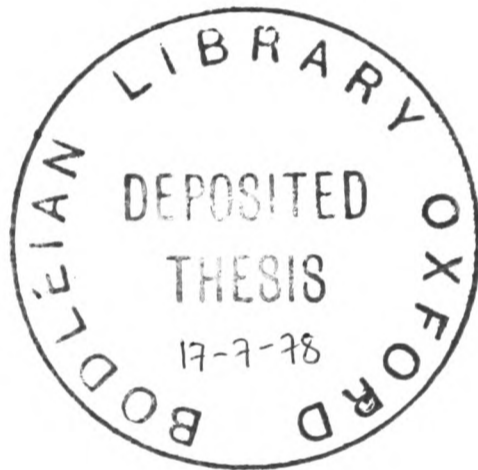


THE NEOLITHIC OF THE LEVANT

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Chapter 5

NEOLITHIC 3

About 6000 B.C. there is evidence in the archaeological record of marked changes in material remains, economy, settlement patterns and social organization signifying the emergence of a new stage in the Neolithic of the Levant which I shall call Neolithic 3. The Neolithic 2 tradition of building rectangular single or multiple-roomed mud-brick houses was continued on some Neolithic 3 sites but on others the inhabitants lived in sub-circular pit dwellings. Other large pits which may have served as working or cooking hollows are another conspicuous feature of many Neolithic 3 settlements.

The characteristic flint industry of Neolithic 2 was modified in Neolithic 3 though many of its general features were preserved. The emphasis of Neolithic 3 flint production remained the manufacture of blade tools but they were usually smaller than in Neolithic 2. Pyramidal cores were now preferred which yielded shorter blades than the double-ended cores of Neolithic 2. Arrowheads were usually smaller though in Syria and Lebanon several types of very large arrowhead continued to be made throughout Neolithic 3. Short, regular, segmented sickle blades hafted in composite sickles were now used rather than the large blades of Neolithic 2. These segmented sickle blades had a serrated or denticulated cutting edge and cut most effectively when the sickle was used with a sawing motion. A new feature of the flint industry on some Neolithic 3 sites was the manufacture of large axes, adzes, picks and other heavy flaked tools. These tools were apparently developed to cut timber and prepare land in areas which had not previously been favoured for permanent settlement.

The principal cultural innovation in Neolithic 3 was the making of pottery. Pottery was first used on sites in Syria and Lebanon about 6000 B.C. At the beginning it was made in small quantities but the craft flourished so that soon after its introduction pottery became an item of every day use throughout

the central and northern Levant although pottery was not used in the southern Levant until several centuries later. From the outset there was much variety in fabric and decoration. Pottery is such a conspicuous item in the archaeological record that its introduction is the principal indicator of innovations in material culture. Other important changes were taking place in economy and the pattern of settlement at the time that pottery was introduced. These changes in artifacts and way of life are the main evidence that a new stage of the Neolithic was developing. Pottery is the most easily recognisable new artifact and for this reason the moment when its manufacture began is the most convenient point at which to date the beginning of Neolithic 3. Although the introduction of pottery was such a striking innovation the changes in the buildings and flint industry were simply a modification of the Neolithic 2 tradition. In general there was cultural continuity from Neolithic 2 to Neolithic 3 in the Levant, evidence for which has been found at Abu Hureyra, Buqras, Ras Shamra, Tell Ramad and Tell Labweh. In Palestine the Neolithic 2 pattern of existence was disrupted and the Neolithic 3 way of life there, when finally established, was somewhat different from further north.

The Neolithic 3 economy differed in several ways from that of Neolithic 2 though it developed from it. There was a stronger emphasis on agriculture in the villages of Neolithic 3 than in Neolithic 2. Herding grew markedly in importance on some sites while hunting and the gathering of wild plants contributed less to the diet of the settled population than before.

The settlement pattern underwent considerable modification in Neolithic 3 (Fig. 35). The expansion of settlement into the semi-arid areas of central Syria, Transjordan and in the extreme south-east of the Levant which had taken place in Neolithic 2 was reversed. No permanent Neolithic 3 settlements have been found in these areas and they seem to have been occupied no more than intermittently by mobile groups. On the other hand a considerable expansion of settlement took place in western Syria and Lebanon in areas that were quite thinly populated in Neolithic 2. New sites were founded and old sites

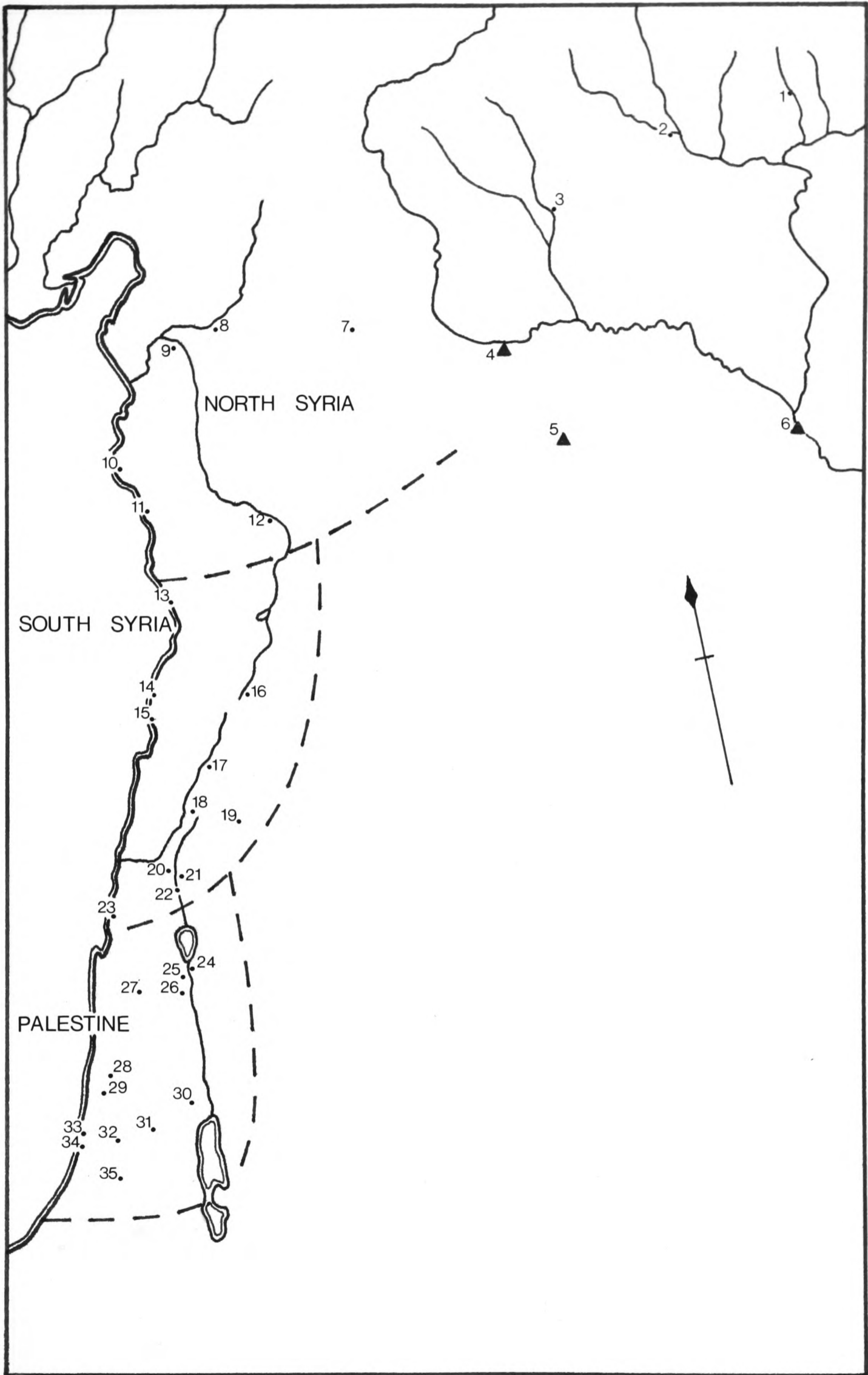


Fig. 35

Extent of Neolithic 3 settlement

▲ sites abandoned early in Neolithic 3

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FIGURE 35

Extent of Neolithic 3 settlement

- 1 Tell Chagar Bazar
- 2 Tell Halaf
- 3 Tell Aswad (Balikh)
- 4 Tell Abu Hureyra
- 5 El Kum
- 6 Buqras
- 7 Judaidah Jabbul
- 8 Tell Judaidah
- 9 Tell esh-Sheikh
- 10 Ras Shamra
- 11 Tell Sukas
- 12 Hama
- 13 Tabbat el Hammam
- 14 Kubbah I
- 15 Byblos
- 16 Tell Labweh
- 17 Tell Neba'a Faour I
- 18 Kaukaba
- 19 Tell Ramad
- 20 Kfar Giladi
- 21 Hagosherim
- 22 Beisamun
- 23 Kabri
- 24 Shaar Hagolan
- 25 Munhatta
- 26 Beth-Shan
- 27 Megiddo
- 28 Wadi Rabah
- 29 Lydda
- 30 Jericho
- 31 Abu Gosh
- 32 Teluliot Batashi
- 33 Givat Haparsa
- 34 Nizzanim
- 35 Tell ed-Duweir

enlarged along the Syrian and Lebanese coasts and in the Beka'a and Orontes valleys. There was also settlement expansion in the Amuq basin and north-west Syria to the west of the Euphrates.

In Palestine the old settlement pattern was considerably disturbed. Most Neolithic 2 sites were abandoned then new sites were founded later in slightly different positions. The population of the Negev and Sinai was much reduced although there are indications that these areas continued to be inhabited.

Having briefly mentioned the most important developments that took place in Neolithic 3 I shall now consider the archaeological evidence in detail taking each region in turn.

Middle Euphrates

The principal Neolithic 2 settlement sites along the Middle Euphrates were abandoned in Neolithic 3. Permanent occupation at Mureybat ceased at the end of phase IV sometime in Neolithic 2 and although there are indications that the site was used in later periods, even possibly in Neolithic 3, it was never subsequently inhabited as a permanent settlement.

Abu Hureyra continued to be occupied until early in Neolithic 3 so that here one can trace the development of some of the features of the new stage. In the ceramic Neolithic phase of occupation there were some changes in the structures used at the site as we have seen. Shallow pits were dug between the buildings which continued to be built of mud-brick on a rectilinear plan. The settlement itself shrank until it covered only half the area of the aceramic site. There were slight changes in the flint industry, the most noticeable being an increase in the amount of retouch by squamous pressure-flaking on arrowheads and a few other tools. The other artifacts were as varied as they had been in the later ceramic phase, the one innovation being the introduction of pottery. This and the other new features found in the excavation were sufficient to mark a new phase of occupation, the ceramic Neolithic, even if it was obviously a continuation of the later aceramic

Neolithic settlement. The appearance of pottery, albeit in modest amounts, the changes in the flint industry and the digging of large pits around the mud-brick buildings are all hallmarks of Neolithic 3 so that the ceramic Neolithic phase of occupation at Abu Hureyra can be ascribed to this stage.

The remains of the Neolithic 3 settlement at Abu Hureyra had suffered considerably from weathering and much of the deposit had simply been eroded away. For this reason it is difficult to know exactly when the settlement was abandoned but from the typology of the artifacts it would appear that occupation ceased about the same time as at Buqras, that is early in the 6th millennium.

Tell Kreyn near Abu Hureyra was certainly occupied in Neolithic 2 and again in the Halaf. The foci of these two settlements were several tens of metres apart and there were no surface indications of material that would fill the gap between the two phases of occupation, a gap that corresponds to Neolithic 3. The inference to be drawn from this, admittedly inconclusive, evidence is that the site was abandoned during the 6th millennium.

The level III occupation at Buqras also falls in Neolithic 3 on the evidence of the few potsherds that were found in the deposit. The other artifacts were similar in type to those of levels II and I. The structures in level III consisted of mud-brick walls as in the earlier levels. The sequence at Buqras was continuous and occupation at the site came to an end about 5900 B.C., as we have already noted.

Abu Hureyra, Kreyn and Buqras all seem to have been abandoned in the first half of the 6th millennium and Mureybat perhaps a little earlier. In itself such a break in the occupation of sites along the Euphrates need not have been significant since few excavated Neolithic sites have proved to be continuously occupied for more than several centuries at a time. Each may have been abandoned because of local circumstances, perhaps a change in the structure of the settlement or the local environment. The important fact to note is that once these sites were abandoned no others were founded along the

Middle Euphrates until much later. This observation is based upon inadequate information since the course of the Middle Euphrates has not yet been fully surveyed but in the areas which have been examined Neolithic 2 and Halaf settlements have been found but none that could be attributed to Neolithic 3. This is most obvious in the area above the new Euphrates dam at Tabqa where 80 km of the river valley have been carefully surveyed. There are three Halaf sites known in this area, Shams ed-Din which has recently been excavated, the gas station site at Mureybat (van Loon, 1967, 12) and Kreyn. No Neolithic 3 sites have been located in this area except for the ceramic Neolithic phase at Abu Hureyra.

The same observation holds true for the Jebel Abdul Aziz. We have seen that the Japanese survey team found Neolithic 2 sites in this area but nothing that could be attributed to Neolithic 3. Similar results were obtained by the same team when they surveyed the area around Palmyra. All the Neolithic sites they found could be attributed to Neolithic 2 and none to Neolithic 3.

One site in this region, El Kum, was occupied in Neolithic 3. The remains of the ceramic Neolithic settlement were substantial consisting of at least two superimposed layers of buildings. The artifacts, too, were abundant but, except for the pottery, little different from those of the aceramic Neolithic phase of occupation. For this reason I believe El Kum may not have been occupied for more than the earlier centuries of the 6th millennium but until further excavations are carried out in the untested deposits at the site we shall not know for certain. A great deal of pottery was found in the brief excavations at El Kum. The soft, straw-tempered fabric of most of the sherds and the few with grit filler can be matched on most Neolithic 3 sites in Syria and Lebanon. The red painted and burnished sherds are more unusual since these are uncommon on sites further west at this early date. Some of the sherds from Buqras, however, have a similar finish, an interesting parallel which is supported by the similarities in the flint industries and other remains at these two sites.

Having considered the slight traces of Neolithic 3 settlement in the Euphrates region I will now turn to north-western Syria where many Neolithic 3 sites are known (Fig. 36) and describe their remains in turn.

North Syria

Ras Shamra

Ras Shamra was occupied throughout Neolithic 3 and its deposits provide the key sequence for this stage in north Syria. Remains of the Neolithic 3 settlement have been found in the soundings on the temple acropolis and also in the Palace garden (Schaeffer, 1962, 163) so it appears to have been quite as extensive as the Neolithic 2 site. The deposit varied from 2.6 to 3.3 m in depth and has been divided into two phases, V B or Middle Neolithic (Néolithique Moyen) and V A or Late Neolithic (Néolithique Récent).

The houses in Phase V B were separated from each other and had a single rectangular room with stone walls and a mud-brick superstructure (Kuschke, 1962, 260; de Contenson, 1963, 36). Plaster floors were associated with these buildings in some layers (de Contenson, 1962, 507) and other trodden earth floors were quite common. A clay-lined pit full of burned earth, charcoal and stones was also excavated in these layers (de Contenson, 1962, 509). Much the same kind of rectilinear structures built of walls with stone footings were found in Phase V A (Kuschke, 1962, 259). The remains of the superstructure of one of these buildings was found in one area; it consisted of large timbers which had been covered with vegetable matter and clay (de Contenson, 1962, 505). Many floor surfaces and some hearths were also found around the buildings of this Phase. These features were similar to the domestic structures of Phase V C at Ras Shamra so there was no change in the building tradition here between Neolithic 2 and 3.

The flint tools were also in the same tradition as before which, it should be remembered, was a little different from other sites in Syria. The main tool types were pressure-flaked tanged arrowheads and sickle blades with finely-

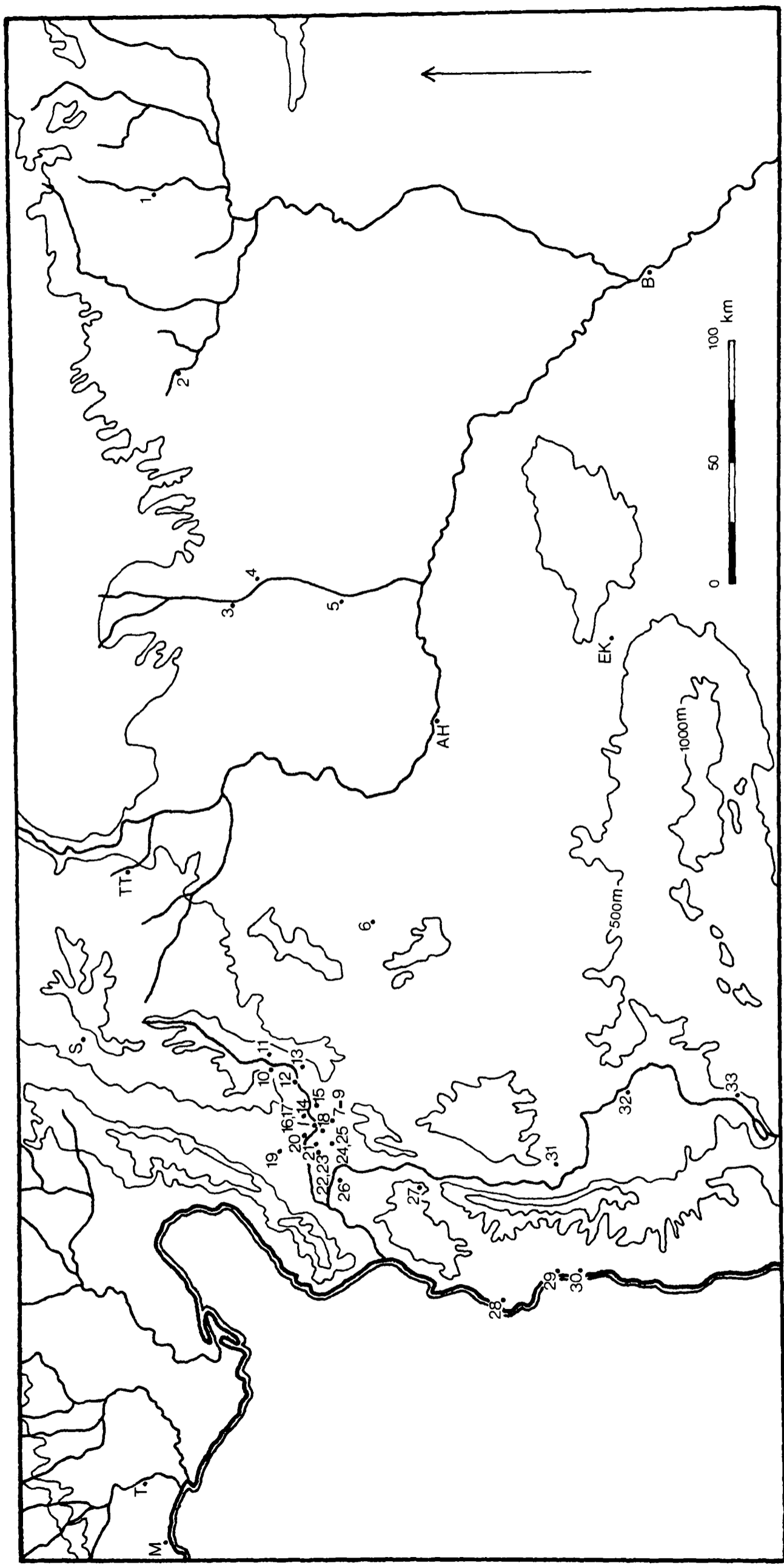


Fig. 36 Neolithic 3 North Syrian sites

FIGURE 36

Neolithic 3 North Syrian sites

1	Tell Chagar Bazar	AH	Tell Abu Hureyra
2	Tell Halaf	B	Buqras
3	Tell Hammam	EK	El Kum
4	Tell Aswad (Balikh)	M	Mersin
5	Tell Khirbet el Bassal	S	Sakcagözü
6	Judaidah Jabbul	T	Tarsus
7	Tell Judaidah	TT	Tell Turlu
8	Tell Dhahab		
9	Wadi Hammam		
10	Tell Mahmutliye		
11	Tell Turundah		
12	Tell Faruq		
13	Burj Abdal		
14	Gültepe		
15	Tell Davutpaşa		
16	Karaca Khirbat Ali		
17	Tell Qinanah		
18	Çatal Hüyük		
19	Al Kanisah		
20	Büyüktepe		
21	Tell Kurdu		
22	Tell Hasanuşagi		
23	Hasanusagi al Daiah		
24	Qaddahiyyat Ali Bey		
25	Tell Karatas		
26	Tell esh-Sheikh		
27	Janudiyeh		
28	Ras Shamra		
29	Qal'at er-Rus		
30	Tell Sukas		
31	Qal'at el Mudiq		
32	Hama		
33	Homs		

denticulated cutting edges; some of these were backed. Borers and scrapers, including at least one fan scraper (de Contenson, 1962, 505), were also made. Associated with these tools were spherical stone hammers which may have been used in flint working or in other tasks. A little obsidian was used in these phases but from which sources is not known. The flint industry gradually "degenerated" through time, to use de Contenson's phrase (1962, 510) which means that fewer of the carefully-retouched arrowheads and other pressure-flaked tools were made. This is an indication of changing needs that can probably be linked to the developments which were taking place in the economy of the site.

White plaster ware continued to be made in the lower layers of Phase V B (de Contenson, 1962, 507) but by Phase V A its manufacture had been discontinued. The shapes were typical of those found on Neolithic 2 sites, the most common being large bowls with thick walls and flat or hollow bases. The surface of these vessels was burnished and a few had been decorated with red paint.

The most important cultural change in these phases was the introduction of pottery. This new artifact is the main distinguishing feature between Phases V B and V A and Phase V C. The earliest pottery found on the site was a lightly fired crumbly ware. Sherds of this pottery were found in some quantity at the bottom of the V B layers in the Palace garden sounding (Kuschke, 1962, 261) but only a handful were found in the sounding west of the Temple of Baal (de Contenson, 1962, 507).

The most common class of pottery was a series of thick-walled vessels made of a dark fabric with grit and vegetable filler which had been fired quite hard. There were hemispherical bowls, globular hole-mouth jars, jars with a collar neck and other simple shapes (de Contenson, 1962, 503, 507). They had rounded or ring bases and a few were fitted with handles or lugs for carrying. One or two fenestrated bases were found but as the pieces were incomplete we do not know how they were used. The surfaces of all these

vessels had been partly or completely burnished and a few were decorated with incisions or even red paint. One unusual group of vessels made of the same ware was a series of "husking trays" found in Phase V A (de Contenson, 1962, fig. 25) which resembled those found in Levels II to VI at Tell Hassuna (Lloyd, Safar, 1945, 277ff). Ras Shamra is the only site in the Levant at which these unusual vessels have been discovered so it is difficult to assess their significance but they are so similar to the Hassuna examples that they must indicate a cultural connection between the two regions. Phase V A immediately precedes Phase IV C, the phase in which Halaf material occurs, so the "husking trays" may be the first indications of that north Mesopotamian influence which became so marked later on.

The third class of vessels was a group of thin-walled globular or carinated bowls and jars with short necks made from a dark fabric which again had been quite hard fired. The vessels of this fine ware were coloured black, brown or red and had been highly burnished. Some of them were incised with a dot pattern after firing. Another characteristic form of decoration found in Phase V A was "pattern burnishing" in which a series of lines had been drawn on the surface of the vessels with the burnishing tool to create herringbone and diamond patterns (de Contenson, 1962, figs. 26, 27).

The name "dark-faced burnished ware" was given by the Braidwoods (Braidwood, Braidwood, 1960, 49ff) to a broad category of black and brown burnished vessels at Tells Judaidah and Dhahab. This term has since been used by archaeologists to describe almost all types of simple burnished pottery found on Neolithic 3 sites in the Levant and in the process has lost much of its descriptive value. For this reason I propose to avoid using the phrase except when discussing material from the Amuq sites for which it was invented. Another term is still needed to describe that class of highly-burnished black and brown fine ware found at Ras Shamra in Phases V B and V A, in Amuq B and on other sites in Syria. I propose to call this distinctive pottery "dark polished ware".

One other group of sherds was found in Ras Shamra V B. These had a white

plaster coating (de Contenson, 1962, 507), perhaps to make them more water-tight. Similar sherds were found at Byblos in Neolithic 3 but neither there nor at Ras Shamra did this class of pottery continue in use very long.

There were several other classes of artifacts in these levels at Ras Shamra. Fragments of stone bowls and dishes were quite common (de Contenson, 1962, 505); these were usually made of limestone but there were basalt ones too. A number of small polished stone axes were found and also stone grinding tools such as rubbers and saddle querns. The bone industry included borers and hafts for other tools. Baked clay was used for objects other than pottery, one of which was a spoon and another a stamp seal with a simple linear design (de Contenson, 1962, 505, fig. 32). The stamp seal seems definitely to have been used to print a design on other objects. Personal ornaments made of polished stone or shell were another abundant group of artifacts at Ras Shamra.

One ^{14}C determination has been obtained for each of these two phases at Ras Shamra, 5736 ± 112 B.C. P-458 for V B and 5234 ± 84 B.C. P-457 for V A (de Contenson, 1964, 47). Since the transition from Phase V C to V B took place at or a little after 6000 B.C. Phases V B and V A lasted for most of the 6th millennium on the evidence of these dates. These are the phases that fall in Neolithic 3 for with the advent of Phase IV C the occupation at Ras Shamra takes a different course from that on other sites further south in the Levant.

Tell Sukas

Tell Sukas lies on the coast of Syria 6 km south of Jeble. It is situated on a promontory between two small bays which served as harbours in ancient times; two streams flow into these bays on either side of the site (Riis, Thrane, 1974, 8). The earliest settlement was a Neolithic village founded on a low natural rise about 4.5 m above sea level. This was covered by debris from later periods of occupation.

The remains of the Neolithic settlement were found at the bottom of a sounding made beneath the later city. The deposit was 3 m deep. The earliest occupation (period N11) consisted of traces of plaster floors and a pit 60 cm

in diameter dug into the natural subsoil (Riis, Thrane, 1974, 10ff). Above this were several layers in which remains of buildings were found (periods N10-N6). These structures were rectilinear with at least two rooms in some instances and were orientated north-south. The walls had stone footings with clay or mud-brick walls. Associated with these buildings were plastered and trodden floors, pits, hearths and much occupation debris. The upper levels (periods N5-N1) consisted of more plaster floors and other surfaces with pits and hearths but the only structure was a stone wall found in layer 63 (Riis, Thrane, 1974, 70). The remains found in these levels indicate that the area excavated was then an open space between buildings. An area of dark loam was found over part of N1 which was thought to have been formed after the Neolithic settlement was abandoned (Riis, Thrane, 1974, 80). The layer above this has been dated by a ^{14}C determination of 3960 ± 100 B.C. K-936 (Radiocarbon 15, 1973, 108) so occupation of the Neolithic settlement must have ceased well before to allow the soil to develop.

Relatively few flint tools were found at Tell Sukas, doubtless because the sounding was so small. Among them were a number of Amuq 1 and 2 arrowheads, leaf-shaped and tanged arrowheads, a few sickle blades, a burin and some flake scrapers as well as retouched blades (Riis, Thrane, 1974, 40, 18, 16). Obsidian was used throughout the life of the Neolithic settlement. Other stone artifacts were also rare but they included polished axes and adzes, basalt querns and rubbers, and bowls (Riis, Thrane, 1974, 16, 55, 36, 80, 63).

Potsherds were abundant in nearly all the layers. Many of the vessels were simple in shape, consisting for the most part of hemispherical bowls and collared jars with ledge handles for lifting (Riis, Thrane, 1974, 23). These vessels were usually black, grey or brown in colour with a burnished surface although unburnished pots were also made. Some vessels had incised, impressed or combed decoration, particularly in the later phases, and a few were painted (Riis, Thrane, 1974, 63, 68, 19). Others had a plaster coating and one was pattern burnished (Riis, Thrane, 1974, 52, 18). White ware was also present

throughout and again the vessels were simple in shape. The two principal types were open bowls with splayed sides and hemispherical bowls some of which had ring bases (Riis, Thrane, 1974, 26, 77); a few of these vessels were painted.

The buildings and artifacts from Tell Sukas have much in common with Ras Shamra, particularly in Phase V B. The site thus appears to have been first occupied early in the 6th millennium and then continuously inhabited until quite late in Neolithic 3. Tell Sukas may be ascribed to the North Syrian group although it has certain traits such as impressed and combed decoration on pottery in common with Tabbat el Hammam and other sites further south.

Qal'at er-Rus 6 km north of Jebel may also have first been occupied in Neolithic 3 since plain burnished and pattern burnished vessels were found in the lower levels (Ehrich, 1939, 10, 18).

Hama

The River Orontes is deeply incised into the Syrian plateau at Hama. The ancient mound lies on a terrace in the valley beside the river in the heart of the modern town. The site was excavated from 1932 to 1938 but only the upper levels were cleared to any extent. A Roman cistern was cleaned out and below this a sounding was dug to the sterile subsoil (Fugmann, 1958, 12). The sounding took the form of a circular shaft 1.5 m in diameter which enabled the excavators to ascertain the stratigraphic sequence but was too narrow for much to be learned about the nature of the earlier settlements (Fugmann, 1958, pl. IX).

This deep sounding, G 11 X, was sunk in the northern sector of the mound near the river (Fugmann, 1958, fig. 9). It was found that the earliest settlement of Period M was established on the natural subsoil and that the deposit was 6 m deep. Such a considerable accumulation of debris suggests that the settlement was substantial but we do not know, of course, how extensive it was. Some of the layers were ashy and others pebbly. These

were presumably the remains of occupation debris and floors. There was also a little painted plaster from buildings, the only indication of substantial structures.

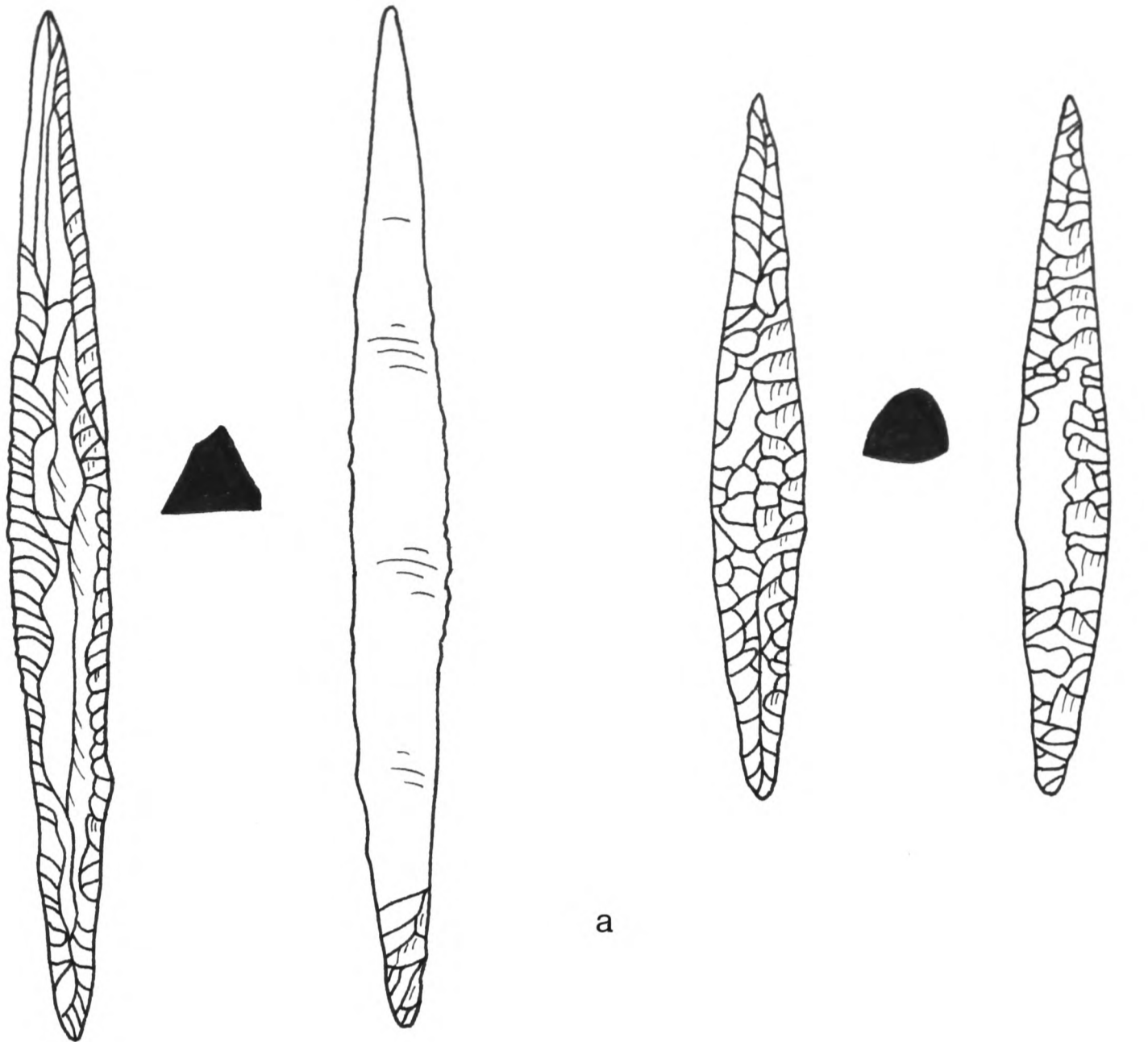
The finds were meagre simply because the sounding was so small. Pottery of two sorts was found throughout Period M. One was a thick coarse ware and the other a finer ware which had been coloured red or black and burnished (Ingholt, 1940, 11); some of these sherds were also incised. The only other finds reported were flint and obsidian blades.

The layers of Period M were stratified beneath those of Period L which contained Halaf pottery. Its position in the stratigraphic sequence and the nature of the pottery indicate that the settlement of Period M was occupied in Neolithic 3 and can be equated with Ras Shamra V B and V A.

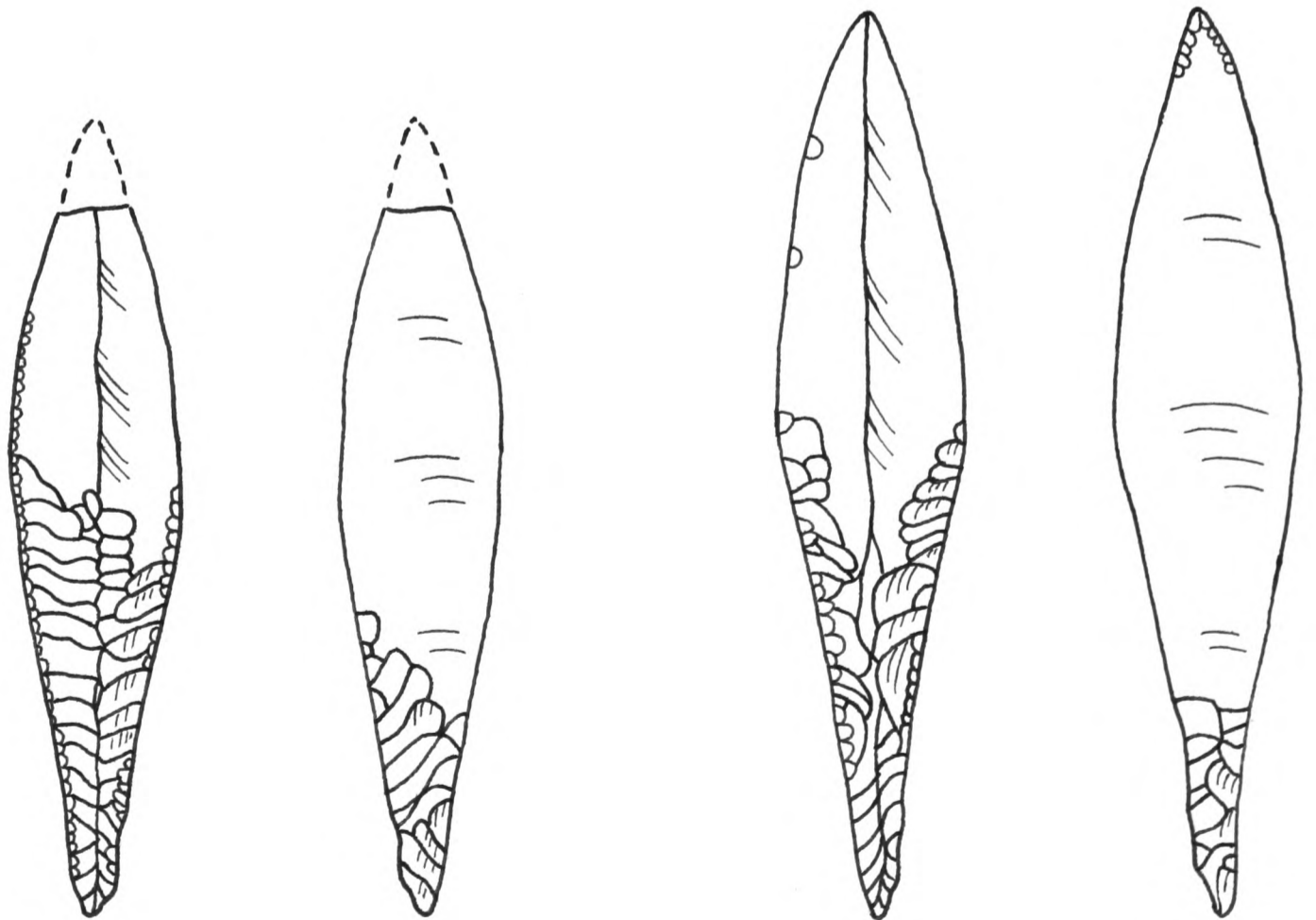
Homs

A series of flints was collected from the surface of a prehistoric site near Homs and is now in a private collection (de Contenson, 1969c, 63). They formed a homogeneous group and can be quite closely dated on their typology. They consisted of eight arrowheads and eight blank blades. The arrowheads were all Amuq points, that is long pointed blades of triangular cross-section with a stem retouched by pressure-flaking to form a blunt point. Cauvin has defined two types of Amuq point, type 1 shaped like a willow leaf with retouch over much of the ventral and sometimes also the dorsal surfaces and type 2 made on a broader blade with one end narrowed by retouch to form a tang (Cauvin, 1968, 49, 53). Both types were present in the Homs collection (Fig. 37).

Amuq points have been found in late Neolithic 2 contexts such as the later aceramic Neolithic levels at Abu Hureyra and in Ras Shamra V C (de Contenson, 1969c, 65). They are more common in Neolithic 3 recurring in both Ras Shamra V B and Néolithique Ancien and Moyen at Byblos as well as in Amuq A and B (Braidwood, Braidwood, 1960, figs. 30, 60, 374; pl. 65). Thus the Homs site may have been occupied in Neolithic 2 but it is more likely it was



a



b

Fig. 37 Homs - Amuq points (after de Contenson)

a - Amuq 1 b - Amuq 2

inhabited in Neolithic 3 sometime during the 6th millennium B.C.

Qal'at el Mudiq

Qal'at el Mudiq lies north-west of Hama overlooking the valley of the Orontes from the east. Numerous flint tools and scraps of obsidian have been found on the lower slopes of the castle mound which probably came from the earliest levels of occupation at the site. The few diagnostic tools were an Amuq arrowhead and several segmented sickle blades (Dewez, 1970, pls. II:5, III:1-4). Most of the flakes and blades found had been struck off prismatic cores. This scanty information would suggest that Qal'at el Mudiq was occupied during the Neolithic, probably in stage 3.

Janudiyeh

The site of Janudiyeh is situated on the heights above the west bank of the Orontes north of Jisr esh-Shaghur. Both flint tools and potsherds have been collected from the surface and it is possible to ascertain from these when the site was occupied. Many of the flints were Amuq arrowheads of both types 1 and 2 while there were also retouched blades, a sickle blade and flake scrapers, among them several discoids (de Contenson, 1969c, 68ff).

The sherds all belonged to vessels of simple shapes such as hemispherical bowls and jars with hole-mouths or collared necks (de Contenson, 1969c, 70). Almost all were dark in colour with a burnished surface while a few had incised decoration.

The flints and the pottery are similar to the material found at Ras Shamra in Phase V B so the site was occupied quite early in Neolithic 3. The site itself is unusual as it is at an elevation of about 500 m in what was then forested, hilly country. There is cultivable land nearby so Janudiyeh could have been either an agricultural or a pastoral settlement.

The extreme north-west corner of the Levant is today the Turkish province of the Hatay. The Amanus Mountains on the west separate most of the region

from the Mediterranean. Behind them to the east lies the Amuq plain and here the Orontes after flowing north through Syria turns south-west to meet the sea. Several roads pass from the plain through low hills to the east up to the Syrian plateau so that geographically the region is more an extension of Syria than a part of Turkey although there is also an easy route to the north up the valley of the Karasu. The fertile plain is dotted with ancient settlements and several of these have been shown in excavations to have been occupied as early as Neolithic 3. The remains of the Neolithic settlements are always found to be well below the present level of the plain because an enormous amount of alluvium has accumulated since the lower course of the Orontes was blocked in the earthquakes that destroyed ancient Antioch. It is known that the region has been inhabited since the lower Palaeolithic from discoveries made in the hills around the Amuq plain (Hours et al., 1973, 242) but sites dating from Neolithic 1 and 2 have not yet been found there. Any settlement sites of this date founded on the plain itself would have subsequently been buried.

Much of our information about the sequence of Neolithic occupation on the Amuq plain comes from the excavations of the Oriental Institute of Chicago University at Tell Judaidah and Tell Dhahab both of which lie in the south-eastern corner of the the Amuq plain near Rehanli. The Neolithic deposits at Tell Judaidah, designated level XIV, were divided on the typology of the pottery into two phases, A and B, both of which fall in Neolithic 3. The only Neolithic occupation at Tell Dhahab was a short-lived settlement of phase A (Braidwood, Braidwood, 1960, 46).

Tell Judaidah

The lowest layers reached at Judaideh were below the water table which seriously impeded the excavation and limited the information that could be recovered from the deep sounding made there. No buildings were found in phase A though they may have existed (Braidwood, Braidwood, 1960, 47).

Remains of rectilinear buildings with stone foundations and perhaps mud-brick or mud walls were found in the phase B layers above (Braidwood, Braidwood, 1960, 68).

The chipped stone industry²³ was of the same character throughout phases A and B. Most of the tools kept for study were made on blades struck from single-ended pyramidal or conical cores, the by-products of which included crested blades and core tablets. The most abundant tools seem to have been arrowheads and sickle blades (Payne, 1960, 525, 526). Many of the arrowheads were of the types called Amuq 1 and 2 by Cauvin. These were mostly quite long, long enough to be called javelin heads in the published account, although on ethnographic analogy all could have been used to arm arrows. They were extensively pressure-flaked on the upper surface and had some retouch on the back at the tip and tang. Most of the type 2 arrowheads had swollen tangs. Some of the arrowheads though still tanged were much shorter than these and a few were finished with abrupt retouch.

All the sickle blades were segmented and usually about 3.5 cm in length. Most of these blade sections had been snapped off at the required length although a few were made by the notch technique. The cutting edge of many of the sickle blades had been slightly retouched but they were not backed. Many still retained traces of the mastic which secured them in the sickle.

Among the other tools were borers on blade segments and single-blow, angle and dihedral burins. There were also end-scrapers on blades and flake scrapers some of which were discoid (Payne, 1960, 527). Obsidian was quite plentiful as a raw material and was worked on the spot, the evidence for this being pyramidal cores, crested blades and core tablets (Payne, 1960, 528, 529). Not only were there obsidian blades and flakes but also small borers and arrowhead tangs. One piece has been analysed from Judaidah which was found to have come from the Çiftlik source (Renfrew et al., 1966, 65). The chipped stone industry is in general quite similar to what we know of the material from Ras Shamra V B and V A although there are differences in the

types of sickle blades preferred at each site and the quantities of obsidian present, a function of ease of communication with and distance from the sources.

The other stone tools at Judaidah were both abundant and varied. Trapezoidal stone axes and adzes were particularly common (Braidwood, Braidwood, 1960, 58, 87). These were quite thin and had straight sides with a bevelled cutting edge. All were ground and partly polished. They were made in both large and small sizes so would have been suitable both for preparing rough timber and shaping wooden artifacts. Disc rubbers were abundant while hammers and slingstones were also present (Braidwood, Braidwood, 1960, 55, 61, 86, 90). One macehead was found in the phase B levels, a grooved stone in phase A and several stamp seals in both phases (Braidwood, Braidwood, 1960, 61, 63, 90, 94). The stamp seals were incised with geometric patterns which in most cases consisted of criss-cross lines. Spindle whorls were made from both stone and baked clay while circular stone dishes were also used. These were usually ground and polished and at least one had a spout for pouring (Braidwood, Braidwood, 1960, fig. 32, 8). Decorative stone objects were also made, among them two studs, pendants and beads. The latter included several butterfly beads of the kind found in such abundance at Abu Hureyra in both Neolithic 3 and Neolithic 2 contexts (Braidwood, Braidwood, 1960, figs. 36: 5-7, 67:7). The usual bone awls, needles and spatulae were also used at the site (Braidwood, Braidwood, 1960, 65-67, 97-99).

Three principal types of pottery have been distinguished from Judaidah although there were small quantities of several others in phase B. The shapes of the vessels were quite simple, consisting for the most part of globular hole-mouth jars, some collared jars and bowls with flat bases. The most common type was dark-faced burnished ware, a group of thick-walled medium-fired vessels made of clay tempered with grit, sand and some organic matter (Braidwood, Braidwood, 1960, 49ff). When fired the core was usually dark grey or black. The surface colour of these pots varied from buff to

black but most of them were in shades of brown. All had been roughly burnished. Surface decoration was limited to jabs and incised shell or fingernail impressions on a few pots. Some jars had ledge handles for lifting. In phase B certain vessels were made with thinner walls and given more even surface treatment (Fig. 38). Some of these pots were decorated with pattern burnish (Braidwood, Braidwood, 1960, 77). Carinated bowls were made for the first time in phase B which, together with a few other pots, could be classed as dark polished ware.

The second type of pottery was coarse simple ware, a group of thick-walled vessels of a softer fabric with much straw filler (Braidwood, Braidwood, 1960, 47ff). The surface colour of the pots ranged from light buff to orange and brown. The third type was washed impressed ware, a series of vessels with the varied surface colours of the other varieties but which had been partly covered in thin red paint (Braidwood, Braidwood, 1960, 52ff). The rims were painted red and often burnished with a band of impressed decoration below usually done with the edge of a shell.

The pottery was a little more elaborate in phase B with more varied surface treatment (Braidwood, Braidwood, 1960, 69). A number of vessels were coated with red slip and burnished, a type of finish quite rare in phase A. A brittle painted ware could be distinguished, the vessels of which were painted with lines of reddish paint on a burnished surface (Braidwood, Braidwood, 1960, 80ff). Other pots were decorated more extensively with incised lines and shell-impressed patterns.

Amuq A and B pottery was found in great quantity at Judaidah which enables us to see just how varied in fabric and decoration the finished product was. The pots were probably made by many individuals using methods that would have been irregular and subject to uncertainty. The vessels were probably fired in bonfires which would account for the uneven colours and textures of the fabrics. Because the pottery was made in this way the result was bound to vary considerably from site to site. One cannot use pottery at

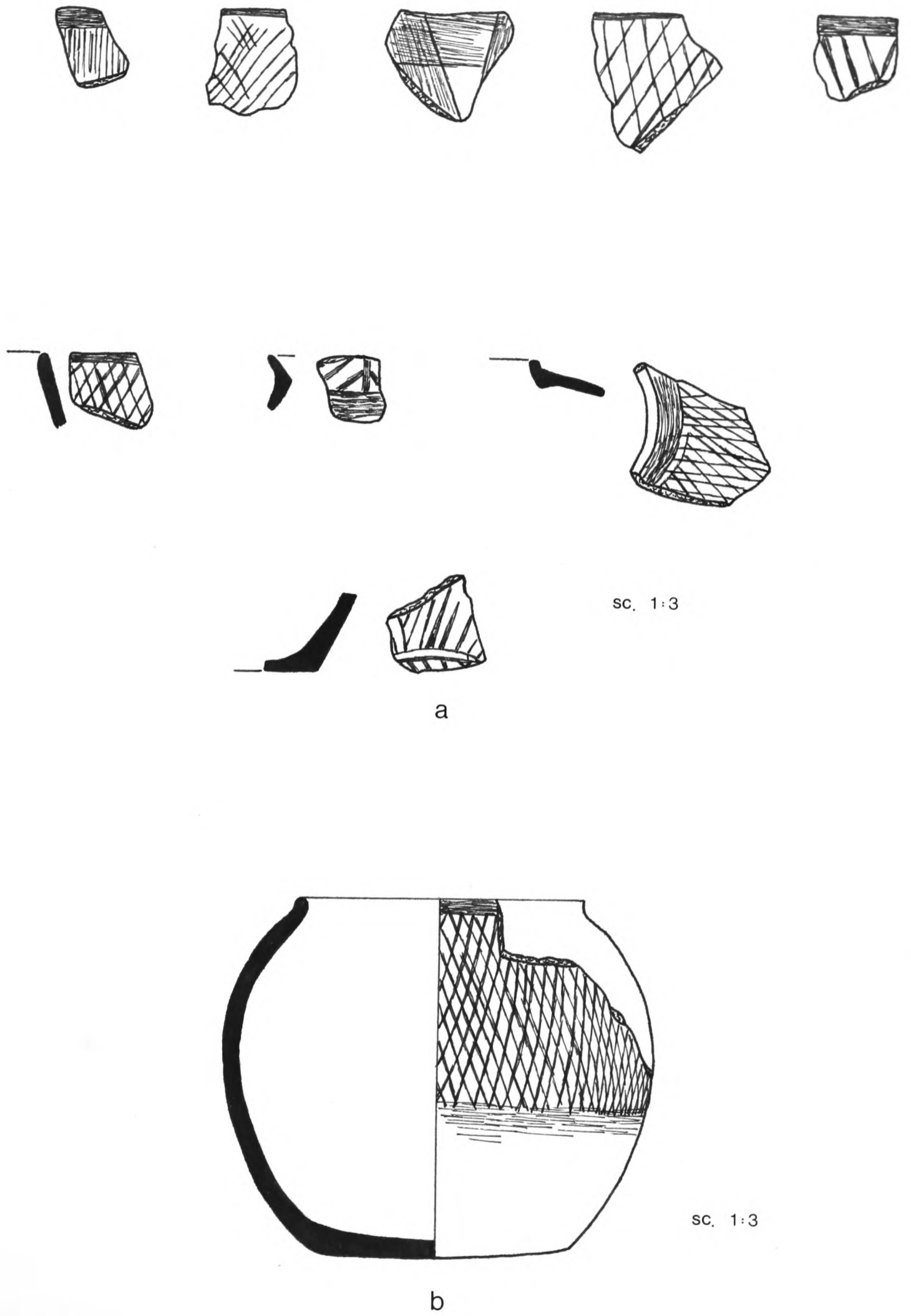


Fig. 38 Pattern-burnished vessels
 a - Tell Judaidah (after Braidwood and Braidwood)
 b - Byblos (after Dunand)

this early stage, therefore, for a precise chronological or cultural comparison between sites in the way one can with Halaf and later stages. That being said, it is still possible to make certain general comparisons between the pottery of different sites in Neolithic 3.

The Amuq A and B dark-faced burnished ware bears a general resemblance to the burnished wares of Ras Shamra V B and V A. Dark polished red and black ware, so abundant at Ras Shamra, is, however, quite rare at Judaidah. The pattern burnished vessels are generally similar at both sites. The Amuq coarse simple ware has some features in common with the unburnished grosser vessels at Ras Shamra but the washed impressed ware is virtually absent so far as we know. Painted pottery seems to have been more common in the Amuq than at Ras Shamra.

Judaidah and Ras Shamra are separated from each other by the Jebel Akra (Mount Cassius) massif. This geographical separation is reflected in the cultural differences in the chipped stone industry and pottery that we have noted between the sites. One would also point out that the stamp seals, butterfly beads and other carefully-worked stone objects found at Judaidah are virtually absent at Ras Shamra and that polished stone axes are much less common at the latter site. Nonetheless the chipped stone industries at both sites are fundamentally of the same tradition both in core technique and tool types. A good deal of the Judaidah pottery and some of the other objects can also be paralleled at Ras Shamra. One may, therefore, place both sites in the same cultural group while taking note of the differences that are apparent in the two assemblages. If we knew more about the deposits of these two sites and others in their vicinities we might be able to draw finer cultural distinctions but that cannot be done at present.

The deposits of Amuq phases A and B were stratified beneath the First Mixed Range and phase C in which the earliest Halaf material was found (Braidwood, Braidwood, 1960, 114, 138). Their stratigraphical position and the typological parallels with Ras Shamra V B and V A place Amuq A and B

firmly in Neolithic 3. No ^{14}C determinations have ever been made on samples from Judaidah so the duration of phases A and B cannot be determined with certainty. The substantial nature of the deposits suggests that the site was occupied for much of Neolithic 3, that is for most of the 6th millennium B.C.

The Oriental Institute team surveyed all the other mounds in the Amuq plain. From the sherd collections they made they estimated that several other sites had been occupied in the Amuq A and B phases, Six mounds, Gültepe, Tell Kurdu, Tell Hasanuşagi, Qaddahiyyat Ali Bey, Tell Davutpaşa and Karaca Khirbat Ali were believed to contain Neolithic 3 deposits (Braidwood, 1937, 25, 29, 30, 32, 36, 37) and ten others, Al Kanisah, Büyüktepe, Tell Turundah, Tell Mahmutliye, Burj Abdal, Tell Faruq, Hasanuşagi al Daiah, Tell Karatas, Çatal Hüyük and Tell Qinanah were thought possibly to have been occupied then (Braidwood, 1937, 22, 24, 26, 27, 29, 31, 37) on the evidence of the surface material.

The edge of the Amuq plain near Tell Judaidah is marked by limestone hills cut by several wadis. A deep shelter in the Wadi Hammam was excavated by O'Brien at the same time that the Oriental Institute was investigating the tells on the plain. The shelter and a little of the terrace were shown to have been occupied in the Neolithic, the deposits extending over an area of about 120 sq m (O'Brien, 1933, 174). They consisted of layers of dark soil and ashes; one hearth was found but no other structures were noted. Several of the occupation layers were separated by debris which had fallen from the roof indicating that the cave could not have been inhabited continuously. Nevertheless the Neolithic material remains were homogeneous and belonged to a single cultural phase.

