three ridges around the filling hole and radial ridges extending from it (L3; Fig. 21:3); our sample has remains of red slip. This variant belongs to the final development of these

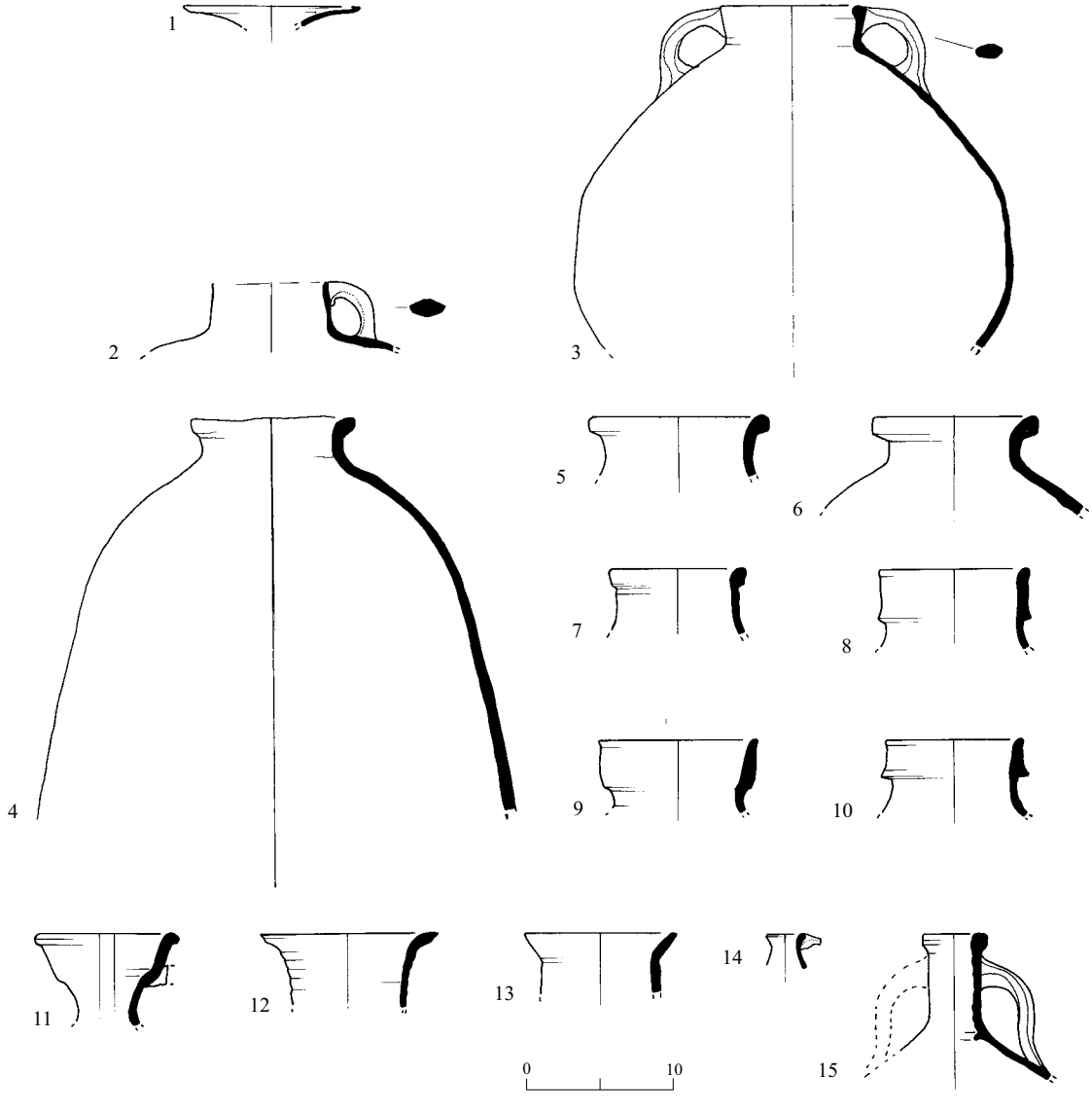


Fig. 18. Area E. Pottery.

lamps and can be dated from the mid- to late first century BCE.

Comparisons: L1—Stern 1982: Pl. 203; Bethany, Cistern 61 (Saller 1957:161, 18); L2—Rosenthal and Sivan 1978:79; L3—Jerusalem, Upper City (Avigad 1983: Pl. 70), Herodium (Bar-Nathan 1981: Pl. 2:14), Machereus I (Loffreda 1980: Pl. 97:62; Corbo and Loffreda 1981: Pl. 36:24), Jericho (Bar-Nathan 1988: Pl. 26:3, 4)

Discussion

Comparative analysis is an arduous task due to lack of quantitative information at other sites and confused or non-existent stratigraphy. The sites used to provide comparisons to our vessels were chosen on the basis of geographical proximity and, as much as possible, the reliability or even the existence of stratigraphy. Considering the limitations, I believe it is possible to assign a chronological sequence to the areas. Despite the appearance of many of the types in all areas and considering the probability of some overlap, Area D is the earliest, Area E the intermediate and Area G the latest.

Especially useful for the dating sequence are the jars and, to a lesser extent, the cooking

◂ **Fig. 18**

No.	Reg. No.	Locus	Vessel (Type)	Fabric	Description
1	9317/11	801	Bowl (B1)	Light red (2/5YR 6/6) ware; pink (7.5YR 8/4) slip	Few small white grits
2	8041/1	809	Cooking pot (C2)	Light red (2.5YR 6/8) ware; red (2.5YR 5/8) slip	Few small grog
3	8035/1	807	Cooking pot (C1)	Light red (10R 6/6) ware; red (2.5YR 4/6) slip	Some medium black and white grits
4	8035/2	807	Jar (JR2)	Reddish-brown (5YR 5/3) ware; pinkish-white (7.5YR 8/2) slip	Gray core; many small white grits
5	8036/3	809	Jar (JR 3)	Reddish-brown (5YR 5/3) ware; pinkish-white (7.5YR 8/2) slip	Gray core; many small white grits
6	8017/1	805	Jar (JR3)	Pink (7.5YR 7/4) ware; pink (7.5YR 8/4) slip	Many small white grits
7	8021/5	807	Jar (JR8)	Light red (2.5YR 6/6) ware; very pale brown (10YR 8/3) slip	Some small and medium white grits
8	8036/47	809	Jar (JE2)	Reddish-yellow (5YR 7/6) ware; reddish-yellow (7.5YR 7/6) slip	Few medium white and black grits
9	8032/2	802	Jar (JE2)	Light red (2.5YR 6/8) ware; self slip	Gray core; many small white grits
10	8036/1	809	Jar (JE1)	Red (2.5YR 5/8) ware; pink (7.5YR 7/4) slip	Few medium white grits and grog
11	8024/1	806	Jug (J3)	Reddish-yellow (5YR 7/6) ware and slip	Gray core; many small and medium white grits
12	8004/2	801	Jug (J2)	Reddish-brown (5YR 5/3) ware; very pale brown (10YR 7/3) slip	Gray core; many small white grits
13	8036/2	809	Jug (J2)	Light red (2.5YR 6/8) ware; very pale brown (10YR 7/3) slip	Few small white grits
14	8021/3	807	Juglet (JG2)	Light red (2.5YR 6/6) ware; reddish-yellow (5YR 7/6) slip	
15	8003/1	801	Flask (F)	Light red (2.5YR 6/6) ware; pinkish-white (7.5YR 8/2) slip	Gray core; few small white grits

pots. The round (JR2) and square (JR3) rims, as stated above, are the earlier types that dominate in Area D, while the later collar rims (JE1–JE3) are almost absent; accordingly, the area is dated to the second century BCE. Other vessels in this area also fit this date, e.g., Bowl B2 and Cooking Pot C2, though later Cooking Pot C3 is also common. Area D corresponds well with Bet Ẓur II, Bet El I and Tell el-Ful IVA to IVB.

Area E is proposed here as representing the intermediate phase. The prominent jar form here is the square rim (JR3) that co-exists in equal proportions with the collar rims (JE1–JE3). The most frequent cooking pot is C2, though other forms also occur. First-century shallow bowls (B1) now appear. Based on this information, Area E is dated from the late second to mid-first centuries BCE. Corresponding sites and strata of this area are Qumran Ib, Machereus I and Tell el-Ful IVB–IVC.

Finally, Area G is notable for the disappearance of the round rims (JR2) and the decline in the percentage of the square rims (JR3). Dominating now are the elongated collar rims (JE3), which present the final development of this type. The latest cooking pot type (C3) is also present in large numbers, several specimens of which belong to its first-century CE evolution and come from the upper strata (L1025; Fig. 21:8). Chronologically significant are the shallow bowls (B1) and the late delphiniform lamps (L3). This area is dated

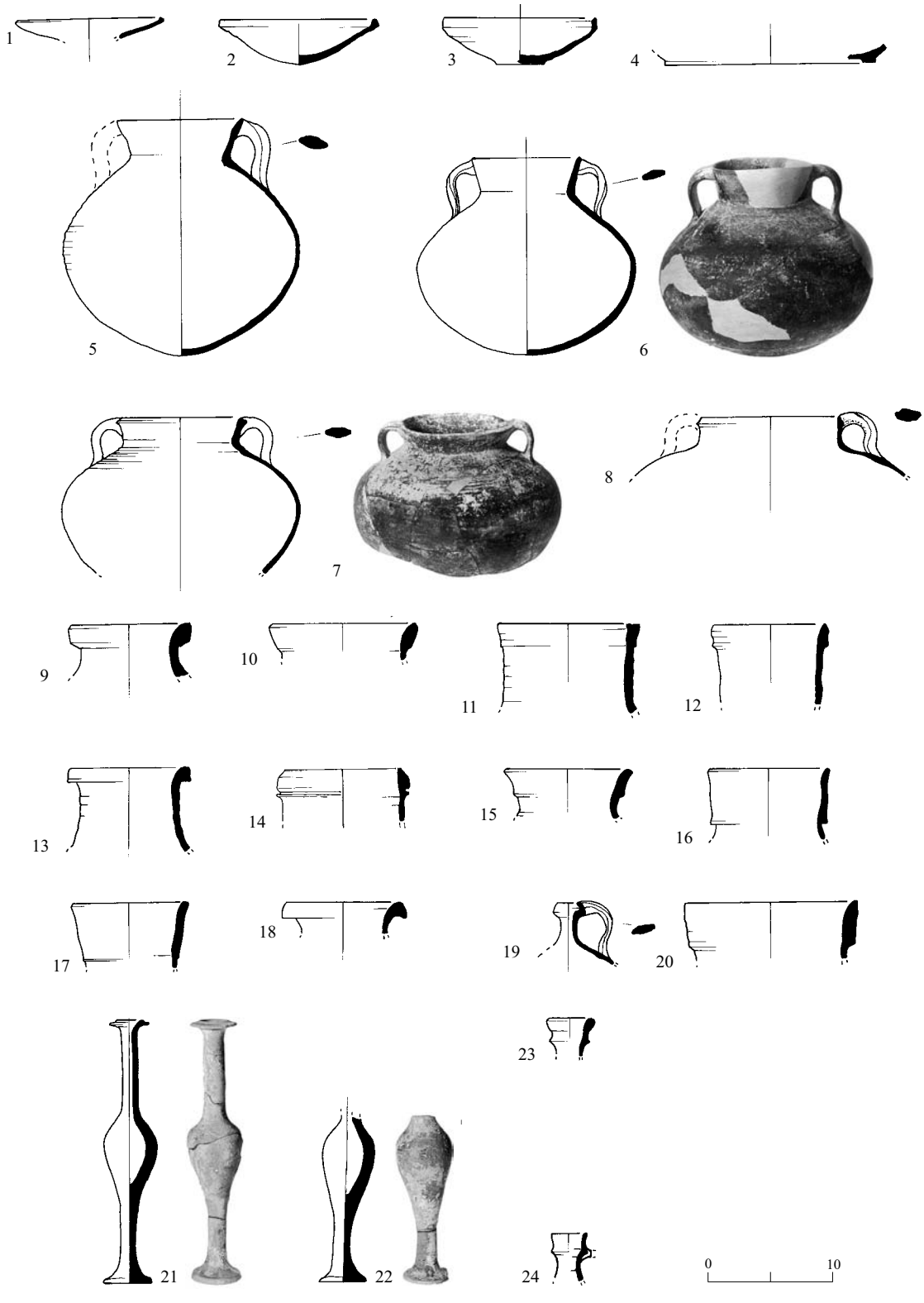


Fig. 19. Area G. Pottery.

◂ **Fig. 19**

No.	Reg. No.	Locus	Vessel (Type)	Fabric	Description
1	9317/11	1025	Bowl (B1)	Red (2.5YR 5/8) ware; light reddish-brown (5YR 6/4) slip	Some small white grits
2	9306/1	1014	Bowl (B1)	Reddish-yellow (5YR 7/6) ware; no slip	Few large white grits
3	9306/2	1014	Bowl (B5)	Light reddish-brown (5YR 6/4) ware; pale yellow (2.5YR 8/4) slip	Some small white grits; string-cut base
4	9317/2	1025	Bowl (B6)	Reddish-yellow (7.5YR 8/6) ware; red (10R 5/8) slip	No grits
5	9349/1	1049	Cooking pot (C2)	Red (2.5YR 4/8) ware and self slip	Soot visible on base
6	9341	1044	Cooking pot (C2)	Red (10R 5/6) ware and self slip	Some small black grits
7	9349/2	1049	Cooking pot (C3)	Red (2.5YR 5/6) ware; variable, reddish-brown (2.5YR 5/4) slip dominant	Many small white grits
8	9317/23	1025	Cooking pot (C3)	Red (2.5YR 5/6) ware and slip	Some small white grits
9	9342/2	1033	Jar (JR3)	Reddish-brown (2.5YR 5/4) ware; pink (5YR 7/4) slip	Many small white grits
10	9316/11	1025	Jar (JR4)	Reddish-yellow (5YR 6/8) ware; reddish-yellow (5YR 7/6) slip	Many small white grits
11	9373/2	1052	Jar (JR6)	Reddish-yellow (5YR 6/6) ware; reddish-yellow (5YR 7/6) slip	Few small black grits
12	9373/3	1052	Jar (JR7)	Red (2.5YR 5/6) ware; reddish-yellow (5YR 7/6) slip	Many small black and white grits
13	9342/1	1033	Jar (JR8)	Reddish-yellow (5YR 6/6) ware; pink (5YR 7/4) slip	Gray core; some small white grits
14	9373/1	1052	Jar	Light red (10YR 6/8) ware; reddish-brown (5YR 7/6) slip	Many small, black and a few medium white grits
15	9342/3	1033	Jar (JE1)	Light red (2.5YR 6/5) ware; reddish-yellow (5YR 7/6) slip	Gray core; well-levigated clay
16	9316/4	1025	Jar (JE3)	Light red (2.5YR 6/8) ware; light reddish-brown (5YR 6/4) slip	No grits
17	9305/3	1015	Jar (JE3)	Reddish-yellow (5YR 6/6) ware; pale yellow (7.5YR 8/4) slip	Gray core; some small white grits
18	9317/8	1025	Jug (J2)	Light red (2.5YR 6/8) ware; pink (7.5YR 8/4) slip	Few medium, white grits
19	9306/23	1014	Juglet (JG1)	Yellowish-red (5YR 5/6) ware; light brown (7.5YR 6/4) slip	No grits
20	7013/3	706	Jar (JE2)	Light red (2.5YR 6/8) ware; pink (7.5YR 7/4) slip	Many small, white grits
21	9224/1	965	Unguentarium	Reddish-yellow (5YR 7/8) ware; light brown (7.5YR 5/4) slip	Some large white grits; string-cut base
22	9224/2	965	Unguentarium	Reddish-yellow (5YR 7/8) ware; light brown (7.5YR 5/4) slip	Some large white grits; string-cut base
23	7030/5	714	Juglet	Reddish-yellow (5YR 7/6) ware; pink (7.5YR 7/4) slip	Some medium black and white grits
24	7027/4	714	Juglet	Light red (2.5YR 6/8) ware; reddish-yellow (7.5YR 7/6) slip	Some small white grits

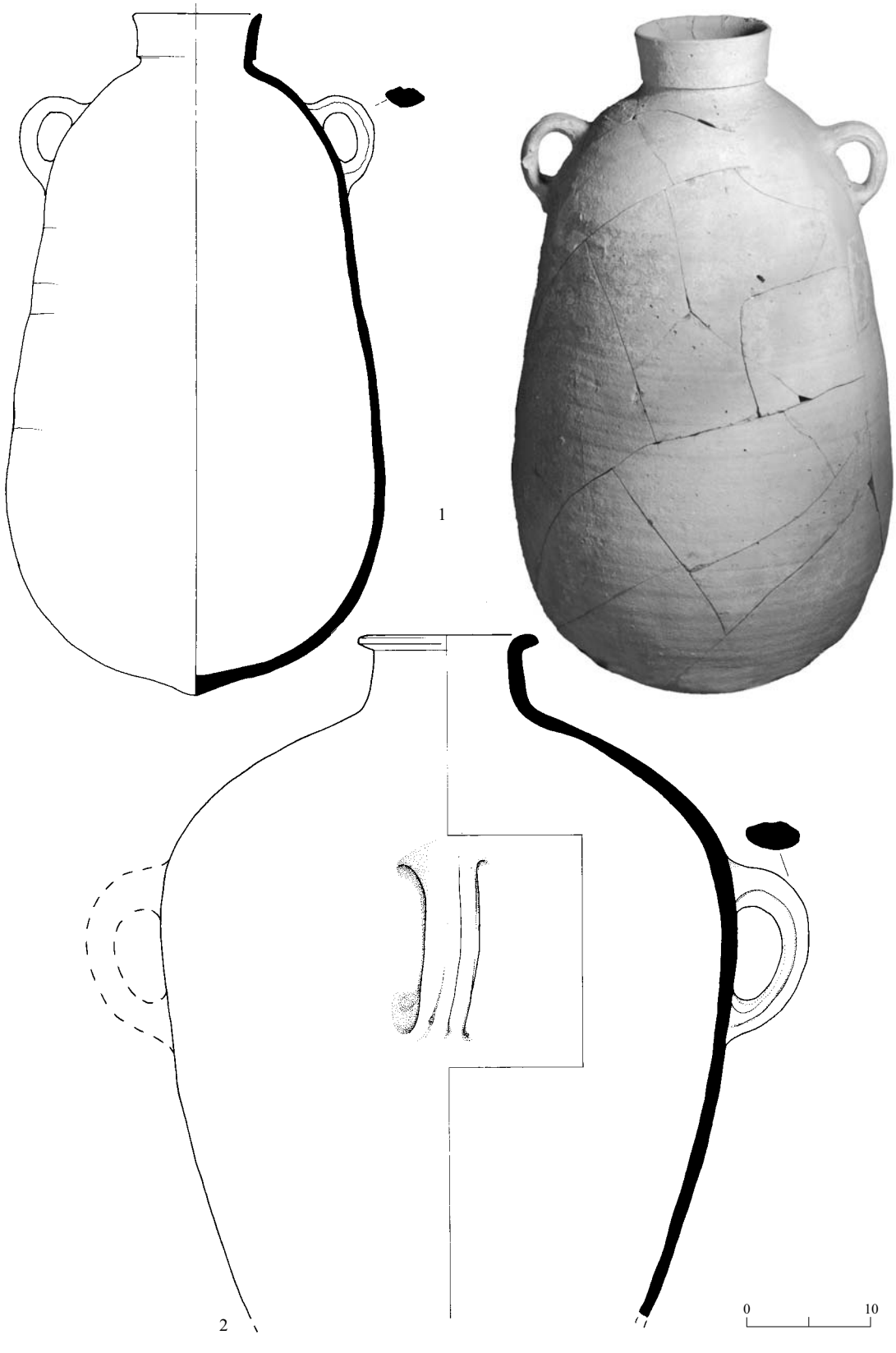


Fig. 20. Pottery: storage jars.

