THE 1990 EXCAVATIONS AT ABU SNESLEH: PRELIMINARY REPORT

by
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1. INTRODUCTION

The first season of excavations at the site of Abu Snesleh lasted from the 15th of April to the 28th of May 1990. The excavation was carried out by a team of archaeologists from the Seminar für Vorderasiatische Altertumskunde, Freie Universität Berlin, in cooperation with the German Protestant Institute for Archaeology, Amman.

Abu Snesleh lies some 15km east of Amman, at the edge of an area heavily disturbed by huge limestone quarries (Palestine grid 2479 East/1495 North). The site was first visited by Dr. M. Ibrahim in 1983 during a survey in the region around Saḥab (Ibrahim *et al.* in press). The site was brought to our attention by Dr. Z. Kafafi, Institute of Archaeology and Anthropology, Yarmouk University. Architectural remains were easily recognizable on the surface of the site, the name literally means "father of the terrace-walls". Surface finds suggested settlement activities during the late Chalcolithic, the Middle Bronze Age and Islamic periods.

Abu Snesleh is located at the confluence of the two major wadis, al-Qaṭṭar and Irmedan, in the southeastern vicinity of Amman. Wadi al-Qaṭṭar, running south-north, flows into Wadi Zerqa some 15km north of Abu Snesleh. The beginnings of Wadi Irmedan are to the east of Abu Snesleh. Though the most important part of the site is located on a triangle bound by the two wadis and an escarpment northeast of the confluence (Fig. 1), there seem to be substantial architectural remains on the southern bank of Wadi Irmedan, too. Immediately to the east of Abu Snesleh, on the northern side of Wadi Irmedan, the outlines of a long stone wall are visible on the ground. This structure closes the outlet of another small tributary to Wadi Irmedan. It is probably part of an ancient run-off system, which we were not yet able to date precisely.

We were working with 20 workmen from the Amman area to whom we owe in large part the success of this first season. A grid of 10×10m squares was laid out, oriented on the northwest-southeast extension of the settlement (see Fig. 1). Three squares, F12, G13 and G14, were opened completely and three squares, G11, G12 and F14 partly, therefore the total surface opened was around 500 sq.m. The results of the first season suggest that there were three major periods of use of the site. A Chalcolithic/EBI occupation is superimposed by unexpectedly extensive Middle Bronze Age remains. The latest use consists of some badly preserved structures of Ayyubid times.

Excavation Goals and Methods

We were interested in excavating Abu Snesleh because of the possibilities it offered for studying some aspects of the emergence of cities. The Early Bronze Age I in Palestine and Transjordan is generally regarded as the beginning of a first process of urbanization. Since there seems to be a sharp break in cultural remains between the late Chalcolithic and the EBI, traditional explanations of urbanization involve immigrations from the north and/or Egypt (e.g. Braun 1989: 23). For de Miroschedji (1989: 75-76), sedentarization of nomads is a more important factor in Early Bronze urbanization processes.

We think neither of these explanations is sufficient. Large-scale immigration and supplanting of one population by another does not seem very probable in times of a simple household economy. In Palestine, Transjordan as well as in Syria, small villages are the prevalent type of habitation in the Chalcolithic. These settlements were probably not integrated into a highly organized settlement pattern. Therefore, spatial extension or abandonment is not likely to affect a whole region. On the other hand, there are almost no data at hand pertaining to early nomadism. But one thing is clear: if there was any mobile form of life in pre-urban times, it is extremely improbable that this would have been the

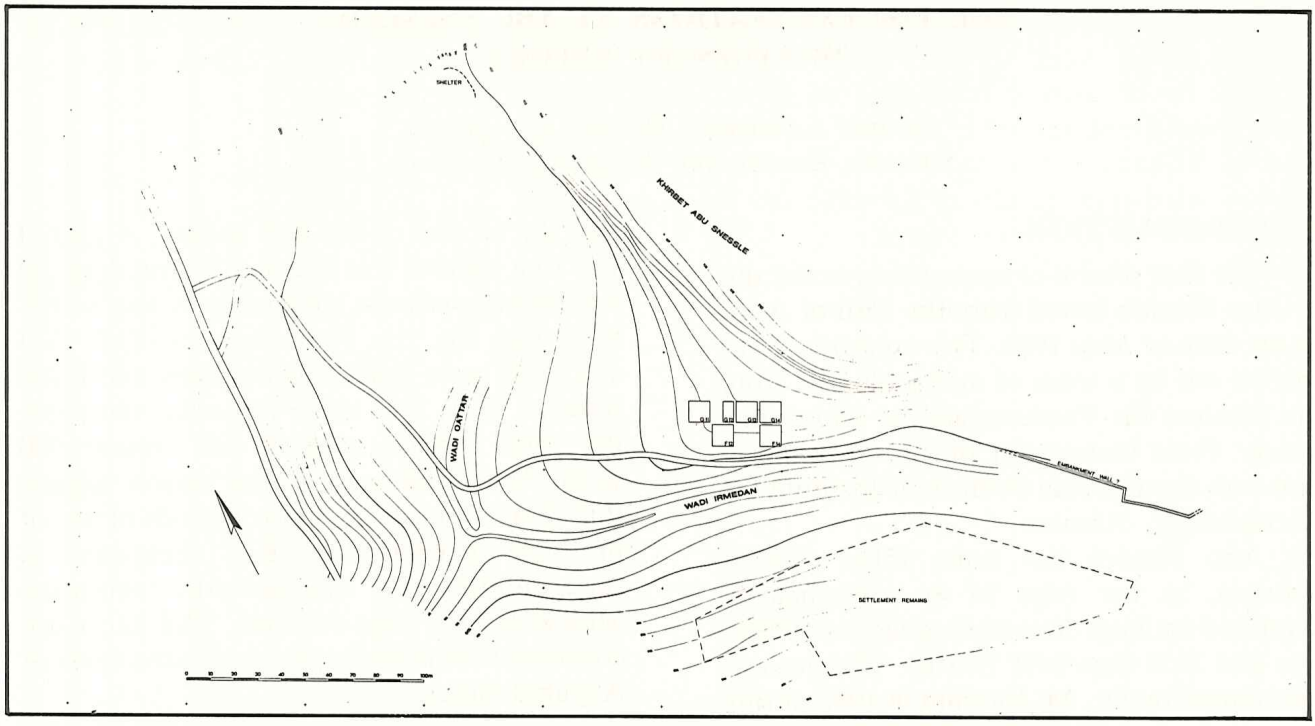


Fig. 1. General plan of Abu Snesleh.

kind of pastoral nomadism which we know from today. Recent nomadic groups are periodically forced to buy fodder from villagers. High losses due to external causes (climate, epidemics) can only be absorbed by village produced surpluses (Balland and Kieffer 1979: 81). Without a political force which commands a production higher than household requirements, villagers are seldom interested in productive levels above their own needs (Sahlins 1974: 87-89). Therefore, pastoral nomadism of an economically independent section of the population would be a risky way of life in early times, when political authority was weak and agricultural surplus low.

Our hypothesis takes arguments from de Miroschedji's as well as Braun's ideas. Part of the population in the Chalcolithic may have led a mobile or semi-sedentary way of life. Population increase in the Early Bronze I in Palestine and the Jordan Valley is probably due to the settling down or moving in of this hitherto *archaeologically* invisible part of the population. Two questions come up. First, how were these non-sedentary parts of the population related to the village populations? Second, where could one expect to find traces of theses groups?

(1) We suspect that in Chalcolithic times there were no entirely mobile groups. Instead, there was probably a system of semi-sedentariness or transhumance. This means that herds belong to sedentary people. The herds wander between different zones and are accompanied by part of the family to whom the herd belongs. Risk of failure in the agricultural economics of the herding sector can be minimized in this way.

(2) The greatest probability of finding the remains of such a system is in regions where risk of agricultural failure is constantly high. Here, the broadening of the subsistence base is especially advantageous. A region to look at is east of the Jordan Valley, where the zone of potential rain fed agriculture is limited to areas along the tributary wadis and a small strip on the eastern plateau where annual rainfall is just sufficient for simple agricultural systems. In these regions almost no archaeological excavations have taken place save for the salvage work at Saḥab and the excavations at Jawa. Abu Snesleh lies in a region which today is at the limit of rain fed agriculture (National Atlas 1986). Some 10km to the east, the desert begins. Therefore, the site seemed to be ideally placed to elucidate the background of urbanization, at least the part played by populations occupying the Jordanian plateau.

Our initial hope was to excavate as much of this single stage of the settlement as possible to be able to make statements not only about the subsistence base but also about the social structure of the Chalcolithic/EBI period. However, results of the 1990 season proved that there are substantial remains of a Middle Bronze Age settlement. This finding is of interest, since the Middle Bronze Age is a period of "re-urbanization" after the "collapse" marked by the EBIV period (Gerstenblith 1980: 73). It may be possible to compare the rural background of primary and secondary urbanization through a comparison of the Chalcolithic/EBI and the Middle Bronze archaeological remains at Abu Snesleh. A final reason to excavate at Abu Snesleh is that the whole region is experiencing massive alteration due to quarrying and recent building activity. Therefore, we also carried out a survey to document what is left in the surroundings and hence threatened in the coming years.