The Wadi Hammam shelter produced a varied collection of finds though no great quantity of any particular type apparently. Among the flints were an Amuq 2 arrowhead, points and retouched blades or knives. There was also a disc core or scraper and a flint hammer as well as several obsidian blades (O'Brien, 1933, pl. 10). A number of small greenstone axes and chisels were

found in the Neolithic deposits and also a stone pestle. Slender points were the only bone tools reported. At least four carefully fashioned stone beads or pendants were found, one of which was a butterfly bead (O'Brien, 1933, pl. 0, fig. 2, 4) similar to examples from Abu Hureyra and also probably made of serpentine. Two of the pendants with incised designs (O'Brien, 1933, pl. 0, fig. 4, 3, 10) may have been used as stamp seals.

A few human bones of both babies and adults were found in the shelter (O'Brien, 1933, 177). These may have been all that was left of intentional burials which had subsequently decayed in the soil or been disturbed.

Pottery was quite abundant in the shelter and at least two wares were represented. One was a coarse buff ware with straw temper. Parts of at least two vessels were found in this ware, one a hole-mouth bowl with incised rim decoration and the other a collared jar with a strainer incorporated in the neck (O'Brien, 1933, figs. 5:12; 6). The second ware was coloured red, brown or black on the surface and highly burnished. Hole-mouth pots, carinated bowls and collared jars were all made in this ware (O'Brien, 1933, 176, 177). Several were decorated with incised zig-zags or patterns of short incisions usually just below the rim.

The flint tools, other stone artifacts and the pottery can all be paralleled closely in the Amuq A and B deposits at Tells Judaidah and Dhahab nearby. The Wadi Hammam shelter was thus occupied during Neolithic 3, perhaps at the same time as the tells. It would seem, therefore, that there was intense occupation of this corner of the Amuq plain, indeed of the whole lower Afrin drainage, during the 6th millennium B.C. The size of the Wadi Hammam shelter and the nature of the occupation deposits within it suggest that it was inhabited by a few families from time to time over several centuries. The variety of artifacts found indicates that it was a settlement site rather than a temporary camp. Tell Dhahab nearby was probably a small village while Tell Judaidah was a much larger settlement. Thus groups of different sizes were occupying sites close together in Neolithic 3.

Tell esh-Sheikh

One other Neolithic site, Tell esh-Sheikh, has been excavated in the Amuq plain. It lies a little south of Jisr el Hadid and west of the present course of the Orontes. When Woolley excavated Tell Atchana he found that the city was first settled in the Early Bronze Age. Seeking to obtain a record of earlier periods of occupation than this in the Amuq plain he excavated Tell esh-Sheikh because the surface material indicated that the site was older than Atchana (Woolley, 1953, 22). The site was probably a large mound originally but most of it has been buried under the alluvium of the plain. 12 levels of occupation could be distinguished, 11 of which had affinities with Halaf and northern Ubaid (Woolley, 1950, 64). The settlement of Level XII had been founded on the natural subsoil and was the earliest occupation on the site. It consisted of rectilinear mud-brick buildings with associated floor levels.

The excavation has never been fully published so that we do not know how varied the artifacts were. From the little material I have seen in Ankara and Antakya it would seem that the chipped stone industry of Level XII consisted of Amuq 2 type arrowheads, abruptly-retouched tanged arrowheads, segmented backed sickle blades, single-blow burins, end-scrapers on blades, discoid and side-scrapers. These artifacts are broadly comparable with those found in Amuq A and B although the sickle blades are a slightly later type which may have come from the upper levels at Tell esh-Sheikh. The pottery was a fairly uniform hard-fired ware with a dark fabric incorporating a little sandy filler. The vessels were mostly simple, rather heavy bowls with thickened plain rims. Their surfaces had been coloured black or red and some pots had been burnished. This pottery is related to Amuq A and B dark-faced burnished ware although the fabric is a little different from most of the vessels at Tell Judaidah.

The settlement at Tell esh-Sheikh XII is stratified beneath the earliest Halaf deposit of Level XI. Since the affinities of the material remains are with Amuq A and B this settlement was occupied in Neolithic 3. The pottery and flints are more closely related to Amuq B at Tell Judaidah which suggests

that Tell esh-Sheikh was not occupied until fairly late in Neolithic 3.

The Amanus Mountains mark the western limit of the North Syrian group of Neolithic 3 sites. Beyond the mountains lies the Cilician plain, a region which, like the Amuq, is clearly defined geographically and rich in visible remains of ancient sites. Neolithic settlements have been revealed in excavations at the base of two of these, Mersin and Tarsus. It used to be thought that these sites were closely related to contemporary settlements in the Amuq and at Ras Shamra. Archaeologists joined them together with the North Syrian sites I have discussed in a "Syro-Cilician" group (Braidwood, 1955, 74). The excavations which have taken place on the Konya plain since 1961 have set the Cilician sites in a new perspective. It can now be seen that while culturally they share certain features with the North Syrian settlements they have much in common with the Anatolian sites of Çatal Hüyük East and West and Can Hasan situated on the northern side of the Taurus, a link which Mellaart has recently emphasised (1975, 125).

Mersin

Mersin was never excavated to the natural subsoil since the earliest deposit lay below the present water table. The lowest levels reached, XXXIII to XXVII, were designated Lower Neolithic by Garstang (1953, 13). A date of 6000 ± 250 B.C. W-617 was obtained from a charcoal sample taken from one of these levels in 1955 (Radiocarbon 2, 1960, 183). This date should be of the right order of magnitude for such a deposit even though the determination was made so long ago. Above these levels were the Upper Neolithic levels XXVI and XXV (Garstang, 1953, 27). The settlements of these levels were occupied during approximately the same period as the Neolithic 3 North Syrian sites. It is possible that the Proto-Chalcolithic level XXIV and the Early Chalcolithic levels XXIII to XX were also contemporaneous with the latter part of Neolithic 3.

Remains of straight walls built of stones from the river which flows beside the site were found in the Lower Neolithic levels but no complete structures could be made out (Garstang, 1953, 14). Two rectilinear buildings with stone walls and cell-like rooms were excavated in Level XXVI (Garstang, 1953, fig. 12) but their function was uncertain.

The chipped stone industry at Mersin was quite homogeneous throughout the earlier levels. Most of the tools were made of obsidian and only a few from flint. The use of large quantities of obsidian is one important difference between Mersin and the North Syrian sites. Mersin is quite close to the obsidian sources around Aksaray so the inhabitants could easily obtain it. The considerable quantity of obsidian found at Mersin indicates that the inhabitants were in frequent contact with the plateau by way of the Cilician Gates.

Most of the tools were made on blades struck from pyramidal cores.²⁴ The arrowheads which were particularly numerous were usually long and extensively retouched by pressure-flaking (Garstang, 1953, 15). These arrowheads often had tangs with slight shoulders but on a few the tang was not separated from the blade, a type similar to Amuq 1 points. Some arrowheads were leaf-shaped and much shorter. The other common obsidian tools were borers on blades, backed blades and flake scrapers. Sickle blades were made on flint obtained locally. One or both edges of these were lightly retouched but usually they were not backed.

The chipped stone industry of levels XXIV to XX was of the same character though the proportions of arrowheads, awls and scrapers diminished markedly (Garstang, 1953, 50). The assemblage from these levels was composed principally of plain and retouched blades. Flint sickle blades were also used in greater numbers.

The chipped stone industry of the lower levels at Mersin bears a general resemblance to the Neolithic 3 industry from Tell Judaidah. The core technique and use of pressure-flaking are similar while Amuq 1 arrowheads are common to

both assemblages. In other aspects there are important differences in detail between the two. The usual form of Mersin tanged arrowhead is rarely found at Tell Judaidah. The Mersin sickle blades are normally complete blades while those at Judaidah are segmented. Burins are found in some numbers at the latter but are virtually absent at Mersin.

Most of the important features of the Mersin industry can be seen in the assemblage from Çatal Hüyük East although here again there are certain tools common at the latter which are not present at Mersin. Both industries are based on the production of blades from pyramidal obsidian cores. All the Mersin types of arrowhead, awls and scrapers are found in abundance at Çatal Hüyük (Bialor, 1962, 69ff) though not the sickle blades. Very few sickle blades could be distinguished at Çatal Hüyük, perhaps because they were made of obsidian. The Mersin flint sickle blades appear to be a specific Cilician type in this period.

If we consider the pottery from Mersin we find that, like the flints, there are certain general similarities between it and the Amuq material but that the closest parallel is the pottery from the plateau sites. There were two classes of pottery in the lowest levels at Mersin, a fine burnished ware and a coarse ware (Garstang, 1953, 18, 19). The fine ware was quite hard fired and usually had a brown or black surface although some vessels were buff or red. The coarse ware was more plentiful; this had a softer buff or brown fabric with straw and grit filler. Its surface was usually brown or grey in colour and smoothed not burnished. Hole-mouth pots, bowls and dishes were made in both wares and a few carinated vessels in the fine burnished ware. The vessels had both flat and rounded bases. Some pots were decorated with incised patterns.

In levels XXVI and XXV larger globular jars with collared rims were made (Garstang, 1953, 35ff). Some vessels were burnished to a high gloss and a few pots were painted for the first time. Their surfaces were covered with designs in red paint which was sometimes applied over a slip. In levels

XXIV to XX the burnished and coarse wares continued to be made but the red painted vessels were decorated with more elaborate designs (Garstang, 1953, 58ff, 78ff).

The burnished ware at Mersin is quite like the dark-faced burnished ware at Tell Judaidah and the highly burnished vessels also resemble the North Syrian dark polished wares. Pattern burnish, that distinctive decoration on some North Syrian pottery, is not found at Mersin, however. The coarse ware at Mersin again is somewhat like the Judaidah coarse simple ware though not so heavy but the Judaidah washed impressed ware is not found at Mersin. Another important difference between the pottery from the two sites is that nothing like the Mersin painted ware of level XXV and later is found at Judaidah. The patterns of the Mersin ware are much bolder than the Judaidah painted pottery while the use of a cream slip as background is unknown in the Amuq.

Plain burnished pottery and some lighter buff wares very similar in shape and finish to those found at Mersin were made at Çatal Hüyük East, Çatal Hüyük West and Can Hasan (Mellaart, 1965, 136; 1967, 216, 217; French, 1966, 118, 120); the only difference was that incised decoration was hardly ever used on the plateau sites. The Mersin coarse ware is not found on the plateau and since it is a little different to the Tell Judaidah coarse simple ware it seems that this pottery is specifically Cilician. The Mersin painted pottery of level XXV and later can be closely paralleled across the Taurus since vessels of similar shape and decoration were made at Çatal Hüyük West, particularly the "Çatal Hüyük West ware", and Can Hasan in levels 3 and 2B (Mellaart, 1965, 135ff; French, 1966, 118, 120).

The pottery at both sites was painted red both on a plain background and a cream or white slip as at Mersin. The main difference in the painted pottery of the two areas is that the designs on the Çatal Hüyük West and Can Hasan pots were often more elaborate than at Mersin, particularly in the later levels at both sites.

Insufficient is known about the buildings and other artifacts from Mersin for these to be usefully compared with sites in neighbouring regions but the flint tools and pottery are varied enough for us to deduce their cultural relationships. While some of this material is quite like flints and pots made in the Amuq and on other sites in the North Syrian group it resembles much more closely the artifacts used on contemporary sites on the southern Anatolian plateau. Certain artifacts which do not match either plateau or Amuq material are of local Cilician inspiration. When thought of in human terms these cultural comparisons suggest that the inhabitants of Mersin had a local tradition of making objects of everyday use. They also maintained close contact with the inhabitants of the southern Anatolian plateau from where they obtained their obsidian. Some more general relationship existed between them and their contemporaries to the east of the Amanus.

The same observations may be made about the site of Tarsus situated about 26 km north-east of Mersin. The Neolithic and Chalcolithic levels here were sounded in a small trench from which relatively little material was recovered; the bottom of the site was not reached because, as at Mersin, it lay beneath the present water table (Goldman, 1956, 3). The pottery from Tarsus²⁵ matched that from Mersin very closely throughout the lower levels, as might be expected since the sites are so close together. The dark burnished wares at Tarsus were rather finer than in the Amuq, a trait which the Mersin pottery shares. At least one pattern burnished sherd was found here, now in the Peabody Museum.

Tarsus and Mersin are the only two Neolithic sites excavated on the Cilician plain. Their material remains suggest that both enjoyed a flourishing local culture that also closely reflected the Anatolian sequence. The Cilician sites in Neolithic 3, though sharing certain features with the North Syrian settlements, formed a distinct group on their own.

Material comparable to that from Ras Shamra and Tell Judaidah in Neolithic 3 has been found at several sites north and east of the Amuq.

I will now review the evidence from these sites to see whether or not they belong within the North Syrian group in Neolithic 3.

Sakcagözü

The Rift valley extends northward from the Amuq plain as far as Maraş where it ends. Some 90 km up the valley from the Amuq there is a marshy area which forms the watershed between the Karasu and Aksu rivers. The mounds at Sakcagözü are to be found a little to the east of this section of the Rift valley. The principal excavations conducted at the site were carried out by Garstang in 1908 and 1911. He dug two soundings, A and Z, in the north-east slope of the mound of Jobba Hüyük and discovered at the bottom traces of a prehistoric settlement (Garstang et al., 1937, 121ff). This was founded on the natural subsoil and its remains comprised the three lowest strata 11 to 13, designated Period I (Garstang et al., 1937, 128). Period I was stratified beneath the remains of Period II in which Halaf material was found. Further excavations were carried out at the site in 1949 in which Period I levels were reached in the south-east sector of the mound (du Plat Taylor et al., 1950, 55).

The structures of Period I consisted of hearths, small sub-circular chambers built partly of stone and traces of a lime plaster floor (Garstang et al., 1937, 121, 127). The published section and plan also show rectilinear structures at the bottom of sounding Z which belonged to Period I (Garstang et al., 1937, pl. XXII). Several pits and ditches but no buildings were found at the bottom of the trench in the south-east sector (du Plat Taylor et al., 1950, 74). We do not know enough about these pits and structures to deduce their function but the buildings are not inconsistent in shape with those on contemporary sites further south.

Both obsidian and flint artifacts were found but in small quantities only (Garstang et al., 1937, 133). The flints were mostly flakes from which it is not possible to make comparisons with material from other sites but a great deal of pottery was recovered in Period I which does permit one to draw

conclusions about its affinities. Of the three wares which could be distinguished the most abundant was a well-fired grey gritty ware with a grey or black burnished surface (Garstang et al., 1937, 132ff). Some of this pottery carried incised patterns of chevrons, cross-hatching or dashes usually near the rim. The incised patterns on certain vessels had been filled with white clay. Other vessels had been pattern burnished in zig-zag or lattice patterns. The second ware which was much less common had a buff or brown fabric and was decorated with lines of red or black paint. The third was a plain coarse ware of variable colour. The vessels in this group were usually made in the simplest shapes with thick walls. The shapes of the other vessels were a little more varied. There were globular jars with hole-mouth or everted rims and also collared jars. Many of the dark burnished and incised vessels were dishes or bowls with flat bases, splayed straight sides and a plain rim.

The painted and plain wares at Sakcagözü are somewhat similar to the washed impressed ware and coarse simple ware at Tell Judaidah for example or the painted and coarse wares at Ras Shamra. The grey or black burnished ware, while sharing certain general traits of colour and finish, is different from that found on more southerly sites. The flat-bottomed dishes with splayed sides typical of Sakcogözü occur rarely if at all further south while the distinctive carinated bowls found at Ras Shamra, in the Amuq and, as we shall see, Tell Ramad, are not known on the northern site. Some of the incised patterns with their white filling are characteristic of Sakcagözü, the bands of decoration forming a cross on the bottom of some dishes for example (Garstang et al., 1937, pl. XXIV, 9), but are not found on the southern sites. Period I at Sakcogözü has for long been linked with Tell Judaidah, Ras Shamra and other sites over a wide area stretching from Cilicia through north Syria into Mesopotamia because it was thought that all shared a common pottery tradition typified by dark burnished wares and other general cultural characteristics (Seton Williams, 1948, 35ff; Braidwood, Braidwood, 1960, 502, 506; Mellaart, 1975, 225, 231). I do not think that this view can be maintained

any longer. Enough sites have been excavated now for us to determine regional cultural variations and so subdivide the older broader groupings. Period I at Sakcagözü is characterised by dark burnished pottery vessels of simple shapes and the deposits are stratified beneath Halaf levels. This is sufficient to indicate its contemporaneity with Neolithic 3 in the Levant. On the evidence of the pattern burnished pots one could even equate it with Amuq B and Ras Shamra V A, that is quite late in Neolithic 3. Yet, as we have seen, while Sakcagözü has certain general cultural traits and a few detailed ones in common with those sites the differences are still quite marked. For that reason I do not think Sakcagözü can properly be included within the North Syrian group of Neolithic 3 sites even though it has much in common with them. It is best thought of as a site at the border of the North Syrian group which has certain features more typical of the region beyond.

Tell Turlu

Tell Turlu lies about 45 km east of Gaziantep on the road to Nizip (Watson, 1965, 70). It is a substantial mound with a long sequence of late prehistoric occupation as well as other material. Perrot sounded the site in 1962 and established that the earliest settlement of levels 1 and 2 had been founded on the natural subsoil (Mellink, 1964, 156). These levels were stratified beneath levels 3 and 4 from which Halaf pottery was recovered. The houses in levels 1 and 2 and also levels 3 to 6 above were circular and built of stone with silos nearby.

The excavation has not been published so that we do not know the full range of what was found there. I have seen a little of the material in the Gaziantep Museum and so can describe some of the pottery and flints. The main class of pottery in levels 1 and 2 was a buff or brown coarse ware with straw filler, some vessels of which were lightly burnished. A few vessels of this buff ware had been painted with red and black lines. There was also a quite hard fired dark ware coloured grey, black or occasionally red and then

well burnished (Perrot, 1968, col. 407). Hole-mouth jars or jars with everted rims and collared jars were made in both wares; some of these vessels had flat bases.

The stone artifacts included a number of polished greenstone axes as well as many flint and obsidian tools. Most of the flint tools were made on broad blades and large flakes. Flake side-scrappers and end-scrappers on blades were quite common as were borers on blades. Some of the sickle blades had nibbled edges with no other retouch but most were segmented and backed with abrupt retouch. The assemblage included a few pressure-flaked tanged arrowheads.

The dark burnished pottery at Tell Turlu may be compared with that in Amuq A and B but we must remember that this kind of pottery was in use on sites over a wide area for a long period. The coarse buff ware also may be compared with Amuq types though it is more like the plain ware at Sakcagözü. The flints, with the exception of the arrowheads, differ from Amuq A and B in the use of large flakes and broad blades as well as segmented sickle blades, a trait that is found in the Amuq in later phases. The Tell Turlu flints do resemble quite closely the little material we know of from Sakcagözü.

The settlement of Tell Turlu levels 1 and 2 was on stratigraphic evidence occupied before Halaf. The pottery and flints may be compared with Neolithic 3 material in the Amuq and at Sakcagözü but on the evidence of the flint industry it would appear that the site was occupied late in this stage. The material is more like that from Sakcagözü than the Amuq which suggests that Tell Turlu also lies on the fringe of the North Syrian group of Neolithic 3 sites.

A survey of ancient sites was carried out in the spring of 1939 on the plain between Aleppo and Meskene and north-east as far as Membij (Maxwell Hyslop et al., 1942, 18). The area is studded with tells most of which were found to have been occupied in late prehistoric and historic times. Two sites, Judaidah Jabbul and Sheikh Ahmed, were thought to have been occupied

earlier than any of the others (Maxwell Hyslop et al., 1942, 24). It is possible that some of the larger tells may also conceal early settlements within their bulk but artifacts typical of these deposits were not exposed on their surfaces. The earliest pottery noted at Judaidah Jabbul and Sheikh Ahmed was Ubaid and Halaf with, in addition, a red or black painted buff ware (Maxwell Hyslop et al., 1942, figs. 15, 16, 17). It is not known for certain if there are Neolithic deposits at Sheikh Ahmed but, having visited Judaidah Jabbul myself, I am certain that this site was occupied in pre-Halaf times.

Judaidah Jabbul

The mound of Judaidah Jabbul is situated east of Aleppo and a little south of the present road to Meskene and the Euphrates valley. It lies on the left bank of the Wadi ed-Dahab where it joins the old north shore of the Jabbul salt lake. The site is a long mound about 12 m high with gentle contours except on the west side where the wadi has washed away some of the deposit. The site extends south under the present village of Judaidah and rises again beyond to form a subsidiary mound. The two mounds were distinguished as separate sites in the original survey (Maxwell Hyslop et al., 1942, 34). Much of the painted pottery to be seen on the surface today is of Halaf or Ubaid type as was noted by Maxwell Hyslop and her collaborators. There are also sherds of grey, black and red burnished wares, much coarse buff straw-tempered ware and buff pottery painted simply with red lines. None of these sherds is sufficiently diagnostic to indicate that the site was occupied in the Neolithic for all these wares continued to be used into Halaf times. The flint artifacts decide the matter since there are many blade tools, among them sickle blades with little or no backing and tanged arrowheads finished by both abrupt retouch and pressure-flaking. These tools are similar to those in the ceramic Neolithic levels at Abu Hureyra as is some of the pottery. The pottery and flints are also similar to material found in Amuq A and B so we may conclude from these surface indications that Judaidah Jabbul was occupied at least

as early as Neolithic 3 and that it belongs within the North Syrian group of sites.

Archaeologists have thought that several sites situated on the Euphrates or beyond in the northern Jezireh were occupied in Neolithic 3. The question is important since these sites would lie on the northern and eastern limits of the North Syrian group. Unfortunately there is insufficient evidence from several of the sites concerned for us to be certain they were occupied in Neolithic 3. I will now attempt to reconstruct the pattern of settlement in this area by briefly reviewing the information we have about these sites.

The westernmost site is Carchemish situated on the right bank of the Euphrates at the point where it flows across the Syro-Turkish frontier. A deep cut was excavated on the east side of the citadel mound facing the river (Woolley, 1934, 158ff). Some dark burnished and incised sherds were found here at the bottom of the cut but always in association with painted pottery of Halaf type. The earliest deposits for which we have evidence in the Carchemish citadel are Halaf, therefore, although it remains possible that a Neolithic 3 settlement may lie within the heart of the mound. Much brown, grey, black and red burnished pottery, some of it with incised decorations, was also found in the Yunus Kilns just outside the walls of Carchemish but it had been made at the same time as painted Halaf pottery and was associated with Halaf flint tools (Woolley, 1934, 149, 154). There is no reason to suppose that the kilns were used in Neolithic 3 despite the resemblance of the burnished pottery to Neolithic 3 wares.

One site in the Balikh valley, Tell Aswad (Balikh) was certainly occupied in Neolithic 3. There were three kinds of pottery at the site, a brown or red burnished ware, a coarse buff ware with much straw temper and a little red painted ware. These can be paralleled in the ceramic Neolithic levels at Abu Hureyra and Buqras III as we have noted in the preceding chapter. They also bear a general resemblance to much of the pottery found in Ras Shamra V B and V A.

It is possible that the site of Tell Khirbet el Bassal discovered by Cauvin was also occupied in Neolithic 3. We have seen that it was probably occupied in Neolithic 2 as well as the Halaf but the presence of brown burnished sherds (Cauvin, 1970, 287) suggests that the site may also have been inhabited during the intervening stage of Neolithic 3.

One other site on the Balikh, Tell Hammam, may have been inhabited during Neolithic 3. This mound is situated 3.5 km south of Tell Abyad (Mallowan, 1946, 136); the upper levels date from the Bronze Age and Classical times but the heart of the tell is much older. A few sherds described as pre-Ubaid were found here and also a collection of flint tools with an obsidian blade (Mallowan, 1946, fig. 13:1-8). Two of these artifacts were tanged arrowheads and at least one other was an end-scraper on a flake. The arrowheads are the most diagnostic of the tools: the tang of one was retouched abruptly and the other with pressure flaking. Neither arrowhead was retouched very extensively. These two arrowheads are typical of the later aceramic and ceramic Neolithic levels at Abu Hureyra and so probably belong in a late Neolithic 2 or early Neolithic 3 context. In view of the presence of early pottery at Tell Hammam the likelihood is that the flints were of the same age or not much earlier than the sherds so that the site may have been inhabited in Neolithic 3.

We know that Tell Aswad (Balikh) was occupied in Neolithic 3 even if we cannot be certain that the other sites I have mentioned were inhabited contemporaneously. The material from Tell Aswad (Balikh) places it firmly within the North Syrian group so that we know the Balikh valley should be included in this zone of sites with similar remains. Tell Halaf which lies on a tributary of the upper Khabur 3 km south-west of Ras el Ain was also probably occupied in Neolithic 3. Von Oppenheim dug several deep trenches on the northern side of the mound which revealed something of the prehistoric remains at the heart of the site. Beneath levels containing Halaf material he found deposits characterised by plain or burnished dark brown, grey and

black pottery (Schmidt, 1943, 25ff). Many of the vessels were globular or flat-based hole-mouth jars with ledge handles or lugs for lifting. There were also splayed bowls with ring bases. This pottery was accompanied by a range of flint and obsidian tools which included tanged arrowheads, end-scrapers on blades and borers. These artifacts and their stratigraphic position would suggest that Tell Halaf was occupied in Neolithic 3 though we cannot be sure of the cultural relationships of these early levels without further exploration. Braidwood collected a sample from the lowest Halaf deposit at Tell Halaf, immediately above the Neolithic 3 levels, which gave a date of 5620 ± 35 B.C. GrN-2660 (Radiocarbon 6, 1964, 355). If correct this would indicate that the Neolithic 3 settlement was occupied in the first half of the 6th millennium.

We do not know how much further east and north the North Syrian group of sites extended because few of the earliest settlements on the Khabur and Jaghjagha rivers have been investigated. Tell Chagar Bazar 43 km north-north-east of Hassake on the road to Amuda may have been first settled in Neolithic 3 but the evidence is inconclusive. Mallowan sounded the earliest deposits in a deep trench at the north-west end of the site (Mallowan, 1936, 7). He found that the lowest level, level 15, rested on the virgin soil (1936, 11). No buildings could be discerned in this level but two pits, presumably dug down from a higher level, contained Samarra pottery (1936, 17). Within level 15 there were sherds of both painted Halaf and grey or black burnished ware. The burnished sherds were found together in a "cache" (1936, 11) which suggests that they had been deposited separately from the Halaf pottery and so may have come from an earlier settlement, perhaps Neolithic 3 in date. More substantial remains of such a settlement may lie beneath the centre of the site which was not tested in a deep sounding.

Some of the burnished pottery from level 15 had been decorated with incised designs (Mallowan, 1936, 12) in a similar manner to vessels from Ras Shamra V B and V A although one sherd (Mallowan, 1936, pl. III, 10) had rows of incised cross-hatched triangles reminiscent of vessels from Sakcagözü.

Another sherd had been pattern burnished (Mallowan, 1936, 12). The affinities of this material are mostly with sites in the North Syrian group but the sherds would not be out of place in a Halaf context so we cannot be sure that there was a Neolithic 3 settlement at Chagar Bazar.

Davidson carried out a survey of early sites in the northern Jezireh in 1974 (Davidson, McKerrell, 1976, 45ff) but the earliest sites he discovered were all of Halaf type. He has told me that he found no certain traces of Neolithic 3 settlement in the area. This does not necessarily mean that the region was uninhabited then, an unlikely hypothesis I would think since so much of north Syria further west but in the same latitude was settled in Neolithic 3. There is a great density of tells in this area indicating its suitability for settlement in ancient times and remains of Neolithic 3 sites may be concealed within these mounds. There appears to have been some soil movement which has raised the level of parts of the north Jezireh plain since the lower deposits on several sites are below the present ground surface. This process may have buried other Neolithic 3 settlements. Only when definite indications of Neolithic 3 occupation have been found in excavation on the Khabur and Jaghjagha headwaters will we know if the area was occupied by people using similar equipment to those on North Syrian sites further west and along the Euphrates.

I have now discussed all the known Neolithic 3 sites that belong within the North Syrian group. There is another series of Neolithic 3 sites in southern Syria and Lebanon which I shall call the South Syrian group (Fig. 39). The material remains on these sites are more varied than in the North Syrian group so that one may distinguish sub-groups on the Lebanese coast, in the Beka'a and the Damascus basin. The type-site for the whole area is Byblos which I shall describe first.

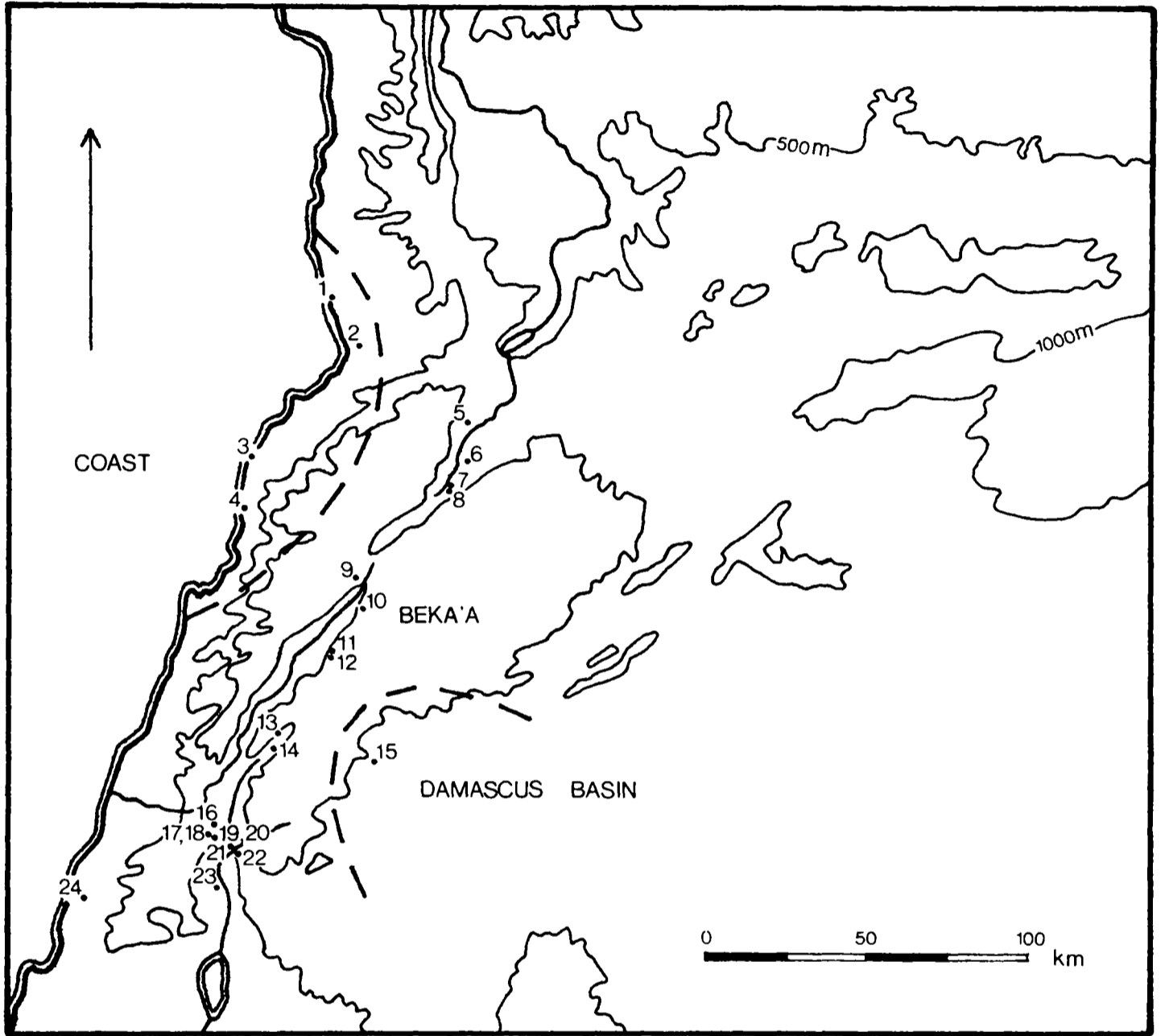


Fig. 39 Neolithic 3 South Syrian sites

FIGURE 39

Neolithic 3 South Syrian sites

- 1 Tabbat el Hammam
- 2 Tell Kirri
- 3 Kubbah I
- 4 Byblos
- 5 Hermel IV
- 6 Ras Baalbek
- 7 Tell Labweh North
- 8 Tell Labweh
- 9 Tell Hashbai
- 10 Tell Bab ez-Zeitun
- 11 Tell Neba'a Faour I
- 12 Tell Shamsine
- 13 Kaukaba
- 14 Tell ez-Zeitun
- 15 Tell Ramad
- 16 Tannur
- 17 Ain Hashomer
- 18 Kfar Giladi
- 19 Qat
- 20 Zug Fuqani
- 21 Hagosherim
- 22 Tell Turmus
- 23 Beisamun
- 24 Kabri

South Syria

Lebanese coast

Byblos

Byblos, now the little town of Jubail, lies about 30 km north-east of Beirut on the Lebanese coast. To the east of the site there is a narrow though fertile coastal plain and then the Mountains of Lebanon which rise steeply behind. The ancient settlement is situated on a promontory just to the south of a tiny inlet. This inlet is the old port of Byblos which is still used as a fishing harbour. On the south side of the promontory there is another cove at the mouth of a little valley which ran across the site before it became filled with occupation debris. This cove was probably a subsidiary landing place in ancient times (Dunand, 1973, 5); it may have been used more by the Neolithic inhabitants than the inlet to the north which lay further away down a steep slope. Beyond this cove is an open sandy beach which would have been a good landing place in fine weather.

It is important to remember that the sea probably only reached its present height during the 6th millennium as we saw in Chapter 1 so that it was not until Neolithic 3 that Byblos could have served as a port. By the same reasoning it would only have been during this period that the bay of Minet el Beidha to the west of Ras Shamra would have assumed its present configuration and provided a convenient harbour for the large settlement a little way inland. We know that fish were eaten in considerable quantities at Byblos during this period since their remains comprised 7% of the bones identified from the site (Dunand, 1973, 36) and they were still probably consumed at Ras Shamra as fish vertebrae had been recovered in the Neolithic 2 levels. It is likely that by now some of these fish were caught from boats at sea which could have conveniently been launched from the new harbours. We have no evidence that maritime trade had commenced along the Levant coast in Neolithic 3 though since we know that small quantities of many materials were being exchanged between sites it would not be surprising if a little of

this traffic was conducted by sea. In the absence of positive evidence, however, we must conclude that the potential of the harbours at Byblos and Ras Shamra was not realised until much later.

The ancient site of Byblos has been excavated almost continuously by Dunand for over 40 years, At least 1.5 ha has now been cleared to bedrock so that a greater area of the prehistoric settlement at the base has been exposed than on any other site in the Levant. A considerable amount of information has thus been recovered about the structures of the successive Neolithic settlements and the artifacts used by their inhabitants. The original topography of the site has also been determined fairly precisely.

The promontory at Byblos once consisted of two hills, one higher than the other, separated by a little valley in which lay a spring of good water (Dunand, 1973, 1, 4, pl. C). The higher of the two hills was on the west side of the valley. The first substantial settlement at Byblos was established on the seaward slope of this hill and later spread south into the valley (Dunand, 1973, 10, 33). This phase of settlement has been designated "Néolithique Ancien" by Dunand. The principal attractions of the site have always been the spring, the protected landings for boats and the fertility of the immediate hinterland; presumably these factors also induced the inhabitants of the Néolithique Ancien site to settle here. We may note in passing that the site was occupied briefly at an earlier period. A small deposit was found which contained no pottery but which yielded a tanged and notched arrowhead as well as several microliths, one of them backed with Helwan retouch (Dunand, 1973, 42, n. 5; Cauvin, 1968, 92). This suggests that a group may have lived here for a while in one of the two earlier Neolithic stages or Mesolithic 2.

The debris of the Néolithique Ancien settlement was spread over about 1.2 ha, an area that would have been more extensive originally since part of the site has washed away on the seaward side (Dunand, 1973, pl. G). Much of the deposit was composed of occupation soil, building remains being concentrated on an area of only 5000 sq m. Dunand estimated that about 20 houses were

occupied at one time and that the settlement was no more than a small village (1973, 90). These houses had been robbed for building materials so that in some instances little of the original dwelling remained. It seems probable to me that there were more houses in the village than Dunand suggests and that some of these were completely destroyed by robbing and disturbance after they were abandoned. Thus the likely area of intensive occupation would have been greater than the 5000 sq m proposed by Dunand.

The houses were rectangular with a single room to which other more lightly built structures were sometimes added (Dunand, 1973, 10, 17). These houses varied in size (Fig. 40) but several were about 5 m long and 4 m wide. Their walls were built of stone but none was found standing more than 1 m high. The entrance was in the long side of a room. The floors were usually made of hard white lime plaster laid on a bed of pebbles which sometimes curved a little way up the walls (Dunand, 1973, 12). The surface of the plaster was then polished.

Dunand did not think that the stone walls of many of the houses ever stood much higher than 1 m. This led him to suggest that the houses were framed and roofed with poles covered by mats or skins (Dunand, 1973, 14). He believed that the wall posts must have been set up outside the low stone walls as no trace of roof supports was found within the buildings (Dunand, 1973, fig. 3); we may note in passing that he does not report that post-holes were found along the outsides of the walls either. The stone walls and plaster floors of the Néolithique Ancien houses were stoutly and carefully built so it is probable that their superstructures were completed in a similar fashion. We have already seen that the walls of these buildings were damaged by robbing, an observation supported by the absence of collapsed walling within them (Dunand, 1973, 14). The walls may have been built high enough to support the roof but subsequently were reduced by robbing to no more than stubs. If the walls had originally carried the roofs that would explain why no trace of wall or roof supports was found inside or outside the houses.

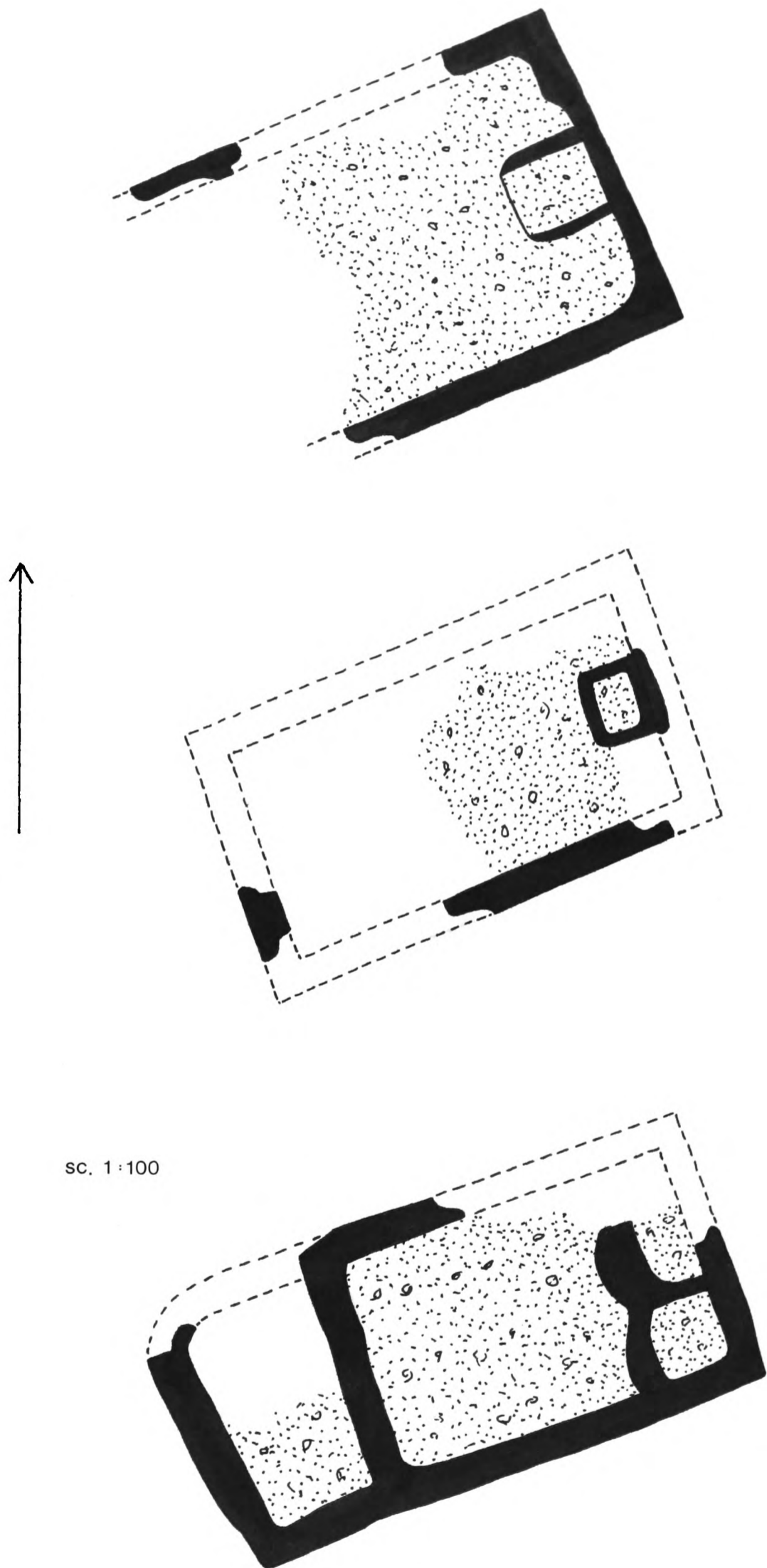


Fig. 40

Byblos – Néolithique Ancien houses (after Dunand)

Several of these houses had a little platform built inside against one of the short walls (Dunand, 1973, 12). These may have been hearths but Dunand preferred to think of them as associated with a domestic cult. In one house a mortar had been set in the floor (Dunand, 1973, 13) while in others a depression was found on the floor where mortars or querns had probably stood (Dunand, 1973, 20). Scattered on the floors were grinding tools and other domestic artifacts. Outside the houses stubs of walls and other stones were used as benches (Dunand, 1973, 17, 18).

The houses were aligned either north-south or east-west. This happened to be the most convenient way to build them because of the slope of the ground but it also meant that the doorways of many of the houses faced the sun. The houses were rebuilt on the same spot on about the same alignment usually three times but in one area as much as six or seven (Dunand, 1973, 15). Each house stood alone and was separated from its neighbours by large open spaces (Dunand, 1973, pl. Ha). A little paving was found in these open spaces and also heavy stone grinding tools left in place, bedrock mortars and hearths (Dunand, 1973, 29).

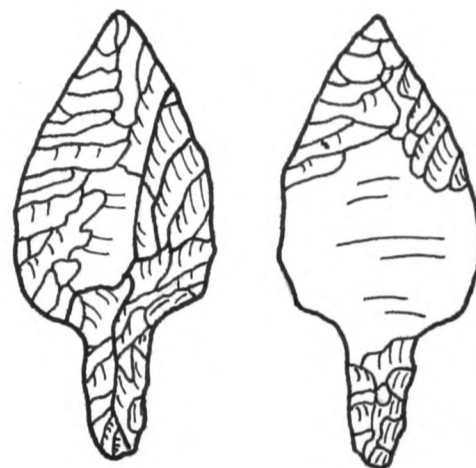
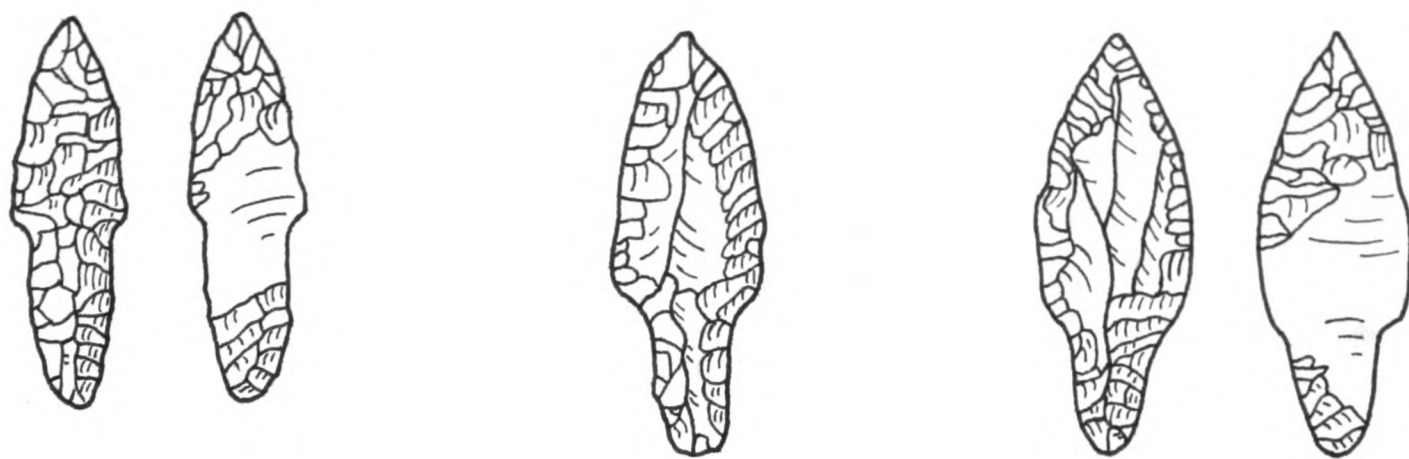
The dead were buried in the settlement between the buildings. The corpses were laid in a crouched position on their left sides in shallow graves (Dunand, 1973, 30); the bodies of infants were buried in jars (Dunand, 1973, 32). Two groups of adult burials were noted, one in which the bodies were placed in simple graves with a few artifacts and a second in which the corpses were laid on a bed of stones with more grave goods; the former was more common. The accompanying artifacts consisted of flint tools, polished stone axes, pottery and occasional ornaments. 33 burials were found altogether, not many when one considers the size of the settlement and the length of time it was occupied. Dunand noted that some graves may have been destroyed by building activity in this and later phases and also remarked that not all the dead may have been buried within the village anyway (1973, 32).

The inhabitants of the Neolithic settlements at Byblos obtained their

flint from nodules on the floors of neighbouring wadis. In the Wadi Deir el Banat which reaches the sea just south of Byblos beds of excellent flint exposed in either bank were apparently quarried for raw material (Cauvin, 1968, 40). Not many cores were found on the site (Cauvin, 1968, 92) which implies that blades were usually prepared where the flint was quarried. Such cores as were recovered were pyramidal or double-ended in type (Cauvin, 1968, fig. 33). 18 pieces of obsidian were found in the Néolithique Ancien settlement three of which have been analysed spectrographically. Two came from the e-f source, probably Acigöl near Kayseri, and one from Çiftlik (Renfrew et al., 1966, 63, 65).

Most of the flint tools found at Byblos were of four classes: sickle blades, arrowheads, burins and axes with chisels. The sickle blades were all made on segmented blades and hafted together to form composite sickles (Cauvin, 1968, 70). They were retouched straight or obliquely at one or both ends and some were abruptly retouched along the back (Fig. 41a). The cutting edge was denticulated but sometimes both long sides were retouched in this way. A great many truncated blades were found in one spot in the Néolithique Ancien settlement (Cauvin, 1968, 73) which were in the process of being made into segmented sickle blades. The place where they were found was thus a working floor for the manufacture of these tools.

The sickles of which these segmented denticulated blades make up the cutting edge are poor tools with which to cut cereals although they could have been used to scrape ears of wheat off the stalks into baskets. It has also been suggested that they may have been used to cut down plants with tough siliceous stems such as reeds. The problem is difficult to resolve since there is evidence for both cereal agriculture and the use of reeds at Byblos and at other sites on which these tools have been found. As I have explained elsewhere (Moore, 1973, 43), we do not know if these sickles were used for harvesting cereals or some other plant and so cannot definitely associate them with agricultural activities as Cauvin has done (1968, 94).



b

sc. 2:3



a

Fig. 41

Byblos Néolithique Ancien

a - sickle blades

(after Cauvin)

b - Byblos points

Most of the arrowheads were of three types, all of which were tanged. Two were the Amuq points 1 and 2 and the third was what Cauvin has called the "Byblos point" (1968, 55). Byblos points had a tang defined by pronounced shoulders or occasionally a pair of notches (Fig. 41b). They were retouched by pressure-flaking around the tang, tip and part or all of the shaft. A few were from 10 to 17.8 cm in length but most were between 5 and 10 cm long. Several leaf-shaped arrowheads retouched by pressure-flaking were also found. Some very large oval retouched blades retouched in a similar manner were classed as daggers by Cauvin (1968, 66).

The three principal types of burins found at Byblos were burins on lateral preparation, burins on truncation and dihedral burins (Cauvin, 1968, 89). Some single or multiple blow burins on a break or natural surface were also recovered as well as a few of other types.

The Byblos axes were usually made of flint but there were some examples in limestone, granite and basalt (Cauvin, 1968, 74). The commonest type was trapezoidal or rectangular in shape, flaked all over and with abruptly re-touched sides (Cauvin, 1968, figs. 24, 25). The cutting edge of most of these had been flaked almost straight and then polished. A group was of much the same shape but with vertically flaked sides (Cauvin, 1968, 80); these were also thicker in cross-section and heavier. The third group was composed of almond-shaped axes, again usually with a polished cutting edge (Cauvin, 1968, 76). Almost all of these tools were probably used as axes but a few with asymmetric cross-sections may have been used as adzes.

Among the other heavy flint tools were a number of chisels made in a similar fashion to the axes. They were quite narrow and plano-convex or biconvex in lengthwise cross-section (Cauvin, 1968, 84). They were flaked all over and had a narrow cutting edge which was usually polished. Both these and the axes were probably used to cut and shape timber. The coastal plain and the mountains behind the site had a dense cover of forest at the time the Neolithic settlement was occupied and these tools indicate that much use was

made of this raw material.

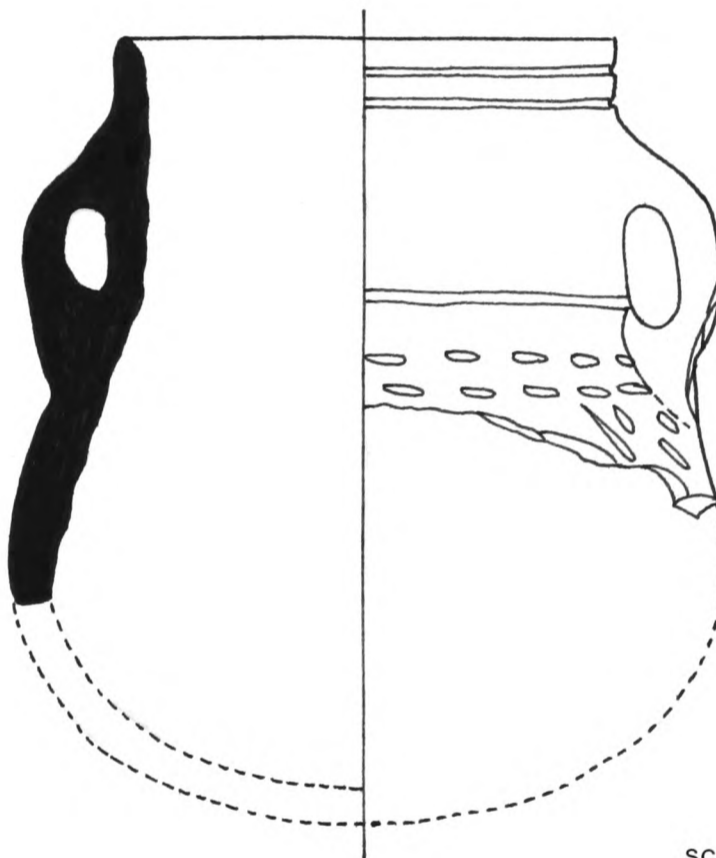
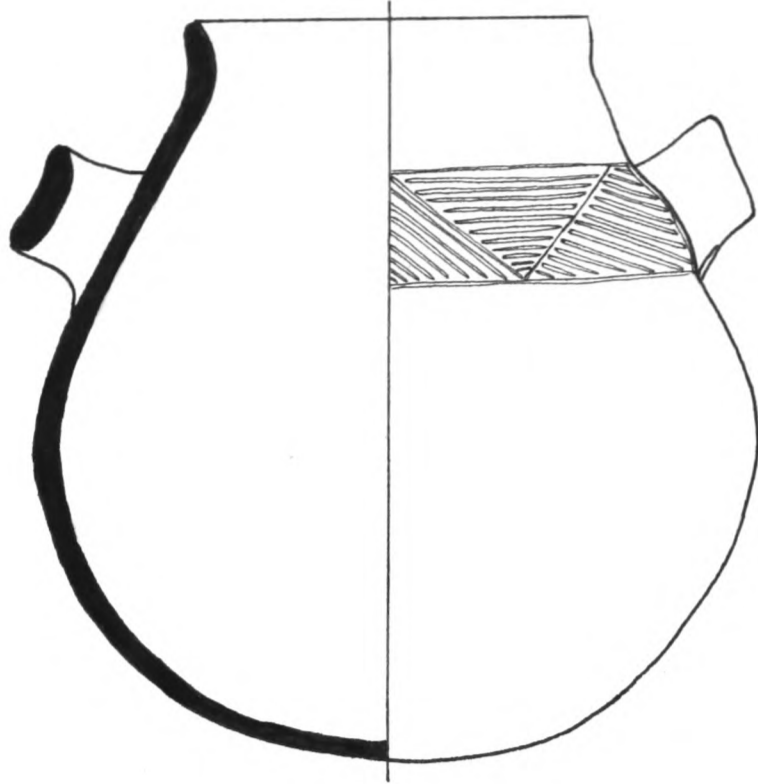
Several small greenstone axes and chisels were also found in the Néolithique Ancien settlement (Dunand, 1973, 80ff). These were made of steatite and two kinds of hard stone, amphibolite and gabbro. The steatite axes could hardly have been used as tools but the others when hafted would have been most serviceable artifacts for finishing wooden objects which had already been partly shaped by the axes and chisels.

The remainder of the Néolithique Ancien assemblages at Byblos consisted of a few borers and scrapers with a number of notched and denticulated pieces (Cauvin, 1968, 87ff). Most of the borers had broad points which were more suitable for piercing materials such as leather rather than making deep holes. The scrapers included both end-scrapers on blades and side-scrapers on flakes.

