

SALVAGE EXCAVATIONS IN THE MODI'IN LANDSCAPE

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Prior to the development of a new housing project for the growing city of Modi'in, a survey and salvage excavations were carried out within the area of the Buchman Compound (map ref. NIG 2002–11/1936–45).¹ Modi'in is situated on the eastern fringes of the central Shephelah, near the western foothills of the Judean-Samaritan anticline. The region is typified by Senonian and Eocene chalkstone overlaid with a *nari* crust, and the soil cover consists of rendzina and alluvium from the surrounding hills (Amiran 1956; Picard 1956). The natural vegetation of the region has been severely altered or destroyed by centuries of agricultural clearance, overgrazing, and recently, by accelerated modern construction. Only a few natural springs and no perennial streams are found in the immediate region, which enjoys 400–600 mm annual precipitation (Roznan 1956), thus precluding irrigated agriculture and necessitating the hewing of wells and water cisterns to catch the runoff. The rugged nature of the hilly landscape enables dry cultivation only in localized soil pockets between the rock outcroppings and in the lower alluvial valleys.

Previous investigations in the immediate vicinity have uncovered numerous agricultural installations, roadways, tombs and farmsteads (Argaman 2000; Gibson and Lass 2000; May 2000). Excavations have been conducted along the central portion of Road 2, immediately to the west, and its southern portion one kilometer to the south and southwest (Kogan-Zahavi 2000a; Torgë 2000), as well as at the site of Bir Ma'in, one kilometer to the east (Hizmi 1988/89). Other excavations have been carried out in the region of Barfilya, Horbat Tittora, the Shimshoni Compound and Umm el-'Umdan, all within modern Modi'in, or in adjacent areas (Eckus 1997; Gudovitz and

Feldstein 1998; Kogan-Zehavi 1998; Birman and Goldin 1999; Bushnino 1999; Kletter 1999; Yannai 1999; 'Ad 2000; Barda 2000; Barash 2000; Jabour and Davidson-Yekutieli 2000; Kogan-Zehavi 2000b; Milevski 2000; Nahmias and Gal 2000; Zilberbod 2000a, 2000b; Kogan-Zehavi and Milevski 2001; Haddad 2002; Nagorski 2002; Onn et al. 2002; Sion 2002; Sklar 2002a, 2002b; Torgë and Sklar 2002; Kogan-Zehavi and Zelinger 2003).

THE EXCAVATIONS

The area under discussion within the Buchman Compound encompasses nearly one square kilometer (Fig. 1) and includes three rugged hills characterized by exposed rocky outcrops. This region served as part of the agricultural hinterland for the abandoned Arab villages of Bir Ma'in to the east, Barfilya to the northwest and Salbit to the southwest. Other abandoned ancient settlements in the immediate region include Kh. Umm el-'Umdan to the west, Horbat Tittora to the north and Kh. Abu Saris to the east.

The area investigated is traversed by several local routes. An ancient track connecting Barfilya in the northwest with Bir Ma'in and Kh. Abu Saris in the east runs along the southern bank of a dry gully (see below, F93A), while another track connected the ancient settlements of Kh. Umm el-'Umdan, Kh. Abu Saris and Bir Ma'in (see below, F101).

Approximately 100 sites ('features') were investigated (Table 1). All of them are part of a larger distribution of archaeological remains found throughout the Modi'in region, bearing witness to the manner of human exploitation of this region over time.

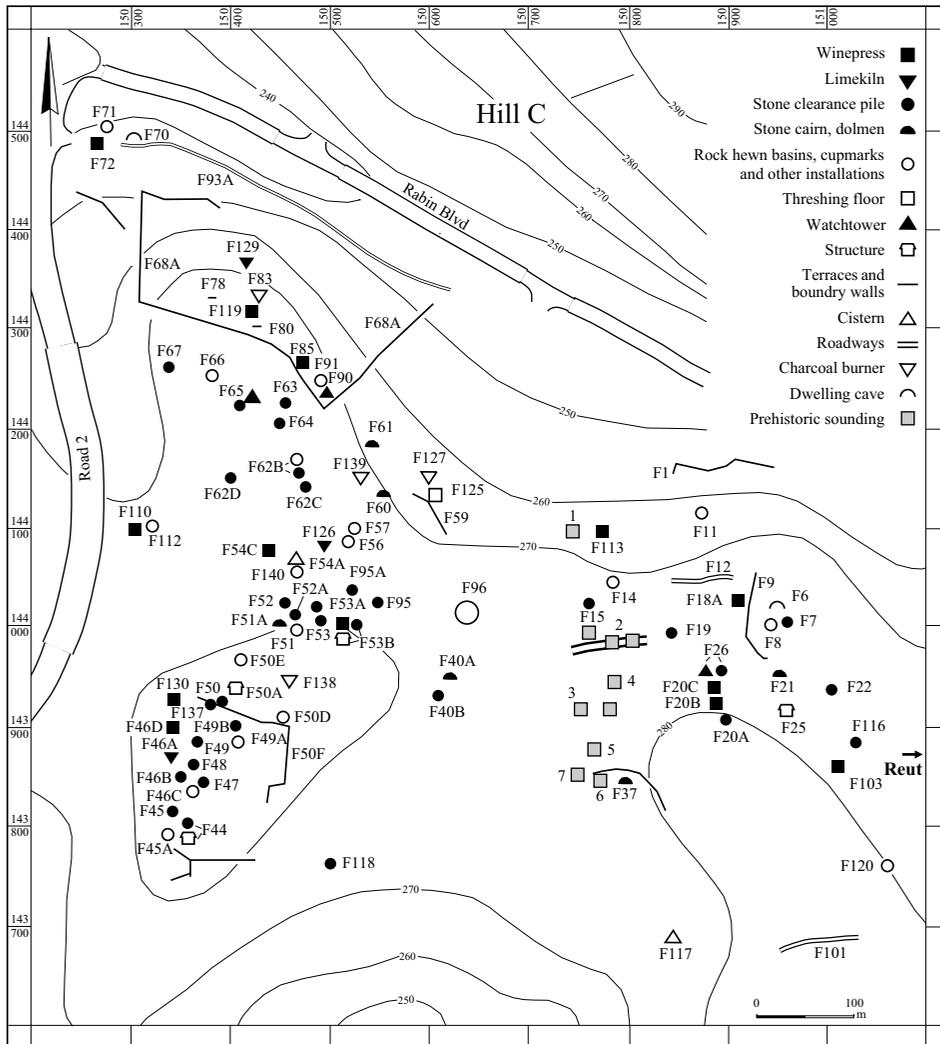


Fig. 1. Location map of excavated features in the investigated area.

The majority of the sites were found concentrated in the western portion of the area under investigation, upon two low hilltops and a moderate saddle between them. Only a few sites were found on the slopes to the west, north and south of these two hills. Another concentration of sites clustered around the summit and the northern slope of a third low hill in the eastern portion of the area, immediately to the west of the modern town of Re'ut (Fig. 1). Between these two concentrations was a large expanse of arable soil nearly devoid of archaeological

features. In contrast to other areas investigated in the Modi'in region, the area under discussion was not extensively terraced, probably due to the rocky nature of most of the terrain. The following report is a synthesis of the survey and excavation results. The various features are discussed according to functional type.

Winepresses (Table 2)

Thirteen winepresses were identified. These may be divided into three primary types on the basis of form:

Table 1. Index of Features by Function

Winepresses	F18A, F20B, F20C, F46D, F53B, F54C, F72, F85, F103, F110, F113, F119, F130
Limekilns	F46A, F126, F129
Stone clearance piles	F7, F15, F19, F20A, F22, F26, F40B, F44, F45, F46B, F47, F48, F49, F49B, F50, F52, F52A, F53, F53A, F53B, F62B, F62C, F62D, F63, F64, F65, F67, F95, F95A, F116, F118, F137
Stone cairns\dolmens	F21, F40A, F51A, F60, F61
Rock-hewn cupmarks, basins and other installations	F8, F11, F14, F44, F45A, F46C, F49A, F50D, F50E, F51, F56, F57, F62B, F66, F71, F91, F96, F112, F120, F140
Threshing floors	F125
Watchtowers	F26, F65, F90
Structures	F25, F44, F50A, F53B
Terraces	F1, F78, F80, F59
Stone boundary walls	F7, F9, F15, F49B, F53, F60, F62B, F62C, F62D, F63A?, F68A, F96, F116, F50F
Cisterns	F54A, F117
Roadways	F12, F93A, F101
Charcoal burners	F83, F127, F138
Dwelling caves	F6, F70

Table 2. Winepresses (Measurements in Meters)