In this preliminary report, we will not enter into research problems but only present a selection of the archaeological material.

2. ARCHITECTURE

As a result of our first campaign we are able to distinguish three occupation levels at Abu Snesleh. Besides some poor architectural remains of the Islamic period, the major part of the excavated structures dates to the Late Chalcolithic/EBI and the Middle Bronze Age (Figs. 2 and 3). It should be remembered that the complicated stratigraphic relations between the Late Chalcolithic/EBI and Middle Bronze Age structures could not yet be fully cleared.

The Ayyubid Period

The only well-dated structure from this period was found in the western part of square G14, while all other fragments mentioned here are uncertain in their dating. All these remains are isolated without stratigraphic connections to their surroundings. Density of finds is very low. This and the unusual character of the architectural remains indicate that the site may have been used as a camp site by nomads.

In square G11 (Figs. 2, 3), excavation did not exceed a depth of 0.40m. An east-west running wall was excavated in the southern part of the square. The limestone blocks measuring 0.5-0.8 × 0.5 × 0.5m were roughly cut but properly laid without using any kind of mortar. A western extension of the wall is indicated by surface structures.

In G14 (Figs. 2, 3), a curvilinear, north-south running, 0.7m wide wall (M 100) is situated in the eastern part of the square. It is preserved up to a height of 1.0m. It was founded on a layer of rubble, sealing the underlying strata. This wall was not cut into existing structures and no traces of a foundation ditch were detected. A coin dated the structure to the first half of the 13th century A.D.[1] The southern segment of the wall is characterized by a layer of large squared limestone blocks (0.7 × 0.4 × 0.9m) laid on edge. The arrangement of these narrow but high slabs gives the impression of artificially cleft blocks. In the northern section of the wall up to three courses of stones were preserved. The well cut stones measuring up to 0.4 × 0.3 × 0.3m were put together without any mortar. Gaps were filled with pebbles of different size. No floors adjacent to the wall were found but a striking distinction between the occupation debris excavated east and west of the structure could be recorded. To the west, there was a thick layer of very fine, dark coloured earth, whereas on the eastern side, we found a dense accumulation of pebbles of different sizes. An explanation for this phenomenon may be given by one of the following hypotheses:

1) The different composition of the debris indicates a functional distinction between inside and outside areas of the structure. Similarly shaped recent stone structures in the vicinity of Abu Snesleh suggest that the area west of the Ayyubid wall might represent the inside of a sheep-pen while the eastern part was an outside area belonging to a camp site

1. Dr. Khalaf Tarawneh, then from the Archaeological Museum, Amman kindly examined the coin. It is an issue of al-Kamit Muhammad (AD 1218-1237), see al-Tarawneh 1989: 374-379.

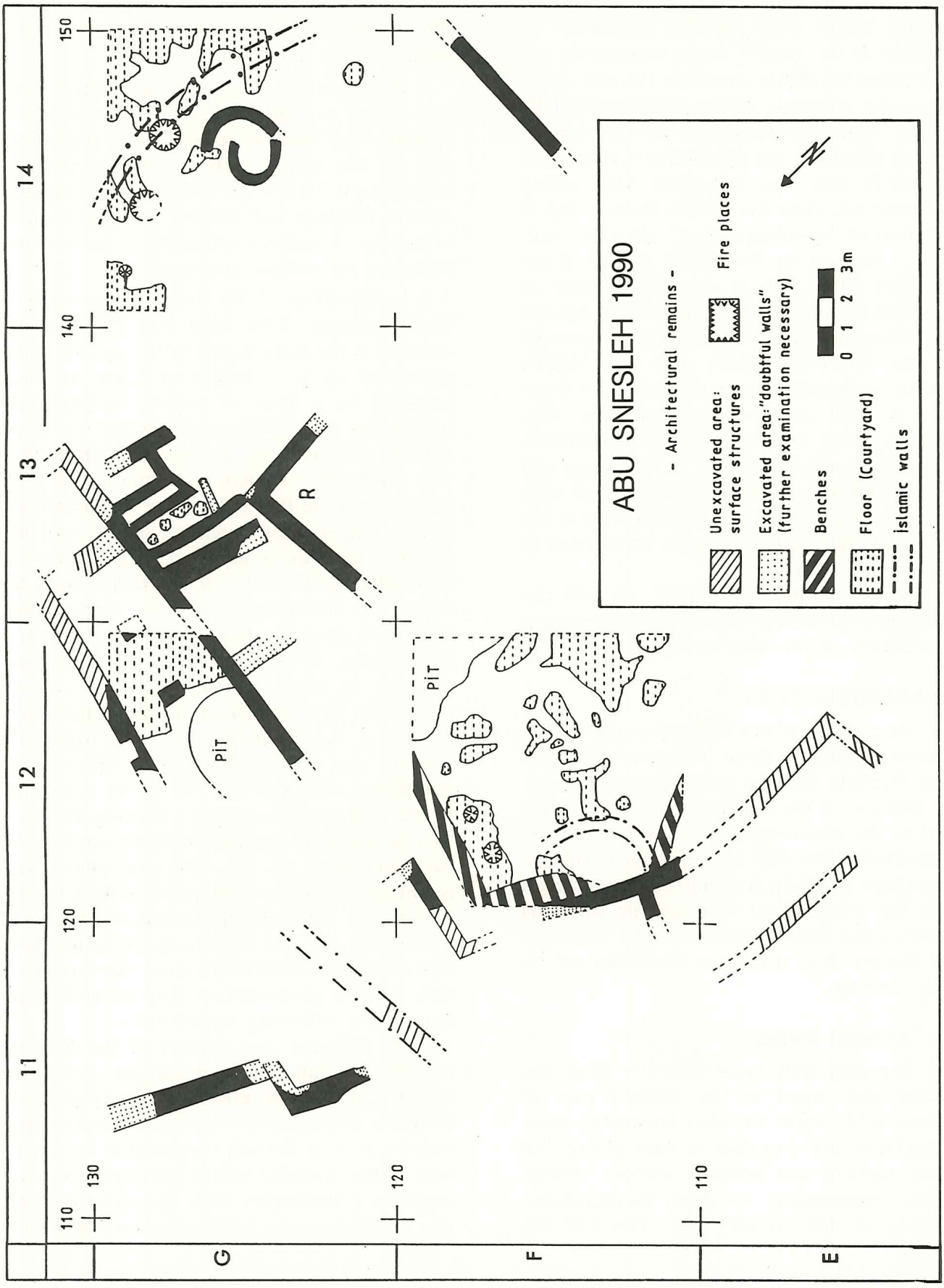
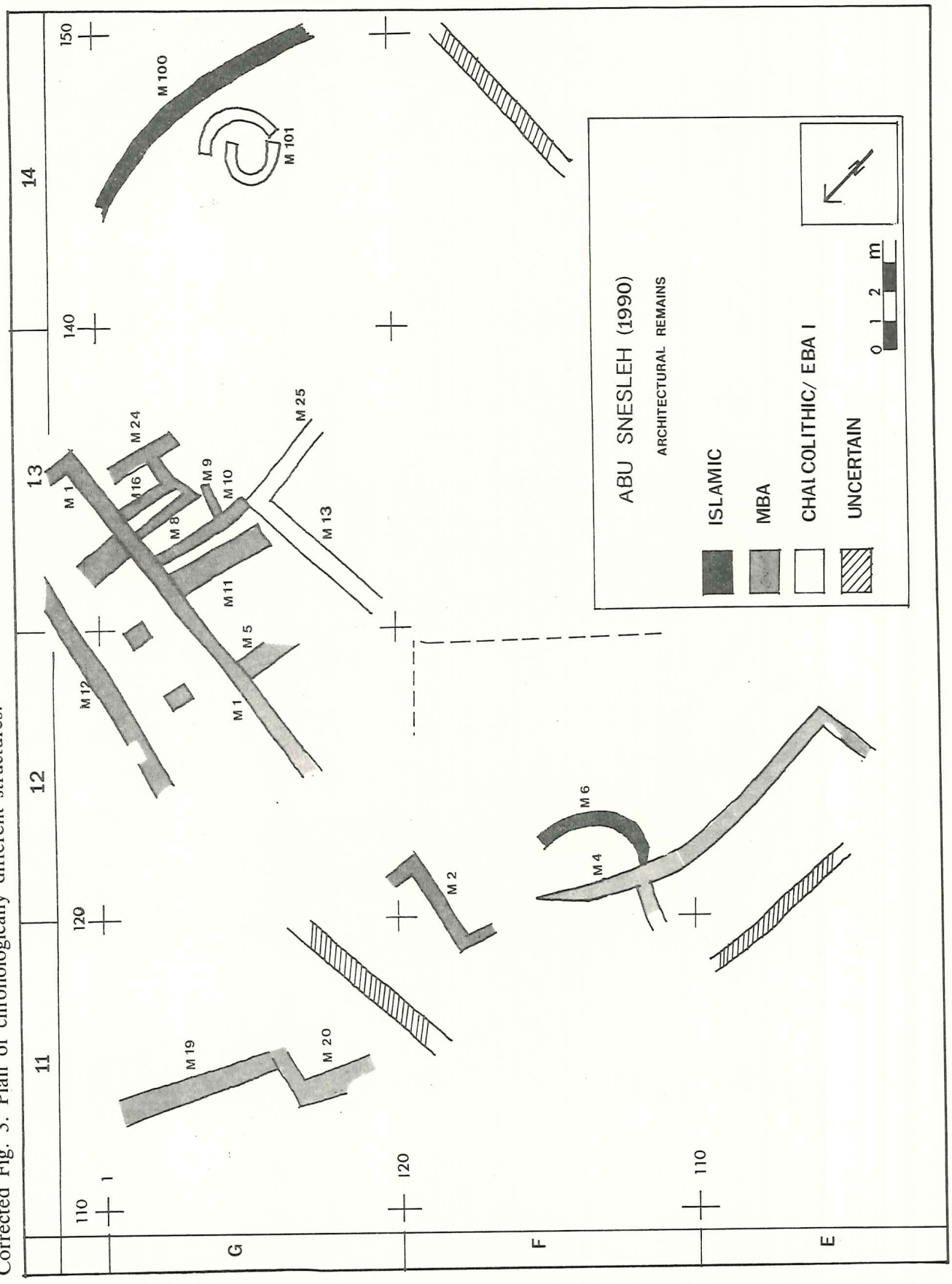


Fig. 2. Plan of excavated squares.



