Fazael 1, A Chalcolithic Site in the Jordan Valley:

Report of the 2013-2014 Excavation Seasons

Shay Bar[1], Guy Bar-Oz[2], Haggai Cohen-Klonimus[3] and Sonia Pinsky[4]

[1] Zinman Institute of Archaeology, University of Haifa. bar.inbal.shay@gmail.com
[2] Zinman Institute of Archaeology, University of Haifa. guybar@research.haifa.ac.il
[3] The Hebrew University of Jerusalem. hck4@nana10.co.il
[4] Department of Archaeology, University of Haifa. pinsky.sonia@gmail.com

ABSTRACT

Recent excavations at Fazael 1 in Wadi Fazael in the Lower Jordan Valley have revealed a multi-stratum Chalcolithic site. While the cultural attribution of the basal Stratum IV is still obscure, the architecture and finds from Strata I–III attest to a Ghassulian village of the Chalcolithic period, the earliest site of this period so far noted in the Wadi Fazael floodplain. This paper presents the stratigraphy, architecture and finds from Fazael 1, and attempts to define its place within the Chalcolithic continuum in the region.

KEYWORDS: Fazael; Chalcolithic; Ghassulian; Jordan Valley

INTRODUCTION

The Fazael 1 site is located in the central Jordan Valley (map reference: Israel old Grid 1909/1619; Figs. 1–3). It was first described briefly by Gluek (1951) and Porath (1985), then surveyed in the framework of the Manasseh Hill Country Survey (Zertal 2012), and further analyzed by the Fazael Valley Regional Project (Bar 2008, 2014a). The "Fazael Chalcolithic site" proved to be a concentration of small mounds within a larger swathe of ancient sites covering an area of about 200 dunams along the northern terrace of Wadi Fazael. The sites Fazael 1, 2, 5, 7 (Bar 2008, 2013, 2014a; Bar *et al.* 2013), and those explored through salvage excavations by Porath (1985) and Peleg (2000), make up an aggregation of settlements on the perimeter of the fertile alluvial fan of this watercourse, which drains the steep Samarian Hills to the east.

Fazael 1 is located at the western end of the limits of the ancient settlement (Fig. 2), about 250 m west of Fazael 2. The area of the site was previously estimated to be 15 dunams (Bar 2008; Zertal 2012), but a new systematic survey conducted at the site in 2014 indicates that the site was actually larger, 30 dunams.

Modern looting at the site has made some elements of Fazael 1 particularly vulnerable to degradation, prompting excavation of some parts of the site.

Excavations conducted at the site in February 2013 and February and March 2014, have shown that the site is a multi-stratum Chalcolithic settlement. Two excavation areas were opened: The northern area suffered from severe damage and is not presented in this report. In the 150 sq. m southern area, four Chalcolithic strata were excavated and the results are reported here.

STRATIGRAPHY AND ARCHITECTURE (S.B)

Stratum IV

This stratum was excavated in a deep trench in Squares J-K15, below the levels of the walls and living surfaces of Stratum III (Figs. 4–5). All the features of this stratum are built upon the natural chalk bedrock of the site. Walls W174 and W178 are part of a building whose inner area is to be found outside the excavation trench. Wall W174 is

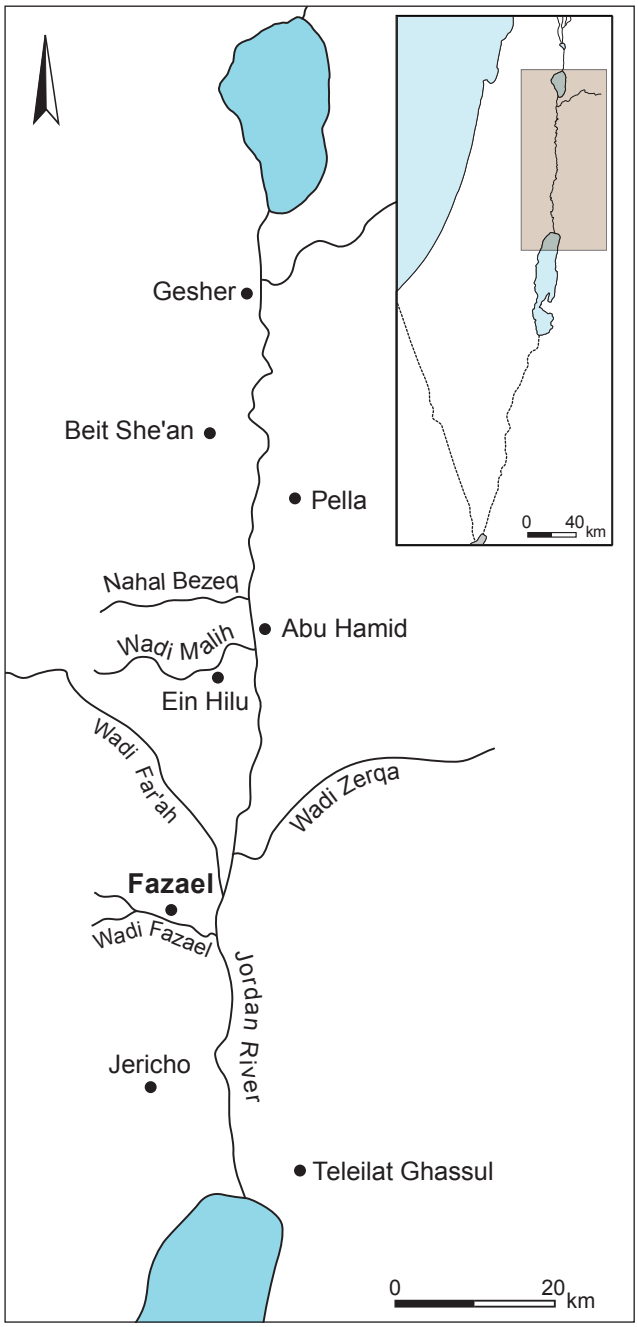

Figure 1. General location map of Chalcolithic sites in the Lower Jordan Valley.

situated below the western stone courses of wall W80 of Stratum III. The walls of this stratum, about 70 cm thick, were built of two rows of large and medium-sized stones. Abutting wall W174 from the east is another line of stones, possibly a thickening of this wall (in square J-15, Fig. 4).

Stone pavement L168 was found adjacent to wall W174, partly covered by stone pavement L169 of Stratum III. According to its height and stratigraphic position, this is part of the living surface of Stratum IV.

Four installations were found in square K15 (L175A-D; Fig. 5), in a natural and possibly slightly worked cavity in the bedrock of the site. Only the top part of the installations was excavated, but it is already clear that they cut each other, and all were cut by the later installation L165 of Stratum III. The order of construction is not clear because of the disturbance caused by the Stratum III installation. Although we do not have complete preservation of these installations, the thickness of their walls was measured, and found to be 2–5 cm. The function of these installations is still to be further researched. The remains of two jar bases were found *in situ* on the surface to the north of these installations, sunken into the beaten earth floor L173.

Stratum III

This stratum was also mainly excavated in squares J–K15, below the foundation levels of the walls of the Stratum I building (Figs. 6–7). The remains of wall W79, built of small and medium-sized stones, 50 cm thick, were found. Living surfaces L157 and L167, with some crushed pottery on their beaten earth floor, and stone pavement L171, abutted this wall from the south. Wall W80, built with the same masonry as wall W79, was found in square J15. It seems that these walls form part of one structure, and that the corner of the building between these walls was disturbed by later activities at the site. These activities could either be related to the construction of wall W1 of Stratum I (see below), or to the adjacent modern robbers' pit. The assumption that the two walls were part of one structure is based on their masonry, their orientation, and the identical basal heights of their foundations. Abutting wall W80 from the east was a semi-circular stone-built installation, L160, 35 cm in diameter. Pavement segment L169 abutted this installation from the east. At the same elevation, a shallow plastered installation, L161, was found adjacent to installation L160. This installation was dug into the living surface level and was plastered, creating an 8 cm thick rim and 2–3 cm thick sides. Its function remains unclear at this stage. The remains of wall W76 in square J16, cut by wall W61 of Stratum II, might possibly also be from the same stratum.

Stratum II

Stratum II consists of the remains of a building excavated in Squares I–J/15–16 (Figs. 3, 5, 7). The building has a slightly incurving wall 8.5 m long (W60) and 70 cm

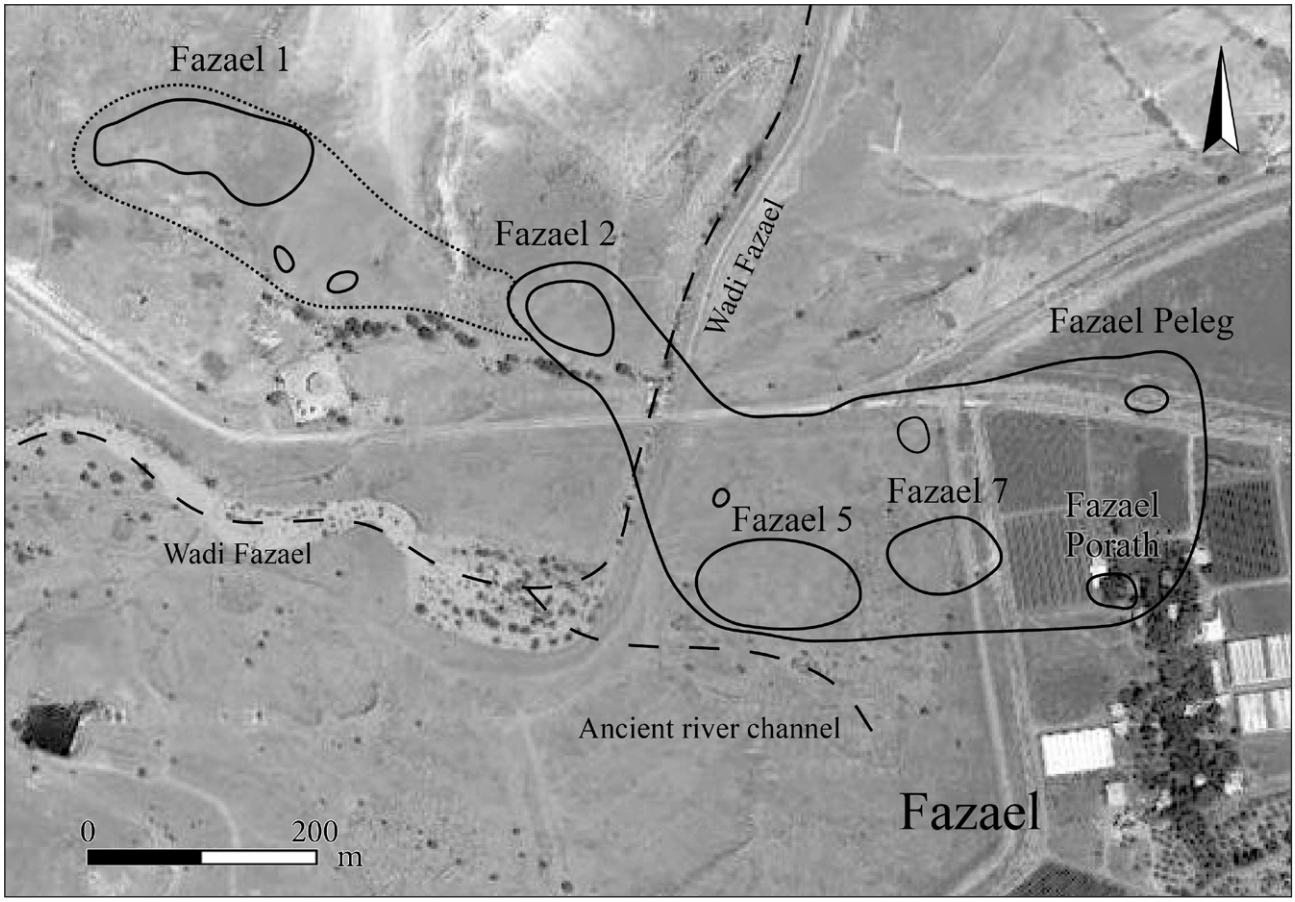

Figure 2. Google Earth image of the Fazael Valley: the identified Chalcolithic sites and the presumed area of ancient settlement covering about 200 dunams (20 ha.).