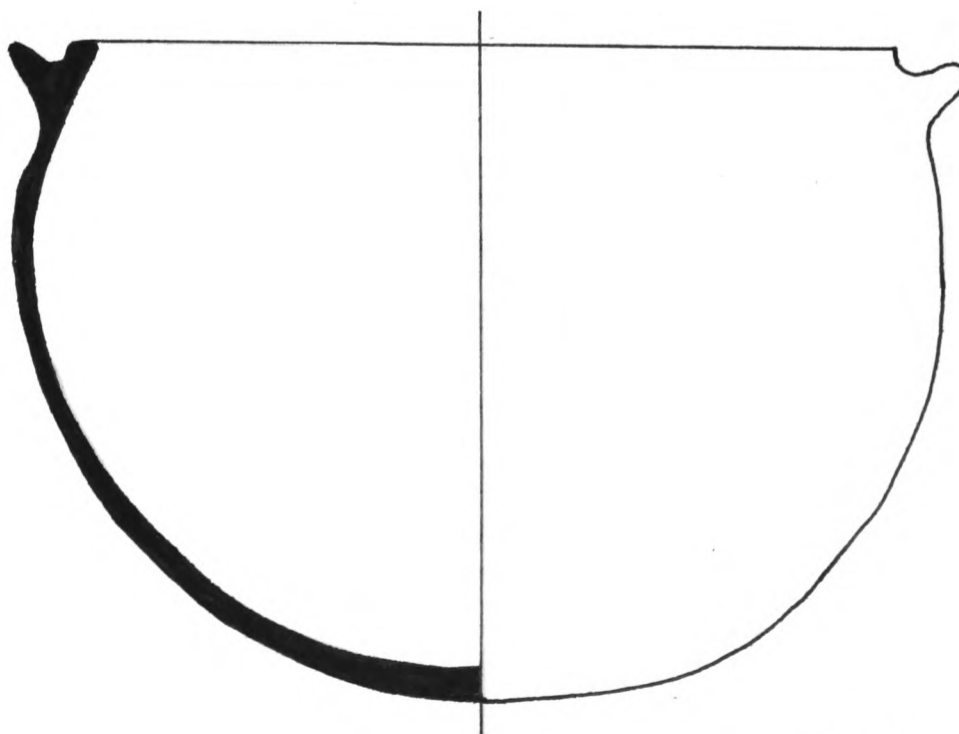
Other kinds of stone tools were very common at Byblos. The querns were saddle-shaped and made of limestone or more rarely of sandstone or basalt (Dunand, 1973, 36ff). The rubbers with which the grain was ground were of the appropriate plano-convex type. Mortars and pestles were made of the same rocks as the querns and rubbers.

Stone dishes were used in the Néolithique Ancien settlement but not in great numbers (Dunand, 1973, 39). They were circular or elliptical in shape with a shallow depression in the centre. The bases were rounded in the simplest ones, flat or hollow in the others. One retained traces of pigment in the bowl (Dunand, 1973, 40). Several coarse porous stone vessels had been coated with lime plaster to make them watertight.

The Néolithique Ancien pottery was simple in technique and shape. Thick sherds of a buff coarse ware were found but no vessels of this fabric could be reconstructed (Dunand, 1973, 43). The more common ware had an even fabric with a little straw, limestone and quartz filler. Vessels made of this fabric were carefully smoothed on the outside and fired until the surface was buff in colour and the core buff or pink. The surface of the vessels was then lightly burnished or in a few cases highly burnished to an even shiny finish.



sc. 1:3



sc. 1:4

Fig. 42 Byblos - Néolithique Ancien jars
(after Dunand)

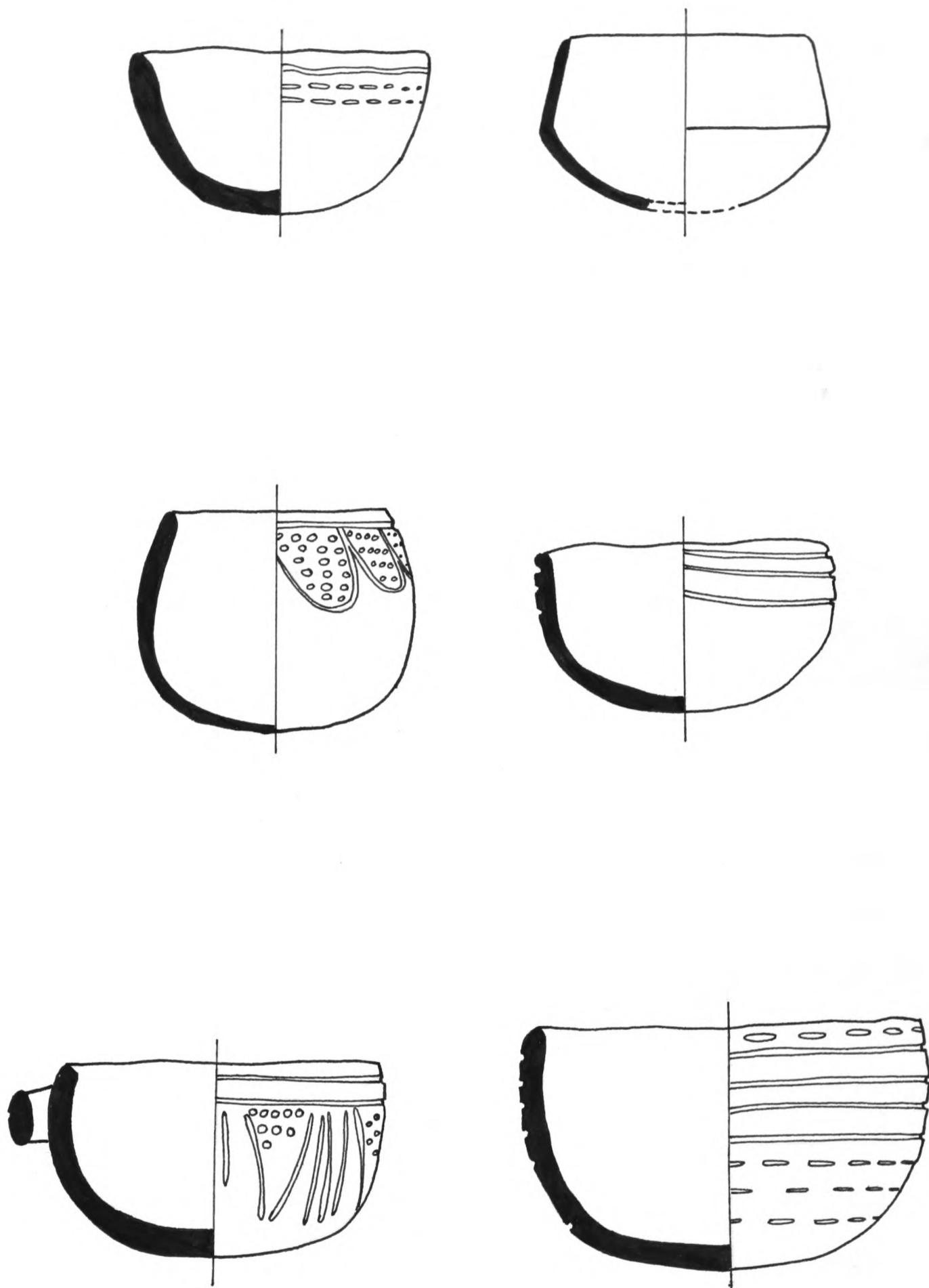
None of these vessels, however, resembled the dark grey burnished or dark polished ware of sites in the North Syrian group although the technique of manufacture was much the same at Byblos as further north.

The shapes of these Byblos vessels were of the simplest. The two principal classes of vessels were globular jars (Fig. 42) and hemispherical bowls (Fig. 43). Some of the jars were hole-mouths while others had everted rims (Dunand, 1973, pls. LX-LXII); a few had collared necks (Dunand, 1973, figs. 18, 25). These jars were mostly quite large vessels but some with the same shapes were no more than 13 or 15 cm high. Several of the larger vessels had ledge handles or sets of two or four pierced lugs for suspension.

The bowls also varied markedly in size. Some with handles are best described as cups while others were quite deep (Dunand, 1973, fig. 16, pl. LVII). A few of these bowls were carinated. The fabric of these vessels seems to have been quite porous for a number of the bowls were lined with white plaster which was then polished, presumably to give them a waterproof lining (Dunand, 1973, 44). In addition to the bowls there were a few open dishes with ring bases and also two rough spoons (Dunand, 1973, 53, pl. LVI). Almost all the jars and bowls had rounded bases but a few had flat bottoms or even ring bases like the dishes.

Many of these vessels were decorated with impressed or incised designs. The most characteristic patterns were made with the back of a cardium shell which was pressed into the clay all over the surface of many of the globular jars (Dunand, 1973, 44). Other patterns were made by scraping with the edge of the shell over the surface of the pots. A few sherds of cord-impressed ware were found but this type of decoration was not much favoured.

Many of the bowls and a few of the jars were decorated with rows of horizontal lines often just below the rim (Dunand, 1973, 45). Sometimes the surface was divided by groups of vertical lines and the spaces between filled with stab marks. Another common design was rows of pendant triangles or loops incised below the rim lines and then filled with stabs. Rows of oblique lines or herringbone patterns were also incised around the pots. These incised



sc. 1:3

Fig. 43 Byblos – Néolithique Ancien bowls
(after Dunand)

patterns were sometimes filled with a white paste. A few sherds were found which had been decorated in relief with applied clay pieces but this technique was rare at Byblos.

The inhabitants of the Néolithique Ancien settlement also made a few white plaster vessels. These were all open bowls on ring bases (Dunand, 1973, 41). The very large plaster jars found on some Neolithic 2 sites were not made at Byblos in Neolithic 3.

A large number of bone tools was preserved at Byblos. 51 borers made from sheep or goat metapodials were found (Dunand, 1973, 72). Almost all were the same type with a stout handle and fine point. There were 18 spatulae mostly made of sheep or goat bones. Among the more unusual tools were six fishhooks and a needle. There were also eight bone hafts and objects of adornment such as beads and amulets (Dunand, 1973, 74). A curious object was a sheep spatula with a row of incisions along one edge (Dunand, 1973, pl. XCIX) which Dunand interpreted as a musical instrument. It could, perhaps, have been used in this way but more probably served as a counting or recording device.

Among the other tools was a series of baked clay spindle whorls with a biconical cross-section (Dunand, 1973, 75). Several stone discs pierced through the centre may have served the same purpose. Another curious group of objects consisted of several discs and rectangles made of sherds which had a groove cut around the edge (Dunand, 1973, 77). Dunand thought a cord might have been wrapped around the edge and pressed into the surface of new pots to produce cord-impressed patterns; however they were used, they and the cord-impressed ware were only found in the Néolithique Ancien settlement.

A distinctive class of artifacts at Byblos was the stamp seals made for the most part in baked clay although a few were cut from stone. Dunand divided these into two groups, a series of baked clay "pintaderas" and an assortment of other seals (1973, 84). The pintaderas were oval in shape with a curved sealing surface and a knob on the back to be gripped by a thumb and forefinger. Simple patterns of chevrons, concentric ovals and straight or

oblique lines were incised all over the sealing surface. The other seals made of baked clay and stone had a flat surface with a similar range of simple incised patterns (Dunand, 1973, 87).

The two other main classes of artifacts were objects of adornment and figurines. The beads were discoid or cylindrical and made of greenstone, steatite and carnelian as well as dentalium shells (Dunand, 1973, 82). Rectangular shell pendants were also found and a number of carved bone amulets. More unusual were two tiny squatting human figures carved in a crystalline greenstone and pierced for suspension (Dunand, 1973, 84). Several small grooved stone and baked clay objects were also recovered which may have been nose ornaments, labrets or buttons (Dunand, 1973, 82).

One group of figurines consisted of long pebbles with a few lines incised at one end to indicate human features (Dunand, 1973, 77). There were fifteen of these of which five were found in one area and six in another (Dunand, 1973, 79) so most of them were made or used in two restricted locations. The other figurines were made of baked clay but there were very few of these (Dunand, 1973, 79). Several were recognisably human and some others were four-legged animals but of what species could not be determined. One of the human figurines was a stylized type found on other sites. It was a female with arms placed against the front of the torso; the head was pointed and the eyes were marked with incised blobs of clay shaped like coffee beans (Dunand, 1973, pl. CXIII).

It is possible to estimate the duration of the Néolithique Ancien phase at Byblos from two ^{14}C determinations made on charcoal samples from different layers. The first sample which came from a level in the middle of the Néolithique Ancien sequence was collected and processed in 1957. The Groningen laboratory at first obtained a date of 7000 ± 80 B.P. or 5050 ± 80 B.C. for this sample. They sent the result to Dunand who published it as 5043 ± 80 B.C. (1973, 34). For many years it was thought that this was the true figure from which it was estimated that Néolithique Ancien Byblos was first occupied in

the second half of the 6th millennium. This determination has since been corrected by the laboratory which has now published it as 5410 ± 70 B.C. GrN-1544 (Radiocarbon 14, 1972, 50). This figure is nearly four centuries earlier thus considerably lengthening the Néolithique Ancien phase of occupation. It now appears that Néolithique Ancien Byblos must have been occupied in the first half of the 6th millennium, perhaps about 5600 or 5700 B.C.

The second sample was collected in 1955 from a level late in the Néolithique Ancien sequence. When processed in 1957 this gave a date of 4600 ± 200 B.C. W-627 (Radiocarbon 2, 1960, 183) which was published by Dunand as 4593 ± 200 B.C. (1973, 34). The first point to note about this determination is that the standard error is quite high. Secondly, the determination was made long ago and has not since been corrected. Samples processed more recently from Neolithic sites in the Levant have tended to give earlier dates than those obtained when the technique was being developed. I think, therefore, that the Néolithique Ancien phase at Byblos ended about 4800 or even 5000 B.C. rather than 4500 B.C. as this determination would suggest.

The chipped stone industry of Néolithique Ancien Byblos is noticeably more developed than that of the Neolithic 2 sites of Tell aux Scies, Saaideh and even Tell Labweh in Lebanon and other Neolithic 2 sites in the West Syrian group. It would appear that several centuries elapsed between the end of Neolithic 2 about 6000 B.C. and the foundation of Néolithique Ancien Byblos. This lends weight to the suggestion based on the evidence of the ^{14}C determination GrN-1544 that the settlement of Néolithique Ancien Byblos was founded about 5600 or 5700 B.C. rather than at the beginning of Neolithic 3. It then appears to have been occupied throughout Neolithic 3 until the end of the 6th or early in the 5th millennium B.C.

Kubbah I

Kubbah I is a low mound which lies near the mouth of the Nahr el Joz 2 km north-north-east of Batrun on the Lebanese coast (Copeland, Wescombe,

1965, 101). The mound is on the north side of the river and has been cut through by the railway which runs from Tripoli to Beirut. The site has never been excavated but material has been collected from the surface by a number of archaeologists and much of it deposited in the Université Saint-Joseph in Beirut where I have seen it.

From the surface finds we know that the site was occupied as late as the early Bronze Age. The material from the site which is typologically earliest consisted of flint tools and a potsherd. The arrowheads were all tanged and of both Amuq and Byblos type. All the sickle blades were segmented with fine or coarse denticulation along the cutting edge. The third group of diagnostic tools was the flaked flint axes. There were both trapezoidal and almond-shaped examples of these with flaked or polished cutting edges. The potsherds came from the rim of a hand-made hole-mouth jar. The fabric was brown in colour with a little mineral and straw filler and the sherd had been medium fired. There was a ledge handle attached to it and the outside surface of the whole piece had been burnished. The affinities of these flints and the sherd are all with the Néolithique Ancien of Byblos, as Cauvin has noted (1968, 219, n. 1). This means that there was a settlement as Kubbah I in Neolithic 3.

There is one other site in north Lebanon, Tell Kirri, 3 km south of the border with Syria on the Akkar plain which was also occupied in Neolithic 3 (Copeland, Wescombe, 1966, 70). Some black and buff burnished sherds decorated with shell combing and incisions which resembled Néolithique Ancien pottery from Byblos were found in a cut made in the side of the tell. A few flint tools were also collected but little else of this phase that was diagnostic. The site continued to be occupied in the Bronze Age and later.

Two other stations in and near Beirut, Beirut VI and Dikwene II, may have been occupied in Neolithic 3 (Copeland, Wescombe, 1965, 74, 84) but insufficient is known about either for us to be certain of this.

Tabbat el Hammam

Tabbat el Hammam is a mound situated beside the sea 17 km south of

Tartous. It was occupied in various periods from the Neolithic to the Hellenistic and at times a much wider area than the tell itself was inhabited (Braidwood, 1940, 187ff). Braidwood excavated a series of trenches on the site and in the vicinity in 1938. One of these TT-I, was a step trench dug on the seaward slope of the mound. The lowest level on bedrock, designated section I floor 1, was about 50 cm deep and contained Neolithic material (Braidwood, 1940, 197). Several floor surfaces and hearths could be discerned in this level but no structures.

A small collection of flint and obsidian tools and pottery was recovered from TT-I, I, 1 and is now in the Oriental Institute, Chicago where I have seen it. At least four pieces of the obsidian have been analysed and all came from Çiftlik (Renfrew et al., 1966, 60; 1968, 81; Wright, 1969, 26). 53 of the 322 flints recovered were sickle blades (Hole, 1959, 160). These were made on segmented blades which had been snapped and occasionally retouched at the ends. Most had nibbled or slightly retouched cutting edges but a few were denticulated. Some had retouch along both edges but none had steep backing. The 16 burins were of several types: single blow, dihedral, burins on preparation and multiple burins (Hole, 1959, 162). Notched and denticulated blades and flakes were all quite common. Only 12 arrowheads were found, most of them broken. All were tanged (Hole, 1959, fig. 5) and partially pressure-flaked. Both Amuq 2 and Byblos arrowheads were present but the tang of one other arrowhead and parts of others were retouched abruptly (Hole, 1959, fig. 5:1). The other chipped stone tools consisted of flake scrapers, borers on blades, a tabular flint knife, two picks, an adze and two chisels. The adze and chisels were flaked all over and had polished cutting edges (Hole, 1959, 164); the adze was oval and the chisels trapezoidal in cross-section. Two double-ended cores were found (Hole, 1959, 174) together with a core tablet and crested blades. There was also a fragment of a spherical macehead.

The closest parallels for these tools are to be found at Byblos where the chipped stone core technique, the arrowheads and heavier flaked tools were all similar. The use of abrupt retouch on some arrowheads is a slightly older technique still used in northern Syria early in Neolithic 3 at sites such as

Abu Hureyra and Tell Judaidah. The macehead is like several found at Byblos. The only similarity between the Tabbat el Hammam and Byblos sickle blades, on the other hand, is that they were segmented. They are much more like those of Tell Judaidah which were also segmented but lightly retouched along the cutting edge and unbacked.

The pottery was buff, brown or grey-black in colour, most of the sherds being various shades of brown. The fabric had sand and grit filler with a little straw. The ware was usually medium fired but the variation in colour on the surface of some pots indicates that the firing was not well-regulated. The vessels consisted of globular hole-mouth jars and bowls, some of which were carinated (Hole, 1959, 154ff). A few of the jars had collar necks or everted rims. Some of the larger vessels also had ledge handles, knobs or even strap handles for carrying. Most of the pots were burnished and some had incised or impressed decoration. These included horizontal lines and herringbone patterns. Many of the sherds had been decorated with cord impressions. A few sherds had been coloured with red wash as on sites further north and two had been painted. The latter are more like Halaf pottery than anything found in Neolithic 3 and may be intrusive since there was much disturbance of the early levels. One piece of a white plaster bowl was also recovered.

The pottery was quite varied in finish as is most of the hand-made pottery from Neolithic 3 sites. The shapes of the vessels and their decoration, especially the cord impressed vessels, are very like the Byblos material. The similarity of much of the pottery and flints to the artifacts of Néolithique Ancien Byblos places Tabbat el Hammam within the South Syrian group even if there are a few traits better paralleled further north; Tabbat el Hammam is, after all, not very far south of Ras Shamra and Tell Sukas. The use of abrupt retouch on some of the arrowheads hints as a relatively early date within Neolithic 3 so it may be that Tabbat el Hammam was first occupied at the beginning of this stage.

The sites in the South Syrian group which we have considered so far are all on the coast. A number of other sites in the Beka'a are known to have been occupied in Neolithic 3 and I shall consider them next. Their remains, though generally quite similar to the material found at Byblos and Tabbat el Hammam, differ in certain details. These differences can largely be explained by the separation of these sites from those on the coast by the Mountains of Lebanon.

Beka'a

Tell Labweh

Tell Labweh was first occupied at the end of Neolithic 2 as we have seen but continued to be inhabited well into Neolithic 3. The rectangular building just below the surface in Trench A and the upper Neolithic pits in Trench B belonged to this stage (Kirkbride, 1969, 46ff). The layers associated with these structures contained flints, pottery and white plaster vessels which may be compared with material from Byblos. Among the arrowheads were Byblos points found in this region late in Neolithic 2 but also characteristic of Neolithic 3. The sickle blades from the upper levels at Labweh differed from those in the basal deposits in that they were segmented and backed with denticulated cutting edges like some of those from Néolithique Ancien Byblos (Kirkbride, 1969, 50).

Not much pottery was found at Labweh (Kirkbride, 1969, 48) but the sherds that were recovered were all of a well-fired ware with a little grit and straw filler. Most of the vessels were brown or black in colour although some had a red surface. Their forms were either hole-mouth jars or bowls and most had been burnished. One sherd came from a vessel that had been wiped over with a handful of straw, a kind of finish rare in Syria and Lebanon but found on several Palestinian sites in this and the next stage. Some of the vessels had been decorated with chevrons and other combed and incised patterns as well as cord impressions. Burnished vessels of this type are characteristic of the Néolithique Ancien of Byblos though combed decoration is not found

there; this seems to have been more common on inland sites. Labweh is one of the few excavated sites occupied in both Neolithic 2 and Neolithic 3 and the flints and other material from the site reveal some aspects of this transition.

The remaining sites which I shall describe have been found in surface surveys; none of them has been excavated.

Tell Labweh North

Tell Labweh North is a substantial site which occupies a low spur a few hundred metres north of Tell Labweh on the other side of the Orontes springs (Copeland, Wescombe, 1966, 74).²⁶ Flints, pottery and a fragment of obsidian were collected from the surface of the site. The most diagnostic flint tools were tanged, pressure-flaked arrowheads, a series of backed, segmented sickle blades with fine denticulation and flaked trapezoidal axes with polished cutting edges.

Some of the sherds came from brown or black burnished vessels which had been decorated with cord impressions. There were also a few pattern burnished sherds, a rare occurrence on sites this far south, as well as sherds with a red slip which had been burnished in some instances. A few pieces of white plaster ware were also recovered from the site.

Most of the flints and pottery together with the white plaster ware resemble material found at Tell Labweh and Néolithique Ancien Byblos. This would indicate that the site was occupied in Neolithic 3. The sickle blades are of a type found at Tabbat el Hammam and on other sites in this region in the next stage. The red slipped and burnished pottery is a slightly later type so the site may have continued to have been inhabited into the next stage.

Tell Neba'a Faour I

Tell Neba'a Faour I lies on the east side of the Beka'a at the foot of an outlier of the Anti-Lebanon not far from the present road from Beirut to Damascus (Copeland, 1969, 87). A stream now flows at its foot but we do not

know if it was there in the Neolithic. The site is a large low mound which has been heavily eroded since its abandonment and has recently been damaged by road and house building. Plaster floors laid on beds of stones could be seen in exposed sections (Copeland, 1969, 88).

A considerable amount of chipped stone, pottery and some other material was collected from the Neolithic layers in sections opened up by recent disturbance. Flint blades were struck off pyramidal and double-ended cores. All the arrowheads were tanged and pressure-flaked; some of them were Byblos points and Amuq points of types 1 and 2 (Copeland, 1969, fig. 2A). The sickle blades were segmented and some were backed; they had either fine or coarse denticulation along their cutting edges. Two flaked axe-like tools with polished edges were found but these had been reused as other tools and were not really diagnostic. The remaining tools consisted of a variety of scrapers, burins and retouched blades. A little obsidian was found at the site.

Fragments of querns and basalt rubbers were collected as well as stone vessels. One of the latter came from a fine hemispherical bowl with a bead rim. A number of white plaster vessel fragments of large dishes and bowls with ring bases were also picked up from the site (Copeland, 1969, fig. 2B).

The sherds were buff, brown, grey and black in colour with a little grit and straw filler. Despite this variety in colour the range of shapes and decoration was limited. The vessels were either hole-mouth jars or hemispherical bowls some of which had the unusual feature of ring bases. They were supported by ledge handles and pierced lugs. Most of the pots were burnished and a few were decorated with incised or combed patterns; one was scraped with a cardium shell like so much of the pottery from Byblos (Copeland, 1969, 89). A few vessels were painted in red but it is not clear if these belonged to this or a later phase of occupation.

The diagnostic flints, white plaster ware and the simple burnished pottery all resemble the material from Néolithique Ancien Byblos despite a few local idiosyncracies. Tell Neba'a Faour I like the Labweh sites was occupied in Neolithic 3.

Tell Shamsine

Tell Shamsine is situated a little south of Tell Neba'a Faour I on the spring line at the foot of the Anti-Lebanon like the other Beka'a sites I have discussed. It is near the Anjar springs and a stream from the mountains flows beside the site (Copeland, Wescombe, 1966, 84). The tell was occupied in the Neolithic, during the Bronze Age and in later periods also.

The Neolithic material collected on the site was sparse but characteristic. It included tanged, pressure-flaked arrowheads of Byblos type, coarsely denticulated sickle blades and a few larger limestone tools. A few pieces of obsidian were also found there. The sherds were brown or grey in colour and burnished. Fragments of quite large vessels made of a coarse ware were also collected. The affinities of the diagnostic flint tools and sherds are with the Beka'a sites I have discussed and Néolithique Ancien Byblos indicating that the site was occupied in Neolithic 3.

Tell Hashbai

Tell Hashbai lies on the west side of the Beka'a at the foot of the Mountains of Lebanon opposite the sites I have considered so far (Copeland, Wescombe, 1966, 64, 65). It too is near abundant running water since it is situated beside the Wadi Hashbai not far from its source at Ain Hashbai.

The site is large and was occupied as late as the Bronze Age. Among the Neolithic finds were tanged, pressure-flaked arrowheads and coarsely denticulated sickle blades. A limestone pestle and basalt rubber were found and obsidian was present. The pottery included a variety of burnished sherds and some which had been covered in a red slip.

The material from this site may once again be likened to that from Néolithique Ancien Byblos (Copeland, 1969, 87) indicating that this site also was occupied in Neolithic 3.

All the sites I have discussed so far are situated at the sides of the Beka'a near abundant water supplies. Copeland has linked this distribution

of sites to a phase of dry climate during the 6th millennium (1969, 91). We know that alterations in the pattern of settlement did occur in the 6th millennium partly because of environmental changes but it is not necessary to invoke such large-scale causes in this instance. These sites all lie in the central section of the Beka'a where deposition of soil on the valley floor has buried the early sites. The only ones that remain on the surface to be found are at the sides of the valley. Other Neolithic 3 sites have been found further north and south which are situated away from the feet of the mountains on either side. One would expect that Neolithic settlement sites would be located near a good water supply, as they were here, but the local geomorphology best explains the distribution of Neolithic sites found in surface survey in the Beka'a.

Although the bulk of the material from the sites I have mentioned resembles quite closely the finds from Byblos there are some differences in both flints and the pottery. Many of the sickle blades were segmented, coarsely denticulated and sometimes backed like those at Byblos, others not. There were fewer heavy flaked tools on these sites than at Byblos and those that were found were often slightly different in shape.

Although the shapes of the pots were the same simple ones found at Byblos the finish was often much more varied. A greater range of fabric colours was found on the Beka'a sites because different clays were used and the vessels were fired unevenly. There were also differences in the patterns of incised and impressed decoration, much less use of the cardium shell for example; this type of decoration was partly replaced by combing, a technique not used at Byblos. This first Neolithic pottery differs quite markedly from site to site even in the same area simply because it was all hand-made locally and baked in bonfires or pits. Nevertheless there are elements in the colour and decoration of these vessels which link the sites on which they were made so that we may speak of a Beka'a group of sites.

It should also be noted that more white plaster ware seems to have been made on the Beka'a sites, Tell Labweh and Tell Neba'a Faour I in particular,

than at Byblos. This may be partly a matter of local custom but also a factor of chronology. Tell Labweh was certainly occupied early in Neolithic 3 before the Néolithique Ancien settlement at Byblos was founded and this may also have been true of Tell Neba'a Faour I. White plaster ware was used at the beginning of Neolithic 3 then gradually ceased to be made.

The Beka'a Neolithic 3 sites all belong with Byblos and Tabbat el Hammam in a South Syrian group but the minor differences in material equipment between them and the coastal sites are sufficient for us to distinguish a Beka'a subgroup of settlements within the larger area.

Several more Neolithic 3 sites have been found in the Beka'a but since the material recovered from them is scanty I will describe their locations briefly. Hermel IV is in the northern Beka'a a little to the south-east of Hermel near the Orontes. The site has yielded some Neolithic 3 material as well as finds of later periods (Copeland, Wescombe, 1966, 32, 33). There is a rock shelter 500 m east of Ras Baalbek in the northern Beka'a in which Neolithic 3 flints have been collected, including a tanged, pressure-flaked arrowhead, a burin and retouched blades (Besançon, Hours, 1968, 80, 81). Tell Bab ez-Zeitun overlooks the Wadi Yahfoufa to the east of Rayak in the central Beka'a (Copeland, 1969, 87, 92); this site is not far from Tell Neba'a Faour I and is in a similar location.

The remaining sites are in the southern Beka'a. The Kaukaba station is in a low pass on the road from the Karaoun dam to Rachaya (Copeland, Wescombe, 1966, 39). The plentiful surface material from this site included obsidian, basalt vessels, flint adzes, axes, sickle blades and arrowheads, all of Neolithic 3 type. Tell ez-Zeitun, the furthest south of these sites, is situated in the upper Hasbani valley north-east of the village of Dnaybe (Besançon, Hours, 1968, 81). The site has been visited by several workers who have collected fragments of tanged arrowheads, segmented sickle blades and heavy flaked tools from the surface as well as material of later periods.

The Beka'a is part of the Rift valley which may be traced from Maraş in

southern Turkey down through the Levant to the Gulf of Aqaba and Red Sea then on into East Africa. The section of the Rift valley immediately south of the Beka'a is the upper Jordan valley. The two sections are separated by broken hill country which may be traversed by way of the Hasbani valley. The southern Beka'a and upper Jordan valley have a similar environment being both hemmed in by mountains or high hills on the east and west. Several Neolithic 3 sites have been found in the upper Jordan valley, the material from which resembles that collected from the Beka'a sites I have just discussed. Such a correspondence stems principally from the geographical similarity of the two areas.

Beisamun

The extensive site of Beisamun was occupied until some time in Neolithic 3. As no pottery was found there the site was probably abandoned quite early in the 6th millennium. A few of the flints were of types found on Neolithic 3 sites in the Beka'a and at Néolithique Ancien Byblos. Most of the arrowheads were tanged and retouched by pressure-flaking and some of these were Amuq 1 and 2 types. The Amuq 1 type was already being made in Palestine late in Neolithic 2 as Perrot has pointed out (1969, 142) but the presence of both these types and other flints characteristic of Neolithic 3 must indicate that the site was occupied in the early centuries of the 6th millennium.

Arrowheads were sparsely represented in the collections from the site and sickle blades, although more numerous, still formed only 7% of the tools which were found (Le Brun, 1969, 116). Almost all these were segmented and retouched across the ends but a few were backed. The most numerous tools were the axes, picks and chisels which together comprised over 51% of the total. The axes were the most numerous and varied of the heavy flaked tools. Those with straight cutting edges were rectangular or trapezoidal in outline while the curved edge ones were oval or almond-shaped; a few had polished edges. 10% of these axes had split in use on the site where their remains were found (Le Brun, 1970, 93). Presumably they had been used to shape timber for the

large houses at Beisamun among other tasks.

All these flint artifacts compare closely with those from the Beka'a sites I have already discussed and Néolithique Ancien Byblos confirming that Beisamun was occupied in Neolithic 3.

Several surface sites are known in the extreme north-west corner of the upper Jordan valley but no structures have been found on them.

Tannur

Tannur which lies on the east bank of the Wadi Ayun is the furthest north of these sites. A few rough potsherds were found there which may be Neolithic (Lechevallier, Dollfus, 1973, 12*). Among the flint tools were a number of tanged, pressure-flaked arrowheads. Some of these were Amuq types 1 and 2; the tang of one of the latter was swollen at the base (Lechevallier, Dollfus, 1973, fig, 2:1), a trait found rarely on arrowheads in Lebanon but common enough further north. There was also a tanged and notched arrowhead (Lechevallier, Dollfus, 1973, fig. 2:8) of a type found at Munhatta and Tell Ramad in Neolithic 2.

Most of the sickle blades were segmented and backed; these were usually coarsely denticulated but some were nibbled (Lechevallier, Dollfus, 1973, 10*). The blades for these and other tools were almost all struck off pyramidal cores although one double-ended core was collected from the site.

Flaked axes were the most numerous tools found at Tannur. Oval and almond-shaped ones were more common than those with straight cutting edges (Lechevallier, Dollfus, 1973, 12*); the latter were triangular, trapezoidal or rectangular in shape. Some of these tools had polished cutting edges. An adze and a few picks were collected at the site but it seems that other heavy flaked tools were rare.

Two large stepped, open-ended basalt querns and fragments of several more were found at Tannur (Lechevallier, Dollfus, 1973, 12*). These were like querns found at Jericho, Munhatta and Tell Ramad in Neolithic 2. There were also a number of basalt rubbers and a fragment of a basalt bowl.

Some of the finds from Tannur are types found on excavated sites in Neolithic 2 contexts so presumably the site was first occupied then. The rest of the material, particularly the arrowheads and sickle blades, is more typical of Neolithic 3 so it seems that the site continued to be occupied until sometime in the 6th millennium.

Qat

Qat is situated on the right bank of the Wadi Ayun. No pottery was found here but flint tools were plentiful. Two double-ended cores were collected but the others were prismatic or pyramidal (Lechevallier, Dollfus, 1973, 12*). Most of the arrowheads were tanged and pressure-flaked and a few of these were like Amuq points. The sickle blades were usually segmented and denticulated as at Tannur.

129 axes were found at Qat which constituted about half the retouched tools found at the site; they formed the same proportion of the assemblage here as at Tannur. Almond-shaped and oval axes were the most common types at Qat as at Tannur (Lechevallier, Dollfus, 1973, 14*). The others were rectangular, trapezoidal and triangular in shape. Some of the axes had polished cutting edges. Among the other heavy flaked tools were picks and chisel-like tools. One scrap of obsidian was collected here and also several basalt grinding tools (Lechevallier, Dollfus, 1973, 17*).

The assemblage from Qat is so similar to most of the material from Tannur that the sites were probably occupied at the same time by groups engaged in similar activities. There are fewer definite Neolithic 2 artifacts at Qat so the site may first have been occupied a little later than Tannur and then continued to be inhabited in the earlier part of Neolithic 3.

Ain Hashomer

Fewer artifacts have been collected from Ain Hashomer than from Tannur and Qat but more classes of material are represented in the finds from the site. Some potsherds were picked up there, among them several sherds of a

coarse ware and also a fragment of a carinated bowl (Lechevallier, Dollfus, 1973, 19*). One of the more interesting finds was a piece of a white plaster bowl; Ain Hashomer is one of the most southerly sites on which this ware is known to have occurred.

The arrowheads were mostly fragmentary but they were usually retouched by pressure-flaking and two were tanged; one was leaf-shaped (Lechevallier, Dollfus, 1973, 17*). The commonest type of sickle blade was a denticulated segment. Axes were no more numerous than arrowheads and sickle blades at Ain Hashomer. There were trapezoidal and triangular axes as well as almond-shaped and oval ones in the assemblage; a few were partly polished. An obsidian blade and a fragment of a limestone bowl was found on the site. Bone borers were also collected from the surface.

This material, though sparse, quite closely resembles that from Beisamun, Tannur and Qat as well as the Beka'a sites. Like them Ain Hashomer was occupied early in Neolithic 3.

A number of flint tools and a fragment of a basalt object were found on the surface of another site in this group, Zug Fuqani (Lechevallier, Dollfus, 1973, 20*). The most diagnostic flints were several finely-denticulated sickle blades, a pressure-flaked arrowhead and 19 flaked axes, most of which were almond-shaped. The quantity of axes found here and the typology of the tools links Zug Fuqani with Beisamun, Tannur and the other sites in this area which I have considered so it, too, was probably occupied in Neolithic 3.

Kfar Giladi

The prehistoric site of Kfar Giladi is situated on a hill to the north of the village of the same name. During excavations in 1958 and 1962 a Neolithic settlement was found on the natural subsoil with Chalcolithic and Early Bronze Age remains on top of it (Kaplan, 1958a, 274; 1966, 273). Two levels were distinguished in the Neolithic deposits, an occupation layer of earth and ashes below and a stone wall 1.2 m thick with associated debris above. The artifacts were of the same character in both levels.

The pottery which I have examined was a medium-fired ware with grit filler. The fabric was often pink in colour but the surface of most sherds was a fairly uniform grey. A few were brown or black in colour. The surface of the vessels was either scraped smooth or burnished. The pots were simple in shape, ranging from hole-mouth jars to hemispherical bowls and cups. A few were decorated with incisions or cord impressions.

The flints included tanged, pressure-flaked arrowheads, segmented sickle blades and partly polished adzes and chisels. Some bone tools were found in the excavations and also part of a baked clay female figurine.

A charcoal sample from the lowest Neolithic level has given a ^{14}C date of 6955 ± 320 B.C. MATJ-1 (Kaplan, 1966, 273). This would appear to be too early a date for the site since it is inconsistent with the typology of the artifacts found there. The sample was taken from the lowest level so it is possible that there was an earlier deposit at the bottom which was not recognised in the excavation for which this ^{14}C date is the only evidence.

The typology of the flints would suggest that Kfar Giladi was occupied in Neolithic 3 or the next stage but we do not know enough about them to decide which it was. The pottery is more helpful since the shape, finish and decoration of the vessels resembles that found at Tell Neba'a Faour I and some of the pots from Tell Labweh. The grey colour of much of the Kfar Giladi pottery is a more southern characteristic found on several sites in northern Palestine. When writing about Kfar Giladi several years ago I said that the pottery and some of the flints were like those of sites in Palestine which, on other evidence, appeared to have been occupied in the 5th millennium (Moore, 1973, 54). I was not then inclined to accept the suggestion made by Copeland (1969, 87) that Kfar Giladi was occupied in the 6th millennium. I now believe that the Palestinian sites should be dated earlier as I shall explain later in this chapter and this new dating would also place the occupation at Kfar Giladi further back in time. The comparison that Copeland made between Kfar Giladi and the Beka'a sites and that I made between it and

the sites in Palestine are thus both valid. Kfar Giladi does indeed seem to have been occupied sometime in Neolithic 3 though perhaps a little later than the other sites from the same area that I have discussed.

Hagosherim

Hagosherim lies between two streams at the northern end of the upper Jordan valley. Like Beisamun the site was discovered when fishponds were being made. Most of the material was collected from the fishponds and the surface of the site but some was found in an excavation which is as yet unpublished. The site covered several hectares but no substantial structures were found on it (Perrot, 1968, col. 411).

All the arrowheads from Hagosherim were tanged and some were pressure-flaked. One had a stubby tang defined by a pair of notches and another pair of notches on the shaft. Another was an Amuq 2 arrowhead with a swollen tang. Most of the sickle blades were segmented and some were backed; some had nibbled or finely-denticulated cutting edges, others coarse denticulation. The most distinctive artifacts were the numerous flaked axes and chisels, some of which were partly polished (Perrot, 1968, fig. 844). Some were oval or almond-shaped, others D-shaped, sub-rectangular or trapezoidal.

Most of the pottery from the site was a medium or soft-fired ware with a reddish or brown surface. The fabric was tempered with many grits and much chopped straw. Some of the vessels were jars with lug or strap handles. There were also flat-bottomed dishes and bowls with splayed sides. A few of the vessels were decorated with red paint or burnished. One of the thinner bowl sherds had been coloured black and burnished.

Several of the querns from Hagosherim were the open-ended stepped type and others were simple saddle querns. Many rubbers were found there and also grooved pebbles and stone ornaments. Some bone borers were also recovered from the site.

The stepped querns, notched arrowhead and some of the tanged arrowheads all belong in a Neolithic 2 context so Hagosherim must first have been

occupied then. The other flint tools compare closely with Néolithique Ancien Byblos and the Beka'a sites as well as Beisamun and the neighbouring surface stations in the upper Jordan valley. Some of the axes, particularly the D-shaped ones, and sickle blades are very like examples from Tell Ramad Levels II and III and the dark burnished sherds also match sherds from Tell Ramad III (Moore, 1973, 40). These comparisons suggest that Hagosherim was occupied for much of Neolithic 3. It should be noted that most of the pottery is unlike that found on the Beka'a sites or at Kfar Giladi. It is unburnished and quite coarse, traits it shares with the earliest Neolithic pottery from Jericho which I shall discuss later.

Before leaving Hagosherim we should note that some of the flints seem later in type than those found on stratified Neolithic 3 sites (Moore, 1973, 41). It may be that Hagosherim was occupied in a later stage of the Neolithic or even the Chalcolithic.

Tell Turmus

Tell Turmus is a small mound perhaps about 300 sq m in area on one of the tributaries of the Jordan a little to the east of Hagosherim (Dayan, 1969, 65). The site was occupied in two periods, during the Neolithic (strata 3 to 6) and again in the Chalcolithic (strata 1 and 2). Several stone walls paved areas and floors were found in the Neolithic levels together with many potsherds and flint implements.

Both thick, coarse wares and thinner-walled finer vessels were used in the Neolithic levels (Dayan, 1969, 70). The fabric of these pots was tempered with grits and some straw which was then fired to produce a range of surface colour from pink to brown or even black. The vessels were all of simple shapes such as hole-mouth jars or collared jars, some of which had handles. A few were decorated with incised lines in herringbone patterns or loops filled with stab marks and some vessels were burnished. This pottery is somewhat like pottery from Kfar Giladi and Hagosherim while the incised patterns are like designs used at Byblos in Néolithique Ancien. Tell Turmus would thus

appear to be another site at the headwaters of the Jordan occupied in Neolithic 3.

Kabri

Kabri is on the western edge of the Galilee hills near the coast. Following the discovery of fine obsidian and stone objects on the site an excavation was undertaken here in 1958 (Prausnitz, 1969, 137). These objects came from a Chalcolithic settlement near the surface but below that there were Neolithic deposits. The earliest settlement of layer III had circular paved areas ringed with upright stones, perhaps the remains of huts. Some contracted burials were found under these paved areas accompanied by a pot and flint axes, arrowheads and knives.

We know very little about the pottery from the site but some information about the flints has been published. There were leaf-shaped and also tanged and pressure-flaked arrowheads in the deposit together with segmented, coarsely denticulated sickle blades. Both trapezoidal and rectangular axes were found, some of which were partly polished. One of the rectangular axes had split in use. Some small greenstone axes were also found in this deposit (Prausnitz, 1959, 268) but little else.

The affinities of this material are with Néolithique Ancien Byblos further up the coast and the Neolithic 3 sites in the upper Jordan valley and the Beka'a. Kabri was thus first occupied in Neolithic 3 although the site was also used in later stages.

Damascus basin

One site in the Damascus basin, Tell Ramad, is known to have been occupied in Neolithic 3. The remains from here are a little different from those on other sites in the South Syrian group as one might expect on a settlement separated from others to the west by the Anti-Lebanon mountains.

Tell Ramad

Deposits of the third phase of occupation at Tell Ramad, Level III, have been found near the summit on the west side and on the shelf in the south-east corner of the mound (de Contenson, van Liere, 1964, 118; de Contenson, 1974, 18). Much of Level III had eroded away so that these deposits were no more than 1 m deep when found. It would appear that the Level III settlement once covered at least half the mound, an area of about 1 ha, but may have been more extensive. There is no evidence of a break in occupation between Levels II and III but the nature of the structures altered markedly in Level III. No buildings could definitely be attributed to this Level although a number of floor surfaces and hearths were recognised in it. The principal remains were several large pits which were as much as 2.5 m deep and filled with ashes and other burned material (de Contenson, van Liere, 1966, 168).

The flint industry of Level III did not differ greatly from that in Level II. The sickle blades were usually segmented with coarsely denticulated cutting edges and were sometimes backed. The arrowheads were tanged and pressure-flaked like Byblos points. Another common tool was a large flake knife with a serrated edge. There were also a few flaked and partly polished flint axes and a number of small polished greenstone axes. Obsidian continued to be imported in Level III. A few stone bowl fragments and basalt grinding tools belonged in this level.

Most of the pottery in Level III was a medium or hard-fired ware with some grit temper. The pots were usually brown or grey in colour although some were fired buff or red. The two main vessel shapes were a hemispherical bowl or cup sometimes with a ring base and a jar with a collar neck or everted rim (de Contenson, van Liere, 1964, 118). Some of the jars had lugs or handles. These pots were either burnished all over or around the rim. Some had incised or combed decoration and a few were even scraped with a shell in a manner reminiscent of vessels from Néolithique Ancien Byblos. A few vessels were

coated with white plaster (de Contenson, 1969a, 26). A number of the bowls had been burnished very thoroughly so that they resembled the dark polished ware found on some North Syrian sites.

A large number of fragments of white plaster ware was found in Level III (de Contenson, 1974, 18). Vessels of this substance thus continued to be made at Tell Ramad after the introduction of pottery as was also the case on a number of other Neolithic 3 sites.

The other artifacts in Level III consisted of bone borers and spatulae together with a limestone stamp seal (de Contenson, 1969a, 26). A few fragments of baked clay animal figurines were found and several baked clay stylised human figurines have also been attributed to this level (de Contenson, 1971, 285); they had rod heads with little pieces of clay applied to represent the eyes, nose and ears. The surface of these figurines was burnished.

The cultural affinities of Tell Ramad III are more with the South Syrian group of sites than those further north. Tell Ramad has the same segmented sickle blades and arrowheads as Byblos and several of the Beka'a sites. The shapes and decoration of much of the pottery are also quite similar though here we should note that some of the burnished Ramad bowls, particularly the dark polished ones, are more like pottery from Ras Shamra or Tell Judaidah. The Ramad pits have much in common with those in the ceramic Neolithic level at Abu Hureyra and also, as we shall see, on several Palestinian sites; these pits are not a normal feature of other South Syrian sites. Tell Ramad III thus has certain distinctive traits in common with sites to the north and south even if culturally it belongs to the South Syrian group. It is best thought of as a settlement which belongs to a third sub-group within the South Syrian complex even if for the time being no other contemporary sites are known in the Damascus basin.

We do not know exactly when or for how long Tell Ramad III was occupied. The one carbon 14 determination for this Level is 5930 ± 55 B.C. GrN-4823 (Radiocarbon 9, 1967, 129) which is virtually the same as the date at which

Tell Ramad II was first occupied. The Tell Ramad II settlement probably lasted for several centuries so Tell Ramad III cannot have been inhabited before 5800 or 5700 B.C. if even then. The affinities of the material from Tell Ramad III are mostly with sites occupied in the early or mid 6th millennium B.C. The inhabitants may finally have left the site about 5500 B.C. or a century or two later but this is no more than an estimate.

I now wish to consider the Palestinian sites which were occupied in Neolithic 3. The material found on these sites differs sufficiently from that on settlements further north for them to be regarded as a third regional group.

Palestine

There are a number of sites in Palestine with characteristic structures, flint assemblages and pottery which were occupied later than Neolithic 2 and before the Palestinian Chalcolithic, that is the culture typical of Ghassul and related sites. I described the material remains and economy of these sites, their sequence of development and place within the Neolithic of the Levant in an article published in 1973. I placed all these sites in a single period which I called the "Late Neolithic" of Palestine. This period was divided into early and late stages called phases 1 and 2. I distinguished two local geographical groups in phase 1 and three in phase 2. I had to determine the Late Neolithic sequence of development and the geographical divisions on comparative stratigraphy and artifact typology since there were no carbon 14 determinations available from any site occupied in that period.

We can be fairly sure that the transition from the Late Neolithic to the Chalcolithic in Palestine took place about 3750 or 3500 B.C. (Moore, 1973, 64) but we do not know for certain when it began. Much depends on quite general typological comparisons between the Late Neolithic sites in Palestine and contemporary sites to the north such as Byblos which are themselves not very precisely dated. All too few carbon 14 determinations have been made

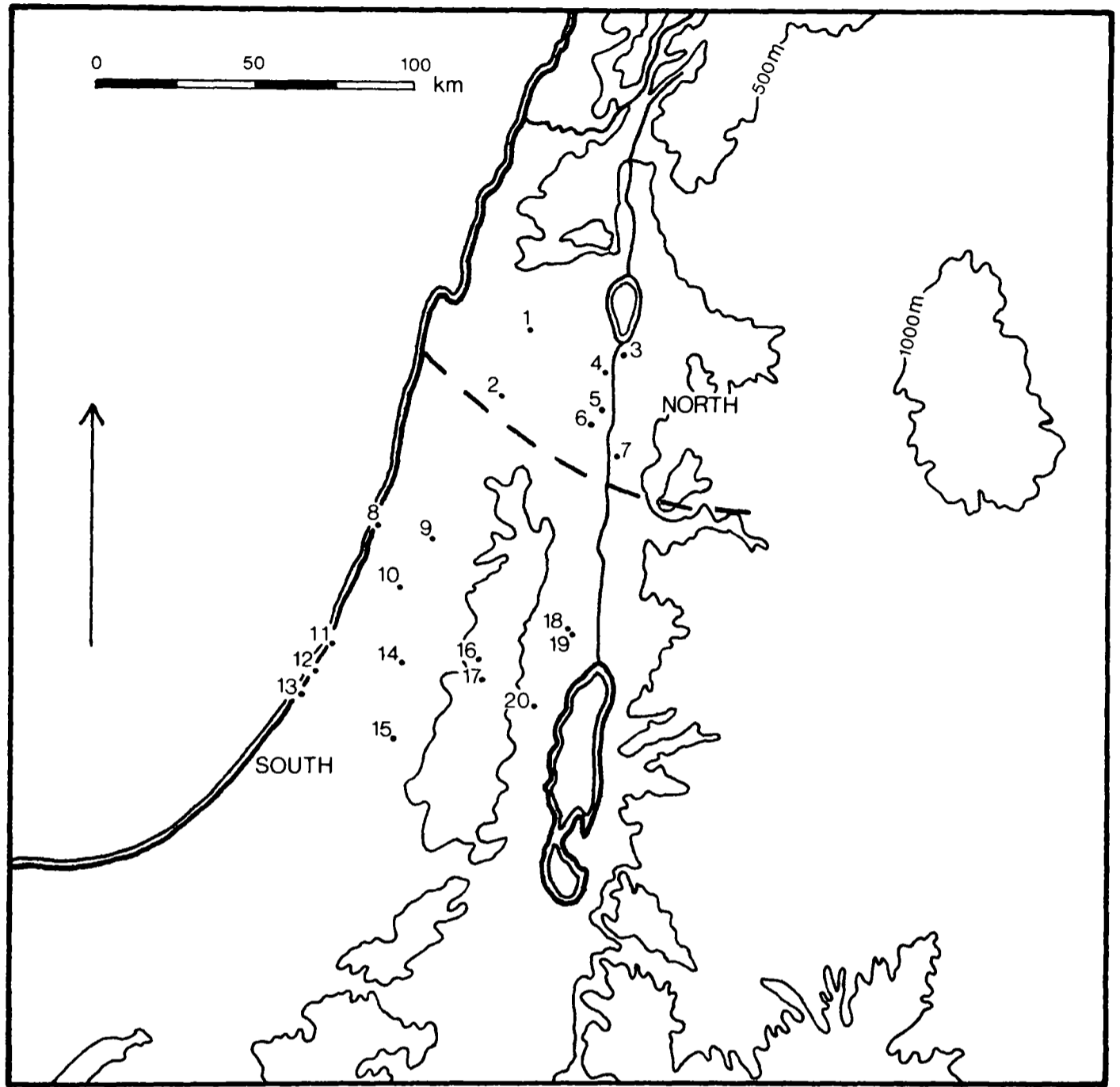


Fig. 44 Neolithic 3 Palestinian sites

FIGURE 44

Neolithic 3 Palestinian sites

- 1 Sepphoris
- 2 Megiddo
- 3 Shaar Hagolan
- 4 Munhatta
- 5 Hamadiya
- 6 Beth-Shan
- 7 Wadi el Yabis
- 8 Herzliya
- 9 Wadi Rabah
- 10 Lydda
- 11 Givat Haparsa
- 12 Nizzanim
- 13 Ashkelon
- 14 Teluliot Batashi
- 15 Tell ed-Duweir
- 16 Abu Gosh
- 17 et-Tauamin
- 18 Tell Ras el Ain
- 19 Jericho
- 20 El Khiam

on material from sites in the Levant occupied in the 6th, 5th and 4th millennia, partly because so many of them were excavated many years ago. Recently excavated sites which were occupied in Neolithic 1 and 2 can be much more precisely dated simply because several of them have a series of carbon 14 dates.

The late Neolithic sequence I was able to establish for Palestine still seems valid for that region although the term "Late Neolithic" itself does not accord very well with the general terminology I am using in this thesis for the Neolithic of the Levant. I will not, therefore, use "Late Neolithic" here but will treat the sites concerned as they occur in each stage of the Neolithic of the Levant. I hope to be able to show that the sites I previously described as Late Neolithic phase 1 fall within Neolithic 3 of the Levant and those of Late Neolithic phase 2 within the last stage, Neolithic 4.

I will now briefly describe the principal phase 1 sites in each geographical group. I shall also mention the other known phase 1 sites which I did not discuss in my earlier paper in order to determine as fully as possible their distribution (Fig. 44).

