

SHA‘AR HAGOLAN: A MAJOR POTTERY NEOLITHIC SETTLEMENT AND ARTISTIC CENTER IN THE JORDAN VALLEY

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Abstract

Eleven excavation seasons were conducted at the 8,000 year old Pottery Neolithic site of Sha‘ar Hagolan, Jordan valley, Israel (1989–1990, 1996–2004). The field work has been concluded in 2004 and now the expedition is concentrating on the preparation of the final excavation reports. The field work methodological approach was a large horizontal exposure and in accordance ca. 3,000 m² were uncovered in five different excavation areas. Groundbreaking results were obtained, including monumental courtyard structures, a system of streets, a water well and the largest collection of prehistoric art ever found in Israel. This new data completely contradicts what was known before on the Pottery Neolithic period of the southern Levant. It is clear now that this period reflects an important step towards the transition from early sedentary villages to well planned urban settlements. The size of the site, its developed architecture and planning, the rich material culture and the long-distance connections, indicate that Sha‘ar Hagolan was one of the major Neolithic settlements in the Near East.

Key words: Near East, pottery, neolithic, Yarmukian Culture, Prehistoric Art.

INTRODUCTION

The Pottery Neolithic of the Southern Levant has traditionally been a neglected period of study that fell in between two disciplines: prehistoric archaeology on the one hand and biblical archaeology on the other. For the prehistorians, it is considered too late while for the biblical archaeologists, it is simply too early. The vacuum of modern research has been taken to reflect the actual circumstances of the period; or in the words of Bar-Yosef, “Part of the blame for the fragmentary data may be placed on the character of the remains themselves” (1992: 31). Thus, modern research has created a false impression concerning most aspects of this period. Kenyon emphasized two points, which were time and again repeated by most scholars dealing with this period (Kenyon, 1960: 58–68). Already in the first account

of her excavations at Jericho, Kenyon termed the chapter on the Pottery Neolithic period: “A retrogression” and stated that the “newcomers brought with them the use of pottery, but in every other respect they were much more primitive than their predecessors” (Kenyon, 1957: 77). First, that the Pottery Neolithic marks a sharp decline in comparison with the earlier Pre-Pottery Neolithic periods; second, that the Pottery Neolithic of the southern Levant marks a sharp decline in comparison with the other, contemporary cultures of the ancient Near East. In Kirkbride’s summary of the period, published in 1971, the Pottery Neolithic period was described as: “The pit dwelling settlements of these people who, until Wadi Rabah and late Jericho VIII, appeared to have no solid architecture point to a semi-nomadic way of life in Palestine.” She adds that the southern Levant just

faintly mirrored the flourishing northern cultures. In a more recent discussion on settlement development of the area the Pottery Neolithic Period is described as a major breakdown of the Early Neolithic culture occurring in the southern Levant while prosperity continued in the northern parts of the Near East (Herzog, 1997: 27–29; see also Bar-Yosef, 1998: 170–171). Even in an article published by Kuijt, after preliminary reports on the main results from Sha‘ar Hagolan excavations was presented (e.g., Garfinkel, 1993), the size of Pottery Neolithic settlements is erroneously presented as equal to the size of Natufian and Pre-Pottery Neolithic A sites. This outdated author wrote: “the transition to small Pottery Neolithic hamlets containing fewer than a hundred people, reflects a process of decentralization and social fragmentation” (Kuijt, 2000: 99, fig. 4).

Thus, we see that according to the accepted scholarly consensus up to recent time, the population of the Pottery Neolithic period was supposedly organized in small, semi-nomadic groups that inhabited each site only part of the year, and dwelled in pit-buildings or circular huts (Perrot, 1968, 1969; Kirkbride, 1971; Bar-Yosef, 1992: 31–38). However, the excavations at the site of Sha‘ar Hagolan have now opened new horizons to our understanding of the Pottery Neolithic of the Southern Levant. They also have more far-reaching implications for the entire Neolithic period, the history of architecture, settlement planning and the art of the ancient Near East. What was previously considered to be an era of decline has proved to have been a time of cultural evolution in the Levant.

THE SITE AND THE VARIOUS EXCAVATED AREAS

Sha‘ar Hagolan is located in the central Jordan Valley, 1.5 km south of the Sea of Galilee, at an elevation of c. 210 m below sea level (Fig. 1). This geographical unit, called Kinnerot Valley, contains Lake Kinneret (the Sea of Galilee) and the triangular-shaped region to the south, between the Jordan and the Yarmuk Rivers. The site lies on the northwestern bank of the Yarmuk River, near the meeting point of three modern states: Israel, Jordan and Syria. The Golan Heights and Mount Gilead border this part of the rift valley to

the east and the Hills of Galilee to the west. The mountains reach a maximum elevation of 200–300 m above sea level. The area is rich in water and fertile land. The location on the bank of the Yarmuk River must have provided numerous advantages to the inhabitants of the site, such as the following: permanent stable water supplies for humans and animals; mud and clay deposits for various needs, including building construction and pottery; marsh vegetation which is suitable for basketry and mat industries; supplies of basalt river pebbles for various constructions, such as the rounded pebbles used for wall foundations and flat pebbles used for paving; limestone pebbles used for the schematic anthropomorphic figurines; flint pebbles which were the most commonly utilized material for the lithic industry and availability of aquatic fauna.

Most Neolithic sites in the Jordan Valley are situated similarly to Sha‘ar Hagolan, adjacent to a tributary, which approaches the valley from one side. The same geographical pattern can be seen at Gesher, Tel ‘Ali, Munhata, Hamadiya and Tel Tsaf (Garfinkel and Miller, 2002a: fig. 2.1). These sites are thus seated on an alluvial fan, where the river leaves the mountain and reaches the Jordan Valley. The traditional explanation for this pattern is its advantages for agriculture and the cultivation of land (Prausnitz, 1959; Bar-Yosef, 1992: 15). In addition, river valleys also provided the most convenient transportation routes between different regions. These sites therefore also appear to have been situated at crossroads between the north-south route created by the Jordan Valley and the east-west routes created by its tributaries. This may be an important factor as we consider the position of Sha‘ar Hagolan in regional trade networks.

The Neolithic site was discovered by members of the near-by Kibbutz Sha‘ar Hagolan during the construction of fishponds in the early 1940s. Later, Stekelis of the Hebrew University of Jerusalem, conducted five excavation seasons between the years 1949–1952. In his preliminary publications Stekelis named this material culture Yarmukian, after the nearby river. Its trademarks are pottery decorated with incised herringbone patterns, sickle-blades with coarse denticulation, and a rich assemblage of art objects (Stekelis, 1951, 1952). His excavations were carried out in

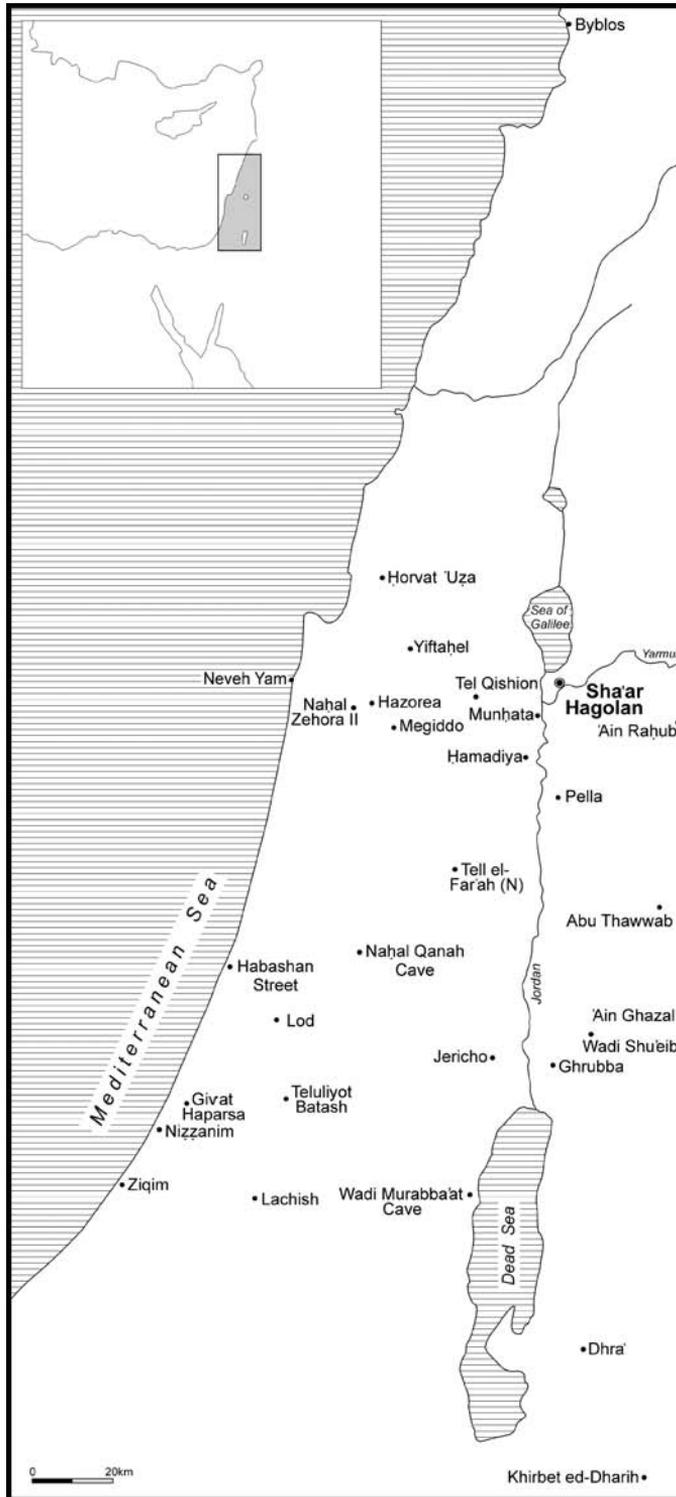


Fig. 1. Location of Sha'ar Hagolan and other Pottery Neolithic sites in the Southern Levant

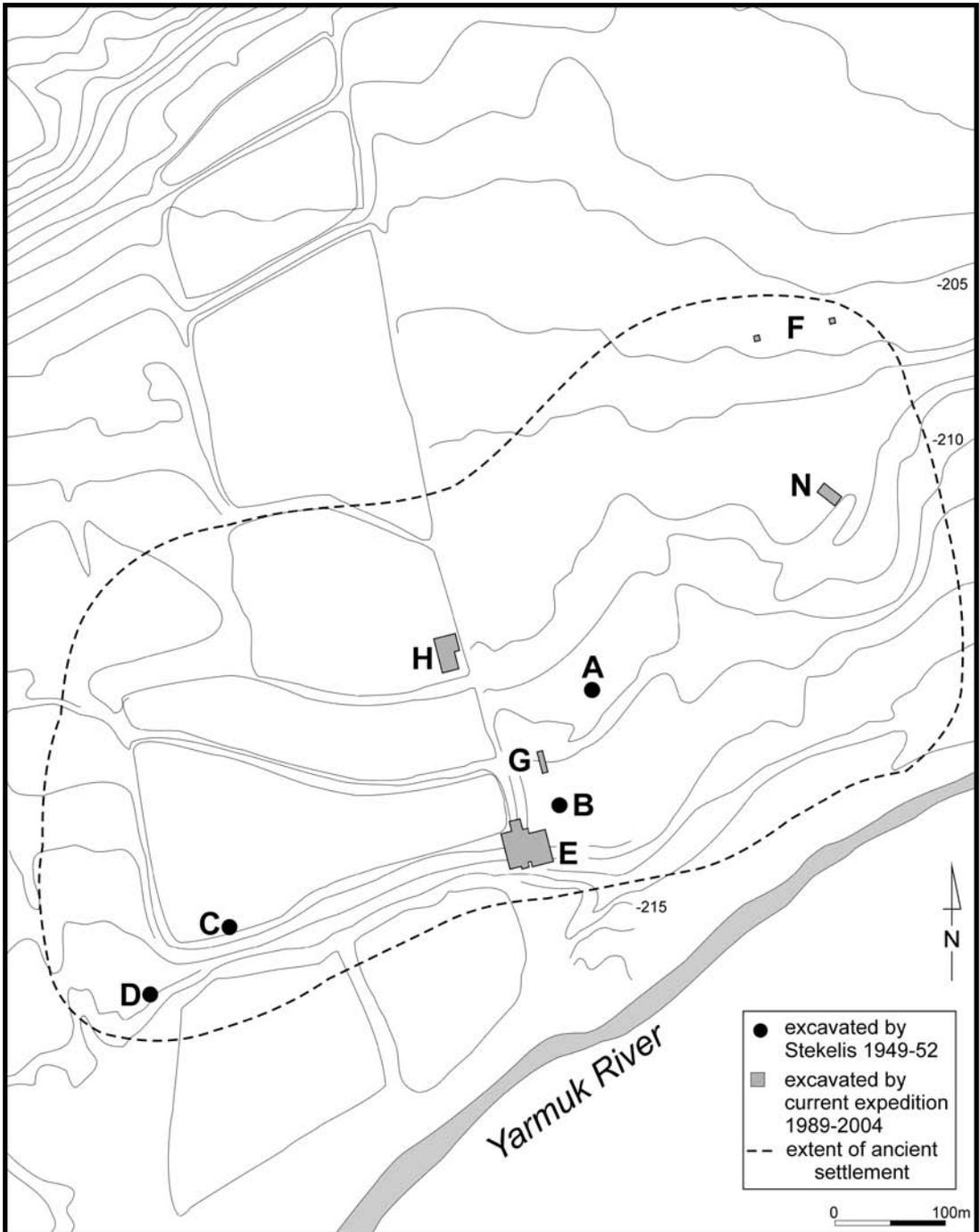


Fig. 2. Sha'ar Hagolan: general plan and the location of the various excavation areas

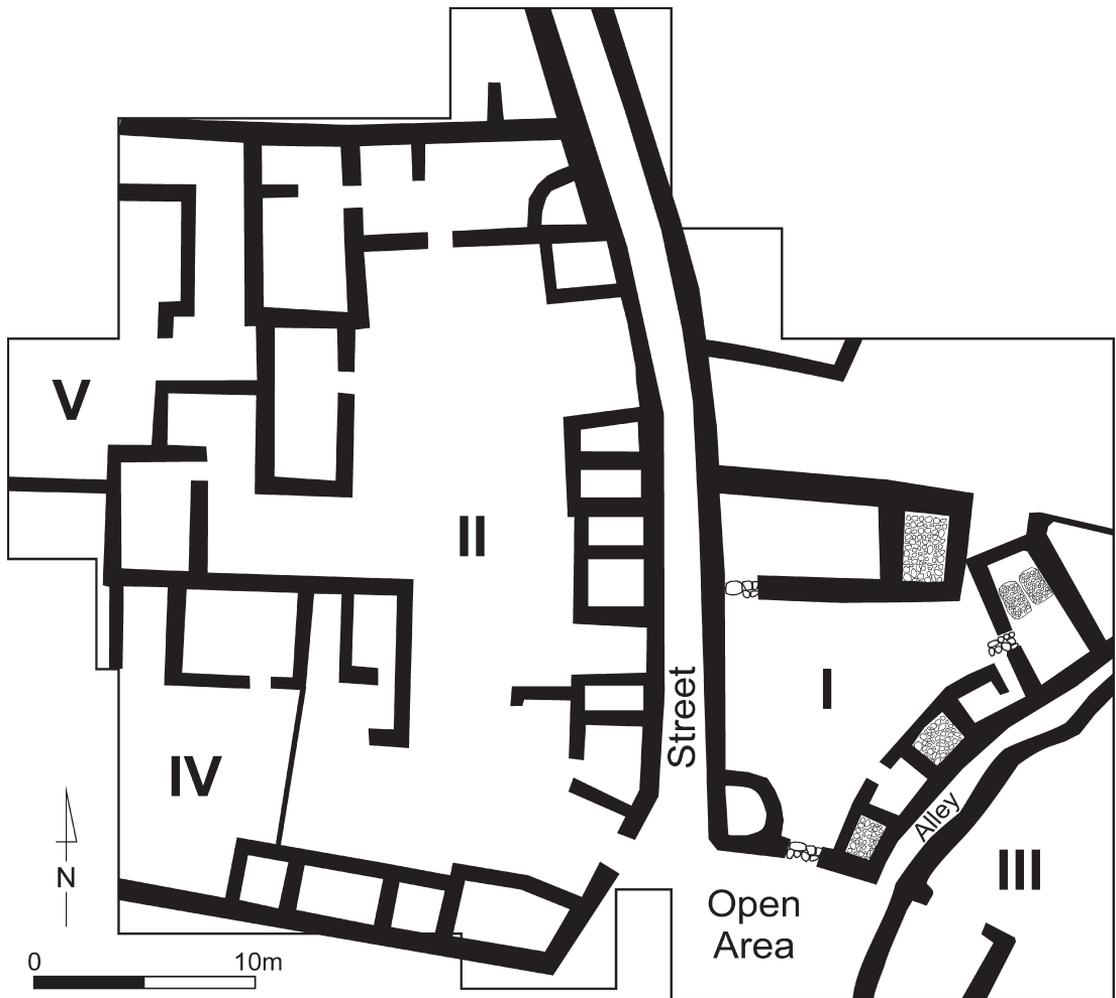


Fig. 3. Schematic plan of Area E with the courtyard buildings and network of streets

small probes in four different locations (Areas A–D), all of them several hundred meters from the Yarmuk River bank (Fig. 2). Stekelis published the final excavation report in Hebrew in 1966 and following his untimely death the English version was published in 1972 (Stekelis, 1972).