◂ **Fig. 20**

No.	Reg. No.	Locus	Vessel (Type)	Fabric	Description
1	8018	805	Jar (JE2)	Reddish-yellow (5YR 7/6) ware; pink (5YR 7/4) slip	Many small white grits
2	7084	603	Jar (JR1)	Reddish-yellow (5YR 7/6) ware; no slip	Many small and a few large white grits

Fig. 21. Pottery: lamps.

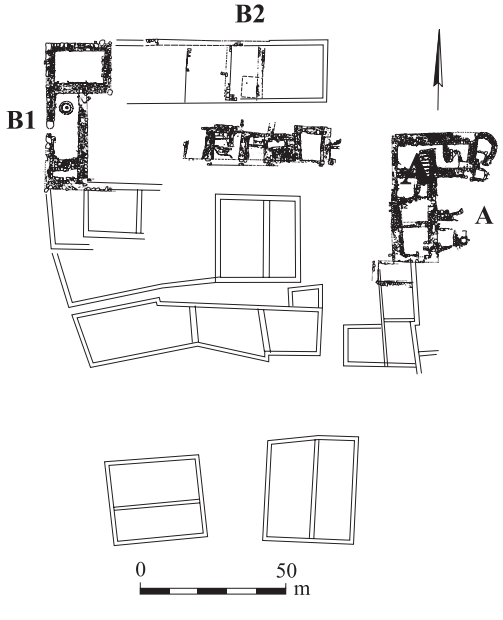
No.	Reg. No.	Locus	Vessel (Type)	Fabric	Description
1	7172/2	617	Lamp (L1)	Light red (2.5YR 6/8) ware; pink (7.5YR 7/4) slip	Many small white grits
2	8045	811	Lamp (L2)	Reddish-yellow (5YR 7/6) ware; no slip	Many small white grits
3	9301/4	1011	Lamp (L3)	Light red (2.5YR 6/6) ware; remains of red (7.5YR 4/6) slip	Few small white grits

from the mid-first century BCE to the early first century CE. Related strata are Tell el-Ful IVC, Qumran Ib, Machereus I and the early levels at Herodium.

THE MEDIEVAL VILLAGE (Plan 9)

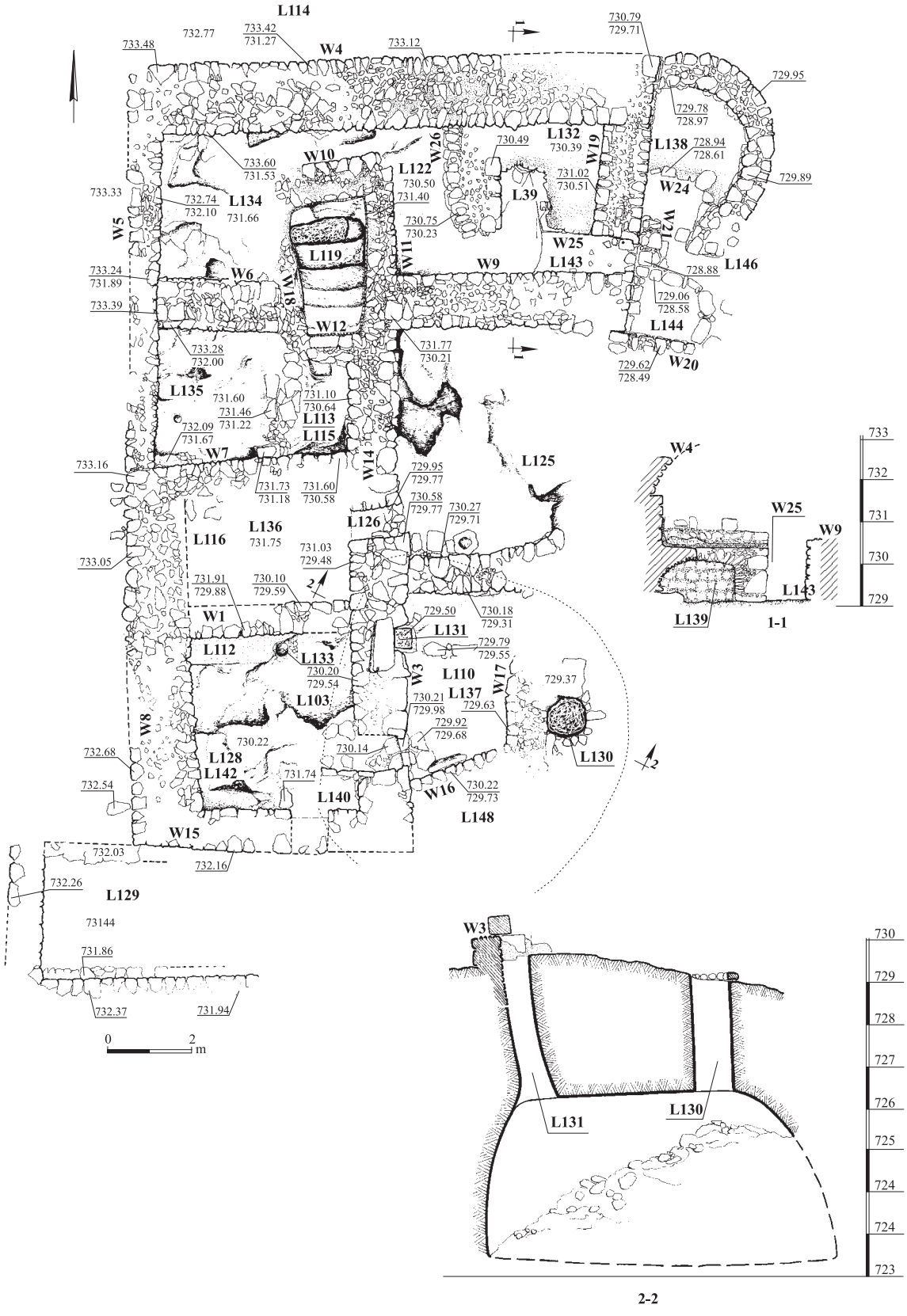
Area A (Plan 10; Fig. 22)

The excavated area comprised four rooms, all roofed with barrel vaults (*djamalon ʻaqd* in traditional Palestinian architecture; see Canaʻan 1933:45).[7] These vaults generally opened on the slope to the east. The walls were massively built (width up to 1.8 m) of roughly dressed fieldstones bound by mortar that contained much slaked lime, charcoal and small clinkers. From the point of the springing vault, the walls were built of rubble mixed with mortar.



Plan 9. The medieval village.

The northernmost room (L134; 3.5 × 10.5 m; Plan 10; Fig. 23), the largest of the four, is enclosed with massive walls. The external northern wall of the structure (W4; Fig. 24; the area to its north was void of architecture) is c. 1.8 m thick; its eight courses still stand to a height of 2.1 m in some places. The southern, internal face of W4 (Fig. 25) has a foundation of two to four



Plan 10. Area A, medieval remains.

Fig. 22. Area A. General view, looking south.

Fig. 23. Area A. Room 134, looking east; System 119 in foreground.

Fig. 24. Area A. The northern face of W4.

Fig. 25. Area A. Room 134 and the southern face of W4.

courses of roughly dressed fieldstones and a superstructure of cobbles mixed with mortar, which formed a vault, springing southward to Walls 6 and 9 that were on the same line, though divided by the Second-Temple-period *miqwe* (L119, see above). Entry to the room was from the east, between W19 and W9 (Fig. 26). The door jambs and a bolt hole indicate the door opened westward, into the room. The doorway, which was at bedrock level, formed a narrow corridor (L143), sloping up westward between W9 and W25.

A large part of the floor in the western part of the room consisted of the *miqwe* (L119). To its east was a plastered floor (L132), the plaster rising up on W4 and W19 and forming a skirt. The floor superposed a small vault (L139; Fig. 27), and used its walls for support. This vault seems to have been built to level the floor, since the bedrock here slopes sharply eastward. The

Fig. 26. Area A. View of Room 134, looking west; in foreground, the entrance and Corridor 143.

Fig. 27. Area A. Vault 139, looking east.

space formed by the vault could then have been used as a basement storage facility.

The *miqwe* (L119) was now used as a cistern. All the sides were raised above bedrock with new walls and covered with a vault springing from W11 to W18. The sides were plastered in light reddish-brown, the color stemming from large quantities of crushed pottery. Entrance to the cistern was from the south, as here the low wall (W12) was plastered over its top surface. As there is little logic in allowing access only from the shallow side of the pool, there is a clear possibility that there was a drawing point further to the north. Segments of a ceramic pipe that may have conveyed water from the roof into the cistern were found in the southeastern corner of the cistern.

Room 135 was smaller and had a trapezoidal shape (max. 3.4 × 4.5 m; Fig. 28). It was also vaulted in a north–south direction, the vault springing from W6 to W7. Pilasters against W7 could have provided roof support. The entrance to the room is unclear, though access via W14 to the east is most logical. Wall 14 is a later addition to the room, as it abuts both W9 and W7. No floor surface was uncovered, but a debris fill (L113 and L115) could have been used to level off bedrock and as bedding for a floor.

To the south was Room 136 (2.7 × 4.0 m), of which only its southeastern corner was excavated. Its vault sprang from W8 to W3, in an east–west direction, perpendicular to Room 135. The room was entered through its northeastern corner, from L125, via L126. A bolt socket in the southern wall (W3) indicates

Fig. 28. Area A. Room 135, looking west.

that the door opened inward, to the west. A plastered floor was detected at the level of the threshold.

The southern vaulted room (L128) consisted of two phases:

1) A plastered floor (L112) was laid directly on bedrock. The western (W8) and eastern (W3) walls were evident; the other sides were vague, though a rock-cut section marked the southern side. Wall 1, which abutted W8 and W3, was built upon Floor 112 that extended into Room 136. Part of Wall 8's base was bedrock hewn and covered with the plastered Floor 112. In the center of the northern side of the room was a small, plastered, barrel-like installation (L133; diam. 0.3 m, depth 0.35 m) set below Floor 112. A pipe entered it from the west, its origin and use obscure. A later disturbance (L103), in which a trough was found, had cut the floor along W3.

2) Floor 128 (3.8 × 4.2 m) formed the surface of the upper level (Fig. 29). It was set on a fill to level off the uneven bedrock below. Its walls were W8, W15 and probably W1 and W3, although disturbances (L103 and L140) cut the connection to these last walls. The floor was covered with multiple layers of plaster, coating W8 to the west. This wall, which still stands to a height of 2.45 m, was built upon the remains of the previous phase and formed a vault over to W3. Two doorways were discovered in the southeastern corner. The first led into L110/137 to the east and the second, southward through W15, which had a window gap higher up. Stratigraphic soundings were excavated into the fill (L142) below L128 and in the southeastern corner (L140); coins were found both on the floor and in the fill (see Berman, this volume).

Down the slope to the east was the poorly preserved Room 110/137 (2.3 × 4.5 m), which had a plastered floor. Within an alcove in the western wall was a square, 3.5 m deep shaft (L131), leading into a large plastered drum-shaped cistern (unexcavated; max. diam. 8.7 m) cut into bedrock below. To the east of W17 was another circular shaft (L130; diam. 1 m, depth 2.8 m) that opened into the same cistern

Fig. 29. Area A. Room 128, looking southwest.

(Plan 10: Section 2–2). The eastern wall was heavily damaged and passage may have existed on this side.

South of Room 128 was yet another room (L129), still unexcavated, but worth noting for what happened after the winter rains of 1993. Initially, only the walls of what proved to be its upper story were visible; after the rains the floor collapsed, revealing a small, complete, vaulted room with plastered walls. It is possible that the window gap in W15, noted above, connected between Room 128 and this newly discovered room.

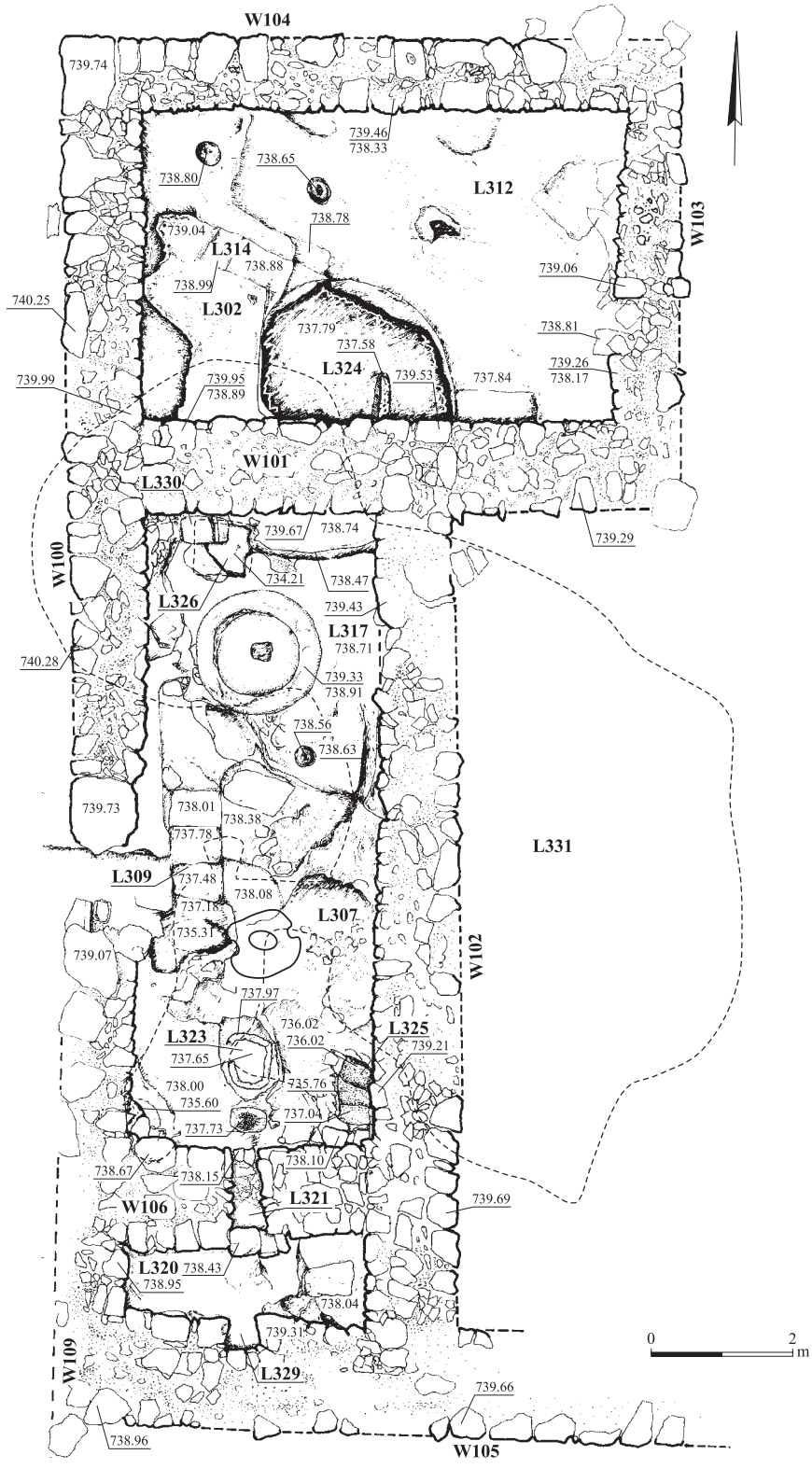
Pottery and Small Finds.— The coins found in this area, although containing some residual examples from the Byzantine and Umayyad periods, are mostly of Mamluk date, especially of the late fourteenth century CE (e.g., coins in Loci 139, 103, 128, 142, 114; see Berman, this volume: Nos. 5–8, 10–13, 15–22). The ceramic material falls within the thirteenth–fifteenth-century range, thus confirming the clear date of the coins. It is worth noting the low percentage (under 2%) of cooking vessels and the high number of jars. This would suggest that the area was a storage facility rather than a cooking center, an assumption validated by the lack of kitchen installations in the area. A number of small finds included an iron knife blade (razor?), a lead weight, a hair pin, a spatula, a clasp and a buckle (Boas, this volume: Fig. 21).