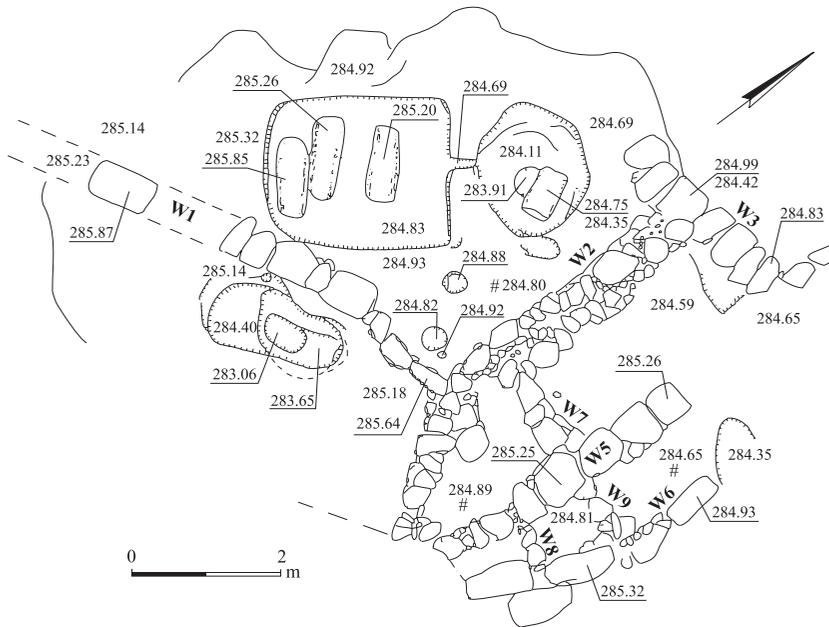
Type	Feature No.	Treading Floor	Max. Depth	Collecting Vat					Illustration
				Shape	Dimensions	Depth	Sump	Depth	
A	F18A	3.5 × 2.5	0.30	Round	1.6 diam.	0.76	-	-	Fig. 3
A	F46D	2.5 × 2.1	0.12	Irregular	1.55 × 1.25	0.53	+	0.17	-
A	F53B	2.5 × 2.1	0.46	Elliptical	2.0 × 1.85	0.75	+	0.45	Plan 1 Fig. 2
A	F113	2.0 × 1.6	0.38	Round	1.0 diam.	0.76	+	0.15	-
A	F119	2.0 × 2.0	0.21	Elliptical	1.4 × 1.2	0.94	+	0.06	Plan 2
B	F20C	1.3 × 1.3	0.33	Rectangular	0.75 × 0.55	0.56	+	0.09	Plan 3
B	F85	2.5 × 2.5	0.45	Rectangular	1.1 × 0.8	0.67	+	0.08	Fig. 4
B	F103	2.5 × 2.4	0.33	Rectangular	1.4 × 0.8	0.60	-	-	-
B	F110	2.5 × 2.4	0.53	Polygonal	1.2 × 1.2	0.87	+	0.10	Plan 4
B	F130	2.2 × 2.1	0.18	Rectangular	1.4 × 0.8	0.55	+	0.05	-
C	F20B	2.4 × 2.2	0.23	-	-	-	-	-	-
C	F72	2.3 × 2.1	0.15	Irregular	0.8 × 0.5	0.45	+	0.07	-
C	F54C	3.5 × 3.6	0.53	Store jar	-	-	-	-	Plan 5 Fig. 5

Type A: Presses with a square to rectangular treading floor leading into a rounded collecting vat (Plan 1, Fig. 2; Plan 2; Fig. 3).

Type B: Well-hewn presses with a square treading floor leading into a square or rectangular collecting vat (Fig. 4; Plans 3, 4).

Type C: Irregularly-shaped presses and those with no hewn collecting vat (Fig. 5; Plan 5).

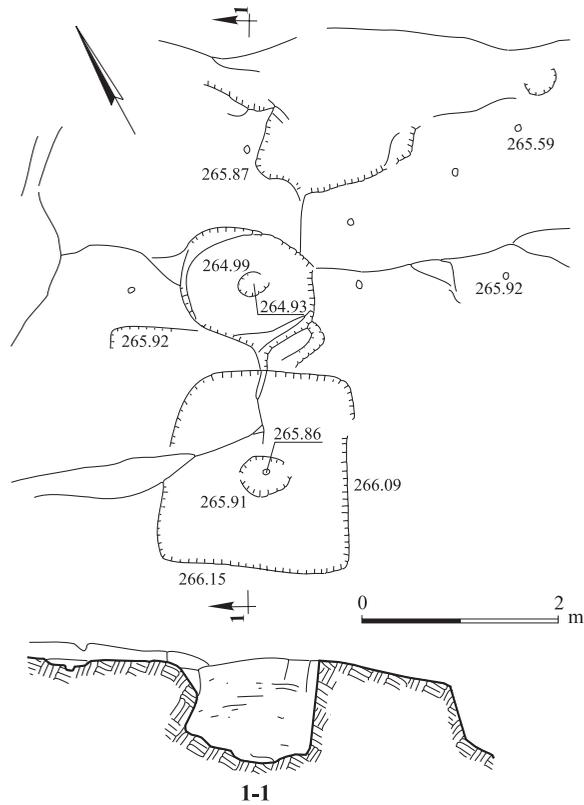
The differences between Types A and B may be chronological in nature, reflecting changing fashions over time. Type A presses appear to have been less time-consuming to create,



Plan 1. Winepress F53B and adjacent structure.



Fig. 2. Winepress F53B and adjacent structure.



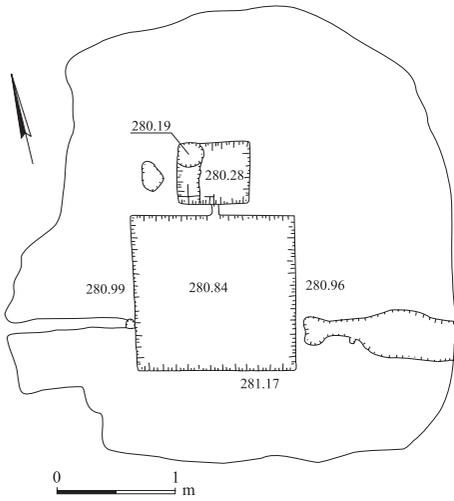
Plan 2. Winepress F119.



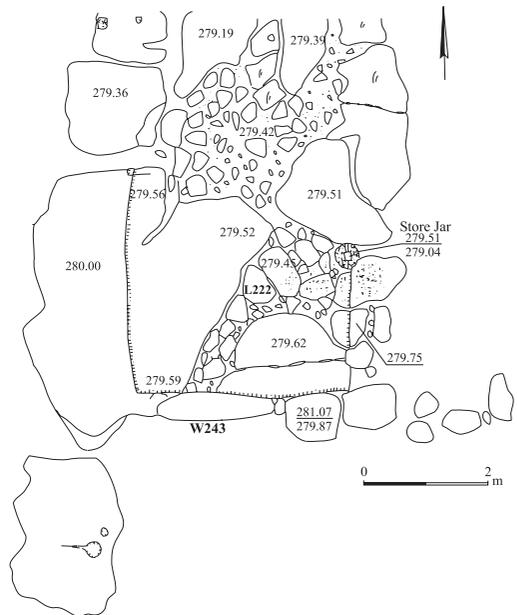
Fig. 3. Winepress F18A.



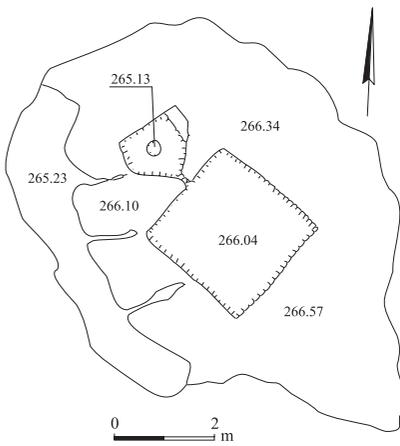
Fig. 4. Winepress F85 and adjacent boundary wall F68A.



Plan 3. Winepress F20C.



Plan 5. Winepress F54C.



Plan 4. Winepress F110.



Fig. 5. Feature 54C. Store jar used as a collecting vat.

adapting and enlarging natural hollows or depressions for collecting vats. More effort was expended in the creation of Type B presses that were hewn directly into the rock, exhibiting right angles and vertical sides. Most Type C presses may have simply been unfinished projects, while those such as F54C (Fig. 5; Plan 5), utilizing a storage jar in place of a collection vat, reflect an ad hoc adaptation to immediate local needs.