In 1989 the excavations at Sha'ar Hagolan were renewed, 37 years after Stekelis completed his explorations at the site. The new excavations were directed by Y. Garfinkel on behalf of the Institute of Archaeology of the Hebrew University of Jerusalem. During the seasons of 1998–2000 M.A. Miller served as co-director. The last season

was conducted in 2004 and all the excavation areas were backfilled. All together 11 excavation seasons took place (1989–1990, 1996–2004) and nearly 3,000 m² were unearthed. In 1998 Miller conducted an extensive surface survey along with the study of some 30 trenches dug illegally by local farmers for soil sampling. The survey indicated that the entire size of the Pottery Neolithic settlement at Sha'ar Hagolan is ca. 20 hectares (Miller, 2002a), making it one of the largest Neolithic sites known in the Near East. Our excavation explored the nature of this settlement in five different areas of the site referred to as Areas E–H and N (Fig. 2):



Fig. 4. The northeastern corner of Building Complex I in Area E and the small alley (Photo by Y. Garfinkel)

Area E

Excavations in this area began in 1989 and continued through the 2003 season, by which time a large horizontal area of ca. 1,700 m² had been uncovered (Figs 3–4). Here two complete courtyard buildings and two streets were uncovered and remains of at least three other buildings were exposed. The courtyard buildings abut one another in a dense pattern, without open areas between them. The houses were built on both sides of streets. The building method was simple: the walls have no foundation trenches and were laid directly on the ground. They consist of a foundation of rounded basalt pebbles and a superstructure of rounded mudbricks. In certain areas two constructional phases were identified, reflected mostly in differences of the inner divisions within the buildings. This is a densely occupied area in the central part of the settlement near the river. Below the massive Pottery Neolithic architecture

an earlier Neolithic phase has been uncovered, that of the recently defined Pre-Pottery Neolithic C (see e.g., Rollefson and Köhler-Rollefson, 1993; Garfinkel, 1994).

Area F

This area lies 450 m to the northeast of Area E. Two small test pits excavated in 1998 revealed substantial architectural features, including stone walls foundations (one measuring nearly one meter in width) and a partly preserved hard-packed whitish clay floor. By the end of the 1998 season the two test pits area were backfilled and a banana grove was planted over them for the next 10 years.

Area G

This is a stratigraphic trench, 20 by 5 m (100 m²) located c. 100 m northeast of Area E, which cuts through the site layers from topsoil to virgin

soil. An additional 5 by 5 m square was excavated in the northwest corner. During three seasons (1999, 2000, 2002) a full sequence of Yarmukian accumulation, of ca. 3 m was completely exposed. This sequence included at least seven Yarmukian phases with floor levels, installations and in one of the lower phases part of a building. It seems that during most of the periods this area was an open area between buildings. Below this a few Pre-Pottery Neolithic C remains were found. This is the first time that such a detailed stratigraphic sequence for the Yarmukian Culture was discovered since Yarmukian sites usually do not have thick deposits. At the bottom of the trench a circular well was found, dug into virgin soil. It was built of large basalt river pebbles, its inner diameter is ca. 50 cm, and the outer is ca. 1.2 m. It is going down for 4.26 m, to current water table (see discussion below).

Area H

This is the second large horizontal exposure of the renewed excavations, located about 200 m northwest of Area E. It has been excavated for three seasons (1999, 2000, 2003), and an area of ca. 700 m² was uncovered (Fig. 5). At least two Yarmukian phases can be distinguished in the architectural features. While the upper one is badly damaged, the lower one is much better preserved. The architecture in Area H is similar in construction to that of Area E, including walls with stone foundations and mudbrick superstructures. The northern half of Area H appears to consist of a large building complex, with a large central courtyard surrounded by 10 rooms. A plastered street running in a east-west orientation was found north of the building. Small segments of at least four more building complexes were found here, located on both sides of the street.

Area N (Tell Abu Nimmel)

Area N, whose Arabic name is Tell Abu Nimmel is located in the eastern edge of the site, about 400 m from Area E. One excavation season took place there in 2004 and 200 m² were exposed. Only meager Yarmukian architecture was found here (Garfinkel, 2005) and this area probably functioned mainly as an open area on the edge of the settlement with significant accumulation of material culture. Nevertheless, the results from

this area substantiate the observation that the Neolithic site stretched thus far.

CHRONOLOGY

The basic sequence of the Neolithic period in the southern Levant was formulated by Kenyon following her extensive excavations at Jericho in the 1950s. She suggested two pre-pottery phases designated Pre-Pottery Neolithic A (PPNA) and Pre-Pottery Neolithic B (PPNB). These were followed by a gap in the occupation of Jericho that lasted a few centuries. Later, two successive pottery phases were uncovered – Pottery Neolithic A (PNA) and Pottery Neolithic B (PNB). The definitions of the earlier part of the Pre-Pottery sequence were accepted without any serious criticism. Jericho also produced a number of radiometric dates for the two earlier Neolithic settlements. The two later Neolithic settlements at Jericho, however, did not produce any radiometric dates. This situation caused much speculation concerning the relative, as well as the absolute, chronology of the later sequence of the Neolithic period in the southern Levant.

Until recently, the chronology of the Yarmukian culture and of the 7th–6th millennia BC in general, was problematic. Several scholars tended to place the Yarmukian culture within the Pottery Neolithic B Jericho, which implies a fifth millennium BC age. Others placed it immediately after the Pre-Pottery Neolithic B of the seventh millennium BC (Garfinkel, 1999a; and see a detailed discussion and relevant references therein). In order to solve the chronological debate the current expedition submitted nearly 30 samples for radiometric dating. This is the first time that systematic dates for the post Pre-Pottery Neolithic B Levant were achieved, thus clearly helping to solve some of the chronological difficulties of the period under discussion.

As preservation of organic material was very poor at Sha'ar Hagolan only tiny fragments of charcoal were found. It was therefore not possible to conduct any botanical identification of the wood. All the available dates processed by the Oxford accelerator unit are presented in Table 1 (see Garfinkel, 1999a). They are placed together with the available dates from other Yarmukian sites: Munhata, Byblos, 'Ain Ghazal, 'Ain Rahub

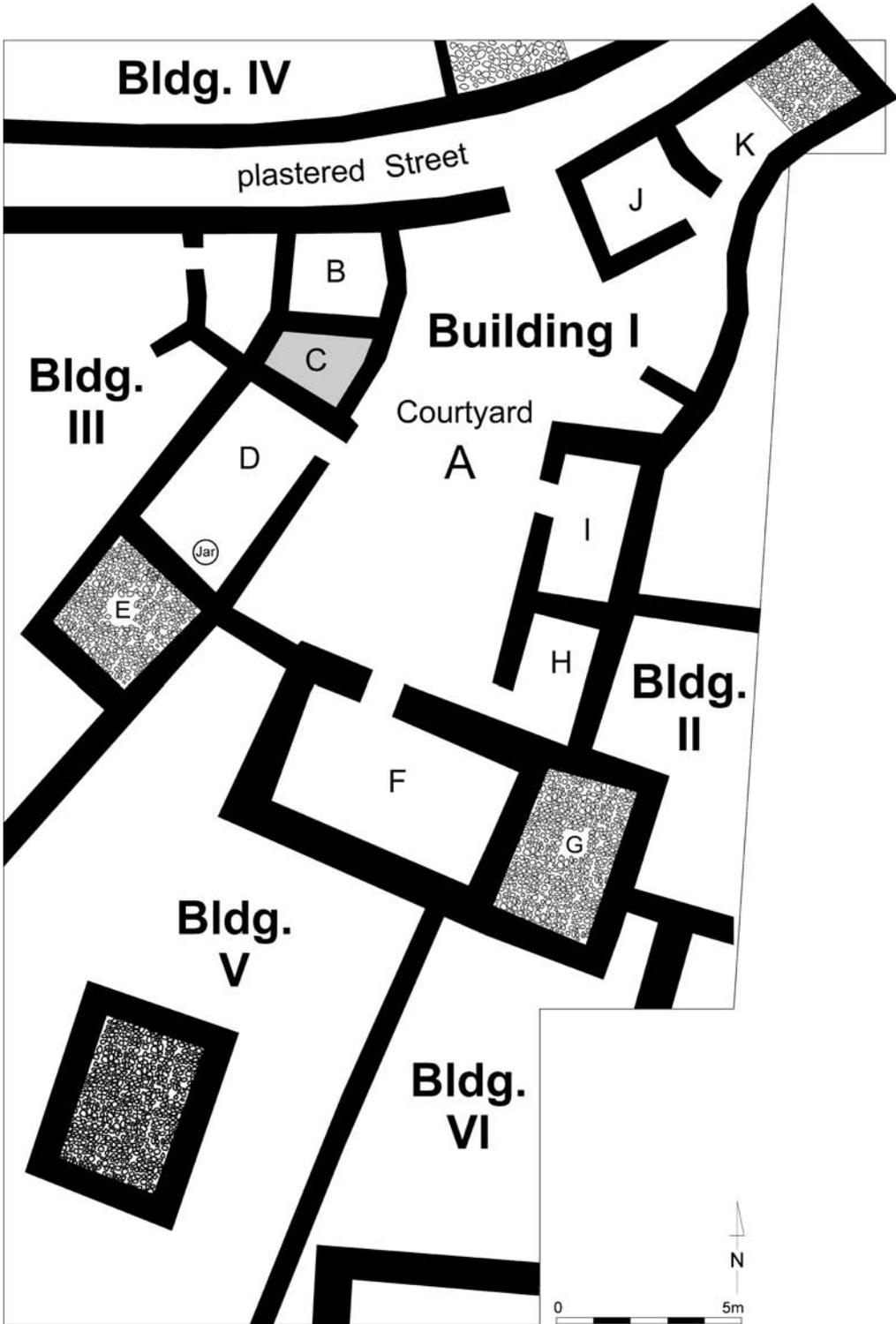


Fig. 5. Plan of Area H with the courtyard buildings and a street

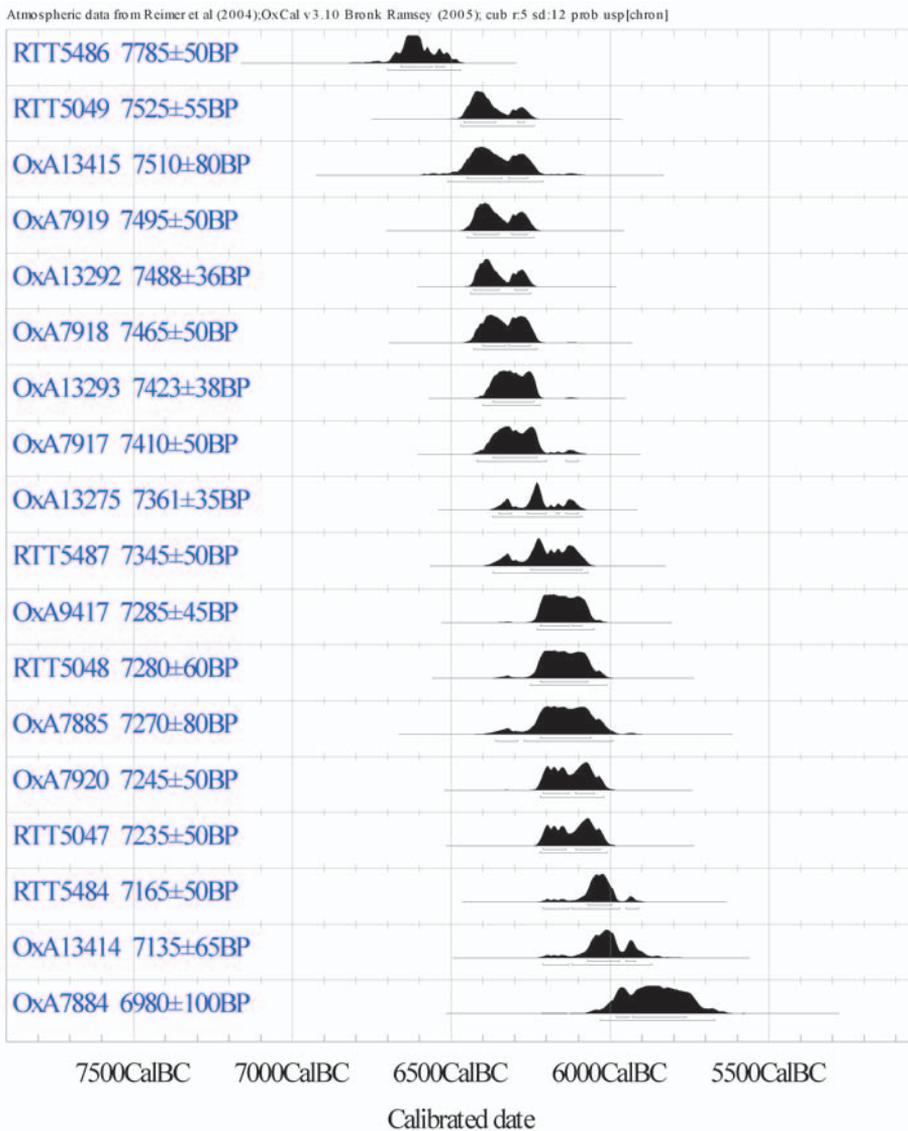


Fig. 6. Radiometric dates from Sha'ar Hagolan (based on Table 1)

and Nahal Qanah Cave. All these dates together clearly indicate that the Yarmukian flourished between ca. 6400–5800 cal BC (Fig. 6).

A detailed analysis of the datings and their stratigraphic location enabled us to note a few developments in the settlement over time. The earlier dates came from the well in Area G, at the bottom of nearly 2.5 m of Yarmukian accumulation (ca. 6400 cal BC). About 50–100 years later the large building complex of Area E has been con-

structed (ca. 6300 BC) and lasted for 150 years or so. As two construction phases were noticed, each probably lasted 75 years, or so, until ca. 6150 cal BC. This area did not produce later radiometric datings. A date from Area H is a somewhat later and may indicate that this area was built toward the end of the 7th millennia BC.