Figure 3. Aerial view of the southern area of Fazael 1 (2013).

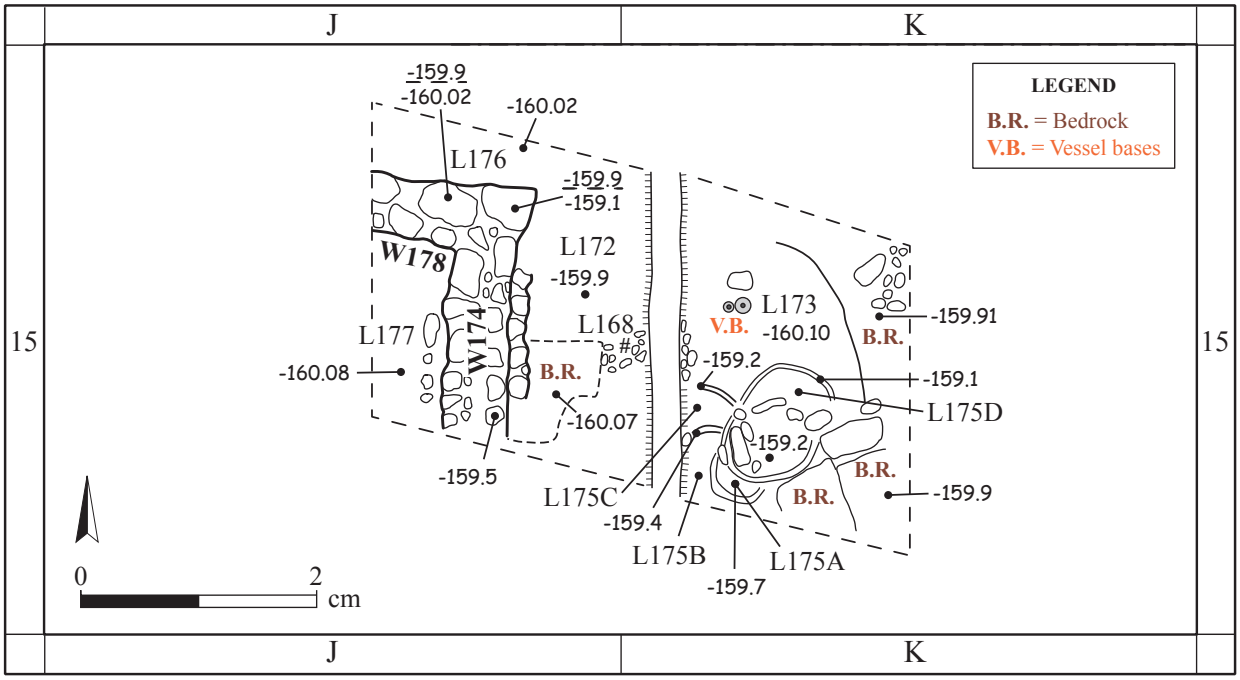

Figure 4. Plan of Stratum IV in the southern area of Fazael 1 at the end of the 2014 season.

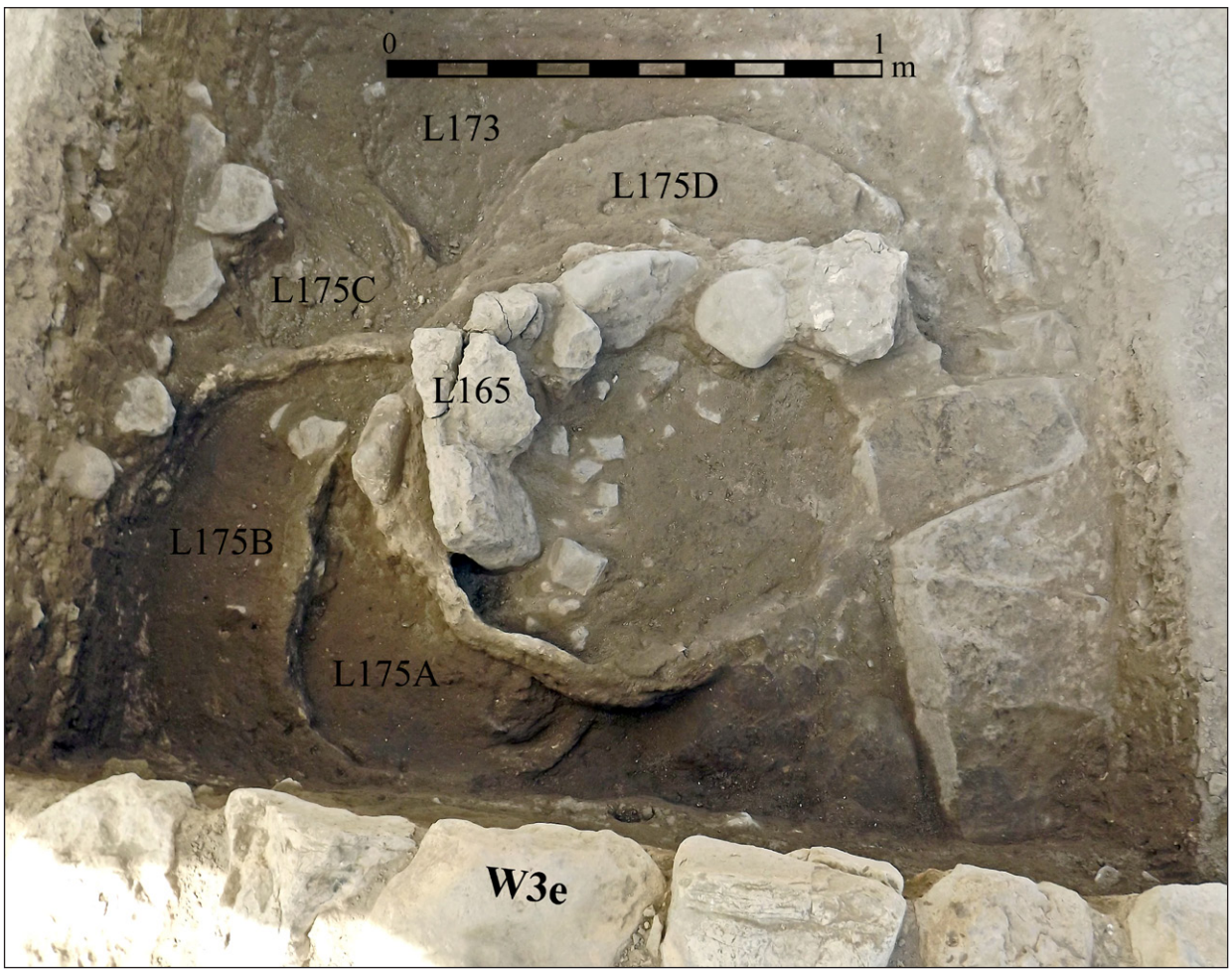

Figure 5. Installations L175A–D of Stratum IV cut by installation L165 of Stratum III.

thick, with masonry of two rows of medium fieldstones, and smaller stones in between. The western corner of the building was cut by wall W4 of Stratum I. Dividing wall W61 was probably also cut during the construction of wall W1 of Stratum I. The southern extension of wall W60, the eastern wall of the building, and the southern part of the entire structure were not preserved, probably due to construction activity of Stratum I. No activity surfaces were noted in this stratum. Therefore, its dating is based on its stratigraphic position between Strata I and III, and the meagre finds from the fills attributed to it.

Stratum I

The primary element exposed in this area, a broad room house about 40 m^2 in area, was excavated in squares J–K15 (Figs. 3, 5, 7–8). Three of the four walls of the building were preserved very close to the surface of the site (walls W1, W2, W3e and W3w), while the western wall (W4) was mostly destroyed by a robbers' pit and erosion of the slope. The broad room is 4 m wide and 10 m long.

In the centre of the southern long wall (W3) the remains of a threshold of an entrance was preserved. This threshold consisted of a large stone abutting the southern row of stones of walls W3e and W3w, 20 cm wide that was mostly buried about 35 cm deep below the habitation level of Stratum I.

In the north-eastern area of the building a rounded corner installation (L29) made of small stones was also preserved (Figs. 3, 7). The almost complete absence of additional collapsed building materials suggests that the preserved walls were stone foundations for mud brick walls that did not survive. The masonry of the walls is similar to that of Stratum II, with two rows of medium fieldstones and smaller stones in between. Occasionally, larger boulders were incorporated in the walls, especially in wall W1, probably in order to strengthen them. The floor of the building (L67) was made of beaten earth.

About 3 m to the west of this broad room, remains of another building were exposed in squares H–I15 (Figs. 3, 5, 8). This was probably an adjacent broad room, but