In the close vicinity of many of the presses were found small shallow cupmarks. These are interpreted as sockets for holding poles to provide temporary shelter when the press was in use. Larger and deeper cupmarks and basins also found in the immediate vicinity of the presses may have been used for holding vessels in place or for further juice extraction

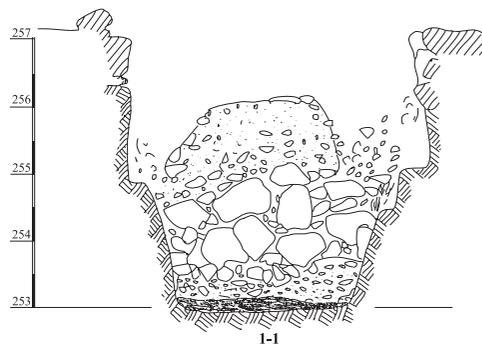
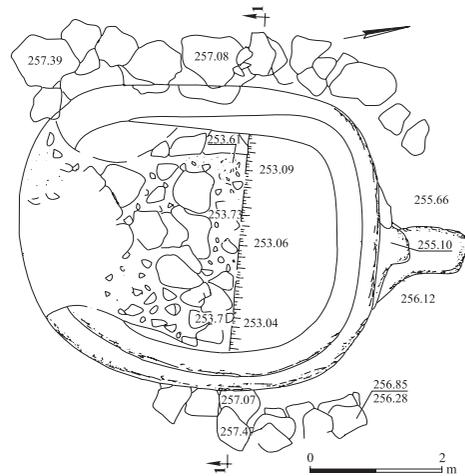
One of the Type A presses (F53B) was found with several stone rollers upon the treading floor (Plan 1; Fig. 2). These may indicate that the press was also used for the crushing of olives for oil.

The winepress designated F54C is unusual in its use of a storage jar as a collecting vat. This vessel (Figs. 5; 18:9; Plan 5), integral to the function of the press itself, is typical of the sixth century CE, thus dating the winepress to the Byzantine period.

Limekilns (Table 3)

A total of three limekilns were investigated. Two of the kilns (F126, F129) were located on northern-facing slopes, while the third, F46A, was found upon the crest of a ridge. A section was excavated in each of the kilns down to the base. They were all constructed in similar fashion: rough boulder walls partially ring the upper portion of the kiln while the sides are hewn into the rock in step or sloping fashion,

resulting in the lower portion being almost half the diameter of the upper portion (see Plan 6). Two of the kilns (F46A, F129) were constructed with hewn U-shaped air intakes in their northern side. All the kilns were found full of debris; the lower portion consisting of ash and charcoal, overlaid by burnt stones and stone rubble. Limited amounts of diagnostic ceramics, the latest of which may be dated to the Ottoman period, suggest that the kilns went out of use during this period.



Plan 6. Limekiln F129.

Table 3. Limekilns (Measurements in Meters)

Feature No.	Upper Diam.	Lower Diam.	Depth	Air Intake	Illustration
F46A	5.5	2.0	4.25	North	-
F126	4.45	1.75	2.75	North	-
F129	4.35	2.7	4.4	North	Plan 6

Stone Clearance Piles (Table 4)

Thirty-two stone clearance piles were examined. The majority were founded upon or adjacent to bedrock outcrops and were bound in a circular or elliptical manner by roughly-built retaining walls consisting of one row of medium to large stones (Figs. 6, 7). Some of these walls also served as stone boundary walls to delineate

land plots. Many of the clearance piles appear to have been added on to the boundary walls, an indication of how the plots were first demarcated and then cleared for use. Additional retaining walls were often found added on to the existing clearance pile in order to catch any overspill. In several cases, a structure which had gone out of use became a convenient place to dump the

Table 4. Stone Clearance Piles (Measurements in Meters)

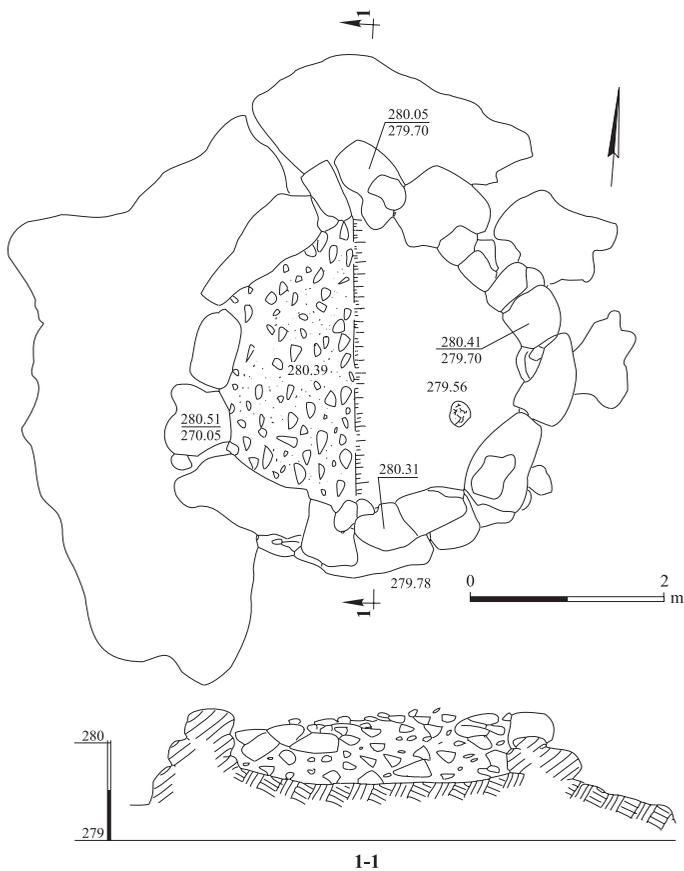
Feature No.	Length × Width	Height	Comments	Illustration
F7	7.0 × 6.0	0.25	Adjacent to a boundary wall	
F15	4.5 × 3.5	0.45	Adjacent to a boundary wall	
F19	4.0 × 2.25	0.60	-	
F20A	2.5 × 2.0	1.00	-	
F22	7.5 × 4.5	0.55	-	
F26	4.0 × 4.0	0.60	-	Plan 7
F40B	4.0 × 3.5	0.40	Square shaped	
F44	6.0 × 5.0	0.65	Clearance pile covering a structure	
F45	4.25 × 4.1	0.75	-	
F46B	7.0 × 3.3	0.35	-	
F47	6.5 × 6.0	0.35	Clearance pile built in several stages	
F48	13.0 × 11.0	2.50	Especially large pile, built in several stages	
F49	12.0 × 11.0	1.30	Especially large pile, built in several stages	
F49B	4.5 × 3.3	0.90	Adjacent to a boundary wall	
F50	6.5 × 4.0	1.00	Apsidal plan	
F52	6.0 × 4.0	0.60	-	
F52A	6.25 × 5.25	1.10	-	Plan 8
F53	8.0 × 5.5	1.00	Adjacent to a boundary wall	
F53A	7.0 × 6.0	0.50	Clearance pile built in several stages	
F53B	6.0 × 5.5	0.20	Clearance pile covering a structure	
F62B	11.0 × 5.0	0.20	Adjacent to a boundary wall	
F62C	8.5 × 4.5	0.70	Adjacent to a boundary wall	
F62D	5.0 × 4.5	0.25	Adjacent to a boundary wall	
F63	6.0 × 5.5	0.75	Polygonal plan, adjacent to a boundary wall	
F64	5.8 × 2.8	0.90	-	
F65	7.0 × 6.7	1.00	-	Fig. 6
F67	10.0 × 10.0	0.80	Triangular in plan	
F95	8.0 × 8.0	0.40	-	Fig. 7
F95A	7.0 × 5.5	0.35	-	
F116	7.0 × 4.0	0.35	Adjacent to a boundary wall	
F118	10.0 × 10.5	0.75	Clearance pile built in stages, earlier phase consists of fill of small burnt stones and crushed pottery	
F137	6.0 × 4.0	0.80	Irregular shape, adjacent to a boundary wall	



Fig. 6. Stone clearance pile F65.



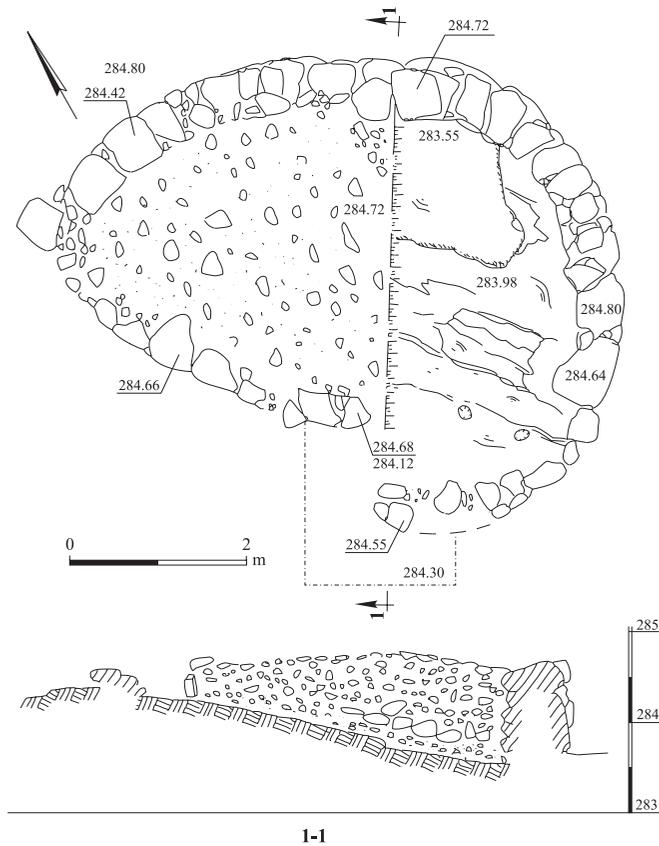
Fig. 7. Stone clearance pile F95.