Additional dates from the upper sequence of Area G, the lower sequence of Area E, and Areas H and N would help us to reach a better under-

Table 1

Yarmukian radiometric dates from the southern Levant

Site	Composition	Date bp	Sample #.	Reference	Notes
Sha'ar Hagolan #27	Charcoal	7525±55	RTT 5049		
Sha'ar Hagolan #19	Charcoal	7510±80	OxA13415		
Sha'ar Hagolan #4	Charcoal	7495±50	OxA7919		
Sha'ar Hagolan #11	Charcoal	7488±36	OxA13292		Well foundation pit
'Ain Rahub	Charcoal	7480±90	GrN14539	Muheisen <i>et al.</i> , 1988	
Sha'ar Hagolan #3	Charcoal	7465±50	OxA7918		
Sha'ar Hagolan #12	Charcoal	7423±38	OxA13293		Well's shaft
Sha'ar Hagolan #2	Charcoal	7410±50	OxA7917		
Munhata (Layer 2b)	Charcoal	7370±400	M1792	Garfinkel, 1992:91	
Sha'ar Hagolan #17	Charcoal	7361±35	OxA13275		
Byblos (N. ancient)	Charcoal	7360±80	GrN1544	Dunand, 1973:34	Replacing 7000±80
Sha'ar Hagolan #35	Charcoal	7345±50	RTT 5487		
Munhata (Layer 2b)	Charcoal	7330±70	Ly4927	Garfinkel, 1992:91	
Sha'ar Hagolan #9	Charcoal	7285±45	OxA9417		
Sha'ar Hagolan #26	Charcoal	7280±60	RTT 5048		
Sha'ar Hagolan #7	Charcoal	7270±80	OxA7885		
Sha'ar Hagolan #6	Charcoal	7245±50	OxA7920		
Sha'ar Hagolan #25	Charcoal	7235±60	RTT 5047		
Sha'ar Hagolan #32	Charcoal	7165±50	RTT 5484		
Sha'ar Hagolan #18	Charcoal	7135±65	OxA13414		
Nahal Qanah Cave	Charcoal	7054±78	RT1544	Gopher and Tsuk, 1996:206	
Nahal Qanah Cave	Charcoal	6980±180	RT861D		
Sha'ar Hagolan #1	Charcoal	6980±100	OxA7884		

standing of Sha'ar Hagolan detailed chronology. However, this is an expensive procedure, and it is uncertain if the necessary funds will be available.

THE COURTYARD BUILDINGS

Three complete courtyard structures were uncovered at Sha'ar Hagolan, two in Area E and one in Area H.

Building Complex I (Area E)

This complex comprises of eight closed rooms enclosing an open courtyard (Figs 3, 7). The rooms are designated on the plan by the letters: B, C, D, E, F, G, H and I, and the courtyard by the letter A. The only entrance to the building is located on the south side of the courtyard, where a paved threshold is found between rooms B and I. The building has the shape of an asymmetrical pentagon with two right angles and a nar-

rower southern side. The outer walls of the rooms connect to each other and separate this building from the rest of the village. The measurements of Building Complex I are approximately 17.3×15.8 m, and its total size is 233 m^2 . The net inner usable area, calculated without the walls, is 152.5 m^2 .

Most of the rooms in Building Complex I are paired, with one room unpaved with an entrance facing the courtyard, and the other paved, without an entrance (C–D, F–G, H–I). Inside Room E, which does not have an adjacent storage room, there are two large paved installations that could have served for storage. Installations are located either in the open areas (the majority) or in the unpaved rooms. This implies that the paved rooms were used for storage and the unpaved rooms were used for living. In order to obtain maximum protection against humidity, insects, rodents, or theft by other people, the storage area was insulated as well as possible. The floor was very well

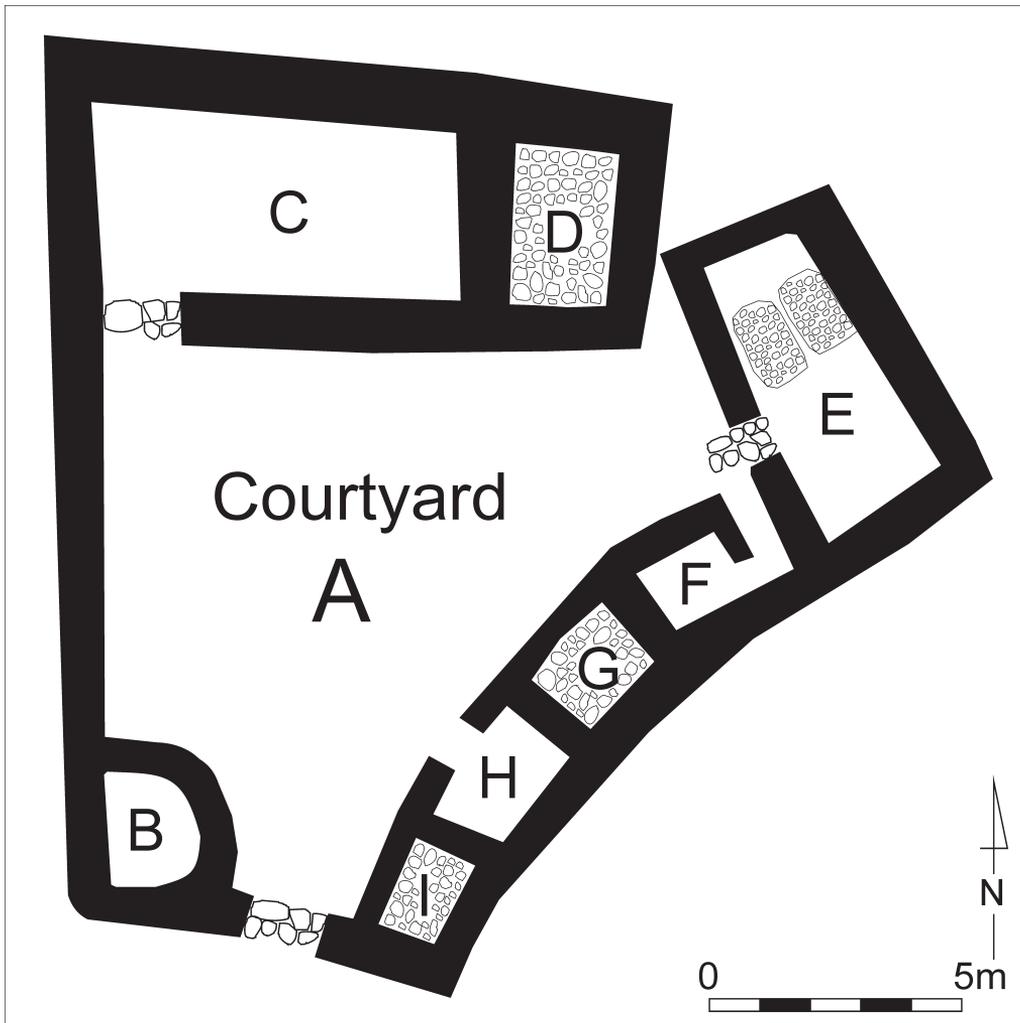


Fig. 7. Schematic plan of Building Complex I in Area E

paved with flat pebbles and the entry was probably from the adjacent, attached room, through a window, which was higher than floor level. For that reason, no entrances were found to the paved rooms.

This data suggests a modular pattern repeating itself four times around the courtyard, probably reflecting four nuclear families sharing these quarters. Living in such proximity indicates close kinship, probably an extended family (Garfinkel, 2002; Garfinkel and Ben-Shlomo, 2002; for a similar approach see also Flannery, 2002).

Building Complex II (Area E)

Building II is also a courtyard complex, whose maximum dimensions are approximate 35 by 20 m (Figs 3, 8). Its total size is 710 m² and the net floor area, calculated without the walls, is 510 m². It is somewhat different in its ground plan from Building I, nevertheless the architectural concept is clearly that of a courtyard building. There are 24 rooms of various sizes around the courtyard, some of which are paved. The rooms were arranged in seven (or eight) clusters (C, F; E, G, H, I; O, P, Q, R; S, T, U, V; N–M; L–K; X–Y).

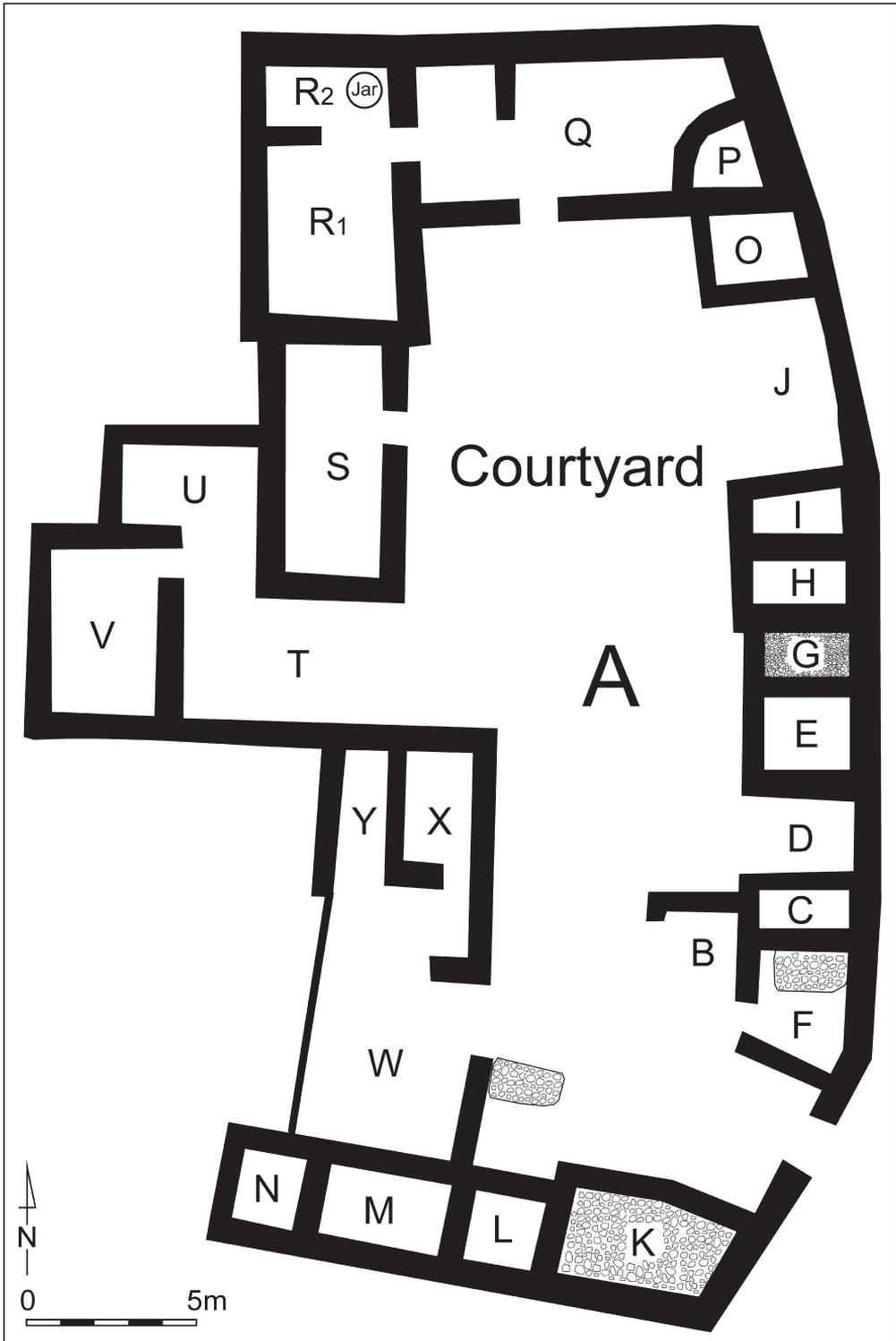


Fig. 8. Schematic plan of Building Complex II in Area E



Fig. 9. The 'kitchen' (Room R2) in Building II (Photo by Y. Garfinkel)

This complex was thus used by a large extended family, with at least seven nuclear families living together. In the courtyard, various installations were found, including four large basalt mortars. It should be noted that the largest room in the building is located in the northern end of the building facing the courtyard and the entrance. The same phenomenon occurs in Building Complex I (Room C). It can be suggested that the head of the extended family or clan dwelled in this room, located in an ideal position for controlling the main courtyard and the entrance to the building.

The northwestern smaller room in Building II, has an exceptionally well-preserved floor with an assemblage of stone vessels and installations and pottery vessels exposed *in situ* (Fig. 9). The debris above the floor contained several large grinding stones, turned upside-down, a complete stone bowl was found together with a whetstone and several flat slabs, probably used as anvils. In the southwest corner of the room a hearth constructed from rounded stones was found, with a holemouth jar smashed on it. A large ceramic

pithos was placed in a pit dug from the floor level in the northeastern corner of the room. A similar pithos sunk into a corner of a room was found in Area H. Burying a pithos has several advantages: constant temperature, a barrier against insects, providing additional dwelling space and protection from breakage. This room is interpreted as a cooking and food processing area, a kitchen preserved *in situ* with most of the elements in their original location.

Building Complex II is without a doubt the largest structure from such an early period that has been uncovered in the Neolithic Near East. It was clearly a courtyard house with rows of rooms on all four sides. About 70 figurines made of fired clay or carved on limestone pebbles (some complete and many fragmentary) were found in the building. This is the largest collection of art objects ever discovered in a single prehistoric structure. The question of why so many art objects were concentrated in this building is an intriguing one. Was it simply a very large dwelling, or did other public or religious activities take place in it?

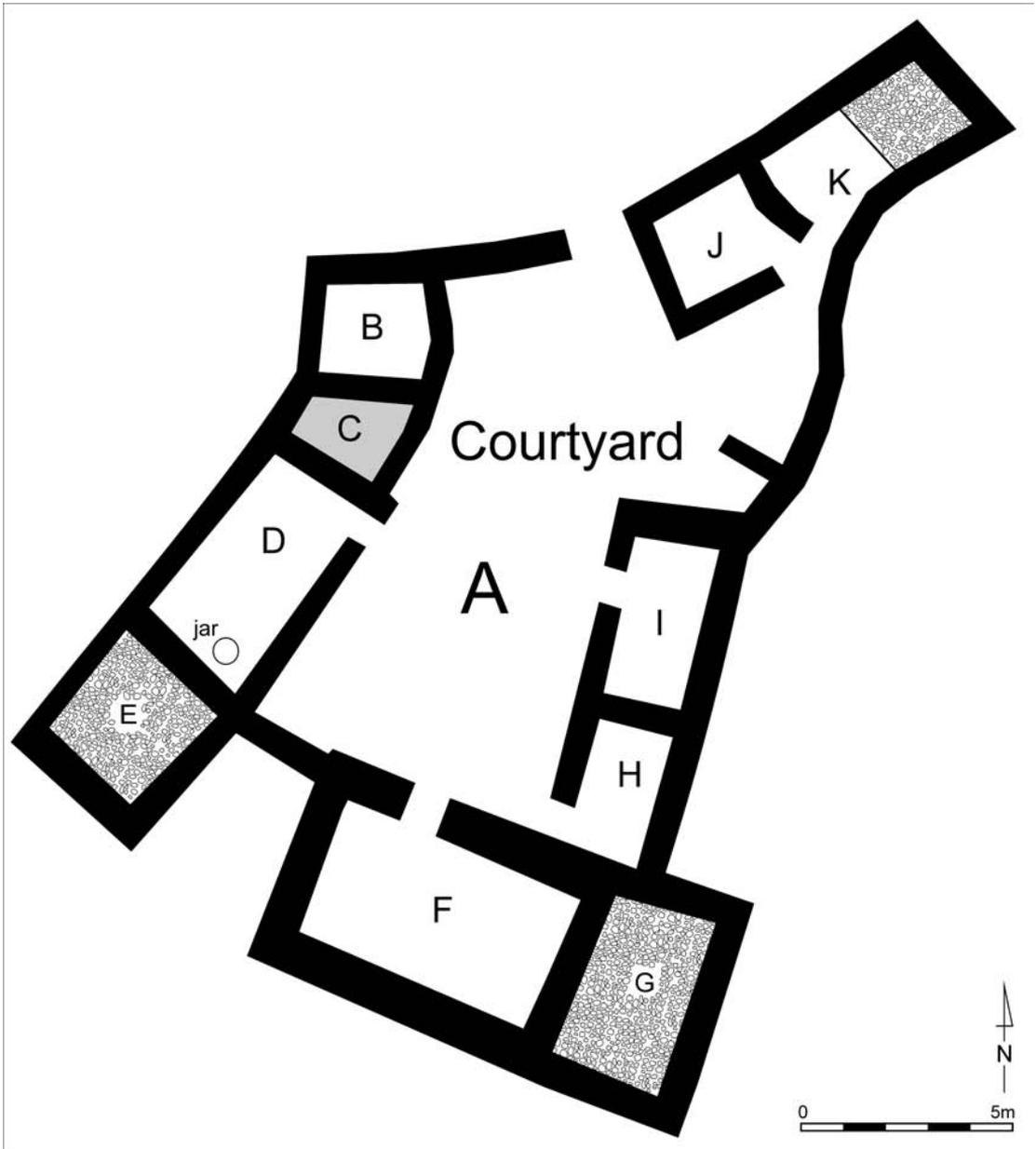


Fig. 10. Schematic plan of Building Complex I in Area H

Building Complex I (Area H)

The basic architectural concept of the buildings in Area H is similar to that of the two buildings unearthed in Area E. The completely excavated building here is composed of a large, open, central courtyard (A) surrounded by ten rooms

(Fig. 10). Four of the rooms have paved rooms, either made of stone (E, G, K) or an exceptionally thick mud plaster (C). These rooms do not open directly to the courtyard and apparently were storage rooms. They are located adjacent to rooms with beaten earth surface and together create four

pairs (B–C, D–E, F–G, J–K). Rooms H and I are open directly to the courtyard and do not have a storage facility nearby.