Note: Corrected Fig. 3. Plan of chronologically different structures.

of nomads. In this case, the fine earth would be accumulated dung.
2) The structure has the function of some kind of windbreak. Due to the dominant westerly winds, the area west of the wall was characterized by a deposit of wind-blown material whereas the eastern part was dominated by erosional material from the slope above.

In square F12, a small, heavily ruined, oval shaped stone wall (diameter = 2.5m) was uncovered immediately below the surface. It is possible that this structure was also part of the camp site from the Ayyubid period.

The Middle Bronze Age

Remains of this period were found mainly in squares G12, G13 and F12. Dating by comparison of groundplans and settlement patterns is very difficult due to the only partially excavated structures at Abu Snesleh. Architectural remains suitable for reconstructions of groundplans are found only in squares G12/13. However, along with further traces of architectural remains found in F14 and remains visible on the surface of square E12, these reconstructed groundplans give an idea of the settlement pattern probably characterized by structures grouped around a central courtyard, which is to be situated approximately in square F12. Whether the only partly excavated wall in F14 was also part of MB building activities is doubtful.

Results in Squares G12 and G13

The architecture of these squares is characterized by two distinctive building units. Various foundation levels and construction techniques indicate the following relative chronological arrangement of these units:

House 1 (Fig. 4): The east-west running southern wall (M1) of this building was excavated over a length of 10.8m. An eastern extension of another 3m is indicated by a row of blocks visible on the surface. The northern wall (M12) is only excavated for 3.5m, but also shows an extension of 4.10m to the east on the surface. The walls were composed of one row of very large, dressed limestone blocks (0.8 × 0.4 × 0.6m), put together without mortar (Pl. I,1). The 0.6m wide walls were preserved up to a height of 1.30m. Whereas the northern wall (M12) and the western part of the southern wall (M1) are well preserved, the southern wall seems to be partly rebuilt in G13 (Pl. I,2) and affected by later additions (M8, M10, M11) running south. The eastern and western limits of the building, crucial points for any typological or chronological classification, are not yet excavated, which is in the west due to a large robber pit. The addition of a partition wall in the eastern part of the building (Fig. 4) is indicated by a row of stones and some surface structures running perpendicularly from the southern wall to the north. The reconstruction of the eastern end of the building (Fig. 4) on the other hand was based on surface structures only.[2] Remarkable is a well-cut limestone pillar measuring 0.8 × 0.6 × 1.30m situated in an upright position in the central axis of the building (Fig. 4; Pl. II,1). Another stone of that kind, probably supporting the roof, was found two metres east of the first one, much of it in the baulk. A 0.9m wide niche on the outside of the northern wall, most likely a doorway that was later blocked, was probably the main entrance to the building although no traces of a door socket or a threshold have been found. The inside of House 1 was characterized by a sequence of four successive mud floors containing lenses of ashes. In summary, House 1 probably measured 14 × 5m, is oriented east-west, and is of the "broadroom type". It is composed of two units with the main entrance from the north. The western unit, characterized by the big pillars supporting the roof, is 9.5m × 3.3m, whereas the eastern one measures only 3.1 × 3.0m.

A building similar to the reconstruction given in Fig. 4 was found in Byblos below level IIB.[3] Bases for pillars supporting the roof are a major characteristic of Palestinian

2. A curvilinear or oval shape of the ends of the building is indicated by the northern and southern walls drifting together to the east. Only an excavation of the entire building will give the particulars of the groundplan.
3. Dunand 1973: 24, 217; Figs. 9-142, 146. Parallels from Palestine, e.g. Tel Arad (Amiran 1978) are dated to the EBII period or later.

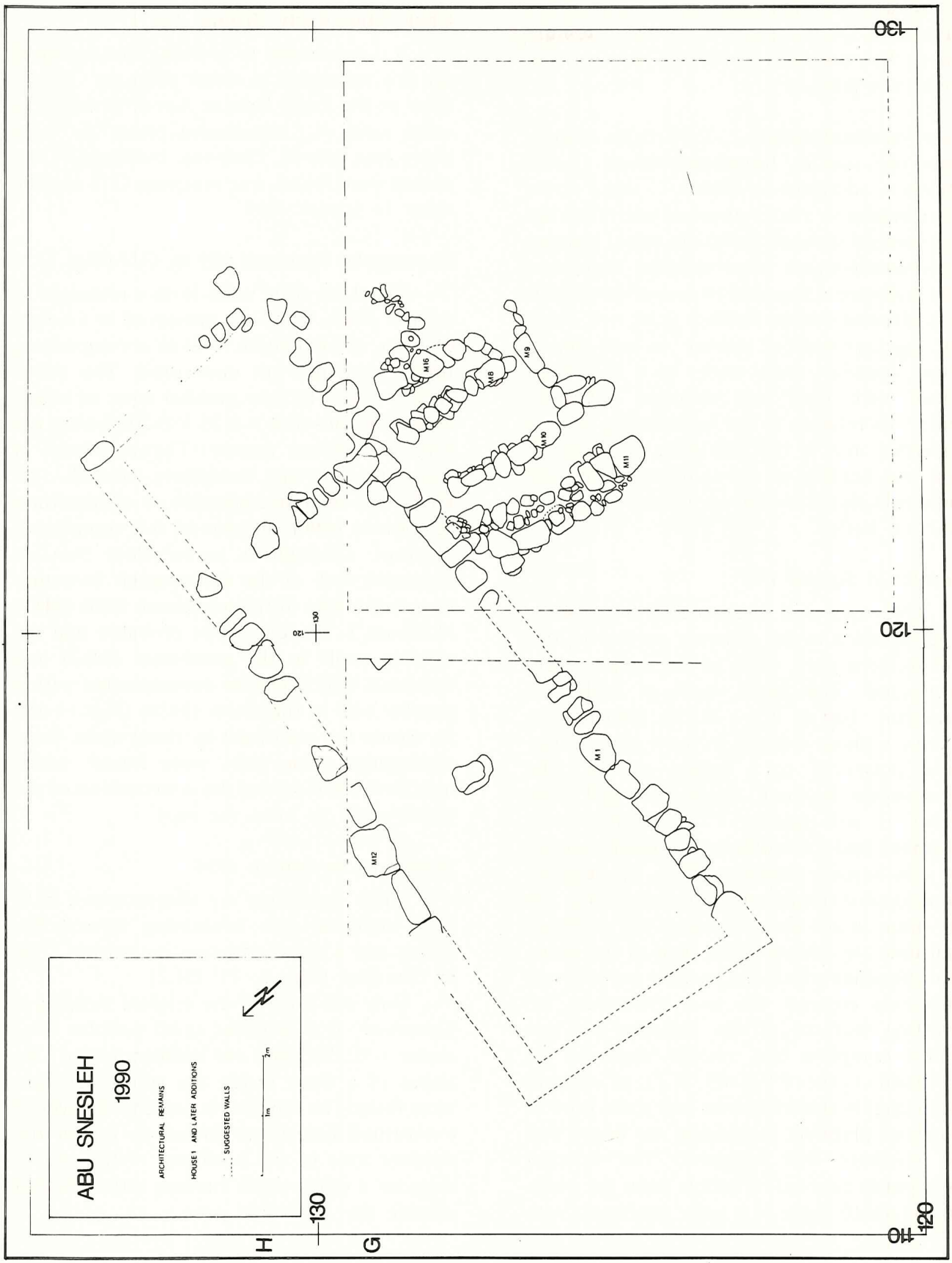


Fig. 4. House 1 (with later additions).

domestic architecture. It is interesting to note in this context, that only rarely stone pillars were used for this purpose, often in regions where the normally preferred sturdy trees could not grow.[4]

Later additions (Figs. 2, 3; Pl. I,2): Judging from the various foundation levels of the southern additions to **House** 1, these structures belong to a later phase of use. They are represented by walls 0.4-0.6m wide, running north-south which form cell-like chambers. The walls are composed of one or two layers of undressed stones (0.30 × 0.15 × 0.15m), put together without mortar. In only one of these chambers were traces of a mud floor mixed with lime and charcoal inclusions found. Its relation to the surrounding walls is uncertain due to the bad state of preservation. An analysis of soil samples taken from these cells should enable us to determine their function better.