Plan 7. Stone clearance pile F26.

stones (F53B, F44). On the British Mandatory map, the central portion of the investigated area is labeled Rujūm es-Suwwān, “heap of flint”, an apt observation of the fact that several stone clearance piles in this region (F47, F48) were constructed of large boulders and flint nodules.

A section was excavated in each clearance pile, revealing a mass of fieldstones within a dark brown soil matrix upon the bedrock (Plans 7, 8). In most piles, limited amounts of Late Hellenistic–Early Roman ceramics were recovered, including a large fragment of



Plan 8. Stone clearance pile F52A.

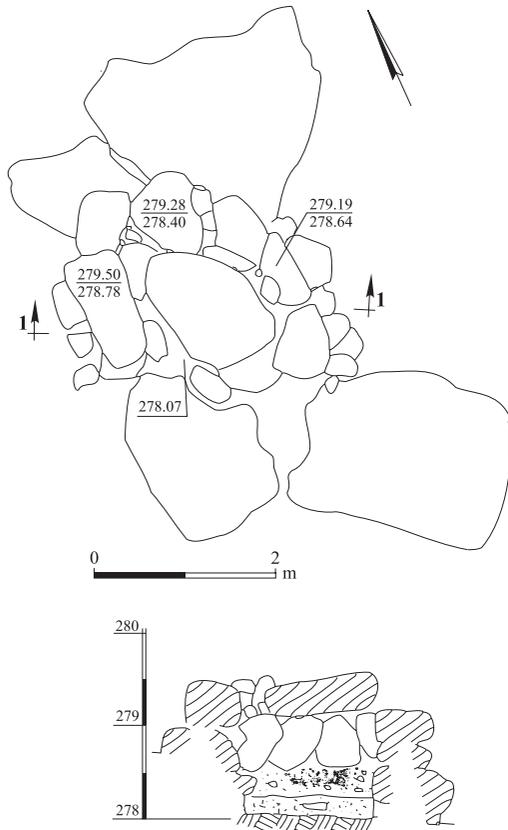
Table 5. Stone Cairns/Dolmens (Measurements in Meters)

Feature No.	Length × Width	Height	Comments	Illustration
F21	2.8 × 2.2	1.45	Dolmen-like structure	Plan 9; Fig. 8
F40A	3.0 × 3.0	0.90	Small circle of boulders set upright; stone fill within, covered with boulders	
F51A	2.75 × 2.5	1.00	Square-shaped, dolmen-like structure; large stone roofing(?) slab found within	
F60	5.0 × 5.0	1.00	Adjacent to a boundary wall; two roughly concentric walls of boulders	
F61	3.0 × 3.0	0.80	Small circle of boulders set upright; stone fill within, covered with boulders	

a ceramic flask (F15; Fig. 18:5), suggesting that the initial construction of these features be attributed to this period. Other clearance piles contained small amounts of ceramics dating in general to the Byzantine–Umayyad periods, an indication that some of these features may also have been formed at a later date.

Stone Cairns/Dolmens (Table 5)

Stone cairns and dolmens are defined as small rounded or elliptical constructions (Plan 9; Fig. 8) not originally intended for stone clearance, though they may have been used as such at a later time. No burial or habitational remains were found in any of these features.



Plan 9. Stone cairn/dolmen F21.



Fig. 8. Stone cairn/dolmen F21.

Rock Hewn Cupmarks, Basins and Other Installations (Table 6)

Numerous small rock-hewn installations, many of them of unclear function, were found throughout the region. The majority of these are cupmarks, usually no more than 0.3–0.4 m in diameter and between 0.1–0.4 m deep. These may be rounded or oval in shape, occurring in concentrations on large bedrock exposures (such as F56, F96; Fig. 9, Plan 10), alongside other features (Plan 14), or as singular phenomena. In addition, rock-hewn basins, at least 0.5 m in diameter and usually deeper than the cupmarks,

Table 6. Rock-Hewn Cupmarks, Basins and Other Installations (Measurements in Meters)

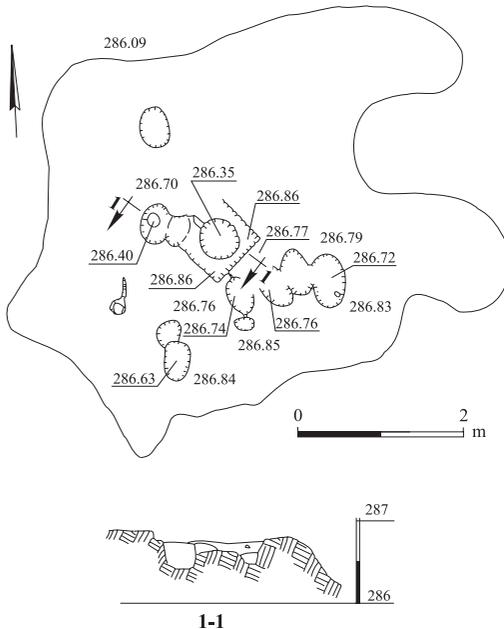
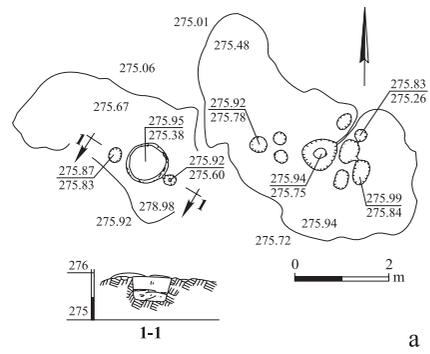
Feature No.	Diameter	Depth	Comments	Illustration
F8	0.55	0.15	Single circular basin	
F11	0.22–0.45	0.13–0.33	Two circular cupmarks	
F14	0.35–0.75	0.10–0.14	One shallow oval basin, seven shallow oval cupmarks	
F44	0.45	0.15	One cupmark adjacent to structure and clearance pile	Plan 14
F45A	0.30–0.79	0.12–0.46	One square installation 0.63 × 0.69 × 0.09 with sump in center; three circular basins with sumps; one rounded cupmark with sump	Fig. 9
F46C	0.77	0.55	Single circular basin	
F49A	0.50	0.22	Single circular basin	
F50D	0.52	0.27	Single circular basin	
F50E	0.45	0.19	Single circular cupmark	
F51	0.40–0.65	0.10–0.51	Deep cupmark within square recess measuring 0.75 × 0.65; three oval basins; three oval cupmarks	Plan 10
F56	0.2–1.2	0.1–0.5	Sixteen basins and 15 cupmarks alongside a small winepress(?) and collecting vat of irregular shape	Fig. 10
F57	0.93	0.83	Single circular basin and 5 adjacent very small cupmarks 0.1 diam. and 0.05–0.10 deep	
F62B	0.35	0.27	Single cupmark adjacent to stone clearance pile	

Table 6. Rock-Hewn Cupmarks, Basins, and Other Installations (Measurements in Meters) (cont.)

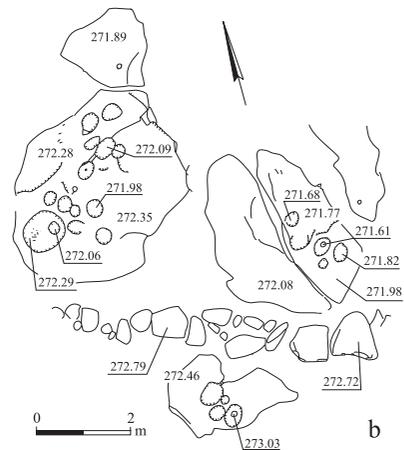
Feature No.	Diameter	Depth	Comments	Illustration
F66	1.0 × 0.5	0.50	Rectangular installation; unfinished collecting vat for winepress?	
F71	0.70 × 0.53	0.20	Two adjacent rectangular installations	
F91	1.4 × 0.65	1.5	Single oval basin next to watchtower	Fig. 12
F96	0.10–0.75	0.10–0.57	Large concentration of 9 basins, 26 circular and 38 oval cupmarks	Plan 11
F112	1.3	1.05	Single circular basin next to winepress (F110)	
F120	0.5	0.35	Circular basin with shallow rectangular (0.40 × 0.25) installation draining into it, all encircled by a shallow recessed border (for a covering lid?)	Fig. 11
F140	1.1 × 0.17	0.16	Single rectangular installation	



Fig. 9. Hewn square installation F45A with sump.



Plan 10. Feature 51. Rock-hewn stone cupmarks, basins and installations.