How does the new type of building – the courtyard structures – uncovered at Sha'ar Hagolan, fit into the general development of Neolithic architecture? The main work on Neolithic architecture in the Near East, with a systematic survey of the relevant publications, is that of Aurenche (Aurenche, 1981a). However, this 30-year-old book naturally needs to be updated. Other works that have been written since focus upon a more specific period or region within the Neolithic era: Aurenche, 1981b; Redman, 1983; Kubba, 1987; Breniquet, 1991; Kuijt, 2000; Gebel, 2006. In a previous study we gave a detailed survey of the evolution of dwelling structure from the beginning of architecture to the Pottery Neolithic period (Garfinkel and Ben-Shlomo, 2002; Garfinkel and Ben-Shlomo, 2009: 67–83). The various Neolithic structures were classified into four main types: round houses, simple rectangular houses, multi-partite complex houses and courtyard houses. Further subdivision was observed in each of these categories. The types were arranged from the simple or nuclear houses to the more sophisticated ones. The scheme is morphological, considering both the general shape of the houses and the internal architectural plan. It indicates that an ongoing effort of exploring various architectural solutions took place in the in the proto-historic Near East. Of the various Neolithic building concepts the courtyard structure notably still can be found among traditional agrarian communities in the Near East, and around the Mediterranean Sea. For example, the modern village Hasanababd, North Western Iran is built of several courtyard houses. The courtyards are used for various outdoor activities and for short-term storage of crops. At the edge of the village is located the “Qal'a” – landlords house. This courtyard building is bigger – especially its courtyard, in which the landlords share of the crop is kept at harvest time (Watson, 1979). Somewhat different courtyard structure is the “painted house” at Zaghe, Iran (Negabhan, 1979: 240–244, fig. 2) as well as other structures from the site (Malek, 1979: 187–189). At Level II at Hassuna there are some remnants of rooms and open areas that may have been courtyard houses (Lloyd and Safar, 1945: fig. 45; see Flannery,

2002 for reconstructions). Later on, in the sixth millennium BC, small houses with attached courtyards do seem to appear. Possible examples are from Umm Dabaghiyah and Sabi Abyad (Kirkbride, 1975: pl. II; Verhoeven and Kranendonk, 1996: fig. 2.17). It should be noted, however, that the courtyard structures at Sha'ar Hagolan are among the earliest clear examples of this type of building.

Three complete courtyard structures were excavated at Sha'ar Hagolan, with 8, 10, or 24 rooms built together around one courtyard. No superimposed walls or rooms were found one on top of the other. The walls are abutting each other and the courtyard floors run to the various rooms, indicating that the various parts of the structure were one unit. Is it not possible that individual rooms were built randomly without any pattern throughout the settlement but over time found themselves organized systematically around courtyards. It is impossible that completely accidental the unplanned courtyard buildings just happened to end with straight lines along plastered streets. Thus, the Sha'ar Hagolan architecture reflects pre-planning of large courtyard buildings along streets, with no indication for “house biography” where stages in the construction, usage and abandoned of different rooms can be identified.

THE STREETS

Settlement planning is a clear indication of centralized authority and usually characterized state level social organization. The existence of a city wall, gates and a network of streets is the basic infrastructure of every traditional city. But is the appearance of these three elements sufficient enough to justify the definition of “organized planning”? Is it not possible for such a structure to be developed spontaneously over time? Two different approaches were presented concerning the Early Bronze city of Arad. The excavator suggested a certain level of planning based on the network of streets: “The radial system must have been planned, while the concentric system probably developed expediently with the gradual growth of the city” (Amiran and Ilan, 1996: 141). A different approach to Arad, as well as to other case studies, claimed that these patterns evident in such sites have nothing to do with control over lo-

cal decisions concerning construction and spatial organization (Banning, 1996). Yet, there are no needs for formalized city architect and bureaucrats paid by public taxes to declare settlement planning, the final result amply testifies for pre-planning. Already the circular camps of nomads and PPNA indicate pre-planning in the very simple type of sites (Flannery, 1972). This was not done following central authority, but a self discipline of the community. Pre-planning is, thus, an aspect which is not always self evident, but whether in Near Eastern Neolithic sites or recent traditional villages and towns without any pre-planning a shapeless agglomeration of buildings without any pattern will probably be the result. Certainly, Sha'ar Hagolan does not exhibit such amorphous agglomeration. On the contrary, it reflects a new approach to dwelling and site organization (Garfinkel, 2006a; Ben-Shlomo and Garfinkel, 2009).

In the next section we will concentrate on the evidence concerning pre-planning at Sha'ar Hagolan. The key element in researching this question is no doubt the street network as evident from the large horizontal exposure of Areas E and H.

The street network in Area E

In this area a street and an alley were unearthed (Fig. 3). The street is a 3 m wide straight passage, separating Building Complexes I and II. The buildings lie parallel, with Building Complex I on the east side of the street and Building Complex II on the west. By the end of the excavations this street was exposed to a length of c. 50 m. The surface of the street has been systematically cleared. It was composed of small, 1–2 cm rounded flint river pebbles, laid in a packed mud matrix. There were many such layers accumulating one on top of the other, up to a depth of some 30 cm, indicating that the street was resurfaced from time to time. This surface belongs to the latest use of that street. An earlier street was found in the same location, some 50 cm lower than the upper surface. During its original phase the street was narrower as the houses were built closer to each other.

The alley is a small, curving passageway, about 1 m wide, so far exposed to a length of 15 m. It separates Building Complexes I and III, at the southeast edge of Area E. The surface of the alley is of beaten earth, with very few pebbles.

The two streets meet in a rectangular shaped open area (“Piazza”), which is situated in the south, between Building Complexes I, II, and III. It is characterized by whitish sediment with very few finds. Most of this open area, as well as the southern fringes of Building Complex II, were eroded away by the Yarmuk River.

The street and the alley lead from inside the settlement to the water source, the Yarmuk River. Each family would have needed a daily supply of water for drinking and food preparation. Since the river is to the south of the settlement, the streets run roughly at right angles to it, from north to south and from northeast to southwest. The street system would have been able to cope with winter flooding from the nearby Yarmuk River, draining the floodwaters back into the river by the shortest possible route once the river subsided.

The street in Area H

Another street was exposed in the northern part of Area H (Fig. 5). Beyond the closing wall of Building Complex I there is a street, 1–1.5 m in width, running east-west, on which we found several layers of plaster, reaching a total accumulation of nearly half a meter. A long, narrow depression runs for nearly 7 m along the western part of the street continuing into the unexcavated area. It is partly plastered and may have functioned as a drainage channel for rainwater.

The orientation of the street in Area H is of interest: while the two streets in Area E run from north to south, from the settlement to the Yarmuk River, the street in Area H runs perpendicular to them, from east to west, indicating a grid-like pattern of passageways at the site (Fig. 11; see Fig. 2 for actual distance between the two areas). This arrangement divided the site into large insula-like segments. Indeed it should be noted that in certain places the outer wall of a building, which was built along street, is larger than the building itself. It seems that at first the streets were fixed, with lines of walls built at both sides; this created large enclosures bounded by walls from all sides. At a second stage the large space was divided between few buildings. This can explain why the sides of buildings that face the street end in an exact straight line while the sides facing into the insula do not (the north side of Building Complex I and the west side of Building Complex II in Area E,

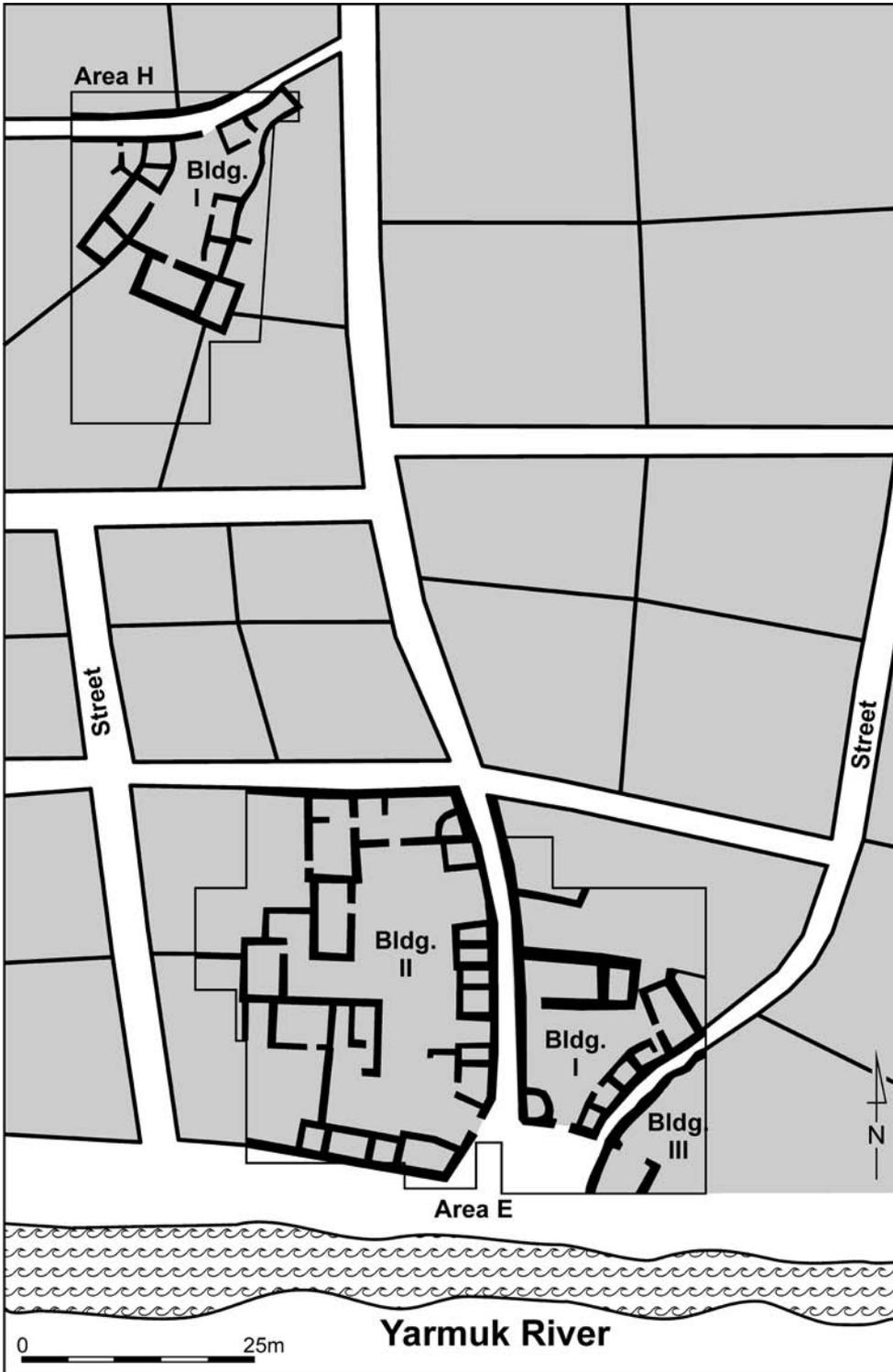


Fig. 11. Schematic plan of the Neolithic settlement at Sha'ar Hagolan

and the south side in Building Complex I in Area H). When only two passageways were known from Area E, one could assume that these were not actually streets, but just openings between the abutting buildings of the water front in order to let access to the river for people dwelling further inside. However, the street in Area H, some 300 m further inside the settlement, with an east-west orientation, clearly indicates that the entire settlement has a network of passageways from the southern river front to far north (Fig. 11).

Constructing buildings from both sides of an elongated passageway creates formalized passageways, which we term streets when they are wider and alleys when they are narrow. The roads in Areas E and H were paved with layers of pebbles mixed with mud plaster and their surfaces were renewed from time to time, as evidenced by the finding of several layers. The plastering of large open public space required cooperation on the community level. While the upkeep of the houses was undoubtedly the responsibility of their residents, the streets' maintenance must have required the cooperation of the entire community, thus, testifying to a high degree of social complexity. Streets are known in the Neolithic period from a few sites only:

1. Aşikli Höyük, Anatolia, dated to the Pre-Pottery Neolithic B (Esin *et al.*, 1991).

2. Ghwair, Jordan, dated to the Pre-Pottery Neolithic B (Simmons and Najjar, 2006).

3. 'Ain Ghazal, Jordan, dated to the Pre-Pottery Neolithic C (Rollefson and Kafafi, 1994: 13–14). This is a down hill street composed of stairs, built perpendicular to the river bed.

4. Tell Kurdu, Amuq Valley, dated to the Pottery Neolithic, Amuq C (Halaf) (Özbal *et al.*, 2004: 40–41, figs 2–5). Here a system of narrow streets was found, some are perpendicular to each other.

The passageways highlight several aspects of village planning and social organization in the Neolithic community at Sha'ar Hagolan:

1. In order to create the passageways the houses must be arranged in relation to one another, with the outer walls parallel.

2. Two kinds of passageways were observed. There were straight and wide main streets with pebbled surfaces, and there were curved and narrow alleys with beaten-earth surfaces.

3. The orientation of the street and alley is more or less perpendicular to the river. Thus, these paths lead from the inner part of the settlement to the riverfront, enabling easy access to the permanent water source of the population. As the river was lower than the settlement, the streets also provided a draining system in cases of heavy winter rain.

4. Unlike the houses, which were built and repaired by the individual families, the street was clearly a public place. Its maintenance therefore required organized communal effort. This phenomenon raises various questions concerning public decision-making: Who organized the work? How often were the streets repaired? Who carried out the work and who supervised it?

During the 7th millennium BC two settlement models were used contemporaneously in large communities of the Near East. One type is known at Çatal Hüyük, a close built up with houses constructed against one another without any passageway between them (Mellaart, 1967: figs 4–10). Access has been through the roof by ladder, which imposed a heavy burden on older people and pregnant women, and presented difficulties for animals and for the transportation of goods or building materials. Thus, it is no wonder that this model was a dead-end in the evolution of human architecture. The other settlement model, as seen at Sha'ar Hagolan, was the construction of houses along streets. Street network provides a better solution to daily life and was adapted as the main pattern for urban settlements until today. The combination of courtyard buildings and streets at Sha'ar Hagolan was a major contribution of the southern Levant to the rise of an urban infrastructure in the ancient Near East (Fig. 12). Further analysis and interpretation of the Sha'ar Hagolan architecture and site planning had been recently published (Ben-Shlomo and Garfinkel, 2009).