South Palestine

The site with the most ample record of phase 1 occupation is Jericho. After a long period between Neolithic 2 and Neolithic 3 when the mound was inhabited, the site was occupied once more in what Kenyon has termed the Pottery Neolithic A phase (Kenyon, 1970, 62). The earliest deposits of this phase consisted of trodden floor surfaces with hearths. Then the inhabitants dug out numerous pits which apparently served as dwellings and working hollows. Some of the early pits were as much as 5 m deep but others were much shallower though still several metres wide. Their sides were recut periodically and lined with stone and clay walls for support. The interiors had successive trodden earth floors testifying to their use over a long period. An oven and numerous hearths were found on the floors in these pits. There were low stone walls around the rims of some pits which supported a roof, traces of which

were found within the pits themselves. These pits were found in Trenches I, II and III and in areas M and E, that is all over the mound so the Pottery Neolithic settlement was probably as large as those of the preceding Neolithic stages.

The Pottery Neolithic flint industry was different in a number of aspects from that of Neolithic 2 at Jericho. The raw material was usually buff, brown or grey flint, very few tools being made on the pink, purple or honey coloured flint of earlier stages. A very little obsidian was also used in this phase. Most of the tools were made on blades struck off pyramidal cores. These tools were quite small, the arrowheads for example being usually about 3 or 4 cm long. These were tanged and often had marked shoulders or wings (Moore, 1973, fig. 4). The tips of some of them were thinned to a sharp point. All these arrowheads were extensively retouched by pressure-flaking.

The sickle blades were always segmented and often had flat retouch along the back. They were usually about 3 to 4 cm long and 1 to 2 cm wide. This type has a coarsely denticulated cutting edge (Moore, 1973, fig. 2). Another which was more than 2 cm wide had flat retouch over part or all of both surfaces. The cutting edges were finely or coarsely denticulated and a few were backed (Moore, 1973, fig. 3).

A third characteristic tool was a knife made on thin tabular flint. This had a cutting edge retouched by squamous pressure-flaking which was usually bifacial. There were some flake side-scrapers and also a characteristic flake scraper with a retouched side and end meeting to form a right angled corner. Among the other tools were end-scrapers on blades, small borers and several types of burin.

The heavy tools at Jericho were also quite small like the arrowheads and sickle blades. These consisted of axes, adzes and chisels which had been flaked all over. They were elliptical in cross-section or more rarely oval and had rounded, flaked cutting edges which were sometimes polished. The assemblage also included a few small picks.

The pottery of this phase at Jericho was all made of clay tempered with much straw and some grit. There was a coarse plain ware, some sherds of which were very thick and crumbly, and also a painted fine ware. The most common shapes were baggy jars with flat bases, globular hole-mouth pots and other jars with a collar neck (Moore, 1973, figs. 6, 7). There were also simple bowls and cups with flat bases and splayed sides. The larger vessels had knobs, ledge or strap handles for lifting. These pots were built up in strips or coiled and then scraped or wiped on the surface, a technique that left a characteristic rough, striated surface. The decorated vessels were coloured with cream and red slips to produce reserved chevron and triangle patterns which were sometimes burnished. A very few vessels had a little incised decoration.

The rest of the artifact inventory was quite simple. There were some borers and other bone tools but most of the remaining artifacts were made of stone. These consisted of simple bowls, querns and rubbers as well as some pestles and mortars.

Tell Ras el Ain is north-west of Jericho and a little to the west of the springs of Ain Duq and Ain Nu'eima on the edge of the Jordan valley. The tell was occupied in the Bronze Age but there are indications from surface collections that the site was also inhabited in the Neolithic. Several arrowheads were found here, one of which was tanged and pressure-flaked, and also denticulated, segmented sickle blades (Mallon, 1931, 162) as well as other flint tools. Among the sickle blades were examples of the broad, flat, extensively pressure-flaked type found at Jericho in Pottery Neolithic A. Tell Ras el Ain was thus definitely occupied in the later Neolithic, probably in phase 1.

Abu Gosh on the Mediterranean side of the Judean hills was also occupied in this phase. The surface level at the site contained a mixture of material from several periods (Dollfus, Lechevallier, 1969, 279) which included some flints and sherds resembling Pottery Neolithic A artifacts from Jericho. No structures were found in this level although there were a few shallow pits

dug into earlier levels. The site can have covered no more than 1000 sq m in this phase and so was quite small.

Perrot found a few Neolithic sherds in this level during his excavations at the site (1952b, 140). They were coarse fragments with much straw filler and one of them has been roughly wiped on the surface. Among the other finds from this level were narrow, segmented, coarsely denticulated sickle blades and burins. Perrot also found many flaked and polished trapezoidal, oval and almond-shaped axes and other heavy tools which we now know mostly came from this level although a few have been found in level 1, the level beneath the surface layer containing remains of a Neolithic 2 settlement.

The pottery and sickle blades indicate that Abu Gosh was inhabited briefly at a time approximately contemporary with Jericho in Pottery Neolithic A though we do not know if this phase of occupation immediately succeeded the Neolithic 2 settlement. The axes and other flaked tools have been found on very few other Palestinian settlements but they closely resemble those found at Beisamun, Tannur and other Neolithic 3 sites at the headwaters of the Jordan.

Another site which was probably occupied in phase 1 is the cave of et-Tauamin in the Wadi Said west of Bethlehem. Neuville excavated a thin deposit here which contained a mixture of Bronze Age, Roman and Byzantine artifacts and also a hollow with Neolithic material (1930, 65). The hollow was about 2 m across and within it was a homogeneous collection of flints and pottery. Among the flints were two small tanged arrowheads, one of which was winged, an oval flaked axe with tranchet edge and some segmented, denticulated sickle blades (Neuville, 1930, pl. I: 2-4, 9). Several of the latter were wide and flat with thinning retouch of the type found at Jericho in phase 1 (Neuville, 1930, fig. 3: A).

The pottery was coarse with grit filler. One of the vessels was a small necked globular jar with a handle at the junction of the neck and body (Neuville, 1930, 72). There were also fragments of several bowls and cups

in the hollow and some of these sherds had been painted in red with lines and chevrons. The other finds consisted of bone borers, spatulae and a needle, spindle whorls made from potsherds and a small basalt ring.

Some of these artifacts are characteristic of phases 1 and 2 in Palestine but the evidence of the sickle blades and the fabric and decoration of the pottery would suggest that the site was in fact occupied in phase 1.

A little material of this stage was found in the upper levels of El Khiam. This consisted of several denticulated sickle blades, a few of which were of the flat, pressure-flaked type found in Pottery Neolithic A Jericho (Neuville, 1934, pl. XX: 3; Perrot, 1951, 171). Some sherds of coarse, straw-tempered pottery were also recovered (Perrot, 1951, 174) which may be of phase 1 type. This evidence suggests that El Khiam was used occasionally in phase 1 as it continued to be in later periods.

More phase 1 material was found by Kaplan at Lydda on the coastal plain (Kaplan, 1959a, 18). The pottery and flints were mixed with Chalcolithic artifacts but could clearly be distinguished from them. We do not know if there were any structures on the site but it seems to have been another small settlement which was not inhabited for long.

Several diagnostic types of flint tools were found, among them two small tanged arrowheads, one of which was also winged and notched. There were also segmented, coarsely denticulated sickle blades and a few of the wider, flat retouched, denticulated sickle blades found at Jericho. The other recognisably Neolithic tools consisted of flake scrapers and knives.

Some of the pottery fabrics were like Pottery Neolithic A vessels from Jericho being buff or brown in colour with much straw filler. Other vessels were made of a grey ware which contained a little straw and grit. The shapes of the vessels resembled the Jericho pots and they had the same handles. Some of these vessels were decorated with triangles or chevrons painted in red. occasionally on a cream slip as at Jericho. The surface of these vessels was then usually burnished.

Kaplan found a little more phase 1 material in his excavations at the site of Wadi Rabah situated a few kilometres north of Lydda and to the east of Tel Aviv. The diagnostic pottery consisted of some painted sherds and a knob handle resembling the material found at Jericho (Kaplan, 1958b, fig. 4: 1, 2, 7). Among the flints were several of the broad, segmented sickle blades also typical of phase 1 at Jericho. The principal phases of occupation at Wadi Rabah were in Late Neolithic phase 2 and the Chalcolithic but this evidence indicates that the site was inhabited briefly in the preceding stage also.

More phase 1 material was found at Teluliot Batashi, another site excavated by Kaplan. This site is to the south of Lydda and is situated on a terrace in the Wadi Sorek. It consists of several small mounds and was first occupied in the Neolithic then in several subsequent periods. Two "shelter-pits" were found in level IV at the bottom together with much pottery and some flints of phase 1 type (Kaplan, 1958c, 83*). The pottery consisted of plain and painted jars and bowls, some of which had ledge handles or pierced lugs for support. The painted designs consisted of broad bands, chevrons and triangles in red or brown paint. Some of both the painted and plain wares were burnished. Among the flints were several tiny arrowheads, segmented denticulated sickle blades and an oval flaked axe with a round polished cutting edge.

Further south but also at the junction of the central plain and the hills of Judea lies the site of Tell ed-Duweir. A painted sherd of phase 1 type was found here in Cave 6019 (Tufnell, 1957, 300, fig. 1). The sherd has since been lost (Moore, 1973, n. 93) so that it is not now possible to check this attribution. It is possible, however, that the site was occupied in Neolithic 3.

Givat Haparsa is situated in the dunes on the coast a little north of Ashdod. Some shallow dwelling pits or working hollows were excavated here and hearths were also found (Burian, Friedmann, 1960, 43ff). The excavation yielded a few rough potsherds as well as a rich assemblage of flint tools and some carved stone objects.

The diagnostic flint tools were both tanged and tanged and winged arrowheads, most of which were small, denticulated segmented sickle blades and bifacially retouched tabular flint knives. All match the Jericho Pottery Neolithic A material very closely. The arrowheads were particularly numerous, 680 being found (Burian, Friedmann, 1963-64, IV). Among the other flint tools were many small borers, another typical tool of phase 1 and 2 assemblages, and burins. There were also a few flaked oval axes and some trapezoidal flaked and polished axes.

The structures and flints at Givat Haparsa are all characteristic of phases 1 and 2 in Palestine. The pottery gives the best indication of when the site was actually occupied since it resembles the coarser Pottery Neolithic A wares at Jericho. This suggests that the site was inhabited in phase 1 although since the arrowheads are mostly developed types it may not have been used until quite late in that phase.

Nizzanim is in the dunes a little further south down the coast. Several pits about 2 m in diameter and from 30 to 70 cm deep have been excavated here²⁷ which may have been dwellings or working hollows. Associated with the pits were floors of crushed sandstone and hearths on beds of pebbles.

Among the flints were both tanged and tanged and winged arrowheads as well as rod points, all of which were pressure-flaked. The sickle blades were denticulated and usually segmented. The other diagnostic tools were tabular flint knives with pressure-flaked edges while the remaining flint tools consisted of burins and scrapers. There were also stone grinding tools and some ornamental objects, including turquoise beads. The pottery was distinctive and homogeneous. There were hole-mouth jars with flat or ring bases which had lug, knob or strap handles for lifting. Some of these jars had collar necks. The other vessels were simple bowls and cups. A number of vessels were painted with red designs of parallel lines or chevrons. The surface was then highly burnished.

Most of the flint tools are quite typical of phase 1 and 2 sites. The

pottery is all of one kind, that of Pottery Neolithic A at Jericho, which indicates that Nizzanim was occupied in phase 1 only.

Ashkelon is another site in the dunes which was discovered when the new port was built. Perrot excavated it and found a number of pit dwellings from 2 to 5 m in diameter and as much as 1 m deep (1968, col. 408). There were also smaller hollows interpreted as storage pits and hearths.

The arrowheads were either tanged or leaf-shaped, often with very thin points. The sickle blades were segmented and denticulated. There were several flaked and polished trapezoidal and oval axes as well as bifacially retouched tabular flint knives. The remainder of the chipped stone assemblage consisted of burins, borers and scrapers and also a scrap of obsidian. No pottery was found at Ashkelon but there were a number of other finds, among them grinding tools, stone bowls and bone points. There were several ornamental objects such as stone bracelets and shell beads together with some spindle whorls. The affinities of the flint tools are with other phase 1 sites but the absence of tanged and winged arrowheads and also pottery suggests that the site may have been occupied quite early in this phase.

A small site was discovered several years ago near Herzliya north of Tel-Aviv and has since been excavated (Prausnitz et al., 1970, 16). This site, too, is in the dunes near the coast. Several small pits which were too small for dwellings, a number of trodden floors and some hearths were found here.

The chipped stone assemblage included several standard phase 1 and 2 types such as tabular flint pressure-flaked knives, segmented, denticulated sickle blades and both tanged and tanged and winged arrowheads. There were also some tranchet arrowheads which have been found on several other coastal sites, some oval flaked axes and picks, scrapers, burins and blade knives. Among the sickle blades were several of the broad, flat, segmented type found only in the Pottery Neolithic A levels at Jericho (Prausnitz et al., 1970, fig. 4).

A number of coarse gritty potsherds were found in the excavation, some of which had been painted with a red wash. The most remarkable find was a complete jar which had a small flat base, splayed sides broken with a carination and a flat rim (Prausnitz, 1970b, 9). The upper part of the body had a series of knobs and strap handles for lifting. The fabric was also a coarse, gritty ware and the surface was covered with a red wash. This vessel was found sitting upright in a pit, the position in which it had been made to stand.

The sickle blades are characteristic of phase 1 rather than phase 2. The pottery is of less diagnostic value since the complete jar is a unique object. The fabric of the pottery from Herzliya is coarse enough for phase 1 but the red wash finish is a typical phase 2 feature. I believe the site was probably occupied in phase 1 on the evidence of the flints though perhaps late in the phase but we cannot be sure on the evidence available.

Many surface stations with chipped stone assemblages characteristic of phases 1 and 2 have been found in the coastal dunes. No pottery has been found on these sites and it is not possible to decide from the flints alone in which phase they were inhabited. I will describe all of them in the next chapter in which I shall consider the last stage of the Neolithic but we should remember that some of these sites may have been occupied in this phase.

North Palestine

Megiddo was first inhabited towards the end of Neolithic 2 but was also occupied in the next stage. A layer of debris, designated Stratum XX, which contained a mixture of Neolithic and Chalcolithic material was found on the rock in Area BB on the north-east side of the mound. A number of post-holes and small pits, mostly about 1 m in diameter had been cut in the rock here. Built on the rock were the footings of a curved stone wall and also a mud-brick wall (Loud, 1948, 60) which may have been parts of dwellings originally.

There were no arrowheads among the flints from Stratum XX but there were a number of segmented sickle blades²⁸ with fine or coarse denticulation

(Crowfoot, 1948a, 143). These are similar in type to the group of sickle blades found in Stratum -XX. There were also two denticulated blades, an end-scraper on a blade, a piece of delicately retouched tabular flint and a fragment of obsidian. The sickle blades are the most diagnostic type and these resemble examples from phases 1 and 2 at Jericho. One of the broad, segmented sickle blades with extensive retouch characteristic of phase 1 at Jericho was found on the surface at Megiddo in 1925 and is now in the Oriental Institute, Chicago. It probably originated in Stratum XX.

Both coarse and finer Neolithic pottery was found in Stratum XX at Megiddo. The most common vessel shapes were hole-mouth pots with knobs or lugs and collared jars with strap handles (Loud, 1948, pl. 1: 14-22, 24). Some of these pots had rounded bases. The fabric was tempered with white grit and straw. Some vessels were wiped over and their surfaces left rough but others were burnished. The pots were usually grey in colour on the surface. The finer vessels had thinner walls and were decorated with horizontal bands or rows of zigzag lines painted in red (Loud, 1948, pl. 2: 30-34). The shapes of these vessels and the decoration of the finer ware resemble the pottery of Pottery Neolithic A at Jericho but the burnished grey finish of many of them is a northern feature found also at Kfar Giladi.

The similarities between the flints and pottery from Megiddo and material from Pottery Neolithic A Jericho and Kfar Giladi indicate that the site was occupied in phase 1. It is also fairly clear, despite the mixture of material in each stratum, that the phase 1 settlement of Stratum XX was inhabited not long after the Neolithic 2 occupation of Stratum -XX. It is thus possible, though incapable of proof given the evidence we have, that Megiddo was continuously occupied from the end of Neolithic 2 into Neolithic 3.

Mallon found a Neolithic surface station at Sepphoris a little way north of Nazareth (1925, 190, 191). He collected a number of flat flaked trapezoidal flint axes there on what seems to have been a workshop site used also in other periods. These axes are similar to some found at Abu Gosh, Tannur and

Qat in Neolithic 3 so the flint at Sepphoris was probably worked then as well as at other times.

The great mound of Beth-Shan was first occupied in this stage. The earliest habitations were large pits dug into the subsoil at the bottom of the site (Fitzgerald, 1934, 124ff). Some simple pottery was found in these pits though very little was kept for later study. The sherds still in museum collections²⁹ consist for the most part of a series of strap and other loop handles. One of these and several other sherds were painted with thin lines in chevron or criss-cross patterns (Fitzgerald, 1935, 7; pls. 2: 25; 3: 18). This pottery is quite like the phase 1 material from both Megiddo and Jericho in shape and decoration while the dwelling pits found at the site are another indication of Neolithic 3 occupation.

The site of Wadi el Yabis is beside a spring on the west side of the road from Deir Alla to Khirbet esh-Shuneh in the Jordan valley. It was discovered when a cistern was made and all the material recovered came from this pit. No pottery was noticed but a number of flint and ground stone artifacts were recovered. The most diagnostic flints were denticulated, segmented sickle blades and a pressure-flaked tanged arrowhead though long nibbled blades, a burin on a blade and several flake scrapers were also found (Kirkbride, 1956, 57, 58). Most of the ground stone tools were made of basalt and the remainder of limestone. Among these were several hammers and pestles, a ring which may have been a weight and an axe with a straight edge and rounded butt (Kirkbride, 1956, 56, 57).

The sickle blades indicate that the site was occupied in phase 1 but the arrowhead and nibbled blades taken together with the absence of pottery suggest that the site was occupied at the beginning of this phase, that is early in Neolithic 3. The ground stone tools would also fit such a context.

Munhatta was inhabited again in both Neolithic 3 and Neolithic 4. The deposits of these stages have been called phase 2. Phase 2 at Munhatta has been divided into a later sub-phase, 2A or the Wadi Rabah phase, and two

earlier sub-phases, 2B¹ or the Munhatta phase and 2B² or the Shaar Hagolan phase (Perrot, 1968, col. 415). The levels of 2A are later than the stage which we are considering in this chapter so it is only phase 2B which concerns us here.

In 2B² the inhabitants seem to have lived in large pits 3 to 4 m in diameter which contained paved areas, benches and hearths. There were also some bell-shaped pits about 1 m deep which may have been used for storage. In 2B¹ the large pits were replaced by shallow hollows which were as much as 10 or 12 m in diameter. The floors of these hollows were pock-marked with smaller pits and depressions. One had a circular structure in the middle with walls of bun bricks on stone foundations.

The two principal flint tool types were segmented, denticulated sickle blades and tanged arrowheads. The sickle blades were quite abundant and included some relatively wide and flat ones like those found at Jericho. The tanged arrowheads were retouched by pressure flaking and were mostly quite small. A few large flaked axes with rounded polished cutting edges were found in 2B² but none in 2B¹; they resemble examples from Abu Gosh and the sites in the upper Jordan valley. The only other stone tools were small flat basalt querns.

Some obsidian found in the phase 2 levels at Munhatta has been analysed. It may have come from the 2B settlement. Two pieces were from Çiftlik, one from Nemrut Dağ and a fourth from near Lake Van (Wright, Gordus, 1969, 86).

The pottery of phase 2B was tempered with grit but relatively little straw compared with sites in the southern group. The shapes included collared jars with loop handles at the base of the neck, hole-mouth jars also with loop handles or lugs and handled cups. The pots were grey or buff in colour and their surfaces were scraped or wiped before firing. Some of the vessels were burnished. The fabric and surface finish of the vessels resemble the grey wares of Megiddo and Kfar Giladi. This pottery was decorated with incised designs or paint. The incised designs usually took the form of lines of

herringbone incisions which ran around the vessel near the rim and in zigzag bands around the body (Perrot, 1968, fig. 845). These designs were sometimes combined with areas of red wash. There were also many vessels painted with groups of lines in chevron patterns or bands of paint which formed simple patterns on the body. This painted decoration resembles that found at Jericho, Megiddo and Beth-Shan in phase 1. The incised herringbone patterns are characteristic of phase 2 at Jericho and elsewhere but seem to have been used earlier on this northern group of sites. Several other kinds of object were made of baked clay in Munhatta 2B², among them rods with a conical end, animal and human figurines (Perrot, 1968, pl. IV: 1-4, 6). The human figurines were females with pointed heads and eyes and ears made of applied pieces of clay, the eyes being shaped like coffee beans. These stylised figurines were made in the same way as those from Tell Ramad III and they are quite like the one from Kfar Giladi. It is also of interest that a number of pebbles were found in this level which had been marked with a few lines to represent human beings (Perrot, 1968, pl. IV: 7) just like ones from Néolithique Ancien Byblos.

The large pit dwellings, the typology of the flint tools and pottery together with unusual objects found on other sites such as the human figurines in baked clay and on pebbles all indicate that Munhatta 2B was occupied in phase 1. There are changes in both the flint industry and the pottery as the settlement developed which imply that the site was occupied for longer than would seem to be the case on most of the sites I have discussed so far.

The site of Shaar Hagolan is situated about 3 km south of the Sea of Galilee on the present course of the Yarkon river a little way upstream from its junction with the Jordan. It thus lies only 6 km north of and across the valley from Munhatta. The site was found about 30 years ago when an anti-tank ditch was dug. Additional material was collected in later years as more of the site was exposed when fishponds were made there. A little of the site has been tested in archaeological excavation but most of the considerable amount of material collected has been picked up from these other disturbances.

The principal phase of occupation was in the Neolithic from which stage most of the artifacts date but the site was also inhabited in periods as late as the Bronze Age.

A wide variety of flint tools³⁰ has been found on the site. The arrowheads were usually tanged or leaf-shaped and retouched by pressure-flaking. At least two Amuq points were collected and one arrowhead with a swollen tang (Stekelis, 1966, fig. 25: 3, 4, 9), types familiar in Neolithic 3 contexts further north, particularly on sites in the North Syrian group. The numerous sickle blades were segmented and most were narrow with coarse denticulation (Stekelis, 1966, fig. 23). The other tools included some burins, flake scrapers and very many small flake borers (Stekelis, 1966, figs. 20, 24, 27-32). These tools were made on flakes and blades struck off prismatic, pyramidal and also double-ended, hump-backed cores (Stekelis, 1966, figs. 21, 35, 37).

A considerable number of core tools have also been found at Shaar Hagolan. Most of these were relatively small, often between 5 and 7 cm in length, and flaked all over although a few had polished cutting edges. The principal types were axes, chisels and picks (Stekelis, 1966, figs. 13-19). These core tools are usually found on phase 1 and 2 sites though rarely in such quantities as at Shaar Hagolan.

The pottery at Shaar Hagolan consisted of collared jars with loop handles at the base of the neck and deep hole-mouth jars with lugs or loop handles at the rim; all had flat bases (Stekelis, 1966, fig. 43). The fabric of these vessels was relatively well levigated with grit and straw filler. Their surfaces were grey or brown in colour, hand-smoothed or scraped and then burnished in some instances. Many of the collared jars and a few of the other vessels were decorated with incised or incised and painted decoration. The incised patterns were usually bands of oblique dashes or herringbones between parallel lines running horizontally or in zigzag fashion around the pots. These bands were sometimes outlined with red paint. A very few pieces were decorated with lines of red paint alone, occasionally on a cream slip.

The remaining artifacts from Shaar Hagolan included a range of bone borers and hafts, hollow querns and many small stone cups and dishes (Stekelis, 1966, figs. 39-41, 73). There were also numerous incised pebbles, spindle whorls and a conical-ended rod like those from Munhatta (Stekelis, 1966, figs. 57-61). Many of these incised pebbles were stylised human beings similar to those from Munhatta and Byblos (Stekelis, 1966, figs. 64, 65). Another link with Munhatta, Tell Ramad III and other sites was a group of clay figurines with pointed heads, coffee bean eyes and applied ears (Stekelis, 1966, frontispiece).

When discussing Shaar Hagolan in my earlier article I placed it in phase 2 because I thought the pottery with its characteristic herringbone patterns was contemporary with similar pottery found at Jericho in the phase 2 stage there, Pottery Neolithic B (1973, 60). I thought that certain typologically earlier elements in the flints, notably the Amuq and other tanged arrowheads and the double-ended cores, were evidence of an earlier Neolithic 2 occupation not recognised when the site was found (1973, 49). In reviewing the evidence I believe this interpretation should be modified. Firstly, most of the flints and pottery seem to form a homogeneous group with the exception of certain obvious Chalcolithic, Bronze Age and other elements not discussed here. Secondly, this material is matched closely in the stratified deposits of Munhatta 2B and there are general parallels also for much of it in Byblos Néolithique Ancien, Tell Ramad III, and at the Neolithic 3 sites at the head of the Jordan valley and in the Beka'a. Thirdly, there is none of the fine red wash and red burnished ware at Shaar Hagolan typical of Pottery Neolithic B Jericho, Munhatta 2A and other phase 2 sites all over Palestine.

The presence of relatively early elements among the flint tools such as Amuq arrowheads and double-ended cores would indicate that the site was first settled early in Neolithic 3 at a time when Beisamun, Tannur, Qat and Abu Gosh were probably inhabited. The pottery resembles that from Munhatta 2B, Megiddo and Kfar Giladi though there is very little of the painted pottery

found at Munhatta and Jericho in Pottery Neolithic A. It now appears to me that the grey incised pottery typical of Shaar Hagolan, Munhatta and other sites in the Northern Palestine group came into use earlier there than at Jericho though it continued to be made well into phase 2 as the evidence of Pottery Neolithic B Jericho makes clear. Shaar Hagolan, then, was probably occupied quite early in phase 1 on the evidence of the flints and may have been inhabited as late as phase 2 since its characteristic pottery was made in both phases.

One other phase 1 site has been excavated at Hamadiya east of Beth-Shan on the edge of the Jordan valley. Some pits, floors and hearths were found here and also a chipping floor on which sickle blades were made (Kaplan, 1965, 544). These sickle blades were segmented and coarsely denticulated. The pottery was in general like that from Shaar Hagolan although there were some painted and coarse sherds more like those from Pottery Neolithic A Jericho. Among the other finds were baked clay spindle whorls and female figurines.

It will be clear from the descriptions I have given of phase 1 sites in Palestine that they form a distinct group somewhat different from Neolithic 3 sites further north. The only habitations found on most of them are pit dwellings and buildings of any sort are rare whereas further north the normal type of house is a rectilinear structure with several rooms. The phase 1 flint industry has much in common with sites further north since its core technique and several types of tools such as the tanged arrowheads and segmented denticulated sickle blades are similar to those of Néolithique Ancien Byblos, Tell Ramad III and other sites in the South Syrian group. Nonetheless the phase 1 industry differs in certain details from that of these sites: for example the arrowheads are mostly quite small, the large arrowheads of the Byblos and Amuq types being absent on most sites. On the other hand the small winged Palestinian arrowheads are rarely found further north.

The differences between the pottery of the Palestinian sites and those

further north are more striking. There is a link between the grey, incised burnished pottery of the North Palestine group of sites and that of Kfar Giladi, then at a greater distance Tell Ramad III, Labweh and Néolithique Ancien Byblos. The painted pottery, particularly of the South Palestine group, is a local development not seen elsewhere in the Levant.

Certain unusual objects provide a cultural link with sites in the South Syrian group. These are the human pebble figurines of Shaar Hagolan and Munhatta which are found at Byblos and also the distinctive baked clay figurines which are matched at Tell Ramad III and Kfar Giladi. The sites in the upper Jordan valley, Kfar Giladi, Hagosherim, Tannur and the others, provide a cultural link between the sites in Palestine proper and those further north in the Beka'a, on the Lebanese coast and east of the Anti-Lebanon. Phase 1 in Palestine thus appears to be a distinctive local variant of Neolithic 3 in the rest of the Levant and is probably broadly contemporary with it.

The question of chronology is of importance for another problem connected with the beginning of Neolithic 3 in Palestine. It will be apparent from my description of Palestine phase 1 or Neolithic 3 sites that the remains on most of them, their structures, flint industry and other finds, are different from those on Neolithic 2 sites in the region. The same is true of the settlement pattern since although a few Neolithic 2 sites were also occupied in Neolithic 3 most were not and the majority of Neolithic 3 sites are in different locations. There is thus apparently a cultural break and an abrupt change in settlement pattern between Neolithic 2 and Neolithic 3 in Palestine more complete than anything that took place in Syria. We may now ask how long did this cultural break last and was Palestine partly or completely abandoned during that period? I will discuss these questions now and consider the reasons for this cultural break and its implications for the economy and society of the inhabitants of the region later in the chapter.

The fact that there was a cultural break, hiatus or gap in the Palestinian sequence between Neolithic 2 and Neolithic 3 has been accepted by most

archaeologists for some time although views have differed on the degree of depopulation that this implied (Perrot, 1968, cols. 408-412; Mellaart, 1975, 238). When discussing the problem in my earlier article I could see no evidence of settlements in Palestine which followed on directly from those of Neolithic 2 and so reluctantly accepted that Palestine was completely abandoned (1973, 38). I argued then that this gap in occupation must have lasted at least 1000 and perhaps as much as 1500 years, that is from about 6000 B.C. to 5000 or 4500 B.C. (1973, 64). I arrived at these dates by comparing the Palestinian sequence of phases 1 and 2 with sites in Lebanon which were dated by ^{14}C determinations. The most important of these was Byblos with two determinations for the Néolithique Ancien phase.

There is now new evidence to take into account in discussing the question of chronology and we also know more about the cultural changes that took place at the end of the 7th and during the 6th millennia B.C. Firstly as I mentioned earlier in the chapter following the definitive publication of the Byblos dates by the Groningen laboratory it now appears that Néolithique Ancien Byblos was settled about 5600 or 5700 B.C., perhaps four centuries earlier than we had thought. I also think that the transition from Néolithique Ancien to Moyen at Byblos took place about 5000 or 4800 B.C. rather than 4500 B.C. as was once supposed. The two original ^{14}C determinations from which I have derived these dates were made long ago and so could be greatly in error. In any case it is unsatisfactory to have to rely on only two ^{14}C determinations for the chronology of Neolithic 3 not only in Lebanon but also in Palestine. Although this remains a serious difficulty fortunately we do not have to depend upon these dates alone. There is now a great deal of evidence from the material remains of the South Syrian group of sites to indicate that they were occupied approximately contemporaneously with those in the North Syrian group, that is during the 6th millennium, and with this my proposed dating for Byblos accords very well. Within the South Syrian group itself there is supporting evidence for this dating. Tell Ramad III was probably occupied soon after Ramad II or

even as a continuation of it. The site was then inhabited until perhaps 5500 B.C. The material from Ramad III has always seemed to be like that of Néolithique Ancien Byblos yet Byblos was believed to be so much later in date and so out of step in its cultural development. On the new dating which I am proposing the Neolithic 3 occupation at the two sites would be almost contemporary which fits the cultural sequence much better. We have seen that there are resemblances between the material remains on Neolithic 3 sites in Palestine, particularly those in the Northern group, and those in the South Syrian group, especially Byblos. Neolithic 3 in Palestine probably began a little after the earliest developments in southern Syria and certainly well after the abandonment of late Neolithic 2 sites such as Munhatta in Palestine. Bearing in mind the new dates for Byblos I would now suggest with due caution that this might have happened about 5500 B.C.

The second factor which needs to be considered when discussing the length of the gap in occupation between Neolithic 2 and Neolithic 3 in Palestine is the effect of calibration on the few ^{14}C determinations we have. I have not calibrated the ^{14}C determinations discussed in this thesis since I do not believe that it is possible yet to do so, as I explain in the Appendix. Calibration would, however, alter the apparent length of the gap between Neolithic 2 and Neolithic 3 in Palestine so in this instance its effects should be considered. The published calibration curves, for example those of Switsur (1973, 137), Ralph et al. (1973, 16) and Clark (1975, 254), all extend back in time no further than the mid 5th millennium B.C. at which time the difference between the ^{14}C determinations and the corrected dates obtained from them is between 700 and 850 years. Although the graphs published so far extend no further back in time they do indicate that the difference between the ^{14}C determinations and the corrected dates is slightly reduced in the earlier 5th millennium. It is thought that this trend continues during the 6th and 7th millennia until a point is reached at which ^{14}C determinations are believed to give the approximately correct absolute dates. Thus there would still be a difference of several hundred years between a mid 6th millennium ^{14}C

determination and the calibrated date but this difference would be a few centuries less in the 7th millennium. This means that the apparent difference between the Byblos date of 5410 ± 70 B.C. GrN-1544 and the dates for middle and late Neolithic 2 sites in the 7th millennium would be greater before than after calibration perhaps by as much as two or three centuries. Thus an apparent gap of 500 years between the end of Neolithic 2 and the beginning of Neolithic 3 in Palestine would be significantly reduced if these figures were converted to absolute dates. Given the uncertainties surrounding the dates themselves it would not be helpful to attempt to give precise figures in absolute years for this gap except to say that it may have lasted no more than a few centuries.

Was Palestine completely abandoned during that time? Now that we know more about Neolithic 2 and Neolithic 3 it seems that there was some continuity of occupation though on a much reduced scale, a possibility that Perrot indicated some years ago using other evidence (1968, col. 408). It is clear that occupation continued on sites in the upper Jordan valley from late in Neolithic 2 well into Neolithic 3 though these sites belong within the Syrian zone both culturally and geographically (Moore, 1973, 39). The chipped stone assemblage in the surface layer at Abu Gosh resembles that of the sites in the upper Jordan valley quite closely so it would seem that it was occupied very early in Neolithic 3 as they were even if we do not know for certain that Abu Gosh was inhabited continuously from late Neolithic 2. The presence of Amuq arrowheads, double-ended cores and even tranchet axes at Shaar Hagolan indicates that this site, too, was inhabited at the end of Neolithic 2 or the beginning of Neolithic 3. There was certainly a long gap in occupation between the Neolithic 2 and Neolithic 3 settlements at Munhatta but since the large flaked and polished axes found in Munhatta 2B², though not in later phases, are similar to those at Abu Gosh and the upper Jordan valley sites it may be that this site, too, was occupied very early in Neolithic 3.

The evidence from these three sites, Abu Gosh, Shaar Hagolan and Munhatta, suggests that Palestine was not completely abandoned between Neolithic 2 and

Neolithic 3 but that the area continued to be inhabited albeit by much smaller groups. We can also see an element of typological continuity between the flint industries of Neolithic 2 and Neolithic 3 in Palestine at these sites which means that the culture of Neolithic 3 could have developed locally, at least in part, and need not have been brought in completely from further north by new colonists. This helps to explain the strictly local style of painted pottery made on sites in the South Palestine group and also some of the Palestinian idiosyncracies in the Neolithic 3 chipped stone industry.

I do not think there was a complete gap in occupation between Neolithic 2 and Neolithic 3 in Palestine but it remains true that there is very little archaeological evidence of any settlement in Palestine between about 6000 and perhaps 5500 B.C. on the carbon 14 chronology. Most sites were deserted during this period so that one must suppose there was a serious disruption in the way of life practised in Neolithic 2. It should also be noted that relatively few sites were inhabited in Neolithic 3 and some of them only quite late in the period so that Palestine was not occupied so intensively as before.

Principal cultural characteristics of Neolithic 3 settlements

The structures of Neolithic 3 sites in the North and South Syrian groups were built in the Neolithic 2 tradition. They were rectilinear, usually multi-roomed and constructed of mud-brick, stone and timber if these were available in the locality. Their interiors lacked the decoration found in many Neolithic 2 houses, since, if they had plaster floors, these were not coloured and there was no painted plaster on the walls.

There was a change in both the type of settlement and the style of building in Palestine. The inhabitants of Neolithic 3 sites in this region lived in pit dwellings and constructed few substantial buildings. The pit dwellings were made of timber, branches and reeds with very little mud-brick or stone. They would only have been habitable for a few years at a time in contrast with the houses on sites further north which would have stood for a

generation or more. The pit dwellings on the Palestinian sites were thus occupied for much shorter lengths of time than the houses on other Neolithic 3 sites which may imply that the sites were inhabited for shorter periods also.

There is much evidence of continuity of tradition in the chipped stone industry although there were certain significant changes. The two main types of flint tool on most sites were arrowheads and sickle blades. Arrowheads were less numerous on most Neolithic 3 sites than they had been in Neolithic 2, a trend which is probably linked with a decline in hunting. The proportion of sickle blades appears to have risen slightly on most sites though these were made differently from the usual Neolithic 2 varieties. The finely-denticulated ones were almost certainly principally used to harvest cereals but we do not know if the coarsely-denticulated ones were used for this purpose or for cutting tough-stemmed plants such as reeds. The increase in the manufacture of sickle blades is associated with more intensive agriculture in Neolithic 3 but probably also reflects a more methodical and efficient exploitation of plants other than cereals.

Large flint flaked axes, adzes and chisels were conspicuous tools on some Neolithic 3 sites. They often had polished edges for more efficient cutting. They have been found in the Amuq at Tell Judaidah, at sites along the coast such as Tell Sukas, Kubbah I and Byblos, in the Beka'a at Tell Labweh North, in the upper Jordan valley at Beisamun, Tannur, Hagosherim and elsewhere, at Tell Ramad III and in Palestine at Abu Gosh and Munhatta. All these sites were in the Mediterranean forest zone where these tools were used to cut and work timber. They have not been found at sites in the intermediate open forest zone and the steppe where trees were much more scattered. Small polished axes and chisels usually made from imported hard greenstones were more common in Neolithic 3 than Neolithic 2 and were also associated with an increase in woodworking. We saw in Chapter 1 that the pollen cores show that man was now exploiting the timber in the Mediterranean forest zone in sufficient quantity to alter the vegetation.

Blade and flake scrapers were noticeably less common on most Neolithic 3 sites than before. These tools were used particularly to clean animal skins so the decline in their use was probably another reflection of a reduction in hunting.

The manufacture and use of pottery began about 6000 B.C. on sites in the North and South Syrian groups. The idea of making pottery spread rapidly throughout this region. Only in Palestine was there any delay since it was not used much there until new Neolithic 3 sites were founded following the almost complete collapse of the Neolithic 2 way of life. The making of pottery began several centuries earlier in Anatolia if the carbon 14 dates from Çatal Hüyük are correct since it was used there at least as early as 6300 B.C. (Mellaart, 1975, 98, 104). It is possible, therefore, that the idea of potting spread south from Anatolia into the Levant rather than arising locally. Most Neolithic 3 pottery was simple in shape, finish and manufacture as one would expect with such a new product but almost at once regional styles of decoration and even painting grew up. The pots were made locally, probably at each settlement site. The wares were too poor to withstand much rough treatment or to be carried very far so the product was not traded in Neolithic 3.

The new type of container must have answered a universal need since its widespread adoption was so rapid. Pottery also came to supersede other kinds of vessels. Fewer stone dishes and bowls were made in Neolithic 3 than in Neolithic 2 and of those that were used only a small proportion were of the highly-polished variety made of attractive stones which were quite common in Neolithic 2. Most white plaster vessels were relatively large and may have served as storage vessels. These continued to be used well into Neolithic 3 and only then were superseded. It probably took some time to develop large pots of fine enough quality to be used instead of the plaster vessels so it was not until this happened that they went out of use.

Querns, rubbers and other grinding tools were more common on many Neolithic 3 sites than they had been earlier. Almost certainly this increase reflects a greater intensity of agricultural activity.

The use of bone for tools seems not to have altered significantly in Neolithic 3. The same types of borers, spatulae, hafts and needles were made as in Neolithic 2 and, so far as we know, in about the same quantity. These everyday tools seem to have been used in the same way as before. Other artifacts were made in greater variety than in previous stages. Stone maceheads have been found on a number of Neolithic 3 sites which could have been used as weapons or weights. Spindle whorls were certainly more common so presumably more yarn was being spun.

Ornamental artifacts were also made in greater quantity and variety. Colourful stone beads and amulets often made of exotic stones have been found on most Neolithic 3 sites in the North and South Syrian groups though they were less common in Palestine. Seals, while still rare, were certainly used more than in Neolithic 2. A number of examples have been found on the large settlement sites such as Tell Judaidah and Byblos. The designs on them usually consisted of simple linear patterns but each was different from the others. I think it reasonable to assume they were actually used as seals or stamps.

Fewer human and animal figurines were made in Neolithic 3 than in Neolithic 2. The human figurines that have been found like those at Munhatta, Shaar Hagolan and other southern sites were more stylised and elaborately fashioned than before. Other forms of human representation such as the pebble figurines from Byblos were also more stylised.

The richer artifact inventory found on the larger settlement sites is a sign of increased wealth among these communities. It is also an indication that crafts were flourishing in response to a greater demand.

Timespan of Neolithic 3

We know that the change from Neolithic 2 to Neolithic 3 happened about 6000 B.C. on sites in the North and South Syrian groups. The chief indicator of this change was the spread of pottery which took place so rapidly. Although I believe we can now distinguish some continuity of settlement in Palestine

from Neolithic 2 most Neolithic 3 settlements there were not founded until much later, perhaps after 5500 B.C. on the carbon 14 chronology.

The end of Neolithic 3 in north Syria was marked by imports of Halaf pottery from sites east of the Euphrates, pottery made locally in the Halaf style and certain other changes in material culture. The date of this change is difficult to determine precisely since there are few carbon 14 dates from sites occupied in the late 6th and early 5th millennia. The date of 5620 ± 35 B.C. GrN-2660 from an early Halaf level at Tell Halaf itself would, if correct, indicate that the Halaf culture crystallized very early in its heartland. There are dates from Arpachiyah of 5077 ± 83 B.C. P-584 for level TT8 and 6114 ± 78 B.C. P-585 for the more recent level TT6 (Radiocarbon 7, 1965, 188). The chronology indicated by these determinations is the reverse of their stratigraphic position and both are widely separated in time so they can only give a very general indication of the period when the site was occupied. Nevertheless they are in the same time range as the determination from Tell Halaf. These three determinations suggest that the change from Neolithic 3 to Halaf on sites east of the Euphrates and in Assyria where Halaf developed took place well before 5000 B.C., perhaps about 5500 B.C.

Neolithic 3 continued longer in north-west Syria since the influence of Halaf was not felt in this region until several centuries after it began further east. The ^{14}C date of 5234 ± 84 B.C. P-457 for Ras Shamra V A indicates that this could not have taken place until near the end of the 6th millennium. It seems probable that Neolithic 3 was subsumed within Halaf in north Syria about 5000 B.C. or a century or so earlier.

The change from Neolithic 3 to Neolithic 4 in south Syria took place perhaps a little later. I have already indicated that I believe this could have happened about 5000 or 4800 B.C. at Byblos. There are three dates ranging from 4920 ± 130 B.C. K-1432 to 4840 ± 130 B.C. K-1434 from a phase of occupation early in Neolithic 4 at the site of Ard Tlaili in the Beka'a (Kirkbride, 1969, 55; Mellaart, 1975, 287) so the transition must have already

occurred by this time there. There can hardly have been much difference between the timing of this change at Byblos and on sites in the Beka'a so I would suggest that it took place about 5000 B.C. or perhaps a century later on sites in the South Syrian group. The transition from Neolithic 3 to Neolithic 4 in Palestine probably occurred slightly later still given the tendency for cultural changes in the 6th and 5th millennia to occur here a little after their development further north. 4800 B.C. might be a reasonable estimate for the date of this transition in Palestine.

Distribution of sites

The north Syrian plain is a huge area of fertile land stretching away south from the hill country between the Amanus and the upper Tigris. The northern strip of this plain was relatively well-watered in Neolithic 3 making it attractive for settlement. Neolithic 3 sites (Fig. 35) have been found from as far east as the headwaters of the Khabur westward to Aleppo (Tell Halaf, Tell Aswad (Balikh), Judaidah Jabbul). Further west beyond the plateau lies the Amuq plain which was densely settled in Neolithic 3 (Tell Judaidah, Tell Dhahab, Wadi Hammam). The fertile plain of western Syria also received adequate rainfall and this area, too, was settled in Neolithic 3 (Hama, Homs). Just to the west lay the Ghab section of the Rift valley and at least one site is known to have been occupied here (Qal'at el Mudiq). Sites have been found high in the Jebel Alawiye between the Orontes and the coast (Janudiyeh) and then in the series of small plains between the mountains and the sea (Ras Shamra, Tell Sukas, Tabbat el Hammam). This pattern of coastal settlement extended further south into Lebanon (Byblos, Kubbah I) and Palestine with sites near the sea (Givat Haparsa, Nizzanim, Ashkelon) and also further inland on the coastal plain (Lydda, Wadi Rabah). The whole of the Beka'a was settled (Tell Labweh, Tell Neba'a Faour I, Kaukaba) and also its southern extension, the upper Jordan valley (Beisamun, Tannur, Hagosherim). The Damascus basin east of the Anti-Lebanon was also occupied (Tell Ramad). In Palestine as well as the sites on the coastal plain there were settlements

in the foothills (Teluliot Batashi) and in the Judean mountains themselves (Abu Gosh). Further north the Plain of Esdraelon was inhabited (Megiddo) and the valleys running eastward to the Jordan (Beth-Shan). Several more settlements were situated in the Jordan valley itself (Jericho, Wadi el Yabis, Munhatta, Shaar Hagolan).

Nearly all these sites were situated in areas of fertile land with sufficient rainfall for agriculture. They were also usually on terraces in river valleys, on the edge of inland plains or on the plains along the coast and near running water or springs. Their catchments thus included a high proportion of arable land. The pattern of Neolithic 3 settlement was quite dense in the most favoured areas such as the Amuq plain, the Beka'a and the Jordan valley. In contrast very few sites were to be found in the hill country and mountains of the Levant, certainly far fewer than in Neolithic 2. The few sites known in these upland regions, Janudiyeh, Tannur, Qat and Abu Gosh for example, were different types of site from those in the lowlands with little arable land nearby. Except for these upland sites most Neolithic 3 settlements throughout the Levant were similarly located in positions that offered good arable land, reliable rainfall and a permanent water supply. This settlement pattern existed in Neolithic 2 but only as part of a much more generalised distribution of sites in every environmental zone.

There was a great displacement of settlement in the Levant and in the north-east of Syria during Neolithic 3. We have seen that at the outset there were settlements along the Euphrates from Abu Hureyra as far downstream as Buqras at the confluence with the Khabur. This area ceased to be inhabited early in Neolithic 3. The steppe zone east and west of the Euphrates was also abandoned. This included the area around Palmyra in which many stations had been inhabited in Neolithic 2; only El Kum which was located in a unique position near a permanent source of water on the route through the hills from Palmyra to Risafe and Raqqa continued to be occupied into Neolithic 3 but even this site seems to have been abandoned during the 6th millennium. Only one site, Tell Ramad, is known to have been occupied in the Damascus basin

in Neolithic 3. Further south the Transjordan plateau was abandoned completely so far as we know from present evidence. There were no sites to the east of the Wadi Arabah in the Jafr basin or further to the south-east as there had been in Neolithic 2. One or two surface stations in the Negev and Sinai may have been occupied during Neolithic 3 but otherwise this vast area, known to have been inhabited in Neolithic 2, was also abandoned. In Palestine itself occupation ceased almost completely for several centuries and settlements were only gradually founded later in Neolithic 3. Such a major alteration in the settlement pattern took place in response to important changes in the climate, vegetation and economy as I shall explain later in the chapter.

Almost all Neolithic 3 sites were in the open, the only exceptions known to me being et-Tauamin and Wadi Hammam, the second of which was low-lying with good access to well-watered agricultural land like most of the other settlements. The types of sites were somewhat different from those of Neolithic 2. There were very few, if any, hunting stations, the only possible ones being several surface sites in Palestine which may have been occupied in Neolithic 3. Other specialised stations such as factory sites were also rare, Sepphoris being the only sure example. Every other Neolithic 3 site that I have described was a settlement with a wide range of material equipment and, on the excavated sites, remains of houses and other kinds of habitation. A full artifact inventory and traces of dwellings in several instances have even been found on the upland sites.

The settlements varied greatly in area. Hamadiya was 100 sq m (Kaplan, 1965, 544), Tell Turmus apparently about 300 sq m and Abu Gosh perhaps 1000 sq m but these were unusually small. Most were larger although since so many lie beneath great tells or are known only from surface surveys we cannot be sure how extensive they really were. Tell Ramad was at least 1 ha and Byblos 1.2 ha as no doubt were many other Neolithic 3 sites. Several settlements were comparable in type to the very large ones of Neolithic 2. Jericho covered 4 ha

and Abu Hureyra between 5 and 6 ha before it was abandoned. Tell Judaidah may have been of the same order of magnitude. Hagoherim also extended over several hectares but does not seem to have been so densely populated as the other very large sites. The Neolithic 3 settlement at Ras Shamra covered at least 8 ha as had its Neolithic 2 predecessor making it the largest known site of this stage in the Levant.

Neolithic 3 lasted about the same length of time as Neolithic 2 and approximately the same proportion of sites that once existed in both periods have probably been found. One may thus deduce what change in population, if any, took place between Neolithic 2 and Neolithic 3. I have mentioned 80 sites which I believe were occupied in Neolithic 3. This is fewer than the 123 Neolithic 2 sites I listed in the previous chapter. Accurate information about the sizes of Neolithic 3 sites is scarce but I believe that many of the settlement sites were somewhat larger than those of Neolithic 2. Some were occupied only briefly but many such as Tell Judaidah, Ras Shamra, Byblos and Jericho were inhabited for at least half and in certain instances all of Neolithic 3. There thus seems to be no evidence of any marked increase or decrease of population in the Levant as a whole even though the Neolithic 3 settlement pattern was so different from that of Neolithic 2.

This conclusion while valid for the Levant in general does not hold true in Palestine. I have listed 20 Palestinian sites known to have been occupied in Neolithic 3 whereas the total for Neolithic 2 was about double this number. Moreover many of the Neolithic 3 sites were occupied relatively briefly as we have seen. The population here did apparently decrease in Neolithic 3.

Economy

Many Neolithic 3 sites were excavated long ago and little evidence for their economies was recorded while few animal bones and plant remains have been found on others dug more recently. For these reasons we have much less information about the economies of Neolithic 3 than of Neolithic 2 sites. I will briefly review such evidence as there is region by region in order

to present an outline of how the inhabitants of Neolithic 3 settlements supported themselves and in what ways the economies of these sites had changed since Neolithic 2.

The inhabitants of the Neolithic 3 settlement at Tell Abu Hureyra grew three principal kinds of domestic cereals, emmer, both one and two-grained einkorn, and both naked and hulled six-rowed barley. Some oats were also grown. Lentils, chick-peas and common vetch were cultivated while capers and prosopis were collected in the neighbourhood. Study of the flotation samples from Abu Hureyra has shown that the inhabitants depended upon cultivated cereals for food to a greater extent in this phase than earlier and that they grew more of the relatively developed strains. More legumes were also grown in this phase and fewer plants collected from the wild. Agriculture now provided nearly all the plant foods that were eaten and wild plants were no longer important in the diet.

A faunal sample from the Neolithic 3 levels which has been analysed proved to contain several species in much the same proportions as the sample from the late Neolithic 2 levels (Legge, 1975, 74). By far the largest number of bones was from sheep with some goat also present (69% together). Gazelle were the second most numerous species (22%) but cattle and pig were much less common. A few fallow and roe deer together with equid and hare were also killed. In addition to these ruminants the inhabitants continued to eat significant amounts of freshwater mussels and fish which they took from the Euphrates.

We believe that the sheep and goat were herded while the gazelle may also have been subject to some kind of control. The status of the cattle is difficult to determine but we know that both Bos primigenius and a smaller kind were being killed. The other animals eaten were probably all wild. It appears that this pattern of animal exploitation had stabilised several centuries earlier and then did not alter significantly before the settlement was abandoned.

Some information is available about the fauna of the Neolithic 3 settlement at Buqras though not enough for us to determine with certainty the pattern of animal exploitation there. Cattle bones both of a large animal thought to be Bos primigenius and a smaller one were found and since many of the bones of the smaller species came from juveniles this beast was probably domesticated (Hooijer, 1966, 193). Sheep and goat bones were very common, sheep being three times more abundant than goat (Hooijer, 1966, 194). It is not known if the sheep were domesticated but Hooijer believes that the goats were on the evidence of the horn cores found in these levels. Such morphological criteria are not always thought to be the best indications of domestication on early sites now and it is therefore of some interest that the outline pattern of animal exploitation at Buqras has much in common with that at Abu Hureyra. Sheep and to a much lesser extent goats seem to have been the important food animals at both sites with some cattle also being eaten. I have already suggested that ovicaprines were herded at Buqras in Neolithic 2 as we believe them to have been at Abu Hureyra and it seems this strategy was maintained until the settlement was abandoned.

Some animal bones were found at Tell Sukas, sufficient to enable us to deduce something of the economy of the Neolithic 3 site. Pig bones were particularly common while sheep, goat, gazelle and cattle seem to have been the other mainstays of the diet (Riis, Thrane, 1974, 16, 31, 59, 73). Remains of dog and equid were also found together with red and fallow deer. This indicates that red deer had not quite disappeared from the Levant although their numbers are thought to have sharply diminished by this time. The principal food animals are those of other Neolithic 3 sites in the Levant though pigs seem to have been eaten here in greater quantity than was usual elsewhere. Presumably the sheep and goat were domesticated while the pig, gazelle and cattle may also have been controlled. Tell Sukas is beside the sea with good natural harbours which were already in existence in the 6th millennium so the inhabitants probably caught and ate fish even if fish remains were not found in the excavation.

Even less is known about the economy of Ras Shamra during Neolithic 3. The principal food animals were pig, cattle and sheep which are thought to have been domesticated (de Contenson, 1963, 36). Presumably sea fish were also eaten. The inhabitants ate a greater proportion of meat from their herds later in Neolithic 3 than they had earlier. This pattern of exploitation resembles that from Tell Sukas more than Abu Hureyra further east. Both Tell Sukas and Ras Shamra are situated in areas of good arable land but flocks and herds could have been pastured on fallow land at a little distance from the main settlements.