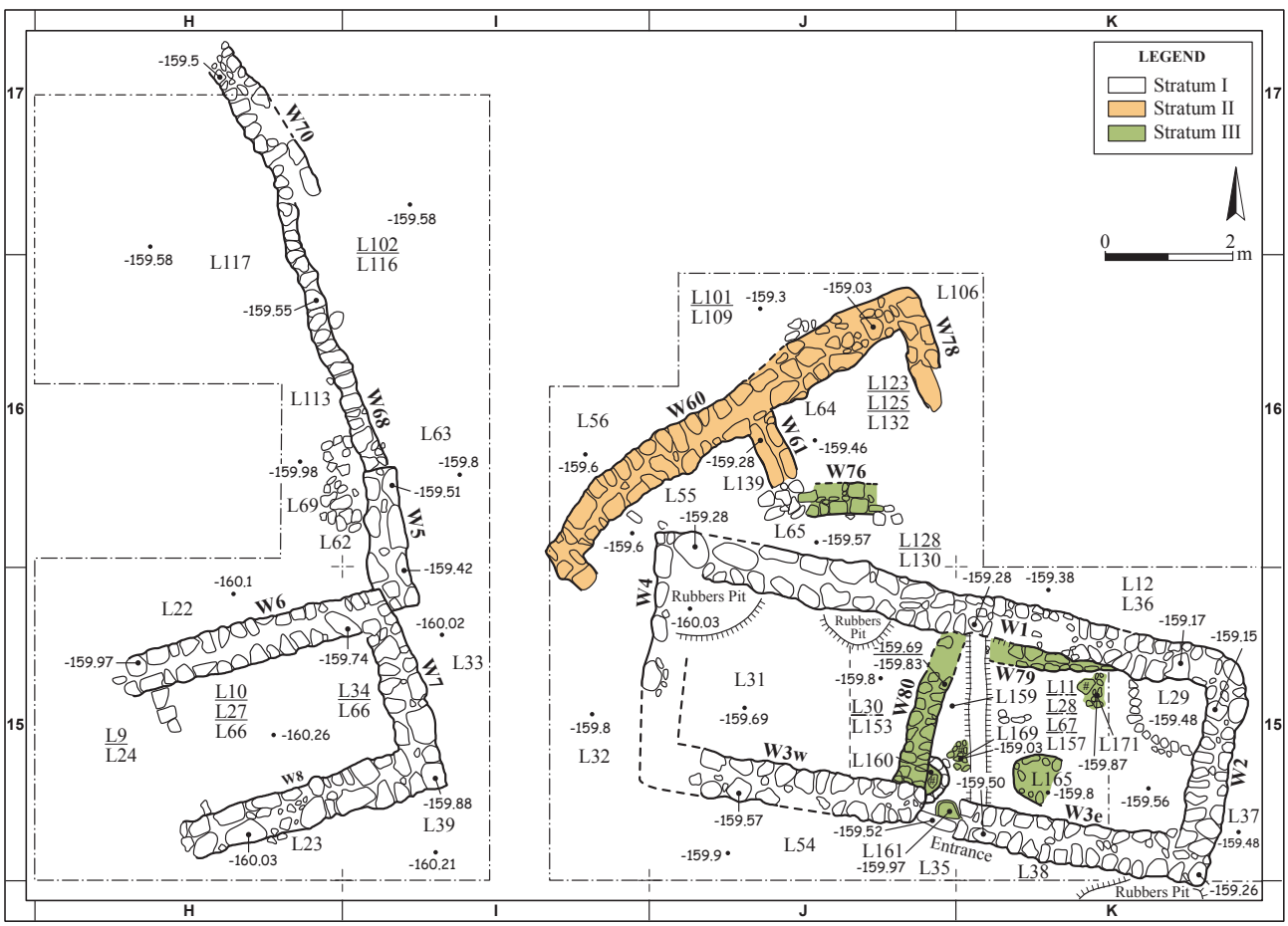

Figure 6. Plan of Strata I–III in the southern area of Fazael 1 at end of 2014 season.

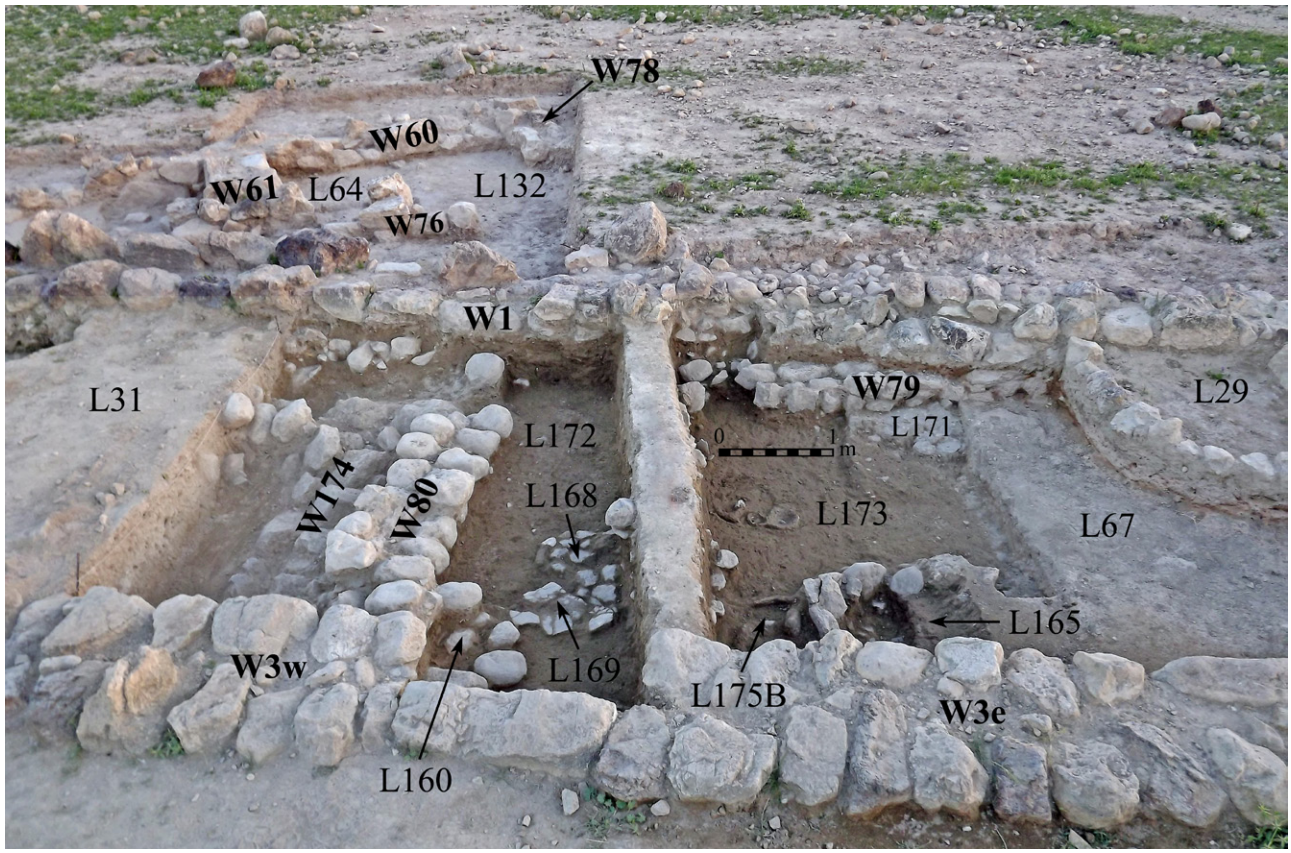

Figure 7. View of Strata I–IV in squares JK/15–16 from the south.

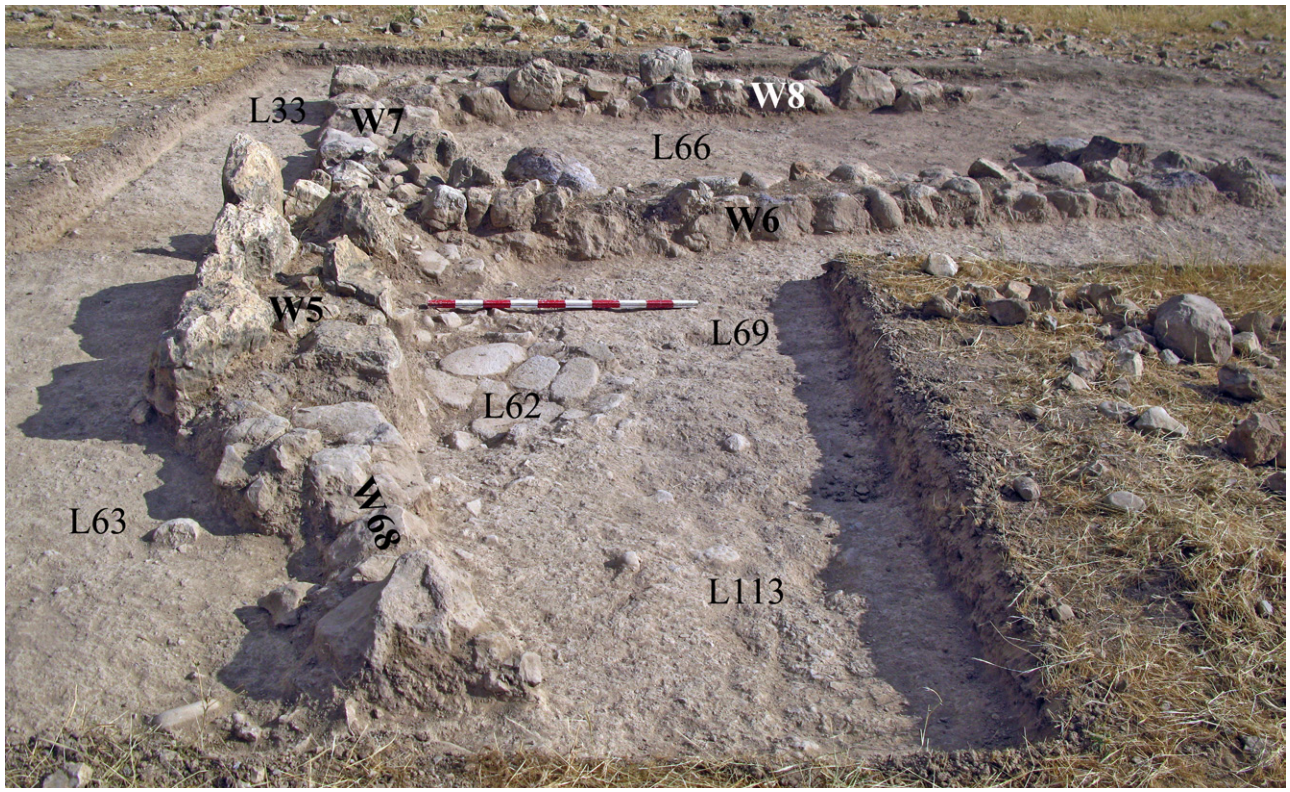

Figure 8. View of Stratum I in squares H–I/15–16 from the north.

only three walls were found (W6–W8), the western wall probably having been washed away due to the natural gradient of the slope. The masonry is identical to the broad room to its east. The remains of activity surface L66 included broken grinding stone tools on the beaten earth floor.

Wall W5, which shares the same masonry as the other Stratum I walls, abuts the north-eastern corner of the building, and continues northwards. Abutting this wall from the west is stone installation L62 (Fig. 8). This installation is made of flat stones and grinding stones in secondary use. The installation is possibly a part of an inner courtyard west of wall W5 and north of wall W6. Wall W68 is a northern continuation of wall W5, but the masonry is different, and the wall is thinner and built of only one row of stones. Wall W70 is a northern continuation of wall W68, but here another change in masonry occurred and the typical two rows of stones reappear. It is possible that wall W68 is either an ad hoc wall built to create a large courtyard to its west, or part of a terrace on the slope of the site between adjacent buildings.

THE POTTERY ASSEMBLAGE (S.B)

The pottery assemblage recovered from the southern area during the two seasons includes 1,513 pottery sherds, each at least 4 cm^2 in area. Most of the assemblage originates in the Stratum I and III deposits (768 and 557 sherds, respectively). Strata II and IV yielded many fewer diagnostic sherds (130 and 58 sherds, respectively).

Stratum IV ceramic assemblage

Finds from Stratum IV are meagre, with only a few indicative items. Diagnostic rims are of two holemouth jars with a narrow body and a slightly cut rim (Fig. 9: 16–17), and an oblate jar (Fig. 9:18) with a folded-out rim. Surface treatments include one red-painted example, one rope-like decoration (Fig. 9:19), and one combed sherd. One flat base and one strap handle were also found.

Stratum III ceramic assemblage

Finds from Stratum III are dominated by holemouth jars. Diagnostic rims (n=25) include holemouth jars (n=15, Fig. 9:8–10), followed by bowls (n=8, Fig. 9:5–7), and jars (n=2, Fig. 9:11–12). The most common holemouth jar type has a narrow body with a plain rim, but flatter oblate types with a thickened rim, and an oblate body with an up-pinched rim also occur. The commonest bowl is straight-sided, usually medium-ranged in size (rim diameter between 9 and 16 cm), but hemispherical bowls also appear. A jar with a straight-sided high neck and a simple rim is also worth noting. Surface treatment is limited to red-painted examples (n=21 items, 3.8% of the total of sherds collected, Fig. 9:5, 12–13), rope-like decoration (n=10, 1.8%, Fig. 9:5–15) and diagonal ribbing (n=1, Fig. 9:14). Bases (n=11) are always flat, and handles appear as vertical (n=5), lug (n=1), or strap (n=1).