Area B1

The remains from the Mamluk period consist of two rooms and the secondary use of the underlying caves. The walls were built of two faces of roughly cut fieldstones and ashlar blocks, set directly on bedrock; the cores were filled with rubble.

A large rectangular room (L312) was uncovered in the north (5 × 7 m; Plan 11). It was accessed via an entrance in the eastern part of the southern wall (W101). The threshold was set some 0.4 m above rock surface, on which the wall was built, indicating that a floor level was not distinguished.

South of Room 312 was a second large and rectangular room (L307; 3.45 × 11.70 m). Entrance was probably from the east, through W102. Although the floor level was not distinguished, it is obvious that some floor, even if only of beaten earth, must have existed. Installations of an oil press (Fig. 30) were placed on the rock surface. This oil press may be the one originally identified by Gibson in 1981 (Gibson and Edelstein 1985:149)



Plan 11. Area B1, Mamluk remains.

Fig. 30. Area BI. General view of Olive Press 307.

Fig. 31. Area BI. Screw base weight and Collecting Vat 323, looking south.

Fig. 32. Area BI. Anchoring socket of olive-press beam in W105, looking southwest.

In the northern part of the room was a circular stone crushing basin with a shallow raised border and a central sunken axis socket (diam. 1.69 m, height 0.36 m).[8] The wide, flat border around the edge is unusual. As stated above, Shaft 326 was situated just beside the basin and it would have disturbed circumambulation. It is possible that a board was placed over the shaft to allow easy passage around the basin. No millstones were found here, though one may be located within the rubble forming the core of W106.

To the south, on a flat rocky area, was a roughly cut stone with dove-tailed slots on opposite sides and a central depression (0.65 × 0.93 m, height c. 0.8 m; Fig. 31). The stone fits into Frankel's Type 6.2.1.1 (Frankel 1984, I:156–157; 1984, II:52–53). The slots are cut through the full height of the stone in contrast to the regular practice of cutting the slots through part of the stone. Two smaller stones of this type were found in the room, not *in situ*; one had a hole pierced through it. These stones were used as screw base-weights for a beam press and held the frame into which the screw was set. It is not clear whether they were placed one on top of the other, or parallel along the beam, or perhaps, a combination of the two.

In the southern part of the room was a stone trough located within a depression in the floor (L323; 0.80 × 1.07 m). Another depression was directly to its south (Fig. 32). Locus 323 was

the collecting vat situated below the pressing board of the olive press. The anchoring recess of the beam (L329) was cut in the southern wall (W105). Two sockets, 1.1 m above ground, used as the pivoting points of the beam, were cut in the heavy stone piers flanking the niche. The western pier had two sockets, one above the other, but as the upper socket had no counterpart on the opposite pier it was probably not in use.

Staircase 325 along W102 led down into the cave below (L331; see Plan 4). Its relation to W102 and the possible use of the cave as a storage facility for olive-oil jars may indicate that these steps should be dated to this phase.

The two halves of W106 are a later addition, covering the upper step of L325. The gap between the two segments of the wall allowed the pressing beam to pass through. Wall 106 seems to have been constructed to provide additional support to the beam during the operation of the press.

Interestingly, a stone weight with a 'T' cross-section was found in secondary use within W104. Its presence indicates that either the olive press may have had an earlier phase, in which weights of this type, i.e., freestanding, provided leverage, obviously without the walls, or that this weight was brought from another site. Part of another stone crushing basin was also found, its original location unknown.

Walls 104 and 105 form the outer walls of the summit structures of the site and run eastward to Area B2, connecting with its buildings.

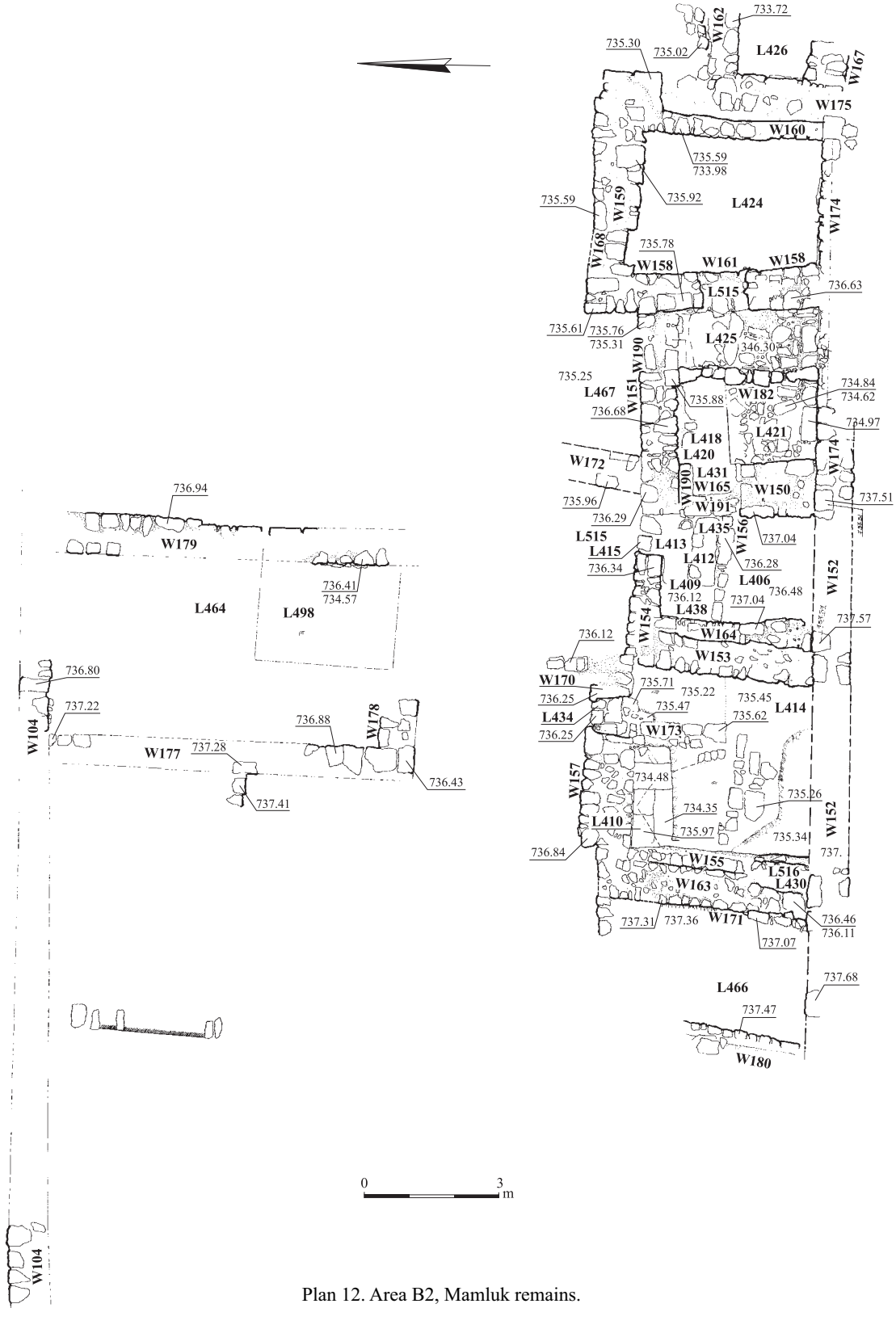
None of the few published oil presses from the Crusader or Mamluk period are particularly similar to ours.[9] Our installation continues the tradition of Byzantine lever and screw presses. This type has the screw anchored to the base via the slots, in a way that facilitates rotation in the hole in the center of the base. The screw is then attached to a nut fixed to the beam above. Pressure was applied to the pile of frails that contained crushed olives by turning the screw and lowering the beam. Once the beam rested upon the frails the base would rise, converting it into a weight. Presses of this type were common and their use persisted until quite recently (Frankel 1999:109, 111–118).

The usage of roughly cut base-weights rather than well-hewn cylinders demonstrates a degeneration in technological efficiency compared to that of the original installation. This change is evident even within the geographical limits of Pisgat Ze'ev, when the Ka'kul bases are compared to those from Ras Abu Ma'aruf (Seligman 1993b; 1999:152–154, 164–165, Fig. 23.4) and from Deir Ghazali (Avner, Atzmon and Savariego 1991; Avner 2000:160; Fig. 3). A number of base-weights were uncovered at Ka'kul and it is not clear whether they were used separately or together, either in series, or one placed upon the other. The collecting vat is also markedly cruder than its predecessors. Here we find a small stone basin, whereas at the sites noted above the vat is a large, well-plastered unit. As collection of the oil and lees is central and part of a longstanding regional tradition in Judea (Frankel 1987; Frankel, Patrich and Tzafrir 1990:292), the raising of the beam at the completion of the pressing would have been mandatory. Thus, the low volume of the vat would have been a crucial impediment, further emphasized by the higher volume of the Byzantine vats mentioned above.

Pottery and Small Finds.— Area B1 yielded no coins. The ceramics have a date range similar to those in Area A, i.e., the thirteenth to fifteenth centuries CE. A significant number of imported wares, including 'Aegean' wares, Cypriot slip-painted wares and possibly Egyptian mold-made slip-glazed bowls, were recovered from the area of the oil press. Typically, in a working area of the olive press, one would expect the predominance of jars, which is indeed the pattern, jars forming c. 30% of the assemblage. A bronze cross was found in Room 312 (Boas, this volume: Fig. 21).

Area B2 (Plan 12)

Four rooms of similar size, arranged in a row and aligned east–west, were discovered. They share several walls; on the north Walls 157, 154,



Plan 12. Area B2, Mamluk remains.

151, 159 and on the south, Walls 152 and 174, which were probably earlier, as the eastern and western later walls abut them. This chronological conclusion, though, may have been no more than a technical distinction, involving the method of wall construction. Entrance to these rooms was mainly from the north, although some interconnections were also evident. The outer walls of this building were not traced. All the phases down to bedrock were dated to the Mamluk period.

Room 414, the westernmost room (3.9 × 3.9 m; Fig. 33), was complex and contained many walls with blockages and rebuilding that were difficult to fully understand. Two clear phases were evident.

Phase I.— Locus 414 is the lower floor level, which relates to the lower threshold in the northeastern corner of the room, between W153 and W157, although the connection to W157 is not clear. The room is bordered on the east by W153 and on the south by W152. A pilaster of unclear function in the corner between these walls could possibly belong to a later phase. A staircase (L516/L430; Fig. 34) that ascends to an unexcavated room on the west (L466) abuts W152 on the south. The complex western wall (W155) has two phases. It abuts the staircase (L516/430) and the northern W157, and is built down into *Miqwe* 433 (see above). The upper part of W155 shows signs of forming a vault, extending eastward.

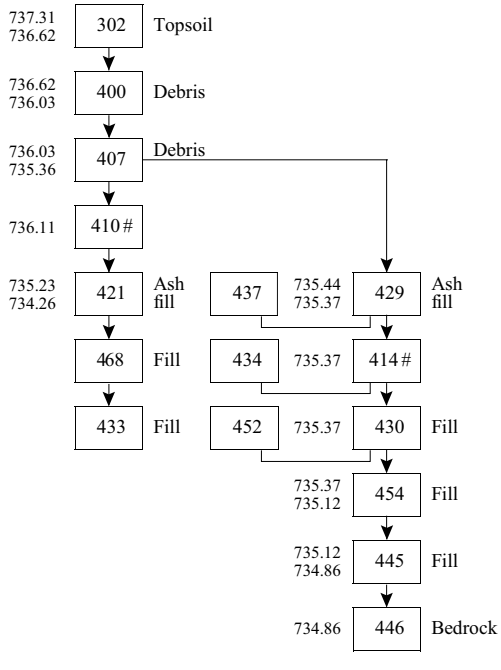


Fig. 33. Room 414, locus chart.

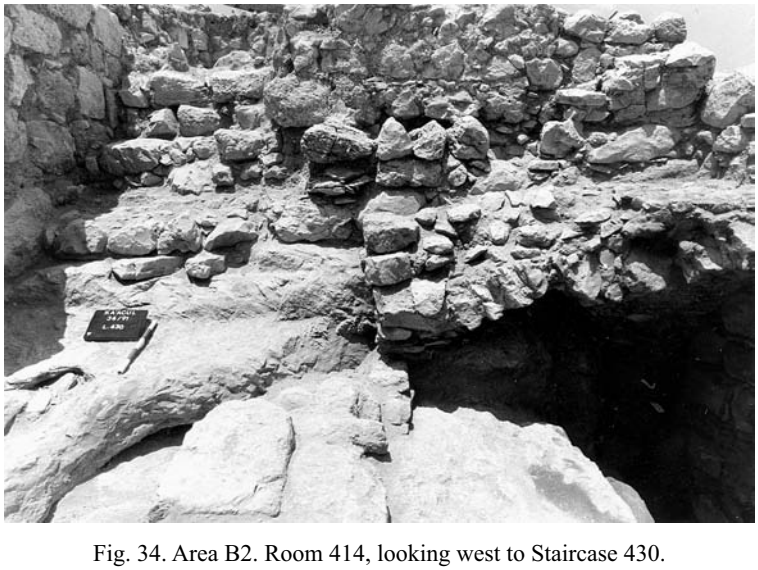


Fig. 34. Area B2. Room 414, looking west to Staircase 430.

Phase II.— The floor of the upper phase was not found, but its elevation is evident from the threshold (L434) in W157 and the plaster on W173. The doorway in W157 was built after the wall had been broadened and the lower threshold covered with W170. The entrance was then set between these walls, which are north of W153 on the east. The doorway was paved with flagstones. Walls 153 and 152 continued to be used in this phase, as well as the staircase (L560/413), though W171 was built across the top step. Wall 155 was heightened by W163. A small vault, using W155 and W157 and the new W173 as support, was built. It was constructed from large, elongated stones and bound with mortar. It opened to the south and a floor (L410) was laid above it (Fig. 35).

Fig. 35. Area B2. Room 414, looking north.

Room 406 (2.4 × 3.4 m; Fig. 36) to the east had two levels that belonged to the later phases of the period.

Phase I.— No floors were discerned in this level, although their existence was deduced from the record left in the stratigraphy of the walls. The entrance was located between the two northern walls, W154 and W151. Wall 150 on the east was set apart from W151. To the west was W153 and no wall was found on the south.

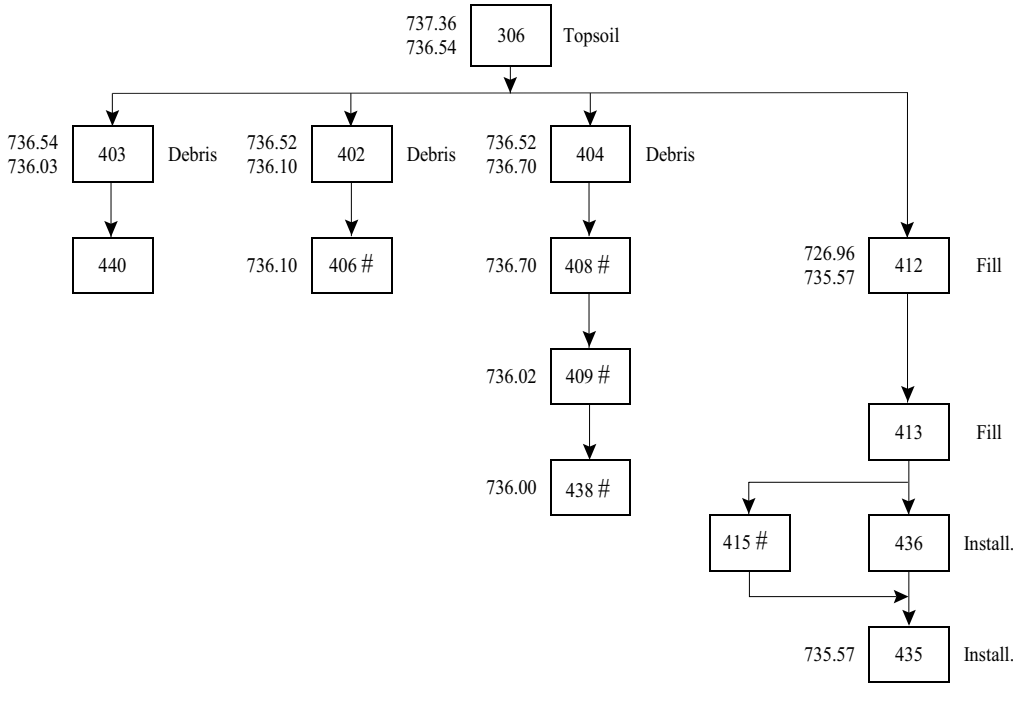


Fig. 36. Room 406, locus chart.

Phase IIa.— The gap between W150 and W151 was blocked by W165. Wall 153 was widened with W164 to its east. Wall 156 was built within the room and abutted W165 and W164; it provided support for the installation to its north (L435; 1.1 × 1.4 m). To the west, L435 rested on a wall (W191) that supported the plastered floor (L409) in the northwestern corner of the room. Above Floor 409, at the height of W156, was Floor 408; another plastered floor (L406) to the south of W156 was at the same elevation as L409 (Fig. 37). Floor 406 had no boundary on its southern side.