Much the same pattern of animal exploitation seems to have been practised further north at Tell Judaidah. Here again the main food animals were pigs, sheep or goats and cattle (Braidwood, Braidwood, 1960, 67, 99). Some of the cattle may have been Bos primigenius since the horn cores found were particularly large. It is believed that these species were domesticated. Red and fallow deer were also killed as at Tell Sukas and there is indirect evidence that an equid was exploited (Helbaek, 1960, 543). We know that gazelle were eaten at the Wadi Hammam (O'Brien, 1933, 177) so they were probably also killed by the inhabitants of Tell Judaidah. About one third of the surrounding catchment at Tell Judaidah consisted of limestone slopes which would have provided good grazing for sheep and goats and some pasture for cattle. The pigs could have foraged very well among the thickets bordering the streams of the Amuq plain. The catchment of the Wadi Hammam cave included a much higher proportion of the limestone slopes so presumably herding and perhaps hunting were more important to the inhabitants.

Helbaek found the impressions of grains of several cereals in the tempering of sherds of coarse simple ware from Tell Judaidah. Two kinds, emmer and hulled barley, would have been the important food crops while two others, oats and rye grass (Lolium cf. Gaudini), were present as weeds in the fields of cereals (Helbaek, 1960, 540, 542, 543). It would seem from this scanty data that the main cereals cultivated at Tell Judaidah

were similar to those at Abu Hureyra and other Neolithic 3 sites.

We know more about the economy of Byblos than of the other sites near the Levant coast since a wider range of plant and animal remains has been recovered from the excavations. The inhabitants cultivated wheat and barley and, it is thought, vetch, lentils and beans (Dunand, 1973, 35). They also used the fruits of the olive and the vine. Dunand has suggested that they cultivated almonds and pomegranates, figs and carob. If this were true then the agriculture of Neolithic 3 Byblos would already have been broadly-based.

About 60% of the animal bones studied were from domesticated species. The food animals were cattle, sheep, goat and pig while domesticated dogs were also kept. A wide range of wild animals was still hunted, deer in particular since red, fallow and roe deer bones were also found. Gazelle and wild boar were eaten and a few bear, hippopotamus and crocodile were also killed. No less than 7% of the identified bones came from fish. Fish bones decay before those of ruminants and so are always under-represented in faunal collections. Where such a large proportion of fish bones has been found one may presume that their numbers originally were much greater.

The economy of the Neolithic 3 Byblites was based upon cereal and legume agriculture, herding, fishing and hunting. The same species of plants and animals were domesticated as on other sites on or near the sea but at Byblos there are indications that a wide range of fruits and nuts was also being cultivated. Fishing was an important supplement and hunting still seems to have provided much of the meat that was eaten, more than at Abu Hureyra for example. The hinterland of Byblos beyond the arable of the narrow coastal plain was hilly with forest and abundant surface water. Wild ruminants would have found ample sustenance and good cover in such country which partly explains why they could still provide substantial quantities of meat. The Neolithic 3 settlement at Byblos was not very large so these species were not over-exploited as may have happened in the area around Abu Hureyra.

During the investigation of Hagosherim in the upper Jordan valley a small sample of animal bones was collected of which 197 were subsequently identified. 63.5% of these were from cattle mostly of moderate size and the rest from gazelle, sheep, goat, an equid and fallow and roe deer (Ducos, 1968, 88; 1969, table 1; Perrot, 1968, col. 411). Ducos was able to determine the age at death of the cattle and from this deduced that they had been culled from domesticated herds. Perrot preferred to interpret the age pattern as evidence of selective hunting of herds roaming freely in the enclosed basin of the upper Jordan valley. We have seen that there is good reason to suppose that a similar species of cattle was domesticated at Sheikh Ali and Ras Shamra in Neolithic 2 so, allowing for the difficulty of interpreting such a small sample, I believe that Ducos is probably correct in his interpretation. The gazelle, sheep and goat eaten at Hagosherim may also have come from herds controlled by man.

At Tell Ramad the same species of cereals and legumes were cultivated in Neolithic 3 as in Neolithic 2. These were hulled two-row barley, emmer, einkorn, club wheat and lentils, emmer being more common than the other cereals (van Zeist, Bottema, 1966, 179, 180). The principal food animals were sheep, goats, pigs, cattle and gazelle (Hooijer, 1966, 195). It is thought that the first four together with the dog were domesticated (de Contenson, 1971, 285). The inhabitants of Neolithic 3 Ramad thus depended upon their crops and herds for food supplemented a little by wild plants and game. This is a different system from that practised by the inhabitants in Neolithic 2 since although they were growing the same plants they now obtained most of their meat from three new domesticates, sheep, goats and cattle.

There is even less evidence for the economies of the Palestinian sites than for those further north; the faunal samples are modest at best and plant remains have been recovered only from Pottery Neolithic levels at Jericho. The seeds here included hulled two-rowed barley, einkorn and emmer (Hopf, 1969, 356) all of which had been cultivated at the site in Neolithic 2.

Few other plant remains were recovered from these levels. The position of most other sites suggests that their inhabitants needed well-watered fertile arable land for agriculture. Many grinding tools have been found at these sites which may have been used to process the crops. These are the only other indications we have of what the plant economy might have been.

The main food animals at Jericho were sheep and goats although some gazelle and cattle were also killed (Clutton-Brock, 1971, 46, 54). The cattle bones were of a large animal which was probably Bos primigenius. The sheep and goats were almost certainly domesticated and the gazelle may still have been controlled. In addition to these animals bones of foxes and a canid were found as in the earlier settlements (Clutton-Brock, 1969, fig. 1).

The inhabitants of Ashkelon ate both fish and shellfish as one would expect on a site so near the sea. They also killed cattle (Bos taurus), gazelle and goats (Perrot, 1968, col. 408). These three animals were probably herded or controlled. The same may be said of the caprinae, cattle and gazelle which were eaten at Nizzanim.

The evidence from sites in northern Palestine suggests that their economies depended on the same species. Cattle bones from medium-sized beasts have been identified from Megiddo (Bate, 1948, 139). An examination of the catchment of the site permits us to enlarge on this meagre evidence. Although there is much good arable land north-east of the site on the Plain of Esdraelon almost half the catchment consists of limestone slopes on the south-west side best suited to pasture (Vita-Finzi, Higgs, 1970, table 4). The inhabitants must always have relied heavily upon their flocks and herds for food, cattle certainly but probably also sheep and goat.

The sample of animal bones which could be identified from Neolithic 3 Munhatta comprised only 121 bones but these came from six species. Cattle, pig, gazelle and sheep were present in approximately equal proportions but there were also a few goat and roe deer bones in the sample (Ducos, 1968, 91; table 1). Ducos believed that since many of the pigs were killed young they

were domesticated (1969, 273). Perrot, however, thought that all these animals were subject to little or no human control (1968, col. 415). The evidence from other Neolithic 3 sites and nearby Sheikh Ali in Neolithic 2 would suggest the contrary, that the cattle, pigs, gazelle, sheep and goat were all herded.

Almost the same list of species has been identified from Shaar Hagolan as from Munhatta. The bones of cattle, pigs, sheep, goats, gazelle and an equid as well as camels, dogs and birds were found here (Stekelis, 1950-51, 4, 16). Presumably the pattern of exploitation was similar at both sites.

Several general points may be made about the economies of Neolithic 3 sites. Agriculture and herding accounted for a greater proportion of the food supply than in Neolithic 2. The corollary of this is of course that hunting and the collecting of wild plants were less significant than before. The three main cereal crops grown were emmer, einkorn and barley while the most usual legumes were lentils and vetch.

There is a difference between the animal husbandry of the two Euphrates sites, Abu Hureyra and Buqras, still occupied early in Neolithic 3 and the other sites further west in Syria and Palestine. Sheep were the most numerous species on the Euphrates sites while goats, cattle and at Abu Hureyra gazelle, provided almost all the other meat. Elsewhere sheep, goats, cattle and pigs were all important sources of meat while gazelle still accounted for a significant proportion of the meat supply on several sites. At a few settlements much of the meat came from one species, cattle at Hagoherim and probably pigs at Tell Sukas but this pattern was unusual. Normally the inhabitants of the western sites satisfied their need for meat more evenly from their flocks and herds of the four main domesticated species. Hunting and on coastal sites, fishing, still provided some of the meat that was eaten although given the evidence we have it is difficult to assess its precise importance. Deer bones, particularly of fallow and roe deer, have been identified at half the sites from which faunal samples have been recovered. Their presence is

more marked than in Neolithic 2 so it seems these species were hunted more than they had been before. This is in spite of the fact that red deer are thought to have been in full retreat as the temperature rose and the forests diminished and that the other cervids are also believed to have declined in numbers (Ducos, 1969, 268).

The evidence of site distribution, plant and animal remains and artifacts indicates that settlement types and their economies were less diverse than in Neolithic 2. The inhabitants of almost all the sites in the North and South Syrian groups depended upon agriculture and herding for their livelihood. The pattern of settlement once established was stable and the sites were usually occupied for relatively long periods. The economies of these settlements must therefore have provided an adequate food supply during their lifetime. The likely agricultural system was one of short fallow as I have postulated for Neolithic 2 settlements but since crops now provided more of the food it was probably more intensive. This could have been achieved by shortening the fallow period, manuring the fields more and rotating the crops more frequently. The second of these would have been partly achieved by pasturing the increased flocks and herds on the fields. The regular presence of vetches in the few samples of seed remains from Neolithic 3 sites is an indication that crop rotation continued to be practised.

The inhabitants of Neolithic 3 sites exploited fewer species of plants and animals largely because they hunted less game and collected fewer wild plants. On the other hand they grew a wide range of plants and herded a particularly varied selection of animals. Herding appears to have greatly increased in importance but was nearly always carried on by the inhabitants of settlement sites in conjunction with agriculture. The settlements of the steppes which were so numerous in Neolithic 2 had disappeared and with them the pastoral economy by which I believe they were sustained. Pastoralism in Neolithic 3 was largely restricted to the vicinity of each settlement. Only the few sites found in the hills like Janudiyeh, Tannur and Qat may

have depended upon pastoralism for which their catchments would have been well-suited. These may, indeed, have been transhumance settlements to which groups from sites in the lowlands took their flocks and herds in the summer. There were very few of these sites from which one concludes that transhumance was not an important feature of the Neolithic 3 economy. The absence of hunting stations at least in the area of the North and South Syrian sites, reinforces the faunal evidence from the settlements suggesting that hunting diminished further in Neolithic 3.

The pattern of existence in Palestine was different from that further north. A few sites were occupied for quite as long as those in Syria but most were not. The population also appears to have fallen markedly in Neolithic 3. The inhabitants of settlements in Palestine could thus provide all the food they needed with a less intensive system than that practised further north, indeed with a simpler system than that of Neolithic 2 settlement sites in the same area. The economy of the Palestinian settlements depended upon crop agriculture and the herding of a wide range of beasts as it did in Syria but I do not think the same short fallow system was used. It will be useful here to remember that Boserup suggested that when the population of a region fell then in time the inhabitants would revert to a less intensive subsistence system (1965, 62). They probably practised what Boserup called bush fallow cultivation in which the land was left fallow for longer than in the short fallow system, perhaps for as many as eight years (1965, 24ff). The land would then be cleared of the vegetation which had grown up and crops planted. Under this system the settlement would be moved after a number of years since the land would gradually become exhausted. This seems to have happened to most of the Neolithic 3 sites in Palestine since few of them were long-lived.

Transhumance may have played a minor part in the Neolithic 3 economy of Palestine as it did in Syria. Abu Gosh could have served as a summer transhumance camp. Hunting still had its place here, too. Small game and birds

would have congregated around the meres and marshes of the coast, particularly in the migration seasons. Large numbers of small arrowheads which would have been appropriate for killing these species have been found on several of the coastal sites such as Givat Haparsa (Burian, Friedmann, 1963-64, IV). Hunting thus appears to have provided a good deal of the meat that was eaten at some of these sites. The continuation of the hunting tradition is also linked with the reversion to a less intensive farming system on the fully agricultural sites.

Discussion

Now that I have reviewed all the archaeological and other evidence and attempted to establish how man lived in Neolithic 3 one problem remains to be considered. We have seen that there was a great alteration of the settlement pattern at the outset of Neolithic 3 and it is now necessary to establish why this happened. I believe that there are three reasons for it. The first is the environmental deterioration which began in the 7th millennium and continued with but minor respites until the 4th millennium. The second is the changes that took place in Neolithic 2 society and its economy which accounted for some of the differences between man's way of life in Neolithic 2 and Neolithic 3. The third is the interaction between the alterations in the environment and the changes in the Neolithic 2 way of life.

I explained in the first chapter that the temperature continued to rise throughout the period we are considering. During the 7th millennium the rainfall became more seasonal and decreased, a trend that continued for two millennia. As a result the Mediterranean and intermediate open forest zones contracted while the steppe and the modest area of desert in the extreme southeast of the Levant expanded. These changes in the vegetation were accelerated by man's own activities. Such a deterioration in the climate and vegetation was bound to affect human settlement. If the economies of the agricultural sites in the intermediate forest zone and the settlements on the steppe were not profoundly modified these sites would have had to have been abandoned.

We have seen that there was a great increase in population in Neolithic 2. The economy that sustained the expanded population rested upon a delicate balance of agriculture, herding and exploitation of wild resources. Some of the biggest sites were in the intermediate forest zone and so were particularly vulnerable to any worsening of the environment while there were many flourishing settlements in the steppe whose continued existence was even more precarious.

Agriculture gradually became more intensive during Neolithic 2 while marked changes took place in animal husbandry mainly in response to the growth of population but also I suspect partly because of environmental deterioration. Eventually a point was reached when the efforts to adjust the economy were probably no longer sufficient. It may have proved impossible to maintain let alone increase the yields of crops in the intermediate open forest and steppe zones as the rainfall diminished. The inhabitants of sites in these marginal areas could have attempted to overcome the rainfall deficiency by using irrigation but in the Neolithic this called for special geographical circumstances. Only where permanent streams flowed near arable land could irrigation be carried out and such places have always been rare on the plateau to the east of the Rift valley. Abu Hureyra is one of the sites that was most vulnerable. We have seen that some of the crops grown there were irrigated, not from the Euphrates because that was too difficult but probably from a stream in the Wadi Hibna. This stream would have shrunk and may have dried up because of climatic changes in the 7th and 6th millennia. This would have undermined the economy of the site and was probably one of the reasons why it was eventually abandoned. The same would have occurred elsewhere along the Euphrates and was, I suggest, a major cause of the desertion of the area.

The decrease in rainfall and continued deterioration of the vegetation in the intermediate open forest and on the steppe would have had other disruptive consequences. It would have reduced the available surface water and further damaged the grazing at a time when it was already being degraded by herded animals. This would have threatened the maintenance of the flocks

and herds of dwellers not only in the agricultural settlements but also in the pastoral sites of the steppe. The herds of game, already perhaps hard-pressed by man at least in the vicinity of the larger sites, may have diminished thus reducing one of the important sources of food of the inhabitants of many Neolithic 2 settlements. Some of the wild vegetable foods which were still important in the diet would also have become scarce under these conditions.

The inhabitants of sites in the intermediate open forest and on the steppe would have found that their food supplies from their crops, their flocks and herds, from game and wild plants could no longer be maintained in such circumstances. The population in these areas had to decline to a number which could be fed by the reduced supplies of food. In fact it seems that the steppe was completely abandoned and the population of the open forest greatly reduced. The displaced people moved westward and northward into the Mediterranean forest zone augmenting the existing population there and founding new settlements. The Syrian steppe, the Transjordan plateau and Sinai were all deserted. The population of Palestine was also greatly reduced as most of the inhabitants left.

At first sight this seems to have been too drastic a response to the deterioration in the environment. Why was the desertion of the marginal areas so complete? Firstly we should remember that small groups of whose sites we have no record may have continued to live in the steppe so the area may not have been totally abandoned as the archaeological record suggests. Secondly, the environmental change happened just at the time when man had come to depend upon agriculture and herded animals to maintain a greatly enlarged population. Such an economy was more productive if carried on in the better-watered Mediterranean open forest zone. In this area were found rich terra rossa soils formed on limestone which was the bedrock of so much of the coastal region, the mountains and their immediate hinterland. The soils of some of the little plains and along the rivers were composed of alluvium which was quite as rich as the terra rossa. Both types were extremely fertile and

gave high crop yields, as they have continued to do down to the present day. The pasture for flocks and herds would have been excellent in this region and the rainfall would have been sufficient to maintain a good cover of grass in the winter months even if the total precipitation had declined somewhat. It would have been necessary to clear more of the tree cover to create new pasture and some of the stone axes found on sites in the Mediterranean forest zone were probably used for this purpose.

Thus when the development of the Neolithic 2 economy reached a certain point there were compelling reasons for the population to move wholesale into the Mediterranean forest zone. This adjustment would have been so advantageous that it might have come about eventually even if the environment had not deteriorated. Man himself had already reduced the vegetation cover of the steppe and intermediate forest sufficiently to undermine the Neolithic 2 economy in these areas. This strained the system further increasing the pressure to modify the economy and settlement pattern.

The soils in the Mediterranean forest were not only very fertile but also heavy, certainly heavier than those of the open forest and the steppe. Neolithic 3 farmers would have found them more difficult to work than the soils of the marginal zones and so may have devised some new means of tillage that would make it easier to cultivate them. No definite digging tools have been found on any settlement of Neolithic 1, 2, or 3 in the Levant unless flint picks were used for this. One can do no more than suggest what tools might have been used bearing in mind how peasants in simple farming societies till the soil today. People who practise long fallow or bush fallow agriculture usually need no more than digging sticks to sow seed after they have cleared the vegetation. In short fallow farming the grass sod may have to be broken with hoes or spades. If such tools were used in Neolithic 2 or 3 they must have been made of wood since stone hoes were not known. The lighter soils of the open forest and the steppe could have been tilled with these tools alone but Neolithic 3 farmers may have needed a simple ard or plough to break the

heavier soils of the Mediterranean forest. Cattle had already been herded on some sites in Neolithic 2 but this practice was widespread in Neolithic 3. For the first time man had a draught animal which could be used to pull an ard if required. We do not know if such tools were used this early but the need was there and for the first time the means were available.

Once the Neolithic 3 pattern of settlement had developed it proved to be long-lasting. Many of the new settlements were the first of a long series on the same sites. The earliest villages at the bottom of great tells such as Tell Halaf, Hama, Byblos, Megiddo, Beth-Shan and Tell ed-Duweir were founded during this stage while many smaller tells with a long sequence of later occupation were also established then. The economy, too, proved to be extraordinarily long-lived since although minor modifications occurred later the pattern of wheat and barley cultivation combined with herding of sheep, goats and cattle adopted by most Neolithic communities has remained the basis of peasant life in the Levant until the present day.

Once the new adaptation had been worked out some people returned to Palestine. This took place at a time when the environment was still deteriorating. It may have stabilised later but the climate then was warmer and drier than it had been early in the 7th millennium. The human response to the changes in climate and vegetation thus allowed the new inhabitants of Palestine to partially overcome these difficulties. They practised a modified form of the Syrian agricultural and herding economy which included a strong element of hunting on some sites. The Neolithic 3 population of Palestine was nonetheless smaller than it had been in Neolithic 2 and it was not yet possible for settlement to be resumed in Transjordan or Sinai.

Neolithic 3 settlements were well spaced out across the landscape but each was probably within easy reach of its neighbour. Most were a little larger than Neolithic 2 settlements but their social organization was similar so far as I can interpret it. The fundamental social unit probably continued to be the nuclear family. These families usually lived in separate rectangular houses built on broadly similar plans to those of Neolithic 2. They would

have been linked by complex social relationships, particularly in the larger settlements. The nuclear family was still the basic economic unit as I have suggested for Neolithic 2.

Since the social organization of Neolithic 2 and Neolithic 3 settlements appears to have been so similar one would expect that there would have been the same need for communal buildings in both stages. In fact none has been found on any site excavated so far, even at Byblos where so much of the Neolithic 3 settlement has been exposed. It is possible that one or two of the larger houses at sites such as Byblos served a communal function. If not and if no communal buildings were found on sites excavated in the future we would have to presume that some change had taken place in society which obviated the need for these structures.

There were probably close family and community ties between settlements in the same geographical area. The inhabitants of such settlements may have been linked together in a tribe as I postulated for Neolithic 2. Groups of communities forming these tribes may have been found in such regions as the Lebanese coast, the Beka'a, the Amuq plain and other well-defined areas.

The economy and distribution of Neolithic 3 settlements in Palestine differed in certain ways from the pattern in Syria so one would expect that the social organization would also have varied somewhat. It is likely that nuclear families formed the basic social and economic unit as on sites in Syria but they seem to have lived in one or more pit dwellings or huts rather than true houses. Relations between families in the same settlement would have been less complex because the sites were smaller. These communities probably belonged to several tribes but the social links that held each tribe together would have been much weaker than further north. Communities of bush fallow farmers tend to be more spread out than those of short fallow cultivators and their system of agriculture keeps them apart so inhibiting strong pan-tribal ties (Sahlins, 1968, 32).

We know much less about burial practices in Neolithic 3 than in Neolithic 2 because very few graves have been found in settlements of this stage. Some

graves were found within the settlement at Byblos but these were between the houses and not under their floors. Hardly any burials have been found at other sites although one must always remember that only very small areas have been dug on most of them. Even so the difference between the abundant graves on Neolithic 2 sites and their scarcity on Neolithic 3 settlements points to a change in the mode of burial. The Byblos evidence shows that some of the dead were still buried within the settlement though there was no longer a strong feeling that they should be buried beneath the floors. The remainder at Byblos and probably on most other sites must have been buried outside the settlement or disposed of in other ways. Any graves were probably grouped together in cemeteries, the first time this kind of burial may have been practised in the Neolithic of the Levant. This would still imply a strong community sense but may indicate a less compelling desire to stress the continuity between the dead and living family. The same feelings probably lay behind the differences in burial rite in the two periods. Neolithic 3 burials were simple inhumations in shallow graves; there were no more secondary burials and no separate treatment of skulls.

Neolithic 3 society still appears to have been egalitarian since most communities consisted of subsistence farmers who had little surplus produce with which to obtain higher status or material wealth. Nevertheless there is some evidence that slight differences in status were slowly developing. Two types of burial were noticed at Byblos, simple inhumations with few grave goods and richer burials in which the skeletons lay on beds of stones accompanied by more artifacts. The simpler graves which were more common were presumably those of people of lower status while the richer burials were a new group with higher status.

The ornaments in the Byblos graves and the beads, "stamp seals" and other decorative objects found on other sites reflect a continued demand in Neolithic 3 society for more varied artifacts, particularly for adornment. The agricultural and herding economy of most Neolithic 3 sites was probably a

little more labour intensive than the farming economy of Neolithic 2 settlements yet the inhabitants of these sites still had extended periods of leisure. The combination of ample spare time and a demand for goods led to a further growth of crafts. The new craft of potting is the most obvious example. Most of the vessels made in this stage were utilitarian but from the beginning they were often decorated with incised, impressed or painted designs so that they were ornamental as well as practical.

More wool than before could have been obtained from the enlarged flocks of sheep and goats kept by Neolithic 3 settlements. It is not surprising, therefore, that spindle whorls should be a common artifact on most Neolithic 3 sites whereas they were relatively rare in Neolithic 2. A few possible loom weights have also been found on Neolithic 3 sites which may indicate that substantial looms were now being used. The increased supply of wool and ample evidence of spinning suggest that textiles were now made in some quantity. Most were probably still woven on very simple looms which have left no trace in the archaeological record. The products may have included cloth and mats.

Large flaked and polished axes and adzes and small greenstone axes and chisels were much more numerous on Neolithic 3 than on Neolithic 2 sites. A good deal of forest was being cleared now which partly explains the abundance of large axes and adzes but more timber was probably being trimmed and worked to make wooden objects ranging from large shelters and pens down to small household utensils.

Stone bowls and dishes were still used on Neolithic 3 sites and some of them like the examples from Tell Judaidah were elaborately and carefully worked. Elsewhere although found quite frequently they were not so finely made as in Neolithic 2. Stone ornaments seem to have been made in greater quantity in Neolithic 3 since beads and amulets in various shapes were common finds. Many were made from exotic stones such as serpentine, steatite or carnelian. This is a continuation and development of a strong Neolithic 2 craft. New kinds of stone ornaments have been found on Neolithic 3 sites

such as nose plugs and labrets, all testifying to the increasing elaboration of personal adornment in this stage.

"Stamp seals" are another class of object which are part of the increasing variety of material culture. A few of these were found on Neolithic 2 sites but many more in Neolithic 3, particularly at Byblos and Tell Judaidah where several types could be distinguished. The function of these objects remains difficult to determine but I do not think that they were used to mark personal property at this stage since no imprints have been found on pottery for example. It seems to me more likely that they were used for making patterns on cloth, a particularly appropriate use in this stage, or other materials.

These remarks concerning the growth of crafts in Neolithic 3 apply only to the North and South Syrian sites since the material culture of the Palestinian sites was much less elaborate. The inhabitants of these sites had flocks of sheep and goats which would have produced wool and enough spindle whorls have been found on Palestinian sites to indicate that much yarn was spun. Pottery was also made in modest amounts but none of the other crafts I have discussed was practised much in Palestine. There was less woodworking while ornamental objects such as beads, amulets and "stamp seals" were rare or absent. The economy and social organization of Neolithic 3 sites in Palestine inhibited such developments. The social system was less complex and the sites were more transient so weakening the desire of their inhabitants to acquire higher status and material possessions. Thus there was not much demand for more elaborate objects.

Raw materials were traded or exchanged in moderate quantities throughout Neolithic 3 as they had been in Neolithic 2. Materials which could be found relatively near each site such as limestone, basalt and bitumen were acquired in some quantity so this trade flourished more than ever. The pattern of long-distance exchange was more varied. Obsidian is the best documented example of this since 40 pieces have been analysed from the ceramic Neolithic levels at Abu Hureyra and 12 pieces from four other sites, Tell Judaidah, Tabbat el Hammam, Byblos and Munhatta. At Abu Hureyra there was a definite increase

in the proportion of obsidian which came from Çiftlik and corresponding decrease in obsidian from Bingöl and the sources near Lake Van. Almost all of the pieces analysed from other sites came from Çiftlik and at Byblos also from the nearby Acigöl source. Munhatta is the only site other than Abu Hureyra at which Vannic obsidian has been recognised. These results suggest that most obsidian used in the Levant in Neolithic 3 was obtained from the Cappadocian sources and a smaller proportion from Lake Van. This may, indeed, have been the case but we must remember that although a moderate sample has been analysed from Abu Hureyra very little indeed has been analysed from the other sites. So far the results indicate the same trend but this might change if an adequate sample was tested.

One has the impression that obsidian was reaching the Levant in about the same quantity as in Neolithic 2 but this was not the case with all the other exotic materials which had been exchanged earlier. Objects of steatite, serpentine, various greenstones and carnelian which originated in the Zagros and Taurus were still made in Neolithic 3 but turquoise was almost never used. This was probably because Sinai was no longer inhabited. Cowries were no longer exchanged while other marine shells were not traded inland. Either these shells were not sought after now or they were no longer obtainable. Their absence and that of other materials such as malachite indicates a discernible decline in long-distance contacts in Neolithic 3.

Chapter 6

NEOLITHIC 4

The end of Neolithic 3 in central and northern Syria is marked by the appearance of Halaf cultural traits, principally new styles of pottery but also modifications to the chipped stone industry and the construction of tholoi on some sites. The change in culture may be seen on sites north of a line from the coast through Homs and along the Jebel Sha'ar, Jebel Abu Rujmein and Jebel el Bishri to the Euphrates. As we saw in Chapter 5 the development of Halaf began several centuries before 5000 B.C. east of the Euphrates while Halaf elements were adopted on sites further west about 5000 B.C. or a little before.

The transition from Neolithic 3 to Halaf in the Jezireh happened at Tell Halaf itself, Tell Aswad (Balikh) and perhaps Chagar Bazar while many other settlements in this region such as Tell Agab were probably first occupied in the Halaf. Tell Brak is another of these though it is possible it was first settled in an earlier period (Mallowan, 1947, 245). The northern Jezireh was a centre of Halaf development and the pattern of Halaf settlement was dense. Each site made some of its own pottery but imported the rest from nearby centres and even from sites further afield (Davidson, McKerrell, 1976, 52, 53). Some of the pottery had a monochrome finish in black, brown or red which was burnished. Other vessels were coarser and undecorated with hand-smoothed surfaces. These classes of pottery were typical of Neolithic 3 but continued to be made in the Halaf. Such Halaf sherds are indistinguishable from Neolithic examples.

The same transition from Neolithic 3 to Halaf took place on sites west of the Euphrates, at Carchemish perhaps, Tell Turlu, Judaidah Jabbul, in the Amuq from phase B through the First Mixed Range to phase C, at Ras Shamra from Phase V A to Phase IV and at Hama from M to L. Pottery in the Halaf style was also found at Mersin and Tarsus on the Cilician plain. The Halaf

pottery on all these sites and at settlements like Tell Shirbia on the Jabbul plain which was apparently first settled in the Halaf (Maxwell Hyslop et al., 1942, 38) was a little different from sites east of the Euphrates nearer the Halaf heartland. This was partly because much of it was locally made. Most of the Halaf pottery at Carchemish for example was probably made in the Yunus kilns. Some Halaf pottery was also imported from further east. On sites west of the Euphrates as further east there was a great deal of coarse ware and monochrome burnished pottery similar to Neolithic 3 wares which continued to be made throughout the Halaf stage.

The buildings found on sites west of the Euphrates were usually rectangular as at Ras Shamra (de Contenson, 1973b, 16). The details of their plans may have differed somewhat from Neolithic 3 structures at these sites but they were built in the same way. Tholoi were characteristic of sites like Arpachiyah where Halaf developed and a few have been found further west. Davidson tells me that there is probably a tholos at Tell Agab, a site he is excavating near Amuda in the northern Jezireh and they have certainly been found at Yunus and Tell Turlu. Small circular buildings were also discovered at Shams ed-Din on the Euphrates. Further west all the Halaf buildings known continued to be constructed in the Neolithic tradition.

The chipped stone industry on many western Halaf sites also developed without a break from Neolithic 3. Blades were still struck from pyramidal cores and tanged arrowheads retouched by pressure-flaking continued to be used. Fewer types of tool were made in the Halaf on all sites; in particular the variety of scrapers was much reduced. Segmented sickle blades continued to be made as at Ras Shamra (de Contenson, 1973b, 27) and in the Amuq (Braidwood, Braidwood, 1960, 120, 150) although their detailed typology was a little different. The percentage of sickle blades at most sites was also higher than in Neolithic 3. Obsidian continued to be used in modest quantities on sites west of the Euphrates though at Tell Agab and other sites in the Halaf heartland over half the tools were made of it.

Most Halaf sites in north Syria were situated in similar positions to Neolithic 3 settlements, that is they were relatively low-lying in areas with good arable land and usually near perennial streams or springs. The only significant difference in the settlement pattern was that some Halaf settlements were founded along the middle Euphrates and in the Jezireh as far south as the confluence of the Khabur and the Jaghjagha, both regions which were unoccupied in Neolithic 3. Thus the occupied area expanded to include marginal areas abandoned in Neolithic 3.

The Halaf settlement pattern, the houses and many of the artifacts on Halaf sites in north Syria were a continuation of the Neolithic 3 tradition. This suggests that the population of north Syria remained basically the same although there may have been a few immigrants from the east who facilitated the spread of Halaf cultural elements. The economic basis of Halaf society was, so far as we can judge on the scanty evidence available, also the same as in Neolithic 3. The inhabitants of Halaf settlements depended upon cereal agriculture and the herding of sheep, goats, cattle and pigs for food as their Neolithic 3 ancestors had done (Schaeffer, 1962, 178; de Contenson, 1963, 36, 38; Mallowan, Rose, 1935, 14, 15, 80; Braidwood, Braidwood, 1960, 156).

It is important to note this underlying continuity of settlement pattern, economy and certain material remains but the spread of Halaf pottery and other associated elements was still a major cultural change. There also seem to have been alterations in size of population and social organization while new patterns of trade developed. Henceforth the way of life of the inhabitants of north Syria took a different course from that of the people living in the central and southern Levant. North Syria now came within a cultural zone that stretched eastward from the Mediterranean to the foothills of the Zagros, southward from the Anti-Taurus and the mountains of eastern Turkey to the plains of Syria and northern Mesopotamia. Thus the pattern of uniform cultural development in the Levant which had persisted at least since Mesolithic 2 was interrupted. Although there was still a strong element of continuity in the way of life as well as in material remains north Syria now belonged

within a different cultural sphere so I will follow developments there no further.

About 5000 B.C. or a century or two later certain changes occurred on sites in south Syria and Lebanon. Other modifications to the way of life took place on sites in Palestine perhaps about 4800 B.C. The settlement pattern remained fundamentally the same as in Neolithic 3 but new sites were occupied in the wooded uplands and mountains. Buildings on sites in the central Levant were not much changed but in Palestine the pits of Neolithic 3 were replaced by curvilinear and rectilinear structures built on the surface. Pottery everywhere was better made while new shapes and types of decoration were used. Some pots were still decorated with incised designs but many of the finer vessels were now covered with a red wash or slip which was often burnished. The flint industries, too, were modified. The proportions of arrowheads and scrapers in each assemblage from settlement sites diminished and there was less variety both of these and other classes of tools. Sickle blades increased in proportion though not in variety while heavy cutting tools were especially numerous on some sites, particularly in the uplands. All these changes are sufficient to indicate the emergence of a new stage of the Neolithic, Neolithic 4. This stage lasted until 3750 or 3500 B.C. in Palestine and probably for about the same length of time in Lebanon (Perrot, 1968, col. 439; Moore, 1973, 63).

Neolithic 4 is the last stage in the Levantine sequence which may reasonably be called Neolithic. The inhabitants of the central and southern Levant continued to live in villages and small towns supported by subsistence agriculture. This way of life had developed over a long period during and after the Mesolithic. The economy and even the social system remained the same in most villages in the Levant until much later but the stage following Neolithic 4 was no longer truly Neolithic. The material culture altered considerably and metal-working was introduced. New contacts with regions beyond the Levant were established. This cultural and economic stage, the "Chalcolithic" of the Levant as it is commonly known, was thus something new even if the

population of the region remained almost the same and the economic basis was little different from Neolithic 4. The "Chalcolithic" of the central Levant, no longer Neolithic in the way I defined it in Chapter 3, was a prelude to the Bronze Age, a stage between it and the Neolithic proper.

Neolithic 4 sites have been discovered in Lebanon, both on the coast and in the Beka'a, in the Damascus basin and in Palestine (Fig. 45). As in earlier stages these sites fall into regional groups, a South Syrian group comprising sites in Lebanon and the Damascus basin and a Palestinian group. The South Syrian group may be further sub-divided since there are certain local differences between the sites on the coast of Lebanon, in the Beka'a and near Damascus. In my earlier study I found that the Palestinian sites could also be divided into three local sub-groups in southern, northern and western Palestine.

South Syria

It will be convenient to begin by describing sites in the South Syrian group. I will consider the sites in the Lebanese coastal sub-group first since it includes Byblos, the type-site for the whole South Syrian group.

Lebanese coast

Byblos

Byblos continued to be inhabited throughout the final stage of the Neolithic and on into the Chalcolithic. The occupation which falls within Neolithic 4 has been divided into two phases, Néolithique Moyen and Néolithique Récent. The Néolithique Moyen settlement stood on a ridge to the north-west of the little valley crossing the site. There were also traces of occupation near the spring. The settlement thus lay to the south-west of the area occupied during Néolithique Ancien and was almost completely separate from it. Dunand found that the Néolithique Moyen settlement extended over no more than 1500 sq m (1973, 95), thus it was considerably smaller than

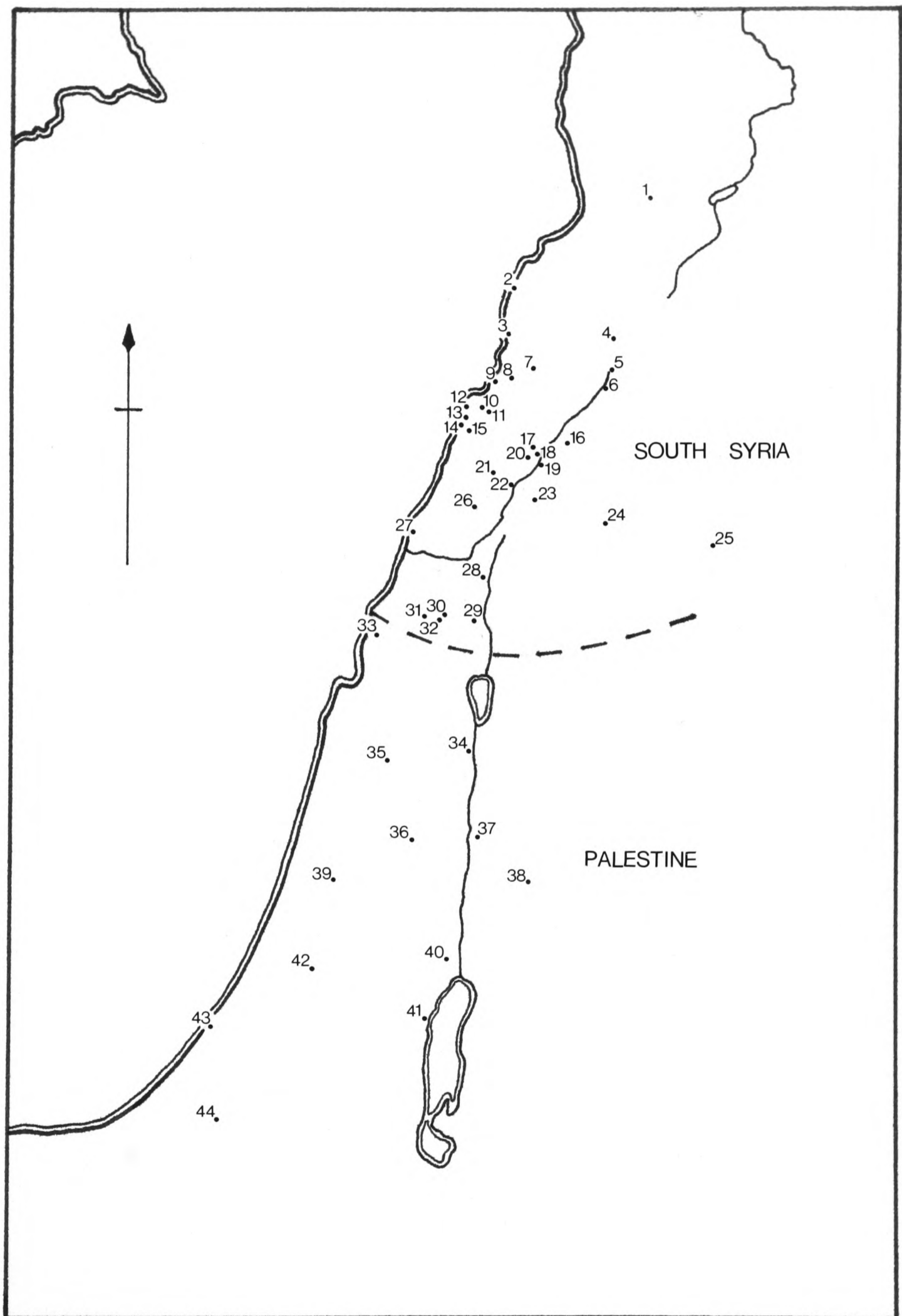


Fig. 45 Distribution of Neolithic 4 sites

scale 1:2,500,000

FIGURE 45

Distribution of Neolithic 4 sites

1	Neba'a Jalluk	23	Kaukaba
2	Kubbah I	24	Tell Ramad
3	Byblos	25	Tell al Khazzami
4	Tell Ard Tlaili	26	Jbs'a
5	Tell Neba'a Litani	27	Adlun II
6	Tell Ain Nfaikh	28	Kfar Giladi
7	Kleat	29	Shemouniyeh
8	Jiita I	30	Chalaboun
9	Naccache	31	Birket Ram'a
10	Mukalles/Hsaima	32	Ain Hannine
11	Asfurieh II	33	Kabri
12	Ouza'i	34	Munhatta
13	Tell Arslan	35	Megiddo
14	Khalde I	36	Tell el Far'ah
15	Habarjer III	37	Tell es-Saidiyeh el Gharbi
16	Tell Shamsine	38	Salihi
17	Amiq I	39	Wadi Rabah
18	Tell ed-Deir	40	Jericho
19	Tell ed-Jisr	41	Murabba'at
20	Kefraya	42	Teluliot Batashi
21	Muktara	43	Ziqim
22	Karaoun II	44	Wadi GhazzeH - Site D

even the modest village of Néolithique Ancien. The remains of the Néolithique Moyen settlement today end abruptly at the edge of the cliff on the seaward side so the site would have been somewhat larger originally.

In Néolithique Récent the focus of the settlement lay further north along the ridge nearer the spring (Dunand, 1973, 127). Here houses were built on the side of the ridge sloping down to the spring and on the flat floor of the little valley itself. It seems that the part of the settlement covered by the houses was not very extensive but the total area occupied in Néolithique Récent was 1.5 ha (Dunand, 1973, pl. G) so the settlement was much larger than that of Néolithique Moyen and bigger even than in Néolithique Ancien. The houses at the core of the village were surrounded by working areas and "silos" (Dunand, 1973, 168) representing a division of activities within the confines of the settlement. The traces of these features probably account for much of the extent of the village.

The houses of the Néolithique Moyen settlement were similar in shape to those of Néolithique Ancien, differing only in certain details. The core of each house was a single rectangular room with stone walls (Dunand, 1973, 95ff). Usually these houses had another room at one end separated by an internal partition wall from the main room. Sometimes this second room might be built on to the exterior of the house. These houses were a little bigger than those of Néolithique Ancien, one for instance being 7.10 m long and 4.35 m wide (Dunand, 1973, 97). Their floors consisted either of trampled earth or chalk spread over a bed of stones. The fine plastered floors of Néolithique Ancien ceased to be made during this phase.

In Néolithique Récent the houses were built in much the same way as before but their plans were usually different. A few were single-roomed dwellings of similar dimensions to those in earlier phases (Dunand, 1973, 130) but most while still rectangular were much longer, at least 12 m in one instance and 17.8 m in another (Dunand, 1973, 128, 132). These large buildings had two or three rooms. The floors of two structures were made of a layer of clay

(Dunand, 1973, 127) but all the others were of trodden earth. Several houses had a low bench made of stones along the outside of one of the walls (Dunand, 1973, 130, 133), another indication of the increasing elaboration of these structures.

That these buildings, both the smaller single-roomed ones and the long multi-roomed structures, were houses still seems to me to be their most probable function although there is an obvious difference in the size of the families which could have occupied these two types of dwelling. Several other buildings constructed in a similar manner to the houses have been identified by Dunand as religious structures (1973, 134ff). These were on the side of the little hill near the spring. The only difference between them and the other buildings was that they each had a low plinth set on the floor of the principal room. They were also the first structures to be built in places where a series of temples was constructed in the Chalcolithic and during the Bronze Age. One cannot be certain that these buildings had a religious function as their shape and contents differed so little from the houses. The argument concerning their position under a series of later temples carries some weight so it remains possible that they were simple chapels as Dunand has suggested.

Two other kinds of structure were common in the Néolithique Récent settlement. These were areas of stone paving and "silos". The paved areas were often circular and grinding stones were found in association with several of them (Dunand, 1973, 137, 138). This evidence suggests that some of them were used for preparing cereals while others may have been working surfaces for other activities. The "silos" were either shallow basins lined with stone slabs or hollows dug out of the subsoil and lined with clay. Both could have been used for storing food.

Néolithique Moyen burial practices had much in common with those of Néolithique Ancien. Most corpses continued to be laid in a crouched position in simple earth graves (Dunand, 1973, 99). Dead children were usually buried in jars, a mode of burial reserved exclusively for them (Dunand, 1973,

100), although a few were also buried in earth graves. Three graves only were found in which skeletal remains lay on beds of stones and all were atypical. They were not graves of people of demonstrably high social status in the community. Grave goods were placed in some of the earth graves but not, apparently, in all. It may be that those of higher social status were buried in the same kind of grave as other inhabitants of the village but that more objects were deposited with them.

There was a revival of the custom of secondary burial in Néolithique Moyen Byblos. A number of burials were found in which the skeletons were incomplete (Dunand, 1973, 99). Care had been taken to conserve the skull in several instances, an echo of the widespread practices of Neolithic 2. One house in particular was used for secondary burials (Dunand, 1973, 97) though the building itself need not have had a religious function as Dunand was inclined to believe.

Burial practices in Néolithique Récent followed those of the earlier phases quite closely although there were no more secondary burials. Earth graves were the usual mode of burial while the remains of children continued to be placed in jars (Dunand, 1973, 136). Several graves were found in which the body had been placed on a bed of stones or was surrounded by stones recalling the mode of burial used for persons of higher status in Néolithique Ancien.

The chipped stone assemblage of Néolithique Moyen comprised 494 pieces only (Cauvin, 1968, 97) so the relative proportions of different types of tools are of less diagnostic value than in the other phases. Sickle blades were the most abundant type (Cauvin, 1968, 100ff). Most of these were segmented but their retouch varied considerably. Some has coarse, others fine denticulation along the cutting edge; some were backed, others not. Several sickle blades were retouched by pressure flaking in this phase.

Axes and chisels formed 18% of the assemblage in Néolithique Moyen (Cauvin, 1968, 105, 113), a far greater proportion than in Néolithique Ancien. They were made of flint, limestone or sandstone and tended to be thicker and

longer than in the preceding phase. Those with straight cutting edges predominated. These were of two principal shapes, short and trapezoidal or long and rectangular (fig. 46). The others had a curved cutting edge and almost all of them were relatively long with parallel sides. The almond-shaped ones of Néolithique Ancien were no longer made. A few of these tools were asymmetrical and so were probably used as adzes. All were flaked first and some were partially polished. The chisels were made in the same way and, like the axes, had straight or curved cutting edges. The latter are characteristic of this phase only at Byblos (Cauvin, 1968, 113). Three small axes made of greenstone, a black rock and amphibolite were also found in the Néolithique Moyen settlement (Cauvin, 1968, 113; Dunand, 1973, 124).

Flint borers were much more common than in Néolithique Ancien (Cauvin, 1968, 115). Some were quite delicate but others, though small, were robust and could have been used for drilling wood. The presence of these and numerous axes and chisels suggest that the cutting and working of timber grew in importance in this phase.

Burins were present in about the same proportions as before and the types were similar (Cauvin, 1968, 119). End-scrapers on blades and flakes were more common (Cauvin, 1968, 121) as were side-scrapers though there were relatively few of the latter.

The remaining flint tools consisted of arrowheads and denticulated blades and flakes. Arrowheads were less common than in Néolithique Ancien, forming only 6% of the total assemblage. Three types of arrowhead were found, Byblos points, Amuq 1 points and oval arrowheads (Cauvin, 1968, 97, 98). The marked reduction in the proportion of arrowheads is probably an indicator of a decline in hunting which may also be seen at other sites in Neolithic 4.

The Néolithique Récent assemblage was more abundant than that of Néolithique Moyen. Sickle blades while still quite numerous made up a smaller proportion, 13%, of the total assemblage than before (Cauvin, 1968, 128). Most were segmented with finely-denticulated cutting edges; coarse

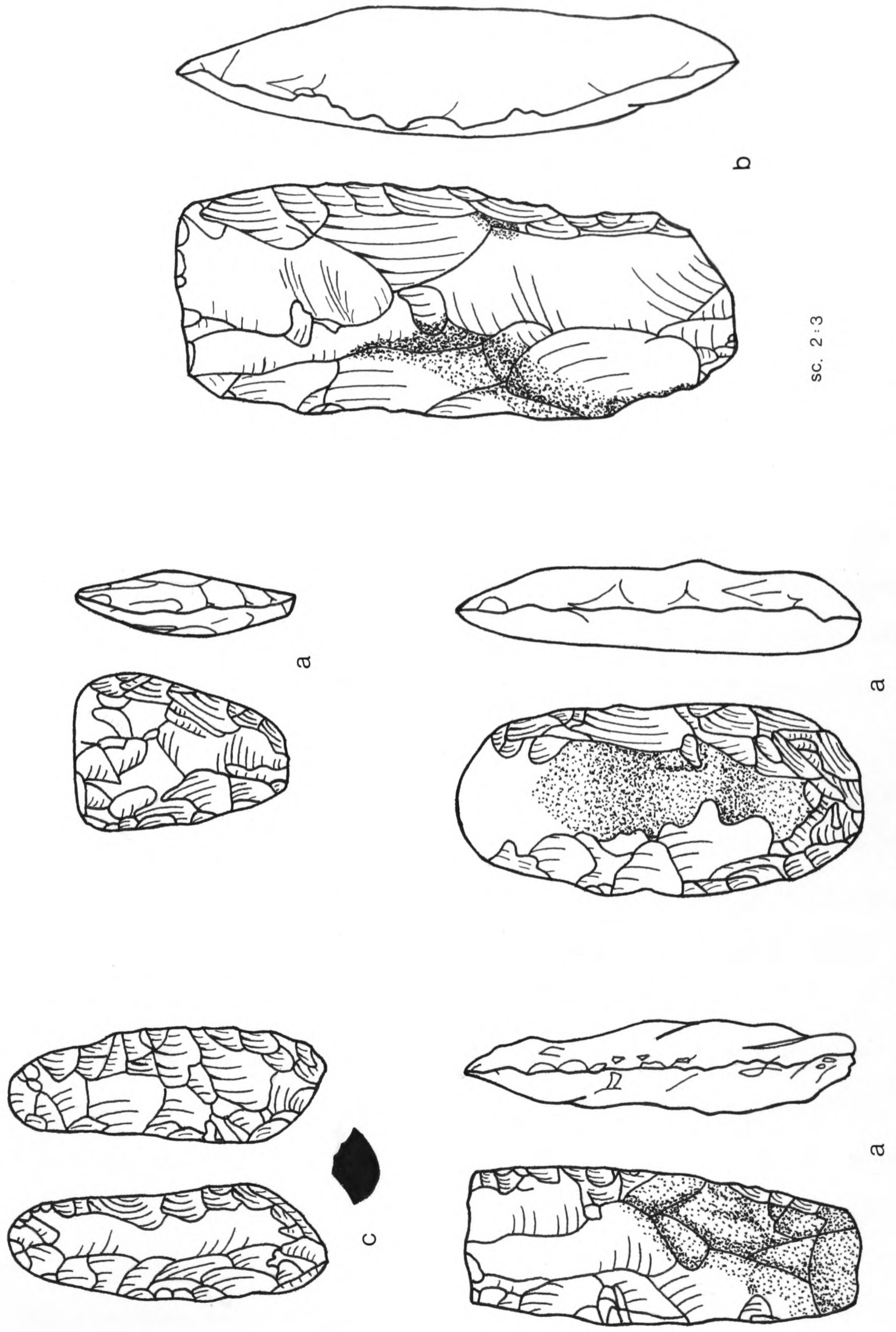


Fig. 46 Byblos - Néolithique Moyen flint tools (after Cauvin)

a - axes b - adze c - chisel

denticulation was not used in this phase. Some of the sickle blades had little or no edge retouch. The use of pressure-flaking for edge and back retouch fell out of use in Néolithique Récent, most backed sickle blades being retouched abruptly.

The proportion of axes and chisels in the assemblage remained about the same in Néolithique Récent as in Néolithique Moyen at 19% (Cauvin, 1968, 135, 150). Most were made of flint but a few were struck from limestone and two from basalt (Cauvin, 1968, 145). All the axes and chisels had straight cutting edges (Fig. 47). The axes were relatively longer and narrower than those of the preceding phase although their shapes were similar. Some had sliced sides. From the asymmetrical profiles of many of these tools it would seem that they were used as adzes rather than axes. Most of these tools were flaked but a few were shaped by hammering; their cutting edges were then usually polished (Cauvin, 1968, 140). A number of small, polished greenstone axes and chisels were also found in Néolithique Récent levels (Dunand, 1973, 165) which were probably functionally associated with the heavier cutting tools.

The proportion of borers made in this phase, 17%, was greater even than in Néolithique Moyen (Cauvin, 1968, 153). Most were small drills while the remainder consisted of borers on flakes and blades with fine or coarse points. The drills were probably used for drilling wood and bone (Cauvin, 1968, 161ff) while the other borers could have had a variety of uses.

End-scrapers on flakes and blades were used more in this phase than before (Cauvin, 1968, 163). Sidescrapers continued to be used in modest quantities and some of these tools were made on tabular flint (Cauvin, 1968, 167). Burins, on the other hand, were less common than in the preceding phases.

The remaining tools consisted of notched and denticulated pieces and arrowheads. Tanged arrowheads and Amuq points were no longer made in this stage (Cauvin, 1968, 127). The only arrowheads were tranchets and these were

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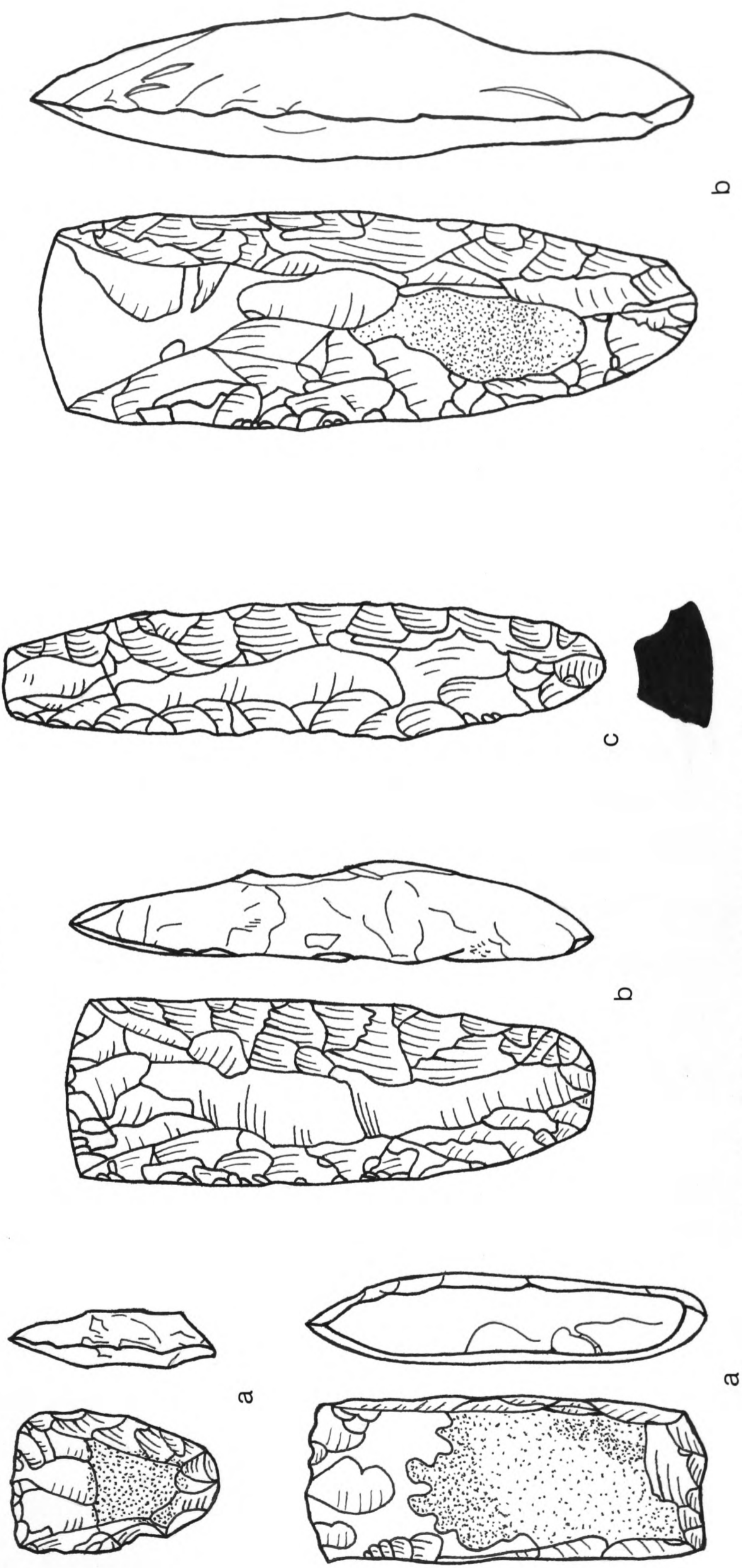


Fig. 47 Byblos - Néolithique Récent flint tools (after Cauvin)

a - axes b - adzes c - chisel

probably used for hunting in a different manner than the arrowheads of earlier phases. Similar tranchet arrowheads have been found on coastal sites in Palestine in both Neolithic 3 and Neolithic 4.