Stratum II ceramic assemblage

Finds from Stratum II are meagre, with only a few indicative items, and thus the results should be regarded as preliminary. Diagnostic rims are of holemouth jars (n=3,

Type	Stratum I	Stratum II	Stratum III	Stratum IV	Total
Holemouth jar	17	3	15	2	**37**
Bowl	11	3	8		**22**
Jar	2		2	1	**5**
Lug handle	5	3	1		**9**
Vertical handle	3		5		**8**
Strap handle			1	1	**2**
Red slip	11	1	21	1	**34**
Rope ornamentations	3	2	10	1	**16**
Incisions	2		1		**3**
Body sherds	714	118	493	52	**1,377**
Total sherds per stratum	**768**	**130**	**557**	**58**	**1,513**

Table 1. Breakdown by types of pottery of Strata I–IV.

Fig. 9:3–4) and bowls (n=3, Fig. 9:1–2). One holemouth jar has a narrow body with a plain or slightly pinched rim, similar to the commonest type of Stratum I. The bowls are all straight-sided, like the commonest examples in Stratum I (see below), but there are also two examples of very small bowls, uncommon in Stratum I. Surface treatments include one red-painted example and two rope-like decorations. Bases (n=3) were flat, and handles appear only as lug type (n=3).

Stratum I ceramic assemblage

The ceramic assemblage of this stratum mainly comprises holemouth jars and bowls. Diagnostic rims (n=64) indicate that the most common type of vessel was the holemouth jar (n=37, 57.8% of the total indicative types, Fig. 10:11–14), followed by bowls (n=22, 34.4% of the total, Fig. 10:1–6), and jars (n=5, Fig. 10:9–10).

The commonest holemouth jar has a narrow body with a plain or slightly pinched rim type, but flatter oblate types are also present. The most frequent bowl is the straight sided (V-shaped) type, usually medium-ranged in size (rim diameter between 7 and 14 cm). Some of these have red painted rims, and one example is completely red-painted. Less frequent are hemispherical bowls, usually undecorated. Jars were not common, and the few examples mainly had a long neck and slightly outward-flaring rim.

Surface treatment in the assemblage is limited to rare painted examples (n=11, 1.4% of the total sherds collected, Fig. 10:6, 11, 17). Most take the form of red-painted rims, but a few vessels are covered in red slip. Plastic ornamentation is limited (n=5, 0.06%) to rope-like decoration (n=3, Fig. 10:17), diagonal ribbing (n=1), and incisions (n=1). Bases (n=14) are always flat, and handles appear as lug types (n=5, Fig. 10:15–16) or vertical types (n=3).

Discussion

The pottery assemblage of Fazael 1 is very limited in size, and conclusions deriving from the processing of the different strata should be considered preliminary. Taking into account these facts, some general observations can be made concerning both the assemblage as a whole, and each stratum independently.

An important insight is that some of the most frequently occurring types of the Ghassulian Chalcolithic culture are missing here: basins and vats/pithoi, common in Chalcolithic assemblages in the Jordan Valley (Bar 2014a: fig. 8.2), are absent; cornets and churns are also missing (although a possible churn lug handle and rim were found in Stratum I – Fig. 10:7, 15).

On the other hand, other common Chalcolithic types do appear in the assemblage: the straight-sided bowl, which is the commonest type in every Chalcolithic assemblage, appears in Strata I–III in abundance. The morphologies of the other types of vessels and handles in all strata have parallels in other Ghassulian Chalcolithic sites in the region (mainly Teleilat Ghassul and ‘Ein Hilu – see parallels in the tables accompanying Figs. 9 and 10); and the decoration and ornamentation techniques, such as red-painting of the rims and rope-like plastic additions to vessels, that appear in all strata at the site, are the prevailing Chalcolithic types.

Although small, the assemblages of the different strata show a continuation in ceramic traditions over the entire lifespan of the site. This is manifested by the long-lasting appearance of types such as the straight-sided middle-sized bowl, the narrow-bodied holemouth jar, and the slightly pinched holemouth jar. Despite the similarities in the assemblages of the different strata, some differences can also be noted. The main difference concerns the types of handles in the different strata: a gradual change from strap handles present only in Strata III and IV to lug and vertical handles (most prevalent in Strata I and II). While the lug and vertical handles are common in all Chalcolithic assemblages, the strap handle is considered to be an earlier type of handle, more often occurring in Early and Middle Chalcolithic sites (*e.g.* Garfinkel 1999: 198).

A comparison of Fazael 1 to nearby Chalcolithic sites within the Fazael Valley such as Fazael 2 and Fazael 7 (Bar 2013, 2014a; Bar *et al*. 2013), shows a clear diversity in the pottery assemblages. While some of the types presented here have parallels in these sites, many types are missing here. The Fazael 1 assemblage lacks S-shaped bowls, and everted rim bowls and platters, as well as large cups and basins. Holemouth jars with an inside thickened rim, pie-crust rim jars and ledge handles, are also absent.

On the other hand, the Fazael 1 assemblages share many parallels with ‘Ein Hilu (Bar 2013, 2014a; Bar *et al*. 2008, and see parallels in the tables accompanying Figs. 9 and 10), dated quite early in the Ghassulian Chalcolithic (third quarter of the 5th Millennium Cal BC).

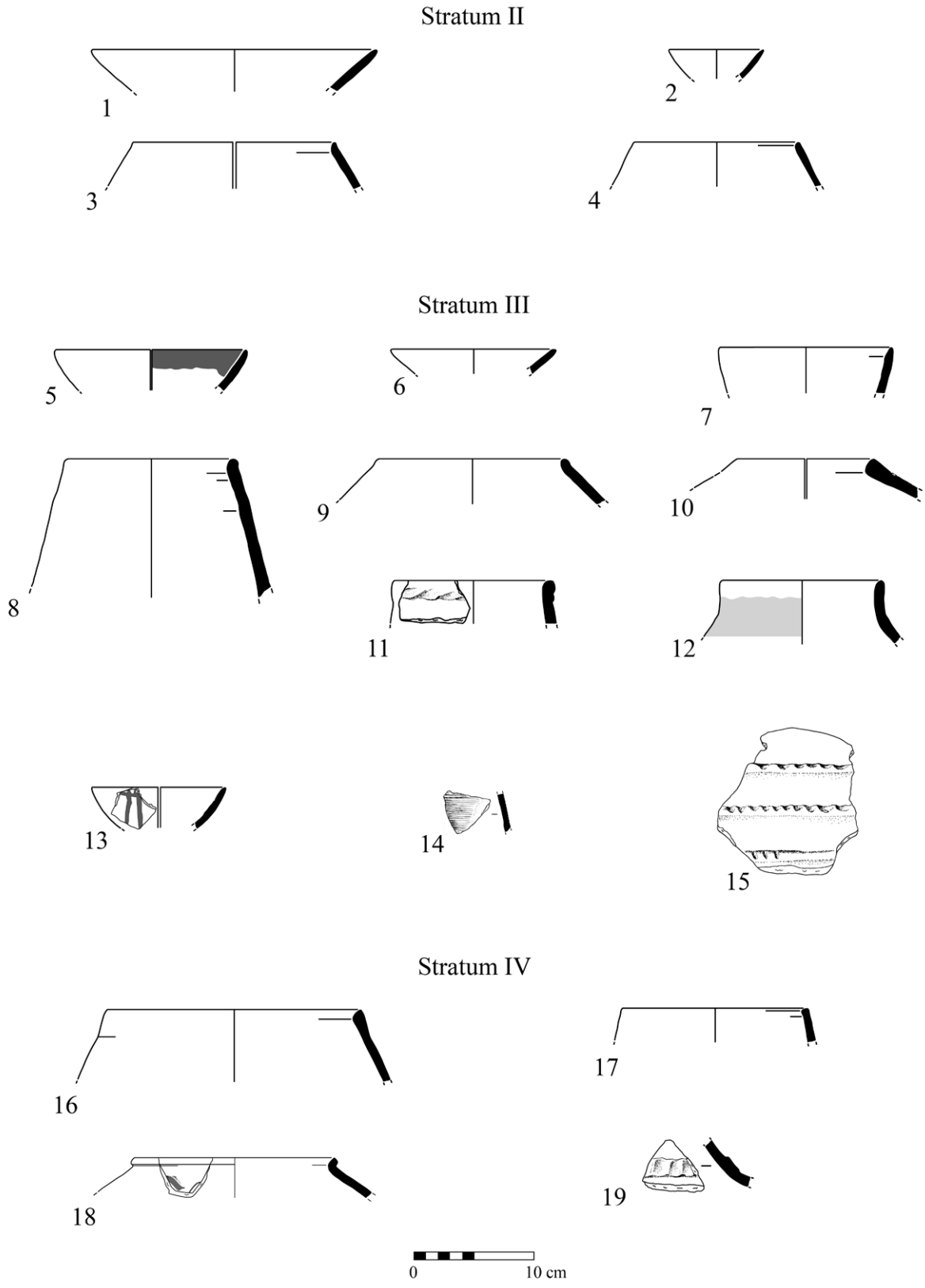

Figure 9. Strata II–IV: The ceramic assemblage.

At this stage of research, and without radiometric determinations, the assemblages of all four strata excavated at Fazael 1 should be regarded as Ghassulian Chalcolithic. Due to the limited sample sizes of Strata II–IV, the possibility that the earlier strata of the site could be dated to the earlier phases of the Ghassulian Chalcolithic or to the later phases of the still debated Middle Chalcolithic cannot be ruled out.

THE FLINT ASSEMBLAGE (S. P.)

The flint assemblage of the southern area of Fazael 1 is of particular interest because, contrary to those from the sites of Fazael 2 or 7 (Bar 2013, 2014a; Bar and Winter 2010), the assemblage seems to come from a Ghassulian Chalcolithic context. The following is a preliminary analysis of this assemblage.