Phase IIb.— A wall built into the installation (L435) was plastered on its northern side, thus reducing the installation's dimensions (0.5 × 1.4 m). Paving 415, which consisted of rough stones, was placed on the plaster remains of L435 in the northern part of the room, toward the doorway.

Room 418, to the east (3.1 × 3.5 m; Fig. 38), was more complex and had a number of phases and sub-phases.

Fig. 37. Area B2. Room 406/412, looking south.

Phase I.— Two floor levels (L506, L505) below the earliest threshold within W151 covered only the eastern half of the room. Their relationship to the walls, which seem to be later, is unknown.
Phase Ia: The floor of this sub-phase is unclear; it seems to have been composed of some paving stones (L506), overlaying a fill (L509) that leveled the bedrock (L510).
Phase Ib: The floor of this later sub-phase was L505.

Phase II.— The walls of this phase are W190, W150, W174 and W161. Wall 165 cuts the floors of this stage. It was built later in the gap between W190 and W150. The entrance was in W174, near the southeastern corner.
Phase IIa: A new paved floor (L478 = L500) was laid upon a fill (L481) at the elevation of the threshold (L470) in W174.
Phase IIb: The floors (L497, L495) and threshold (L470) were raised c. 0.2 m and covered with a fine layer of plaster.

Phase III.— Wall 151 was built above part of W190. A low wall (W182; Fig. 39), standing two courses high in one row, was constructed between W174 and W151. This wall blocks part of the doorway through W174. Entry was now available probably via the northeastern corner, as here the former top elevation of W190 was retained. Wall 161 to the east was raised and an additional doorway (L515) was built in the center of the new higher wall (W158). Its threshold was set at the level of plastered Floors 474 and 441; the floors were coated with at least six layers of plaster (Fig. 40). A further plaster floor (L491) was found only to the east of W182 below Floor 441 and also relating to this phase.

Phase IV.— Wall 165 was constructed in a foundation trench that had cut through Floors 474 and 495 and abutted W150 and W151. Twelve layers of plaster covered the floor (L418; 1.8 × 3.1 m), which was laid between Walls 150, 165, 151, 182 and 174, the plaster

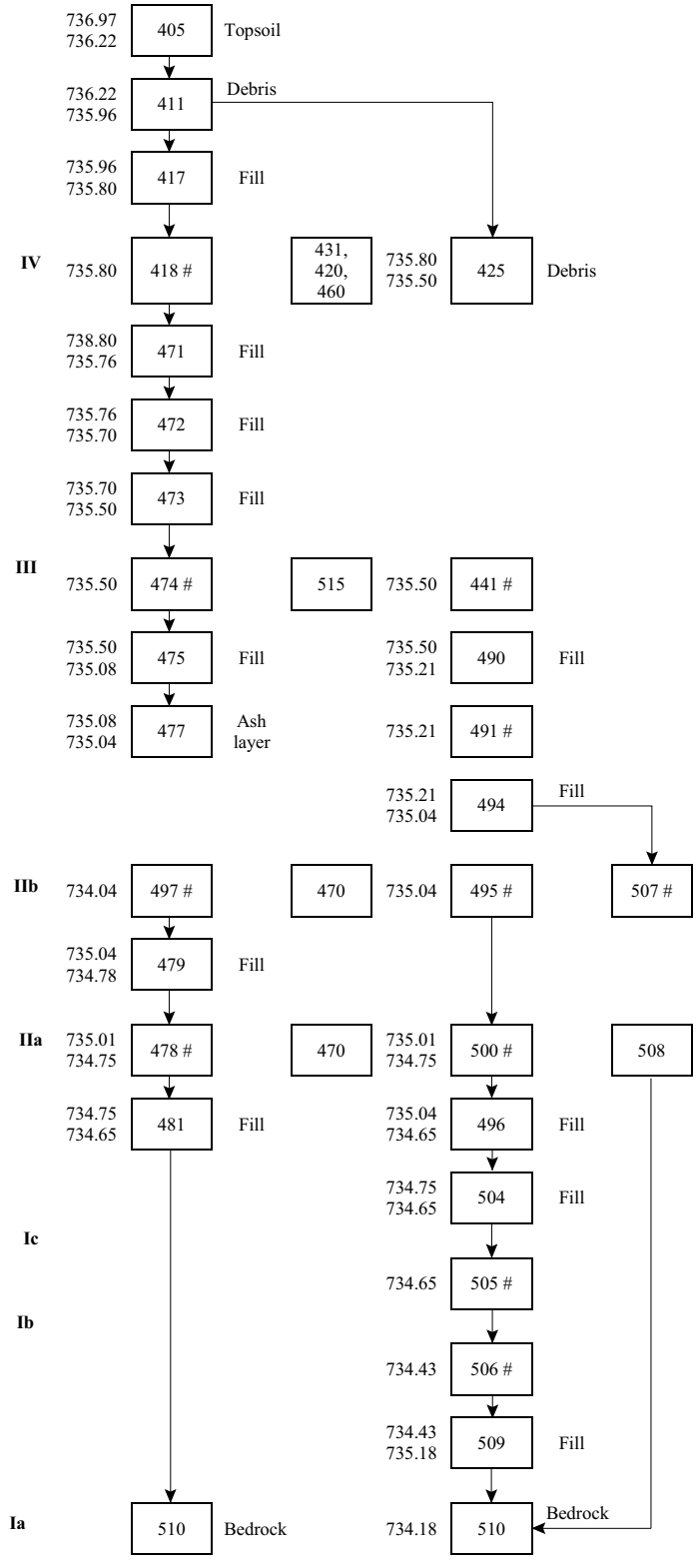


Fig. 38. Room 418, locus chart.

Fig. 39. Area B2. Room 418, Fill 481 above Bedrock 510, looking north.

Fig. 40. Area B2. Room 418, Plaster Floor 474, looking west.

Fig. 41. Area B2. Room 418 and plaster floor, and W165, looking west.

rising to cover the walls and the top of W182 (Fig. 41). A cupboard (L431) was constructed

Fig. 42. Area B2. Room 418, Cupboard 431, looking west.

Fig. 43. Area B2. Cooking-pot supports (L420) against W151, looking north.

within W165, using a central pillar and two lintels (Fig. 42). Beside it and against W151 were two stones, blackened with soot, used as cooking-pot supports (L420; Fig. 43). In the center of the floor was a darkened spot, most likely the base of a *ṭabun*. This room probably served as a kitchen. To the east of W182 no floor was found at the elevation of Floors 418 and 441, which was at a somewhat lower level and probably continued in use.

Room 424, further to the east (3.1 × 4.0 m; Fig. 44), had three, possibly four phases:

Phase I.— An early living surface (L462); the walls of the room were built above it.

Phase II.— A beaten-earth floor (L424 and L451); its walls are W174, W161, and W159 that is interspaced by a doorway, whose threshold (L517) is resting on bedrock. To the east, a fragmentary wall (W175) seems to relate to this phase, with a possible entry in its northern part.

Phase III.— The entrance between W161 and W159 was blocked by W168. Two floors, one of plaster and the other of beaten earth (L447 and L449), below the level of the later W158, abutted the blockage.

Phase IV.— Wall 158 was added above W161, with a doorway that used the earlier wall as a threshold (L515 = L450). A beaten-earth surface (L442) at a similar elevation to the threshold was the floor associated with this phase. Wall 175 was thickened to the west (W160) and probably used as the base for a vault over the room.

Opposite this row of rooms was another row, of which one room (L464; 4 × 7.5 m; Fig. 45) was excavated. It had a number of phases (I to IV) that were only exposed in the southeastern corner of the room.

Phase I.— The earliest plastered floor (L498) was lower than the walls around it and therefore predated their construction. A *ṭabun* (L499) associated with this floor was uncovered in the northeastern corner.

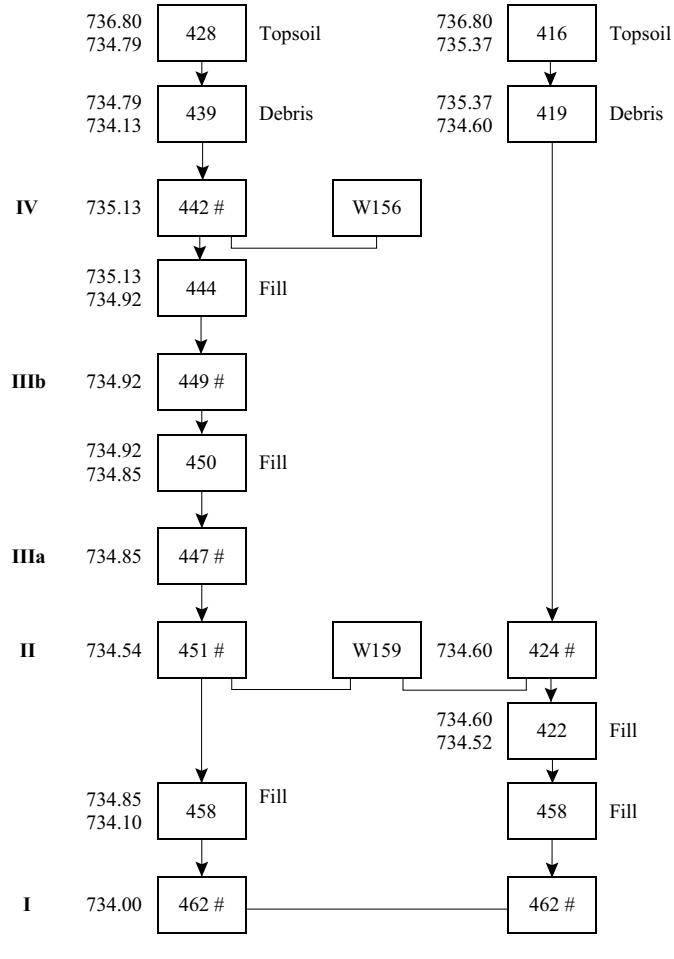


Fig. 44. Room 424, locus chart.

Phase IIa.— Wall 179 was built upon the fill (L493) of a plastered floor (L489) that abutted the wall. Wall 104, continuing down from Room 312 in Area B1 (see Plan 11), and W177 probably belong to this phase, although the loci along these walls, at this elevation, remained unexcavated.

Phase IIb.— Plastered Floor 487 was surrounded by the same walls from Phase IIa.

Phase III.— The new wall added in this phase was W178 to the south; the floor (L484) now abutted this wall and the walls noted above; it was coated with a number of plaster layers. In the northeastern corner was a depression in the plaster, accommodating a complete large pithos (B4214; Fig. 46). The vessel was covered in plaster, which may have been applied to prevent water seepage, or even to create a cooling environment for water or other perishables.

Phase IV.— A wall, which abutted W178 and was parallel to W177 and W179, was set upon Floor 484. A new floor (L480) was laid on a fill (L483). The floor was fragmentary and was possibly paved with flat flagstones, which partly survived *in situ*.

Phase V.— In the final phase, Floor 464 covered W187, leaving the entire room free of subdivisions. This plastered floor was entirely exposed.

Pottery and Small Finds.— The ceramic assemblage is similar to that described above, though it does contain a somewhat higher percentage of cooking wares. This is in keeping with the physical remains found in the area, which suggest Room 464 had a domestic function. Among the few coins was a Crusader coin from France in L467 (see Berman, this volume: No. 9), one coin dating to the fourteenth century CE (see Berman, this volume: No. 14), and yet another coin from the Ottoman period (see Berman, this volume: No. 23). Much of the glass finds in the excavation were retrieved from this area. It was mostly distinctly medieval (see Gorin-Rosen, this volume: Nos. 2, 5, 7, 8, 10–14), confirming the dates already provided by the ceramics. All the

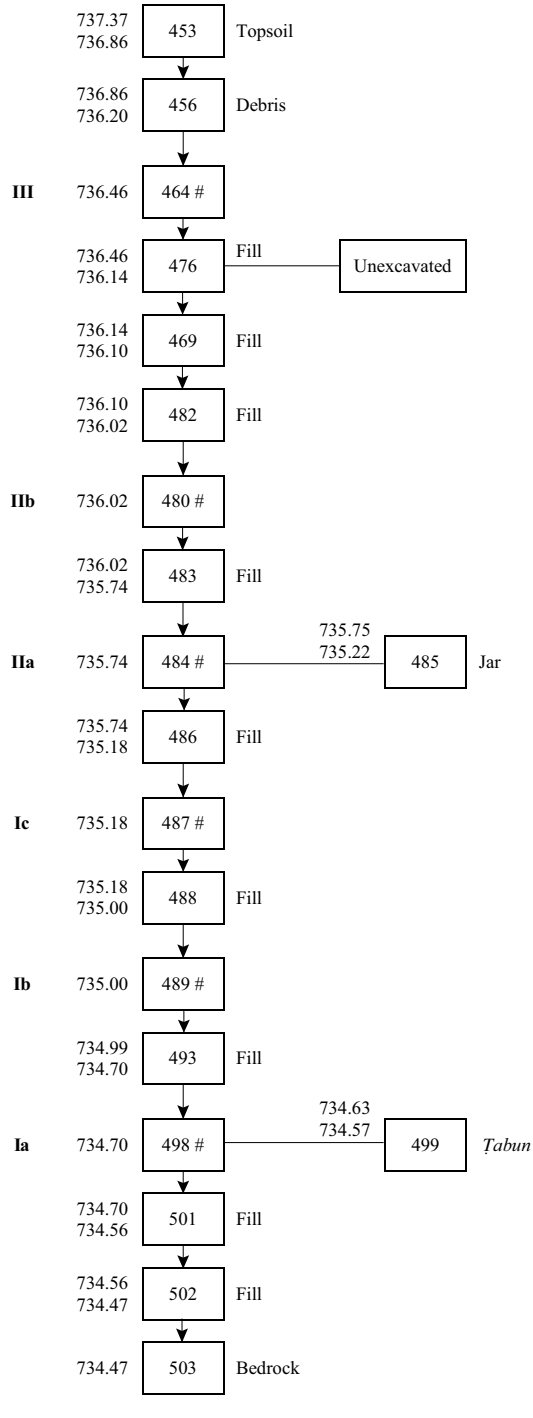


Fig. 45. Room 464, locus chart.

Fig. 46. Area B2. Room 464, Pithos 4212 in Floor 424.

earlier objects came from mixed contexts that also included later material. The small finds included an iron hammer/pick, a bronze needle, a bronze spatula, a bronze bracelet, and possibly part of a bone weaving shuttle (see Boas, this volume: Fig. 21). Of special note is a stamped jar handle (B4024) from L411 in Room 418 (see Amitai-Preiss, this volume).

A Survey of Building Remains (Plans 1, 9)

The surveyed walls that protruded above surface allowed us to reconstruct several more structures in addition to those excavated.

The structures cover the hill's summit and its surroundings, in particular the southern slope, altogether an area of approximately 6.5 dunams. These remains represent a small village, having two rows of rooms (B2) that are divided by a pathway. An olive press (B1) is at the western end. Two more rows of rooms, also divided by a narrow path, are on the southern slope. Down to the south, on flat ground, were two large buildings, each consisting of two rooms. The remains were substantial, allowing the reconstruction of the buildings as vaulted structures. On the eastern slope, the rooms of Area A were also vaulted. Below them were large piles of rubble that may be the result of the walls having tumbled down the slope, or alternatively, they may cover additional buildings. Another large room was surveyed on the terrace north of Area B2.

Conclusions

The archaeological remains at Kh. Ka'kul represent a small village, or even a hamlet, lying between the larger villages of 'Anata, Ḥizme and Shu'faṭ. This village, dating to the medieval period, covered a small area on the summit of a hill and utilized the surroundings for subsistence.

An important factor in the economy of this village was olive oil, which explains the centrality of its location and the size of the oil press. It can be assumed that the terraces below were covered with olive trees and other fruit orchards, a fact that is so well expressed in legends (Federlin 1906:269). Another cornerstone of the economy was provided by lime and limestone, as manifested by the limekilns and quarries in the immediate area; the name of the site, meaning 'soft stone', further emphasizes this point. The significance of the *ka'kule* stone for building and quarrying around 'Anata is specifically noted by Blake (1935:104) in his survey of building stones in Palestine.

The finds, e.g., pottery, glass and coins, indicate that the site was probably founded in the twelfth century. This is evidenced by

imported pottery, a French coin (B4151) and even a cross (B3069; see Boas, this volume) of, most likely, Frankish origin. The majority of pottery, glass and coins represents the major occupation of Ka'kul in the Mamluk period and into the fourteenth century CE. Little in the way of Ottoman finds was uncovered and I suggest that the site might have been entirely abandoned by the sixteenth century. This fact is further corroborated by the absence of the site's name from census records of the late sixteenth century (Hutteroth and Abdulfatteh 1977).

The site is also absent from Crusader records, although the area was heavily settled and documented by the Franks. Names of neighboring villages, e.g., Hadessa/Betligge, identified with Kh. 'Adasa, and 'Aneth ('Anatot, 'Anata) do appear (Prawer and Benvenisti 1960: Pl. 12/IX). This fact, together with the finds and the architectural dissimilarity of Ka'kul to contemporary Frankish settlements, such as Qubeibah and Ramot, leads to the conclusion that Ka'kul was occupied by a local, possibly Muslim population. What may interfere with our identification of the site in this and in subsequent periods is its name, Ka'kul, which alludes to the economic function of the hill as a quarry; such a designation most likely postdated the major abandonment of the site at the end of the Mamluk period.