THE WELL

The well was discovered in Area G, at the end of the 2002 season and was completely uncovered during the 2003 season (Figs 13–14). There are four indicators for the date of the well to the Neolithic period. First, it was found at the bottom of a deep excavation trench with over a meter of Neolithic layers overlying it. Secondly, the fill of the

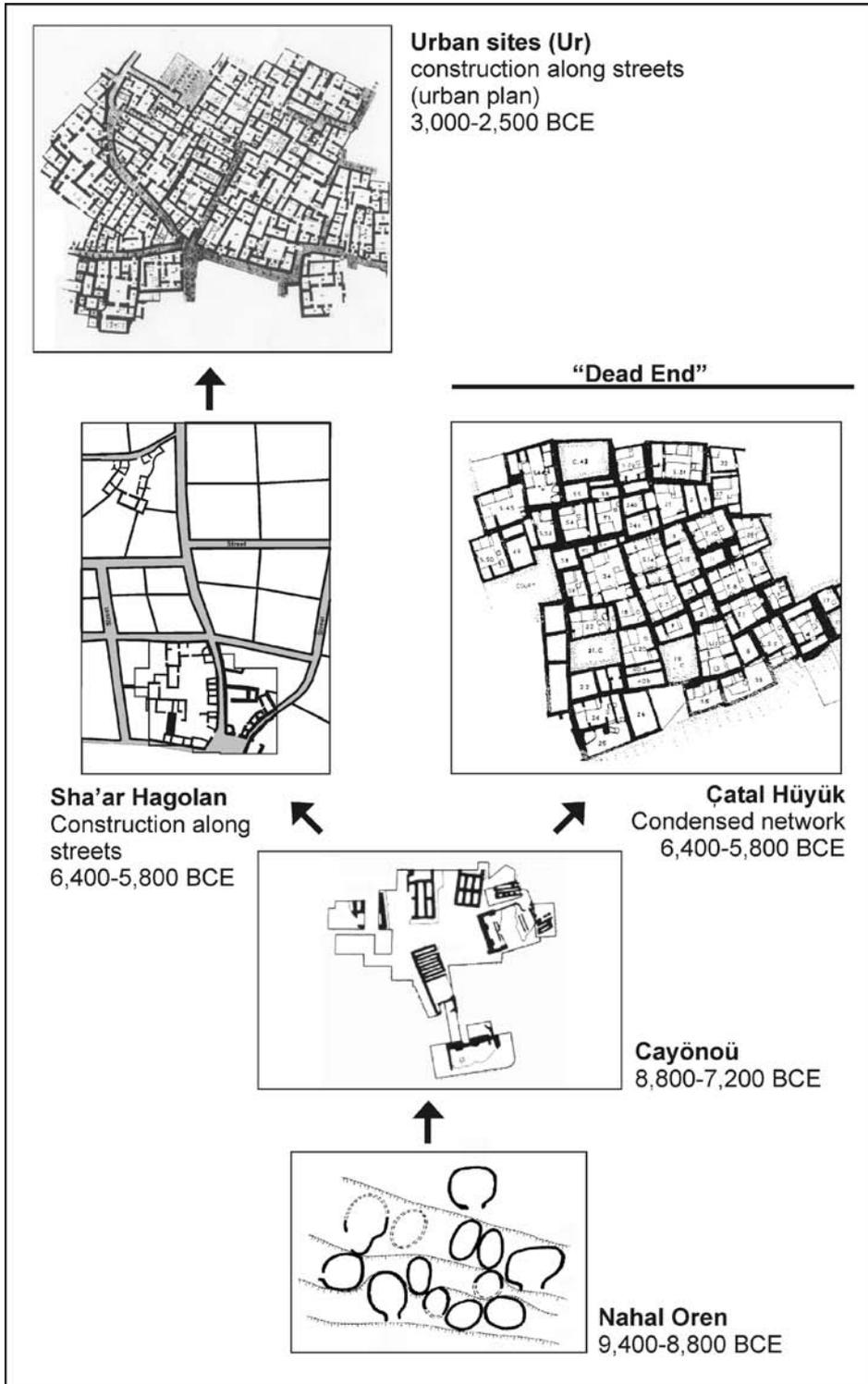


Fig. 12. The evolution of the main settlement types in the ancient Near East (Garfinkel and Ben-Shlomo 2009: 82)



Fig. 13. Area G: the top of the well as first uncovered (Photo by Y. Garfinkel)



Fig. 14. Area G: the well during excavation (Photo by Y. Garfinkel)

foundation pit of the well, placed there during the construction phase, contains typical Neolithic pottery and flint. Third, the material inside the well shaft, which accumulated after the well went out of use, also contains Neolithic pottery and flint. Finally there are two radiometric dates of ca. 6400 BC (Table 1).

As a detailed article has been devoted to the well (Garfinkel *et al.*, 2006, and see recently Garfinkel, 2010) we are presenting here only its description. The well shaft was built of large basalt river pebbles. The outer diameter of the stone construction is ca. 1.2 m and the inner diameter is 0.5 m. During the 2002 season, when the inside the shaft was excavated to a depth of 1 m, it became clear that it would be impossible to clear the fill manually due to the small diameter. The strategy adopted in the 2003 season was to excavate the well from its side. Thus a large pit was dug mechanically by a backhoe into the virgin soil adjacent to the well. We then exposed manually the foundation pit of the well and dug through it to the outside of the stone lining. This was gradually removed until we attained a cross-section of the installation.

Detailed examination shows that first a stepped pit was dug directly into the virgin soil. Its first 0.5 m cut through the local river pebbles and the sandy sediment of the Yarmuk river delta into the underlying Lisan Formation (lacustrine marly-clayey sediments of a Pleistocene lake). The diameter of the pit varied between ca. 2 m (0–2 m depth), ca. 1.2 m (2–2.75 m depth), and ca. 0.7 m (2.75–4.26 m depth). At its base (4.26 m) the pit reached the water table, which flows through a layer of fine reddish gravel, 15 cm thick, interstratified within the Lisan Formation. The shaft of the well ends at this reddish gravel, which seems to have been the source of fresh water in Neolithic times. During excavation water accumulated at the base of the well to a depth of nearly 1 m. This is precisely the top of the “mushroom”-shaped widening that is observed in the shaft at a depth of 3.3–3.8 m. This shape is possibly the result of continual use of the well and not part of the intentional construction. The flow of water probably created local waves that over the years nibbled into the side of the shaft. The lower part of the stone lining was built directly against the Lisan Formation. Large elongated basalt river pebbles were carefully chosen and laid with their narrower end facing the inner part of the shaft. The stone construction covered only the upper 2.5 m of the well and does not reach its bottom, probably to enable the cleaning of the well from time to time. In the next phase of construction the stone lining was laid in the wider part of the pit and the gap between the lining and the pit's edge was filled. The stone construction and the backfilling were carried out simultaneously, probably in stages of two or three courses of stones. This would have created a working platform for the builders, as well as stabilizing the stone construction. The sediment used for the backfilling of the pit was dark, rich in organic material, and mixed with knapped flint, shards and animal bones. This is an anthropogenic deposit and not the original Lisan clay, which, as shown by other studies (Zuckerman, 2002), was valued by the Neolithic inhabitants for the production of bricks and pottery.

The installation at Sha'ar Hagolan is an additional example of a Neolithic well, which are already known from Pre-Pottery Neolithic sites: Kissonerga-Mylothkia and Shillorokambous in

Cyprus and 'Atlit Yam in Israel (Peltenburg *et al.*, 2000; Guilaine and Briois, 2001; Galili and Nir, 1993). However, unlike these three sites, which are located in areas without permanent water supply, the well at Sha'ar Hagolan was constructed near the Yarmuk River, one of the strongest rivers in the Levant. This indicates that digging of wells was not dictated only by shortage in running water, but for other factors, like quality of the water, immediate availability of water or as a status symbol. Hence, the involvement of Neolithic people with their environment incorporated not only plants, animals, raw materials for making tools, objects and constructions, but also hydrological and geological knowledge. They had the technological capacity to dig water wells from the surface reaching aquifers. The clear expression of their engineering abilities adds another aspect to the domestication of their landscape. The water from the well was probably intended for human and animal use rather than for irrigation. Nevertheless, wells enable the occupation of semi-arid areas, as well as affording better exploitation of areas that suffer from annual or seasonal water shortages. This is a critical aspect of survival in the Mediterranean climate of the Near East, where it rains only during the winter.

BURIAL CUSTOMS

In Pre-Pottery Neolithic A and B sites it is quite common to find primary burials under the floors of the houses. Hundreds of such examples were found, for example, at Jericho and 'Ain Ghazal (Kurth and Röhrer-Ertl, 1981; Rollefson, 2000). In addition, there were central areas inside the settlement where concentrations of burials were found, like in Tell Aswad (Stordeur *et al.*, 2006), Kfar Hahoresht (Goring-Morris, 2000; Garfinkel, 2006b) and the skull house at Çayönü (Özbeck, 1988; Özdoğan, 1999). A large number of primary burials was found at the Pre-Pottery Neolithic C site of Atlit Yam (Galili *et al.*, 2005). On the other side, very little is known of the burial customs of the Pottery Neolithic period. Not even one Pottery Neolithic burial is reported from Jericho, while nearly 450 burials are known from the Pre-Pottery Neolithic layers. One burial had been reported from each of the followings Yarmukian sites: Munhata (Perrot, 1967: 15), Sha'ar Hagolan

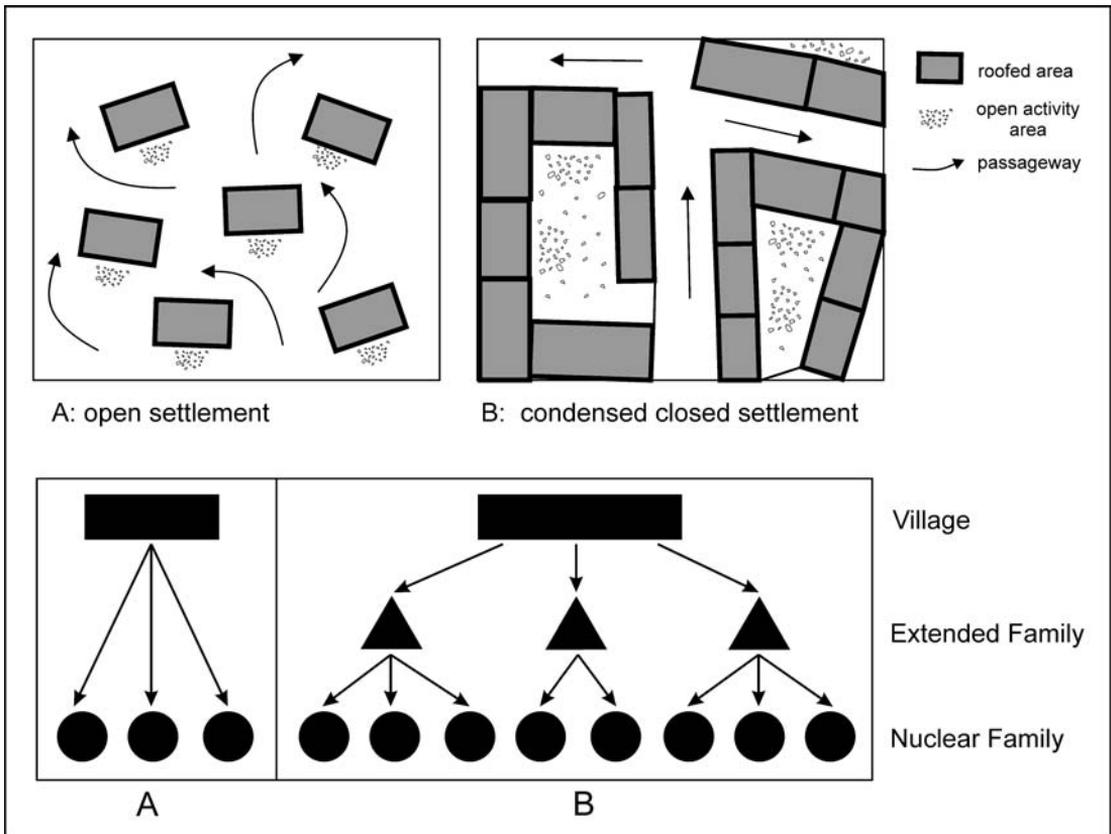


Fig. 15. Site structure and social organization

(Stekelis, 1972: 10) and Habsan Street (Kaplan, 1959: 23, fig. 2 lower).

Sha'ar Hagolan excavations did not provide new data on this aspect. There were three clear evidences associated with burials:

1. A secondary burial in the north-east corner of Room G in Building Complex II of Area E. It was found in a shallow pit dug under the floor of the room.

2. A small part of a pit, with some two human crania and bones, uncovered at Area G. As this pit was located at the edge of the excavated area, the character of the burial, whether primary or secondary, was not clear.

3. The remains of two crania in the north-west corner of Room Q in Building Complex II of Area E. These remains were found immediately below the current topsoil, and were in a very poor state of preservation.

Additional human bones were found in the site sediment and are now sorted out during the general analysis of the excavated bones (N. Marom, personal communication). When the study of the entire animal bones collection will be completed all the isolated human bones will receive the proper systematic anthropological analysis. Nevertheless, it seems that previous mortuary practices of Pre-Pottery Neolithic primary burials in sites ceased. The total area of the three large complex buildings at Sha'ar Hagolan is over 1,200 m² including excavation under the floor levels in large areas. The fact that not even one primary burial was found, clearly indicates that the place of burial has been completely removed from the dwelling unit to another location. It is left for further research to clarify if there was at Sha'ar Hagolan a central burial building, or area inside the settlement, or an outside graveyard.

THE SOCIAL ORGANIZATION OF THE SHA'AR HAGOLAN COMMUNITY

The courtyard structures, the street network and the well exhibit a tripartite division of space at Neolithic Sha'ar Hagolan. This suggests three levels of social organization in the community, as follows (Fig. 15).

The individual household (the nuclear family)

The domestic space of a nuclear family was quite limited (10–15 m²). One might question whether this would have been adequate for the use of a nuclear family, but the size of other Pottery Neolithic structures, including those at Munhata (Garfinkel, 1992: figs 3, 7), Jericho (Kenyon, 1981: fig. 228), Lod (Gopher and Blockman, 2004: 5), and Jebel Abu Thawwab (Kafafi, 2001: pl. 7a) is quite similar: these sites contain small rounded structures, usually 2–3 m in diameter, their size not exceeding 15–20 m². Thus, it appears that nuclear families lived in a limited space during the Pottery Neolithic period. As demonstrated by the analysis of Building Complex I, each nuclear family had a dwelling room and an adjacent storage room. Storage facilities were found inside the small rooms, either as paved closed rooms or as large granary jars below the floors.

The extended family

The open areas between the houses in Neolithic villages were generally used for cooking, storage in pits and various other household activities. At Sha'ar Hagolan, however, the open area was integrated into the building as an enclosed courtyard. This placed the open area under more control, limiting the access to non-approved persons. To this day, personal belongings, wealth and women are protected in the enclosed courtyard in some parts of the Near East. In such traditional societies, women are barred from public areas, and their main activity areas are confined to closed courtyards. Most of the finds: pottery, flint, animal bones, stone vessels, and figurines – were found in the courtyard. Conjoinable flint items from the courtyard of Building Complex I indicate flint knapping activity (Matskevich, 2002). Pits and various installations were also found, in-

cluding large basalt implements: mortars and grinding slabs. These were the common property of the entire extended family.

Families, who produced more than they consumed may have begun to accumulate wealth and may have had bigger fields or flocks. In the material culture, such households might be indicated by the larger size of their dwellings, as well as the presence of exotic items originated from long-distance connections, such as obsidian, seashells, beads and alabaster vessels. Even more regular objects in such houses could be larger and more elaborate in shape and decoration. Indeed, a comparison between Building Complexes I and II exhibit such differences (size of structure, percentage of decorated pottery, quantity of figurines), suggesting differences in the wealth or social status of the extended families which lived in these structures.

Large Neolithic structures, which could be the dwellings of extended families, were excavated at a number of sites dated to the later part of the Neolithic period (late Pre-Pottery Neolithic or Pottery Neolithic): Bouqras, Basta, Tell es-Sawwan, Zaghe, and Hassuna (Garfinkel and Ben-Shlomo, 2002; Flannery, 2002). Flannery has attributed these developments to the increasing economic complexity: "...married sons remain attached to the household of their father because the combination of two tasks – cereal agriculture and the grazing of herd animals – requires a division of labor beyond the capacity of a nuclear family. By 5 500 BC many Near Eastern villages not only grew wheat, barley, lentils, and peas for food, but also raised flax for linen and had added cattle and pig to the herding of sheep and goats. A family of 15–20 simply had more manpower to perform all the disparate tasks in such an economy, which could include some kind of craft production as well" (Flannery, 2002: 424). While, like Flannery, we suggest to see the large structures as the dwellings of extended families, we offer a different reason for their development. In the context of the Pottery Neolithic period of the southern Levant, only the site of Sha'ar Hagolan presents such architecture. Mixed economy, as suggested by Flannery, appeared at all other sites as well, but they do not exhibit large courtyard buildings. On the contrary, many of them, such as Munhata, Hamadiya, Habashan Street, Jebel Abu Thawwab,

Lod, Teluliyot Batash, Jericho and Ghрубba present only pits or small rounded huts of the type characterizing the very early stages of the Natufian and early Pre-Pottery Neolithic A. Thus, in this case, there is no direct link between the economy of a settlement and its physical and social structure.