The total assemblage includes 1,214 flint items (Table 4), of which 768 (63%) are debitage and tools. The raw material includes both high and low quality flint. Even

No.	Description	Parallels
9-1	Pinkish clay, white core, many small black grits, good firing.	Teleilat Ghassul (Lovell 2001, fig. 4.32:7)
9-2	Whitish clay and core, white grits, good firing.	Shoham (North) (Commenge 2005, fig. 6.1:1); 'En Gedi (Ussishkin 1980, fig. 8:4)
9-3	Pinkish clay, grey core, many large and small white and grey grits, poorly fired.	Teleilat Ghassul (Lovell 2001, figs. 4.38:4, 4.40:2); 'Ein Hilu (Bar 2014a, fig. 9.24:12)
9-4	Pinkish clay, brown core, white and grey grits.	
9-5	Dark clay, light brown core, reddish-brown slip on inside, good firing.	Teleilat Ghassul (Lovell 2001, fig. 4.31:3)
9-6	Whitish clay and core, many black and white grits, good firing.	'Ein Hilu (Bar 2014a, fig. 9.23:2); Teleilat Ghassul (Lovell 2001, figs. 4.19:9)
9-7	Pinkish clay, white core, many small black grits, good firing.	'Ein Hilu (Bar 2014a, fig. 9.23:9); Teleilat Ghassul (Lovell 2001, figs. 4.19:6)
9-8	Light brown clay, black core, many large white and blue grits, poorly fired.	'Ein Hilu (Bar 2014a, fig. 9.24:1); 'En Esur (Yannai et al. 2006, fig. 4.16:6)
9-9	Pinkish clay, grey core, many large and small white and black grits, poorly fired.	'Ein Hilu (Bar 2014a, fig. 9.24:11)
9-10	Reddish clay, black core, large white and grey grits, poorly fired.	
9-11	Pinkish clay, light brown core, many small white and black grits, poorly fired, rope ornamentation.	Abu Hamid (Dollfus and Kafafi 1993, fig. 2:7)
9-12	Pinkish clay, light brown core, many small grey and black grits, poorly fired, redish-brown slip on neck.	'Ein Hilu (Bar 2014a, fig. 9.25:7); Teleilat Ghassul (Lovell 2001, figs. 4.39:3; 4.41:3); 'En Esur (Yannai *et al*. 2006, fig. 4.14:2)
9-13	Whitish clay, light brown core, good firing, brown stripes.	Abu Hamid (Dollfus and Kafafi 1993, fig. 1:9); 'En Esur (Yannai *et al*. 2006, fig. 4.11:12)
9-14	Pinkish clay, whitish-light brown core, few black grits, good firing, combed decoration.	
9-15	Pinkish clay and core, large white and grey grits, medium firing, three stripes of rope ornamentation.	
9-16	Pinkish clay, light brown core, many small white.	'Ein Hilu (Bar 2014a, fig. 9.24:4)
9-17	Pinkish clay, light brown core, many small black and white grits, good firing.	'Ein Hilu (Bar 2014a, fig. 9.24:6)
9-18	Pinkish clay, light brown core, many small black and white grits.	Fasael (Porath 1985, fig. 4:10); Teleilat Ghassul (Lovell 2001, figs. 4.26:9); 'En Esur (Yannai *et al*. 2006, fig. 4.14:4)
9-19	Light brown clay and core, black grits, rope ornamentation.	

Table 2. Supplementary table to Figure 9

though no raw material analysis has been conducted, it appears that translucent chalcedony material of high quality was used to produce the bladelets in all strata. Small quantities of cores and core trimming elements were found, although frequencies vary between the strata (*e.g.*, Stratum II includes high frequencies of cores and core trimming elements – more than 20% together, although this could also be due to the small size of the assemblage). In addition to this, only a few primary blades and flakes (cortical items) were found in the assemblage, leading to the assumption that most of the knapping was not done in the excavated areas.

The main blanks produced were flakes, but blades and bladelets were also produced. This tendency can be observed in all the strata.

The size of the tool category varies considerably between the strata (Table 5), ranging from almost 15% of the Stratum I assemblage to less than 3% in Stratum IV. Although no clear diachronic trend is visible, retouched flakes are the dominant type of tool, followed by retouched blades, perforators, and scrapers. Chalcolithic sickle blades are also present in three of the four strata, and they usually have a retouched back. Bifacial tools, mainly adzes, were found in Strata I–III. It should be mentioned that only one tool was found in Stratum IV, which may be a consequence of the comparatively limited excavation conducted here.

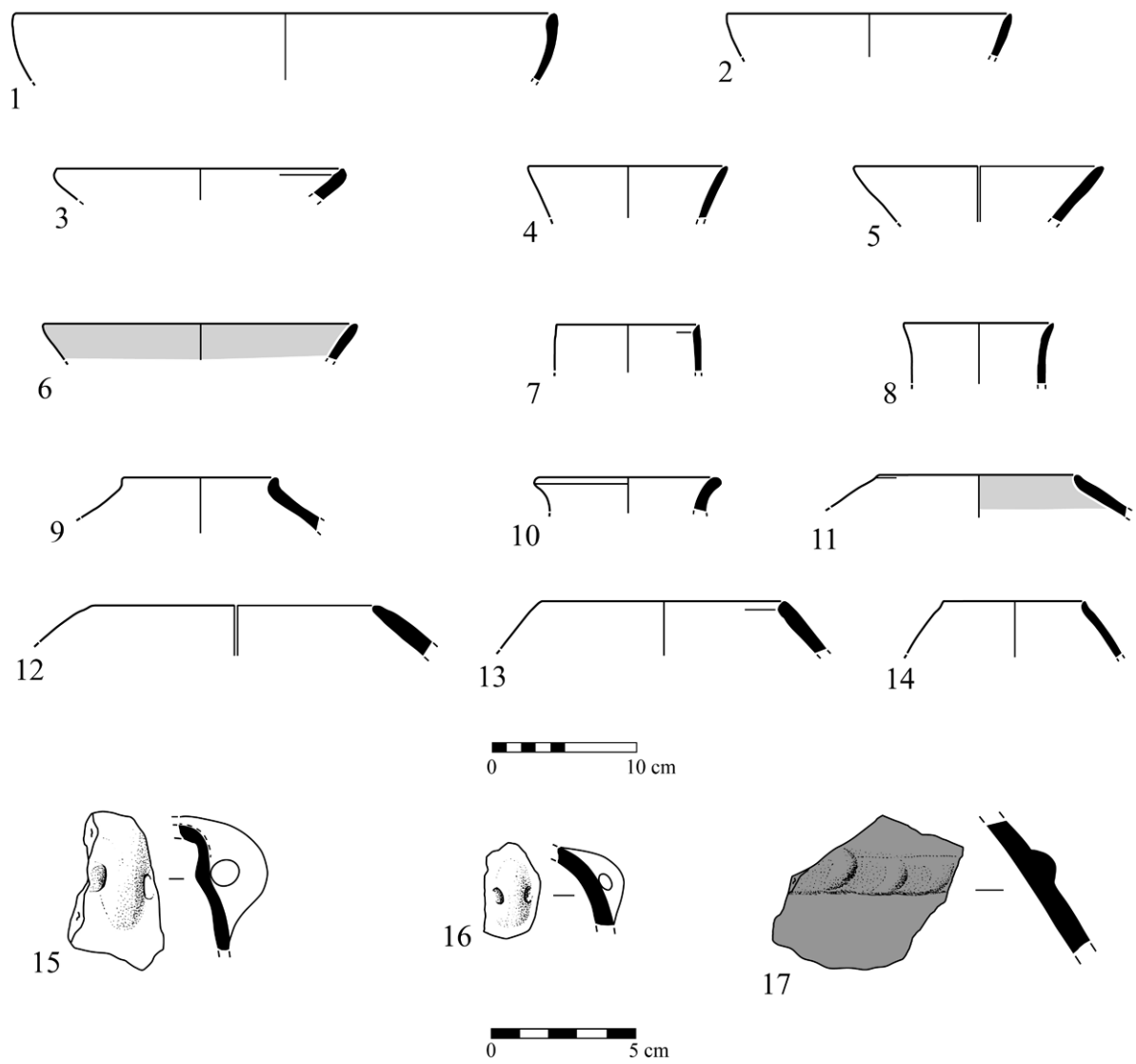

Figure 10. Stratum I: The ceramic assemblage.

Discussion

A short comparison of the Fazael 1 and Fazael 2 assemblages shows both similarities and differences. As described above, the production of Fazael 1 is dominated by flakes; it is similar to the findings in Fazael 2. According to the published assemblage of Fazael 2 (Bar 2013: 149), flakes represent more than 45% (layer 2, excluding chips and chunks), while the flakes found in Fazael 1 comprise about 40–55% of the assemblage. On the other hand, the amount of primary elements discovered at the two sites differs. Layer 2 of Fazael 2 includes quite a high percentage of primary elements – more than 20%, while Fazael 1 has only about 4% on average.

A look at the tools found in the assemblages also reveals some differences. For instance, no bifacial tools have so far been found in Fazael 2, while five bifacials were discovered in Fazael 1 – spread throughout the majority of the layers. Similarly to Fazael 2, Fazael 7 also lacks bifacial tools so far. Sickle blades were found in all Fazael sites, but the types differ. In Fazael 2, in addition to the Chalcolithic-type sickle blades, Cananean sickle blades were also discovered in large quantities (Bar and Winter 2010). The same sickle types were also found in Fazael 7 (Bar 2014a: 338, fig. 20.6). Nothing similar exists in Fazael 1, where only typical Chalcolithic sickle blades were found.

The differences in number between Fazael 1 and 2 can be a consequence of the loci excavated and the geographical situation in the site. But they can also stem from the fact, as suggested by Bar (2013: 126), that Fazael 2 (like

No.	Description	Parallels
10-1	Dark brown clay and core, black and white grits.	Teleilat Ghassul (Lovell 2001, figs. 4.33:1, 4.34:5)
10-2	Brown clay and core, few white grits, good firing.	Shoham (North) (Commenge 2005, fig. 6.3:8); ‘Ein Hilu (Bar 2014a, fig. 9.23:16); ‘En Gedi (Ussishkin 1980, fig. 8:24); Gesher-Karantina (Covello-Paran 1995, fig. 57:1)
10-3	Whitish clay and core, grey grits.	Teleilat Ghassul (Lovell 2001, fig. 4.35:3); ‘En Gedi (Ussishkin 1980, fig. 8:20)
10-4	Pinkish clay, grey core, good firing.	Teleilat Ghassul (Lovell 2001, fig. 4.32:7)
10-5	Whitish-brown clay and core, good firing.	
10-6	Pinkish clay, grey core, good firing, red slip inside and outside.	‘Ein Hilu (Bar 2014a, fig. 9.23:7); Gesher-Karantina (Covello-Paran 1995, fig. 57:3)
10-7	Brown clay, grey core, black and white grits.	Teleilat Ghassul (Lovell 2001, fig. 4.40:5); ‘Ein Hilu (Bar 2014a, fig. 9.23:3)
10-8	Brown clay, pinkish core, black and white grits.	Gesher-Karantina (Covello-Paran 1995, fig. 57:23)
10-9	Light brown clay, black core, large white and blue grits, poorly fired.	Fasael (Porath 1985, fig. 4:9); Shoham (North) (Commenge 2005, fig. 6.22:3)
10-10	Pinkish clay and core, grey grits.	Teleilat Ghassul (Lovell 2001, fig. 4.40:6); Gesher-Karantina (Covello-Paran 1995, fig. 57:8)
10-11	Pinkish clay, grey core, many white and black grits, poorly fired, red slip on outside.	Teleilat Ghassul (Lovell 2001, figs. 4.36:5, 4.38:1)
10-12	Pinkish-brown clay, grey core, small grey grits.	Teleilat Ghassul (Lovell 2001, figs. 4.37:7, 4.39:1)
10-13	Pinkish clay, light brown core, many small black and white grits.	Teleilat Ghassul (Lovell 2001, fig. 4.37:3); Gesher-Karantina (Covello-Paran 1995, fig. 57:20)
10-14	Pinkish clay, brown core, small black and white grits.	Teleilat Ghassul (Lovell 2001, figs. 4.38:4, 4.40:2); ‘Ein Hilu (Bar 2014a, fig. 9.24:12)
10-15	Reddish clay and core, small white grits.	
10-16	Grey clay, black core, small whitish grits.	
10-17	Reddish clay, grey core, small white and black grits.	

Table 3. Supplementary table to Figure 10.

Fazael 7) represents a late occupation in the Chalcolithic sequence, while Fazael 1 seems to represent an earlier phase, probably in the Ghassulian Chalcolithic period. That being said, further investigations must be carried out in order to arrive at further more-precise conclusions.

THE GROUNDSTONE TOOL ASSEMBLAGE AND RELATED FINDS (H.C.K.)