Plan 11. Feature 96. Rock-hewn stone cupmarks, basins and installations.

were often found alongside the cupmarks (Plan 11; Fig. 11). Many of these depressions also had small rounded sumps within them (Fig. 11). All these features were probably connected in some way with the processing of agricultural produce, possibly olive oil.

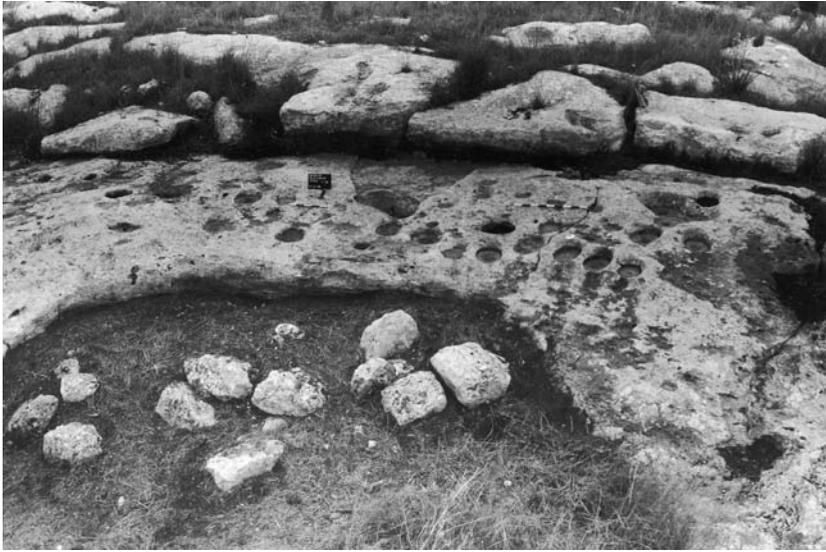
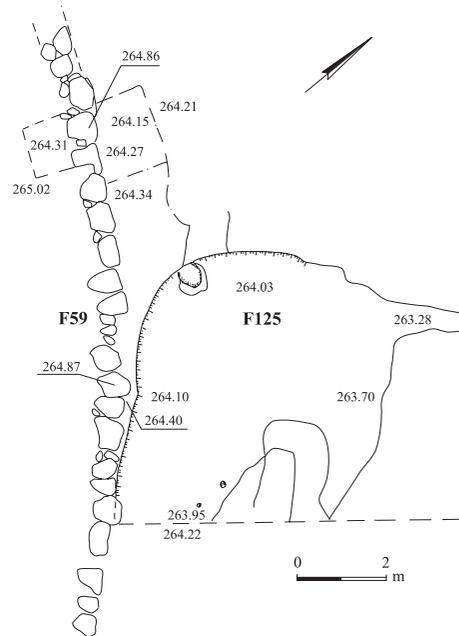


Fig. 10. Feature 56. Concentration of cupmarks and basins on bedrock outcrop.



Fig. 11. Feature 120. Hewn basin with adjacent square installation.



Plan 12. Threshing floor F125 and wall F59.

Threshing Floors.— One feature (F125), adjacent to a terrace wall (F59), was interpreted as a threshing floor (Plan 12). It consists of a large expanse (6.0 × 6.5 m) of artificially smoothed bedrock bounded by a vertical cut in the rock, 0.1–0.3 m deep on its western and southern sides.

Watchtowers.— Two stone clearance piles overlooking agricultural plots whose tops appear to have been leveled, may have been employed

as watchtowers (F26, F65; see Fig. 6, Plan 7). Only one feature (F90; Fig. 12) was apparently constructed specifically as a watchtower. This kidney-shaped feature, adjacent to an olive grove delineated by a stone boundary wall (F63A), measures 4.5 × 7.2 m and rises to a height of just



Fig. 12. Stone watchtower F90 and hewn basin F91 at lower left.

over a meter above the ground. It was built of large to medium-sized stones with a fill of medium to small stones. The lack of patination on the stones suggests that this feature is modern.

Structures (Table 7)

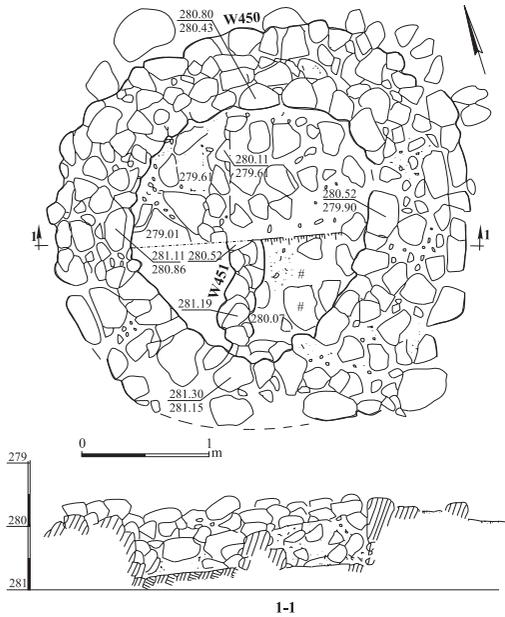
Four features were defined as structures, probably used for temporary dwelling or storage. All the structures were found in proximity to other agricultural features and were roughly built, usually of one row of medium to large fieldstones outlining a circular (F25, F44; Fig. 13; Plans 13, 14), square (F50A) or irregular (F53B; Plan 1) plan. In F50A and F53B, diagnostic ceramics of the Late Hellenistic–

Table 7. Structures (Measurements in Meters)

Feature No.	Dimensions	Comments	Illustration
F25	Outer diam. 6.4	Circular structure bounded by 1.25 m thick wall; a rough partition wall divides the structure into two parts containing a stone pavement overlaid by gray, partially burnt debris	Fig. 13, Plan 13
F44	7.0 × 5.5	Circular structure bounded by a poorly built perimeter wall of large flint nodules and several partition walls within	Plan 14
F50A	3.00 × 2.75	Small, square, roughly-built structure of large stones	
F53B	10.0 × 3.7	Irregular structure of several rooms adjacent to a winepress	Plan 1, Fig. 2



Fig. 13. Structure F25. Note the partition wall at center and remains of flagstone pavement at upper center.

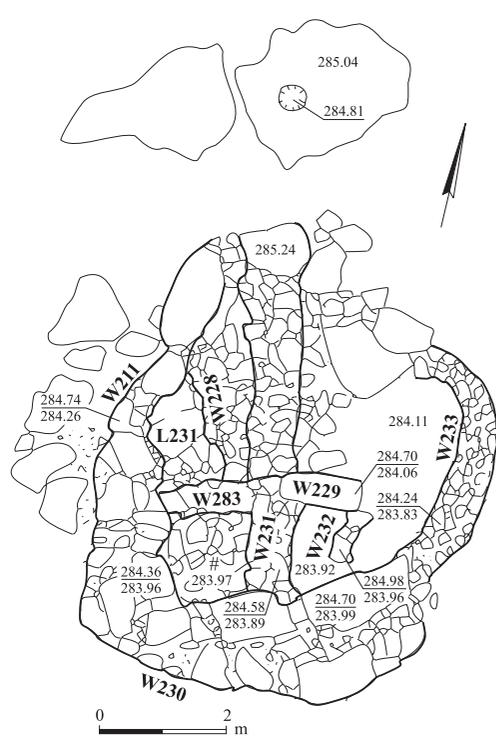


Plan 13. Structure F25.

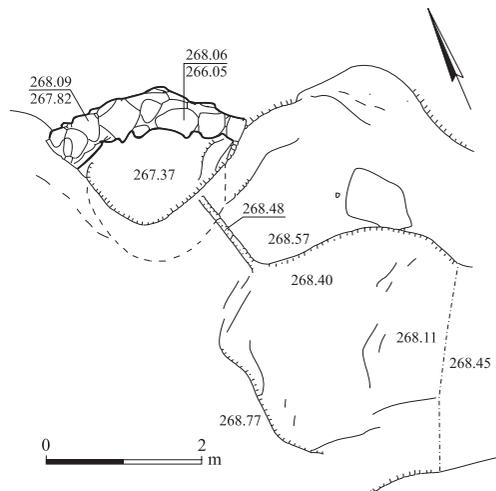
Early Roman periods were found upon the bedrock floors, yet the other features (F25, F44) were devoid of any significant diagnostic material. The structure of F53B stood adjacent to a winepress (see above) and consisted of a small complex of irregularly-shaped rooms or storage areas built of simple stone walls (Fig. 2; Plan 1). This complex appears to have been constructed in two stages. In the first stage, two rooms were built to the east of the winepress (W2, W3, W7, W5). At a slightly later stage, additional walls of slightly different construction were added (W1, W6, W8, W9). In its last stage of use, F53B functioned as a stone clearance pile.

Terraces

Despite the presence of numerous slopes, the region was not intensively terraced; agricultural plots were farmed in soil pockets between the extensive bedrock outcrops and in the small alluvial valleys. The few terraces identified are simple and short, usually tailored to form a localized plot of arable land. As an example, the terrace designated F80 (Plan 15) was formed by a low wall that closes off a small niche beneath



Plan 14. Structure F44.