INSTALLATIONS AND TOMBS

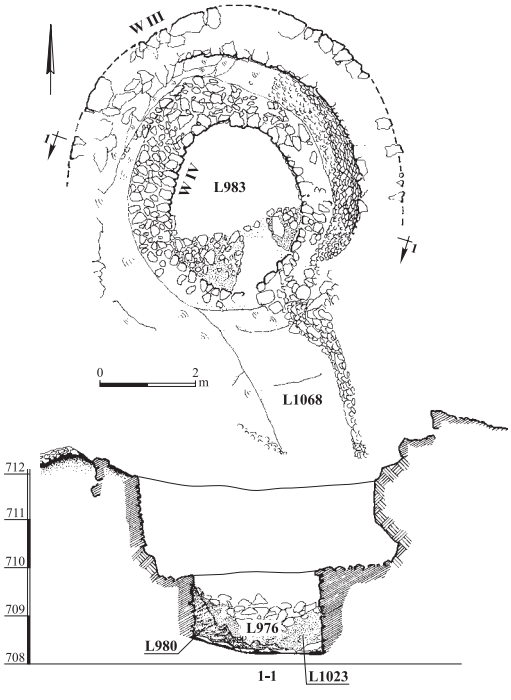
The slopes and fields surrounding the site provided economic support and burial grounds for the village. During the Second Temple period, the farmhouse of the first phase at Ras Abu Ma'aruf (Seligman 1999), the industrial winepress to the north (Shukron and Savariego 1993), and the tombs excavated on the hill directly to the west (Shurkin 2004), should all be considered to be part of the settlement environs of Ka'kul.

Evidence of subsistence is provided by the olive press (Area B1), the winepresses, the quarries and the limekilns. The three latter rock-cut installations yielded no directly associable finds. They were thus very difficult to date, and relating them, archaeologically, to any particular phase of the site was next to impossible. Inferences as to phasing based on other criteria will be presented below. The agricultural hinterland of the site is demonstrated by the terraces surrounding it; they were especially evident to the north and east of the hill. Check dams intended to prevent soil erosion were also recorded in Wadi el-Khalaf to the south.

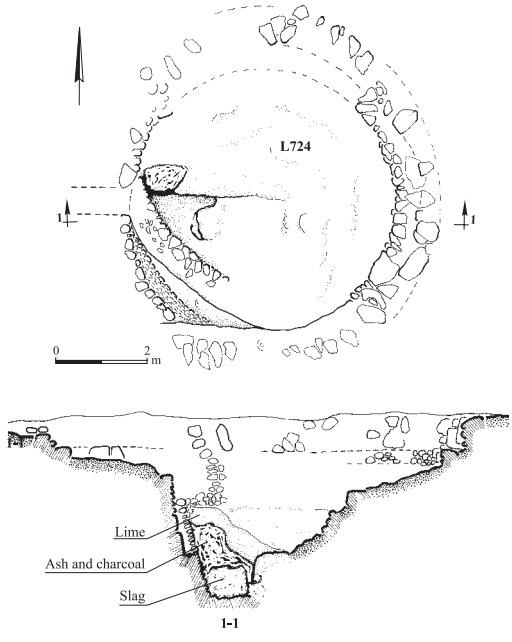
Limekilns

Twenty-two limekilns in the area of northeast Jerusalem were investigated by Gibson (1984), who gave a full explanation of how they were operated.[10] Although he (Gibson 1984:94) noted a kiln that was lying over the medieval ruin at Ka'kul, thus postdating it, I failed to locate a kiln in such a context. The dating of the installations is unknown, due to the absence of clear stratigraphic or chronological data; however, they may well be contemporary with the site itself. All three limekilns were constructed against rock outcrops at some distance from the site itself, a necessary environmental measure as the process of lime burning produces clouds of noxious fumes. These limestone outcrops could also have provided the raw material for the kilns, yet quarrying was only evident in proximity to the first and third installations. It is interesting to note that the *ka'kule* limestone from the site is known to produce a poor quality of lime (Cana'an 1933:20).

Kiln 1068 (map ref. NIG 223665/636210; OIG 173665/136210).— A large limekiln (Plan 13), 200 m north of Area G and beside Tomb 964 (see Plan 1). It exploited a natural rock outcrop on the west for a wall, the upper part elevated with a number of built courses. The other sides were built of fieldstones to the height of the rock. Earth was piled on the outside to provide support and insulation, as high temperatures had to be generated to enable processing. Further insulation was provided by a wall of small stones (WIV), which lined and



Plan 13. Kiln 1068, plan and section.



Plan 14. Kiln 724, plan and section.

diminished the interior of the kiln (max. diam. 5 m, preserved depth 4 m). Earth, used as mortar between the stones, fused and sealed the walls, which were in a charred, calcined state. Wall IV was at the height of the entrance, 2.7 m from the top. A tapered entrance from the south allowed air to enter the kiln during firings, access to the firing chamber for recharging and ease of entry, and removal of both the raw materials and the final products. The southern entrance seems to be unusual, as a survey of kilns in this area showed the usual access direction to be westerly, facing the prevailing wind (Gibson 1984:94). No ventilation shaft was found, but as it was generally located higher up the kiln's wall, it may have not survived.

The remains of the kiln's last firing could be seen in the section. On the bedrock floor was a layer of black ash (L980) and a layer of waste slag (vitreous refuse; L1023), superimposed by quicklime and burnt limestone boulders (L976), which probably originated from the collapse of the surrounding walls.

Kiln 724 (map ref. NIG 22426/63600; OIG 17426/13600).— A large limekiln located some 700 m to the northeast of the summit (Plan 14; Fig. 47). It was built against an outcrop on its southern side; its bottom was carved in bedrock and three rows of a fieldstone-built circular wall formed its upper part. As with Kiln 1068, earth was piled around the built parts for insulation and the interior space was lined with an additional lower wall of small stones that reduced the area at the bottom part of the installation (max. diam. 5.5 m, preserved depth 3.8 m). No entry passage was found in the excavated portion. The debris section showed a layer of quicklime, calcareous soil (quicklime slaked by water) and burnt earth above a layer of ash and charcoal, which sloped sharply away from the walls toward the center of the kiln. Below it was a layer of brown, cindered rock and yellowish-green slag. The few uncovered potsherds dated to the late Hellenistic period, but it was difficult to judge if they were truly associated with the structure.

Fig. 47. Kiln 724, general view, looking southwest.

Kiln 782 (map ref. NIG 224153/635720; OIG 174153/135720).— A small kiln, 300 m south of Kiln 724. It was built against a rock outcrop on the east, having a circular wall that formed the installation. A possible entry passage was on the southern side (max. diam. 2.6 m, depth 2 m). No layered remains of the final firing survived, although a large amount of slag was found in the immediate area.

Quarries

Geologically, the site is located on a layer of Senonian chalk of the Menuḥa Formation, quarried for the *nari* and *ka'kule*, above a deeper layer of Turonian of the Bina Formation that was quarried for the *mizzi* stone (Arkin 1976).

The major quarry was a rock outcrop on the southeastern slope of the hill, covering an area of c. 5 dunams (map ref. NIG 22402/63572; OIG 17402/13572). The quarry may well have been in use until the modern era, as no dating evidence was available. Large quantities of cut stone were piled in the quarry after the site was abandoned.

Just to its north, on a rock outcrop, was a series of rock cuttings (map ref. NIG 223905–4135/635750–5; OIG 173905–4135/135750–5). Many of these were enigmatic rectangular shafts cut into the rock. Large spans on the outcrop were quarried areas, especially on the eastern end. The outlines of the removed blocks were still clearly discernible (Loci 753, 755, 784; Fig. 48).

Fig. 48. Quarry 784, looking east.

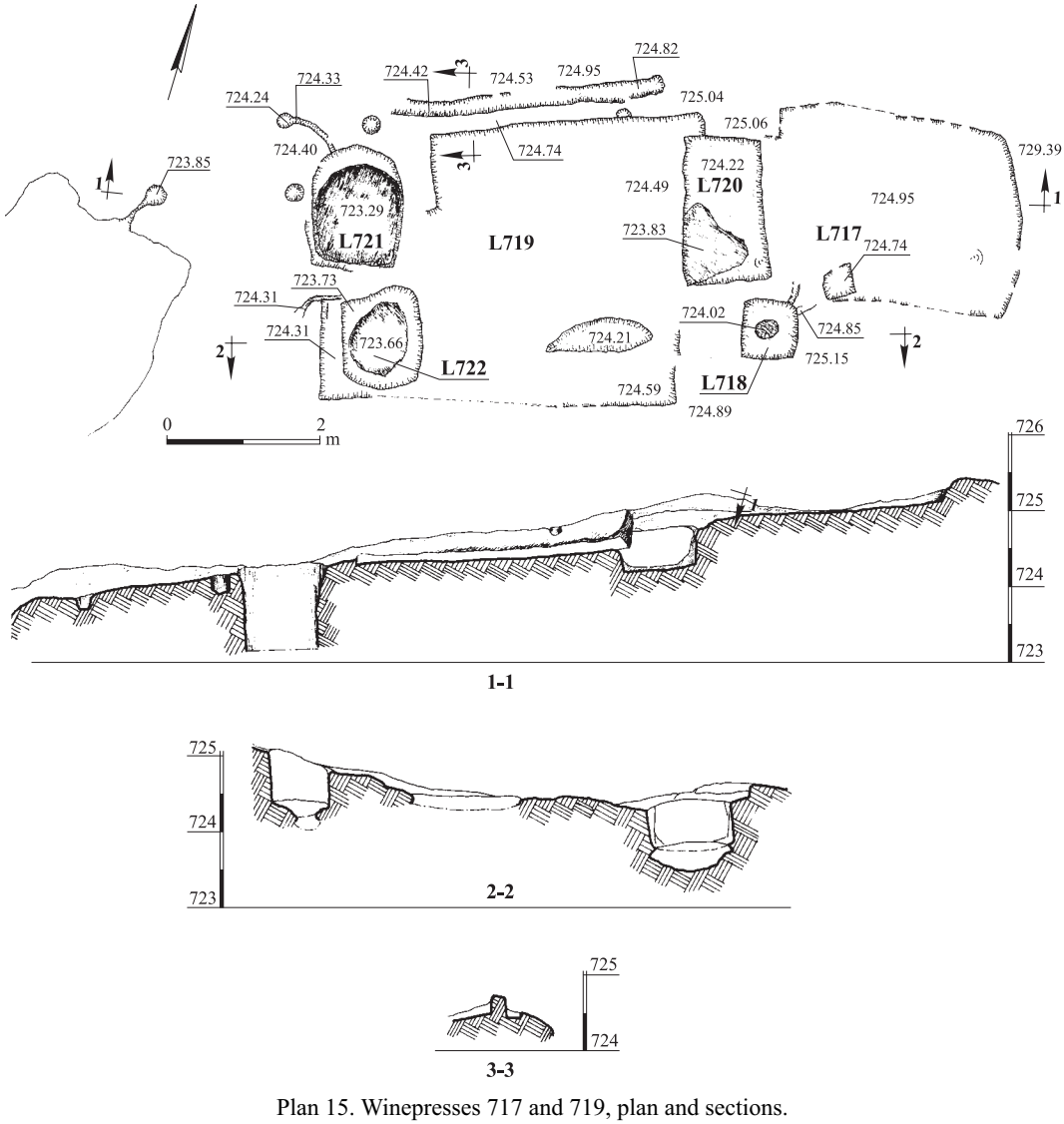
Winepresses and a Watchtower

A number of winepresses were found in the immediate area of the site, being part of the

51 winepresses recorded during the survey of the region (Gibson 1995:266).[11] Most were simple, i.e., consisting only of a treading floor and a rock-hewn collecting vat. Dating was complicated because this type was common throughout all periods. There is, however, no reason to date them differently than the site itself; hence, I suggest they were cut in the Hasmonean/Herodian period. One press is of a more complex form (L713) and can be dated, with certainty, to the Byzantine period. Winepresses 717, 719, 710 and 713 (see Plan 1) were found on the western saddle of the hill, close to Area D.

Winepresses 717 and 719 (map ref. NIG 223587/635995; OIG 173587/135995).— These winepresses consist of two square treading floors in close proximity (Plan 15; Fig. 49) and a pair of vats, either for settling the must or its collection.

The bedrock-cut treading floor of Winepress 717 was a sunken, flat surface (2.5 × 3.0 m), sloping gradually westward. Any fissures in the rock were probably filled and covered with



Plan 15. Winepresses 717 and 719, plan and sections.

Fig. 49. Winepresses 717 and 719. General view, looking northwest.

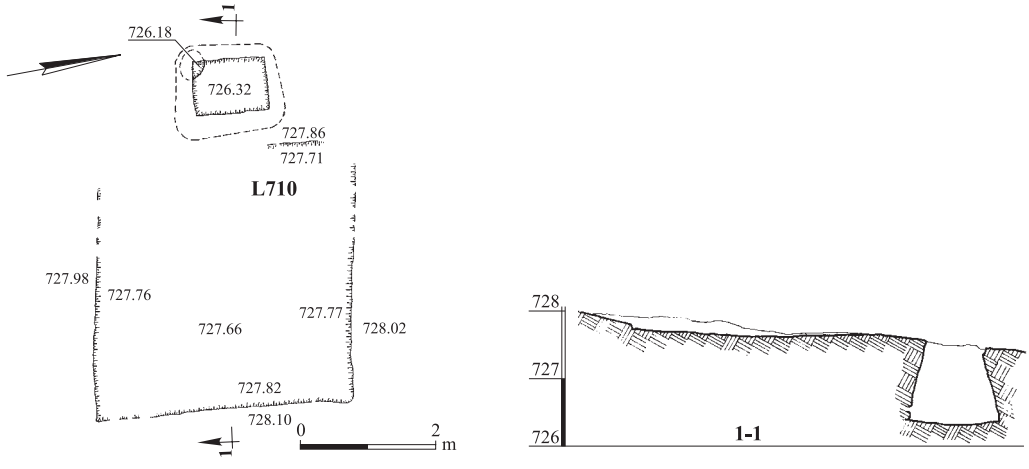
Fig. 50. Winepresses 717 and 719. Vats 721 and 722, looking southeast.

a hard facing, such as plaster. The floor was separated from a pair of vats to the west by a badly eroded bedrock borderline. The capacity of one (L718) was c. 450 liters, whereas that of the second (L720) was 1300 liters. A short channel led from the treading floor toward Vat 718; none connected Vat 718 or the treading floor to Vat 720. Both vats were hewn from the upper dolomite bedrock layer into the soft *nari* below, the holes in their bases filled and sealed, most likely, with plaster that did not survive.

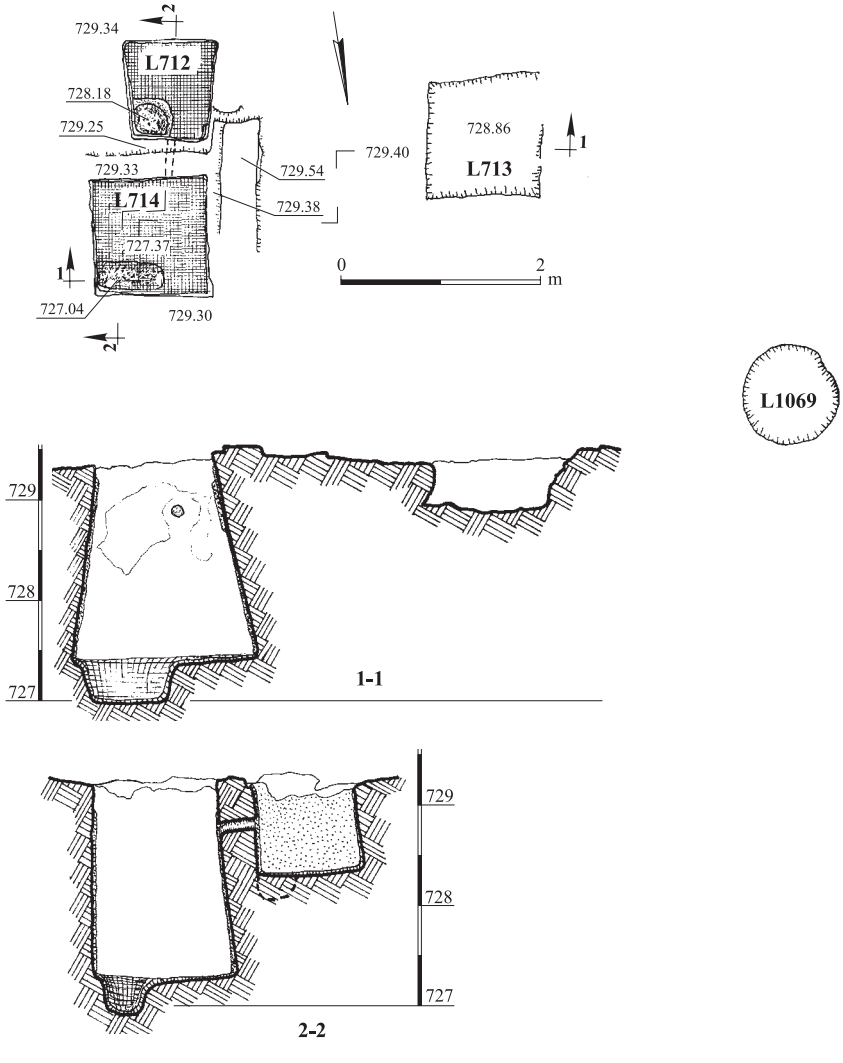
Directly west was a similar winepress (L719). The treading floor (3.6 × 3.8 m) also sloped slightly westward. The capacities of the vats west of the floor were 1000 liters (L722) and 1900 liters (L721) respectively (Fig. 50). On the western edge of the treading floor was a hewn channel, whose origin or destination was ambiguous. In addition, three cupmarks were cut around the northwestern corner of Vat 721, the central cupmark connected to the vat via a channel.

Winepress 710 (map ref. NIG 223625/635960; OIG 173625/135960).— This hewn winepress is of the simplest type (Plan 16). It included a sunken, square treading floor (3.8 × 3.8 m) and a tapered collecting vat to its west (1.3 × 1.6 m at base, depth 1.2 m). A bedrock border divided the two units and no channel leading from the treading floor to the collecting vat survived, as the rock surface had eroded.