The assemblage of the southern area of Fazael 1, presented here, includes 30 stone tools, two stone beads, and one clay spindle whorl similar in shape and size to the stone spindle whorls, lending its inclusion here. Items were found mainly in Strata I and III, with only six items found on floor levels (Table 6). Classification was done by examination of items function, as seen by use signs (pounding, crushing, abrasion, polishing or no use signs), wear patterns (for example, concavity versus convexity of loaf-shaped grinding stones), shape and section of the use surface (for example as seen in the difference between grinding slabs and grinding querns), and specific type characteristics (for items showing no use signs, such as beads and spindle whorls). Raw material was recognized to general rock types (Table 7). Definitions of use-wear, level of wear, and secondary use in the tables below follow Adams (2002) and Adams *et al*. (2009).

Grinding Tools

Grinding tools make up half of the stone tool assemblage. Most grinding tools were found in Stratum I, from which

Assemblage	**I**	**%**	**II**	**%**	**III**	**%**	**IV**	**%**	**Total**	**%**
Flakes	83	**45.86**	24	**38.71**	277	**56.88**	19	**50.00**	403	**52.47**
Blades	38	**20.99**	10	**16.13**	110	**22.59**	5	**13.16**	163	**21.22**
Bladelets	5	**2.76**			38	**7.80**	4	**10.53**	47	**6.12**
Primary flakes	3	**1.66**	3	**4.84**	12	**2.46**	3	**7.89**	21	**2.73**
Primary blades	1	**0.55**	3	**4.84**	0	**0**	2	**5.26**	6	**0.78**
CTE	17	**9.39**	7	**11.29**	13	**2.67**	2	**5.26**	39	**5.08**
Cores	7	**3.87**	7	**11.29**	14	**2.87**	2	**5.26**	30	**3.91**
Tools	27	**14.92**	8	**12.90**	23	**4.72**	1	**2.63**	59	**7.68**
Total	181	**100.00**	62	**100.00**	487	**100.00**	38	**100.00**	768	**100.00**
empty row?										
Chunks	75		7		207		19		308	
Chips	20				118				138	
Total	**276**		**69**		**812**		**57**		**1,214**	

Table 4. The flint assemblages for each stratum from the southern area.

Tool type	**I**	**%**	**II**	**%**	**III**	**%**	**IV**	**%**	**N**	**%**
Retouched flake	6	**22.22**	1	**12.50**	4	**17.39**			11	**18.64**
Retouched blade	5	**18.52**	1	**12.50**	3	**13.04**			9	**15.25**
Scraper	5	**18.52**			2	**8.70**	1	**100.00**	8	**13.56**
Perforator	5	**18.52**			5	**21.74**			10	**16.95**
Bifacial	1	**3.70**	1	**12.50**	3	**13.04**			5	8.47
Sickle blade	1	**3.70**	1	**12.50**	4	**17.39**			6	**10.17**
Backed blade	3	**11.11**	1	**12.50**	2	**8.70**			6	10.17
Denticulate and notch	1	**3.70**	3	**37.50**					4	**6.78**
Total	27	**100.00**	8	**100.00**	23	**100.00**	1	**100.00**	59	**100.00**

Table 5. Tool types for each stratum in the southern area.

Item	Lower grinding tools	Upper grinding tools	Platters	Upper pounding tools	Spindle whorls	Other items	Beads	Unknown	Total
Surface or topsoil	1	2				1			**4**
Stratum I	6	5			2	1	1	1	**16**
Stratum II	1			1					**2**
Stratum III	1	1	1	3	3				**9**
Stratum IV				1				1	**2**
Total	**9**	**8**	**1**	**5**	**5**	**2**	**1**	**2**	**33**

Table 6. Stone items: Breakdown by strata.

Item	Lower grinding tools	Upper grinding tools	Platters	Upper pounding tools	Spindle whorls	Other items	Beads	Unknown	Total
Basalt	1			3		1			**5**
Unidentified sedimentary rock		2							**2**
Limestone	2	2		2	3				**9**
Biogenic limestone	6*	3						1	**10**
Chalk					1	1			**2**
Sandstone			1						**1**
Flint		1							**1**
Other					1**		1	1	**3**
Total	**9**	**8**	**1**	**5**	**5**	**2**	**1**	**2**	**33**

* One is an unidentifiable grinding tool; ** One spindle whorl is made of unbaked clay.

Table 7. Stone items: Breakdown by raw material.

four lower grinding stones (Tables 8 and 9: items 5–8, Fig. 11: 2) and three large upper grinding stones (Tables 8 and 9: items 13–15, Fig. 11: 4), all are made of biogenic limestone (hard limestone with negative imprints of fossil mollusks, causing slightly natural vascularity of the use surface), were incorporated in pavement L62. Five of these grinding stones are loaf-shaped items with wide sections, while two of the lower stones have trapezoidal sections. Three more biogenic limestone grinding tools (Tables 8 and 9: items 3, 9 and 32), show that this raw material was exclusively used for relatively large grinding tools.

Two loaf-shaped upper grinding stones with wide sections were found broken on the floor levels of Stratum I (Tables 8 and 9: items 11–12, Fig. 11: 3). Both are thick, and were seemingly broken intentionally, rather than by regular use. Only a single one-handed upper grinding stone was found in Stratum III during dismantling of a wall (Tables 8 and 9: item 10, Fig. 11: 6), while another one-handed upper grinding stone is a Mishash flint spheroid (Tables 8 and 9: item 17). It was found on the surface and probably should not be counted in the Chalcolithic occupation of the site.

Parallels of similar grinding tools were not found in nearby sites such as Fazael 2 and ‘Ein Hilu (Bar *et al*., 2008; Bar *et al*., 2013). Interestingly, ‘Ein Hilu shows a dominant use of the mostly preferable porous basalt for grinding tools; while in Fazael 1, the use of the locally available biogenic limestone was preferred. The secondary use of these grinding tools as pavement stones may show the availability of this raw material, while basalt items, being made of less available raw material, were probably taken or redesigned to be used as different tools. Loaf-shaped grinding tools, mostly made of beachrock, are known in various Chalcolithic sites, and large quantities were noted in Gilat (Rowan *et al*. 2006: 578, table 12.1).

Pestles

Two types of pestles were found in the site. The first type includes three well-finished cylindrical basalt pestles (Tables 8 and 9: items 22–24). The two preserved pestles show use of both ends by slight battering and slight round abrasion marks. Parallels to this pestle type appear in Fazael 2 (Bar *et al*. 2013: fig. 22: 5) and in an earlier period in Hagosherim (Rosenberg 2011: 214, fig. 8.47). The second type includes two items made of quite thin limestone river pebbles found in the floor makeup in Stratum III (Tables 8 and 9: items 20 and 21). Both items show heavy chipping on one of their narrow ends caused by repeated forceful strokes.

Spindle Whorls

Five spindle whorls were found, including the one made of clay. Four are similar in shape and size, found in Stratum I (Tables 8 and 9: item 26) and in Stratum III (Tables 8 and 9: items 27–29, Fig. 11: 12–14). Of the latter, item 28 shows intentional chipping of its edge, and item 29 is made of unbaked clay. These items weigh between 16 g and 24 g, and can be seen as a light type of spindle whorl (Rowan *et al*. 2006: 592–594). Another well-made large spindle whorl, found on a floor level in Stratum I (Tables 8 and 9: item 25, Fig. 11: 11), matches the heavy type of spindle whorls (Rowan *et al*. 2006: 592–594). Only a few similar items were found in Fazael 2 and 'Ein Hilu (Bar *et al*. 2008: 212; Bar *et al*. 2013: 179), while many spindle whorls were found in Gilat (Rowan *et al*. 2006: 592–594, table 12.25).

Other Items

Three more groundstone tools include a grooved basalt tool (Tables 8 and 9: item 30, Fig. 11: 15); a well-shaped sandstone rim fragment, possibly of a quite flat palette or a platter, found in a fill above Stratum III (Tables 8 and 9: item 19, Fig. 11: 7); and a simply shaped anvil from fills in Stratum I (Tables 8 and 9: item 18). The basalt item seems to be an abrader used on two opposed surfaces, later redesigned or multiply used by cutting a deep U-shaped groove into the wider surface. Two additional small items are a black stone bead (Tables 8 and 9: item 31) and a small green rock item (Tables 8 and 9: item 33), probably a preform for a bead, or intended to be placed in an ornament.

Discussion

The groundstone tool assemblage, dominant by grinding tools, pestles, and spindle whorls, hardly represents a wide scale of activities, and was probably affected by the scale of the excavation, and post-depositional processes. Seemingly no item was found *in situ*. Basalt can be found in very small exposures 10 km east of the site, and 25 km west and north of the site. Large basalt exposure can be found near 'Ein Hilu, *ca*. 30 km to the north (Sneh *et al.*1998). In Fazael 1basalt was used only for one large

#	Tool type	Locus (Stratum)	Context	Raw material	Measurements length × width × height (weight)*	Depth*
1	Lower grinding Tool**	L117 (I)	Fill	Basalt- porous	~11.7×~10.2×~7 (~731)	
2	Lower grinding Tool**	L161 (III)	Fill in installation	Limestone	~27×~10.4×~8.9 (~2,564.3)	
3	Saddle quern	L128 (II)	Fill	Limestone- biogenic	~30×26.5×10 (8,866.6)	1.5
4	Bowl quern	L116 (I)	Fill	Limestone- coarse texture	~11.5×~12.5×~8 (~1,108)	~4
5	Lower grinding stone	L138 (I)	Pavement makeup	Limestone- biogenic	32.5×21×10.5 (7,286)	0.5
6	Lower grinding stone	L138 (I)	Pavement makeup	Limestone- biogenic	~21×18×9.5 (4,776)	~0.3
7	Lower grinding stone	L138 (I)	Pavement makeup	Limestone- biogenic	27×15×6 (3,355)	0.4

#	Tool type	Locus (Stratum)	Context	Raw material	Measurements length × width × height (weight)*	Depth*
8	Lower grinding stone	L138 (I)	Pavement makeup	Limestone- biogenic	20.5×16×9.5 (3,055)	0.6
9	Grinding tool		Site surface	Limestone- biogenic	~13×~16×~5.5 (~1,554)	
10	One handed upper grinding stone	L170 (III)	In wall	Limestone- hard	~6.9×~5.2×3.1 (~154)	
11	Two-handed upper grinding stone	L66 (I)	On floor	Sedimentary- coarse texture	27×19×6.4 (3,520.7)	
12	Two-handed upper grinding stone	L34 (I)	On floor	Limestone- fine	~11.5×14.5×6.6 (~1,398)	
13	Two-handed upper grinding stone	L138 (I)	Pavement Makeup	Limestone- biogenic	34×20×10 (7,167)	
14	Two-handed upper grinding stone	L138 (I)	Pavement Makeup	Limestone- biogenic	~20.5×19×7.5 (~4,020)	
15	Two-handed upper grinding stone	L138 (I)	Pavement makeup	Limestone- biogenic	~14.5×19×8 (~2,445)	
16	Two-handed upper grinding stone		Site surface	Sedimentary- coarse texture	~11×11×6.5 (~1,556)	
17	One-handed upper grinding stone		Site surface	Flint- Mishash	7.5×7.5×7 (537)	
18	Anvil	L114 (I/II)	Fill	Chalk- hard	12.1×11.2×4.6 (775)	
19	Platter?	L129 (III)	Fill	Sandstone	~5.9×~6.8×~3.2 (~129)	
20	Pestle	L164 (III)	Floor makeup	Limestone- coarse texture	11×8.7×3.9 (507)	
21	Pestle	L164 (III)	Floor makeup	Limestone- coarse texture	9.2×6.8×4 (218)	
22	Pestle	L164 (III)	Floor makeup	Basalt- porous	7.9×5.1×4.7 (309)	
23	Pestle	L109 (II)	Fill	Basalt- porous	6.8×5.5×5.4 (~308)	
24	Pestle	L157 (IV)	On floor	Basalt- porous	~5.5×4.7×4.3 (~180)	
25	Spindle whorl	L66 (I)	On floor	Limestone- hard	5×4.9×1.2 (42.8)	1.2
26	Spindle whorl	L150 (I)	Floor makeup	Limestone	3.4×~2.1×0.9 (~10.9)	0.9
27	Spindle whorl	L129 (III)	Fill	Limestone	3.9×~2.1×0.9 (~12.1)	0.9
28	Spindle whorl	L152 (III)	Fill	Chalk	3.9×3.8×1.1 (~12.9)	1.1
29	Spindle whorl	L152 (III)	Fill	Clay	3.4×3.4×1.3 (16.6)	1.3
30	Grooved stone		Site surface	Basalt- porous	~6.4×5.7×3.5 (~164)	
31	Bead	L100 (I)	On floor	Black rock	1.08×0.99×0.73 (1.1)	1.08
32	Unknown	L138 (I)	Pavement makeup	Limestone- biogenic	~17×~8×~5 (~717)	
33	Unknown	L157 (IV)	On floor	Green rock	1.4×1.4×0.78 (2.8)	

*Measurements in centimetres, weight in grams. Measurements of broken items appear with "~".
** Could be a part of a lower grinding stone or of a grinding slab.