A few pieces of obsidian were found in Néolithique Moyen levels and 44 more in the Néolithique Récent settlement (Cauvin, 1968, 172). Both of the Néolithique Moyen pieces which have been analysed came from the Van region, one from the 1g source and the other from 3a (Renfrew et al., 1966, 63, 66). Each of the three Néolithique Récent pieces analysed came from a different region, one from 1g near Lake Van, another from Nemrut Dağ (4c) and the third from Çiftlik (Renfrew et al., 1966, 63, 65, 68).

Querns, rubbers, mortars and pestles were of the same types in Néolithique Moyen and Récent as in Néolithique Ancien and equally abundant (Dunand, 1973, 101, 137). Stone vessels continued to be made in small quantities during Néolithique Moyen. The principal forms were cups, bowls and dishes made of limestones and basalt (Dunand, 1973, 102, 103). Two of the basalt dishes were each supported on a stem. Stone dishes were no longer made in Néolithique Récent but stone cups and bowls were relatively abundant (Dunand, 1973, 139). The shapes of the vessels were quite similar but more seem to have been decorated with lines incised around the rim. In addition to the range of limestone and basalt vessels there were two small steatite pots. Other stone tools found in both phases were maceheads, weights and polishing stones (Dunand, 1973, 119ff, 158ff).

The pottery of Néolithique Moyen was a little more developed than that of Néolithique Ancien. The fabrics of the vessels were similar but now were almost always fired buff or brown, occasionally dark brown. The vessels were hand-made but sometimes finished on a turntable. Their surfaces were smoothed by hand and then burnished as before.

Small hemispherical bowls and cups continued to be made in this phase (Dunand, 1973, fig. 58) and many of these were decorated with deeply incised or excised designs. Flat-based dishes or plates were made for the first time

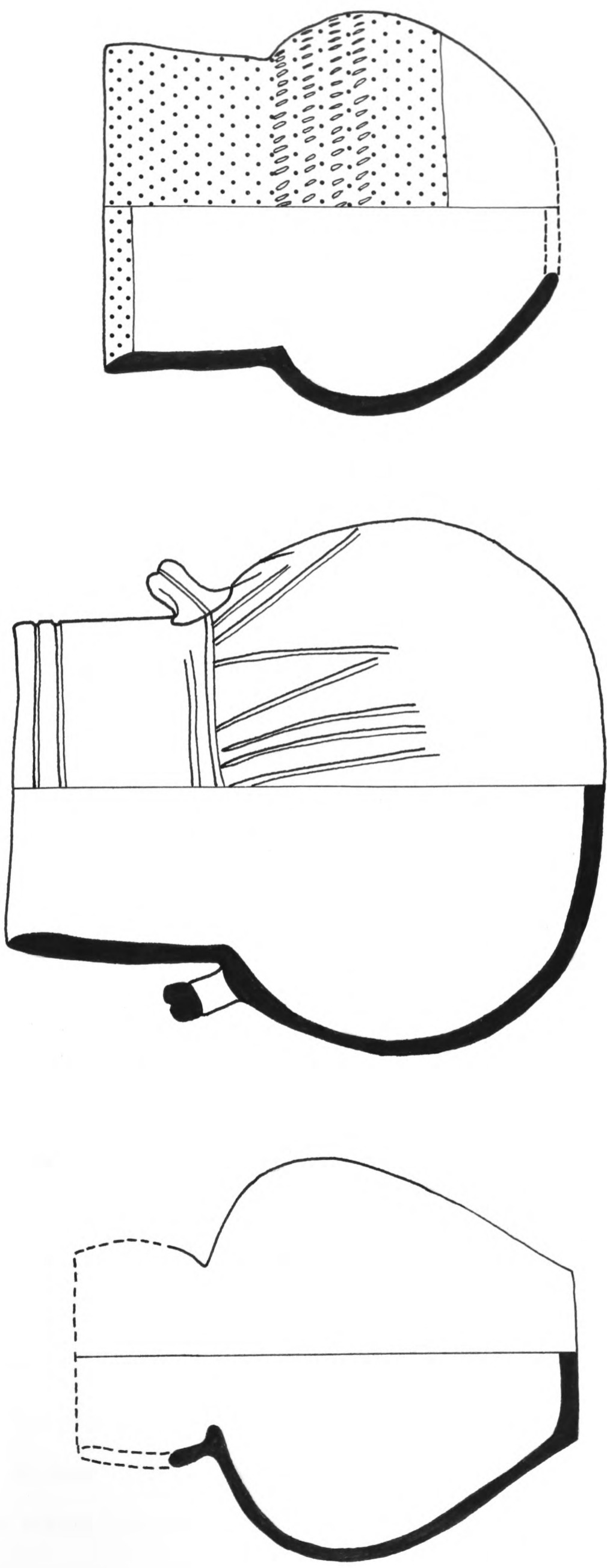
(Dunand, 1973, 104) as were bowls with straight flared sides and flat bases. Globular hole-mouth pots and jars were still used but most of the larger vessels now had collar necks (Fig. 48) with either round or flat bases (Dunand, 1973, figs. 62-65). They often had loop handles at the junction of collar and body or pierced lugs at the widest point of the body. Another new shape was a tall jar with a narrow, flat base and relatively small mouth (Dunand, 1973, 108). It had loop handles on the upper part of the body or long vertical lugs pierced horizontally.

Many of these vessels were decorated with incised patterns, coloured slip or paint or burnish. The incised patterns included those common in Néolithique Ancien but there was a greater variety of stabbed patterns and zig-zag lines (Dunand, 1973, pls. LXVII-LXIX). Red or brown paint or slip was used to colour half or all of the surface of certain vessels and was then usually burnished. Sometimes this kind of decoration was combined with areas of stab marks. Paint was also applied in bands or in criss-cross lines (Dunand, 1973, 104). Some vessels were decorated with pattern burnish (Dunand, 1973, 103).

One small bowl with a flat base made of white plaster ware was found in a Néolithique Moyen level (Dunand, 1973, 103). No other white plaster vessels were found in this or subsequent phases.

The pottery of Néolithique Récent was simply a development of that of Néolithique Moyen. Fabrics were similar though many of the vessels were harder fired. The rims of more bowls and other vessels were finished on a turntable. A few vessels were decorated with incised lines (Dunand, 1973, 142) but this was rare. Most were covered with red paint or slip and burnished. A few were painted in fine criss-cross or parallel lines (Dunand, 1973, pl. LXXXI). Some other vessels were decorated with pattern burnish (Dunand, 1973, 141).

Hemispherical and flat-bottomed cups and bowls were still common but bowls with straight splayed sides and a flat base were used more than before



sc. 1:3

Fig. 48 Byblos - Néolithique Moyen jars (after Dunand)

(Fig. 49). Hole-mouth pots and jars usually with a flat base but sometimes curved were another common type. Globular jars were rarely made in this phase and the collared jars of Néolithique Moyen were also unusual. The most common large containers were tall jars with narrow flat bases (Dunand, 1973, 148). Their necks were collared or flared and they often had handles on the sides (Fig. 49). This type was first made in the preceding phase but became the standard large vessel in Néolithique Récent.

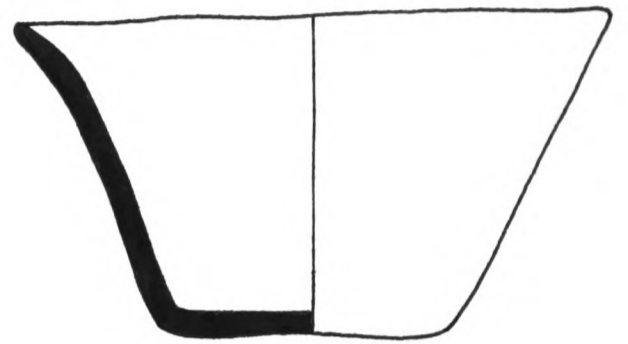
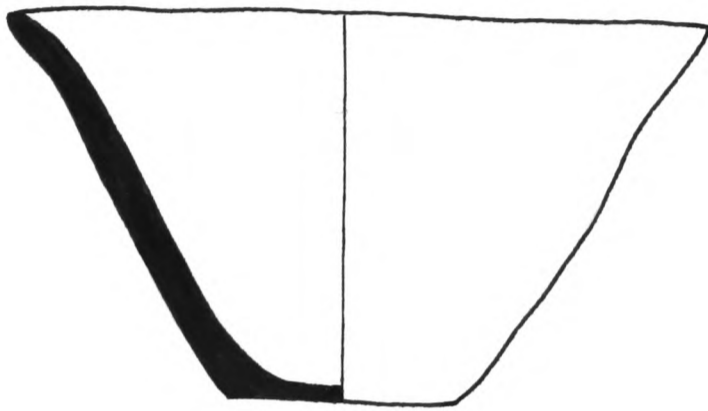
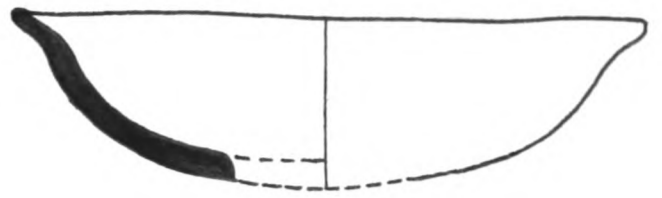
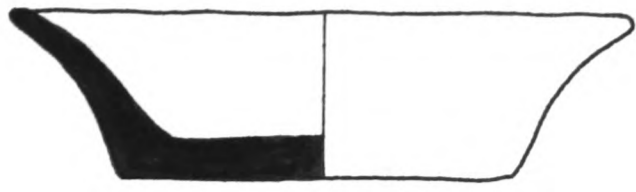
The bone tools of Néolithique Moyen were similar to those of Néolithique Ancien (Dunand, 1973, 121). There were borers in several different sizes, some with quite delicate points and others that were more robust. Spatulae were another common type while among the more unusual tools were fish-hooks and hafts.

Bone borers were particularly abundant in Néolithique Récent (Dunand, 1973, 161). A number were found in close proximity as if they had been used together in some craft activity. The other bone tools included spatulae, a fish-hook and a needle. There were also a number of hafts and two fragments of animal scapulae with rows of notches similar to the one found in Néolithique Ancien.

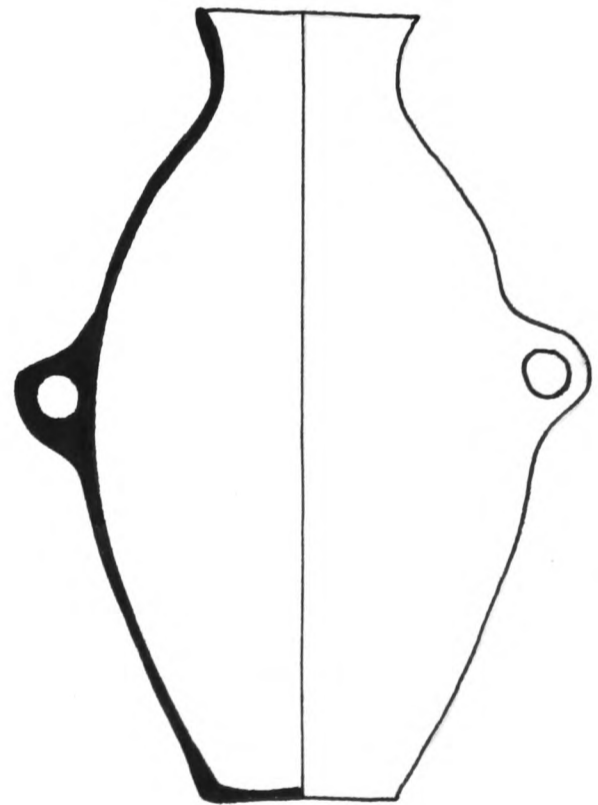
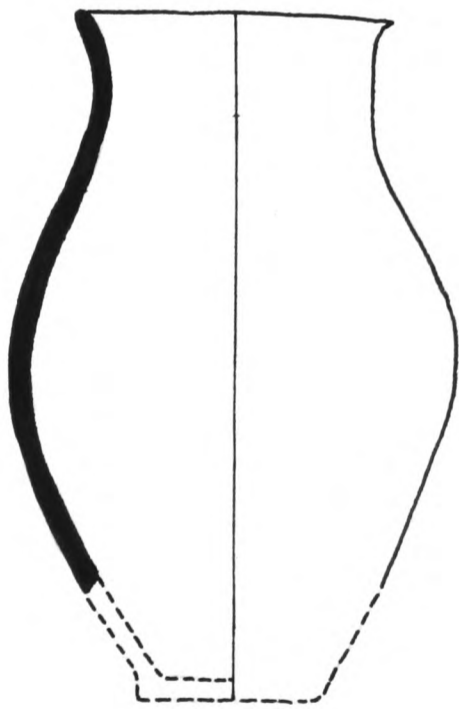
A few spindle whorls were found in Néolithique Moyen and many more in Néolithique Récent (Dunand, 1973, 123, 163). Most were made of baked clay but a few were of stone. Pottery and stone discs which may have had a related function were also found.

Stamp seals were quite rare in Néolithique Moyen. The "pintaderas" were no longer made but there were several seals of baked clay which were incised with the same simple geometric patterns (Dunand, 1973, 125). There was also at least one stone stamp seal which was similar in type.

Most of the stamp seals in Néolithique Récent showed marked evolution from those of the preceding phases (Dunand, 1973, 166ff). There were still a few baked clay ones with simple line patterns but more were made of stone. They often had steep ridged backs and were pierced for suspension. Some had



sc. 1:3



sc. 1:5

Fig. 49 Byblos – Néolithique Récent bowls and jars
(after Dunand)

patterns of incised lines as before but others had new motifs formed by a series of drilled holes.

Jewellery and other objects of adornment were quite rare in Néolithique Moyen but there were a few stone, bone and shell beads. There were also several stone and baked clay objects similar to those found in Néolithique Ancien which I have suggested may have been nose adornments or labrets. These objects were rare in the Néolithique Récent settlement while beads and pendants were also scarce (Dunand, 1973, 165, 166).

The only figurines found in the Néolithique Moyen settlement were two pebbles with a few lines scratched on them to indicate human beings (Dunand, 1973, 123). These were of the same type as those found in Néolithique Ancien. These pebble figurines were absent in Néolithique Récent, the only figurine found on those levels being a baked clay quadruped (Dunand, 1973, 165).

No carbon ¹⁴ determinations have been made on samples from the Néolithique Moyen and Récent settlements at Byblos so in order to estimate their duration one has to rely on typological parallels with other dated sites. Unfortunately very few samples from contemporary sites have been dated so far so that any estimate must be imprecise. I have already suggested that Néolithique Ancien Byblos continued to be inhabited until about 5000 or 4800 B.C. when the transition to Néolithique Moyen took place. The material remains of the Néolithique Moyen settlement were relatively slight suggesting that the phase did not last long. This is borne out by the dating evidence obtained by Kirkbride at the site of Ard Tlaili in the Beka'a. The site is a small tell which has yielded some Halaf pottery and remains of a rectangular building (Kirkbride, 1969, 53ff). Accompanying the Halaf painted wares were many plain burnished and pattern burnished sherds as well as deeply-incised fragments which closely resembled Néolithique Moyen pottery at Byblos. In the upper levels of the site were sherds of red washed vessels more akin to the pottery of Néolithique Récent at Byblos. Three carbon ¹⁴ determinations were obtained from samples taken from the lower levels giving dates of 4920 ± 130 B.C. K-1432, 4900 ± 130

B.C. K-1433 and 4840 ± 130 B.C. K-1434 (Kirkbride, 1969, 55; Mellaart, 1975, 287). The date from one sample from the upper level at Ard Tlaili was 4710 ± 130 B.C. K-1431. Following these dates I would suggest that Néolithique Moyen at Byblos lasted until about 4700 B.C. or a little before. Thus the maximum duration of the phase would be 300 years and the minimum about one century.

There was no apparent break in the sequence of occupation at Byblos between Néolithique Moyen and Néolithique Récent even though the settlement altered so markedly. It follows, therefore, that Néolithique Récent may have begun about 4700 B.C. The abundant remains of this settlement indicate that the phase lasted a long time but its terminal date can be little more than a guess. Néolithique Récent at Byblos has many similar cultural remains to level IIIC at Ras Shamra which is dated by a ^{14}C determination of 4184 ± 173 B.C. P-389 (de Contenson, 1964, 47; Radiocarbon 5, 1963, 83). From this it would appear that Néolithique Récent lasted at least until the end of the 5th millennium. The succeeding phases at Byblos, Enéolithique Ancien and Enéolithique Récent followed Néolithique Récent directly. The material remains of these phases shared many traits with the Ghassulian in Palestine with which they were probably approximately contemporary. The transition to the latter began about 3750 B.C. and was complete by 3500 B.C. (Moore, 1973, 63). Thus Néolithique Récent at Byblos may have lasted until the earlier centuries of the 4th millennium, perhaps 3900 or 3800 B.C.

A number of other Neolithic 4 sites have been found on the seaward side of the Mountains of Lebanon. Almost all are known only from surface finds but these can be dated by typological comparisons with Byblos Néolithique Moyen and Récent. Many other probable Neolithic sites have been identified in this region and elsewhere in Lebanon (see especially Copeland, Wescombe, 1965; 1966) but insufficient material has been found on them for us to know during which phases of the Neolithic they were occupied. It is likely that most of these other sites were inhabited during Neolithic 3 or 4 and therefore

that the number of sites discovered which were inhabited in these phases is significantly greater than those I am describing.

Several sites contemporary with Byblos Néolithique Moyen have been found on the hill slopes near the sea south of the Nahr el Kelb (Fig. 50). The most northerly of these is Dbaye I on top of the promontory at the mouth of the Nahr el Kelb itself and about 1 km north of the village of Dbaye (Copeland, Wescombe, 1965, 81).

Dbaye I

The site was discovered long ago by Zumoffen and others have picked up material there since. Much of this has been deposited in the Université Saint-Joseph and at the Museum of the American University in Beirut where I have examined it. The finds from the site consisted entirely of flint artifacts and of these the heavy tools, axes, chisels and picks were the most prominent. The axes were of a variety of shapes and some were unusually large. Those with rounded cutting edges were either oval or almond-shaped while the straight-edged axes were triangular or trapezoidal. The chisels were usually quite small and narrow with rounded or straight cutting edges. Most of the picks were small with rounded butts; these tools were probably for woodworking like the axes and chisels. In addition there were a number of heavy spherical flint hammers which may have been used to make the other large tools.

The assemblages from Dbaye I included a number of tanged arrowheads and a variety of segmented sickle blades, mostly with fine edge retouch but a few with coarse denticulation. There were also a range of borers, some knives, burins and end and side-scrapers.

Cauvin has published much of the available material and has concluded that the site was inhabited at the same time as the Néolithique Moyen settlement at Byblos (1968, 240ff) principally because the typology of the axes, chisels, sickle blades and arrowheads was the same at both sites. The site was visited in other periods, however, on the evidence of a few other finds (Copeland, Wescombe, 1966, 162).

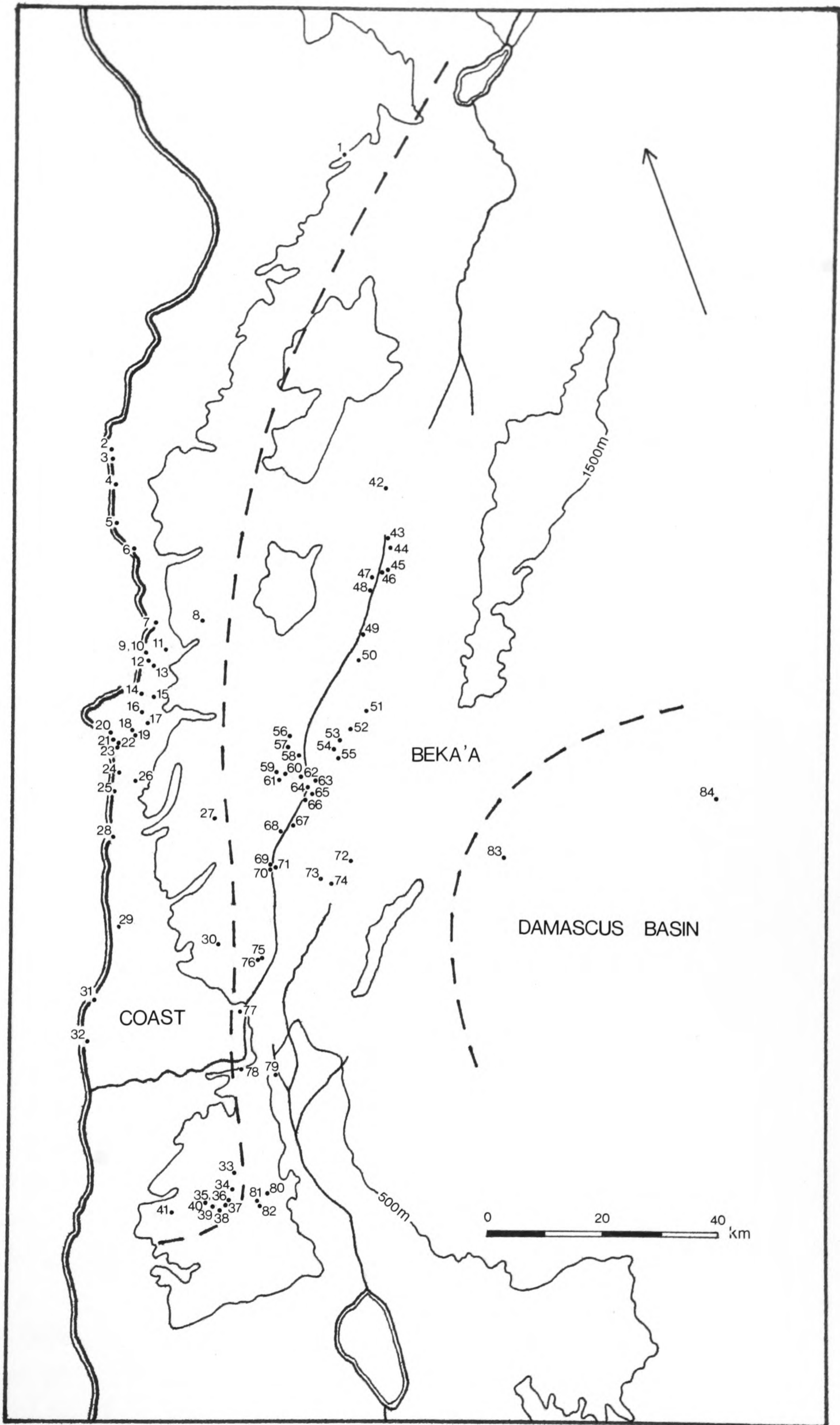


Fig. 50 Neolithic 4 South Syrian sites

FIGURE 50

Neolithic 4 South Syrian sites

1	Neba'a Jalluk	34	Chalaboun
2	Kubbah I	35	Khallet el Michte I
3	Batroun III	36	Khallet el Michte II
4	Fadaous South	37	Khallet el Hamra
5	Wadi Helwe	38	Wadi Yaroun
6	Byblos	39	Douwara
7	Maameltein II	40	Ain Hannine
8	Kleat	41	Birket Ram'a
9	Dbaye I	42	Tell Ard Tlaili
10	Dbaye III	43	Tell Neba'a Litani
11	Jiita I	44	Tell Ain Saouda
12	Naccache	45	Tell Ain Ghessali
13	Mtaileb I	46	Tell Ain Nfaikh
14	Jedeideh III	47	Tell Hashbai
15	Beit Meri II	48	Tell Hoch Rafqa
16	Mukalles/Hsaima	49	Tell Nahariyah
17	Asfurieh II	50	Tell Saoudhi
18	Hadeth South	51	Tell Shamsine
19	Ourrouar II	52	Nebi Zair
20	Ouza'i	53	Mejdel Anjar II
21	Sands Site 10	54	Mejdel Anjar I
22	Sands Site 6	55	Dakoue
23	Tell Arslan	56	Tell Khardane
24	Khalde I	57	Amiq I
25	Khalde IV	58	Tell ed-Deir
26	Harbarjer III	59	Kefraya
27	Muktara	60	Bab es-Sghrir
28	Yerate	61	Bustan el Birke
29	Jebel Aabeby	62	Tell Zenoub
30	Jba'a	63	Kamed el Loz I
31	Sarafand	64	Tell ed-Jisr
32	Adlun II	65	Jub Jannine III
33	et-Taireh II	66	Tahun ben Aissa

67	Amlaq el Qatih	76	Khallet el Khazen IV
68	Ain Jaouze	77	Kafr Tibnit
69	Karaoun II	78	et-Tayibe
70	Beidar Chamout	79	Kfar Giladi
71	Karaoun I	80	Shemouniyeh
72	Dahr el Ahmar	81	Wadi Salhah
73	Kaukaba	82	Wadi Farah
74	Ard Saouda	83	Tell Ramad
75	Khallet el Khazen III	84	Tell al Khazzami

There is another site in the vicinity of Dbaye which has yielded a little more material of the same kind which Copeland and Wescombe called Dbaye III (1965, 82) and Cauvin, apparently in error, Dbaye II (1968, 240). Here again there were a number of axes and other heavy tools but relatively few sickle blades, arrowheads and scrapers.

The assemblages from these two sites may resemble that from Byblos typologically but it is clear that the way of life of the inhabitants of Dbaye I and Dbaye III was different. The presence of a number of arrowheads suggests that hunting contributed significantly to the diet, supplementing the fruits of agriculture presumably, but the heavy tools indicate that the inhabitants spent much time in clearing the surrounding woodland and shaping timber.

Naccache

The village of Naccache lies between Dbaye and Antelias, just south of the monastery of Mar Jorgis. The surface station, or rather stations since it seems that there were several, of Naccache or Mar Jorgis lie principally to the north and east of the village (Copeland, Wescombe, 1965, 110; Cauvin, 1968, 232). They were first visited by Bergy in 1933 and subsequently by several other workers who collected much material, some of which is in the Université Saint-Joseph in Beirut. The site or sites consisted of several concentrations of flint tools and waste over a wide area. Cauvin collected much material from one concentration which he believed had been missed by earlier workers. The most numerous tools from Cauvin's station were arrowheads, sickle blades, borers, burins and notched pieces. The arrowheads were tanged and pressure-flaked Byblos points. The sickle blades were segmented and retouched in a variety of ways with fine or coarse denticulation, sometimes by pressure-flaking and either with or without backing (Cauvin, 1968, 233). The borers included both small points on flakes or blades and also heavier flaked tools which one might classify as "picks". The latter bore clear traces of wear on the intersections of the flake scars which showed that they

had been used as borers or reamers (Cauvin, 1968, 237). In addition to these tools there were a number of axes with either round or straight cutting edges and also some chisels. The other artifacts were end-scrapers, side-scrapers and denticulated blades and flakes.

Cauvin believed that his station at Naccache was occupied during Byblos Néolithique Moyen on the basis of the typology of the arrowheads, sickle blades, axes and chisels and also because end-scrapers were present. These observations seem valid for his station and also apply to the material which I have seen from the other stations in the vicinity. These sites appear to represent the settlements of one or more groups who lived here during part of Neolithic 4. The settlements may in fact have been more long-lived than that since some of the tools could equally well have been used later in Neolithic 4 or even in Neolithic 3. Such stations in areas where flint was abundant were used by other groups in other phases and the surface collections usually include at least a few tools made by such visitors.

Tell Arslan

Tell Arslan lay in the dunes or Sands 8.5 km south of Beirut and about 800 m east of the present shoreline (Copeland, Wescombe, 1965, 131; Cauvin, 1968, fig. 121). The site was a mound covering about 1 ha and was situated on a low rise just north of the Nahr el Ghedir. Bergy found the site in 1930 and collected much material from it. Fleisch gathered a great deal more in 1948 when the site was levelled during the construction of Beirut Airport. All this material is now in the Université Saint-Joseph.

The site seems to have been a Neolithic village which was also occupied in Roman times. The extant Neolithic material from the site consists of flints and pottery. About 25% of the flint tools were axes and chisels (Cauvin, 1968, 260, 269). The axes were particularly varied, a majority having straight and the remainder round cutting edges. Those with straight edges were usually trapezoidal although a few were rectangular. Most were relatively small but there were a few large ones. The axes with rounded edges were

either oval or almond-shaped. A number of the trapezoidal and rectangular ones were asymmetrical in cross-section and thus adzes rather than axes. A series of other asymmetrical ones, both trapezoidal and oval in outline, had heavily worn cutting edges. Cauvin has concluded that these tools were used as hoes (1968, 268), an interpretation with which I agree. Similarly shaped tools have been found on the other Neolithic sites I have described but none have such clear traces of heavy wear; in fact few of these heavy tools show any signs of wear at all to the naked eye. It would seem probable that some of these asymmetrical axes were used as hoes on the other sites but not long enough for the traces of wear to be so readily visible.

The chisels from Tell Arslan were narrow and usually oval in cross-section. They had round or straight cutting edges. These tools were probably for wood-working as were many of the axes and adzes. Borers and picks which might also have been used in carpentry were less abundant in the collections from Tell Arslan than on some other contemporary sites (Cauvin, 1968, 270).

The two other main classes of tools were arrowheads and sickle blades. The arrowheads, like the axes, were particularly varied since they included both kinds of Amuq point, tanged arrowheads of the Byblos type and even a few notched examples. Most, though not all, the sickle blades were segmented and many were backed. They had either finely-serrated or coarsely-denticulated cutting edges. The other tools consisted of a few burins, end and side-scrapers, knives and notched and denticulated pieces.

The few probable Neolithic sherds from Tell Arslan had a quite hard, evenly fired fabric with some grit and straw filler. There were fragments of flat bases and a strap handle as well as a few sherds with incised decoration consisting of parallel lines and stab marks.

In his study of the Tell Arslan material Cauvin concluded that the flints and sherds were all sufficiently similar to Néolithique Moyen artifacts at Byblos for the two sites to have been inhabited contemporaneously (1968, 274, 275). I would accept that for many of the flint tools and perhaps the sherds

this may be so but both the heavy tools and the arrowheads include several types that were more common in the Néolithique Ancien phase at Byblos. This is especially so of the short trapezoidal axes and Amuq arrowheads. The few notched arrowheads would appear to come from a Neolithic 2 context contemporary with Tell aux Scies which was also in the Sands. There are other flint tools in the collections from Tell Arslan which are more archaic still, perhaps even Upper Palaeolithic in date, which suggest that groups visited the site in much earlier times. The history of the site probably began with such temporary camps and then a small settlement may have been established here in Neolithic 3. This grew and became much more extensive in the earlier centuries of Neolithic 4 at a time contemporary with Néolithique Moyen at Byblos, after which the site was probably abandoned.

Muktara

The village of Muktara is about 5 km south-east of Beit ed-Din and overlooks the valley of the Nahr el Baruk high in the Mountains of Lebanon below Jebel Baruk. The site lies on a series of terraces below the village at an elevation of about 900 m. Cauvin excavated it in 1961 and has presented the results in two publications (1963, 489ff; 1968, 277ff).

The site had been cultivated for a long time and consequently nothing remained undisturbed. The excavations yielded a collection of flint tools, waste, some bone tools, a few badly-weathered potsherds, one of which was incised, and a basalt hoe as well as a few other stone tools. 14.8% of the 406 retouched tools were arrowheads. Most of these were tanged Byblos points but there were also Amuq points and a notched arrowhead with pressure-flaked retouch. Cauvin included two large bifacially retouched oval points in this category but called them daggers (1968, 278); they may have been used to arm arrows or spears but might have been used as knives instead. A further 11% of the retouched tools consisted of sickle blades (Cauvin, 1968, 281). These were all segmented and some were retouched by pressure-flaking. The cutting edges had fine or coarse denticulation and most were backed. Burins

were almost as numerous as the sickle blades (10.8%) while much of the remainder of the tools consisted of notched or denticulated pieces (Cauvin, 1968, 287, 289).

The heavy tools such as axes and chisels were present in small quantities at Muktara, the two categories comprising 6% of the retouched pieces (Cauvin, 1968, 282, 286). The axes were quite varied nonetheless since the assemblage included almond-shaped, oval, round and trapezoidal ones. In addition to these tools there were a few borers, end and side-scrapers and knives.

The typology of the main classes of flint tools at Muktara resembles that of the Byblos Néolithique Moyen assemblage quite closely so the two sites were occupied contemporaneously (Cauvin, 1968, 277). The proportions of the tools in the Muktara assemblage differ quite markedly from those of Byblos and other Néolithique Moyen sites discussed so far. Perhaps the most surprising aspect is the low percentage of woodworking tools at Muktara since the neighbourhood of this site would have been quite as heavily forested as that of the sites at lower elevations near the coast. The high percentage of arrowheads found in the excavations may indicate that hunting contributed more to the food supply than on other sites. The presence of a hoe, a stone spindle whorl (Cauvin, 1963, fig. 9) and perhaps the sickle blades suggest that the economy of the site was based upon agriculture and herding, both of which could have been practised in the environs of the site despite its elevation. The valley slopes in this region are quite steep so that herding may have played a larger part in the economy than on the coastal sites. Indeed it is likely that Muktara was a seasonal settlement occupied only during the summer when flocks and herds were pastured here and a few crops grown in the vicinity.

Much less is known about the other surface stations known to have been occupied contemporaneously with Néolithique Moyen Byblos so that I shall discuss these only briefly. Neba'a Jalluk is situated in the hills at the extreme northern end of the Mountains of Lebanon about 8 km south of Tell Kalakh (Copeland, Wescombe, 1966, 48). The site was occupied in the Neolithic as well as in later periods. The Neolithic material consisted of flint tools, obsidian

blades and a few sherds, one of which had an applied, decorated band and was burnished. Among the flints were tanged arrowheads, finely and coarsely-denticulated segmented sickle blades, axes and adzes. This material is thought principally to resemble finds from Byblos Néolithique Moyen although the site may have been inhabited both in Neolithic 3 and later in Neolithic 4.

Kubbah I north of Batrun was occupied in Neolithic 3 as we have seen but continued to be inhabited in Neolithic 4 (Copeland, Wescombe, 1965, 101). The collections from the site in the Université Saint-Joseph include segmented sickle blades with both fine and coarse denticulation as well as long, narrow trapezoidal axes and adzes which are more typical of Néolithique Moyen than Néolithique Ancien at Byblos. A basalt hoe was also found here like the one from Muktara though we do not know if it came from the Neolithic 3 or Neolithic 4 levels at the site.

An assemblage similar to the Neolithic 4 material from Kubbah I has been found on the beach south of Batrun and this station has been designated Batrun III (Copeland, Wescombe, 1965, 72). Another site lying beside the sea has been found on the south side of the mouth of the Wadi Helwe 6.5 km north of Byblos (Copeland, Wescombe, 1965, 139). The site is said to have yielded tanged arrowheads, sickle blades, axes, scrapers, borers and fragments of stone bowls resembling Néolithique Moyen material from Byblos. Further south Maameltein II overlooks the bay of Jounieh at an elevation of between 15 and 20 m. Some material was collected here by Bergy which resembles Néolithique Moyen finds from Byblos (Copeland, Wescombe, 1965, 103).

The site of Kleat is about 8 km east-south-east of Jounieh at an elevation of 1000 m (Copeland, Wescombe, 1965, 100). Material said to be comparable to Byblos Néolithique Moyen was found here by Nasrallah. Jiita I is also a little distance inland in the Nahr el Kelb but at a lower elevation of 70 m (Copeland, Wescombe, 1965, 90). The site is a deep cave which was partly excavated by Zumoffen and in which other workers have also found flints and pottery. Some of the flints and pottery are believed to resemble Néolithique Moyen material

at Byblos so the site was probably occupied then as well as in other periods. Mukalles/Hsaima is on the valley floor of the Nahr Beirut 6.5 km south-east of the city (Copeland, Wescombe, 1965, 109). The Neolithic material found on this site consisted of flint axes and adzes, denticulated segmented sickle blades, arrowheads and end-scrapers, all of which are thought to belong to a Néolithique Moyen assemblage.

The other sites are near the coast south of Beirut. One, Site 6, is in the Sands area 8 km south of Beirut near the Airport Terminal building (Copeland, Wescombe, 1965, 132). Some flints of Byblos Néolithique Moyen type have been found here as well as Palaeolithic material. Another site, Habarjer III, is 3 km east-south-east of Khalde among open hills (Copeland, Wescombe, 1965, 88). The Neolithic flints collected here consisted of small and medium-sized trapezoidal axes and adzes, oval axes, some longer adzes, picks and choppers, tanged Byblos points, both finely and coarsely-denticulated segmented sickle blades, end and side-scrapers on flakes, burins, borers and knives. The arrowheads, sickle blades and some of the axes and other tools would fit both a Byblos Néolithique Ancien and Moyen context. The likelihood is that the site was first used in Neolithic 3 and then continued to be inhabited well into Neolithic 4.

The next site to the south is Yerate on the left bank of the mouth of the Nahr Damur (Copeland, Wescombe, 1965, 140). An arrowhead, axe, adze, several segmented sickle blades and scrapers were found here with much waste flint. The site is certainly Neolithic and may have been occupied in this phase.

The next most southerly site of this group is Chalaboun which lies among the hills which are part of the Galilee uplands near the present frontier with Israel. The site is 2 km north-east of Ain Ebel beside the road to Bint Jbail (Copeland, Wescombe, 1966, 28). The material from here consisted of several types of axes, chisels, borers, burins and segmented sickle blades (Cauvin, Cauvin, 1968, 113). The Cauvins have attributed this site to the early part of Neolithic 4 contemporary with Néolithique Moyen Byblos.

Néolithique Moyen at Byblos was a short-lived phase, especially when compared with Néolithique Récent. One might be surprised, therefore, that at least 17 other sites have been found on the western side of the Mountains of Lebanon which can be attributed to the same phase. It should be remembered, however, that all have to be dated on typological grounds and that many of the flint types used were current in at least one other phase of the Byblos sequence. These sites were not necessarily occupied or visited only during the centuries the Néolithique Moyen settlement at Byblos was inhabited but later in Neolithic 4 also and perhaps in Neolithic 3.

In contrast with the relative abundance of Néolithique Moyen sites few stations with material similar to that of Néolithique Récent have been discovered. Nearly all those that are known are in the vicinity of Beirut which suggests at once that this is more the result of the concentration of archaeological activity in this area than any certain reduction in the number of sites occupied in the rest of western Lebanon. More is known about Asfurieh II than other sites since Cauvin has published the collection Bergy made here (Copeland, Wescombe, 1965, 69; Cauvin, 1968, 297). This station lies about 8 km south-east of Beirut beside the road to Damascus at an altitude of about 280 m; it is probably now buried by the village of Fayadiyeh. The flints from this site consisted of a series of trapezoidal axes and adzes with straight cutting edges, a few chisels, borers, burins, end-scrapers, side-scrapers and a fan-scrapers on tabular flint. Cauvin points out that the typology of these tools closely matches that of the Byblos Néolithique Récent assemblage (1968, 298). From the types represented it would seem that the inhabitants of the site engaged in much woodworking.

Two sites thought to be of this phase have been found in the Sands. One, Ouza'i, is 5 km south of Beirut to the east of the Sidon road (Copeland, Wescombe, 1965, 130). Flints were collected over a wide area by several workers. They included long, narrow adzes, finely-denticulated segmented sickle blades and borers which Cauvin believed matched the Néolithique Récent

assemblage from Byblos. The other, Sands site 10, is about 7 km south of Beirut also just to the east of the Sidon road (Copeland, Wescombe, 1965, 133). Flints of several periods were found over a wide area here. Some of them, including a number of axes, were said to be like Néolithique Récent material from Byblos.

Two more sites are situated near the Sidon road further south. The first, Khalde I, is 12 km south of Beirut on a hill above the road to the east (Copeland, Wescombe, 1965, 98). Once again the flints were spread over a wide area but they formed a homogeneous assemblage. The tools consisted of finely-denticulated segmented sickle blades, end-scrapers, steep scrapers, several adzes, borers and a tanged arrowhead. From the typology of these pieces it appeared that the site was contemporary with Néolithique Récent at Byblos although it may have been used in the preceding phase also. Khalde IV is 17 km south of Beirut and 11 m above sea level (Copeland, Wescombe, 1965, 99). The flints found here were finely-denticulated sickle blades and various scrapers which are thought to be similar to Khalde I and thus contemporary with Byblos Néolithique Récent.

Two more sites of this phase were found long ago by Bovier-Lapierre in southern Lebanon. One, Ain Hannine is 2 km west of Ain Ebel (Copeland, Wescombe, 1966, 19). A great many flint tools and waste were found near the spring which are now in the Université Saint-Joseph. The most abundant tools were a series of axes, adzes and chisels, not all of which were finished. There were also some end and side-scrapers as well as a few awls, knives and a tanged arrowhead. The few sickle blades were segmented and backed with nibbled edge retouch or plain cutting edges. The material also included cores and hammers. The abundance of the axes and the unfinished condition of some of them have led to suggestions that this was a factory site. This is probably correct but the wide range of the other tools that I have seen indicate that this was also a settlement. The typology of the axes and sickle blades is similar to that of Byblos Néolithique Récent placing it in Neolithic 4 but Palestinian parallels for this material would indicate that the site was

occupied late in this phase.

Birket Ram'a is 19 km due east of Nakura on the coast and west of Ain Hannine (Copeland, Wescombe, 1966, 27). This site is also near a spring. The flints which included many axes as well as long chisels and picks are also said to resemble Néolithique Récent material from Byblos.

One other site in this group, the last, is the most southerly of all. This station, Wadi Yaroun, lies 2 km south of Ain Ebel near the frontier between Lebanon and Israel (Copeland, Wescombe, 1966, 89). The site consisted of a dense scatter of flint flakes among which were axes, scrapers and other tools. Some were sufficiently diagnostic for the site to be assigned to a late stage of Neolithic 4. This station may have been a factory site although the finished state of some of the artifacts indicates it was also inhabited as a settlement.

I will now discuss the Neolithic 4 sites which have been discovered in the Beka'a. These differ sufficiently from the sites on the coast to be classed as a second sub-group within the South Syrian group of Neolithic 4 sites.

Beka'a

I will describe first those sites that were inhabited early in Neolithic 4 and which were contemporary with Néolithique Moyen Byblos. More is known about Tell Ard Tlaili than other sites since this is the only Neolithic 4 settlement in the Beka'a to have been excavated.

Tell Ard Tlaili

Tell Ard Tlaili lies 11 km north-west of Baalbek on the other side of the Beka'a near the foot of the Mountains of Lebanon (Kirkbride, 1969, 53). The site is a low mound on the plain in an area which at present has a high water table. The mound was slightly larger originally since its perimeter is now buried beneath 1 m of soil. The occupation sequence was divided into a lower and upper phase. The buildings in both phases were rectilinear; their

walls were of pisé with, in the lower phase pebble footings and in the upper foundations of large stones. The floors of these buildings were made of trodden clay of white plaster while the walls of some structures were plastered also and even burnished (Kirkbride, no date). In the yards between these structures were hearths and areas made of plaster or clay.

The finds³¹ consisted for the most part of chipped stone tools and pottery though there were also basalt bowls, hammers and many baked clay sling bullets. Among the flints were segmented, finely-denticulated blades, some axes and borers. There was a variety of scrapers, including end and side-scrapers on flakes, steep scrapers and fan scrapers. Several obsidian blades were also found.

The pottery comprised four principal groups. Painted sherds of Halaf type made up the first group (Kirkbride, 1969, pl. III). The patterns included rows of horizontal or vertical lines, sometimes with dots between, zig-zag and wavy lines and delicate mesh designs. In the upper phase jars with bow rims and vessels coloured with a red wash were used with the painted Halaf wares. The second pottery group consisted of burnished vessels with surface colours ranging from red and orange to brown and black. Some of these vessels were pattern burnished. The third group was somewhat coarser and decorated with varied incised patterns which included parallel lines, zig-zags, filled triangles and stab marks (Kirkbride, 1969, pl. IV). The fourth kind of pottery was a coarse ware with much straw and some grit badly fired at a relatively low temperature. The surface of the pots was usually buff or brown and smoothed by hand or wiped with straw.

The affinities of the painted pottery are clearly with Halaf sites to the north. Indeed this is the most southerly site at which pottery painted in the Halaf style has been found. The burnished wares, while also common enough on Halaf sites, resemble pottery from Byblos Néolithique Moyen as does the incised group of sherds. The flints, too, show affinities with Byblos. This little farming village shares the material culture of the early Neolithic 4

South Syrian sites and their Halaf counterparts to the north.

The carbon 14 determinations from Ard Tlail which I have already discussed when considering Byblos, are important since they are the only ones that we have for any Neolithic 4 site in the South Syrian group (Kirkbride, 1969, 55; Mellaart, 1975, 287). They suggest that the site was inhabited from about 5000 B.C. until 4700 or 4600 B.C.

Tell Ain Nfaikh

Tell Ain Nfaikh is on the west side of the Beka'a midway between Rayak and Baalbek and 300 m east of the Litani river (Copeland, Wescombe, 1966, 56). The site is now ploughed flat and the remains of the prehistoric occupation are concentrated in an area of no more than 100 sq m. The site was also used in Bronze Age and Classical times and material from these phases has been found over a wide area.

The chipped stone tools collected from the surface and now in the Université Saint-Joseph included many segmented sickle blades. These were usually short but relatively wide with nibbled or finely-denticulated cutting edges (Copeland, Wescombe, 1966, fig. XXXVIII: 1-7). Few other flint tools were found but among them were tanged arrowheads, axes and chisels, borers, end-scrapers and side-scrapers, some of which were on tabular flint, and burins (Copeland, Wescombe, 1966, 57; Copeland, 1969, 95). Obsidian was used at the site and there was one small axe made of imported greenstone.

Pottery was quite abundant and included some fine wares as well as many coarse sherds. The fabrics were buff, grey or black tempered with straw and some grit. The vessels were quite hard-fired though unevenly finished by smoothing with a hand or wiped with straw. The jars had flat bases with collared necks, some of which were flared (Copeland, Wescombe, 1966, figs. XXXIX, XL); there were also jars with bow rims. Some of the coarse ware jars were globular with hole-mouth rims. Bowls were hemispherical or flat-based with flared sides. The fine wares were frequently decorated with red or

sometimes black wash or slip which was often burnished. Other vessels were not coloured but burnished all the same. There was at least one sherd with a painted lattice pattern which had also been burnished. Some vessels, both coloured and plain, were decorated with incised designs of lines and stab marks and finger impressions in the rims.

The affinities of the flints are with Byblos Néolithique Moyen and Récent although the precise shape of the sickle blades is different. The shapes of the pots and their decoration resemble Byblos Néolithique Moyen more than Récent though again such frequent use of surface colour is more typical of Ain Nfaikh, Ard Tlaili and other Beka'a sites. Thus Tell Ain Nkaikh seems to have been occupied first when Néolithique Moyen Byblos and Tell Ard Tlaili were flourishing settlements but probably continued to be inhabited until later in Neolithic 4.

The remaining Beka'a sites thought to be contemporary with Néolithique Moyen Byblos and Tell Ard Tlaili merit only a brief description. Tell Neba'a Litani is about 9 km west of Baalbek at the source of the Litani river (Copeland, Wescombe, 1966, 80). The only flint tools found here were some steep scrapers and a segmented sickle blade. The pottery was quite varied since it included burnished and incised sherds as well as others with red slip. There were also a few painted sherds with a lattice pattern (Copeland, 1969, fig. 7:4). All this material is believed to resemble Néolithique Moyen Byblos and Tell Ard Tlaili so dating the site to Neolithic 4 though it was also occupied in the Bronze Age.

Tell Ain Saouda lies 2 km south of Tell Neba'a Litani beside two springs and near the Litani river (Copeland, Wescombe, 1966, 58). The flints from this site consisted of a number of nibbled or finely-denticulated segmented sickle blades, flake scrapers, tanged arrowheads and an axe with sliced sides (Copeland, Wescombe, 1966, fig. XLIV). Fragments of obsidian were also found here. The sherds came from flat-bottomed jars with collared necks or flared rims, globular hole-mouth jars and bowls either with flared sides or hemispherical in shape. Many of these vessels were burnished and some had incised

decoration. Others had a red slip or were painted. This material resembles that from Tell Ain Nfaikh and other neighbouring Beka'a sites which I have mentioned indicating that the site was occupied during Neolithic 4. It was also inhabited during the Bronze Age and as late as Classical times.

Tell Ain Ghessali is just to the east of Tell Ain Nfaikh halfway between Rayak and Baalbek (Copeland, Wescombe, 1966, 55). A surface collection from here included several flint scrapers, an axe and a segmented sickle blade as well as sherds of burnished pottery. This material was thought to possibly indicate Neolithic 4 occupation and Copeland has since linked the site with neighbouring tells which were contemporary with Néolithique Moyen Byblos (1969, 94). The tell was also occupied during the Bronze Age.

The earliest Neolithic occupation at Tell Hashbai not far from Tell Ain Nfaikh was during Neolithic 3 as we saw in the last chapter. Some of the flint tools and pottery, particularly some of the incised, red-slipped and burnished pottery, resembled that of Byblos Néolithique Moyen and neighbouring contemporary sites in the Beka'a (Copeland, Wescombe, 1966, 65) so the settlement continued to be occupied well into Neolithic 4.

A little south of Tell Hashbai and 9 km north-north-east of Rayak lies Tell Hoch Rafqa (Copeland, Wescombe, 1966, 67). This site is also near the Litani river and belongs to this large group of sites in the central Beka'a. The flints collected from the surface of the site consisted of scrapers and segmented sickle blades while some scrapers of obsidian were also found. The potsherds included several rims which had been coloured black or red and burnished. These finds match those from the nearby sites I have already mentioned so it is thought that Tell Hoch Rafqa was also inhabited for much of Neolithic 4 as well as in later periods.

Tell Nahariyah is 2.7 km north-north-east of Rayak on the left bank of the Litani (Copeland, Wescombe, 1966, 77). The bulk of the tell consists of the remains of the Neolithic settlement although the site was probably also occupied in the Bronze Age. A surface collection from the site consisted

of flint tools, obsidian fragments, basalt tools and pottery. Among the flints were finely-denticulated segmented sickle blades and many steep scrapers. At least two wares were represented among the Neolithic potsherds. One was a plain coarse ware and the surface of these sherds had been wiped with grass or cloth. The other consisted for the most part of thinner walled vessels with a burnished surface; some of these were coloured with a red slip. The affinities of these flints and sherds are once again with Ard Tlaili and the other Beka'a sites I have mentioned, indicating that the site was occupied for much of Neolithic 4.

Tell Shamsine on the other side of the Beka'a near Anjar was probably first settled in Neolithic 3 as we have already seen. Some of the burnished pottery and flints from here were more akin to those of neighbouring Neolithic 4 sites so it would appear that the site continued to be inhabited well into the next phase (Copeland, 1969, fig. 3).

Another site in this group of settlements is Mejdel Anjar II. The site is 2 km north of the village of Mejdel Anjar near the road from Beirut to Damascus (Copeland, Wescombe, 1966, 44). There is a considerable accumulation of deposit here, most of which appears to be Neolithic since only the uppermost levels seem to date from later periods. The Neolithic surface finds from this site consisted of flints, potsherds and part of a hemispherical stone bowl. The flints were more numerous and varied than on other sites, partly because the tell was disturbed. Among the tools were nibbled and finely-denticulated segmented sickle blades, end-scrapers, burins, borers, picks and trapezoidal axes. Both fine and coarse pottery was found and the fine ware included sherds with red slip and burnish as well as an incised sherd. The flints and pottery resemble both the material from Ard Tlaili and Byblos Néolithique Moyen and Récent (Copeland, Wescombe, 1966, 45) so Mejdel Anjar II was occupied for much of Neolithic 4.

The last tell of this group in the central Beka'a is Tell ed-Deir about halfway between Chtaura and Jub Jannine (Copeland, Wescombe, 1966, 62). Many

Neolithic flint tools were found here, the most numerous of which were large scrapers, knives, picks, axes and adzes. There were also some denticulated segmented sickle blades and burins. The only diagnostic Neolithic potsherds were finished with red slip and burnish. Both the flint tools and these potsherds resemble Neolithic 4 material from the tells in the same area so the site was certainly occupied in this phase as well as later in the Bronze Age.

Sites of this phase in the south Beka'a were smaller with little depth of deposit, probably because the broken country in this region was less suitable for long-lived villages deriving their subsistence from agriculture. Bab es-Sghrir 3 km south-east of Kefraya near the road to Jub Jannine is one such small surface station (Copeland, Wescombe, 1966, 25). Only flints were found on the surface here. These consisted of several oval, cordiform and other axes, chisels, scrapers and borers which are believed to be similar typologically to material from Néolithique Moyen Byblos. It would thus appear that the site was used early in Neolithic 4.