Results in Square F12

Only two wall fragments, 2.5 and 4.0m long, situated in the extreme northern (M2) and western parts (M4) of the square, were uncovered. The walls, built of undressed limestone (up to 0.7 × 0.5 × 0.4m), were erected without mortar. In some places, they were preserved to a height of 1m. The relationship between these two wall fragments is still unclear. The western wall fragment and its southern extension, known only by surface structures (Fig. 2), suggests some kind of curvilinear or oval structure. On the other hand, the remains of the northern wall indicate a rectangular plan of the structure. Benches which run parallel to both wall fragments connect the two structures. Interesting features of the benches are two almost complete clay vessels found in the northeast corner of F12 (Pl. II,2), an unburnt clay vessel in the southwest and some kind of plastered platform connecting the bench and the northern wall fragment. The benches were partly covered by rubble from the walls. To the south there is a large courtyard with several fire places.

Chalcolithic-Early Bronze Age I

It is impossible to give an exact dating of the few structures to either the Late Chalcolithic or the Early Bronze Age I. A dating to some kind of "transitional phase" is most likely (see below). Only two buildings of this period were found, one in square G13 and the other in square G14.

Rectangular Structure (R) in G13 (Figs.3, 5)

The 0.8m wide walls form a rectangle of 4.7m × 3.1m. They are preserved to a height of 1.0m. A foundation level or accompanying floors were not yet uncovered. The walls, characterized by two parallel rows of small, well-cut stones (0.4 × 0.35 × 0.20m) were put together without mortar. The wall faces of this structure are extremely smooth (Pl. III,1). No clear stratigraphic or architectural relation to other remains of this square was obvious, although it seems clear that an extension wall of the Rectangular Structure runs below one of the additional walls (M11) of House 1. It seems to be probable that the existing walls in the northwest (M13) and northeast (M25) can be accomplished with a parallel wall in the south (M26) (Figs. 3 and 5). Inside the area built by these walls, large rectangular stone slabs were found, which may have been part of the construction of the upper walls or even the roof.

Structures in Square G14

These structures are characterized by a large outdoor area containing several fire places and a spiral structure measuring 1.5m in diameter (Fig. 6; Pl. III,2).

Only one layer of the original building is preserved. It consists of small pebbles (diameter = 0.25m) laid out without mortar. No traces of a floor inside the spiral structure were found. Its function is unclear. A layer of overturned limestones found on top of the outdoor area in the northeast of the square suggests a north-south running structure just outside the excavated area.

4. For further MB parallels see Albright 1938: Pl. 10a; 1975: 172.

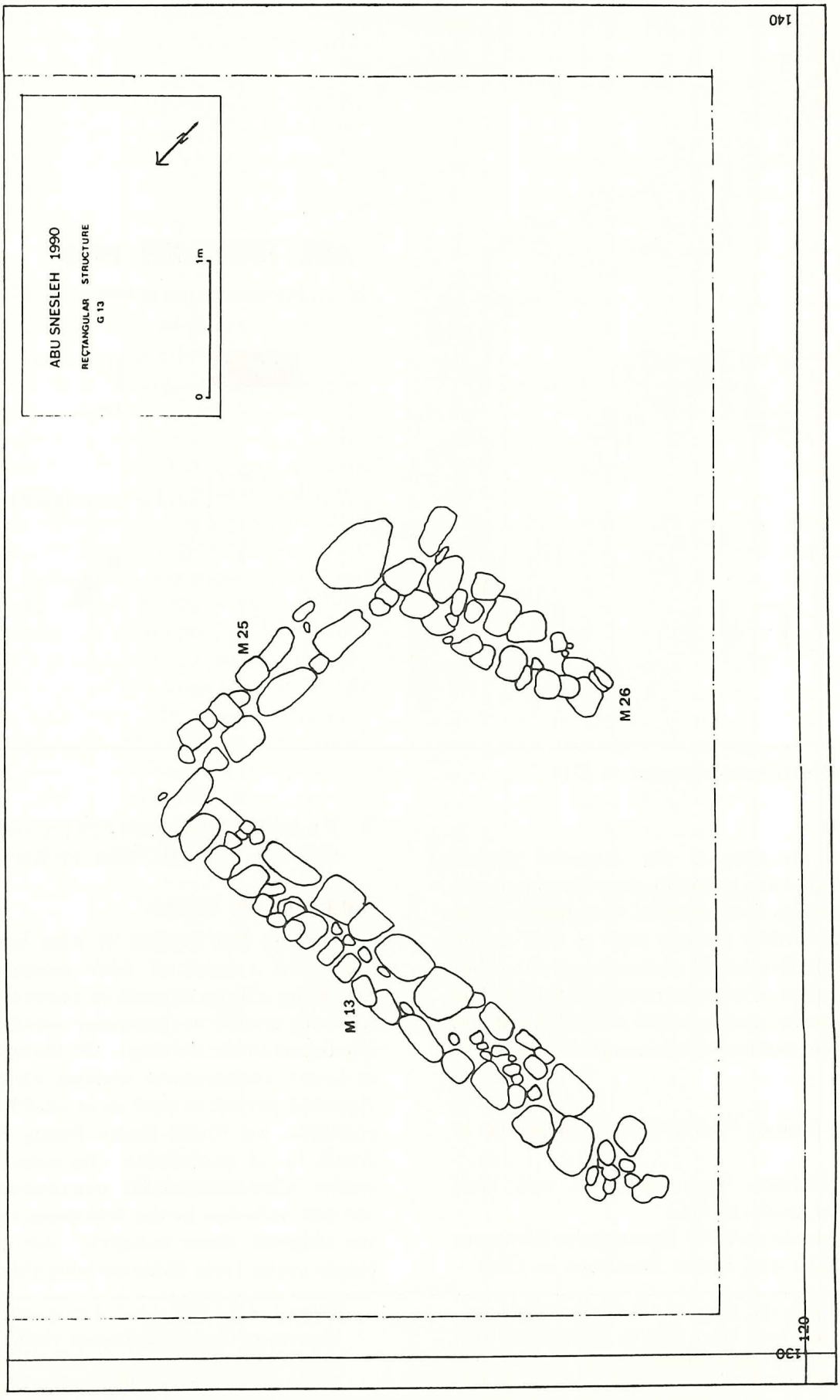


Fig. 5. Rectangular Structure in G13.

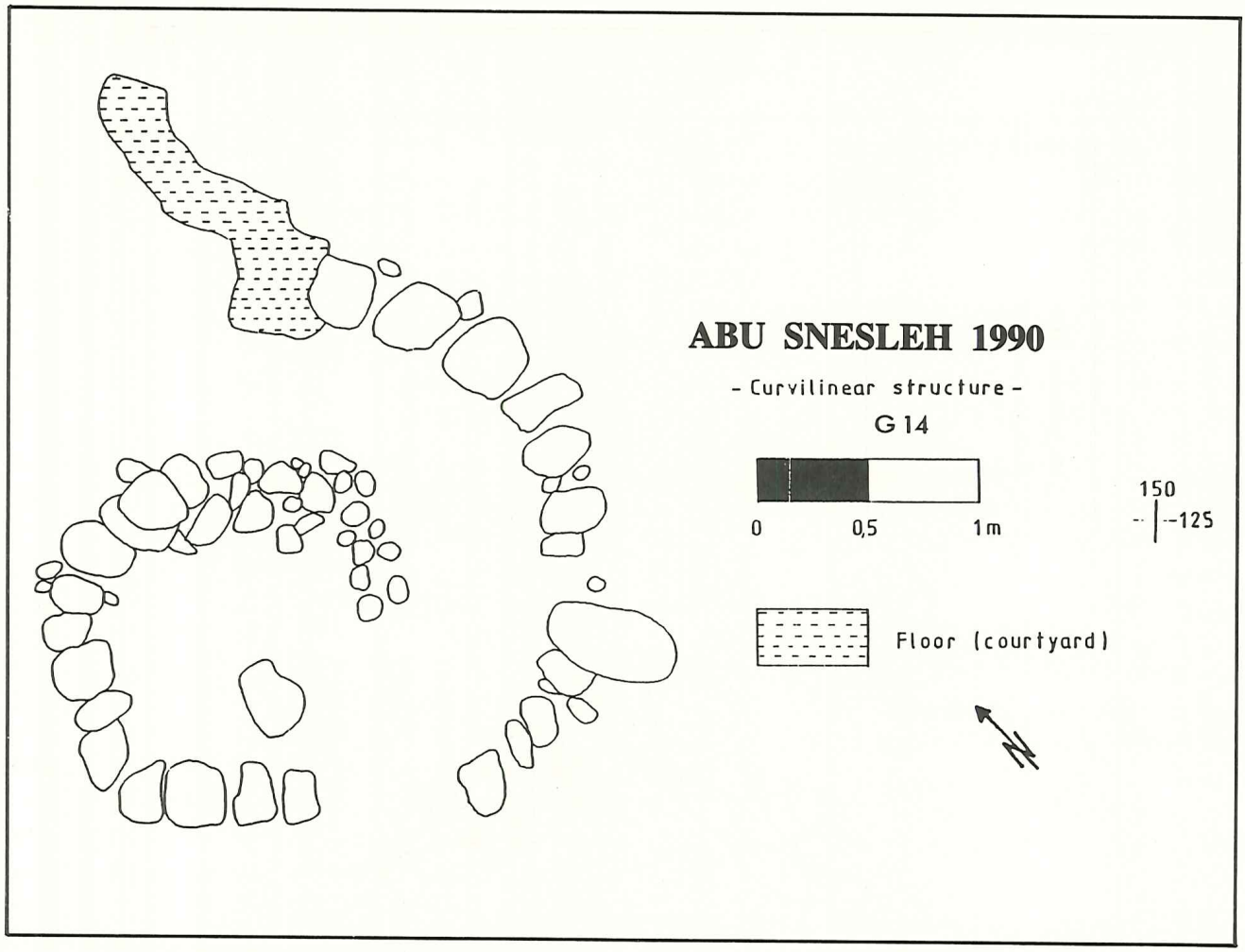


Fig. 6. Curvilinear structure in G14.