Table 8. Stone items: Context, raw material and dimensions.

#	Tool Type	Condition***	Exterior morphology*	Exterior section*	Use surface section**	Use signs	Notes
1	Lower grinding stone/slab	Fragment	Unidentified (round?)	Half oval	Flat	Abrasion	
2	Lower grinding stone/slab	Broken	Unidentified	Unidentified	Flat	Abrasion	Pecking (re-roughening) signs
3	Saddle quern	Chipping of edges	Amorphous	Half-oval	Sunken	Abrasion	Pecking (re-roughening) signs
4	Bowl quern	Fragment	Unidentified (round?)	Rounded sides	Deep	Round smoothing	Flat base, almost V-shaped sides
5	Lower grinding stone	Complete	Loaf-shaped	Half oval	Concave	Abrasion	Adhesive base wear
6	Lower grinding stone	Chipping of edges	Rectangular	Trapezoidal	Concave	Smoothing	One end damaged later than item use
7	Lower grinding stone	Complete	Loaf-shaped	Half-oval	Concave	Abrasion	
8	Lower grinding stone	Complete	Amorphous	Trapezoidal	Concave	Smoothing	
9	Grinding tool	Broken	Loaf-shaped	Half-oval	Flat	Unknown	Lower or upper grinding stone
10	One-handed upper grinding stone	Fragment	Unidentified	Half-oval	Flat	Abrasion	Back with adhesive wear
11	Two-handed upper grinding stone	Broken	Loaf-shaped	Half-oval	Convex	Abrasion	Back with adhesive wear
12	Two-handed upper grinding stone	Broken	Loaf-shaped	Half-oval	Convex	Abrasion	Pecking (re-roughening) signs
13	Two-handed upper grinding stone	Complete	Loaf-shaped	Half-oval	Convex	Abrasion	Back well smoothed
14	Two-handed upper grinding stone	Broken	Loaf-shaped	Half-oval	Convex	Abrasion	
15	Two-handed upper grinding stone	Broken	Loaf-shaped	Half-oval	Convex	Abrasion	
16	Two-handed upper grinding stone	Broken	Rectangular	U-shaped	Flat	Abrasion	
17	One-handed upper grinding stone	Complete	Spheroid	U-shaped	Convex	Smoothing	Three surfaces smoothed by use
18	Anvil	Complete	Rounded	Half-oval	Concave	Pounding	Well pecked exterior
19	Platter?	Fragment	Unidentified	Unidentified	Sunken	Unknown	Quite fine sandstone
20	Pestle	Complete	Sub-triangular	Elliptical	Rounded	Pounding	Thin pebble
21	Pestle	Complete	Oval	Elliptical	Rounded	Pounding	Burnt thin pebble
22	Pestle	Complete	Cylindrical	Round	Convex	Pounding & Abrasion	Well made. Use of opposite ends.
23	Pestle	Chipping of edges	Cylindrical	Round	Convex	Pounding & Abrasion	Well made. Use of opposite ends.
24	Pestle	Broken	Cylindrical	Round	Convex	Pounding	Well made
25	Spindle whorl	Complete	Disk	Rectang.	Rectang.	No wear	Well made
26	Spindle whorl	Broken	Donut	Elliptical	Rectang.	No wear	

#	Tool Type	Condition***	Exterior morphology*	Exterior section*	Use surface section**	Use signs	Notes
27	Spindle whorl	Broken	Donut	Elliptical	Rectang.	No wear	
28	Spindle whorl	Chipping of edges	Donut	Elliptical	Biconical	No wear	Intentional chipping of one side
29	Spindle whorl	Chipping of edges	Donut	Elliptical	Rectang.	No wear	Similar to the stone spindle whorls.
30	Grooved stone	Broken	Elliptical	Half-oval	Concave	Abrasion	Redesigned from an abrader.
31	Bead	Complete	Biconical	Oval		No wear	Hole drilled along long axis.
32	Unknown	Fragment	Unidentified	Unidentified	Unknown	Unknown	Base fragment.
33	Unknown	Complete	Square	Half-oval		No wear	Bead preform?

* 'half-round/oval/elliptical' is used for plano-convex section, while 'half-round' is thicker than 'half-oval' and 'half-elliptical' sections (thickness to width ratio of 1 to 1–1.2, 1 to 1.2–2, or 1 to 2–3 respectively). U-shaped is used for plano-convex items with round base and flat sides.
** Surface section is used, regardless of item's exterior morphology. 'Concave' is used for items with concavity along length or width only. 'Sunken'/'Deep' is used for items concave along both length and width of the use surface, creating a shallow basin or a deep basin if basin depth: basin diameter ratio is more than 1:4.
*** 'Broken' is used for items broken along either width or length. 'Fragment' is used for items broken along both width and length.

Table 9. Stone items: Morphology, use wear, preservation, and general notes.

item (Tables 8 and 9: item 1), while it more employed as well-made pestles. Together with the green rock, it may represent some low level of long-distance trade. So far no basalt vessels have been found in the site. Accordingly, the quite simple assemblage of Fazael 1 is distinctly different from the diverse and much richer assemblage from Fazael 2 and many other Chalcolithic sites.

THE FAUNAL REMAINS (G. B-O.)

The faunal remains from the southern area of Fazael 1 comprise a small assemblage. These remains provide a snapshot of the herd management practices of the Ghassulian residents in the Jordan Valley. We present this assemblage below and provide comparisons with the nearby site of Fazael 2 (Bar *et al*. 2013) and the Early Bronze Age I site of Sheikh Diab 2 (Bar *et al*. 2011), located close together along Wadi Fazael, and Chalcolithic 'Ein Hilu (Bar *et al*. 2008), located on the desert fringes of Samaria. All the sites are located in similar settings, and thus enable us to draw further comparisons between the successive habitation periods in the central Jordan Valley.

All the faunal material was collected by hand-picking through the excavated deposits and by sieving with 5 mm mesh screens. Zooarchaeological data were collected following the procedures outlined in Raban-Gerstel *et al*. (2008). Taxonomic identifications were made using the comparative collection of the Laboratory of Archaeozoology, University of Haifa. Skeletal modifications of specimens were inspected macroscopically using a low-resolution magnifying lens (x2.5) to detect butchery marks or other anthropogenic bone-surface modifications. Aging data were collected based on the epiphyseal fusion of long bones, and eruption and wear of mandibular teeth.

The assemblage of Fazael 1 comprises only 16 fragmented identified bones retrieved from the four excavated strata (Table 10). These remains comprise mainly bone fragments of livestock taxa. The bones of sheep and goat are present in all strata. Cattle remains are found only in Stratum I and are represented by two specimens. Pig remains are represented by three specimens, one in Stratum III and two in Stratum I. While it impossible to determine the domestication status of the pigs, we note that the pig tooth found in Stratum I is that of a juvenile individual, similar to the reconstructed

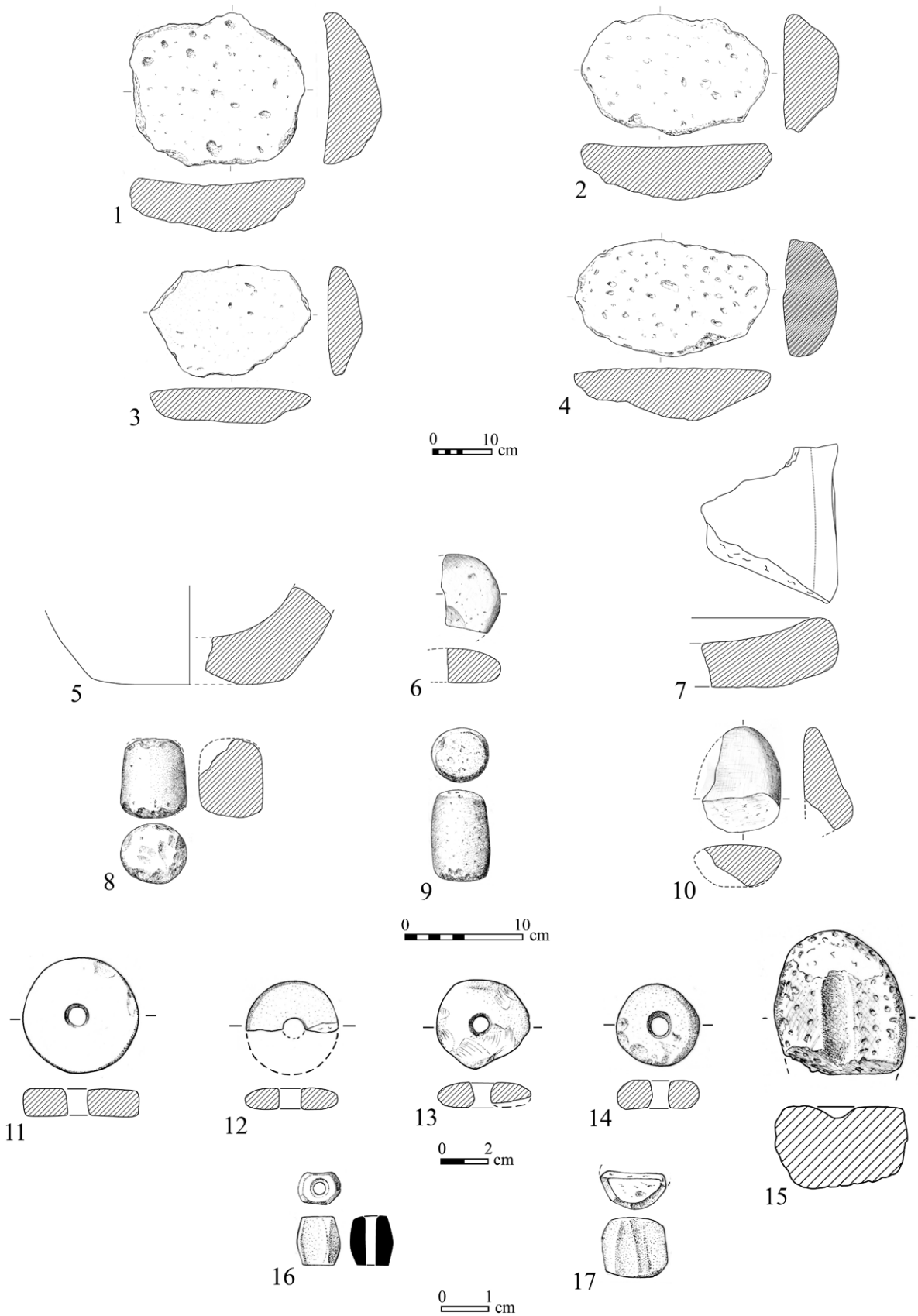

Figure 11.The groundstone tool assemblage.