The community level

The third level is the entire community, the village. It seems that the critical issue in this case is the size of Sha'ar Hagolan, which presents a unique example of a mega-settlement in the Pottery Neolithic period. How did this 20-hectare densely inhabited community adapt to the demographic situation in which several thousand people lived together? Ethnographic observations on human behavior under population pressure indicate that they can change various aspects of their behavior. Studies on population density have concluded that scalar stress refers to the stresses inherent in large population aggregations, which must be reduced through strategies as diverse as increasingly hierarchical social organization, group fission, and increasing incidence of group ritual (Carneiro, 1967; Johnson, 1982; Friesen, 1999). Construction of large modular houses for the use of extended families, as a direct response to population pressure, has also been observed among the Inuit tribes of North America during their aggregation period (Friesen, 1999). This ethnographic example is not employed for illustrating economic conditions or level of social organization, but to show how a certain behavioral pattern is reflected in the material culture. In this case, when a few nuclear families are dwelling together, one of the possible outcomes is the development of large structures, which exhibit a modular pattern in their internal plan. Thus, we see the large courtyard buildings at Sha'ar Hagolan as reflecting a new method of adaptation to population pressure in the ancient Near East. The concentration of thousands of people in one settlement influenced human relationships, possibly towards loss of the unity, solidarity, intimacy and freedom, that are typical of smaller groups. Instead, there were competition, aloofness and alienation. In a large society, well-defined and strict behavioral laws must be developed to regulate and organize the individual into a cohesive social unit.

One of the strategies that can be adopted, as we learn from ethnographic observation of contemporary traditional societies, is to unite several nuclear families into one extended family or clan. Unlike previous Neolithic villages, in which society was organized on two levels, the nuclear family (parents and children) and the community, a new three-level organization emerged: the nuclear family, the extended family and the community.

OBJECTS OF DAILY USE

All the site sediments were sieved through a 2 mm mesh. The finds were washed in the afternoons, and then each category of finds was packed separately. At the end of eleven excavation seasons we can suggest the following rough estimate of the material culture items collected from the site: about one million flint artifacts, 80,000 potsherds, 50,000 animal bones, 1,500 limestone and basalt stone tools, 300 sea shells, 200 art objects, and 20 obsidian flakes. Final figures will be achieved only at the end of the typological analysis of the various categories. Meanwhile in Sha'ar Hagolan Vol. 1, which was published in 2002, various studies were presented (Garfinkel and Miller, 2002a). The entire material culture will be published in detail in the forthcoming volumes of the final report of Sha'ar Hagolan and will only be briefly mentioned here.

Flint

The flint assemblage was studied by various scholars, which present different aspects of the industry (Alpers and Garfinkel, 2002; Matskevich, 2002, 2005; Khalaily, 2006: 252; Barzilai and Garfinkel, 2006). In these studies a total of 332,649 artifacts were analyzed, from Areas E and N (Table 2). The flint assemblages of Areas G, H as well as the rest of the flint from Area E still remains to be studied.

From technological point of view four knapping traditions were implied: bifacial tools, unidirectional blades, bidirectional blades and *ad hoc* flakes. The dominant technology is the *ad hoc* flakes as shown by the great abundance of almost 70% of flakes and flake cores. From typological point of view the typical tools of the period were found: small arrowheads, deeply denticulate sickle blades and axes.

Table 2

The flint assemblages analyzed and published so far

Excavated year	Area	Number of Items	Reference
1989, 1990, 1996	E	32,047	Alperson and Garfinkel, 2002
1997	E	33,593	Matskevich, 2005
1998	E	226,500	Khalaily, 2006
2004	N	40,509	Barzilai and Garfinkel, 2006

Pottery

All the potsherds found up to 1999 are already published (Eirikh-Rose and Garfinkel, 2002). Now the entire assemblage, of 88,488 pottery sherds, is being prepared for the final report (Eirikh-Rose, 2002). Yarmukian pottery appears in a wide range of shapes, sizes and decoration (Garfinkel, 1992; Obeidat, 1995; Garfinkel, 1999c; Eirikh-Rose and Garfinkel, 2002). The vessels would have been used for a variety of domestic purposes in accordance with their shape and size: cooking and food preparation vessels, serving vessels, storage of liquids, granary jars, and small containers of spices, medicines and cosmetics

The Yarmukian pottery decoration consists of a combination of incision and paint. The incisions were the dominant feature of the decorative scheme and appear in three arrangements: horizontal lines, zigzag and herringbone (Fig. 16). The paint is almost always in different shades of red, was a subordinate feature, as a general background over the entire vessel or as bands painted parallel to the incisions. The herringbone incised pattern is the 'fingerprint' of the Yarmukian pottery and is known from all known sites, from Byblos in the north to Wadi Murabba'at Cave in the south. An example of a female figurine made of fired clay and decorated with an incised herringbone pattern was also found. The incisions are on the right shoulder and arm and on the left leg. Thus, the herringbone pattern, which was such a central motif on pottery, seems to have been used to decorate the human body as well. The ancient inhabitants of Sha'ar Hagolan may have used herringbone pattern to decorate their clothes and to paint and tattoo their skins.

Basalt and limestone tools

Nearly 1500 stone items were unearthed. The main typological groups are weights, bowls, pit-



Fig. 16. Pottery vessel with the typical incised decorated, 10 cm high (Photo by G. Laron)

ted stones and various crushing and grinding utensils. Limestone was used for most bowls, while hard basalt was used for the pestles, grinding stones and whet-stones. Perforated weights were made of both materials.

Baked clay objects

This category includes 308 artifacts. They were recently studied, and were divided into 10 different categories as rods, tokens, sealings, spindle whorls and weights (Freikman, 2006).

THE ECONOMY

The plant and animal foods utilized at Sha'ar Hagolan are of special importance for understanding the early stages of agriculture in the Near East. The ecofacts from the site allow a glimpse into the economy of the Late Neolithic, a subject that received little attention until recently (see e.g., Ducos, 1968; Horwitz, 1987, 1988; Horwitz *et al.*, 2002; Shihab, 1997; von den Driesch and Wodtke, 1997; Wasse, 2002; Köhler-Rollefson, 2001; Galili *et al.*, 2005; Haber and Dayan, 2004; Davis, in press.) Along the road leading to the final establishment of the Mediterranean suite of plant and animal domesticates, Sha'ar Hagolan occupies a time span that probably saw the last steps in the domestication of cattle (Grigson, 1989), and the subjugation of swine to human control (Haber *et al.*, 2005). Questions of pastoral specialization (Rollefson and Köhler-Rollefson, 1990; Rollefson and Köhler-Rollefson, 1992; Rollefson and Köhler-Rollefson, 1993; Martin, 1999) and intensified extraction of secondary products (Sherratt, 1983; Greenfield, 1988; Vigne and Helmer, 2007) are obvious research questions that deserve investigation. The range of plant domesticates and uses must also be asked; and for both plant and animal resources, the continued reliance on wild taxa should be studied. Preliminary faunal (Hesse, 2002) and floral (Allen, 2002) reports collected during the 1990's will be summarized below, along with preliminary qualitative observations from an ongoing investigation of the entire faunal assemblage from the site (Marom, in press). Only data relevant to course-grained subsistence facts will be mentioned here, forgoing for the time being the necessary in-depth reconstruction of the foodways from a broader anthropological and taphonomic perspective.

The plant economy of Sha'ar Hagolan is known through three sub-assemblages collected between 1997 and 1999 (Allen, 2002). The 1997 assemblage comprised of 15 samples from Area E, Building Complex I; the 1998 batch consisted of 23 samples from Building Complex II of the same area; and the 1999 batch was of six samples from Area H. The 1997 samples were recovered using bucket floatation, while in consecutive seasons a floatation machine was employed to this end.

Plant remains were badly preserved, and con-

sisted mainly of emmer wheat (*Triticum turgidum* spp. *dicoccum*), einkorn wheat (*Triticum monococcum* spp. *monococcum*), and barley (*Hordeum* sp.) remains. Some lentils (*Lens* sp.), fava beans (*Vicia faba*) and bitter vetch (*Vicia ervilia*) remains are also present in lesser amounts. The presence of nut shells as well as of fig (*Ficus carica*) and maybe apple (*Pyrus*) seeds indicates continued use of possibly wild fruits. A comparison of the dominant species in Sha'ar Hagolan with the two other published Yarmukian botanical assemblages from Abu Thawwab (Kafafi, 1988) and 'Ain Rahub (Muheisen *et al.*, 1988) shows that emmer wheat and barley are dominant in all three assemblages. Lentils, however, vary considerably in frequency between sites.

New analysis of the faunal assemblage supports Hesse's preliminary results (2002), but reveals significant intra-site variation in taxonomic abundance (Marom, 2012). The animal economy at Sha'ar Hagolan was apparently dominated by sheep (*Ovis aries*) and goat (*Capra hircus*) husbandry, as the remains of these animals make up to 57% of the assemblage (total N = 5281; percentages taken from Hesse, 2002: table 18.1). Pigs (*Sus scrofa*) are the second most abundant taxon (17%), while cattle (*Bos primigenius*) accounts for 11%. Gazelles (*Gazella* sp., 4%) and dogs (*Canis familiaris*, 3%) are notable in the assemblage. Bird remains are few (0.6%), and fish nearly absent. New analysis of the faunal assemblage supports Hesse's preliminary results, but reveals significant intra-site variation in taxonomic abundances (Marom, 2012).

The meager representation of aquatic taxa at the site is puzzling, although familiar from other Jordan Valley Terminal Pleistocene sites (Davis, 1974; Marom and Bar-Oz, 2008). It is hard to accept the view that bad preservation is the only cause for this complete lack of aquatic taxa in a geographical unit dominated by lacustrine and riparian environs, although some attrition must have occurred (Zohar *et al.*, 2008). Fish bones are present in token amounts throughout the site, and do not show any special signs of disintegration. Moreover, these bones are not the hardest in the fish skeleton; otoliths and teeth are likely to have been present in large numbers has differential preservation been an issue. We therefore tend to interpret the near-absence of fish bones as a cul-

tural phenomenon connected with either differential access to riparian resources or to yet unknown discard practices.

Sheep and goats at Sha'ar Hagolan were domesticated stock, based on mortality profiles and abundance data. Twisted goat horn core morphology supports this conclusion (Marom, in press). Age-at-death profiles (Hesse, 2002) do not seem to suggest any secondary product specialization (milk or wool). Pigs are held to be domesticated based on morphometric criteria and on the high incidence of juveniles. Since pig mortality profiles and morphometric variation is notoriously hard to interpret (Payne and Bull, 1988; von den Driesch and Wodtke, 1997; Davidowitz and Horwitz, 2007), further demographic and metric data, as well as isotope and pathological observations (Dobney and Ervynck, 2000), must be integrated to fully support this conclusion. Most of the cattle specimens represented at the sample are of mature individuals (the bones are fully fused, no deciduous teeth), and are larger than a reference sample of Bronze and Iron Age cattle from northern Israel. Hesse was therefore prudent in assigning a domestication status to this taxon based on meager mensural and demographic data. However, further analyses indicate the existence of domesticated cattle in the Yarmukian settlement (Marom, 2012).

Faunal discard patterns show that most osseous remains were found in street and courtyard areas, while the rooms retained fewer specimens. Spatial distribution of specimens in respect to taxon and body part seems relatively homogenous (Hesse, 2002).

Sha'ar Hagolan subsistence economy seems then to have relied on cereal agriculture and caprine husbandry to provide staple plant and animal foods. The presence of domesticated pigs and cattle is suggested, but more data are needed to support this contention. Wild plant and animal resources were also utilized to varying degrees, with the notable exception of marine resources, which were either under-utilized or else lost through cultural or diagenetic attrition.

THE ART OF SHA'AR HAGOLAN

The settlement at Sha'ar Hagolan produced the largest and richest assemblage of prehistoric

Table 3

Distribution of figurines and other art objects at Sha'ar Hagolan (updated 2010)

Type	Total	Surface finds	Excavation finds
Clay statue	1	–	1
Clay seated figurine	115	22	93
Pebble figurine	119	105	14
Other clay figurine	13	–	13
Other stone figurine	11	6	5
Anthropomorphic vessel	1	1	–
Animal figurine	38	–	38
(Total figurative objects)	(298)	(134)	(164)
Grooved pebble	32	29	3
Decorated weight	6	4	2
Seal	4	4	–
(Total finds)	(340)	(171)	(169)

art known in Israel, and one of the most important in the Near East. These came from the earlier excavations of Stekelis, intensive surface collection by the local kibbutz inhabitants, and from the new excavations. The impressively large collection is outstanding in the design and execution of the objects, which are either naturalistic or highly abstract in conception. The finds include anthropomorphic clay figurines of various types, anthropomorphic stone figurines, zoomorphic figurines made of clay and pebbles engraved with different geometric patterns. Table 3 shows the quantitative data accumulated from earlier publications, collections of various museums, and the finds from our recent excavations. From the surface of the site 171 finds had been collected during the past 60 years, and 169 finds were uncovered during the excavations. The finds from the surface consist mostly of pebble figurines (105, as opposed to 14 uncovered in the excavation), while the excavation finds consist mainly of clay figurines of anthropomorphic and zoomorphic items (145 versus 22 from the surface). These differences may probably be explained by the fact that the pebble figurines are more resistant to damage by man and nature, and consequently were more likely to survive than the clay figurines (mostly fragmentary) when they were turned up on the surface. The assemblage is divided in the table into eleven categories, each is briefly described by text and selected illustrations.

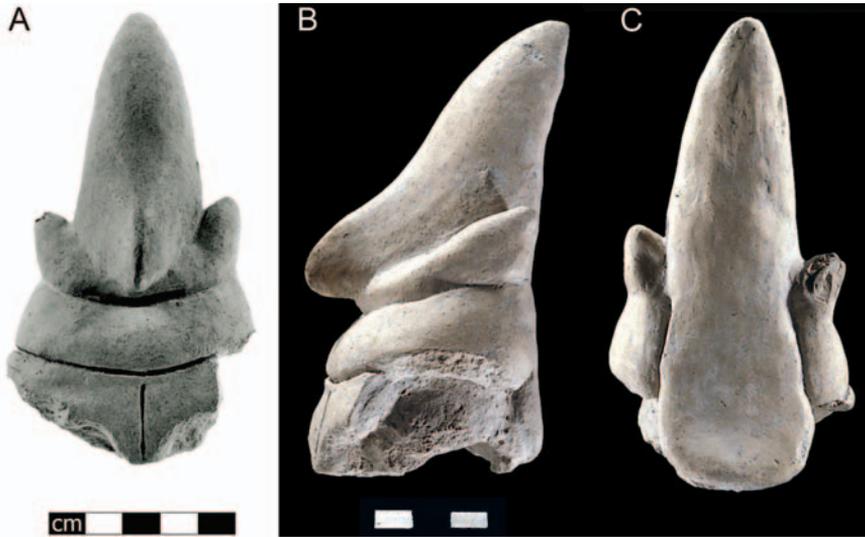


Fig. 17. Three views of the head of the clay statue from Area E, 12.8 cm high (Photo by G. Laron)

Clay statue

During the 1997 season, the excavation in the courtyard of Building I uncovered parts of a clay statue that included the head, a leg and four other small fragments (Fig. 17). The head is about 13 cm high and the leg about 18 cm long. The complete item would have been about 30 or 40 cm high, making it a statue rather than a figurine. This is the first statue discovered in a Yarmukian site. It is made of a distinctive clay fabric, different from the clay used for pottery and figurines. The clay is particularly light in color, well levitated and lacking any stone temper. The finish includes smoothing and burnishing of the surface to a standard that is unknown from other figurines of Sha'ar Hagolan. Other technological aspects revealed by a CT scan conducted at Hadassah Hospital in Jerusalem indicate that both the head and the leg contained a central core around which layers of clay were rolled until the element reached the desired size (Applbaum and Applbaum, 2002). The statue was restored by the Bible Lands Museum in Jerusalem in preparation for its display in the special exhibition held there. It has recently undergone additional treatment in the laboratories of the Israel Museum before its permanent display there. During the treatment, one of the small fragments was identified as part of the pelvic area and may contain a depiction of female

genitals. This statue displays many stylistic similarities to the clay figurines (see below), however, it differs from them in one important aspect: the eyes are not grooved. In any case, the statue provides evidence of the Yarmukians' skill in producing large-scale art objects.