Summary

The remains of the Ayyubid period found in G14 are probably part of a sheep pen which belongs to some kind of nomadic camp site. The Middle Bronze Age as well as the Late Chalcolithic/EBI structures on the other hand are part of a permanent settlement. The correlation between periods of settlement and the various architectural remains is as follows:

Ayyubid period: Wall in G14, perhaps also in G11.
Middle Bronze Age: House 1 and later additions; walls in G12.
Late Chalcolithic/EBI: Rectangular Structure (R) in G13 and Spiral Structure in G14.

3. FLINT IMPLEMENTS OF THE CHALCOLITHIC/EBI PERIOD

Nature of the Sample

In the first season at Abu Snesleh we recovered a total of 4349 pieces of flint, excluding a large amount of burnt flint which we were unable to determine whether or not it was part of the debitage. On the surface and in scanty architectural remains dating to the Ayyubid period as well as in Middle Bronze contexts, we found many flakes and tools which in all probability originate from the earlier Chalcolithic/EBI occupation. These are not included in the following analysis of the chipped stone industry.[5] All other 959 pieces come from contexts which date to the

5. Taking only the flints as a basis for dating, we would not have been able to differentiate MB contexts from Chalcolithic/EBI ones. A good part of the Chalcolithic/EBI tool types was found in loci dated by ceramic evidence to the MB. It is unclear if some of the tool types of Chalcolithic/EBI age were reused during MB times or whether there was a real tool production in the MB settlement. The dating of the contexts follows the results of the pottery analysis.

Chalcolithic/EBI period.

Raw Materials

We were able to distinguish five different kinds of flint (A to E) on the basis of texture, colour and inclusions. All of them are from local sources. The calcareous rocks just above Abu Snesleh contain many nodular pieces of chert. Tabular flint, though present in the region, was rarely found in the collections, and was not considered separately. Most pieces are of moderate size and a high percentage of the debitage and tools show some cortex. This leads to the conclusion that there was no particular demand for large nodules. Not a single piece of obsidian was found in this first season. Quartz occurred rarely.

The five groups of raw materials are:
A) A flint which varies in colour from almost black to light grey and brown. This material is sometimes fine but mostly medium to coarse grained. With 54.2% of all pieces this group is by far the most commonly used.
B) Group B comprises 7.0% of all flint. It is similar in colour to the flint of group A, but somewhat more coarse in texture and contains small white inclusions.
C) This is a very fine grained type of stone. Colour varies from bluish red to violet to light red, and the pieces of this kind of material are mostly smaller than those of other groups. The overall percentage of this group is 9.9%.
D) Group D is fine grained as well, but of yellowish colour and translucent. The group comprises 11.9% of all pieces.
E) A last group is a very coarse grained, veined flint. Its main colour is grey to light brown, with all sorts of darker variations and striations. 10.9% of the industry is made of this coarse material.

The remaining 6.1% consists of completely black pieces with cracks on the surface. A large part of the lithic material came in contact with relatively high temperatures so that it turned into a brittle consistency and black colour. Many pieces also show the typical pot lid fractures stemming from high temperatures. Curiously, many of these flakes and chunks were found in contexts without any traces of fire. The amount and the intensity of fire cracking without any apparent cause is a point for which an answer should be sought in the future.

General Character of the Assemblage

The debitage consists of a large number of flakes, of which some were retouched or at least in some way used. Another part of the assemblage is made up of chunks and shatter. Blade blanks occur only rarely (Table 1).

Table 1: Categories of the flint assemblage at Abu Snesleh.

Category	*n*	*%*
Flakes	797	78.1
Retouched Flakes	108	10.6
Plain Blades	19	1.9
Cores	39	3.8
Tools	58	5.7
Total	**1021**	**100.1**

Since raw material is abundant in the immediate environment of the site, there was no need to use cores until exhaustion. Cores, which are found in relatively large quantities, are large in size. Very often, only two or three flakes were struck from a core before it was discarded. According to the kind of debitage, two regular kinds of cores occur:
A) Almost cylindrical cores, the result of the production of larger blades (Fig. 9.2).
B) Pyramidal cores with one striking platform, from which large flakes were struck (Fig. 7.1-2).

Other cores possess several striking platforms, of which the position on the core is determined by the general shape of the nodule. In 1990, no bipolar blade cores were found.

Blades are not very regular. They often have rounded sides and resemble more the shape of a leaf than a blade. They were not very much in use, since most of the tools were made on flakes. Only a few of the drills and one or two notches are produced on blades. Even the use as sickles is relatively rare for the Abu Snesleh blades. Some effort was spent to produce blades which had a triangular section, so that backing was not necessary.

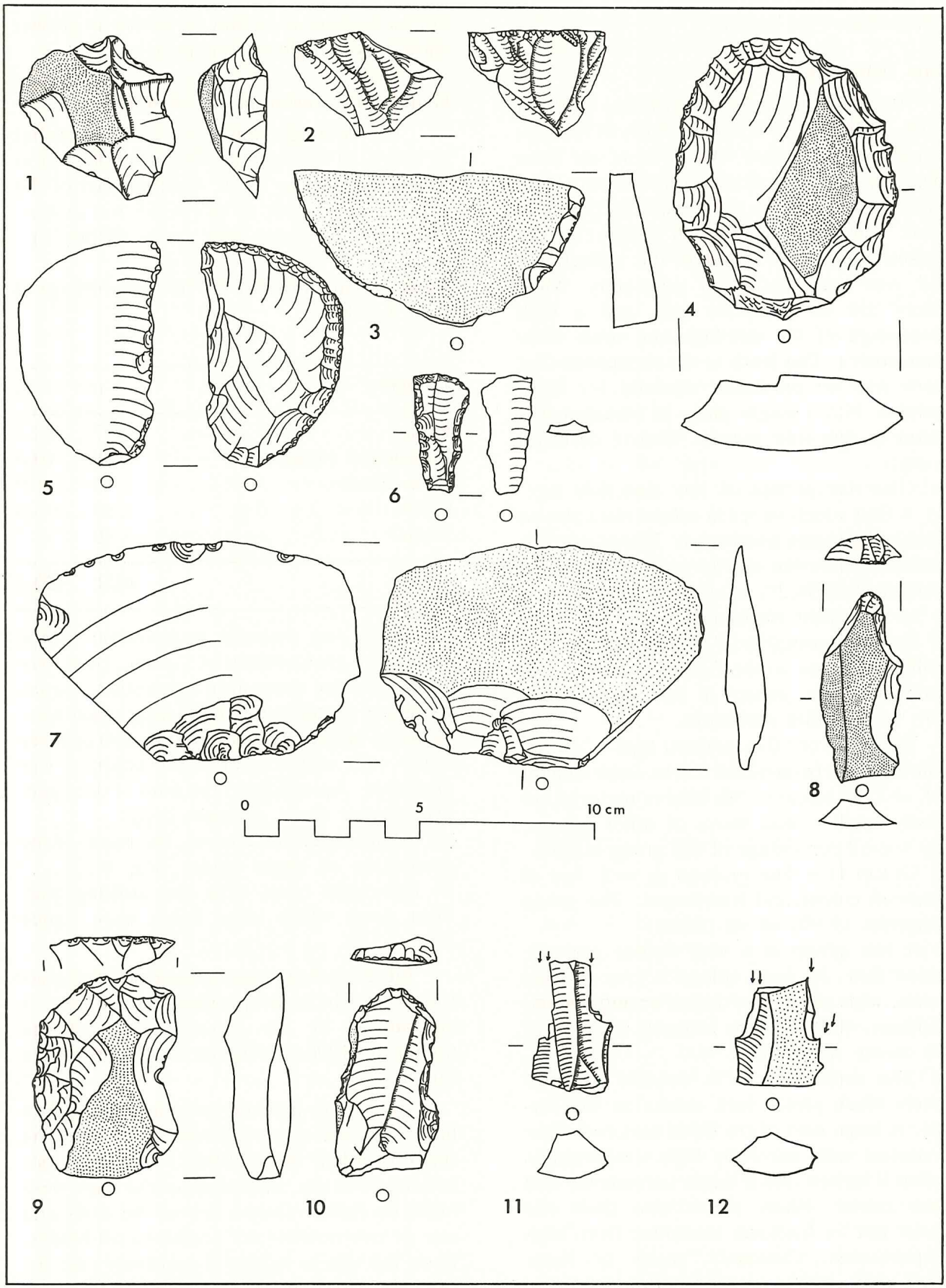


Fig. 7. Cores (1-2), fan scrapers (3-5, 7), other scrapers (6, 8-10) and burins (11-12). Chalcolithic/EBI.