Tahun ben Aissa is 3.5 km west-south-west of Jub Jannine on the left bank of the Litani (Copeland, Wescombe, 1966, 53). Some flints were found here which consisted for the most part of large cutting tools such as rectangular, trapezoidal and oval axes (Cauvin, Cauvin, 1968, 112, fig. 6). A few scrapers, finely-denticulated segmented sickle blades and a pressure-flaked oval arrow-head were also found here. The Cauvins believe that the site was contemporary with Néolithique Moyen Byblos.

Similar flints have been found at Dahr el Ahmar 500 m north of the village of the same name and 3 km north of Rakaya among hills on the east side of the Beka'a (Copeland, Wescombe, 1966, 28). West of Rakaya Kaukaba too has yielded enough material of this phase to show that it was inhabited for at least part of Neolithic 4 as well as in Neolithic 3 (Copeland, Wescombe, 1966, 39). Among the more interesting finds from this site attributed to Neolithic 4 was a series of flint picks. The points of these were very heavily worn as if used for particularly heavy work. Two fragments of basalt hoes were also

found at Kaukaba and Cauvin thinks that the picks were used to drill a hole through each hoe for a handle (1969, 125ff).

Khallet el Khazen III is 13 km south of Jezzine on a ridge west of the hamlet of Khallet el Khazen (Copeland, Wescombe, 1966, 41). This locality is in hilly country west of the Litani before it makes its turn west to the Mediterranean. A number of flints have been found on this station, among them segmented sickle blades, an axe, chisels and scrapers. These have been likened to Néolithique Moyen material from Byblos with which it seems the site was contemporary. Khallet el Khazen IV is several hundred metres west of site III at a higher elevation (Copeland, Wescombe, 1966, 41). A greater variety of tools has been found here which include a tanged arrowhead, almond-shaped and other axes, an adze, choppers and burins. Several of these tools are similar to those from Muktara indicating that this station also was used early in Neolithic 4.

All the Beka'a sites I have discussed so far, both the tell settlements and small open stations, were probably occupied early in Neolithic 4 while some of them continued to be occupied into the later centuries of this phase. There are some other Beka'a sites whose material remains may best be compared with Byblos Néolithique Récent which seem to have been occupied only late in Neolithic 4. One site, Tell ed-Jisr, is better known than the others so I shall describe it first. The mound lies 1.5 km north-west of Jub Jannine on the right bank of the Litani at a probable ancient river crossing (Copeland, Wescombe, 1966, 68). Much pottery and flint, now in the Université Saint-Joseph, was collected from a section cut by the road which passes the mound. Many of the flint tools were large, particularly several choppers, long trapezoidal axes and adzes and some end and side-scrapers. The other scrapers were quite small while the segmented sickle blades had nibbled or finely-denticulated cutting edges. Some pieces of obsidian were found in the section and also fragments of a basalt bowl and other stone vessels.

The pottery consisted of fine and coarse wares. The fabrics were

tempered with straw and grit which was often white and quite coarse. All were finished by hand while the surface of some coarse sherds was wiped with straw. Some coarse vessels were burnished, others not. Hole-mouth jars, globular ones with upright rims, collared jars and others with bow rims were all made while some of the finer sherds came from bowls with incised designs, red wash or slip and a few even with cream slip.

This material has much in common with Néolithique Récent at Byblos and even, as we shall see, with later Neolithic 4 in Palestine. The settlement certainly flourished in this phase and was also occupied during the Bronze Age.

The most northerly Beka'a site which was probably first occupied in this later stage of Neolithic 4 is Tell Saoudhi. This small tell lies about 2 km south-west of Rayak (Copeland, Wescombe, 1966, 83). A little burnished pottery and some flints were found here which have been compared with Néolithique Récent Byblos.

Amiq I lies 14 km south-west of Chtaura on rocky slopes at the west side of the Beka'a below Jebel Baruk (Copeland, Wescombe, 1966, 21). Flint tools, basalt querns and other fragments were found here but no pottery. The flints consisted of segmented sickle blades, an arrowhead and numerous axes, adzes and chisels as well as blunted picks (Cauvin, 1969, 121). Two of the basalt fragments had been bored through and the picks are thought to have been used to drill holes in these and other basalt artifacts. All this material is thought on typological grounds to date from late in Neolithic 4.

Further south-west along the foot of Jebel Baruk is Ain Jaouze. The site is on the west side of the road from Chtaura to Machgara and Jezzine overlooking the new Karaoun lake (Copeland, Wescombe, 1966, 20). Bergy collected flints from the surface of this station which are said to be similar to those of Byblos Néolithique Récent.

Ard Saouda is among the hills on the east side of the Beka'a 6 km west of Rakaya (Copeland, Wescombe, 1966, 23). The site is situated on a basalt

flow and near a flint source which has been used since the Lower Palaeolithic. The Neolithic material from this site consisted entirely of flints. Tools were quite numerous while cores and waste were relatively scarce suggesting that the site was a settlement rather than purely a factory site. Axes and adzes were plentiful and chisels were also present. Heavily-worn picks were particularly numerous (Cauvin, 1969, 119) while scrapers, burins, borers and segmented sickle blades were relatively rare. Cauvin believes that the picks found at Ard Saouda were used to drill holes in basalt artifacts although no worked basalt pieces of this kind have been found on the site (1969, 125). On the evidence of the typology of the flints the site is thought to have been occupied late in Neolithic 4.

Beidar Chamout is just below the Karaoun dam on the right bank of the Litani river (Copeland, Wescombe, 1966, 26). Flints of several periods have been found here some of which were Neolithic. These tools were predominantly adzes although there were also chisels, scrapers and other artifacts; some were particularly robust pieces. The Neolithic flints are believed to date from the latter part of Neolithic 4.

Kfar Giladi at the head of the upper Jordan valley was probably also occupied in Neolithic 4. Stratified above the two "Neolithic" layers which I have ascribed to Neolithic 3 was another deposit which Kaplan designated "Chalcolithic" (1966, 273). This mixed deposit contained some pottery akin to that which he found at Wadi Rabah as well as other sherds of Ghassulian type. Much of Kaplan's Wadi Rabah pottery was covered with red wash or slip and then burnished so was therefore quite similar to that found on some Beka'a sites late in Neolithic 4. Thus it seems that Kfar Giladi was also occupied briefly in this phase.

The distribution of settlements in the Beka'a during the last centuries of Neolithic 4 was similar to that of the earlier part of this phase. The two tells, Tell ed-Jisr and Tell Saoudhi, were both in the central Beka'a while all sites further south were surface stations inhabited by quite small groups.

I have now described all the Neolithic 4 settlements known to have been inhabited in Lebanon. There is one other kind of site to be considered which occurs in this region. These are surface stations situated for the most part in southern Lebanon both on the seaward side of the mountains and in the Beka'a. They are always near sources of flint and the material found on them consists almost entirely of flint tools and waste. The waste flint is usually abundant and comprises flakes, thick blades, crested blades and "orange slices". The cores may be pyramidal, discoid or cylindrical while prepared cores of Levallois type are also found. Some of the tools on these sites are fully finished, others only roughed out. Particularly common are axes, adzes, chisels and picks while flake scrapers are also found. Arrowheads and sickle blades are rare or absent. Both the tools and waste are relatively large and coarse which is why the sites have been described as "Heavy Neolithic" or "Campignian" (Copeland, Wescombe, 1965, 43; Cauvin, Cauvin, 1968, 103). These stations were factory sites on which flint tools, principally axes and others used in cutting and working timber, were roughed out (Cauvin, Cauvin, 1968, 113).

The type-site for the Heavy Neolithic is Karaoun II in the southern Beka'a. I shall describe this site first and then the others which have been found elsewhere in the Beka'a, on the western slopes of the mountains and in Galilee.

Karaoun II

Karaoun II is immediately south of the Karaoun dam across the Litani (Copeland, Wescombe, 1966, 38). It is on the lip of the gorge on the right side of the river. This site is now largely obliterated but several workers have collected much material from it in the past.³² Roughed-out rectangular, oval and almond-shaped axes and rectangular and trapezoidal chisels were abundant. Scrapers were also quite numerous consisting of thick discoids, side-scrapers on flakes and end-scrapers on flakes or massive blades. There were also some picks and a few burins as well as numerous retouched flakes and blades. Waste material was abundant at Karaoun II and included the full

range of cores and other pieces found on Heavy Neolithic sites.

The Cauvins believe that the typology of the axes and other tools found at Karaoun II and elsewhere is similar to that of the assemblage from Néolithique Moyen Byblos (Cauvin, Cauvin, 1968, 108). They have accordingly dated all the Heavy Neolithic sites to the earlier part of Neolithic 4. The types of axes, adzes, chisels, picks, scrapers and other tools encountered on Heavy Neolithic sites may have been found at Néolithique Moyen Byblos, Muktara and other contemporary sites but they also occur on later Neolithic 4 sites and even on some in Neolithic 3. It may be true that many Heavy Neolithic stations were used early in Neolithic 4 but I believe they were also visited later in this stage and possibly earlier as well.

There is one other Heavy Neolithic site in the immediate vicinity of Karaoun II and that is Karaoun I. It is on the left bank of the Litani a little further downstream from the dam (Copeland, Wescombe, 1966, 37). Like Karaoun II it is on open ground at the top of the cliffs above the river. The flints found here resembled those from Karaoun I and included roughed-out axes, picks and scrapers as well as many waste flakes, blades and cores, some of them of Levallois type.

I will now describe the other Heavy Neolithic sites in the Beka'a proceeding from north to south. There are several uncertain occurrences in the northern and central Beka'a but the first certain one is Nebi Zair. This is on the left side of the road from Beirut to Damascus 1.5 km north-west of Anjar (Copeland, Wescombe, 1966, 49). Bergy found a great many Heavy Neolithic flints distributed over a wide area. On the other side of the Beka'a a little north-north-east of Amiq beside the road to Chtaura lies Tell Khardane (Copeland, Wescombe, 1966, 70). Some Heavy Neolithic flints were found here in fields beside the tell which included picks and scrapers as well as blades and flakes. Several artifacts had been made by the Levallois technique.

There is another extensive site on the eastern side of the Beka'a, Mejdel Anjar I, 1.5 km north-west of the village of Mejdel Anjar (Copeland, Wescombe, 1966, 44). Bergy found very many flints here of several periods.

The Heavy Neolithic assemblage consisted of axes and chisels with cores and other waste. 3 km south-west of Mejdal Anjar is the site of Dakoue, 700 m north-west of the village of the same name (Copeland, Wescombe, 1966, 28). Some Heavy Neolithic axes, adzes and much waste were found here as well as a great deal of Palaeolithic material.

18 km south-west of Chtaura at the foot of the Jebel Baruk is the site of Kefraya (Copeland, Wescombe, 1966, 39). The site is very large, extending for about 1 km along both sides of the road to Machgara. The flint tools collected here by several workers consisted of adzes, axes, side-scrapers and end-scrapers on flakes, knives and a segmented sickle blade. The most remarkable feature of the site, however, was the great abundance of Levallois cores and waste flakes all over the surface.

Tell Zenoub is 4 km north of Jub Jannine (Copeland, Wescombe, 1966, 86). The tell itself was occupied in later periods but Heavy Neolithic flints have been found in fields to the south. 4.5 km north-north-east of Jub Jannine and 2 km north-east of the village of Kamed el Loz is the site of Kamed el Loz I (Copeland, Wescombe, 1966, 36). The Heavy Neolithic flints collected here consisted of axes, picks, scrapers and much waste mixed with Palaeolithic material. Bustan el Birke is in the same part of the Beka'a 2.5 km south-east of Kefraya (Copeland, Wescombe, 1966, 27). This site is also quite extensive and has yielded disc choppers, picks and scrapers as well as cores, flakes and other waste. Jub Jannine III is another Heavy Neolithic site in this area 1.5 km south of the village of Jub Jannine (Copeland, Wescombe, 1966, 35). Many flake scrapers were found here and also numerous flakes, blades and other waste.

Amlaq el Qatih is 2.5 km north-west of Baaloul near the east bank of the Litani (Copeland, Wescombe, 1966, 22). Some Heavy Neolithic flints were found here as well as Palaeolithic material.

Kafr Tibnit is much further south in the Litani bend (Copeland, Wescombe, 1966, 35). Some Heavy Neolithic flints were found here as well as other

material. Et-Tayibe is 2 km south of the Litani bend and this site also has yielded Heavy Neolithic material (Copeland, Wescombe, 1966, 53).

Et-Taireh II is 2 km north-east of the village of the same name a little to the south-west of Bint Jbail (Copeland, Wescombe, 1966, 53). Flints of Heavy Neolithic type were found on the site. Khallet el Michte I and II are 1.5 and 1.2 km north-east of Ain Ebel (Copeland, Wescombe, 1966, 43). Fleisch found Heavy Neolithic flints at both sites as well as Acheulian material. 1.25 km south of Ain Ebel is Khallet el Hamra found by Bovier Lapierre during his explorations in the area (Copeland, Wescombe, 1966, 40). A considerable number of Heavy Neolithic flints was collected here with some Acheulian artifacts. The last site in this group is Douwara 2 km south-west of Ain Ebel (Copeland, Wescombe, 1966, 30). Fleisch found the site which was covered with much Heavy Neolithic waste and large tools such as axes, adzes and picks together with some Chalcolithic material.

Before considering the other Lebanese Heavy Neolithic sites on the west side of the mountains I wish to discuss several sites of this kind found long ago in northern Palestine. They lie in or near the Wadi Farah in Galilee. This wadi cuts eastward through rugged country to meet the upper Jordan valley near Lake Huleh. Turville-Petre explored the wadi in 1925 and 1926 finding three Heavy Neolithic sites. The first was Shemouniyeh on a plateau above the north side of the Wadi Farah a little north-west of Deishun (Turville-Petre, 1927, 110). The second was the Wadi Farah site itself which was on a high terrace at the point where the Wadi Salhah joined the main wadi (Turville-Petre, 1927, 109). A large number of big flint tools and much waste were found on both these sites.³³ The tools included adzes, picks, flake scrapers and borers.

The third site was a small cave in the Wadi Salhah itself (Turville-Petre, 1927, 111ff). Turville-Petre excavated most of it and found that his levels II and III consisted of occupation deposits with flints and potsherds. Some of the pottery was later in date but the flints included many of the large flake scrapers, thick blades and denticulated pieces found on the other two

sites. There were also several pressure-flaked leaf-shaped and tanged arrowheads, one of Amuq 2 type.

These flints are like those found on Heavy Neolithic sites in Lebanon so that the three Wadi Farah sites may be ascribed to the same group. Wadi Salhah was an occupation site rather than a factory station. The typology of the flints indicates that all three sites were occupied in Neolithic 4. Wadi Salhah was probably occupied quite early in the phase on the evidence of the arrowheads.

Turning now to sites on the coast of Lebanon, the most northerly of these is Fadaous South. This site is 12 km north of Byblos beside the sea just south of Fadaous village (Copeland, Wescombe, 1966, 158). Many large side-scrapers and end-scrapers, cores and other waste were found here indicating that this was a Heavy Neolithic factory site.

The next site, Mtaileb I or Rabiya, is much further south, 1.5 km east-north-east of Antelias in broken country about 300 m above sea level (Copeland, Wescombe, 1965, 109). The site itself was covered with cores and waste pieces though only a few tools were found among them. These were roughed out axes, chisels, picks and scrapers (Cauvin, 1968, 247). Jedeideh III is not far from Mtaileb I since it is about 7 km almost due east of Beirut (Copeland, Wescombe, 1965, 95). The surface collection from here consisted of large flake scrapers, choppers and picks. Beit Meri II is a little to the south-east overlooking the Nahr Jamani (Copeland, Wescombe, 1965, 75) and Heavy Neolithic flints were also found here.

Hadeth South is 7 km south-south-east of Beirut in the low hills overlooking the Sands (Copeland, Wescombe, 1965, 88). This site yielded coarse picks and choppers as well as cores and large flakes. Ourrouar II is just beyond Hadeth South on the north side of the Nahr Ghedir 8.5 km south-south-east of Beirut (Copeland, Wescombe, 1965, 114). Some coarse picks, a chopping tool, axe, burins, and scrapers were found here as well as a few segmented sickle blades and some waste. The station appears to have been another Heavy Neolithic factory site.

Jebel Aabeby is in southern Lebanon 1 km east-south-east of Sidon (Copeland, Wescombe, 1965, 93). A variety of flake scrapers as well as large cores and other waste were collected on this site. Jba'a is well inland about 8 km south-west of Jezzine (Copeland, Wescombe, 1965, 93). A number of big flake scrapers as well as many cores and much waste were found here (Copeland, Wescombe, 1966, 163). A few finished tools were also picked up, among them polished axes, adzes, a chisel and a pick. These other tools may indicate that the station served as a habitation site as well as a factory.

Sarafand on the coast is 14 km south-west of Sidon. Some Heavy Neolithic material was collected from a site here which comprised an adze, chisel, some bifaces, flakes and blades (Copeland, Wescombe, 1965, 135).

Adlun II or Bezez cave is 19 km south-west of Sidon beside the coast road. Zumoffen sounded the site in 1898 then the excavations were re-opened in 1963 by the Department of Antiquities of Lebanon, Garrod and Kirkbride (Copeland, Wescombe, 1965, 64). A level above Upper Palaeolithic and earlier deposits and below more recent habitation debris contained an assemblage of Heavy Neolithic flints. A collection made at the site by Copeland³⁴ in 1966 consisted of large, long trapezoidal axes and chisels, a chopper, a pick, points and a number of coarse flake scrapers. There were also flakes, blades, some cores and hammerstones. Most of this material is similar to Heavy Neolithic assemblages elsewhere thus Bezez cave was used as a factory site but was also inhabited for part of Neolithic 4.

I have now reviewed all the known sites that can reasonably be ascribed to the Lebanese coast and Beka'a sub-groups of the South Syrian group of Neolithic 4 sites. The third sub-group comprises sites in the Damascus basin.

Damascus basin

There are two Neolithic 4 sites near Damascus, Tell al Khazzami and Tell Ramad.

Tell al Khazzami

Tell al Khazzami is 25 km south-east of Damascus where the new International Airport now stands (de Contenson, 1968, 55). This tell was in the semi-arid region at the edge of the Ghuta near the Hijjane lake and Tell Aswad. When discovered it was 150 m in diameter and 2 m high. De Contenson excavated the tell in 1967 before it was levelled to make way for the new airport.

Four soundings were made in the site which had a single phase of buildings (de Contenson, 1968, 58). These consisted of rectilinear structures with doorways made of baked bricks which were all 35 by 25 by 10 cm in size. These structures had small cell-like chambers as well as larger rectangular rooms so were not like the houses found on other sites. Some white lime floors were found in the lower levels. The sounding in the middle of the site was excavated through a series of shallow hearths full of ashes in what was probably a courtyard area (de Contenson, 1968, 58).

Few flints were found in the soundings themselves but these were augmented by a surface collection. The proportion of tools to waste was low (de Contenson, 1968, 58). The most numerous type was a segmented sickle blade on a thick blade with a nibbled or finely-denticulated cutting edge. Backed blades which may have been knives or unfinished sickle blades were also relatively common. The other types consisted of borers and scrapers, some of which were made from tabular flint. Tanged arrowheads and axes were both rare. The paucity of axes reflects the absence of woodland in the environs of the site. Two obsidian bladelets were found on the surface but none in the soundings. De Contenson points out that the numerous sickle blades may indicate that agriculture was important at the site while the borers and scrapers might have been used for leather working (1968, 60). The few arrowheads found suggest that hunting did not contribute much to the food supply, in contrast with earlier sites in the same area.

Some basalt mortars and a palette were found on the site (de Contenson,

1968, 60). There was also a fenestrated basalt stand or base like some found on Chalcolithic sites in Palestine. Stone sling bullets and beads were present but the only bone tools found were two bone spatulae.

In contrast with the other finds pottery was plentiful (de Contenson, 1968, 61). The wares were quite standardised though still hand finished. The principal shapes of vessels were deep bowls, dishes with flat bases and jars. The latter included simple hole-mouths and also vessels with collared necks or splayed rims. Some of these pots had knobs or strap handles with splayed attachments for lifting. There were also some fragments of strainers. These vessels were coated with a thin red wash or slip. Some had relief decoration of a cordon with indentations.

The closest parallels for the flint tools and pottery are with Byblos Néolithique Récent and Tell ed-Jisr. The uniformity of the pottery, the extensive use of red wash and the specific type of strap handles are Damascene features. The proportions of the flint tools in the assemblage are also somewhat different from those on Lebanese sites. Arrowheads were scarce as on sites further west but so were axes, pick drills and other woodworking tools while sickle blades were more common. These differences suggest that woodworking was not much practised, no doubt because there were few trees in the vicinity, but that reaping, probably of cereals, was important.

Comparable cultural material though with interesting local variations has been found at Tell Ramad. Some artifacts were collected from the surface of the western part of the site which differed from those found in the excavations (de Contenson, van Liere, 1964, 119). The potsherds had a light coloured fabric with coarse grits and their surface had been polished with a red wash or slip. The vessels were bowls with lugs, some of which were pierced. A few had some incised decoration also. The accompanying flint tools included numerous axes, many of which were made of hard stone other than flint and completely polished (de Contenson, 1971, 285). At first this occurrence was thought to be a development of Level III and so was designated IIIC. Then it

was recognised as a later deposit which had been entirely eroded away leaving only some flints and potsherds on the surface of the mound (de Contenson, 1969a, 26).

The affinities of the flints and pottery are with Tell al Khazzami and, more distantly Byblos Néolithique Récent. The abundance of the axes suggests that woodworking was important here as on so many sites in the Beka'a and on the Lebanese coast. The axes themselves, however, were somewhat different both in raw material and the extent to which some of them had been polished. This surface occupation like that of Tell al Khazzami probably dates from late in Neolithic 4. There was thus a substantial gap in time between it and Level III at Tell Ramad.

I have now concluded my description of the South Syrian group of Neolithic 4 sites and will turn to Palestine (Fig. 51).

Palestine

The Neolithic 4 sites in Palestine are those which I classified as Late Neolithic phase 2 in my 1973 article. The three classes of material remains from these sites are their structures, flints and pottery. The flint industry of Palestinian sites in Neolithic 4 is broadly similar to that in Neolithic 3 as far as we know from the little information available so I shall not describe it here. The pottery is also sufficiently similar on all Palestinian sites in this stage to show that they fall within the same cultural group though there are certain local differences in style that enable us to distinguish three regional groups in southern, northern and western Palestine.

South Palestine

The type-site for the Palestine group as a whole in Neolithic 4 is Jericho. It is also the most important of the sites in southern Palestine.

Jericho

Kenyon has called the Neolithic 4 or Late Neolithic phase 2 settlement

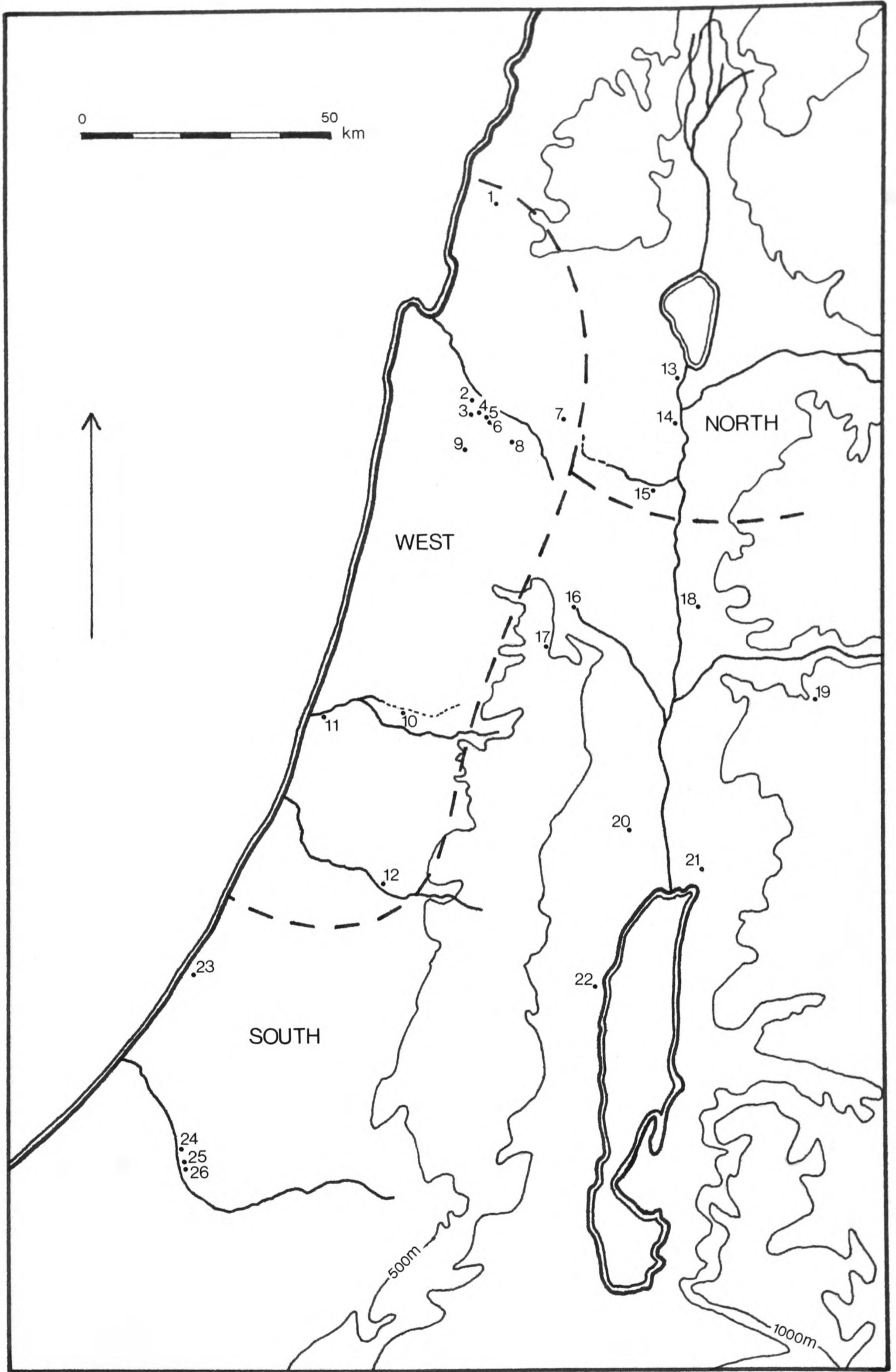


Fig. 51 Neolithic 4 Palestinian sites

FIGURE 51

Neolithic 4 Palestinian sites

- 1 Kabri
- 2 Hazorea I
- 3 Hazorea IIA - Tell Kiri
- 4 Hazorea IIB - Hazorea
- 5 Hazorea IIIA - Ein el Jarba
- 6 Hazorea IIIB - Tell Abu Zureiq
- 7 Affula
- 8 Megiddo
- 9 Site 8/17
- 10 Wadi Rabah
- 11 Bashan Street, Tel-Aviv
- 12 Teluliot Batashi
- 13 Sheikh Ali
- 14 Munhatta
- 15 Beth-Shan
- 16 Tell el Far'ah
- 17 Shechem
- 18 Tell es-Saidiyeh el Gharbi
- 19 Salihi
- 20 Jericho
- 21 Ghassul
- 22 Murabba'at
- 23 Ziqim
- 24 Wadi GhazzeH - Site D
- 25 Wadi GhazzeH - Site M
- 26 Wadi GhazzeH - Site O

at Jericho Pottery Neolithic B (1970, 63). This settlement covered the whole mound and so was as extensive as that of Pottery Neolithic A. The first structures built in this stage were circular semi-subterranean huts set in pits like those used in Pottery Neolithic A. Their walls were made of plano-convex or bun-shaped bricks. Later, curved walls of bun bricks with stone foundations were built on the surface. These structures may have been circular huts. Other rectilinear buildings with the same walling were constructed which may also have been houses. In one building phase there was a substantial enclosure wall. Towards the end of Pottery Neolithic B more solid rectilinear structures were built (Kenyon, 1970, 65).

The coarse pottery of this stage was quite similar in shape to that of Pottery Neolithic A though not quite so crude. The fine ware was much better made since the clay was tempered with sand and grit but less straw and the vessels were thinner walled. These pots were hand-made but many were finished by turning on a lathe. The common shapes were hole-mouth jars, jars with everted rims or splayed necks and bow rim jars (Fig. 52). Some had knob or ledge handles, others strap handles with splayed attachments. There were some simple globular bowls, others with splayed sides and some carinated ones. Small cups were also made. These vessels were frequently decorated with a red wash or slip which was sometimes carried over the rim; other vessels were just painted at the rim. Some vessels also had a little incised decoration, the most common design being a band of herringbones just below the rim. Many Pottery Neolithic B vessels were burnished all over and a few were pattern burnished. This pottery developed gradually from that used in Pottery Neolithic A while the dwellings constructed in Pottery Neolithic B were also a straightforward development of those made in the previous stage. Pottery Neolithic B thus evolved from Pottery Neolithic A without a break (Moore, 1973, 57).

The dwellings used at Jericho during Pottery Neolithic B were Palestinian in type without parallels on South Syrian sites. Only when rectilinear houses began to be built later in this stage did the appearance of the settlement at

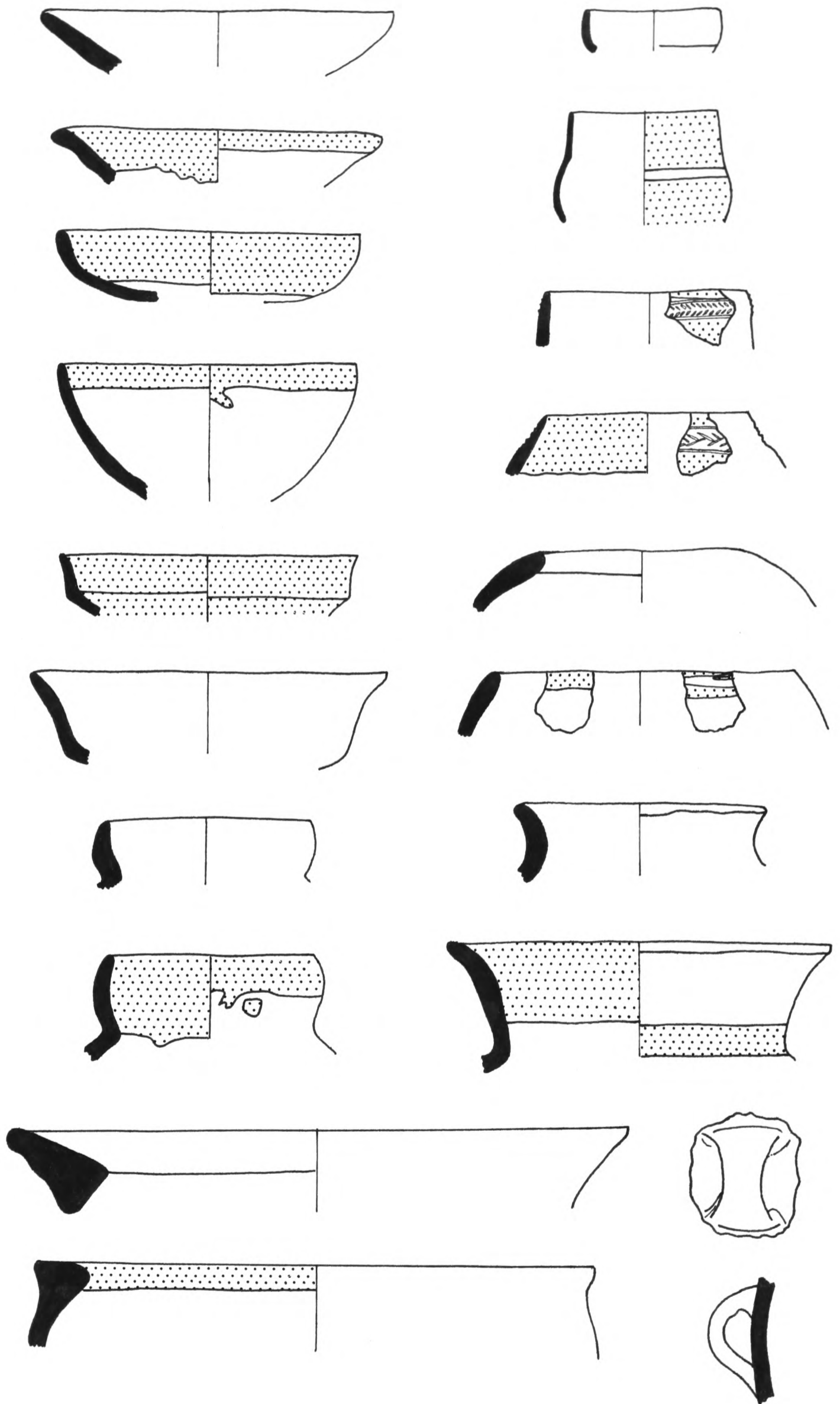


Fig. 52 Jericho - Pottery Neolithic B vessels
 scale 1:4

Jericho resemble that of sites like Byblos or Tell Ard Tlaili. The pottery, however, shared certain general characteristics with sites further north throughout this stage. There were the same vessel shapes as at Byblos in Néolithique Moyen and Récent, Tells Ard Tlaili, Ain Nfaikh and Tell ed-Jisr while the use of red colouring, often highly burnished, pattern burnish and some incised decoration is also typical of these sites. The closest parallels are with the Beka'a and Damascus basin sites since the shapes of Pottery Neolithic B vessels and the way they were decorated are most closely matched at these settlements. These comparisons confirm that Pottery Neolithic B Jericho was occupied in Neolithic 4.

We know much less about the other sites in this South Palestine group so I will describe them briefly. Some Neolithic 4 pottery and flints were found in the Murabba'at cave in a wadi between Bethlehem and the Dead Sea.³⁵ This cave was inhabited in both Neolithic 4 and the Chalcolithic. Among the Neolithic 4 pots were several globular jars with hole-mouth rims, collared or splayed necks and bow rims (Benoit et al., 1961, fig. 2:1, 3, 24, 27, 31). There were also flat-based bowls with flared sides and a carinated bowl. A number of these vessels had been decorated with red wash or slip and incised herringbone designs. Some of the pots were burnished. These vessels resemble those found at Jericho in Pottery Neolithic B.

Similar material is known from several sites in the southern Jordan valley. A little pottery like that from Pottery Neolithic B Jericho was excavated by Hennessy from basal layers at Ghassul itself (Moore, 1973, 67). More was found at Tell es-Saidiyeh. This site lies 2.5 km west of Kureiyima in the central section of the valley. Neolithic sherds were collected in the vicinity of the western part of the site, Tell es-Saidiyeh el Gharbi (Glueck, 1945-49, 293). They were incised with herringbone patterns in reserved bands, the rest of the sherds being painted red (Glueck, 1945-49, 594, pl. 78:8,9). These sherds are also similar to Pottery Neolithic B pots from Jericho indicating that the site was occupied during Neolithic 4.

Another site was discovered east of the Jordan valley beside the old road from Amman to Jerash near Salihi (Kirkbride, 1959, 53). Traces of an occupation layer and remains of house walls could be seen in a section of the site exposed at the side of the road. Both hand-made sherds and flints were collected. Two red burnished sherds were incised with reserved chevrons which suggests that the site may have been inhabited in Neolithic 4.

Two sites north of Jericho in the Judean hills have yielded material similar to Pottery Neolithic B Jericho. One is Shechem near Nablus where there was a Neolithic deposit at the bottom of the site. A clay lined pit 40 cm deep and some trodden surfaces were excavated here (Toombs, Wright, 1961, 36, 37). Associated with these features were much charcoal, animal bones, flints and pottery. Many of the pottery jars had bow rims, one of the diagnostic features of pots of this phase.

The other site is Tell el Far'ah a little further north which was first occupied in Neolithic 2. Neolithic 4 flints and pottery were found here with pit dwellings, trodden surfaces and hearths (de Vaux, Stève, 1947, 397). Among the pots ³⁶ were a number of hole-mouth and other jars some of which had bow rims. Several of these vessels bore lugs or strap handles with splayed attachments. There were also many hemispherical cups and bowls and others with splayed sides. Most of the vessels were relatively well fired with fabrics tempered with grit but little straw. Many had been painted red or coated in red slip and burnished.

The other sites in the South Palestine group are further south. One, Ziqim, is 8.5 km south-west of Ashkelon on the coast. It was excavated in 1974 when remains of huts and pits with several hearths were found (Noy, 1976b, 49). The flints associated with these features belonged to a Late Neolithic assemblage. The potsherds came from globular vessels with flat bases which were probably jars and bowls. These had knob and strap handles. The vessels were decorated with red wash or slip and burnished which suggests that the site was occupied in Neolithic 4 rather than Neolithic 3.

Several of the Wadi Ghazze sites were occupied briefly in this phase. A number of pits were excavated in the lower levels of sites D, M and O and associated with these were Late Neolithic flints and pottery (Macdonald et al., 1932, pls. XVIII, XX, XXX). There was some coarse pottery typical of this phase and also some finer vessels painted with red wash and burnished. Among these vessels were globular hole-mouth jars and others with collar necks. These had knobs or strap handles. Bowls with splayed sides and other more rounded ones were also quite common. This material is sufficiently like that from Pottery Neolithic B Jericho to indicate that these sites were inhabited in Neolithic 4. Their main phase of occupation was in the Chalcolithic from which most of the other material found on them was derived.

North Palestine

The sites in the North Palestine sub-group are situated in the northern Jordan valley and valleys to the west. The site with the most complete record is Munhatta.

Munhatta

Level 2A or the Wadi Rabah phase falls within Neolithic 4 (Perrot, 1968, col. 416). In this level rectangular houses with two or three small rooms were built for the first time. The walls were set on stone foundations and the floors were of trodden earth laid on beds of stones.

The pottery of this phase was also different from that of level 2B. The pots were made from a clay tempered with grits and almost no straw, much less than on the southern sites, and were quite hard fired to a buff or grey colour. The vessels had thin walls with the exception of some of the coarse ware. The principal kinds of pots were jars, bowls and cups (Perrot, 1968, fig. 846). Some of the jars were globular, others quite deep with curved sides. These jars had simple hole mouths, collared necks, or flared or bow rims. Some of the bowls were quite deep with hole mouths while others were carinated. A few stood on pedestal bases, a feature found on some other Neolithic 4 sites,

but most had flat bases. The cups were deep with straight sides. Some of the jars had lugs, ledge or strap handles.

Many of these vessels were coloured red, orange, brown or black and then burnished, often to a high polish. The darker highly polished vessels were more common here than on sites further south. A few pots were painted with linear designs. Others were decorated with incised patterns of criss-cross lines, chevrons and groups of stab marks. This type of decoration was also more common here than on sites in southern Palestine. Some pots even had applied designs of coiled snakes or human figures, a feature found on pottery of several sites in western Palestine but not in the south.

Sheikh Ali

The two upper levels at Sheikh Ali were called strata I and II, stratum I being subdivided into three phases, a, b and c (Prausnitz, 1970a, 98). Strata Ib, Ic and II were inhabited in this stage. The buildings in these strata were rectilinear with several rooms and their walls had stone foundations (Prausnitz, 1970a, 100). The floors of the rooms were made of crushed chalk while the yards outside were roughly paved. In these open spaces between the buildings were small pits, some of which were lined with stones like those in the Néolithique Récent settlement at Byblos.

Associated with these buildings were a flint assemblage and potsherds characteristic of other Neolithic 4 Palestinian sites. The pots consisted of globular jars, small bowls and cups (Prausnitz, 1957, 252). These were coloured red, brown or black and often burnished, sometimes to a lustrous finish. Some vessels were decorated with incised designs usually combined with painted and burnished bands (Prausnitz, 1960, 120). These incised patterns consisted of both stab marks and combing. The pottery was similar in shape and finish to that from Munhatta 2A.

The Ia phase of occupation at Sheikh Ali falls within the Chalcolithic since both the pottery and flints are more like those of Ghassul than Neolithic 4 sites.

Some evidence of Neolithic 4 occupation was found at Beth-Shan. Bun brick structures were excavated in level XVIII above the basal layer with pits. Red painted pottery and strap handles with splayed attachments were found in both levels and some ledge handles with finger impressed edges known also from Munhatta 2A and Pottery Neolithic B Jericho (Fitzgerald, 1935, 7, 8, pl. II: 5, 8, 16, 21, 23, 24). The other material from level XVIII was Chalcolithic (Moore, 1973, 66).

West Palestine

The Neolithic 4 sites in western Palestine are situated in the central coastal plain, Mount Carmel, the Plain of Esdraelon and the Galilee hills.

Wadi Rabah

The latest structure here, building A, was Chalcolithic but below that were two more structures, B and C, occupied in Neolithic 4 (Kaplan, 1958b, 153). Both were rectilinear with stone foundations and B was probably a room of a house. Flints, pottery and a few other artifacts were found in and around these buildings. The flints were similar to those from Jericho and other sites.

The pottery consisted of jars, bowls and cups made of clay tempered with sand, grit and occasionally straw. These were fired to a brown or buff colour while a few were pink. Some of the jars were globular and had hole mouths or thickened rims while many others had bow rims (Kaplan, 1958b, 154). They were usually made with strap handles with splayed attachments, knobs, lugs or ledge handles. Many of the bowls were carinated or had splayed sides and a few had pedestal bases. These vessels were often painted red around the rim or all over. Some vessels were coloured brown or black. Many were burnished, often to a high gloss. This kind of decoration was more common at Wadi Rabah and on other West Palestine sites than elsewhere. Some other pots at Wadi Rabah were incised with stab marks, criss-cross lines, herringbones and wavy lines.

Teluliot Batashi

Batashi like Wadi Rabah was first settled in Neolithic 3 but was also inhabited in Neolithic 4 and during the Chalcolithic. Level III was stratified under the Chalcolithic settlement and above level IV which had been inhabited during Neolithic 3. The material from this level was typical of Neolithic 4 (Kaplan, 1958c, 83*).

The pottery from level III closely resembled that from Wadi Rabah. There were the same hole-mouth and bow rim jars, bowls with flared sides and carinated bowls. Many were coloured red, brown or black and burnished, some to a high lustre. There was a similar range of incised decoration comprising wavy lines, combing, stab marks, herringbones and zig-zags. This combination of traits, so similar to Wadi Rabah, links Batashi with other sites in western Palestine.

Bashan Street, Tel-Aviv

When the Bashan Street site was excavated several pits were discovered (Kaplan, 1959a, n. 5) in one of which was a burial. A clay figurine was found in the excavations (Kaplan, 1959b, pl. I) which bore some resemblance to others found in Tell Ramad III, Munhatta 2B, Shaar Hagolan and Kfar Giladi in Neolithic 3. The pottery from the site on display in the Jaffa Museum includes sherds which were painted red and burnished as well as other incised sherds. The pottery is like much of that from Wadi Rabah so it is probable that the site was occupied in Neolithic 4.

Site 8/17

Flints and pottery similar to material from other western Palestine sites have been found at site 8/17 near Gal-Ed in the hills west of Megiddo (Meyer, 1970, 21). The pottery consisted of hole-mouth jars and others with splayed sides and thickened rims (Meyer, 1970, fig. 7). There were also jars with splayed necks or bow rims. The other vessels were carinated bowls and bowls with gently curved sides. Some of the vessels were coloured red or black and

burnished. Incised decoration was also common and consisted of stab marks, wavy lines, herringbones and rocker patterns.

Hazorea

Five Neolithic 4 sites have been found spaced at intervals along a terrace below Mount Carmel near Hazorea. They are Site I, IIA or Tell Kiri, IIB or Hazorea, IIIA or Ein el Jarba and IIIB or Tell Abu Zureiq (Kaplan, 1969, fig. 1). The terrace overlooks the Plain of Esdraelon and is cut by several streams. There is also a line of springs at its foot so since the soil is fertile the place was most favourable for farming settlements.

These sites were occupied in Neolithic 4 but probably not at exactly the same time since they are so close together (Moore, 1973, 61). Several were also inhabited in later periods. Their material remains, known through surface collection and excavation, are similar to those from other sites in western Palestine with the exception of certain local idiosyncracies in the pottery. These probably reflect the geographical separation of these sites from those on the coastal plain (Moore, 1973, 62). Tell Kiri was sounded by Perrot while he and Anati have excavated Tell Abu Zureiq (Perrot, 1963, 559; Anati, 1972, 149). Both found a range of painted, burnished and incised pottery quite similar to that from Wadi Rabah and Batashi as well as typical Neolithic 4 assemblages of flint tools. Anati's collection of pottery was unusually varied in decoration although the shapes of the vessels were similar to those found on other sites. This was partly because he found much more material than excavators of other sites in western Palestine.

Three pieces of obsidian have been analysed from one of the Hazorea sites. One piece came from Çiftlik (2b) and the other two from Nemrut Dağ (4c) and source 1g in eastern Turkey (Wright, Gordus, 1969, 81).

The material from the earliest phase of Ein el Jarba, phase IV, resembled that of the other Neolithic 4 sites at Hazorea and elsewhere in western Palestine. The later phases of occupation fell within the Chalcolithic. The only building remains found in phase IV were several straight stone walls

(Kaplan, 1969, 5). These had probably belonged to rectangular houses of the type found in phases II and III which had been destroyed when these later structures were built. There were also traces of a plaster floor, a hearth and seven small pits dug into the subsoil.

Most of the finds from Ein el Jarba were more typical of the Chalcolithic in Palestine than Neolithic 4 although the flints also resembled those of Néolithique Récent Byblos and some of the pottery was characteristic of a late stage of Neolithic 4. Several of the jars had bow rims or flared necks while a number of the bowls were carinated; there were also several dishes with flared sides (Kaplan, 1969, figs. 4: 1-4, 10, 11, 13, 14; 5:5, 6:7). These vessels were decorated with red paint or wash which was often burnished. Some of the small bowls and other vessels were coloured black or brown and burnished to a high polish. Incised decoration was also common. The motifs included combing, wavy lines, herringbones, nail impressions and stab marks (Kaplan, 1969, fig. 8). All these features were characteristic of pottery from other Neolithic 4 sites in western Palestine. Several pots had applied designs while one in particular was decorated with two anthropomorphic figures (Kaplan, 1969, fig. 7:1).

Two samples, one of charcoal and the other of bone, have been dated by carbon 14. The result of the charcoal determination was 3740 ± 140 B.C. and the bone one 2970 ± 240 B.C. (Kaplan, 1969, 27). The bone determination was obtained from a very small amount of collagen which may account for the date being so recent. The charcoal date would fit the context very well, reinforcing the evidence from the material remains that the site was occupied late in Neolithic 4.

Some Neolithic 4 pottery was found in Stratum XX at Megiddo mixed with Neolithic 3 and Chalcolithic material. The succeeding phase Stratum XIX contained much Chalcolithic pottery and flints. Among the Neolithic 4 pots were bowls with splayed sides, hemispherical bowls and others with a carination as well as some dishes. These had been painted red and some also carried

incised decoration. Several had been burnished to a high lustre like the pottery from Wadi Rabah and other western sites (Moore, 1973, 62).

One other site in the Plain of Esdraelon, Affula, was probably first settled towards the end of Neolithic 4 since denticulated segmented sickle blades were found in the deposits (Payne, 1948b, 72). There was also a tanged and winged arrowhead (Payne, 1948b, 73) but this may be a stray find dating from an earlier period since it has relatively little retouch and resembles Neolithic 2 types. These flints were found in levels that otherwise contained Chalcolithic and Bronze Age pottery (Sukenik, 1948, 16, 17) though it is possible that some of the pottery thought to have been Chalcolithic was in fact Neolithic 4 in type. However that may be, the site would appear to have been first occupied at the end of Neolithic 4 and then in the Chalcolithic.

The settlement of layer II at Kabri in western Galilee was also occupied in Neolithic 4. This layer was stratified above layer III inhabited in Neolithic 3 and below the Chalcolithic layer I (Prausnitz, 1969, 137). Remains of rectilinear walls and floors of buildings were found in layer II. Several burials were associated with the buildings. The flints included denticulated, segmented sickle blades and trapezoidal axes and adzes, types found in Neolithic 4 sites in Palestine and in the South Syrian group. There was also a little pottery in layer III. One other find of interest should be mentioned, a unique stone jar with a bow rim. This was among the group of fine obsidian and stone objects found during agricultural work which led to the discovery of the site. It was thought to have come from the surface Chalcolithic layer but its shape is most like many pottery jars found on Neolithic 4 sites in Palestine.

Kabri is one of the most northerly of Palestinian Neolithic 4 sites. The material from it while resembling that of other Palestinian sites may also be compared to that of Neolithic 4 sites in southern Lebanon which I have placed in the South Syrian group. The country to the south of the site opens

out towards the Acre plain and the Plain of Esdraelon while to the north and east are broken hills. Geographically Kabri has better communications with sites further south and south-east which is why I prefer to place it within the West Palestine group of sites.

I have now concluded my description of Neolithic 4 sites in Palestine. As I mentioned in the last chapter there is a series of other sites in Palestine that we know were occupied during the Late Neolithic but which cannot with certainty be ascribed to either Neolithic 3 or 4 (Fig. 53). I wish now to briefly describe the location of these sites and their material remains since they augment our knowledge of the distribution of each type of site in the 6th and 5th millennia.

Abu Usba is a cave high up in the south side of the Wadi Fallah not far from the site of Nahal Oren. Two of the upper layers here, B1 and B2, contained material from several periods. Lunates with Helwan retouch, segmented denticulated arrowheads, tanged arrowheads and Neolithic pottery were all mixed together. Stekelis who excavated the site thought that the material was associated and called this heterogeneous culture "Usbian" (Stekelis, Haas, 1952, 18). Albright who added his comments to the original report pointed out that the layers must have been mixed and that the cave had been occupied in several periods. Some of the sickle blades and pottery, particularly some of the sherds with red wash and incised decoration, are Late Neolithic but we do not know in which stage the site was inhabited.

Rakafet cave on the other side of Mount Carmel from Abu Usba was also occupied during the late Neolithic (Noy, Higgs, 1971, 226) though we do not yet know when. Sahl el Khoussin is west of the road to Jenin opposite Samaria (Neuville, 1929, 120). A collection of flints was made from this site which included axes and adzes, some of them with polished edges, picks, flake scrapers, borers and segmented sickle blades. From the sickle blades and adzes I have seen in the Hebrew University in Jerusalem where part of the

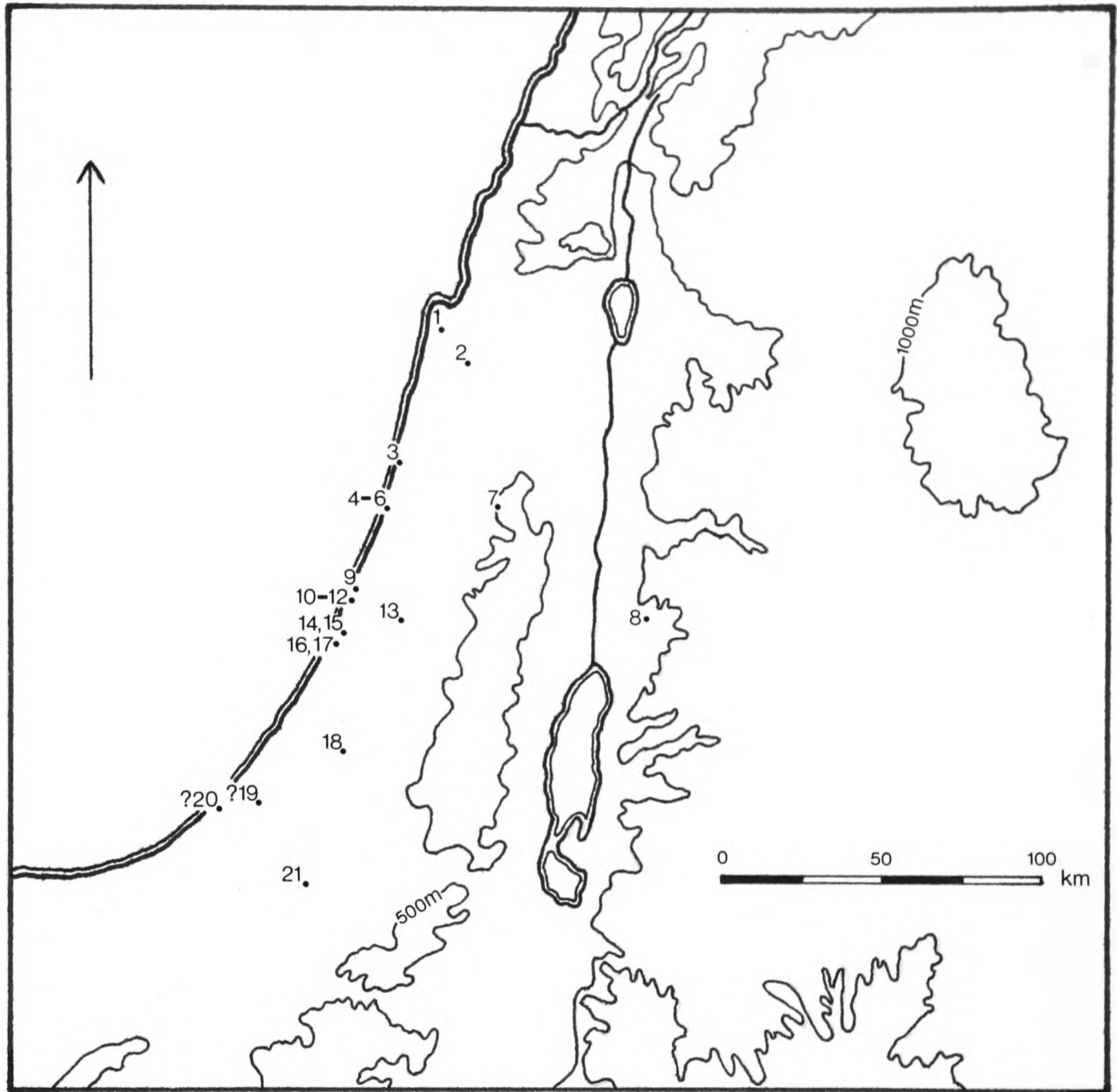


Fig. 53 Palestine – supplementary Neolithic 3 and 4 sites

FIGURE 53

- 1 Abu Usba
- 2 Rakafet
- 3 26A
- 4 18CH
- 5 18T
- 6 18N
- 7 Sahl el Khoussin
- 8 Wadi Nimrin
- 9 Jaffa
- 10 33/0
- 11 33/N
- 12 33CH
- 13 Ramla
- 14 64
- 15 64B
- 16 62/0
- 17 62/I
- 18 Tell Hesya
- 19 El Farasheh
- 20 El Harbish
- 21 Halutza - Site 82

collection is deposited it is clear that the site was occupied in the Late Neolithic but in the absence of pottery one cannot say during which stage. Neuville likened some of the material to the Campignian which suggests that the site was similar to many of the surface stations in southern Lebanon. The wide range of tools found suggest that this was a settlement like Tahun ben Aissa and Amiq I rather than simply a factory site.