Clay seated figurines

The most common clay figurines depict a seated woman with cowrie-shell eyes (Figs 18–21). These are large, broad figurines representing an extremely stylized figure with large, prominent eyes. The figurines are rich in detail and are modeled in a naturalistic style with a certain amount of exaggeration, giving them a somewhat surrealistic appearance. The first figurine of this type was discovered in the excavations of Megiddo in the 1930s. The excavators did not recognize it as a Neolithic figurine and assigned it to the Early Bronze Age (Loud, 1948: pl. 241: 1). The second of these figurines to be published was found in Kaplan's excavation in Bashan Street in Tel Aviv and enabled him to identify the figurine from Megiddo correctly (Kaplan, 1959). At the beginning of Stekelis' work at Sha'ar Hagolan the finding of clay figurines was not reported at all, and they were first published only in the final excavation report (Stekelis, 1972). The excavations at Munhata uncovered a rich assemblage of female



Fig. 18. Two views of a clay figurine uncovered in Area E, 14.2 cm high (Photo by D. Haris)

figurines, including the first complete example and a considerable number of fragments (Perrot, 1964, 1966, 1968; Yeivin and Mozel, 1977; Garfinkel, 1995: figs 24–29).

The renewed excavations at Sha'ar Hagolan have yielded more clay figurines than all the previously known examples put together. Outstanding among them are four complete or nearly complete figurines. Three came from Building II in Area E and the fourth was found somewhat to west of it.

The figurines were made in several stages. We were able to learn about the manufacturing process by studying the cross-sections of broken figurines. Some of the figurines were recently subjected to CT scanning at the Hadassah Hospital in Jerusalem (Applbaum *et al.*, 1998; Applbaum and Applbaum, 2002). This study supplied additional information about the internal structure of the figurines that was not visible to the naked eye. The different observations have enabled us to

establish that the figurines were made in seven main stages:

1. Preparation of the clay. The figurines of this type were made from the same clay that was used for the pottery vessels of Sha'ar Hagolan.

2. The major body parts were formed separately: head, body, left leg and right leg. Each was made in layers, with a central core and an outer wrapping.

3. These elements were joined to form the basic outline of the figurine.

4. Body parts, jewelry and clothing were made from small pieces of clay: these include eyes, ears, earrings, a band at the back of the neck, breasts, garment, scarf and arms.

5. Additional details were depicted by incisions in the soft clay, forming the central fissure along the eyes, the shoulders and the fingers.

6. Red painted stripes appear on some of the figurines, while some were completely covered with red paint.



Fig. 19. A clay figurine uncovered in Area E, 12.7 cm high (Photo by D. Haris)



Fig. 20. A clay figurine uncovered in Area E, 14.9 cm high (Photo by D. Haris)

7. The finished figurine was fired to a temperature of several hundred degrees Centigrade.

The figurines display a series of about 25 characteristic features. Almost all of these appear in all the figurines, making them an extremely homogeneous group (Garfinkel *et al.*, 2002; Garfinkel, 2004). The most distinguished parts of the figurine's head are the long head and the long and diagonal eyes. The eyes are made from a strip of clay attached to the face and deeply grooved along the entire length. The shape of the eyes is reminiscent of a cowrie shell. Over the years they have been given a variety of names deriving from their similarity to cowrie shells, coffee beans, cereal grains, date stones or the eyes of snakes or lizards. Eyes in this form are extremely common in the ancient art of the Near East and neighboring

areas of south-east Europe (see below). The torso of the figurines is covered with a garment or a scarf. The garment clearly consists of two halves, laid symmetrically over the right and left parts of the figure. Each half has four sections. The first part is on the chest, usually between the breasts; the second rises to cover the shoulders; the third falls down the back; and the fourth comes round to cover the sides of the belly, leaving the navel exposed. The left and right halves of the garment are clearly separated, making it hard to understand how the garment could have been worn without falling off. It is possible that in reality the two halves were sewn together, but that in the design of the figurine it was important to emphasize the fact that the garment consisted of two separate halves. (A possible explanation of the way in

which the garment is depicted is that it was made from two separate animal skins.) The garment covers parts of the body (chest, back and belly) but leaves the breasts and navel exposed. The scarf, which appears only on a small number of items, is represented by a strip of clay around the neck. In some cases there are two or even three such strips. The ends of the scarf are sometimes hanged down behind the back. Further below, on most of the figurines whose belly is preserved, the navel is depicted by a puncture that slightly penetrates into the figurine. The hips, buttocks and thighs are the most conspicuous part of the figurine. The hips are wide and well upholstered and the buttocks protrude unnaturally (steatopygy?). The massive thighs are joined together and display several rolls of fat. The figurines clearly show traces of red paint. Each one was decorated differently, generally with painted stripes that emphasized different parts of the face or body. The red color has special significance in many societies because of its close connection with blood, life and fertility; it is also the common color for decorating pottery vessels in this period. As noted, one figurine was also decorated with incised herringbone pattern.

A somewhat different item, but still in this general category is a figurine wearing a scarf (Fig. 22). This six cm high item is consisting only of a head and body. The head is modeled like those of the figurines, though it lacks ears or earrings. The breasts are fairly large and, as in other figurines, supported by the left arm. A band of clay is wrapped between the head and the chest and continues to the back, where the two ends fall down to the waist. On the clay band there are fine incised lines that give it the appearance of fabric. The figure does not seem to be wearing the garment that is familiar to us from the other figurines. The base of the figurine is flat and pierced by a hole that extends about 2 cm into the body. This is the only known Neolithic figurine that has such a hole. It probably enabled the figurine to be mounted on a stick or a stand. A detailed analysis of the typical figurine type of Sha'ar Hagolan had been carried out by Miller. The rigorous implementation of these figurines, with small body parts and accessories, appearing on each item clearly indicate canonization of the figure. This is therefore probably a depiction of goddess com-



Fig. 21. A clay figurine uncovered in Area E, 9.8 cm high (Photo by D. Haris)

monly worshiped by the ancient inhabitants of the Yarmukian community (Miller, 2002b).

Pebble figurines

These figurines are carved on limestone pebbles and depict a schematic human figure (Figs 23–25). Pebbles of different sizes were chosen for carving, from small pebbles weighing 30 g to large ones weighing up to about 6 kg. The average weight of the pebble figurines is 0.5 kg. Their height ranges between 5 and 32 cm. They are usually symmetrical and elongated in shape. The surface was sometimes prepared by smoothing with a sharp instrument that resulted in fine grooves. Remains of red paint were discerned on some of the pebbles. Scores of these figurines picked up from the surface at Sha'ar Hagolan have been published in the past by different scholars (Stekelis, 1972; Yizraeli-Noy, 1999). The new excavation project has discovered finds of this kind in archaeological contexts and has systematically doc-



Fig. 22. Two views of a clay figurine of a woman wearing a scarf, 6.3 cm high (Photo by G. Laron)



Fig. 23. A schematic figurine incised on a limestone river pebble, 12.3 cm high (Photo by G. Laron)

umented the items found on the surface which are now in the collection of the Sha'ar Hagolan Museum and other collections. The total number of known pebble figurines from Sha'ar Hagolan is 119. It is noteworthy that our expedition has found only fourteen such items, twelve from the Yarmukian occupation level and two from the site topsoil or the surface. In comparison, excavation of other Yarmukian sites has turned up thirteen pebble figurines at Munhata (Zori 1954: pl. 11: 9a–b; Gopher and Orrelle, 1995), eleven at Byblos (Dunand, 1973), two at Hamadiya (Y. Garfinkel, personal observations) and only one item has been published from 'Ain Ghazal (Kafafi, 1993: 112, fig. 5b left). It is clear that Sha'ar Hagolan is a key site for the study of Neolithic pebble figurines in the ancient Near East.

In contrast to the clay figurines, the pebble figurines do no attempt to depict all the features of the body. The craftsman was entirely free to omit details of the body or clothing. Even the representation of the eyes is not consistent: they may be

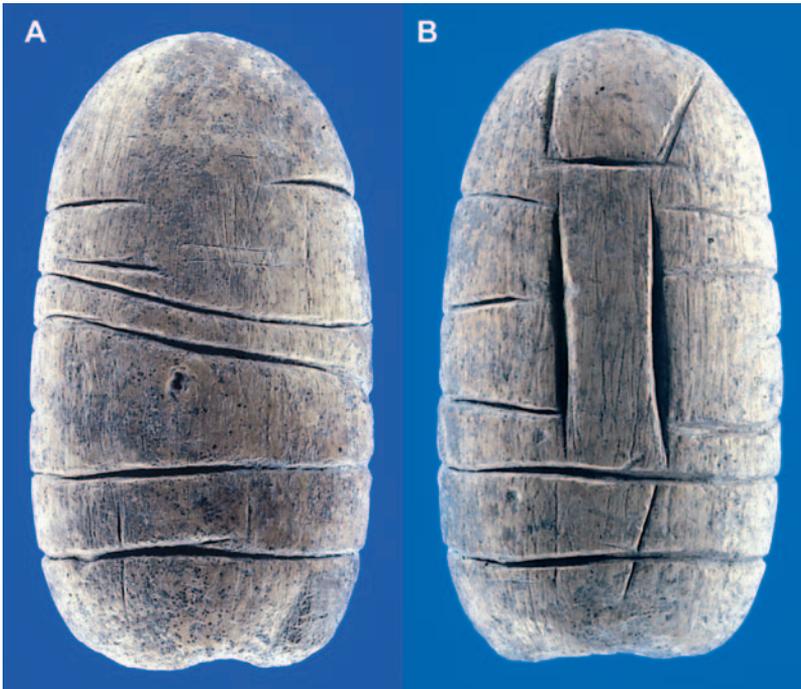


Fig. 24. Two views of a figurine incised on a limestone river pebble, 7.1 cm high (Photo by G. Laron)

horizontal, slightly diagonal, sharply diagonal (like the clay figurines) or almost vertical. The pebble figurines can be divided into three stylistic groups on the basis of the amount of detail that they show:

1. Detailed figurines. These depict faces and clothing, sometimes stressing the area of the thighs. It seems to us that this is a representation of the same figure that is depicted in more detail in the clay seated female figurines.

2. Face figurines. These depict only a face, in the form of eyes, a nose and a mouth. In some cases either the nose or the mouth is lacking.

3. Eye figurines. This is the most schematic group, in which only eyes are incised.

Figurines of the three groups appear at Sha'ar Hagolan in more or less equal numbers, showing that there was no preference for any particular group.

Clay figurines and pebble figurines of the different groups were found at Sha'ar Hagolan in the same buildings and the same occupation levels, and were clearly contemporary. Carving on a stone pebble, in contrast to modeling in clay, lim-



Fig. 25. A schematic figurine incised on a limestone river pebble, 14.2 cm high (Photo by D. Haris)



Fig. 26. A clay figurine presenting crouching female figure, 6 cm high (Photo by D. Haris)



Fig. 27. A clay pillar figurine, 2.7 cm high (Photo by D. Haris)

ited the craftsman in terms of artistic expression and led to abstraction and schematization. Thus, only the body elements that were important were depicted. The detailed pebble figurines (Type 1) resemble those made of clay, except some elements that are lacking: ears, earrings, cheeks, breasts and arms. Notwithstanding the stylistic differences we believe that the pebble figurines carry the same religious and symbolic message that is explicitly transmitted by the clay figurines.

Thus, the pebble figurines underline what is important in the religious and symbolic message of the image, and what is marginal. It is noteworthy that the pebble figurines do not depict breasts or female genitals, and so they should not be seen as fertility symbols. The most common feature on these figurines is the eyes, and their presence was enough to transmit the message to the Yarmukian people. The eyes have the functions of vision, observation and communication. They may reflect a concept that humans are subject to inspection by higher forces and their actions are observed and known, and that they are obliged by social, religious and moral codes.

Crouching female figurine

Among the other clay figurines there is one outstanding item, which represents a crouching female figure with the head bent over the knees (Fig. 26). The chest and belly of the figure are not visible and the exposed upper part of the body includes the shoulders and back, covered by the characteristic Yarmukian garment. The left arm is distinguished from the garment by a deep groove and is laid along the body, with the hand clasping the knee below the head. The belly, hips and buttocks are the largest and most prominent part of the figurine. The legs are bent in a sitting position and the lower part of the legs is broken. The crouched position is unusual in ancient Near Eastern art, where sitting or standing postures are more common. Only two other figurines in this position are known to us, one from Tepe Ali Kosh, in the Deh Luran Plain in Western Iran and the other from Magula Karamourlar in Greece (Hole *et al.*, 1969: 224–225, fig. 97: a, pl. 38: I; Hansen, 2007: fig. 2: 1). It is possible that this figurine represents childbirth.

Clay pillar figurines

This category of figurines has not previously been identified in the Yarmukian culture. At Sha'ar Hagolan six such items were uncovered, two are complete. These are small objects, no more than 5 cm high, with a cylindrical outline and a flat base that enabled them to stand unsupported. When making these figurines the craftsman concentrated on the facial features (eyes, nose, mouth and ears) and ignored the other body parts (Fig. 27). Most of the figurines in this group

have diagonal eyes, grooved along the centre in the cowrie-shell style. One broken pillar figurine found in the 2001 season has applied erect male genitals (Fig. 28), raising the possibility that all the pillar figurines in fact represent male figures.

Clay cylindrical figurines

This group contains figurines that were made from a relatively slender clay cylinder to which were applied various body parts, such as arms, legs, buttocks and genitals. The legs are separated and attached to the body at a slight angle that minimizes the seated posture. Six of these figurines were discovered in the excavations of Munhata, all male in cases where the sex could be identified (Garfinkel, 1995: fig. 30). At Sha'ar Hagolan only four fragments of cylindrical figurines have been discovered. Since none of the figurines from Munhata or Sha'ar Hagolan has retained its head, it is unknown whether they had cowrie-shell eyes as well. If we examine the rear of the figurines from Sha'ar Hagolan, we see that the hips and buttocks are narrow and lack the rolls of fat that appear on the full-figured female figurines. However, the front of the figurines displays no clear sign of genitals. The figurines may have lost some of their original parts over the years, or they may perhaps depict children whose genitals were not emphasized.

Other stone figurines

Seven carved stone figurines, which are not pebble figurines were found as well. One of them known as "the Venus" was discovered on the surface of the site in the 1940s (Stekelis, 1972: 31, pls. 51: 1, 64: 2). Another item, known as "the stele" is a worked stone tablet on which is sculpted a life-size human face (Garfinkel, 1999b: 86–87; Yizraeli-Noy, 1999: 80, no. 74). The lower part was found broken and has been restored with plaster. The eyes are indicated by diagonal lines and a deep drilled hole represents the mouth. The right eye was not preserved and has been restored. The style in which the face is depicted recalls that of the pebble figurines. This item is outstanding in its size. Since no similar objects are known, we cannot tell whether an entire figure was originally depicted. If this was the case, the complete object would have reached a height of 1 m. Another notable item in this cate-



Fig. 28. A clay male figurine from Area E, 2.8 cm high (Photo by G. Laron)

gory (Fig. 29) is a figurine carved in three dimensions with details carefully rendered on all sides. The upper part is missing and the area of the legs is slightly damaged. The preserved part includes the chest, the navel, the wide hips, the rolls of fat and the legs. Surprisingly, this object is less similar to the pebble figurines than it is to the clay figurines of a seated woman. The female image was obviously also sculpted in stone. This concept is already known from a Pre-Pottery Neolithic C stone figurine at 'Ain Ghazal (Schmandt-Besserat, 1998).