These blades, which always carry cortex on the steeper side, are called "naturally backed blades" (Baird 1987: 464). They are morphologically comparable to "artificially backed blades". Most "retouch" on blades seems to come from use-wear. Real retouch or denticulation is very rare. In several instances we found heavily water rolled Palaeolithic—mostly Mousterian—tools or cores which were reshaped in Chalcolithic/EBI times.

Tool Classes

Apart from the already mentioned sickle blades, tools were classified according to their supposed function and morphology. The arrangement of functional classes follows traditional categorizations (Table 2). Only the most frequent tool types will be mentioned here since analysis has just begun.

Table 2: Functional classes of flints.

Functional Class	*n*	*%*
Scrapers	18	31.0
Burins	3	5.2
Notches	3	5.2
Utilized Blades	11	19.0
Drill/Awls	7	12.1
Axes/Adzes	3	5.2
Sickle Blades	2	3.4
Other	11	19.0
Total	**58**	**100.1**

A) The largest functional class in the Abu Snesleh assemblage are scrapers. We ordered these objects in 5 subcategories based on characteristics of the working edge and on the overall shape of the tools. The wide variety of these tools is in accordance with similar findings at En Shadud (Rosen 1985: 153).
A1) "Fan scrapers" (Fig. 7.4-5): These tools occur both in the Late Chalcolithic and the EBI in Palestine and Transjordan. The tools from Abu Snesleh carry typical traits. When preserved, the bulb of the piece is of a large size, as observed on similar tools from Bab edh-Dhra' (McConaughy 1979: 301, cited in Rosen 1989). Other pieces have bulbar retouch to reduce the thickness at this point. The Abu Snesleh fan scrapers vary widely in thickness as well as in size. Thickness of some pieces is much greater than usual in other regions (Fig. 7.4). On the Abu Snesleh pieces, no cortical grinding could be observed. Most of the tabular scrapers have their striking platform on the long axis of the flake. Following Hanbury-Tenison (1986: 148), this is an EBI characteristic.
A2) Steep scrapers (Fig. 7.9): This particular kind of tool is often the result of reshaping of pyramidal flake-cores which were used up. Abrupt retouch along the edge of the striking platform produces the "scraping edge" (see Rosen 1985: Fig. 42.5).
A3) Side scrapers (Fig. 7.6) are made on blades as well as on flakes. The retouch of these pieces is mostly abrupt.
A4) End scrapers are mainly made on blades. Besides broad blades with a relatively large working edge (Fig. 7.10), another subclass is formed by more pointed scrapers (Fig. 7.8).
A5) "Elliptical scrapers" (Fig. 9.1): Rare in occurrence, the two objects of this category are made in the same fashion as the "fan scraper": they have cortex on the dorsal side, and a steep dorsal retouch. The piece illustrated was found in a doubtful context, but seems to belong to the Chalcolithic/EBI period. The purpose of these instruments is not very clear. The material is a brown, relatively fine grained flint. Similarly shaped tools were found at Arad (Schick 1978: Pl. 82.3-4) in stratum IV. The so-called "tongue-shaped" scrapers on tabular flint at Umm Ḥammad esh-Sharqiya may be the same type of instrument (Betts 1984: 52).
Both at Arad and Umm Ḥammad tongue-shaped scrapers are associated with Canaanean blades.
B) Burins (Figs. 7.11-12; 9.3): The percentage of burins in the tool assemblage is high when compared to other Chalcolithic/EBI sites in Palestine. One may hypothesize that the production of burins may have something to do with the adaptation to a specific environment, taking into consideration the - albeit earlier—"burin sites" in the Jordanian desert (see Betts 1988: 376). Almost all of these tools are made from the yellowish, fine-grained flint (group D). The blanks from which burins were made have a regular shape.

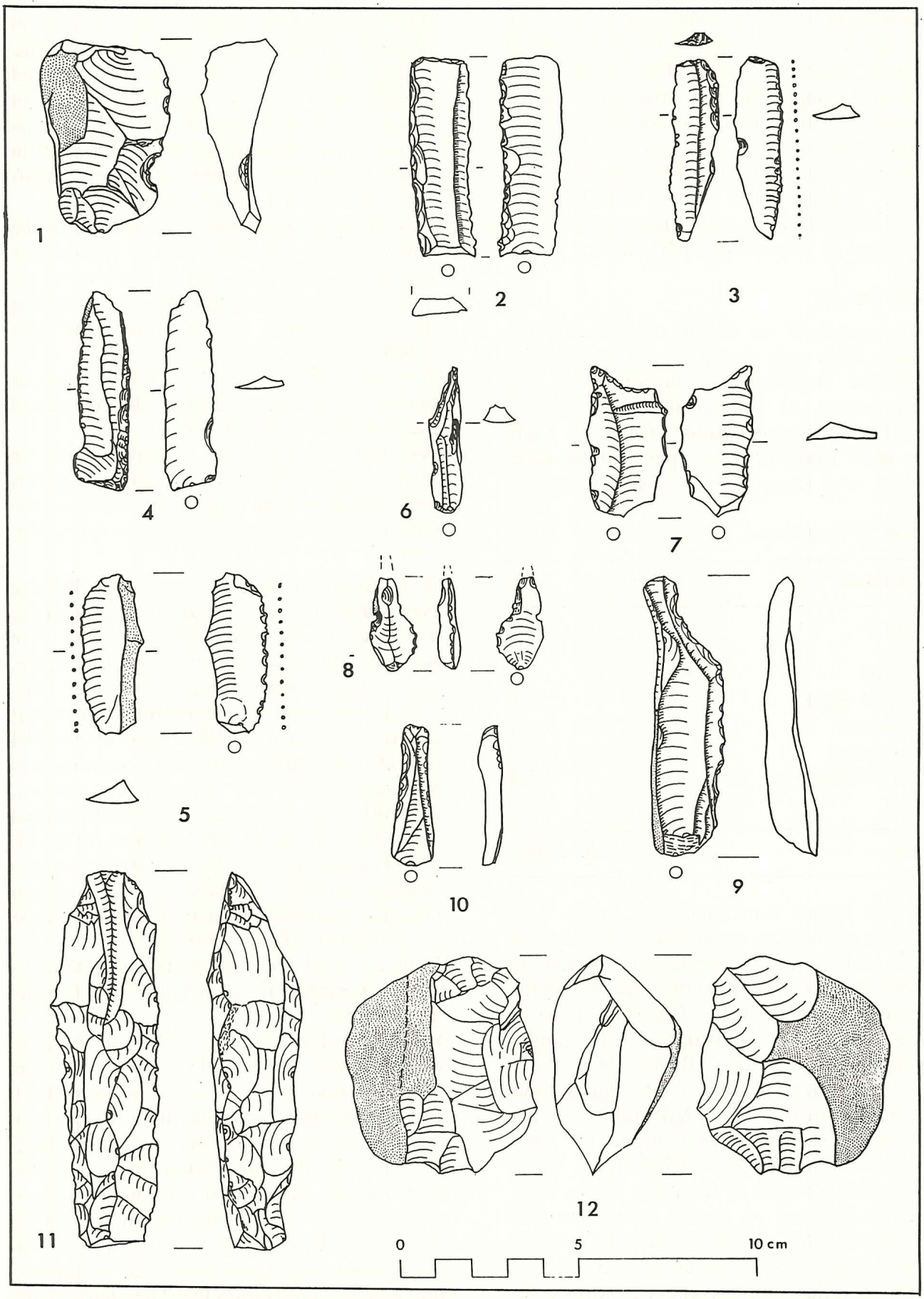


Fig. 8. Notch (1), blades (2-5), borers and drill (6-10), adze (11) and chopper (12). Chalcolithic/EBI.

On purely formal terms, two kinds of burins can be distinguished. Besides pieces with one working edge, we found several which had two working edges (Fig. 7.11-12).

C) Notches (Fig. 8.1) occurred less often than claimed by Rosen for the Chalcolithic period (Rosen 1985: 153). Denticulated pieces are rare.

D) Blades: We distinguished three kinds of blades. Apart from the "normal" blades, a small percentage consisted of backed blades with a semi-abrupt retouch (Fig. 8.2-4). A third kind of blades are the "naturally backed" blades, which have cortex on one side (Fig. 8.5). For blades, a slight preference for coarse greyish flint (group E) over other kinds of raw materials could be observed. Of the total of 31 blades, only 2 (6.5%) had traces of sickle sheen. Whereas half of the backed and naturally backed blades were retouched, only one quarter of the plain blades have signs of retouch.