The debris in the vat consisted of a few plain, white tesserae, showing that at least the treading floor was paved, at some point, with mosaic. This dates the use of the winepress to the Roman or Byzantine period (Hirschfeld 1983:211), though the press may well have been hewn earlier.



Plan 16. Winepress 710, plan and section.



Plan 17. Winepress 713, plan and sections.

Fig. 51. Winepress 713. Vats 712, 714, looking north.

Winepress 713 (map ref. NIG 22369/63592; OIG 17369/13592).— This is the most interesting winepress (Plan 17); it is of the complex type that included a single fixed screw press—not found before the Byzantine period.[12] The rock-hewn treading floor was flat. As it was heavily weathered, its original size was not clear. However, if the floor had been square and the screw centrally placed, then it would have measured 4.5 × 4.5 m. The floor's square depression (L713; 1.15 × 1.15 m, 0.5 m deep) had been intended for the now missing, single-fixed screw press. The treading floor was paved with a plain, white mosaic, as evidenced by a plethora of tesserae found in the surrounding area.

A hewn bedrock wall divided the treading floor from the vats; a channel led from the floor to the southeastern settling vat (L712; 0.8 × 1.0 m, 0.9 m deep; Fig. 51).[13] It was coated with a pinkish, hydraulic plaster that contained many crushed potsherds on a foundation base of broken sherds. A sump in the northeastern corner was used to collect the last drops of must. Both the floor and the sump were paved with a plain, large-tesserae white mosaic.

A duct cut through the rock led from the settling vat (L712) northward into the tapered collecting vat (L174; 1.8 × 1.8 m at base, 2 m deep) that held a capacity of over 3600 liters. A deep oval sump in the northeastern corner of the collecting vat was paved with the same mosaic as its floor, while the walls were plastered.

Processing the grapes involved several stages:

1) The process began with treading the grapes and allowing the must to flow into Settling Vat 712.

2) Once the solids had settled, the tunnel between the two vats was unplugged and the must flowed into Collecting Vat 714.

3) The grape remains were collected and placed, probably in a container, near the screw anchored in the now missing stone base that was set in Depression 713. A nut above the pressing board on the screw was lowered, allowing pressure to be applied to the grape remains and thus facilitate the extraction of any additional liquid. This must would not have been mixed with the must produced by treading, as the wine prepared from the second pressing was of a lower quality (Roll and Ayalon 1980:122).

4) The third stage of pressing involved the addition of water to the already pressed grape remains, which were then re-pressed, the must producing a very low-quality wine, or maybe even vinegar. The location of the press near Cistern 1069 (see Plan 8) was by no means accidental, since water was needed, not only for the processes noted, but also to wash the surfaces prior to pressing and even the feet of the workers, prior to treading.

The installation is dated by the single fixed screw press. It is a type characteristic of the Byzantine period (Hirschfeld 1983:217–218), although Frankel (1984, I:192) suggests that it may have been introduced in the Roman period. Moreover, the mosaic floor and the potsherds gathered both from inside the vats and used as part of the plaster application provide a similar date. The presence of a Byzantine winepress in an area void of an adjacent settlement from this period should not mislead us. Nearby

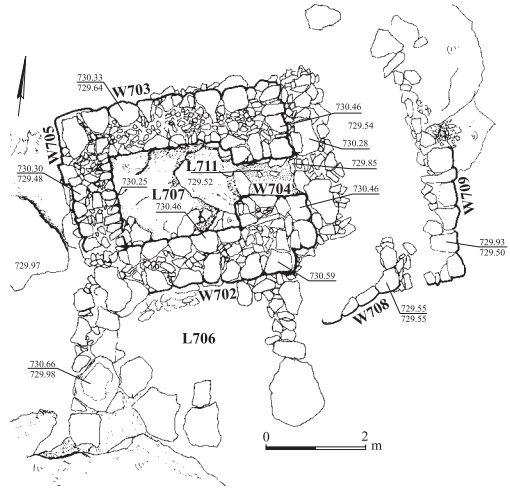
Byzantine sites, such as Deir Ghazali or Ras Abu Ma‘aruf, were involved with extensive viticulture and could well have included this press within their estates. Another option is that the press was hewn in the Hellenistic/Roman period and the screw was added in the Byzantine period. Numerous examples of fixed screw presses are known (Frankel 1984, II:71–74); the few nearby worth noting are at Ras Abu Ma‘aruf (Seligman 1993b; 1999), Deir Ghazali (Avner 2000), Ras eṭ-Ṭawil (Gibson 1982:155), Qalandiya (Magen 1984:62–64) and Shu‘faṭ (Seligman, forthcoming).

Winepress 610 (map ref. NIG 224303/636200; OIG 174303/136200).— This small winepress was hewn from an outcrop, 750 m east of the site and close to Limekiln 724 (Fig. 52). It consisted of a sunken, flat treading floor (2.4 × 2.5 m), a round settling vat to the north (diam. 1.1 m, depth 0.5 m) and a rectangular collecting vat (0.7 × 1.2 m, depth 0.45 m) set at an angle to the northeast.

Fig. 52. Winepress 610 (800). General view, looking south.

Watchtower 707 (map ref. NIG 223652/635960; OIG 173652/135960).— To the northwest of Winepress 713 was a watchtower (Hebrew: *shomera*, Arabic: *qasr*; Plan 18; Fig. 53). This type of structure was associated with viticulture; it was used for the storage of produce and provided accommodation for farm laborers during the harvest, as well as a good vantage point to watch over the crop (Gibson and Edelstein 1985:145; Frankel and Ayalon 1988:16–19).

The rectangular building (L707; 1.8 × 2.4 m) was located on the brim of the saddle, which provided a good view to both sides and overlooked the road at the base of the hill to the west. The one-meter width of the tower's wall is solid enough to indicate a second story.



Plan 18. Watchtower 707, plan.

Fig. 53. Watchtower 707. General view, looking east.

The walls were built of two rows of large fieldstones with a rubble core and survived to c. 1 m high. A floor of beaten earth was uncovered. The entrance (L711) faced eastward, where the wall was widened to 1.4 m.

The limited finds and the heavily worn potsherds made identification difficult. A glass fragment from L706 is dated to the late Byzantine period and fits in well with the possibility that the watchtower and Winepress 713 were contemporary.

The Tombs

Situated on the slopes of the site and the saddle to the east were fourteen tombs, six of which were investigated. Their location was slightly beyond the necropolis belt encircling Jerusalem during the Second Temple period (Kloner 1980:269) and they probably served the population of the immediate area ('Anata and Ka'kul itself). Additional tombs were excavated on the hill directly west of Ka'kul (Shurkin 2004) and seven burial caves at Ka'kul were excavated in 1993 (Kogan-Zehavi 1995).[14] Interestingly, medieval burials were not found in the surrounding area. A cemetery of box burials was on the northeastern corner of the site; two were excavated (996, 997) and similarly dated.

The architecture is typical of hundreds of tombs in the Jerusalem area. The tombs were of the simplest type, the sole decoration being insets or a cut frame around the entrance, which is a common facade treatment (Avigad 1950–1:97–98; Kloner 1980:210). Rolling stones had been disturbed during the looting of the tombs prior to our excavation; only four such stones were discovered (Loci 792, 725, 965, 921), having a square shape and a cut boss to fit in the entrance and seal it. Most tombs, including those excavated in 1993, had benches, some cut around a standing pit. Bench tombs were usually associated with the First Temple period, though they were also in evidence during the Second Temple period (Kloner 1980:239–240).[15] Despite the looting of the tombs, the lack of Iron Age II finds, both in the tombs and at the site itself, clearly points to a Second-Temple-period date. The concentration of bench tombs in this area, which is a relatively rare tomb type, may be significant and could point to a local tradition connected with this extra-mural Jerusalem necropolis. No real *kokhim* or *arcosolia* were found, though one tomb, No. V, with benches and two *kokhim*, was cleared in 1993 (Kogan-Zehavi 1995:82–84); the *kokhim* probably belonged to a stage later than the original hewing of the tomb.

Noteworthy are the enigmatic rectangular shafts on the outcrop, to the southeast of the site (Area C; see Plan 1). They were empty and may well have been cleared box tombs, in spite of the complete lack of human bones. At the western end of the outcrop was a collapsed tomb (L755), alongside some poorly preserved walls (L778).

Tomb 788 (map ref. NIG 224040/635908; OIG 174040/135908).— The absence of finds or of a blocking stone may indicate that this tomb (Plan 19; Figs. 54, 55), located to the northeast of the site, had never been completed or used.

A flat bedrock area was chosen for cutting a rectangular courtyard (2.35 × 3.70 m, depth c. 1 m), approached by two steps on its northern side, which had a plastered floor. A hewn channel in its northeastern corner was blocked with stones and plaster. A circular basin beside the channel may have held water to cleanse the deceased before burial; a duct connected the basin to the channel.

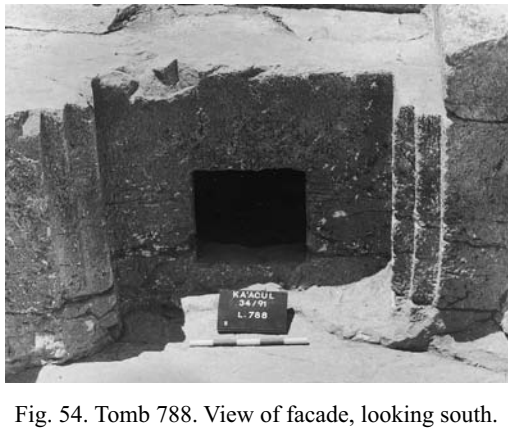
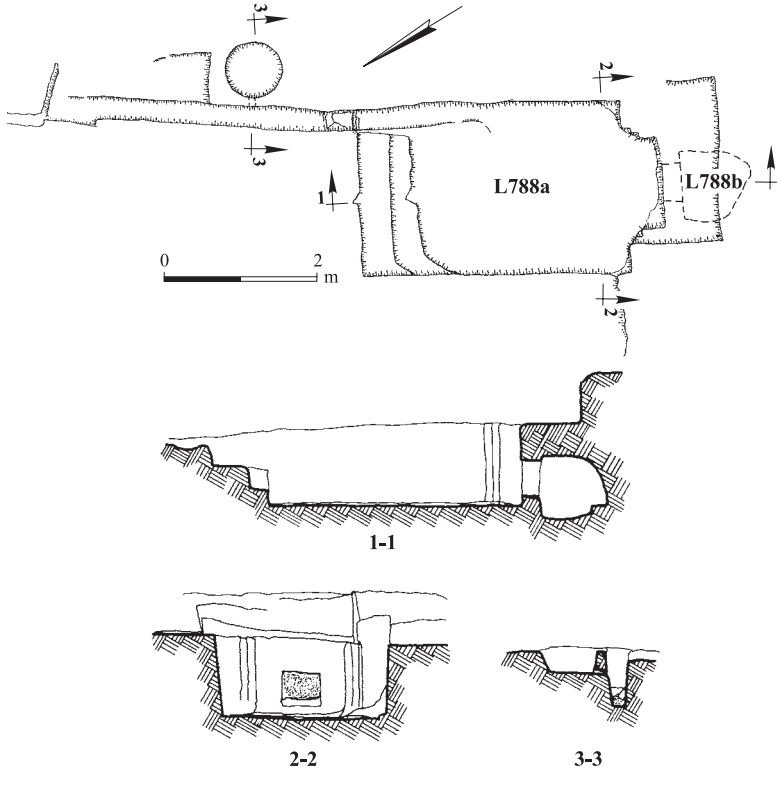


Fig. 54. Tomb 788. View of facade, looking south.

Fig. 55. Tomb 788. General view, looking southwest.



Plan 19. Tomb 788, plan and sections.

The tomb was cut into the southern wall of the courtyard. Its facade was set into a recess with stepped insets at the corners (Fig. 54). A small entrance (0.48 × 0.50 m) led to an irregular-shaped chamber (0.9 × 0.9 m), into which the most diminutive corpse could fit. Since only the side behind the entrance was well dressed, it may indicate that the tomb was not completed.

Tomb 792 (map ref. NIG 223903/635712; OIG 173903/135712).— The tomb, located on the southern slope, had a rock-hewn courtyard (1.4 × 2.0 m; Plan 20); a large boulder in its center was used as a blocking stone. Over the entrance to the north was a carved gutter, serving to channel rainwater away from the chamber into a rock-cut trench to the west.

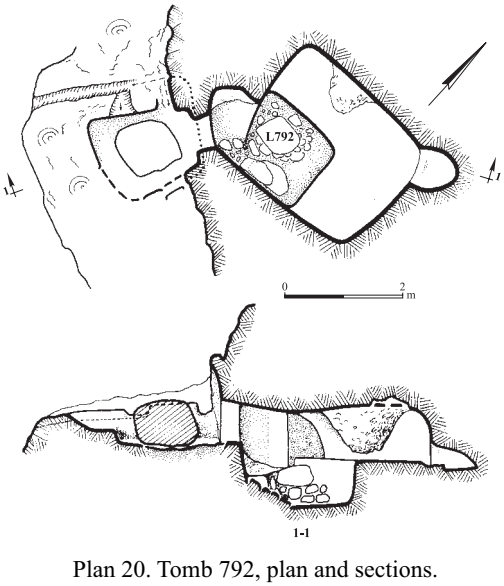
The chamber (2.5 × 2.7 m) was perpendicular to the entrance. The central standing pit was one meter below the entrance, with a large shelf cut on the northeastern and northwestern sides. A niche in the northern corner was probably a bone repository, a feature most common in the second and first centuries BCE (Kloner 1980:223).

The tomb had been disturbed in antiquity and contained a few finds and bones. Although the pottery was not diagnostic, the tomb was undoubtedly of the Second Temple period. A stray glass fragment recovered from the tomb is dated from the Late Roman to Byzantine periods (see Gorin-Rosen, this volume: No. 4).

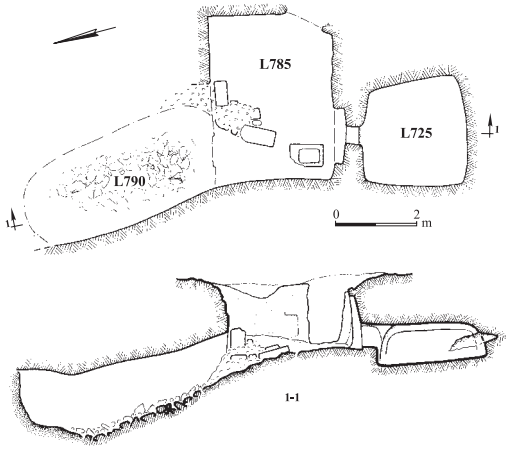
Tomb 725 (map ref. NIG 224215/635928; OIG 174215/135928).— On the edge of the hill's eastern saddle was a rock-cut tomb; its excavation was completed in 1993 (Kogan-Zehavi 1995:85, renamed 'Tomb VI').

The courtyard (L785; 3 × 4 m, 1.6 m deep; Plan 21) was rectangular. The chamber (L725; 2.6 × 2.6 m) was on the southern side and had an entrance facade molded with a low gable; a channel above it directed water away from the entrance (Fig. 56). The doorway (0.45 × 0.50 m) was inset and a large, well-cut stone, exactly fitting it, hade been thrown aside. The chamber

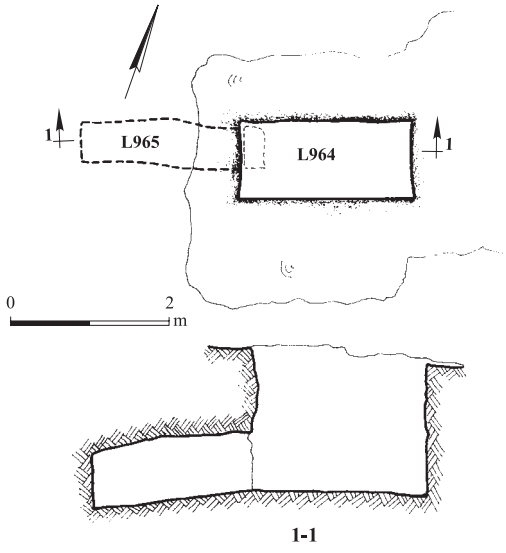
Fig. 56. Tomb 725. Facade and Courtyard 785, looking south.



Plan 20. Tomb 792, plan and sections.



Plan 21. Tomb 725, plan and sections.



Plan 22. Tomb 965, plan and sections.

had a flat floor with no *kokhim* or *arcosalia*. The tomb contained a few badly deteriorated bone fragments and some potsherds of the Roman period. Opposite L725 was a deep shaft (L790), whose excavation was not completed.

Tomb 965 (map ref. NIG 223674/636217; OIG 173674/136217).— Two hundred meters north of Area G was an unusual rock-cut tomb (Plan 22). It consisted of a rectangular courtyard (L964; 1.0 × 2.2 m, 1.7 m deep; Fig. 57) that had no steps and a single *kokh*-like chamber (L965; 0.5 × 1.9 m, depth 0.7 m) to its west. The entrance had been closed with a large, carved, blocking stone that was recently disturbed (cf. tomb with a *kokh*-like burial chamber excavated at Giv'at Mordekhai, Jerusalem; *HA* 1976). The few finds in the debris included two fusiform unguentaria, dating to the Early Roman period, and a small number of bones.