Plan 15. Terrace F80.

a local rock escarpment. Above the escarpment, a natural, shallow depression in the bedrock leads to a small rock-cut channel which directs the runoff directly onto the terrace.

Cisterns

Two cisterns were discovered in the investigated area. Feature 54A is located on the upper portion of a slope near a winepress (F54C). It is cylindrical in shape, 5 m in diameter and 4.7 m deep (Plan 16). Entrance into the cistern was gained by a keyhole-shaped opening in its roof (Fig. 14). Outside the opening, two small cupmarks flanking the entrance could have served to position a water-drawing installation or a covering for the entrance. From the entrance, several rock-cut steps led down into the cistern, whose walls were lined with

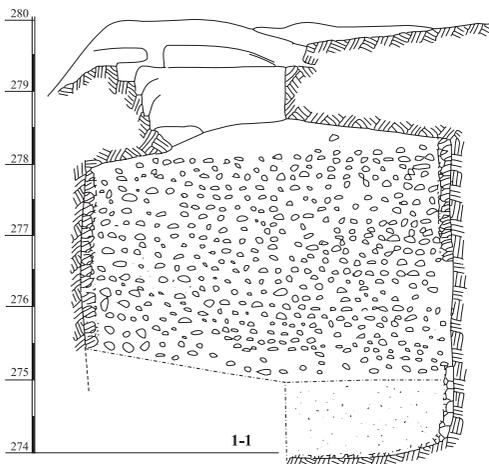
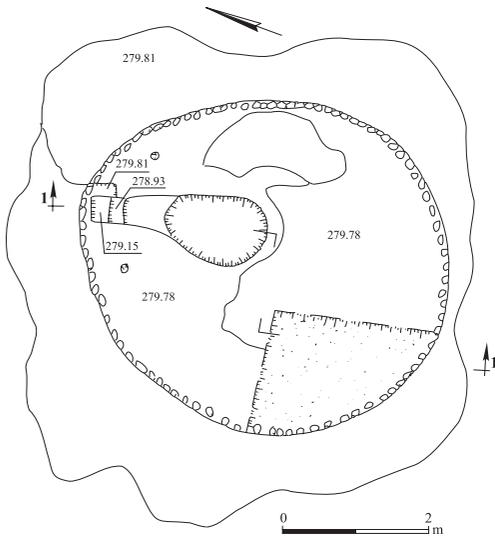
a layer of tightly packed stones held together by a gray-brown plaster, then overlaid by a two-cm-thick layer of gray hydraulic plaster, only partially preserved. At a later stage, the walls were coated by a seven-cm-thick layer of reddish plaster mixed with crushed ceramics.

The second cistern, F117, also located on the upper portion of a slope, was only partially revealed. Its opening was capped by a large (1.5 × 1.5 m) squared stone with a hewn rounded hole, 0.5 m in diameter, for drawing the water. A stone trough was found next to the opening, through which a vertical, rock-hewn shaft led into a natural karstic hollow that may have been artificially enlarged.

Roadways

Three features were identified in the investigated area as roadways or ancient tracks. The first, F12, winds in an east–west direction along the base of a moderate slope and consists of two parallel lines of large to medium-sized stones laid to one course only, 2 m apart and set upon the ground surface. These lines may be traced intermittently for 120 m.

The second roadway, F93A, runs in an east–west direction, parallel to and above a dry gully and consists of two parallel lines of large to medium-sized stones laid to one course only, 1.8–3.8 m apart, that were traced for over 70 m (Fig. 15). In its western portion, a local rock escarpment caused the roadway to turn to the



Plan 16. Cistern F54A.



Fig. 14. Opening of cistern F54A.



Fig. 15. Local roadway F93A.

south. Several excavated sections revealed the walls to have been founded directly upon the bedrock while some were buttressed on their downslope side to prevent erosion. Between the walls, a fill of dark brown *terra rossa* soil contained limited finds, among them a large fragment of an Early Roman shaved stone measuring cup (Fig. 18:6). On the British Mandatory map, F93A appears to be a portion of the track leading from the abandoned Arab village of Barfilya in the northwest to Bir Ma‘in and Kh. Abu Saris to the east.

The third roadway, F101, runs in an east–west direction along the crest of a ridge and consists of two parallel lines of large to medium-sized stones, 2.0–2.2 m apart, that were traced for a distance of 35 m. On the British Mandatory map, this feature appears to be a portion of the track leading from the ancient settlement of Umm el-‘Umdan in the southwest to Kh. Abu Saris and Bir Ma‘in in the northeast.

Charcoal Burners

Three small natural caves, identified as charcoal burners (F83, F127, F138), were

located in the investigated area. In each case, a wall was built partially blocking the northern-facing entrance to the cave and restricting the opening. The cave was subsequently filled with wood and other combustible materials, then fired to produce charcoal. A limited section was excavated through the debris in each cave revealing a thin, sterile, light brown layer upon the bedrock covered by a layer of dark ash and charcoal from the firing. This was overlaid by a thick layer of ash, earth and stone debris that filled the cave after its abandonment. A limited amount of diagnostic ceramics from the Ottoman period indicates that these caves were probably in use until this period.

Dwelling Caves

Two large caves (F6, F70) used for habitation were identified in the investigated area. Feature 6 (Plan 17) consists of a natural karstic cave of irregular shape measuring 9.5 × 10.0 m. Entrance was gained by a keyhole-shaped dromos with a descent of eight hewn steps (Fig. 16). In the southern portion of the cave’s ceiling, across from the entrance, is an oval

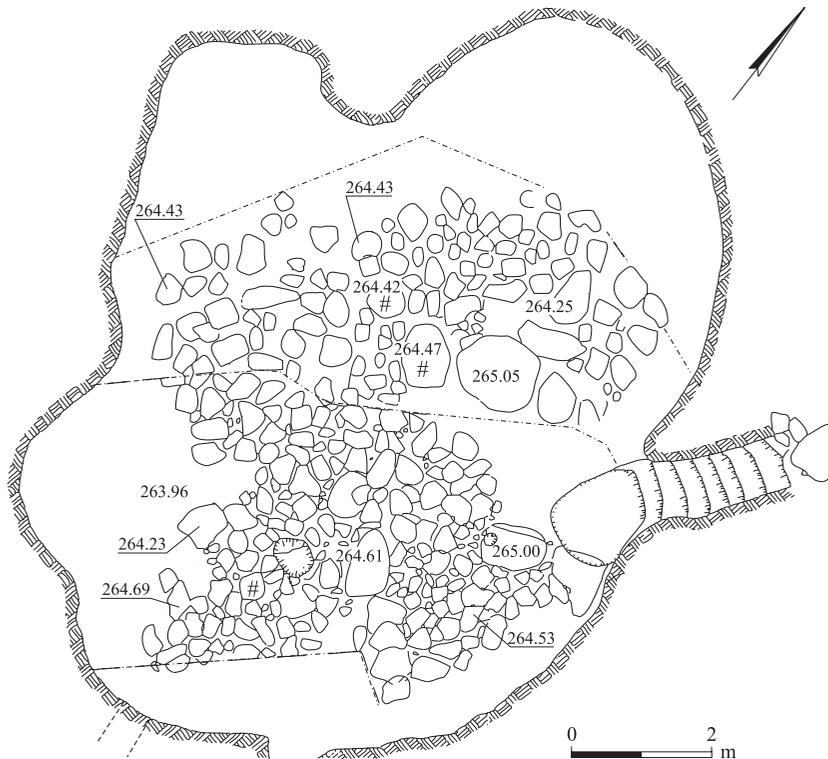


Fig. 16. Hewn steps and entrance into cave F6.

opening, possibly a natural karstic shaft that was later modified for use as a vent.

The total depth of accumulated debris from the natural bedrock floor is just over a meter. Four occupational phases were discerned spanning the Medieval–Ottoman periods. Late Hellenistic–Early Roman and Byzantine–Ummayyad ceramic material was also present, though not found *in situ*.

Upon the uneven bedrock was a sterile fill composed of red-brown *terra rossa* soil along with some medium to large-sized stones. Overlying this fill were the earliest occupational remains, dating to the Medieval–Ottoman periods, consisting of a loosely-arranged pavement of medium and small stones found primarily around the sides of the cave. In the center, a surface of beaten earth and ash included the remains of a sunken fire pit, 0.5 m in diameter, dug into the red-brown *terra rossa* fill. A layer of gray-brown occupational debris,



Plan 17. Final occupation phase in cave F6.

between 0.3 and 1.0 m thick, mixed with some medium to large stones and quantities of ash, was revealed above this surface. This debris was in turn sealed by a partial collapse of the ceiling comprising a layer of disintegrated and compacted chalkstone chunks mixed with brown earth.

The second occupational phase is associated with the Ottoman period and was identified in the central northwestern portion of the cave. Here another surface was partially exposed, founded directly upon the ceiling collapse and composed of beaten earth containing medium to small stones. A local concentration of ash and charcoal upon this surface was identified as the remains of a rounded hearth, 0.5 m in diameter.