Stratum	Locus	L/R	Bone	Part	Species	Note
I	33		Axis	Anterior	*Capra/Ovis*	
I	66	R	DP4	Mandible	*Sus*	Juvenile
I	126		Long bone	Medial shaft	*Capra/Ovis*	Bone point
I	136		Phalanx 1	Complete	*Sus*	
I	11		Phalanx 1	Complete	*Capra/Ovis*	
I	36		Metatarsus	Proximal	*Bos*	
I	12	L	Astragal	Complete	*Bos*	
II	109		Tibia	Medial shaft	*Capra/Ovis*	
II	64		Metapod	Distal	*Capra/Ovis*	Fused
III	129		Ulna	Distal	*Sus*	
III			Metacarpus	Proximal	*Capra/Ovis*	
III	155	L	M3	Maxilla	*Capra/Ovis*	
III	153	R	Tibia	Distal	*Capra/Ovis*	
III	157		Metapod	Distal	*Capra/Ovis*	Fused
IV	166		Phalanx 1	Complete	*Capra/Ovis*	
IV	158	R	M3	Mandible	*Capra/Ovis*	
IV	158	R	M2…DP4	Mandible	*Capra/Ovis*	

Table 10. Bone inventory.

husbandry practices in Stratum 2 of 'Ein Hilu (Bar *et al*. 2008).

The small sample does not allow reconstruction of the mortality profile of livestock taxa. We note that bone fusion could have been examined for only two sheep and goat specimens, and these are fully-fused, indicating adult individuals. This may indicate that livestock were raised for their secondary products (dairy products and/or wool). A similar pattern was also observed in the nearby sites of Sheikh Diab2 (Bar *et al*. 2011) and 'Ein Hilu (Bar *et al*. 2008).

Game animals are missing in the Fazael 1 assemblage. They were also absent from the somewhat larger faunal assemblage of Fazael 2 (Bar *et al*. 2013). On the other hand, they were quite common in 'Ein Hilu Stratum I (Bar *et al*. 2008). Therefore, it seems that subsistence in Fazael 1 was based predominantly on husbandry of domestic ungulates. The presence of pigs suggests that the site could have been used as a permanent settlement, and indicates the presence of water in the vicinity of the site.

To conclude, the faunal assemblage from Fazael 1, even though it is very small, provides additional data as to the subsistence patterns and husbandry practices in the Jordan Valley region. Similarly to previous studies, it demonstrates that husbandry practices in the region relied predominantly on raising sheep and goats. The presence of pigs indicates that the ecological landscape of the site included freshwater sources. This is also supported by the presence of cattle in all sites.

The bone assemblage of Fazael 1 includes also a complete bone point made of a sheep/goat long bone shaft fragment (Fig. 12). This item was found in Stratum I. Points are among the most common bone tools in different regions and periods, and appear to be made in a standardized fashion, and were used for many utilitarian and everyday purposes (see for example Bar-Oz and Yeshurun 2014 and Raban-Gerstel and Bar-Oz 2013).

Figure 12. A bone point made of a long bone shaft of a sheep/goat (Stratum I, L126).

THE DATING OF THE SITE WITHIN THE FAZAEL VALLEY CHALCOLITHIC CLUSTER (S.B)

Fazael 1 is the westernmost site in the Chalcolithic cluster of settlements in Wadi Fazael. Other reports (Bar 2013, 2014a, 2014b; Bar *et al*. 2013) have shown that the majority of sites in this cluster (Fazael 2, 5, 7 and Porath 1985 excavation) should be attributed to the final phases of the Ghassulian Chalcolithic or, less probably, to a post-Ghassulian entity. Major characteristics of the architecture and material remains of these sites include very large courtyard houses, each up to 1,500 sq. m in area (Bar 2014b); absence of some noticeable attributions of Ghassulian Chalcolithic culture in the ceramic assemblage, mainly churns and cornets; the appearance of the Canaanean blade industry; and the almost complete lack of bifacial tools in the flint assemblage (Bar and Winter 2010).

Excavations in Fazael 1 show the absence of this cultural uniqueness. The architecture in the more completely exposed Stratum I differs from the large courtyard houses manifested in nearby sites, and exhibits more conventional Ghassulian broad room architecture that is comparable in wall thickness, masonry and area to dwellings in sites such as Teleilat Ghassul and ‘Ein Hilu (for further discussion see Bar 2014a: 74–81). The material culture of Stratum I, although not very rich, is Ghassulian in nature, and earlier strata exhibit traits that can also be attributed to the Ghassulian culture, earlier than the Stratum I assemblage. The flint assemblage has bifacial tools, and no trace of the Canaanean industry. These data support the idea that Fazael 1 should be considered as the earliest Chalcolithic settlement thus far explored in the Fazael Valley. If this is the case, we can build a settlement continuum in this region, starting with the four strata of Fazael 1, followed by the aggregation of the larger sites to its east. Settlement in the Fazael Valley declined at the end of the Chalcolithic period, only to reappear in the Early Bronze Age Ib in the sites of Fazael 4 and Sheikh Diab 2 (Bar 2013, 2014a).

REFERENCES

Adams J. L. 2002. *Ground Stone Analysis: A Technological Approach*. Salt Lake City: University of Utah Press.

Adams J., S. Delgado L., Dubreuil C., Hamon H., Plisson H. and Risch R. 2009. Functional analysis of macro-lithic artefacts: a focus on working surfaces. In: Sternke F., Eigeland L. and Costa L.J. (eds.), *Non-Flint Raw Material Use in Prehistory: Old Prejudices and New Directions*, pp. 43–66. Oxford: Archaeopress.

Bar S. 2008. *The Pattern of Settlement in the Lower Jordan Valley and the Desert Fringes of Samaria During the Late Chalcolithic Period and Early Bronze Age I*. Unpublished Ph.D. Dissertation. University of Haifa, Haifa (Hebrew).

Bar S. 2013. *Yogvim VeNokdim I*. Haifa: Seker (Hebrew).

Bar S. 2014a. *The Dawn of the Bronze Age.* Boston and Leiden: Brill.

Bar S. 2014b. A new settlement pattern of the Chalcolithic village: The view from the Fazael Valley, Israel. *Judea and Samaria Research Studies* 23: 87–98.

Bar S. and Winter H. 2010. Canaanean flint blades in Chalcolithic context and the possible onset of the transition to the Early Bronze Age: A case study from Fazael 2. *Tel Aviv* 37(1): 33–47.

Bar S., Bar Oz G., Boaretto E., Cohen O., Dan E., Raban-Gerstel N., Rosenberg D. and Winter H. 2008. Ein Hilu – a Chalcolithic site on the desert fringes of Samaria. *Journal of the Israel Prehistoric Society* 38: 153–228.

Bar S., Bar-Oz G., Ben-Yosef D., Raban-Gerstel N. and Winter H. 2011. Sheikh Diab 2: an Early Bronze Age 1 hamlet in the Jordan Valley. *Journal of the Israel Prehistoric Society* 41: 95–154.

Bar S., Bar Oz G., Ben-Yosef D., Boaretto E., Raban-Gerstel N. and Winter H. 2013. Fazael 2, one of the latest Chalcolithic sites in the Jordan Valley? Report of the 2007-2008 excavation seasons. *Journal of the Israel Prehistoric Society* 43: 148–185.

Bar-Oz G. and Yeshurun R. 2014 (in press). The bone tools from the Cave of the Treasure at Nahal Mishmar. *Journal of the Israel Prehistoric Society* 44.

Commenge C. 2005. The Late Chalcolithic pottery. In: Brink C.M.E. van den, and Gophna R. (eds.), *Shoham (North): Late Chalcolithic Burial Caves in the Lod Valley, Israel*, pp 51–98. Jerusalem: Israel Antiquities Authority.

Covello-Paran K. 1995. Gesher-Karantina. *Hadashot Archaeologiot* 104: 49–51 (Hebrew).

Dollfus G. and Kafafi Z. 1993. Recent researches at Abu Hamid. *Annual of the Department of Archaeology of Jordan* 37: 241–262.

Garfinkel Y. 1999. *Neolithic and Chalcolithic Pottery of the Southern Levant*. Jerusalem: Qedem 39.

Gluek N. 1951. *Exploration in Eastern Palestine IV* (Part I: Text). American Association of Oriental Research 25–28, New Haven.

Lovell J. L. 2001. *The Late Neolithic and Chalcolithic Periods in the Southern Levant: New Data from the Site of Teleilat Ghassul, Jordan*. Oxford: BAR International Series 974.

Peleg Y. 2000. Fasa'el (north). *Hadashot Archaeologiot* 112: 67–68 (Hebrew).

Porath Y.1985. A Chalcolithic building at Fasa'el. *'Atiqot* 17: 1–19.

Raban-Gerstel N., Bar-Oz G., Zohar I., Sharon I. and Gilboa A. 2008. Early Iron Age Dor (Israel): A faunal perspective. *Bulletin of American Schools of Oriental Research* 349: 25–59.

Raban-Gerstel N. and Bar-Oz G. 2013. Bone and ivory objects. In: Shalem D., Gal Z. and Smithline H. (eds.), *Peqi'in – A Late Chalcolithic Burial Site Upper Galilee, Israel* (Land of Galilee 2), pp 371–377. Kinneret Academic College: Institute for Galilean Archaeology.

Rosenberg D. 2011. *Development, Continuity and Change: The Stone Industries of the Early Ceramic Bearing Cultures of the Southern Levant*. Unpublished Ph.D. Dissertation. University of Haifa, Haifa (Hebrew).

Rowan Y. M., Levy T. E., Alon D. and Goren Y. 2006. Gilat's ground stone assemblage: stone fenestrated stands, bowls, palettes and related artifacts. In: Levy T. E. (ed.), *Archaeology, Anthropology and Cult: The Sanctuary at Gilat*, pp. 575–684. London: Equinox.

Sneh A., Bartov Y., Weissbrod T. and Rosensaft M. 1998. *Geological Map of Israel, 1:200,000*. Israel Geological Survey (4 sheets).

Ussishkin D. 1980. The Ghassulian shrine at En-Gedi. *Tel Aviv* 7: 1–44.

Yannai E., Lazar-Shorer D. and Grosinger Z. 2006. Chapter 4: The Pottery Assemblages. In: Yannai E. (ed.), *'En Esur ('Ein Asawir) I, Excavations at a Protohistoric Site in the Coastal Plain of Israel*, (IAA 31), pp. 63–178. Jerusalem: Israel Antiquities Authority.

Zertal A. 2012. *The Manasseh Hill Country Survey* – Volume 5. Haifa: Seker (Hebrew).