Tomb 921 (map ref. NIG 223813/635933; OIG 173813/135933).— The tomb is cut into the northern slope of the hill; the rock face was hewn vertically. On the south of the courtyard (L1061; 0.80 × 2.65 m) was the entrance to the chamber, within an inset that created a frame (0.45 × 0.60 m). The chamber (L921; 4 × 4 m) was not

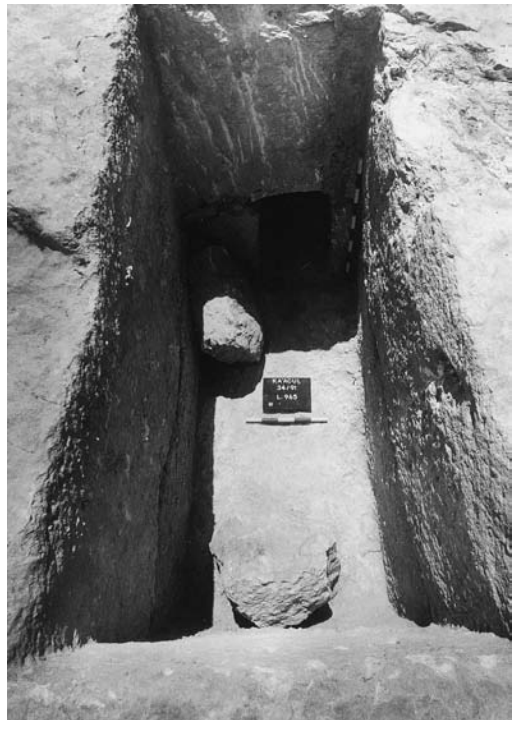


Fig. 57. Tomb 965. Facade and courtyard, looking west.

cleared, though a scatter of Early Roman pottery was found. The tomb was evidently looted as the blocking stone was missing.

Box Burials

A depression in the ground, showing earlier disturbance, drew our attention to the area, where several box burials were found and two were excavated.

Tomb 996 (map ref. NIG 223921/635860; OIG 173921/135860; 0.40 × 1.05 m, depth 0.4 m).— This tomb was cut into the soft *nari* and oriented north–south. Two flanking flagstones supported the covering stones of the tomb; those of the northern portion had been removed. The bones had been disturbed and thus, the position of the single burial could not be ascertained. The pottery dated to the Early Roman period.

Tomb 997 (map ref. NIG 223908/635870; OIG 173908/135870).— The tomb was 1 m south of T996 and aligned likewise. It was of a similar

construction (0.6 × 2.1 m, 0.5 m deep) and contained the disturbed remains of an adult and an infant. The finds included Early Roman potsherds, a ring, a small bronze spoon and iron nails that may have been used in the, now disintegrated, wooden coffin.

Water Supply

As no perennial water sources were available to the inhabitants of Kh. Ka'kul, they relied on many bedrock-hewn cisterns: the cistern in Area D (L627); the cistern to its west, toward the ancient road; the cistern in Area G (L1007); a number of cisterns between Area D and the summit of the hill that were not investigated; the cistern/columbarium under Area B1 (L330); the cistern under Area A (L130, L131); the former *miqwe* in the same area (L119); and two cisterns down the slope, to the south of Area A.

Most of these cisterns seem to have been originally cut in the late Hellenistic period, and their walls coated with the typical gray plaster of that era. Later plaster layers usually had a crushed sherd content, lending the plaster a pinkish hue (Porat 1989:74; Magen 1985:22). The excellent quality of this plaster is demonstrated by the long duration of water collected within the cisterns to this day. Evidently, the water collected sufficed for the needs of the population.

Locus List

Locus	Locus Above	Locus Below	Walls	Unit	Description	Period
Area A						
100	-	103, 104, 105	1, 2, 3		Topsoil	Med
101	-	108	-		Topsoil	Med
102	-	134	4, 5, 6	134	Topsoil (= L106)	Med
103	100	112, 133	1, 3, 8	128	Disturbance (= L118)	Med
104	100	-	1, 3	136	Fill	Med
105	100	110, 131	2, 3	137	Fill (= L102)	Med
106	-	134	4, 6	134	Topsoil (= L102)	Med
107	-	135	5, 6, 7	135	Topsoil (= L109)	-
108	101	-	-		Fill	Med
109	-	135	6, 7	135	Topsoil (= L107)	Med
110	105	131	3	137	Fill	Med
111	-	W14	9		Fill above W14	Med
112	103, W1	-	1, 8	128	Floor	-
113	-	115	7, 12, 14	135	Topsoil	Med
114	-	-	4		Topsoil and fill	Med
115	113	-	6, 7, 12, 14	135	Fill	Med
116	-	-	1, 7, 5	136	Topsoil (= L117)	Med
117	-	W8, W7	-	136	Topsoil (= L116)	Med
118	-	128, 140	3, 8, 15	128	Topsoil	Med
119	134	-	6, 10, 11, 12, 18	134	Fill in *miqwe* L120	Med
120	120	Bedrock	6, 10, 11, 12, 18	134	*Miqwe*	Rom
121	-	Bedrock	9, 13, 14	125	Fill	Med
122	-	Bedrock	4, 9, 11	134	Fill (= L124)	Med
123	-	137	3, 16, 17	137	Floor	Med
124	-	132, 139, 143	4, 9, 19	134	Topsoil and fill (= L122)	Med
125	-	Bedrock	9, 13	125	Fill	Med

Mod = modern; Ott = Ottoman; Med = medieval; Mam = Mamluk; Byz = Byzantine; Rom = Roman; Hell = Hellenistic

Locus List (cont.)

Locus	Locus Above	Locus Below	Walls	Unit	Description	Period
126	-	-	3, 14	136	Doorway between W3 and W14	-
127	-	-	3	128	Doorway in W3	-
128	118	142	8, 15	128	Floor	Med
129	-	-		129	Topsoil	Med
130	-	-	17	130	Shaft entrance to cistern	-
131	105, 110, W3	-	3	130	Shaft entrance to cistern	-
132	124	139, W25	4, 19	134	Floor	Med
133	103, 112	-	-	128	Cupmark in Floor 112	-
134	102, 106	119, 122	4, 5, 6, 10	134	Fill to bedrock	Med
135	107	109	5, 6, 12, 7	135	Fill	Med
136	100, 104	-	1, 3	136	Fill	Med
137	123, 110	-	3, 16, 17	137	Floor	Med
138	-	147	19, 21, 22, 23, 24	146	Fill	Med
139	132, 124	-	4, 19, 25, 26	134	Fill in vault	Med
140	118	141	3, 15	128	Fill	Med
141	118, 140	-	15	128	Fill	Med
142	128, 118	-	-	128	Fill	Med
143	124	-	9, 25, 26	134	Fill in corridor	Med
144	146	-	9, 20	146	Topsoil and fill	Med
145	-	-	9		Topsoil	Med
146	-	-	21, 22	146	Fill	Med
147	138	-	19, 21, 22, 23, 24	146	Fill	Med
Area B1						
300	-	304, 312, 314, 324, 328	100, 101, 104, 108	312	Topsoil	Med
301	-	305, 307, 309, 310	-		Topsoil	Med
304	300	312, 324, 328	100, 101, 104, 108	312	Floor	-
305	301	307, 309, 310	102		Fill	Med
307	305	309, 310	-	307	Floor of olive press and installations	Med
308	-	313, 315, 316, 319, 320, 322, 323	-	320	Topsoil	-
309	307	-	-	307	Stairs	Med
310	307	Bedrock	-	307	Cupmark	-
311	305	317, 318	101	307	Fill	Med
312	304	324, 328	100, 101, 108, 104	312	Floor	Med
313	308	315	102, 105	320	Fill	Med
314	304	Bedrock	-	312	Steps	-
315	313	320	105, 106	320	Fill	Med
316	313, 308	319, 322, 323	106, 109, 102	307	Fill	Med
317	311	Bedrock	100, 101	307	Floor	Med
318	317, 311	Bedrock	-	307	Fill	Med

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Locus List (cont.)

Locus	Locus Above	Locus Below	Walls	Unit	Description	Period
319	316, 313	323	106, 107	307	Fill	Med
320	315	Bedrock	105, 109, 106, 102	320	Floor	Med
321	-	Bedrock	106	320	Gap in W106	Med
322	316, 319	323	106, 109	307	Floor	-
323	316, 319	Bedrock	-	307	Pressing board	-
324	312	328	-	312	Bedrock pit	Med
325	322	331	107, 106, 102	307	Shaft to cave	-
326	311	330	101	307	Shaft to cave	-
327	-	W100	100	307	Fill in wall	Med
328	324	Bedrock	101	312	Channel in bedrock	Rom
329	315	Bedrock	105	320	Gap in W105 used to fix beam	Med
330	326	334	-	334	Columbarium cave	-
331	-	333, 335	-	335	Underground passage	Med
332	336	-	-	335	Underground passage	Med
333	331	335	-	335	Fill in Cave 335	Med
334	330	-	-	334	Floor of cave	-
335	333	-	-	335	Floor of cave	-
336	W109	332	109	335	Shaft from Passage 332	-
Area B2						
302	-	400	-	414	Topsoil	-
306	-	401, 402, 403	-	406	Topsoil	-
400	302	407	-	414	Fill	-
401	306	404, W150, W151	-	406	Fill (= L402, L403)	Med
402	306	406	-	406	Fill (= L401, L403)	Med
403	306	440, W150, W151	-	406	Fill (= L401, L402)	Med
404	306	408, 412	-	406	Fill	Med
405	-	411	-	418	Topsoil	-
406	402	-	150, 164, 156	406	Floor	Med
407	400	410, 429	-	414	Fill	Med
408	404	409	156, 165, 154	406	Floor	Med
409	408	438	150, 156, 164	406	Floor	Med
410	407	421	155, 157, 153, 152, 173	414	Floor above vault	Med
411	405	417	158, 150, 151	418	Fill (= L457)	Med
412	404	413, 415	165, 156, 154	406	Fill	Med
413	412	436	165	406	Fill	
414	429	430	153, 152, 154	414	Floor (= L434)	Med
415	412	435	150, 151, 154	406	Installation floor	Med
416	-	419	159, 150	424	Topsoil (= L428)	Med
417	411	418	158, 151, 150	418	Fill	Med
418	417	471	151, 165, 150, 174, 182	418	Floor	Med
420	417	471	151	418	Pot support	Med

Mod = modern; Ott = Ottoman; Med = medieval; Mam = Mamluk; Byz = Byzantine; Rom = Roman; Hell = Hellenistic

Locus List (cont.)

Locus	Locus Above	Locus Below	Walls	Unit	Description	Period
421	410	468	155, 157	414	Ash or organic fill	Med
422	424	458	159, 160	424	Fill of Floor 424	Med
423	W160	432	159, 162, 160	432	Topsoil	-
424	419	422	159, 160	424	Floor	Med
425	411	441	158, 171	418	Fill	Med
426	-	W162		432	Topsoil	-
428	-	439	166, 160	424	Topsoil (= L416)	Med
429	407	414	-	414	Ash layer	Med Rom
430	414	454, 445	-	414	Fill	Med
431	417	471	165, 151	418	Cupboard in W165	Med
432	423	-	160, 162	432	Fill	Med
433	468	-	157, 155, 173	414	Installation in bedrock (*miqwe*)	Rom
434	437	430	157, 154, 170	414	Entrance to room (= L414)	Med
435	436	-	165, 156, 154	406	Plastered installation	Med
436	413	435	165	406	Plastered installation	Med
437	-	440, 443	-	437	Topsoil	-
438	409	-	153, 154, 156	406	Floor (= L409)	Med
439	428	442	159, 160	424	Fill (= L419)	Med
440	-	448	172, 151	467	Fill (= L443)	Med
441	425	490	158, 174	418	Floor	Med
442	439	444	158, 159, 160, 168, 174	424	Floor	Med
443	-	-	-	-	= L440	-
444	442	449	168, 159, 158	424	Fill of Floor 442	Med
445	454	446	155, 152	414	Fill on bedrock	Rom
446	445	-	157, 155	414	Bedrock	-
447	450	451	158, 159, 168	424	Floor	Med
448	-	440, 443, 461	170, 172	467	Topsoil (= L437)	Med
449	444	450	158, 168, 159	424	Floor	Med
450	449	447	158	424	Fill of floor L449	Med
451	447	458	158, 174	424	Floor	Med
453	-	456	-	464	Topsoil	-
454	430	445	170, 164, 173, 152	414	Fill	Med
455	-	466	171	455	Topsoil	Med
456	453	464	174, 179, 178, 104	464	Fill	Med
457	-	-	-	-	= L411	-
458	422	462	161, 159, 168	424	Fill	Med
460	417	471	-	418	Pot support	Med
461	448	467	160, 154, 172, 154, 151	467	Fill (= L465)	Med
462	458	-	161, 159, 168	424	Floor	Med
464	456	476	174, 179, 178, 104	464	Floor	Med

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Locus List (cont.)

Locus	Locus Above	Locus Below	Walls	Unit	Description	Period
465	448	467	160, 154, 172, 154, 151	467	Fill (= L461)	Med
466	455	-	163, 180	455	Fill	Med
467	465	-	172, 151, 181	467	Floor	Med
469	476	482	179, 178, 187	464	Fill	Med
470	-	-	174	418	Entry in W174 to Floor 500	Med
471	418	472	181, 174, 150, 165	418	Fill below Floor 418	Med
472	471	473	182, 174, 150	418	Fill	Med
473	472	474	182, 174, 150, 165	418	Fill	Med
474	473	475	182, 174, 150, 165	418	Floor	Med
475	474	477	182, 174, 150, 165	418	Fill of Floor 474	Med
476	464	469	179, 178, 187	464	Fill of Floor 464	Med
477	475	497	165, 150, 174	418	Ash layer	Med
478	479	481	174, 150, 165, 151, 182	418	Floor (= L500)	Med
479	497	478	174, 150, 165, 151, 182	418	Fill of Floor 497	Med
480	482	483	179, 178, 187	464	Floor	Med
481	478	510	150, 174, 182	418	Fill (= L504)	Med
482	469	480	179, 178, 187	464	Fill	Med
483	480	484	179, 178, 187	464	Fill of Floor 480	Med
484	483	486	179, 178	464	Floor	Med
485	483	486	179	464	Jar set in Floor 484	Med
486	484	487	179, 178, 187	464	Fill of Floor 484	Med
487	486	488	179, 178, 187	464	Floor	Med
488	487	488	179, 178, 187	464	Fill of Floor 487	Med
489	488	493	179, 178, 187	464	Floor	Med
490	441	491	150, 183, 174, 165, 158	418	Fill of Floor 441	Med
491	490	494	182, 174, 158, 161, 151	418	Fill	Med
492	-	-	174	418	Fill from wall	Mam
493	489	498, 499	179, 178, 187	464	Fill of Floor 489	Med
494	491	495	182, 174, 158, 161	418	Fill of Floor 491	Med
495	494	500	182, 174, 158, 161	418	Floor (= L497)	Med
496	500	504	190, 158, 161, 174, 182, 470	418	Fill of Floor 500	Med
497	477	479	165, 150, 174	418	Floor (= L495)	Med
498	493	501	179, 178, 187	464	Floor	Med
499	493	503	179	464	*Ṭabun*	Med
500	495	496	190, 158, 161, 174, 182, 470	418	Floor (= L478)	Med
501	498	502	179, 178, 187	464	Fill of Floor 498	Med
502	501	503	-	464	Fill	Rom

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Locus List (cont.)

Locus	Locus Above	Locus Below	Walls	Unit	Description	Period
503	502	-	-	464	Bedrock	-
504	496	505	182, 174, 161, 158	418	Floor (= L497)	Med
505	504	506	161, 174, 150, 151, 185, 186, 190	418	Floor	Med
506	505	509	161, 174, 150, 151, 185, 186, 190	418	Floor	Med
507	494	508	182, 174, 158	418	Floor	Med
508	507	510	190, 182	418	Fill below Floor 507	Med
509	506	510	161, 174, 150, 151, 185, 186, 190	418	Fill	Med
510	481, 509, 508	-	161, 174, 150, 151, 185, 186, 190	418	Bedrock	Med
515	473	491	158, 161	418	Entry between W158 and W161	Med
516	-	-	165, 163	414	Steps from Room 414 to Room 466	Med
517	-	-	159	424	Entry between W119 and W158	Med
Area C (Field Survey and Installations)						
723	-	-	-	-	Test trench	-
724	-	-	-	-	Limekiln	Rom
725	-	-	-	790	Tomb	Rom
750	-	-	-	-	Quarry	-
751	-	-	-	-	Quarry	-
752	-	-	-	-	Quarry	-
753	-	-	-	-	Quarry	-
754	-	-	-	-	Quarry	-
755	-	-	-	-	Quarry	-
756	-	-	-	-	Rectangular shaft	-
757	-	-	-	-	Rectangular shaft	-
758	-	-	-	-	Rectangular shaft	-
759	-	-	-	-	Rectangular shaft	-
760	-	-	-	-	Rectangular shaft	-
761	-	-	-	-	Rectangular shaft	-
762	-	-	-	-	Rectangular shaft	-
763	-	-	-	-	Rectangular shaft	-
764	-	-	-	-	Rectangular shaft	-
765	-	-	-	-	Quarry	-
766	-	-	-	-	Quarry	-
767	-	-	-	-	Rectangular shaft	-
768	-	-	-	-	Quarry	-
769	-	-	-	-	Quarry	-
770	-	-	-	-	Quarry	-
771	-	-	-	-	Quarry	-
772	-	-	-	-	Rectangular shaft	-

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Locus List (cont.)