This surface was sealed by a thick layer of brown earth that appears to have been a leveling fill for the construction of the third occupational phase, also associated with the Ottoman period and characterized by the construction of a pavement composed of tightly packed medium to small stones. This pavement sloped moderately from the area of the entrance toward the southwest. In the southwestern part of the cave, the pavement was flush with the bedrock floor, which was at a higher level near the sides of the cave.

In the last habitational phase (Plan 17), the cave appears to have functioned as a shelter for

animals. A gray-brown fill above the pavement of the third occupation was overlaid by a very rough pavement of large stones found only in the western portion of the cave. The steps of the dromos, apparently no longer in use in this phase, were covered with a sloping layer of medium to large boulders, possibly to facilitate the entrance of livestock.

Feature 70 consists of a natural karstic cave measuring 5.0 × 9.5 m. The floor of the cave is relatively flat and may have been partially leveled for human use, although the walls exhibit only limited signs of artificial modification. Entrance into the cave was gained by a natural opening in the northeastern side, partially modified by the hewing of a dromos, 3.55 m long and 1 m wide, with nine steps leading down to the natural rock floor (Fig. 17). A shallow groove was hewn into the middle of the southeastern wall of the dromos, with a matching shallow door jamb on the other side. Two square sockets were hewn adjacent to the groove, toward the interior of the cave. The groove and sockets are evidence of a door that could have been bolted from the inside only.

Excavation revealed two stages of use with a long period of abandonment between them. The earliest occupation is dated to the Byzantine–Ummayyad periods; diagnostic ceramic remains were found directly upon the bedrock floor and a localized flagstone paving was set directly upon the rock near the southeastern wall of the cave. This paving is located at the entrance of a small niche in the eastern wall of the cave, 0.75 m wide and 1 m high, that was not fully excavated. Another shallow niche, 1 m wide, 1.1 m high and 0.25 m deep, is found in the southern wall of the cave.

After its abandonment, the cave filled up with a light brown silty soil containing numerous chalkstone chips that washed in from the entrance and covered the previous remains. During the Ottoman period the debris within the cave was leveled and partially paved with small to medium-sized fieldstones that covered the lower steps of the dromos.



Fig. 17. Hewn steps and dromos leading into cave F70. Note door groove and bolt recesses in upper center.

THE FINDS

Very small quantities of abraded pottery sherds, mostly non-diagnostic body sherds, and fragments of stone vessels were found during the cleaning of the winepresses, cisterns and other rock-cut installations, and the excavation of sections within stone clearance piles, limekilns, terraces, roadways, caves used as charcoal burners and dwelling caves. The very limited nature of the finds and the problematic

nature of their context, make their use in dating the agricultural installations limited in value. However, the periods represented by the pottery in general do represent activity in the region, if not directly related to any specific installation. Thus, a small selection of artifacts is presented in Figs. 18, 19. The objects for the most part come from stratified contexts, such as occupational levels in caves and floors of structures, and include complete vessels such as the jar incorporated within a winepress (Fig.

Fig. 18 ▶

No.	Feature	Context	Type	Locus	Description	Parallels
1	F50A	Structure	Storage jar	203	Brown-yellow clay, brown yellow core, small white grits, wheelmade	Jerusalem: Tushingham 1985: Fig. 21:36; Modi'in: Gibson and Lass, forthcoming: Pl. 2:9 (LHER SJ rim Type 51)
2	F50A	Structure	Storage jar	204	Pale brown-orange clay, pale brown core, medium to small white and gray grits, wheelmade	Jerusalem: Tushingham 1985: Fig. 23:38; Modi'in: Gibson and Lass, forthcoming: Pl. 2:8 (ER SJ rim Type 51)
3	F49	Stone clearance pile	Storage jar	1	Pale brown-orange clay, gray core, small white and gray grits, wheelmade	Jerusalem: Tushingham 1985: Fig. 24:2; Modi'in: Gibson and Lass, forthcoming: Pl. 2:8 (ER SJ rim Type 3)
4	F48	Stone clearance pile	Juglet or inkwell	1	Light brown-orange clay, light brown-orange core, small white grits, wheelmade	
5	F15	Stone clearance pile	Pilgrim flask	408	Brown-orange clay, brown-orange core, small white grits, handmade	Jerusalem: Tushingham 1985: Fig. 20:17
6	F93A	Section in roadway	Stone measuring cup	114B2	Chalkstone	Jerusalem: Magen 2002:40, 97, Fig. 2.33:9; 3.60:1 [Type II.A. <i>Form I</i>] (Hizma, Jerusalem)
7	F70	Dwelling cave	Bowl	102C4	Brown-orange clay, brown-orange core, small white grits, wheelmade	Jerusalem: Magness 1993:199:6
8	F70	Dwelling cave	Bowl	102A	Brown-orange clay, brown-orange core, small gray grits, wheelmade	Yoqne'am: Avissar 1996a: Fig. XII.2:6
9	F70	Dwelling cave	Storage jar	102B	Brown-orange clay, brown-yellow core, small gray and white grits, wheelmade	
10	F70	Dwelling cave	Storage jar	149	Pale orange-yellow clay, gray core, small white grits, wheelmade	Modi'in: Gibson and Lass, forthcoming: Pl. 9:27 (Byz-Umm SJ rim Type 36)
11	F54C	Winepress	Storage jar	222	Pale brown clay, gray core, small white grits, wheelmade	Modi'in: Gibson and Lass forthcoming: Pl. 9:28 (6th century AD, Byz-Umm SJ rim Type 36)
12	F70	Dwelling cave	Bowl fragment	102A	Brown-red clay, brown-red core, small gray grits, wheelmade	LRW Cypriot Phocaeen ware with stamped cross decoration: Hayes 1972: Fig. 79:72, 367

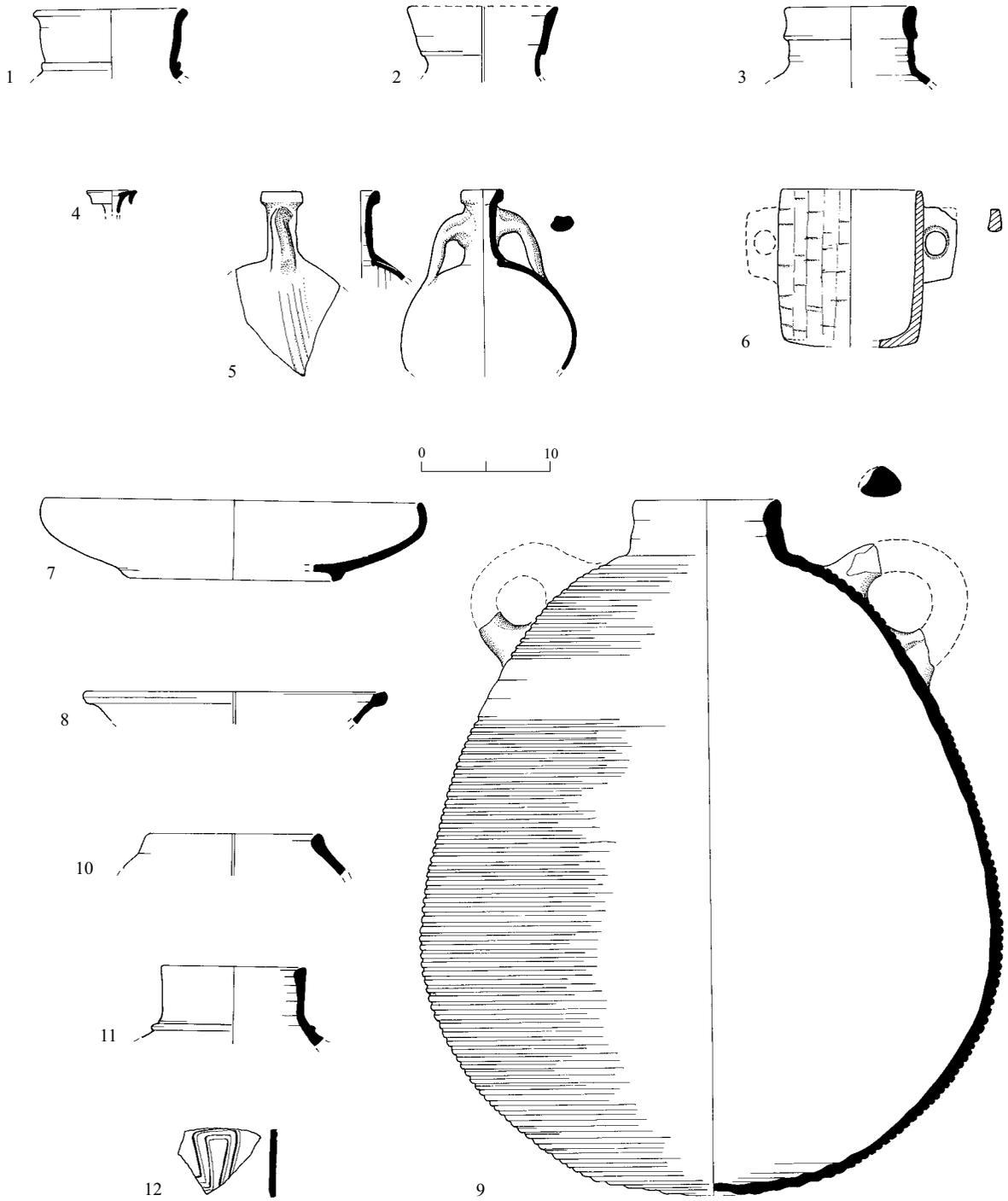


Fig. 18. Selected finds: (1–6) Late Hellenistic–Early Roman; (7–12) Byzantine–Ummayyad.