E) Drills and Borers: This class of instruments is fairly well represented in our sample. Borers were made on blades of large size and thickness as well as on crude flakes. An exception is a small drill (Fig. 8.6) which compares fairly well to a piece from Tell esh-Shuneh North (Baird 1987: Fig. 1.6). Usually, the tip of the drills is short and not on the longitudinal axis of a piece (Fig. 8.7). Several borers with massive points are heavy duty tools (Fig. 8.8-10).

F) Adzes/axes (Fig. 8.11): It is too early to differentiate between different types of large tools of this category. The tools from Abu Snesleh are morphologically comparable to the "chisels" from Tuleilat Ghassul (Koeppel *et al.* 1940: 89.91) but they do not exhibit any polishing on the working edge. Mostly dark brown flint (group A) was used for the production of these heavy duty instruments. One piece was made of a coarse-grained block of quartz.

G) Sickle blades: Sickle blades are very rare in the assemblage. None of these had sheen on both edges, but they have some kind of retouch on the cutting edge. This is also true for all sickles from later or unclear stratigraphic contexts.

Other, rarely occurring tool types are choppers (Fig. 8.12), bifacial tools, hammerstones and knives.

Dating and Economy

During the first season at Abu Snesleh, not a single Canaanean blade was found. Even though we found tools from earlier periods in MB contexts, this seems to indicate that the site was deserted during most of the EB period. Rosen thinks that the chisels, adzes and axes are typical Chalcolithic types which no longer occur in EBI contexts (Rosen 1989: 216). Contrary to this is Hanbury-Tenison's statement (1986: 146) that the adze/chisel/axe group occurs in EBI contexts as well (see also Baird 1987: 476). In terms of the flint industry, the sharp distinction between a Late Chalcolithic and an Early Bronze I assemblage runs counter to the evidence from Tell esh-Shuneh North and such sites as Jabal Muṭawwaq. At Abu Snesleh, some flint implements point to a Chalcolithic date of the industry. These are the chisels/adzes, the backed blades and the absence of any blade resembling the Canaanean type. Other elements like the tabular scrapers are at home in Chalcolithic as well as in EBI contexts. It is probable that the earliest excavated phase at Abu Snesleh belongs to a transitional stage between Late Chalcolithic and EBI.

The lithic industry from Abu Snesleh is in some ways exceptional for its composition. First, the relatively high amount of burins is unusual for Chalcolithic and Early Bronze I assemblages. Burins are thought to be instruments for bone-working, although their precise function and use is unclear. Second, the percentages of certain tool classes which are connected with special domains of a village economy deviate from patterns found at other sites.

For Abu Snesleh, there is a large amount of tools related to scraping and cutting activities. Burins, scrapers, notches and awls are all instruments which probably were used for processing animal carcasses and hides. Other tool categories like the chisels/adzes and a part of the drills can be supposed to have been used for wood working. Finally, evidence for agricultural work at Abu Snesleh is scanty. Only sickle blades are good indicators for the intensity of this activity. A lot of

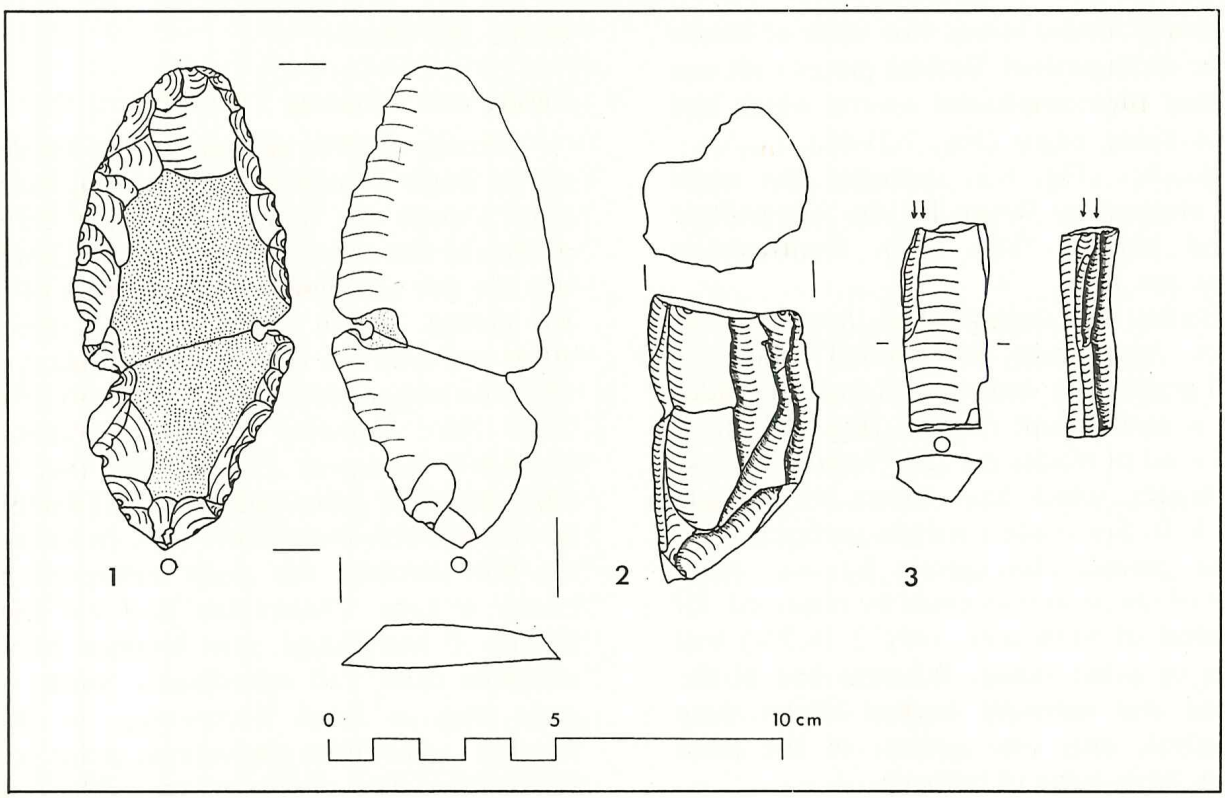


Fig. 9. Elliptical Scraper (1), cylindrical blade core (2) and burin (3). Probably Chalcolithic/EBI.

other tools like retouched blades, "knives" etc. cannot be related to any specific economic activity.

Assuming the above outlined rough functions of flint tool categories, a comparison with the flint industry of two other sites is used to get a clearer picture of regional differences (Table 3). For Abu Ḥamid, which is slightly earlier in date, and Shuneh North, which is approximately contemporary to the earliest phase at Abu Snesleh, dates are available. According to our initial hypothesis, Abu Snesleh should exhibit an economy different from that of these two Jordan Valley sites.

Table 3: Functional traits of flint assemblages: comparison of three sites in Chalcolithic/EBI Jordan.

Tools related to (in %)	Abu Snesleh	Abu Ḥamid[6]	Shuneh-N
Herding	86.1	52.3	45.9
Wood-work	8.3	18.1	27.0
Agriculture	5.6	29.6	27.0

Differences between Abu Ḥamid and Shuneh North are of minor importance. Adaptation to a riverine environment may be the reason for similarities. In marked contrast is the Abu Snesleh industry with its high percentage of tools related to herding and the very small quantity of sickle blades.

Another argument supports our idea. McConaughy carried out a microscopic analysis of fan scrapers from Bab edh-Dhra' and found out that they served as butchering knives (McConaughy 1979: 304). The proportion of fan scrapers in the Chalcolithic/EBI assemblage from Abu Snesleh is around 10%, much higher than one could have expected after Rosen's trade-fall-off-curve (Rosen 1989: Fig. 2). It is therefore reasonable to assume that in relatively dry environments like the Negeb or the eastern edge of the Jordan Valley, fan scrapers play a more important role because of their function related to herding and/or hunting. The lack of Canaanean blades in connection with the relative abundance of fan scrapers could be the result of a subsistence economy strongly oriented towards herding.

6. See Dollfus *et al.* 1987: 588 for Abu Ḥamid; Baird 1987: Table 2 for Shuneh North.

4. POTTERY

Nature of the Sample

During the first season at Abu Snesleh we found a sample of approximately 3000 pieces of pottery. Not all the pottery is finally processed, but at least it has undergone preliminary analysis. In the uppermost layers of all squares we found a few pieces of Islamic pottery, which coincides with the scattered settlement activities mentioned in the architectural report. The earlier contexts contain MBII pottery, which comes from some of the substantial architecture, while the Late Chalcolithic and EBI pottery occurs in the deepest levels we have reached so far.

Excavation Results

The excavation was conducted in artificial layers of different depth, which were supposed to coincide as much as possible with the natural layers. The layers mentioned in the following descriptions are these artificial layers.

The most substantial structures in the middle of the excavation, House 1 (G12/13) and the larger walls in the adjacent squares (G11, F14) are dated to the Middle Bronze Age.

G11: is the shallowest square exposed and contained only MB pottery except for the lowest layer, which included a few pieces of Chalcolithic pottery.