Clay animal figurines

Stekelis did not retrieve any animal figurines in his excavation at Sha'ar Hagolan, and no items of this kind were collected on the surface. In contrast, animal figurines were reported from the excavation of the Yarmukian level at Munhata. In our excavations we have found 38 animal figurines, all made of fired clay (Freikman and Garfinkel, 2009). They are small and schematic, but it is clear that most of them represent four-legged animals, though it is not always possible to determine whether they depict cattle or sheep (Figs 30, 31). One item is clearly a bovine head with emphasized horns.



Fig. 29. A figurine curved on a limestone, 12 cm high (Photo by G. Laron)

It is difficult to determine the function of the animal figurines, but it is interesting to note that during the Neolithic period a change takes place in the ratio between human and animal figurines. In the Pre-Pottery Neolithic B at Munhata, the animal figurines comprise two thirds of the assemblage and the human figurines only one third (Garfinkel, 1995: 15, table 2). In the Yarmukian level of the same site, the opposite is true: the human figurines now comprise two thirds and the animal figurines one third (when the clay and stone items combined) (Garfinkel, 1995: 27, table 5; Gopher and Orrelle, 1995). At Sha'ar Hagolan, the animal figurines are even less common: they account for only about 10% of the figurines at the site.

In parallel to the decline in the numbers of animal figures during the Neolithic period, there are changes in the composition of the animal bones found in excavations. In the Pre-Pottery Neolithic B most of the animals were hunted ones, while in the Pottery Neolithic the majority were domesticated animals. The reduction of the scale of hunting apparently resulted in a decline of cult activity connected with animals.



Fig. 30. A zoomorphic clay figurine from Area E, 4.9 cm long (Photo by D. Haris)



Fig. 31. A bovine clay figurine from Area N, 4.2 cm high (Photo by G. Laron)



Fig. 32. An incised limestone pebble from Area E, 14.3 cm high (Photo by Y. Garfinkel)

Engraved pebbles

About thirty pebbles decorated with geometric patterns have been found at Sha'ar Hagolan (Figs 32, 33). Some were published by Stekelis, some are in the local museum and some have been uncovered in our excavations. Unlike the pebble figurines, which were made on limestone pebbles, most of the grooved items are flat basalt pebbles with a round or elliptical outline. On the flat side



Fig. 33. Two basalt river pebbles with geometric incisions and a clay rod (photo by I. Sztulman)



Fig. 34. A limestone seal, collected from the site surface, 4.2 cm long (photo by G. Laron)

were grooved geometrical designs, which can be classified into several main groups:

1. Parallel lines, grooved along the short or long axis of the pebble.
2. A cross consisting of two lines.
3. Net pattern formed by parallel lines in both directions, at right angles or diagonally.
4. Various patterns: a few items bear other designs, such as concentric or radial patterns.

Different explanations that have been proposed over the years for the function of these grooved pebbles. They have been interpreted as fertility cult objects, symbols of rain, stamps for impressing colored designs on fabrics, and brands for creating scars on humans in initiation ceremonies or for branding animals. They may even represent a common communication of knowledge that is connected with the beginnings of arithmetic. Although we cannot endorse any of these suggestions or propose others of our own, it is worth noting that similar designs are common on seals from contemporary sites in Lebanon, Syria, Cyprus and Mesopotamia (see Eirikh-Rose, 2004, references therein). These geometric designs were part of the symbolic world of the Neolithic period in the eighth millennium before the present in ex-

tensive parts of the Middle East. These grooved basalt pebbles are extremely rare finds in our renewed excavations at Sha'ar Hagolan. One pebble with a cross decoration was found on a floor in Building I. A second pebble bearing eleven parallel lines was found on a floor in Building II. It seems that only one basalt pebble was in use in each courtyard house, in contrast to the large numbers of clay figurines and other objects. Since a different geometric design occurred in each building, it may be possible to see each item as a mark of identity, representing the extended family that lived in the house.

Decorated weights

Stone weights decorated with incised and drilled patterns were also found at Sha'ar Hagolan. About six of these items are documented so far from Stekelis' excavations and our renewed excavations. The weights are made from limestone and have a drilled hole in the center or near the edge. They are decorated with incised lines in various patterns and sometimes with additional drilled holes.

Seals

Several seals carved from limestone have been collected from the surface of the site of Sha'ar Hagolan (see also Beck, 1992). One is a button seal measuring about 3 x 2 cm, which is slightly damaged in one of the corners (Fig. 34). It is rectangular in shape and has a pierced handle on the back. The seal surface contains a central line with radial lines on each side. In addition to this item, there are two small limestone tablets with grooved concentric designs, collected from the surface. One of them is a thin tablet, slightly damaged, with a carved geometric design consisting of six concentric squares or rhomboids. The second tablet is made of soft limestone; it is round and contains three incised concentric circles. These patterns are known from clay Neolithic seals from Byblos in Lebanon and from various sites in Syria.

Neolithic art figurines generally depict women, while representations of men are extremely rare. This is true for the Yarmukian culture, in which many more female than male figurines have been discovered, both at Sha'ar Hagolan and at other sites. The purpose of the female

figurines of the Neolithic period in general, and the Yarmukian settlement in particular, is an intriguing question. Stekelis wrote: "Neolithic society, being an agricultural one, with domestication of animals and plants, desired not only fertility of man and animal, as did Paleolithic society, but also the fertility of the soil and its fruits. Almost all scholars agree that Neolithic female figurines are the prototype of the Mother-goddess, representing 'fertility' in all its aspects – human, animal and vegetal. Neolithic figurines like the Yarmukian were also, it may be surmised, used as "amulets for fertility, protection against evil, relief in child-bearing and in the cult of the dead" (Stekelis, 1972: 27). Stekelis seems to have mentioned all the possible options, one or more of which is certainly appropriate to the Yarmukian figurines. However, in the particular context of Sha'ar Hagolan, it should be noted that the clay female figurines all depict seated women according to a fixed formula. The same major features appear in each and every figurine: the long head, the diagonal grooved eyes, the prominent nose, the earrings in the ears, the left arm supporting the breasts and the right hand placed on the hip. The figure always wears the same garment, which leaves the breasts exposed, covers the shoulders and back and comes round towards the belly. The hips and buttocks are always the largest and most prominent part of the figurine and are covered with rolls of fat. This is a canonical figure in which certain features always appear, a rigid code that is typical of the religious sphere in contrast to artifacts of magic or children's toys. Consequently, the female figurines should be seen as representing a specific Yarmukian goddess who was worshipped by the ancient inhabitants of Sha'ar Hagolan. Since the figurines were found in residential courtyard houses, they must have belonged to a household cult conducted by the nuclear or extended family. One wonders whether the public cult was also devoted to this goddess, or whether male gods were worshipped in the temples. Maybe the difference in public cult would be the size of the figure. We will be able to answer this question only if and when a Yarmukian public cult building will be excavated.

Nevertheless, it is clear that the eyes are the most important part of the human figure in Yarmukian art. Diagonal eyes that are grooved

along their entire length appear in clay figurines on both female and male images and on pillar figurines as well. This style of depicting the eyes is known in the Near East as early as the 8th millennium BC, over a thousand years before the Yarmukian culture, and continues until the late 5th millennium BC. Human figures with eyes in this style have been found in Syria, Mesopotamia, Iran, Anatolia, Greece and the Balkans. Though in the publications they are often termed "coffee-bean eyes", in the context of ancient Near Eastern art they should be seen as imitating cowrie shells.

The earliest occurrence of eyes in this style was noted in 8th millennium BC Pre-Pottery Neolithic B Jericho, where a plastered human skull was decorated with inlaid cowrie shells as eyes (Kenyon, 1981: pl. 57: c). A clay statue of the same period discovered at Jericho had modeled clay eyes of this type (Garfinkel, 1999b: 93; Yizraeli-Noy, 1999: 46). This type of eyes is also known on clay figurines from Tell Aswad and Tell Seker al-Aheimar (Stordeur, 2003: fig. 6: 1; Nishiaki, 2007). From the 7th and 6th millennia BC dozens of examples of eyes of this type are known in the figurines of the Yarmukian culture, especially from Sha'ar Hagolan and Munhata (Garfinkel, 1995, 1999b, 2004), but other sites as well: Habashan St, Byblos and 'Ain Ghazal (Kaplan, 1959: pl. 1; Dunand, 1973: pl. CXIII: 21160; Kafafi, 1993: fig. 4). In the Levant and Mesopotamia numerous examples have been reported as well, like from Tell Ramad, Tell Kurdu, Tell es-Sawwan, Choga Mami and Songor and (de Contenson, 2000: pl. 21: 1–2; Yener *et al.*, 2000: fig. 17: 1; Oates, 1966, 1969; Kamada and Ohtsu, 1995: fig. 31: T1–T2).

In Iran, figurines with cowrie-shell eyes dated to the 6th–5th millennia BC have been found in Chogha Mish, Tall-e Bakun A, and as east as Tepe Yahya (Delougaz and Kantor, 1996: pls. 66: a, 234: a; Alizadeh, 2006: fig. 58: c–d; Lamberg-Karlovsky, 1980). In Anatolia figurines with cowrie-shell eyes dating from the 6th–5th millennia BC have been found in the sites of Tülintepe, Norşuntepe and Hekemi Use (Esin, 1976: 85–86; Schmidt, 2002: plate 70: 1160–1162; Greaves and Helwing, 2004: fig. 2).

Cowrie-shell eyes appear on figurines in numerous south-eastern European sites in Greece

and the Balkans, like: Myrina Karditsa, Magoula Panagos, Nea Nikomedeia, Platia Magoula Zarkou, Theopetra Cave (Papathanassopoulos, 1996: no 206, 232, 77, 212, 9), Soufli Magoula, Achilleion, Sesklo, Stepanovikion area (Theocharis, 1993: figs 16, 17, 65, 68) and Sitagroi (Gimbutas, 1986). One of the latest appearances of the motive is known from Erimi in Cyprus (Papathanassopoulos, 1996: no 328). Applied cowrie eyes are also known on pottery vessels from various sites in Greece: Tsani Maghula, Nea Nikomedeia and Platia Magoula Zarkou (Wace and Thompson, 1912: fig. 91: b,d; Perlès, 2001: fig. 12.3; Papathanassopoulos, 1996: no 212).

A large number of figures of this type, representing men, women and women carrying infants, are known on late 5th millennium BC 'Ubaid clay figurines from Southern Mesopotamia: 'Ubaid, Eridu, Ur, Uruk and Tell el 'Oueili (Hall and Woolley, 1927: pl. XLVIII: 405; Safar *et al.* 1981: fig. 116: 3–4; Woolley, 1955: pls. 20–21; Ziegler, 1962: tafel 1: 2, 15; Lebeau, 1983: pl. A: 4, D: 1).

Consequently, it is clear that for about 4000 years cowrie-shell eyes were a powerful symbol in the ancient Near East and spread to neighboring areas in Europe, over thousands of kilometers. It is noteworthy that most of the figures with cowrie-shell eyes also have an unnaturally elongated head. This can hardly be a coincidence, but probably conveys some kind of religious message, at which we can only speculate in the absence of written sources.

CONCLUDING THE PROJECT

Leaving the site

When the excavation of an area was ended it was back filled. Area F was covered the same year it was uncovered, in 1998. Areas E and G were covered in 2003, and Areas H and N at the end of the 2004 season. The areas were reburied according to the instructions received from the Israel Antiquities Authority. The first 20 cm were covered manually by basaltic black sand, and the rest, up to the surface was filled mechanically with local earth.

Studying the finds and publishing the results

During the years various aspects of the excavation's results have been published in articles

and books (e.g., Garfinkel, 1999c, 2001, 2003; Garfinkel and Miller, 2002a, 2002b; Applbaum *et al.*, 1998), a catalog for the exhibition in Bible Lands Museum Jerusalem (Garfinkel, 1999b), and a popular book with some 350 maps, color photos and technical drawings of all major architectural units, pottery, flint, and the figurines (Garfinkel, 2004). The first volume of the final publication, with 19 chapters written by 13 different scholars was published already in 2002 (Garfinkel and Miller, 2002a). The second book presents the stratigraphy and architecture of the site (Garfinkel and Ben-Shlomo, 2009). The third book, just published, presents the art assemblage (Garfinkel *et al.*, 2010). Four more books are now in preparation by various scholars and students. Each of the other books will be dedicated to a specific material culture category: pottery and baked clay objects, basalt and limestone artifacts, flint and obsidian, and the zooarchaeological studies. Various items from the site are also exhibited in the museum at Kibbutz Sha'ar Hagolan, in the Israel Museum in Jerusalem, the Eretz-Israel Museum in Tel Aviv the Metropolitan Museum of Art in New York City and the Louvre Museum in Paris.

CONCLUSIONS

The data collected during the 11 field seasons at Sha'ar Hagolan clearly indicate that the site represents 'urban' characteristics on a scale never found before in the Neolithic Near East. It was a large settlement that reaches 20 hectares in size. Very few urban centers of the much later Bronze or Iron Ages reached such dimensions. The area inside the settlement was densely occupied, as in each of the excavated areas (E, F, G, H, and N) architectural remains were found.

The houses consist of a central courtyard with several small rooms around it. This is an architectural concept that was used in the Bronze and Iron Ages, and still exists today in traditional Mediterranean societies. The courtyard buildings are monumental in their size, ranging from 225 to 700 m² and were probably used by extended families. The houses abut each other near the river (Area E) and inside the settlement (Area H). Space left between houses created a network of passageways, including a central street about three meters wide paved

with mud and pebbles, and a narrow winding alley 1 m wide. A well, 4.26 m deep, was dug into the water table. It is indicative of advanced hydrological knowledge and technological engineering.

The courtyard buildings of Sha'ar Hagolan are far too large for the basic needs of a nuclear family, and seem to indicate a more complex social organization, probably of extended families, where related nuclear families lived together. Each pair, or cluster, of rooms seems to contain one nuclear family while the whole building or insula represents an extended family or a clan.

Is it not possible that individual rooms were built randomly without any pattern throughout the settlement but over time were systematically organized around courtyards. It is impossible to accept that accidentally the unplanned courtyard buildings just happened to end with straight lines along plastered streets. Thus, the Sha'ar Hagolan architecture reflects pre-planning of large courtyard buildings along the streets.

In conclusion, four points should be emphasized concerning the new discoveries at Sha'ar Hagolan:

1. The appearance of massive architecture in the Pottery Neolithic period is unique, since hardly any architectural remains were discovered from this period anywhere in this region in previous excavations. This changes the concept of this period, which was previously described as a period of decline or regression.

2. A new type of architectural feature appears in the Neolithic of the Near East—the courtyard house.

3. At Sha'ar Hagolan the houses are of monumental size and could have been used by extended families.

4. The formal wide and narrow passageways that undoubtedly required periodic maintenance reflect the emergence of an urban concept. Such a combination of streets and courtyard houses can be found in some cities of the ancient Near East, like Early Bronze Age Arad. In this way a condensed settlement pattern was created with maximum exploitation of the available settlement area. Now this type of human organization can be traced much farther back to as early as the Pottery Neolithic Period of the 6th millennium BC.

5. Sha'ar Hagolan produced the largest assemblage of prehistoric art in Israel. Why have so

many more figurines been found at this site than at others? This is probably related to the size of the settlement, which is ca. 20 hectares. Observations on other very large prehistoric settlements in different parts of the world: ones dated to the 7th–5th millennia BC in the Hungarian Plain, Çatal Hüyük in Turkey and Pueblo IV period in the American Southwest, reveal a similar pattern. All produced rich artistic assemblages. It has been proposed that “intensification of artistic activities in these cases is closely related to the problem of organizing large communities in the absence of social stratification” (Hays, 1993: 81). Indeed the agglomeration of such large communities in the prehistoric era poses various problems related to how to organize and coordinate its members. Increased ceremonial activities were a clear strategy in such cases.

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