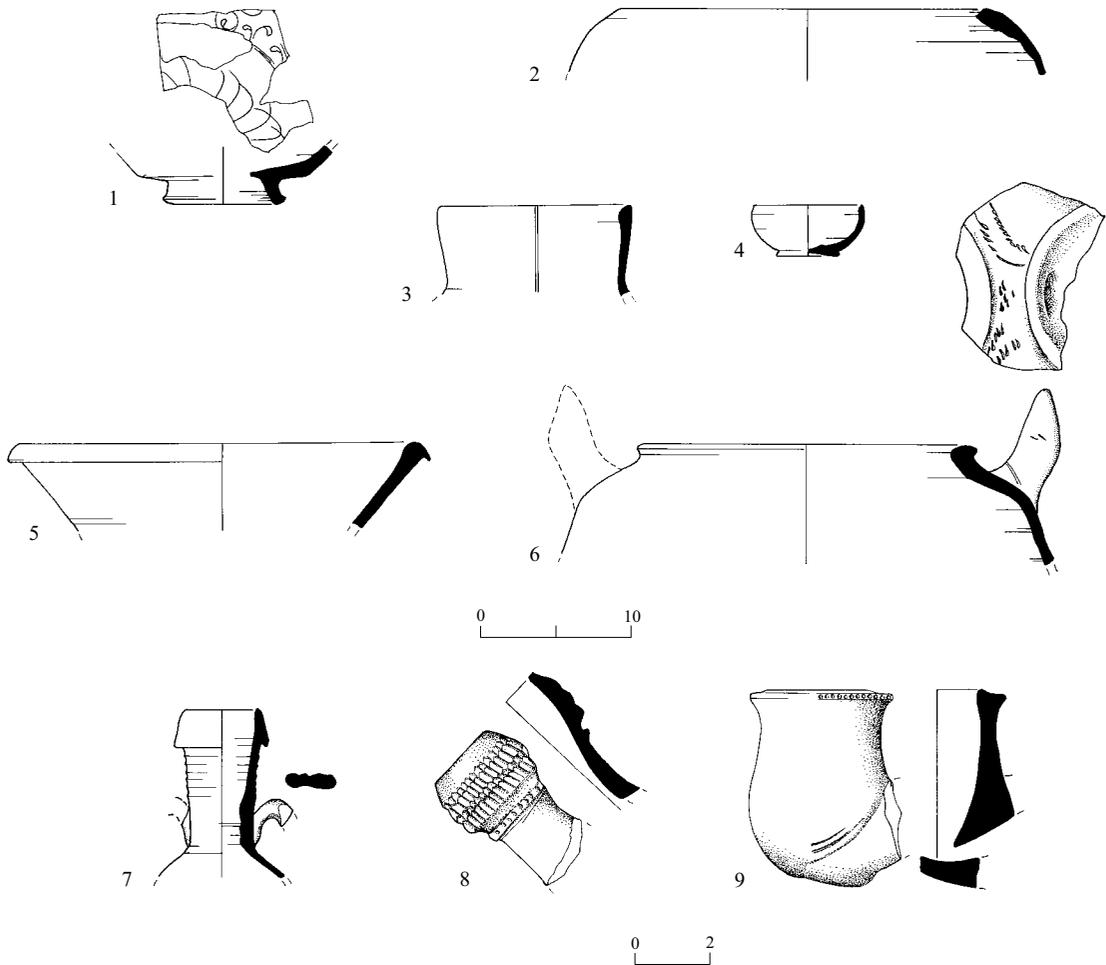


Fig. 19. Selected finds: (1) Medieval; (2, 3) Medieval–Ottoman; (4–9) Ottoman.

18:9) and a stone measuring cup found within the makeup of a local roadway (Fig. 18:6). In a few instances, diagnostic pottery originating from sections excavated in various installations has been included.

DISCUSSION

Initial activity in this region took place during the Pre-Pottery Neolithic period, when a large area rich in flint nodules appears to have been utilized for the production of flint tools (see Golani and Zbenovich 2001:Fig. 7). Though

minute quantities of Iron II pottery were also recovered in some of the features, these were always found in mixed contexts, alluding to some form of activity, as yet unclear. Intensive agricultural exploitation of the area under discussion apparently began during the Late Hellenistic (second century BCE) to Early Roman (first century CE) periods. Several small structures apparently used as temporary dwellings or storage facilities (F50A, F53B) may perhaps be attributed to this period, in addition to numerous stone clearance piles, terrace walls and possibly some of the winepresses. The

◀ Fig. 19

No.	Feature	Context	Type	Locus	Description	Parallels
1	F6	Dwelling cave	Bowl	265	Brown-red clay, brown-red core, small white grits, pale yellow-white glaze on exterior, yellow glaze on interior, wheelmade	Sgraffito ware (10th c.) glazed bowl Yoqne'am: Avissar 1996b: Fig. XIII.9:2
2	F6	Dwelling cave	Cooking pot	252	Brown-red clay, gray core, small white and gray grits, wheelmade	Ta'anakh: Ziadeh 1995: Fig. 10:4
3	F6	Dwelling cave	Storage jar	252	Brown-orange clay, gray core, small to medium white and gray grits, wheelmade	Ta'anakh: Ziadeh 1995: Fig. 11:2
4	F6	Dwelling cave	Bowl lamp	256	Gray clay, gray core, small white and gray grits, wheelmade	Ta'anakh: Ziadeh 1995: Fig. 16:8
5	F83	Section in charcoal burner cave	Bowl	428	Dark gray clay, dark gray core, small to medium white and gray grits, wheelmade	
6	F6	Dwelling cave	Cooking pot	256	Pale brown-red clay, light gray core, small white grits, incised decoration, handmade	
7	F83	Section in charcoal burner cave	Jug	428	Dark gray clay, dark gray core, small white and gray grits, wheelmade	Ta'anakh: Ziadeh 1995: Fig. 13:9; Black Gaza Ware Ott. Jug rim Type 117. Modi'in: Gibson and Lass, forthcoming: Pl. 5:10
8	F6	Dwelling cave	Pipe	252	Gray clay, brown-gray core, dark red slip and burnish on exterior, mold-made design	Robinson 1985: Pl. 61:A8
9	F6	Dwelling cave	Pipe	252	Gray clay, brown-gray core, dark red slip and burnish on exterior, mold-made design	Robinson 1985: Pls. 59: C119; 62:A19

latter indicate that the initial stone clearance in this region was probably for the purpose of viticulture, though olive trees and other crops may have been cultivated as well.

A resurgence in human activity took place during the Byzantine–Umayyad periods when many additional stone clearance piles and terraces appear to have been founded while older ones continued to be used. The various winepresses, at least one of which can definitely be attributed to the Byzantine period (F54C), are testimony to the continued cultivation of grapes in this region. A cave (F70) appears to have been initially utilized for habitation in this period.

During the Medieval and Ottoman periods, this region was apparently exploited more for its natural resources than its agricultural potential. Nearly all the limekilns and the charcoal burners appear to date to these periods (cf. Spanier and Sasson 2001). Evidence of habitation in two caves (F6, F70) appears to reflect their temporary use as shelters by shepherds who used this region for pasturage. Agricultural exploitation of the area during the Late Ottoman period appears to have been limited to plots defined by stone boundary walls, such as F68A, within which grape vines or a grove of olives may have been grown.

NOTES

¹ The survey and excavations were carried out during November–December 1998 and again during February–March 1999, on behalf of the Israel Antiquities Authority (Permit Nos. A-2967, A-3003). The project was directed by A. Golani with the assistance of Giora Pamos, Dror Segal, Alla Nagorski, Uzi Avner and Haim Barbé (area supervisors), Itzhak Uzan and Ra'ed Abu-Halef

(administration), Avraham Hajian, Israel Vatkin, Vadim Essman and Viatcheslav Pirski (surveying), Irina Berin and Elisabeth Belashov (draftsmanship), Roni Gat (pottery restoration) and Irena Lidsky (artifact drawing).

On the development plans, the area under discussion is also termed “Modi'in, Site F”. For a preliminary report, see Golani and Zbenovich 2001.

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