F12: layers 1 to 4 contained only MB pottery, while layers 5 to 6 together with the lowest floor excavated include some EBI and Chalcolithic sherds. On the surface Islamic material was found.

G12: outside House 1 (south of the southern wall 1) Iron Age and Islamic pottery was found. All layers down to the lowest floor inside House 1 contained only MB pottery, while the pottery from the huge pit in the western part of G12 was mixed with some Chalcolithic pottery.

G13: the surface and upper layers of the whole square produced mainly MB pottery. The small corner of House 1 in G13 includes only MB material. The "additional" walls to the south of wall 1 and the "rooms" they enclose have a very high proportion of Chalcolithic and EBI pottery. From the fifth layer on, which contains the material directly above the "Rectangular Structure", the ceramic finds are exclusively Chalcolithic with few pieces of EBI pottery. In the eastern part of the square, east of the "additional" walls we have the same situation of only Chalcolithic pottery. These earlier levels in the eastern parts are easily distinguishable from all later levels because of the gravel layer, which separates the material quite clearly.

G14: the same gravel layer continues into G14, again clearly dividing the later levels with MB material and the earlier levels with Chalcolithic and EBI pottery. Therefore the lowest floors and the circular structure date to this earlier period. The gravel layer itself contains mixed material. In the uppermost part of G14 around wall 100, Islamic pottery was found.

Islamic Pottery

The small sample of Islamic pottery includes Umayyad/Abbasid Brown Slipped White Painted (McNicoll *et al.* 1982: 7) and some common ware.

Middle Bronze Age II Pottery

The three most common wares from that period are:

Cooking pot ware: a coarse, dark reddish brown ware with very gritty temper, only superficially smoothed. The most common form is a restricted cooking pot with outflaring rim which also appears at Megiddo (Loud 1948: pl. 46: 4; Shipton 1938: 5: 23) (Fig. 10.1).

Coarse ware: a very coarse reddish ware with greyish-black cores, mineral temper in black and white between 0.2 and 0.8cm in diameter. The shapes include large open bowls similar to the ones found at Megiddo (Loud 1948: Pl. 9.19) and wide cooking-pot with slightly pointed rims and rope decoration (Fig. 10.2,3).

Buff-grey ware: a straw and grog tempered ware of well levigated clay. The core varies between light red and light grey with a buff-yellow slip, the surface is always burnished. The most common form is a large jar with short neck and profiled rim (Fig. 10.5).

Late Chalcolithic and Early Bronze Age Pottery

The first two wares add up to 80% of the

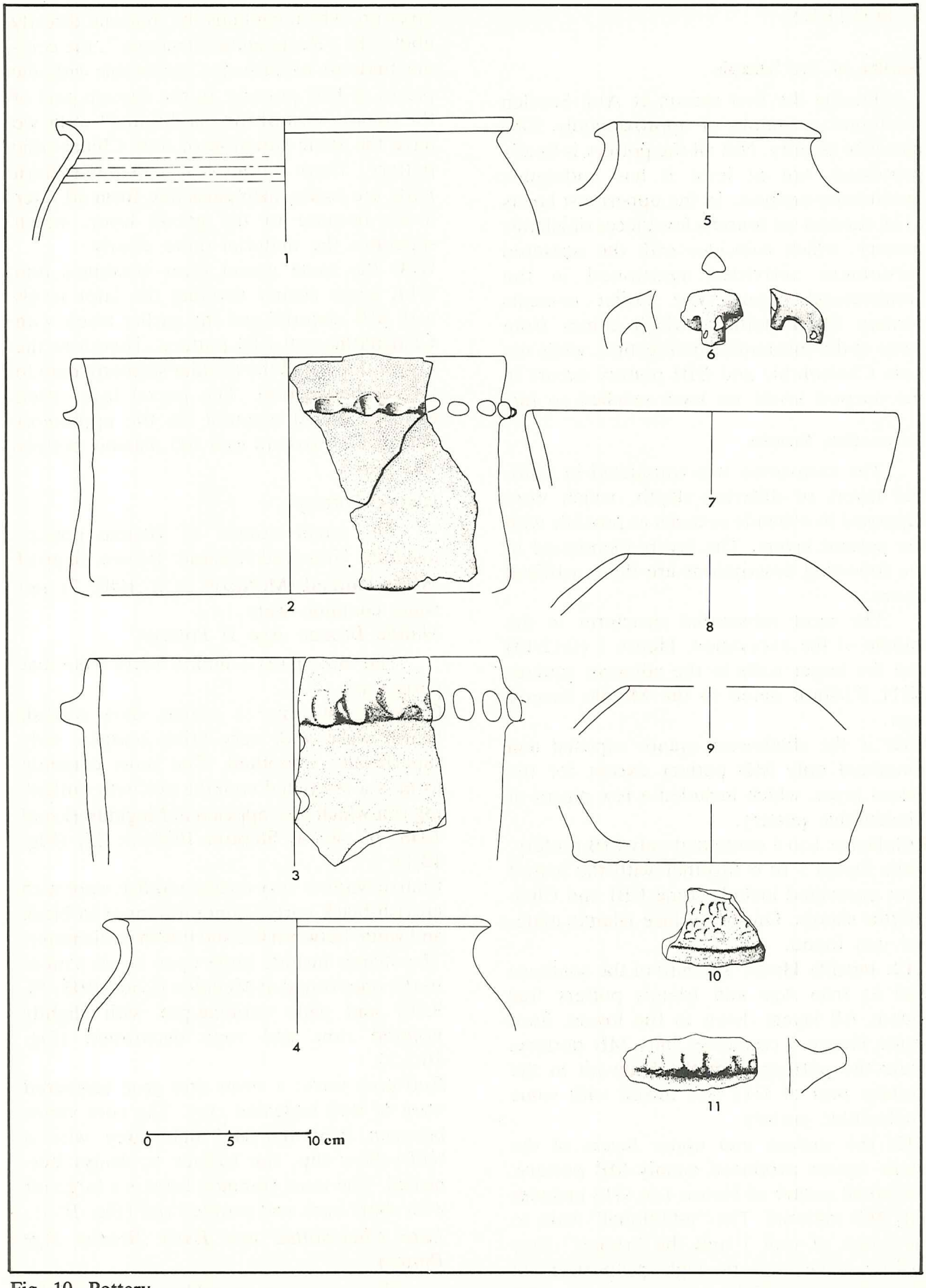


Fig. 10. Pottery.

Chalcolithic/EBI material we have found so far.

Buff-red ware: a medium coarse ware varying from buff to red, depending on the firing. Gritty mineral temper, wet smoothed surface, hard firing. The typical forms are V-shaped bowls, hole-mouth jars (Fig. 10.7-9) and small, slightly pointed handles (Fig. 10.6). There are also some bases with mat impressions at the bottom (Fig. 10.10). All shapes are well known from Tuleilat Ghassul,[7] Pella,[8] and Saḥab.[9]

Red coarse ware: coarse, reddish ware, heavily tempered with different coloured inclusions (black, white, brown, yellow) up to O.5cm in size. The outer surface is often covered with a white slip. This ware is very similar to the white slipped ware from Tuleilat Ghassul.

Light buff ware: buff, medium coarse ware from well levigated clay with heavy mineral temper consisting from whitish gravel up to 0.8cm in size. We found mainly body sherds except for one heavy rim of a vessel with slightly restricted opening and decoration around the neck (Dollfus *et al.* 1988: Fig. 10.19)[10] and one ledge handle (Fig. 10.11).

Red burnished ware: a fine ware, made from well levigated clay with small portion of fine temper. The outer and parts of the inner surface are red slipped and partly burnished. Until now, we have only very few pieces of this pottery (Fig. 10.4).

Summary

The main architectural features in G12/13, G11 and F14 contain Middle Bronze Age II pottery, but Late Chalcolithic layers are below these structures. So the "Rectangular structure" in G13 and the "Circular Structure" in G14 belong clearly to the earlier period. There is hardly any painted pottery from the MBII period, which could be a sign of a more "provincial" kind of settlement.

5. THE SURVEY

During the Eid holidays, i.e. from 26-30 April, we started a survey along Wadi al-Qaṭṭar, which should close a geographical gap between the Saḥab survey of M. Ibrahim (Ibrahim *et al.*, in press) and the Greater Amman Survey (report by Abu Dayyah *et al.* in this volume). We found all together over 200 different sites, which include single architectural structures, tombs and settlements. Nearly all periods between the Palaeolithic and Islamic times were found, but it seems that the Late Chalcolithic and Middle Bronze Age turn up most often.

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7. We have to thank Dr. M. Najjar for showing us some of the material from Tuleilat Ghassul.

8. Due to the generosity of Prof. Hennessy and Dr. Walmsley we were able to check the Pella material for parallels.

9. We have to thank Dr. M. Ibrahim for the permission to look at the Saḥab material, and also Mr. I. Zubi for his help.

10. Very close parallels to this type of vessel come from Pella, where the ware is also very similar.

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1. Elevation of wall of House 1.

2. Overview of square G13 from the south. The rebuilt parts from M1 in the background.

1. House 1 with the pillar to the right.

2. Burnt vessel from square F14.

1. Elevation of M13 of the Rectangular Structure.

2. Curvilinear structure in G14.