Locus	Locus Above	Locus Below	Walls	Unit	Description	Period
773	-	-	-	-	Test trench	-
774	-	-	-	-	Test trench	-
775	-	-	-	-	Tomb	-
776	-	-	-	-	Tumulus?	-
777	-	-	-	-	Tumulus?	-
778	-	-	-	-	Test trench; topsoil (= L779, L786)	-
779	-	-	-	-	Test trench; topsoil (= L778, L786)	-
780	-	-	-	-	Rectangular shaft	-
781	-	-	-	-	Terrace wall	Byz
782	-	-	-	-	Limekiln	-
783	-	-	-	-	Rectangular shaft	-
784	-	-	-	-	Quarry	-
785	-	-	-	790	Courtyard between Tombs 790 and 725	Rom
786	-	-	-	-	Test trench; topsoil (= L779, L778)	-
787	-	-	-	-	Natural cave	Med
788	-	-	-	-	Tomb	Rom
789	-	-	-	-	Tomb	-
790	-	-	-	790	Tomb	Rom
791	-	-	-	-	Quarry	-
792	-	-	-	-	Tomb	Rom; Med
Area D (Installations)						
701	-	707	702, 703, 704, 705	707	Fill in watchtower	Mam
706	-	707, 711	704, 708, 709	707	Fill in courtyard	Rom; Mam
707	701, 706	Bedrock	702, 703, 704, 705	707	Watchtower	Rom
710	-	Bedrock	-	710	Pressing floor of winepress	Byz
711	706	Bedrock	704, 708, 709	707	Fill	Mam
712	-	-	-	713	Filtration vat	Byz
713	-	-	-	713	Weight pit of winepress	Byz
714	-	-	-	713	Collection vat	Byz
716	-	-	718	-	Quarry	Iron II; Byz
717	-	-	-	717	Pressing floor of winepress	Rom
719	-	-	-	717	Pressing floor	Rom
720	-	-	-	717	Collection vat	Rom
721	-	-	-	717	Collection vat	Rom
722	-	-	-	717	Collection vat	Rom
Area D (Farmhouse)						
600	601	-	-		*Ṭabun*	Rom
601	-	600	11, 7, 8		Fill (= L603)	Rom

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Locus List (cont.)

Locus	Locus Above	Locus Below	Walls	Unit	Description	Period
602	-	-	5, 7, 12	-	Fill (= L608)	-
603	-	-	10, 11	-	Fill (= L601)	Rom
604	-	-	10, 9, 8	-	Topsoil	Rom
605	-	-	11	-	Topsoil (= L604, L606)	Iron II; Rom
606	-	-	11, 7	-	Topsoil (= L605, L609)	Rom
607	-	-	1, 5, 3	-	Topsoil (= L620)	Rom
608	-	-	5, 6, 12, 18, 19	-	Fill (= L602)	Rom
609	-	-	12, 13	-	Topsoil and fill (= L606)	Rom
610	-	-	-	-	Winepress	-
611	-	-	3, 5, 6, 20	-	Topsoil and fill	Rom
612	-	-	3, 20, 6, 12	-	Fill	Rom
613	-	-	12, 13, 14	-	Fill	Iron II; Rom
614	-	-	14, 13, 15	-	Topsoil and fill	Rom
615	-	-	3, 4	-	Topsoil and fill	Rom
616	-	-	15, 16, 17	-	Topsoil and fill (= L609)	Rom
617	-	-	15, 16, 17	-	Topsoil and fill	Rom
618	-	-	17	-	Topsoil and fill (= L621)	Rom
619	-	-	4, 3, 12	-	Topsoil and fill (= L615)	Rom
620	-	-	3, 5	-	Topsoil and fill (= L607)	Rom
621	-	-	17	-	Topsoil (= L618)	Rom
622	-	-	17	-	Topsoil	Rom
623	-	-	1, 2	-	Topsoil and fill	-
624	-	-	9, 8, 7	-	Topsoil and fill (= L607)	Rom
625	-	-	19	-	Installation (kiln?)	Rom
626	-	-	5, 19, 18, 6	-	Fill	Rom
627	-	-	-	-	Cistern opening	-
628	-	-	17	-	Topsoil	-
629	-	-	17	-	Topsoil	-
Area E						
800	-	801, 802	-	-	Topsoil	Rom
801	800	804	200	-	Fill	Rom
802	800	-	200	-	Fill	Rom; Byz
803	-	805	-	-	Topsoil	Rom
804	801	807, 814	200, 201, 202, 203	-	Fill	Rom; Byz
805	803	813	200, 201, 202	-	Fill	Rom
806	-	808, 809	-	-	Topsoil	Rom
807	804	815	200, 201, 203, 204	-	Fill	Rom
808	806	813	200, 201, 205	-	Fill	Rom
809	806	-	-	-	Pit	Rom
810	-	811, 812, W206	-	-	Topsoil	Rom
811	810	816	201, 206	-	Fill	Rom
812	810	-	206, 207, 201	-	Fill	Rom
813	805, 808	-	200, 201, 202, 205	-	Floor	Rom

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Locus List (cont.)

Locus	Locus Above	Locus Below	Walls	Unit	Description	Period
814	804	-	203, 200, 201	-	Floor	-
815	807	-	200, 201, 204, 203	-	Floor	-
816	811	-	206, 201	-	Floor	-
Area F (Test Trenches)						
900	-	904, 905	-	I	Topsoil	Med
901	-	907	906	II	Topsoil	Med
902	-	-	-	III	Topsoil and fill	Rom; Med
903	-	-	-	IV	Fill	Rom; Med
904	900	-	300	I	Fill	Byz
905	900	-	300	I	Fill	Med
906	901	-	301	II	Fill	Byz; Med
907	901	-	301	II	Fill	Rom; Byz
908	-	-	-	V	Topsoil	Rom; Med
909	-	-	-	VI	Topsoil and fill	Iron II
910	-	-	-	VII	Topsoil and fill	Byz; Med
911	-	918, 919	-	VIII	Topsoil	Rom; Byz
912	-	912	-	IX	Topsoil	Med
913	-	-	-	X	Topsoil	Med
914	-	-	-	XI	Topsoil and fill	Iron II; Byz
915	-	-	-	XII	Topsoil and fill	Iron II; Byz
916	-	-	-	XIII	Topsoil and fill	Iron II; Byz
917	-	921	-	XIV	Topsoil	Rom
918	311	-	-	VIII	Fill	-
919	311	-	-	VIII	Fill	-
920	912	-	-	IX	Stone layer	-
921	917	-	-	XIV	Burial	-
922	-	925, 926, 931, 427	303, 305	XV	Topsoil	Rom
923	-	-	-	XVI	Topsoil	Med
924	-	929, 930	-	XVII	Topsoil	Rom
925	922	-	303	XV	Fill	Rom
926	922	-	303	XV	Fill	Rom
927	-	-	303	XV	Entry in W303	-
928	-	-	-	XVI	Topsoil and fill	Rom
929	924	-	-	XVII	Burial (Muslim?)	Mod
930	924	-	-	XVI	Burial (Muslim?)	Mod
931	-	-	305	XV	Fill	Rom
932	-	-	-	XIX	Fill	-
933	-	-	-	XX	Topsoil and fill	-
Area G (Test Trenches)						
950	-	955	-	IV	Test trench, topsoil	Rom
951	-	966	-	II	Test trench, topsoil	Med; Byz
952	-	956	I	I	Test trench, topsoil	Mam
953	-	957	-	III	Test trench, topsoil	Mam; Rom

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Locus List (cont.)

Locus	Locus Above	Locus Below	Walls	Unit	Description	Period
954	955	-	-	IV	Test trench, bedrock	-
955	950	954	-	IV	Test trench, fill	Rom
956	952	958	I	I	Test trench, fill	Med; Byz
957	953	1003	-	III	Test trench, fill	Mam; Rom
958	956	962	I, II	I	Test trench, fill	-
959	-	982	-	V	Test trench, topsoil	Mam
960	-	-		VI	Test trench, fill	Med; Rom
961	-	989	-	III	Test trench, fill	Mam; Rom
962	958	-	I, II	I	Test trench, fill	-
963	-	970	III	VII	Topsoil	-
964	-	-	-	VIII	Fill in tomb courtyard	Rom
965	-	-	-	VIII	Tomb	-
966	951	-	-	II	Test trench, fill	Med; Rom
967	-	968	-	IX	Test trench, topsoil	-
968	967	973	-	IX	Test trench, fill	-
970	963	976	III, IV	VII	Debris	-
971	-	-	-	XI	Test trench, topsoil	Rom
972	-	974	-	XII	Test trench, topsoil	-
973	968	Bedrock	-	IX	Test trench, fill	Hell
974	972	-	-	XII	Test trench, cupmark in bedrock	-
975	-	-	-	XI	Test trench, topsoil (= L971)	Ott
976	970	1023	III, IV	VII	Lime layer	-
978	-	979	-	XIII	Test trench, fill	Med
979	978	-	-	XIII	Test trench, fill	-
980	1023	983	III, IV	VII	Ash layer	-
981	-	-	-	XIV	Test trench, topsoil	-
982	959	Bedrock	-	V	Test trench, fill	Med; Rom
983	980	-	III, IV	VII	Bedrock	-
984	-	Bedrock	-	XV	Test trench, topsoil	Med; Rom
985	-	986	V, VI	XVI	Test trench, topsoil	Med; Rom
986	985	992, 990	V, VI	XVI	Test trench, floor	Rom
987	-	991	VII	XVII	Test trench, topsoil	Mam; Rom
988	-	993	-	XVIII	Test trench, topsoil	Mam; Rom
989	961	-	-	III	Test trench, bedrock	-
990	986	986	V, VI	XVI	Test trench, fill under Floor 986	Rom
991	987	996, 997	VII	XVII	Test trench, fill	Rom
992	986	Bedrock	V, VI	XVI	Test trench, fill under Floor 986	Rom
993	988	994	-	XVIII	Test trench, fill	Rom
994	993	-	-	XVIII	Test trench, bedrock	-
995	-	999	-	XIX	Test trench, topsoil	Byz

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Locus List (cont.)

Locus	Locus Above	Locus Below	Walls	Unit	Description	Period
996	991	Bedrock	VII	XVII	Test trench, fill in grave	Rom
997	991	Bedrock	VII	XVII	Test trench, fill in grave	Rom; Ott
999	995	-	-	XIX	Test trench, fill	Rom
1000	-	-	-	XX	Test trench, topsoil	Rom
1003	957	-	-	III	Test trench, bedrock	-
1023	976	980	III, IV	VII	Slag layer	-
1068	-	-	III, IV	VII	Limekiln	-
Area G (*Miqwe*)						
1007	-	1051	-	XXIII	Fill in Cistern 1069 (= L1012)	Rom
1008	-	1010	-	XXIV	Topsoil	Rom; Byz
1009	-	1011	VII	XXIV	Topsoil	Rom
1010	1008	1017	VII	XXIV	Fill	Rom
1011	1009	1015	VII	XXIV	Fill	Rom
1012	-	1051	-	XXV	Fill in Cistern 1069 (= L1007)	Rom
1013	1051, 1052	1069	-	XXV	Fill in Cistern 1069	Rom
1014	1010	1040	VII, VIII	XXIV	Floor	Rom
1015	1011	1032	VII, X	XXIV	Fill (= L1025, L1031, L1037)	Rom
1016	1009	-	-	XXVI	Bedrock (= L1029)	-
1017	1010	1022	VII, VIII, XI	XXIV	Fill in *miqwe*	-
1020	1015, 1025	1033	VII	XXIV	Floor	Rom
1021	1015	1020	VII	XXVI	*Ṭabun*	-
1022	1017	1055	VII, VIII, XI	XXV	Fill in *miqwe*	-
1024	-	1026	XI, VII	XXVII	Topsoil	-
1025	-	-	-	-	= L1015	Rom
1026	1024	1035	XI, VII	XXVII	Fill	-
1028	-	1069	IX	XXVIII	Topsoil	Rom
1029	-	-	-	-	= L1016	-
1030	-	1069	IX	XXVIII	Topsoil	Rom
1031	-	-	-	-	= L1015	Rom
1033	1020	1046	VII	XXV	Fill	Rom
1034	1056	1062	VII	XXVI	Floor	-
1035	1026	-	XI	XXVII	Fill	Rom
1036	-	1070	IX	XXVIII	Fill in installation	Rom
1037	-	-	-	-	= L1015	Rom
1038	-	1050	-	XXVIII	Topsoil	Rom
1040	1014	1042	VII, VIII	XXVI	Fill of Floor 1014	Rom
1041	1040	1059	VII, VIII	XXV	Floor	-
1041	1037	1057	-	XXVI	Fill	Rom
1045	1015	1020	VII	XXVI	*Ṭabun*	Rom
1046	1033	1057	VII	XXV	Ash layer	Rom

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Locus List (cont.)

Locus	Locus Above	Locus Below	Walls	Unit	Description	Period
1047	-	-	VII	XXVI	Fill from W VII	Rom
1048	1015	1020	VII	XXVI	*Ṭabun*	Rom
1050	1038	1056	VII	XXVIII	Fill	Rom
1051	1012, 1007	1013	-	XXV	Fill in Cistern 1069 (= L1052)	Rom
1052	1012, 1007	1013	-	XXV	Fill in cistern 1069 (= L1051)	Rom
1053	1057	-	-	XXVI	Floor	-
1055	1022	1058	-	XXVII	Fill in *miqwe*	-
1056	1050	1034	VII	XXVIII	Fill	Rom
1057	1046, 1041	1053	-	XXVI	Fill	Rom
1058	1055	1066	VII, VIII, XI	XXVII	Fill in *miqwe*	Rom
1059	1041	1061	VII, VIII	XXVI	Floor	-
1061	1059	1062	VII, VIII	XXVI	Floor	Rom
1062	1061	-	VII, VIII	XXVI	Floor	-
1063	1041	-	-	XXVII	Cut in rock	Rom
1066	1058	Bedrock	VII, VIII, XI	XXVIII	*Miqwe*	Rom
1067	WVII	1010	VII	XXVI	Floor	-
1069	1007, 1012, 1051, 1052	-	-	XXIII	Cistern	-
1070	1036	-	IX	XXVIII	Hewn installation	-

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NOTES

[1] Previous excavations within the Pisgat Ze'ev project were carried out at Ras Abu Ma'aruf (Seligman 1993b; 1994; 1995; 1999), Naḥal Zimra (Meitlis 1991), Deir Ghazali (Avner, Azmon and Savariego 1991; Avner 2000), Pisgat Ze'ev D (Nadelman 1993), Pisgat Ze'ev E (Shukron and Savariego 1993) and Pisgat Ze'ev F (Shurkin 1997; 2004). The excavation under discussion was conducted from April to August 1991, under the direction of Jon Seligman, on behalf of the Israel Antiquities Authority. The area supervisors were Alfredo Levin (Areas A and D), Nasser Sandouka (Area B1), Ross Vos (Area D), Elena Kogan-Zehavi (Areas B2 and G) and Tali Ziv (Area E). Additional assistance was provided by Israel Vatkin, Pavel Gertopsky, Vadim Essman, Nissim Kollela and Rachel Graff (surveying); Sandu Mendrea, Clara Amit and Tsila Sagiv (photography); Elisheva Kamaisky (pottery restoration); Asia Stark and Ronald Greenberg (pottery illustration); Uzi Cohen (administration); Ella Altmark (metal laboratory), Yael Gorin-Rosen (glass), Ariel Berman (numismatics) and Adrian Boas (medieval ceramics). For the preliminary report of Kh. Ka'kul, see Seligman 1993a.

[2] Cana'an (1933:11) gives a full definition of this rock type: "*Ka'kuleh* is a whitish stone with occasional red veins. It is easily cut with a saw. The lower strata of *Ka'kuleh* rock are harder than the upper strata. A specially brittle kind is known as *ka'kuleh qazzazi*. Jerusalem gets this stone from Anata…". The proximity of a site named Ka'kul to Anata is probably not coincidental.

[3] The nature of ritual baths (*miqwa'ot)*, the halachic laws concerning them, their archaeology and a full corpus are found in Reich 1990.

[4] The use of columbaria has been discussed widely, the generally accepted conclusion being that they were used as dovecotes, Kloner and Hess 1985:124; Tepper 1986.

[5] See description of *miqwe* in Area A and n. 3.

[6] This report was written before the publication of Bar-Nathan's (2002) discussion of Herodian ceramics; thus, no reference in the text is given to this essential work. References are given to her M.A.

thesis (Bar-Nathan 1988), which preceded her final publication.

[7] For a full explanation on the construction of barrel and cross vaults, see Cana'an 1933:36–46.

[8] Type 31 in Frankel (1984, I:123). See also a list of similar installations (Frankel 1999:69; App. B, 54–55). The sunken socket is defined as a regional feature associated with the south, and our basin falls into this framework.

[9] Published medieval oil presses include Qubeibeh (Bagatti 1947:72, Pl. 11), Bet 'Anya (Bethany), Aqua Bella and Liftā (Benvenisti 1970:257–258), the dating of which is uncertain as the presses may well be later than the structures around them.

[10] On limekilns, see also Cana'an 1933:19–22; Sasson 1990.

[11] An additional winepress, consisting of a treading floor, a settling vat and a collection vat, was uncovered in 1993 (Kogan-Zehavi 1995:85).

[12] Frankel defined the various types of the square, single and fixed screw-press bases. Although the base stone is now missing, our example belongs to Subtype 8120 that was unattached to bedrock and for which a long list of parallels is cited (Frankel 1984, II:71–74; 1999:141–143, App. B:198).

[13] The architectural plan of Ka'kul's Winepress 713, which consisted of a treading floor and two vats that are set in a parallel line to the treading floor, has been defined as the 'four rectangle plan'—Frankel's Type 9111 centered regionally in Judea and the Shephelah (Frankel 1984, I:196–197; 1984, II:85; 1999:149–150, App. B, 212–213). Limited examples of this type are known in the Hellenistic period, though most are Byzantine.

[14] Another season of work at the site was undertaken in the spring of 1993 to excavate the tombs on the northern slope of the hill. This excavation, directed by Elena Kogan-Zehavi (1995), revealed eight tombs, including the cave opposite Tomb 725 and the blocked tomb (L755). Most of the tombs were of the bench type; some had standing pits and bone repositories. The chronological conclusions were similar to those presented here.

[15] Kloner (1980:239) noted only 20 bench tombs that were dated to the Second Temple period, out of a total of 660 discussed tombs.

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