Neuville noted another site in the Wadi Nimrin in the hills east of the Jordan valley on the road to Amman (1929, 119). A collection of flints from here included small tanged arrowheads like those from et-Tauamin, a site which I have ascribed to Neolithic 3. Wadi Nimrin may have been occupied in Neolithic 3 also or possibly in Neolithic 4.

Many Late Neolithic surface sites have been discovered on or near the coast of Palestine. Mallon reported that he found many flints over a considerable area extending 12 km north along the coast from Jaffa (1925, 201). His collection included flint tools made in several periods which must have come from a number of stations given the extent of the survey. He found some denticulated, segmented sickle blades as well as tanged arrowheads and axes and adzes with polished cutting edges, some of which were probably Late Neolithic also. Neuville surveyed north of Jaffa and as far as 10 km south of the town (1929, 116). He found more flint artifacts of several periods some of which were Late Neolithic. The most diagnostic tools were denticulated, segmented sickle blades but he, like Mallon, also collected axes and chisels, some with polished cutting edges, picks and small tanged arrowheads many of which were probably made in the Late Neolithic.

Mallon collected more flints from another large surface scatter 4 km south of Ramla (1925, 200). Once again he found flints of different periods which probably came from several locations. Among them were segmented, denticulated sickle blades of Late Neolithic type.

Burian and Friedmann have found numerous Late Neolithic surface stations in the coastal dunes between Hadera and Ashdod. They collected small pressure-

flaked tanged and winged arrowheads of Late Neolithic type from site 26A just north of the Nahal Alexander (1963-64, 6), a station which had been used in Neolithic 2. Site 18CH just north of the Nahal Poleg near its mouth yielded denticulated, segmented sickle blades as did 18T immediately to the south-west beside the river (1963-64, 13, 15). More denticulated, segmented sickle blades and small tanged and winged arrowheads were collected at 18N on the south bank of the river at its mouth (1963-64, 14).

Burian and Friedmann located three more Late Neolithic stations between Rishon le Zion and the sea in an area which may overlap with Neuville's Jaffa explorations. Denticulated, segmented sickle blades and small tanged and winged arrowheads were collected from 33/0 near the sea and similar tools from 33/N further east (1963-64, 17, 18). More tools of the same kind were found at 33CH immediately south-west of 33/0 (1963-64, 19).

Four more stations were discovered between the Nahal Sorek and Nahal Lachish. They were from north to south 64, 64B, 62/0 and 62/I (Burian, Friedmann, 1963-64, 27, 29, 30, 31). Denticulated, segmented sickle blades were found on all of them and sherds of coarse pottery at 64 and 64B. Several trapezoidal flint axes were picked up at 62/0. This site, 62/I and 64 had previously been inhabited in Neolithic 2.

Four other sites in southern Palestine were probably occupied during the Late Neolithic. Tell Hesy is one, the evidence for which being some segmented, coarsely denticulated sickle blades³⁷ which Bliss found when he excavated at the site (1894, 124). Another is El Farasheh on the south bank of the Wadi Ghazze, the exact location of which is no longer known. Stekelis found some denticulated, segmented sickle blades and small flake awls here in 1943 which were deposited in the Palestine Archaeological Museum. The same museum holds a collection of flints from El Harbish which was probably situated near Khan Yunis. This site may have been discovered by Harding who explored the region before and during the Second World War. Among the flints were denticulated, segmented sickle blades, tanged arrowheads, a pick and some flake scrapers

that were probably made in the Late Neolithic. Tanged and winged arrowheads of Late Neolithic type as well as flints of other periods were found at site 82 in the Halutza dunes (Burian, Friedmann, 1973, 28). The only evidence of Late Neolithic activity further south known to me is the find by Rothenberg of a single characteristic tanged arrowhead at site 461 in Sinai (Moore, 1973, 41).

Distribution of sites

Neolithic 4 sites were located in every geographical zone except the high mountains from the Levant coast as far east as the edge of the steppe plateau, that is up to 110 km inland. Thus there were sites all along the coast of Lebanon (Kubbah I, Byblos, Adlun II) and more have been found on the seaward slopes of the mountains up to an altitude of 1000 m (Kleat, Mtaileb I, Muktara). Almost the whole length of the Beka'a was occupied from Baalbek to the headwaters of the Jordan (Tell Ard Tlaili, Tell ed-Jisr, Ard Saouda, Kfar Giladi). No Neolithic 4 sites are known in the Anti-Lebanon but two in the Damascus basin were inhabited (Tell al Khazzami, Tell Ramad).

The pattern was similar in Palestine where sites have been discovered all along the coast and on the coastal plain (Kabri, Wadi Rabah, Ziqim). The Plain of Esdraelon was settled (Hazorea) and the way east to the Jordan valley (Beth-Shan). Several Neolithic 4 sites have been excavated in the Judean hills (Tell el Far'ah, Shechem, Murabba'at) while others are known along the Jordan valley (Sheikh Ali, Munhatta, Tell es-Saidiyeh el Gharbi, Jericho). Only one site, Salihi, has been discovered in the hills east of the Jordan valley and none on the Transjordan plateau. The southern limit of known Neolithic 4 settlement was the Wadi Ghazze (sites D, M, O). No trace of settlement or camp sites has been found in Sinai in any of the recent surveys which have been carried out so the area was apparently unoccupied though perhaps occasionally visited in Neolithic 4. This is despite the fact that there is evidence of contact between Palestine and Egypt in this stage (Moore,

1973, 57); presumably travellers followed the coast leaving no trace of their journeys.

This distribution of settlements was generally similar to that of Neolithic 3. The only difference was the greater number of sites situated on the slopes of the Mountains of Lebanon, in the Galilee hills and the Judean uplands. Sites in the Mountains of Lebanon were also to be found at a higher elevation than in earlier Neolithic stages. Other sites were in areas of fertile land, that is on valley terraces or plains, and usually near a permanent source of water such as springs, streams or rivers. The catchments of these sites consisted for the most part of arable land with some grazing implying that agriculture was the economic basis of these settlements. They needed not only a permanent source of water for drinking and watering flocks but also adequate rainfall for their crops. This is the reason for the confined distribution of sites in this period and the abrupt limit of settlement to the south towards Sinai and to the east at the edge of the Syrian and Transjordan plateaux. During this period the rainfall decreased. The temperature approached its postglacial maximum during the 5th and 4th millennia and may have been higher than it is today toward the end of Neolithic 4. Thus the amount of effective moisture available was also reduced. The effect of these two factors, the drop in rainfall and rise in temperature with its consequences, was that Sinai and the plateaux to the east were even drier than they had been in Neolithic 3. The forest zones shrank still more because of the reduction in rainfall and man's activities so that Sinai and the inland plateaux were now open steppe. Rainfall was still sufficient to support agricultural settlements in and near the coastal hills and mountains but not beyond.

Settlement types were almost the same in Neolithic 4 as in Neolithic 3. Most sites were hamlets or villages with houses, other structures and a full artifact inventory. The Palestinian villages came to resemble their counterparts further north during Neolithic 4 since rectangular houses were adopted

as the usual form of dwelling. Traces of dwellings have been found at Shechem and Tell el Far'ah but the sites in the hills and on the slopes of the mountains seem to have been less substantial than those on the plains and in the valleys. Nevertheless, the range of material found at Mukbara, Kfar Giladi and Khallet el Khazen III and IV was sufficiently varied to suggest that these sites had been inhabited as settlements even if for relatively short periods.

These small upland settlements and some on lower ground were near Heavy Neolithic stations such as Karaoun II, Douwara and Wadi Farah. The Heavy Neolithic sites were factory stations at which flint artifacts, particularly axes, adzes, picks and other bulky tools, were roughed out. They were probably complementary sites to the settlements in the hills while their products occasionally found their way to other settlements on the plains (Cauvin, Cauvin, 1968, 110). These Heavy Neolithic factory stations were a Neolithic 4 phenomenon since factory sites of any kind in the hill country were rare in earlier stages.

Nearly all Neolithic 4 settlements were open sites. The few inhabited caves such as Adlun II, Jiita I and Murabba'at were as exceptional as those occupied in Neolithic 3. Hunting stations were equally rare; the only group of these were those surface sites along the coast of Palestine which may have been inhabited in this stage.

There is very little accurate information about the size of Neolithic 4 sites. Some of the smaller settlements and many of the surface stations probably ranged from several hundred to several thousand square metres in area. Tell Arslan was about 1 ha while Byblos covered 1.5 ha for much of Neolithic 4. Tell al Khazzami was of similar size extending over 1.76 ha. Wadi Rabah was larger than these sites since it covered about 2.43 ha (Kaplan, 1958b, 151) but we do not know if the whole area was occupied in Neolithic 4. Jericho was much bigger again since it spread over 4 ha; it is the only known Neolithic 4 site that was large enough to be called a town. No other very large

sites have been discovered though there may be a few hidden at the heart of some of the great tells. It would seem that there was a little less variation in the size of Neolithic 4 settlements than in Neolithic 3 and much less than in Neolithic 2 though this can only be a provisional conclusion until we have further evidence.

Was the population of the central and southern Levant the same in Neolithic 4 as in Neolithic 3? Neolithic 4 lasted for approximately the same length of time as Neolithic 3. The settlements were quite similar in size so far as we know. Some Neolithic 4 sites were occupied only briefly but others like Byblos, Jericho and Munhatta were inhabited for much or all of this stage. Thus the sites of each stage are broadly comparable and it is likely that an approximately equal proportion of those that once existed has been discovered. I have listed 110 Neolithic 4 sites but 32 of these were Heavy Neolithic factory sites which must be discounted in any comparison of density of settlements. That leaves 78 sites which were occupied for part or all of Neolithic 4. The total for Neolithic 3 was 81 but 38 of these were north of the latitude of Homs and so should be excluded. Only 43 Neolithic sites are known from Lebanon, the Damascus basin and Palestine compared with the 78 settlements I have listed for Neolithic 4. Even when full allowance is made for all the errors that can arise when sites are compared in this way the difference is striking. It appears that there was another marked increase in population in Neolithic 4.

This increase in population is probably the reason for the only significant difference in settlement distribution between Neolithic 3 and 4, the considerable increase in the number of sites to be found in the hills and on the mountain slopes. As the population increased it was unable to expand south and east since the environment of these regions was unsuitable for settlements based on simple agriculture. A greater population had to be supported on the available land on the plains and in the valleys while other settlements could only be established at higher altitudes in the Mediterranean forests. Thus

we find new settlements in the Mountains of Lebanon, the broken hill country of the southern Beka'a and Galilee uplands as well as in the Judean hills. Accompanying these new settlements were the Heavy Neolithic factory sites where the large cutting tools needed to clear the forests were roughed out.

Economy

There is even less evidence for the economy of Neolithic 4 sites than there was for Neolithic 3. Few sites have been excavated and several of these were dug long ago when economic evidence was considered of little importance. In some excavated more recently such as Jericho little organic material was found to have survived in the Neolithic 4 levels. For these reasons it is possible to reconstruct the economy of Neolithic 4 sites in outline only.

I have already mentioned that the catchments of most lowland sites consisted of land suitable for arable and grazing. This implies that the economy of these sites was based upon mixed farming as in Neolithic 3. Some of the Beka'a tells such as Tell Ard Tlaili, Tell Ain Nfaikh and Tell ed-Jisr were surrounded entirely by potential arable land. The catchments of most other Neolithic 4 sites such as Beth-Shan, Munhatta in the Jordan valley and Wadi Rabah on the coastal plain of Palestine included some land of more varied quality which was probably better suited for grazing. Other sites like Kubbah I on the Lebanese coast, Tell Hashbai and Kaukaba in the Beka'a, Megiddo and the Hazorea sites in the Plain of Esdraelon had almost as much grazing as arable land in their catchments. We should remember, however, that the often bare limestone slopes to be found near these sites now which we class as grazing land probably carried a thin soil cover then that the inhabitants of these settlements may have found quite easy to cultivate.

Jericho is the only Neolithic 4 site from which plant remains have been recovered. Grains of hulled two-rowed barley, emmer and einkorn were found as well as several field weed seeds (Hopf, 1969, 356). We know that these cereals had become the staples of most agricultural settlements throughout the Levant by the end of Neolithic 3. The Jericho evidence reinforces

the probability that this pattern was maintained during Neolithic 4. We do not know for certain what legumes were grown during Neolithic 4 but it is likely that lentils and vetch were planted most frequently although others would also have been regularly grown.

The animal bones from several Neolithic 4 sites have been studied so we have a general idea of the prevailing patterns of animal husbandry. The fullest account is the report by Jarman on the animal bones from Sheikh Ali. He found that the main food animals were sheep, goat, pigs, cattle and gazelle (1974, 50). A few deer, onager, fish and a canid were also present in the sample. The number of cattle and gazelle killed at Sheikh Ali remained relatively stable throughout Neolithic 4. Cattle made up about 20% of the bones and gazelle about 12% although these declined towards 5% at the end of the stage (Jarman, 1974, fig. 1). The pigs increased from about 32% to 45% while the ovicaprines fell from about 35% to under 30%, a continuation of a trend that was more marked during the Neolithic 2 occupation of the site. The increase in the proportion of pigs balanced that of the decline in the numbers of both ovicaprines and gazelle killed.

The age at which each species of animal was slaughtered remained fairly constant throughout the occupation sequence at Sheikh Ali. Jarman believes that the ovicaprines, pigs and cattle were all subject to control by man (1974, 57) and it is probable that the gazelle were also. He suggests that as in Neolithic 2 the ovicaprines here were exploited for wool and dairy products as well as meat since most were not killed off until they were at least two years old (1974, 56). Milk may also have been an important by-product of the cattle. Nearly all the pigs were killed young for their meat.

Jarman has offered an interesting explanation for the increase in importance of pigs and the relative decline of the ovicaprines and gazelle. He has pointed out that there is good reason to suppose that the population of the region in which Sheikh Ali is situated would have risen during the period when the site was occupied (1974, 58). We have seen that there is evidence for this in both Neolithic 2 and Neolithic 4 though in Neolithic 3

Sheikh Ali was deserted and the population of the region was temporarily reduced. The growing population of Neolithic 2 and 4 could have been fed by increasing the quantity of cereals that was produced. This might have reduced the amount of land available on which the ovicaprines and gazelle would have grazed so threatening the meat supply. Any forced reduction in the numbers of sheep, goat and gazelle that were kept could have been compensated for by increasing the herd of pigs. These animals do not need to graze on potential arable land and can feed off foods not consumed by the ruminants.

The fauna of Munhatta 2A has not been published separately from that of 2B so we do not know if there was any difference in the exploitation of animals between Neolithic 3 and Neolithic 4. The main food animals killed in phase 2 were gazelle, cattle, ovicaprines and pigs as we saw in the last chapter (Ducos, 1969, 267). Ducos believes that both the pigs and ovicaprines were domesticated (1969, 273). Cattle were killed in about equal proportions at Munhatta and Sheikh Ali. Pigs were less numerous at Munhatta while ovicaprines and gazelle were more abundant than at Sheikh Ali but there were no striking differences between the proportions of the animals killed at each site. Thus animals were probably exploited in a similar manner at both these sites.

Very few bones were found in the Pottery Neolithic at Jericho and no separation was made between those from phases A and B, that is Neolithic 3 and Neolithic 4. The most numerous species in Neolithic 4 as in Neolithic 3 were probably sheep and goat while gazelle and cattle were also present (Clutton-Brock, 1971, 46, 54). No pigs were found (Clutton-Brock, 1971, 41). The pattern of exploitation at Jericho would thus appear to differ in certain details from that at Sheikh Ali and Munhatta further north in the Jordan valley but we cannot be sure since the faunal sample was so small.

Animal exploitation at the Neolithic 4 sites for which we have evidence was principally based on herds of domesticated animals. The most important species were usually sheep and goats. Cattle also provided a significant

amount of meat while pigs were particularly important at some sites.

There is little other evidence for the economies of the remaining lowland Neolithic 4 sites though they were probably organized along the same general lines I have already indicated. Bones of gazelle were found at Ziqim (Noy, 1976b, 49) adding to the evidence that this animal was still commonly exploited in Neolithic 4. Fishing contributed some food to the diet of the inhabitants of this and other coastal sites such as Byblos (Dunand, 1973, 161). Such supplements were probably still of some importance in the economy of many Neolithic 4 sites. Hunting in general, though, seems to have declined even further than in Neolithic 3. Arrowheads comprised a smaller percentage of the chipped stone assemblage on Neolithic 4 sites than in preceding phases. The few arrowheads found at Byblos were of the tranchet type found also on some coastal Palestinian sites. These were probably used to shoot birds and small game rather than the larger ruminants. It is interesting in this connection to note that bird bones were also found at Ziqim (Noy, 1976b, 49).

The economies of the sites in the uplands could not have been based upon mixed agriculture and herding like the sites in the lowlands. The catchments of sites such as Kleat, Asfurieh II, Muktara, Ain Hannine and Wadi Salhah consisted for the most part of steep hill slopes with relatively thin soil covered by Mediterranean forest. The only land which could have been cultivated without extensive terracing was the flat hilltops, gentler slopes and narrow valley bottoms of adjacent wadis. All except the steepest hillsides could, once cleared, have made excellent pasture for sheep and goats. Niches would always have been available for pasturing a few cattle. Thus the economies of these sites would from their very positions have been better suited to pastoralism than to agriculture.

The material remains from these sites are always scanty since no structures and few organic remains have been found on them. In itself the absence of buildings suggests that these sites were occupied relatively briefly. The flint assemblages from most of these sites included numerous axes, adzes,

chisels and large flake scrapers. Most of these cutting tools were probably used to open up the forest for grazing and to work the timber that was cut down. Many arrowheads were found at Muktara which may indicate that hunting was a significant aspect of the economy but this is the only one of the upland sites for which we have such evidence.

What these sites appear to represent is a major penetration of the upland zone often to a high elevation and in areas not settled earlier in the Neolithic. The evidence suggests that their economies depended upon pastoralism. This expansion is almost certainly connected as we have seen with the rise in population that took place in Neolithic 4. Would such sites have been permanently viable on a mainly pastoral basis? I think that this would have been unlikely. Some of them are situated in areas that would have been inhospitable during the winter months. I suggest that many of these sites were settlements inhabited during the late spring and summer by groups which brought flocks and herds up from the lowland sites. In this way larger flocks and herds could have been maintained than would have been possible on the lowlands alone, especially as some of the grazing land near many settlements may have been taken into cultivation. We have seen that transhumance was probably a feature of earlier stages of the Neolithic and that it may have been practised on a modest scale in Neolithic 3. Its great expansion in this phase was a corollary of the growth of population that took place.

Some of these upland sites may have been inhabited on a semi-permanent basis and their inhabitants may have practised some agriculture as seems to have been the case at Muktara. There were other settlements in the foothills and in the broken country of the southern Beka'a such as Naccache, Amiq I, Tahun ben Aissa and Beidar Chamout which may have depended upon their flocks and herds to a greater extent than the lowland settlements but whose inhabitants did not practise long-distance transhumance. These settlements, probably including Sahl el Khoussin in Samaria, may have been established by breakaway groups from sites in the lowlands who sought new land in areas that were

previously thinly populated if at all. These groups were relatively small judging by the size of the sites and they did not remain long enough to leave much material.

The evidence suggests that some groups penetrated the hilly, forested regions and settled in small villages while others, probably based at lowland sites such as Byblos, Tell Arslan and Munhatta exploited the uplands at higher elevations by taking their flocks and herds up to temporary camps each year. The Heavy Neolithic stations were yet another type of site connected with this expansion. I suggest that the inhabitants of the upland settlements and seasonal camps themselves roughed out the tools they needed to clear the forest on the Heavy Neolithic factory sites. Thus all these sites were part of a pattern of intensive exploitation of the upland zone which took place in Neolithic 4.

The agriculture of Neolithic 4 settlements in the lowlands was probably based on a short fallow system as I have suggested for Neolithic 3. This would have been further intensified so that sufficient food was produced to feed the growing population. The same system was probably adopted in Palestine as a result of population growth in preference to the less intensive bush fallow system practised there in Neolithic 3. The system was obviously a stable one since many sites in Lebanon and Palestine were occupied for much or all of Neolithic 4 and on into the Chalcolithic. This was so at Byblos and several of the Beka'a tells such as Tell Ain Saouda, Mejdell Anjar II and Tell ed-Jisr. The Neolithic 4 settlements in the Jordan valley such as Jericho and Sheikh Ali were equally long-lived as were Wadi Rabah, Beth-Shan, Megiddo and several of the Hazorea sites on the Plain of Esdraelon.

We know little more about how the Neolithic 4 farmers worked their fields than we did for Neolithic 3. The discovery of basalt hoes at Kubbah I, Muktara and Kaukaba and flint ones at Tell Arslan is particularly interesting since they are the earliest good evidence we have that heavy digging tools were being made to till the soil. These were needed to increase the productivity of the soil to feed the growing Neolithic 4 population. We can only presume

otherwise that these farmers used wooden spades and perhaps ards as I postulated for Neolithic 3.

Community organization and trade

The inhabitants of most excavated Neolithic 4 settlements lived in separate rectangular houses sometimes with one but usually with two or more rooms. This arrangement was broadly similar to that of Neolithic 3 even if at certain settlements such as Byblos the size of the houses was different in succeeding phases. These houses were probably still inhabited by nuclear families which continued to form the basic units of village society. The large houses of Néolithique Récent Byblos could have housed quite extended families including perhaps members from several generations. These families would have been linked to the other households in the village by complex social relationships. They were probably still the fundamental economic unit as in preceding stages.

This pattern was characteristic not only of settlements in the South Syrian group but also in Palestine, at least in the latter part of Neolithic 4. There is good evidence from Jericho, Munhatta and other sites that rectangular houses were adopted once more by the inhabitants of settlements in Palestine superseding the pit dwellings of Neolithic 3. Thus the social organization of Neolithic 4 villages was similar to that of settlements in the central and northern Levant in Neolithic 3.

On the few settlements in which several buildings have been excavated none differed markedly from the others in its basic plan. Thus none stands out as having possibly served a communal function with the exception, perhaps, of those buildings in Néolithique Récent Byblos which Dunand suggested may have been chapels. Even these looked no different from the others which I have interpreted as houses. It is possible that communal buildings with a different plan may yet be found on other sites if they are more extensively excavated but for the moment we have no certain evidence that they were built. The inhabitants of Byblos and other relatively large Neolithic 4 villages

may simply have used a structure built like one of their houses for communal purposes should they have felt the need. This is the custom in modern peasant villages throughout the Levant in which a house built like the others may be reserved as a meeting place and for the use of guests.

There would have been the same strong social ties between the inhabitants of Neolithic 4 villages in each region as I have suggested for Neolithic 3. These communities were probably grouped in tribes. The cultural groups and sub-groups that I have identified corresponded quite closely with the different regions of the central and southern Levant. It is likely that the sites of each cultural sub-group were inhabited by members of each tribe. Thus one tribe may have occupied the central and northern coastal strip of Palestine, another the Beka'a, a third the Damascus basin, a fourth the southern Jordan valley and hills to the west and a fifth the northern Jordan valley.

Byblos is the only site at which more than a few human burials were found. Even here there is reason to suspect that the dead were usually buried beyond the limits of the settlement. This may also have been so at other sites in which few or no burials were found, unless the dead were disposed of by other means, as I have postulated for Neolithic 3. Some of the burials at Byblos were in simple earth graves but there were other collective, secondary burials. This revival of a custom common in Neolithic 2 was also followed at Ein el Jarba where a secondary burial was found (Kaplan, 1969, 5). Prominent in this interment was a group of skulls and skulls were given special attention in some burials at Byblos. Burials were found in and under buildings at Kabri but elsewhere the custom of burying the dead within the settlement seems to have been rarely practised.

There was little evidence of any differences in social status among the burials at Byblos. The information from other sites is too meagre for any conclusions to be drawn. Most of the buildings at Byblos were of a similar type and no house stands out as having been larger or more elaborately finished than the others. Objects of adornment and artifacts made of rare materials

from exotic sources are no more numerous here or on other sites than in the previous stage. Thus there seem to have been no marked differences in wealth or status between families either at Byblos or on other sites in Neolithic 4. Society was still broadly egalitarian.

There is evidence that the same crafts were practised as in Neolithic 3. The pottery was better made everywhere and more durable. Probably as a result of this stone bowls were made less frequently on most sites; at Byblos they ceased to be used during Neolithic 4. Other crafts and daily activities seem to have continued with little change from the preceding stage. It is as if a plateau had been reached in the development of material culture. Not until the next stage, the Chalcolithic, was there any further elaboration when, with the coming of the use of metal, new crafts developed and new kinds of artifacts became available.

The villages of Neolithic 4 continued to obtain raw materials from sources a short distance away. Limestones and basalt were frequently used for stone tools. Flint was also exchanged in small quantities. These were materials which were freely available and in everyday use. A little obsidian continued to reach sites in the central and southern Levant. Of the five pieces analysed from Byblos four came from Van and only one from Çiftlik. Two of the three pieces analysed from Hazorea also came from Van and the other from Çiftlik. Renfrew has visually examined several pieces found on the surface of the Beka'a tells and has concluded that they came from sources in the Van region and Cappadocia (Copeland, 1969, 103). If these results accurately reflected the pattern of exchange then more obsidian was apparently being obtained from Van than from Cappadocia, a reversal of the trend in Neolithic 3. The number of samples analysed is too few to be certain; we can only be sure that obsidian from both Cappadocia and eastern Turkey was being obtained.

The exchange of other materials from distant sources diminished further in both quantity and variety during Neolithic 4. Greenstones continued to

be used for small axes and chisels. These have been found at Byblos and other sites in the South Syrian group, then as far south as Ein el Jarba if the axes from there really came from the basal layer (Kaplan, 1969, 20). The raw material for these objects originated either in north-west Syria or the Taurus. A few steatite objects were found at Byblos but no other artifacts made of exotic materials nor minerals have been reported from any Neolithic 4 site. Nothing seems to have been obtained from Sinai, probably because it was still uninhabited, and regular exchange with regions far to the north-west ceased. We see here one result of the coming of Halaf. For the time being contacts between the Levant and other regions sensibly diminished.

Chapter 7

CONCLUSION

The Neolithic of the Levant began about 8500 B.C., I have equated this stage with the development of a sedentary agricultural society but it will be evident now that it came about because of earlier changes that had taken place in Mesolithic 2. The most important stimulus was the growth in population that happened early in Mesolithic 2 at or soon after 10,000 B.C.. This expansion of the population occurred at a time of environmental affluence. Mesolithic 1 had coincided with a long phase of cold, dry climate during which the steppe had expanded at the expense of the Mediterranean forest. Then towards the end of Mesolithic 1 about 12,000 B.C. a major change took place. The climate became warmer and moister which brought about a considerable expansion of the Mediterranean and intermediate forest zones. This amelioration of the climate and consequent change in the vegetation preceded the Mesolithic 2 growth in population on the chronology I have proposed. It appears to have created the favourable circumstances in which the first expansion of population took place.

Why should the population have expanded then? Part of the answer must be that a much larger population could be supported on the increased resources that became available in the greatly extended forest zones. The edible wild food plants would have been much more abundant while the game population would have grown since the new environment could support a much higher biomass. Human populations tend to expand when the supply of food increases as appears to have happened in this instance.

The growth of population in Neolithic 2 led to the formation of human groups larger than the composite bands of Mesolithic 1 and before. These groups inhabited relatively large settlements on a semi-permanent basis. They were thus more sedentary than their ancestors had been. The simple hunter-

gatherer economy of earlier stages while still adequate for many smaller Neolithic 2 groups had to be modified in order to sustain the inhabitants of the larger semi-sedentary settlements. It was in these circumstances that the exploitation of plants and animals became more systematic. The larger human groups probably wished to maintain their size for as long as possible because this permitted them richer and more frequent social contacts than had been possible hitherto; certainly once these larger groups began to be formed in Mesolithic 2 the tendency was for the size of groups to increase throughout the Neolithic. The formation of such large groups under exceptionally favourable environmental conditions thus created a need for novel adaptations of traditional economic activities and the development of new ones.

I have been able to document the growth of population and group size which occurred in Mesolithic 2 from the archaeological evidence available. I have also been able to indicate how some traditional hunter-gatherer economic practices were refined and have pointed to evidence indicating that man may already have begun to control the reproduction of the plants upon which he depended for food. All this appears to be so novel partly because of the scarcity of economic evidence for Mesolithic 1 and the Aurignacian. Such evidence as has become available recently for the economy of human groups in these earlier stages indicates that these novel practices were but the culmination of broad-based patterns of exploitation that were current far back in the Palaeolithic.

I have isolated two factors which I believe to have been of crucial importance in forming the conditions in which the development of the Neolithic took place: the improvement in the environment, particularly climate and vegetation, and increase in population. Other factors, for instance changes in economy and social organization, were also critical. For the moment given the evidence we have it is only possible to single out the major factors and to see which, if any, had a preponderant influence. We must always remember

that changes in each factor influenced the others continually so that the crystallizing of the Neolithic was a most complex process.

I have divided the Neolithic of the Levant into four stages. If one takes a broad view of the developments in economy, population levels and social organization it can be seen that these fall into two major phases. The first or archaic phase comprised Neolithic 1 and 2 and the second or developed phase Neolithic 3 and 4. In the first phase the embryo simple agricultural economy combined with hunting and gathering was developed as far as was possible under the environmental conditions of the Levant; this permitted a substantial growth in population. In the second phase this pattern was substantially modified; a more developed form of agriculture was adopted by the inhabitants of most settlements which has continued to be the basis of existence in the Levant down to modern times. Considerable adjustments in the settlement pattern accompanied this development while the population subsequently grew still more.

Seen in this way the change from Mesolithic 2 to Neolithic 1 was less abrupt than that from Neolithic 2 to Neolithic 3. The developments in social organization, settlement patterns and economy which had been initiated in Mesolithic 2 were simply taken further in Neolithic 1. Sites grew larger and the groups inhabiting them more numerous. A few sites, notably Jericho but also Tell Aswad, were very large indeed. These larger sites were also inhabited for longer. The types and sizes of sites were more varied than in Mesolithic 2. The inhabitants of the larger sites now depended for food upon the deliberate planting and harvesting of cereals as well as the collection of numerous species of wild plants. Herds of certain animals were selectively exploited but much other game was still hunted. The economy of the larger sites was thus based upon simple agriculture and the continued exploitation of wild resources. The economy of the smaller sites was still probably little different from the broadly-based hunting and gathering of many Mesolithic sites.

In favourable circumstances the developed agricultural/hunting and gathering economy permitted the formation of unprecedently large settlements but we should remember that there is no evidence that the population increased further. Neolithic 1 on the sites of medium size was little more than a consolidation of the pattern of existence that began in the previous stage.

The modifications to the settlement pattern and economy in Neolithic 1 took place against a relatively stable environmental background. Conditions were still particularly favourable for a way of life partly dependent upon wild food resources. About 8000 B.C., that is during Neolithic 1, the temperature rose a little and rainfall noticeably decreased but this did not have a marked effect on the new pattern of life.

The new agricultural techniques were not widely adopted until Neolithic 2. During this stage a range of cereals and legumes came to be regularly planted and harvested on most settlements. Animals were also exploited more systematically than in Neolithic 1. The inhabitants of these settlements still relied on wild plants and animals for part of their subsistence but to a lesser extent than before. Thus the economy of most settlements was still a mixed one, combining a range of agricultural practices and also continued hunting and gathering.

It was not until this stage that the full potential of this simple agricultural system was realised. Only now did the population greatly increase as a result of the larger amounts of food that could be produced. It is probable that fully sedentary settlements were first established in this phase as a corollary of these developments in economy and population. The greater degree of control now exercised over herds of animals also permitted the population to expand much further into the steppe by following a pastoral way of life. This was the only stage during the Neolithic in which the steppic interior of the Levant was systematically exploited.

The greatly expanded Neolithic 2 population lived in settlements which were

more varied in size than ever before. A few like Abu Hureyra and Jericho were amongst the largest of all Levantine Neolithic settlements. At the other extreme were some which were still only small hunting stations. The great growth in population and diversity of settlement types were accompanied by considerable technological changes in and elaboration of material culture. The developments in chipped stone industries and other stone tools were closely linked with changes in exploitation practices. The growth of crafts and the greater richness of objects of adornment, stone bowls and other personal possessions were the result of the concentration of relatively large numbers of people in permanent settlements. The economy of these settlements now allowed many inhabitants extended periods of leisure in which to pursue these crafts; greater sedentism made it possible for them to accumulate personal possessions.

Neolithic 2 coincided approximately with another period of environmental change. The temperature continued to rise, rainfall became more seasonal and probably slightly diminished. Thus the Mediterranean and intermediate forest zones retreated while the steppe expanded. This apparent worsening of conditions probably did not adversely affect the Neolithic 2 pattern of existence until quite late in the stage. The opening up of the forest zones was a process that man himself was hastening through clearance. His farming methods were better suited to the lighter soils and more open conditions of the intermediate forest which was not densely populated at this stage.

The second or developed phase of the Neolithic comprising Neolithic 3 and 4 saw the rapid emergence of a way of life that was recognisably modern. This only happened after an agricultural economy had already been practised for two and a half millennia in the archaic Neolithic and probably in a very simple form for at least another millennium and a half before that, as far back as 10,000 B.C..

The people of the Levant came to depend on a fully agricultural economy

in Neolithic 3. This was based upon the cultivation of wheat, barley, lentils and vetch although some other cereals and legumes were also grown. The principal domesticated animals were sheep, goat, cattle and pigs. Gazelle, hares, birds and other game continued to be eaten in small quantities as they have been down to the present but they were no more than a modest supplement on the settlement sites. I explained in Chapter 5 that I believe this pattern might have come about in time simply because of man's pressure on the land and the interaction between economy and population growth in Neolithic 2. In fact the change was precipitated by the deterioration in the environment that took place during the 7th millennium. The settlements in the steppe zone could not continue on the basis of the Neolithic 2 economy once the rainfall diminished since this undermined both simple farming and grazing land for herded animals. Man had contributed to this by clearing the vegetation around his settlements and damaging the soil cover.

The Neolithic 3 settlement pattern differed markedly from that of the preceding stages. Sites were confined to the forest zones and were situated mostly near cultivated land. They were in general larger than many Neolithic 2 settlements but also more uniform in both size and type. These major adjustments in the way of life of the people of the Levant did not lead immediately to any major change in population levels.

The next phase of population growth came in Neolithic 4 as a result of the new adaptation worked out in Neolithic 3. A fully agricultural economy based almost exclusively on sedentary settlements situated in areas with the most fertile land could support a greater population than even that of Neolithic 2 and 3. This could only happen, of course, if the agricultural system was more intensive than anything practised earlier. The increase in population during Neolithic 4 took place at a time when the forest zones were contracting as the environment deteriorated still further. The new economic

system allowed communities in each region of the Levant to increase and prosper in spite of adverse environmental circumstances although they lacked the means to adapt their system so that they could once more inhabit the steppe.

This review of the main variables which contributed to the formation and development of the Neolithic of the Levant will have emphasised that the stages of economic and cultural change that I have defined coincided approximately with periods of environmental change. Mesolithic 1 was coeval with the last severe cold phase of the Pleistocene while Mesolithic 2 coincided with a period of greatly improved environment. A slight deterioration in conditions occurred during Neolithic 1 which grew more marked in Neolithic 2. Both Neolithic 3 and Neolithic 4 corresponded with phases of accentuated environmental pressure. The coincidence was never exact, the improvement of conditions in Mesolithic 2 for example began late in Mesolithic 1 while the deterioration in climate in Neolithic 2 began well after that phase was underway. The correspondence is important nevertheless since it suggests at once that changes in environment were intimately connected with the succession of cultural and economic stages. I have explored this relationship in detail in the thesis but the important general point to note here is that there was no general cause-and-effect relationship between the two. I have suggested that the environmental improvement which began late in Mesolithic 1 was the principal cause of the rise in population in Mesolithic 2 and subsequent developments in economy. The environmental deterioration which began in Neolithic 2 was also partly responsible for the changes in settlement pattern and economic strategy in Neolithic 3 though even here several other factors played an important part. The human response to the great growth in population that took place in Neolithic 2 and man's own impact of the environment were both of crucial significance. The worsening of conditions during Neolithic 4 had no further

deleterious effect on man's way of life since the evolved Neolithic economy was able to support the greatly enlarged population even under circumstances of environmental stress. The changes in environment during the 8th and 7th millennia brought about by more seasonal rainfall and a reduction in the total amount which fell had no immediate damaging effect on the pattern of settlement or economy, perhaps the reverse since at first it opened up the vegetation as man himself was trying to do.

Similarly the changes in environment were not always responsible for the growth in population. I have explained that I believe the improvement in conditions at the end of the Pleistocene was principally responsible for the rise in population during Mesolithic 2. Quite different factors were responsible for the growth of population in Neolithic 2 and Neolithic 4 since both coincided with phases of environmental deterioration. Here population growth was a consequence of the economic changes which took place in preceding stages. Alterations in environment however caused were one of the most important variables involved in the origins and development of the Neolithic but their effect depended upon the interaction of the other three principal variables I have considered, economy, social organization and population growth.

The transition from one Neolithic cultural and economic stage to the next occurred rapidly. Each of the four stages I have identified began almost simultaneously throughout the Levant with the exception only of Neolithic 3 and 4 in Palestine. The main cultural changes also took place very rapidly. To take two of the most striking examples: the change from the Neolithic 1 to Neolithic 2 chipped stone industry took place over a few centuries at most while the making of pottery spread quite as swiftly throughout the central and northern Levant at the beginning of Neolithic 3. The rapidity of the change from one stage to the next throughout the Levant

emphasises the cultural and geographical unity of this region during the Neolithic.

Each swift progression from one stage to the next was followed by many centuries of adjustment and consolidation, at least so far as the development of cultural material was concerned. The principal changes in the shape of houses, chipped stone industries, craft products and other artifacts occurred in the transition from one stage to another. Thus the development of the Neolithic appears to have taken place in a series of sharp advances followed by long pauses.

There is evidence that the changes in economy followed the same pattern. The general adoption of simple agriculture and herding in Neolithic 2 and the coming of developed agriculture in Neolithic 3 both occurred in this way. Yet the reality was probably much more complex than this as I have suggested at several points in the thesis. Each period of apparent adjustment to the principal economic changes would have been a time of continued interaction between all the factors influencing the development of the Neolithic. The marked increases in population in Neolithic 2 and Neolithic 4 for example would each have taken place over several centuries. They would have caused major changes in settlement patterns as they took place. Part of the difficulty in understanding what was happening at particular moments lies in our insubstantial chronological framework. For the moment we have barely enough chronological information from carbon 14 determinations, stratigraphical sequences and comparative typology to date the main stages of the Neolithic. There is all too little dating evidence to pinpoint other changes within each stage. Even when more information becomes available I believe the principal economic and cultural innovations will be seen to have been adopted almost simultaneously throughout the Levant but many other important changes might appear to have come about at various times within each of the four main stages.

One further point should be made about the pace of development of the Neolithic in the Levant and that is that it took place over a long period of time. The developed agricultural economy based on the growing of cereals and legumes and herding of sheep, goat and cattle was only generally adopted after 6000 B.C.. It was evolved after a long period of development from Mesolithic 2 to Neolithic 2. Even then many of the important constituents of the new way of life had their origin in practices current in Mesolithic 1. It is particularly important to remember the length of time it took for the developed Neolithic way of life to evolve in the Levant when the speed of its spread into Europe and Egypt is considered, a process which was of course quite different from the indigenous evolution we have been considering.

The long period of development of the Neolithic in the Levant does not detract from the revolutionary nature of the change; nor does the very long period in which some of the essential preconditions of population growth and economic adaptation took place, stretching far back through the Upper Palaeolithic and beyond as we can now begin to discern. The new way of life permitted far higher levels of population than ever before and consequently much more complex patterns of social organization. It was the essential precondition of the development of civilization. These changes were so far-reaching in their implications that they still constituted a revolution as Childe vividly described them (1941, 66).

Now that I have considered the origins and development of the Neolithic in the Levant in detail and isolated several variables which seem to me to have played a preponderant part in what took place I will return to the questions of theory that I proposed in the Introduction. Firstly, is there any single model which may be applied to explain what happened and which could be used to predict the outcome? I think there is not. We have seen that the processes at work were complex and that much depended upon the interaction of each

variable, none of which exerted the same influence throughout. Changes in one stage made possible developments in the next but even if one considers the principle variables alone it would not be possible to predict developments in succeeding stages.

If we cannot establish that the development of the Neolithic followed a general model or Grand Design can we discern any regularities in the principal variables and especially in the human response to changing circumstances? Here I think we can isolate certain general influences which partly determined what happened. The Neolithic of the Levant took shape as the world emerged from the last glacial epoch. This was only the most recent of many previous cold cycles (Shackleton, Opdyke, 1973, fig. 9) and the same general factors were at work then as in earlier times. The principal one of these was the rise in temperature while consequent upon this was the return of water to the oceans. The rise in temperature caused the environmental change which precipitated the development of the Neolithic. It continued to exert an important influence on man's activities thereafter. The particular circumstances of the environment may have differed somewhat from those of earlier cycles and the fluctuations in temperature that occurred were also unique but the general effects must have been the same. Man himself had confronted the end of a glaciation several times in the past but that had happened in different circumstances well before the evolution of Homo sapiens.

The human response to the postglacial rise in temperature and its environmental effects was conditioned by one principal regularity. That was the tendency of human populations to increase towards the maximum which could be supported by the available food supply. The amount of food which could be obtained from the environment depended upon the techniques used. Man's technological capacity was thus a powerful constraint upon the level to which the population could rise.

We have seen that population growth was the principal human cause of the development of the Neolithic so this regularity was of great importance. When the population rose during Mesolithic 2 and Neolithic 2 man intensified his means of obtaining food so that the population could be maintained at the new higher level. This in turn led to further population growth.

These two regularities, the one environmental and the other human, had together a determining influence on the origins and development of the Neolithic. They were the principal factors responsible for what took place but the development of the Neolithic did not depend upon them alone. The other main variables I have discussed, particularly economy and social structure, also played an important part. The human response to environmental change was complex so that I do not think that the Neolithic was necessarily an inevitable outcome of the influence of the two regularities I have described. This far-reaching change in man's way of life arose from the interaction of all the variables I have mentioned.

The pattern of human settlement and social organization altered quite as markedly as the economy during the Neolithic. I have considered the great growth of population in detail but wish to emphasise here how the distribution of human groups across the landscape was modified. During Mesolithic 2 and Neolithic 1 the population was spaced out through the Mediterranean and intermediate forest zones as far as the edge of the steppe. The Neolithic 2 economy permitted a considerable expansion of settlement outward so that the steppe was occupied as well as the forest zones. This was reversed in Neolithic 3 and 4 when the area of settlement became restricted to the forest zones once more although it did extend up the mountains to higher elevations than before. By Neolithic 4 when the population was greatest the people of the Levant were concentrated in a smaller area of the region than in any previous period. This greatly increased social intercourse between communities

and was one of the reasons why there were such fundamental changes in social organization.

Another feature of the changes in social organization was the complete alteration in settlement pattern during and after Mesolithic 2. The population began to be concentrated in relatively large settlements which provided a semi-permanent home. Then in time the size of the villages increased and hence the number of inhabitants. By Neolithic 2 many of these villages were permanently occupied and this became the general rule in Neolithic 3 and 4.

The change in settlement pattern was one result of the transition from a band to tribal system of social organization. I have pointed out that I believe the inhabitants of the Levant in Mesolithic 1 and at least as far back as the Aurignacian had lived together in composite bands. During Mesolithic 2 this pattern began to change as some of the composite bands coalesced to form larger groups based on semi-permanent settlements. The evidence suggests to me that these larger groups rapidly began to be linked together in tribes. This new tribal system, once formed, remained the characteristic pattern of social organization throughout the Neolithic. It did not, however, replace the composite band system completely for several millennia since these continued to exist throughout Neolithic 1.

The most common type of building on village sites from Mesolithic 2 on was a small, discrete dwelling, at first circular and later rectangular. I believe that these were inhabited by individual families, quite small nuclear families at first but probably extended families later. If one accepts this correspondence then it will be clear that from the beginning of the transformation of the social system, that is in Mesolithic 2, the nuclear family became the basic social unit. I have also suggested that such households were the basic economic unit, at least in the later stages of the Neolithic. It also follows that the transition from a composite band to tribal system

was a direct one; society was not organized in some other way during a lengthy transition period.

The evidence we have from burials and other sources indicates that society was egalitarian throughout the Neolithic. At first there was little enough in the way of desirable material possessions or economic surpluses to be differentially acquired by individuals. Later during the developed Neolithic when the decorative products of several crafts were available on most sites there is still little indication that a few individuals were acquiring these objects in preference to other inhabitants of the community. The slight differences in burial customs that I have noted are hardly sufficient to suggest that a group of higher status was a regular component of every community. In the developed Neolithic most villages seem to have been inhabited by peasant farmers of approximately equal status.

The growth in population, its concentration in a relatively small area of the Levant and the grouping of families in permanent villages, themselves linked together in a tribal system represent a complete transformation of society as it existed at the beginning of Mesolithic 2. Yet the new social system which was established in Neolithic 2 remained apparently stable even under the impact of further population growth in Neolithic 4. The potential for further development in the direction of civilization was there but that had to await a still greater population, its concentration in even larger settlements and the emergence of groups of higher status with preferential access to the resources of the community.

One of the consequences of the concentration of large groups in sedentary settlements was the possibilities this afforded for the development of crafts. We have seen that this process began as early as Mesolithic 2. By Neolithic 2 stone vessels, stone and bone jewellery, baskets, mats, textiles and even clay objects were all being made in quantity. The preparation of lime plaster and perhaps mud-brick making were organized on quite a large scale.

These crafts were developed further in subsequent stages, the principal addition being the making of pottery in Neolithic 3. I have indicated that the practice of these crafts was accompanied by a degree of specialisation. Certain individuals were probably making some of these objects for the rest of the community. In most instances, however, these crafts probably remained part-time activities practised by individual households. The emergence of the full-time craftsman practising his craft in a workshop with the help of assistants came later, probably during the Chalcolithic.

The Neolithic communities of the Levant formed an open society which was ready to adopt new techniques at once should they appear advantageous. The most striking example of this is the speed with which the cultural innovations of succeeding stages spread almost simultaneously throughout the Levant. Innovations in economic practices were generally adopted more slowly but the spread of sheep and goat herding in Neolithic 2 seems to have been quite rapid as was the adoption of a fully agricultural economy on settlements throughout the Levant at the beginning of Neolithic 3.

These communities were also in contact with neighbouring regions through the medium of exchange. The Neolithic was the first stage in the Levant in which exotic raw materials were regularly exchanged over great distances. The traffic in obsidian is the best illustration of this; the exchange of this material began in Neolithic 1. Obsidian was also the only material which continued to be exchanged throughout the Neolithic. Other raw materials were obtained from distant regions during the archaic Neolithic but there was a noticeable diminution in these long-distance exchanges in the developed Neolithic. By then full agriculture formed the basis of the economy and most of the population was firmly settled in villages. A consequence of this was that cultural differences from one part of the Levant to another became more marked. These trends may have caused a lessening in long-distance movements of individuals and thus of the exchange of exotic raw materials from distant

sources. The cultural changes of Neolithic 4 when north Syria moved into the Halaf sphere also contributed to this since from that time on contact with regions to the north-east of the Levant almost ceased.

The evidence suggests to me that the development of the Neolithic of the Levant was almost entirely a regional process. The growth in population, the development of the new economy and the associated change from a band to a tribal society based on permanent villages all took place in the Levant and were little affected by influences from other regions. The bringing into cultivation of the principal cereal crops and the increasing control over gazelle, sheep, goat and cattle also seem to have taken place in the Levant and not to have been introduced from other regions. The same was true of almost all the cultural innovations; the modifications of the chipped stone industry in successive stages and the introduction of new kinds of houses for example, were of local inspiration. The only apparent exception to this rule is the introduction of pottery possibly from Anatolia but even this is far from certain on present evidence.

An essential part of the local development of the new economy and culture was the absence of large-scale immigration from other regions. At no stage was the long process of local cultural and economic development interrupted by elements introduced abruptly from elsewhere. At times there were considerable movements of population within the region, notably early in Neolithic 3, but these phenomena occurred within the region as a result of changes that took place there.

The Levant, then, was one of the centres in which the Neolithic way of life was formed. The same regularities that played such a large part in its development there, postglacial environmental change and population growth, affected other regions of the Near East also but in different ways. Anatolia and eastern Mesopotamia rising into the Zagros were two other centres in which a Neolithic way of life developed apparently independently but it seems to me

that innovations in these regions had little impact upon the evolution of the Neolithic of the Levant in spite of the evidence of contacts between them.

APPENDIX

Carbon 14 dating

Radiocarbon dating is the only scientific technique which has been applied to obtain estimates of the approximate absolute age of material from Mesolithic and Neolithic sites in the Levant. All the problems associated with this technique thus have a direct bearing upon the chronology of these periods. Two difficulties in particular affect the dating of the phenomena I discuss in this thesis. The first is that many of the ^{14}C determinations made when the method was being developed have since proved to be inaccurate. Jericho was one of the first sites in the Near East from which ^{14}C dates were obtained but determinations were also made not long after on material from Byblos, Ras Shamra and other sites. At the time these dates, particularly those from Jericho, seemed to be remarkably early which led to a revision of our thinking on the dating of the origins of the Neolithic. These dates are now seen to have been too recent. This underestimation of the true ^{14}C age of samples tested many years ago has to be borne in mind when the chronology of the sites concerned is considered.

The second difficulty is more serious since it affects all the ^{14}C determinations that have been obtained from Levantine sites. This is the question of calibration. The amount of ^{14}C in the atmosphere, once thought to be constant, is now known to have fluctuated in the past. One result of this is that carbon 14 determinations may differ quite markedly from the absolute age of the sample being dated. Samples of bristlecone pine of known age have been dated by ^{14}C in order to find out by how much a ^{14}C determination may differ from the true age of a sample. The difference between the ^{14}C and the dendrochronological dates gives a correction factor which may be applied to other samples dated by the carbon 14 method. Several calibration curves have been published based on these studies of the bristlecone pine, for example those of Suess (1970, pl. I), Ralph et al. (1973, figs. 1-6) and Clark (1975, fig. 1). These calibration curves illustrate just how great the difference

between a ^{14}C date and the true age of a sample can be. This figure may be 700 years or more for samples whose true age would be 4500 B.C. when the variation was most extreme.

The calibration curves give a general idea of the variation between true ages and carbon 14 determinations. None has been accepted unreservedly for correcting ^{14}C dates since each is based on differing assumptions about the variation in ^{14}C in the atmosphere in the past and the statistical procedures to be applied to the bristlecone pine dates. A more serious drawback which concerns my thesis is that none of the correction curves extends further back in time than 5400 B.C. Thus using these curves it would be possible to calibrate only about 1400 years of the six millennia which I consider in the thesis, that is the second half of Neolithic 3 and Neolithic 4. In these circumstances I have decided not to apply calibration to the ^{14}C determinations from which I have derived the chronology of the stages I discuss. All the dates are quoted applying the Libby half-life since this is still the recognised standard for the publication of all carbon 14 determinations. I recognise that by using uncorrected ^{14}C determinations the chronology I propose will at times differ substantially from the true dates of the events discussed. The uncorrected ^{14}C determinations are consistent, however, when compared with each other and provide a sound relative sequence. The outline relative chronology of the events and processes I describe emerges clearly enough from the uncorrected dates even if one wishes always that more determinations were available. Detailed chronological problems arise but rarely in the thesis; these can nearly always be resolved by using uncorrected dates. These seem to me to be sufficient reasons for continuing to use uncorrected dates in this case. Once correction curves are available for the earlier millennia with which I am concerned it will be possible to work with corrected dates.

Although the calibration curves themselves do not extend far enough back in time to be applied very usefully to my subject it is interesting to consider what the general effects would be if the chronology I propose were corrected.

If the new half life of 5720 ± 30 years were applied to the dates I use they would all be a little older. The difference would be 180 years at 4000 B.C. increasing to 360 years at 10,000 B.C.

The effects of calibration are more complicated. Several of the published calibration curves suggest that at about 600 B.C. the ^{14}C date and absolute date are the same. Thereafter as one moves back in time the true age of a sample is increasingly older than the ^{14}C determination. This trend reaches a peak at about 4500 B.C. The published curves do continue a little further back in time than this and several of them suggest that the difference between the absolute dates and ^{14}C determinations diminishes once the peak of the curve is passed (Suess, 1973, fig. 2; Ralph et al., 1973, fig. 6).

The behaviour of the calibration curve before 5400 B.C. will not be certainly known until further corrections based on the dendrochronological dates are published. The shape of the curve would depend upon what caused these long-term variations in ^{14}C in the atmosphere. It has been noted that the calibration curve corresponds to the sine curve of variations in the Earth's magnetic field (Suess, 1973, 37; Fleming, 1976, 70). It is thought that there is a direct correlation between the two and that the ^{14}C calibration curve follows that of the Earth's geomagnetic moment after a lag of several hundred years. It is thus possible to estimate the behaviour of the calibration curve during the millennia preceding the published corrections based on dendrochronological dates (Fig. 54). From about 5000 B.C. the difference between the calibration curve and the absolute age would diminish until about 9000 B.C. when they would correspond once more.

I have applied this extended calibration curve to the outline chronology I propose for Mesolithic 2 and the Neolithic, that is from about 10,000 B.C. to 4000 or 3750 B.C., in Table 2. These figures are approximate but they indicate that each stage lasted for a shorter period than the uncorrected ^{14}C dates would suggest except for Neolithic 4 which was longer. Mesolithic 2 was perhaps about 80 years less, Neolithic 1 280 years, Neolithic 2 170 years

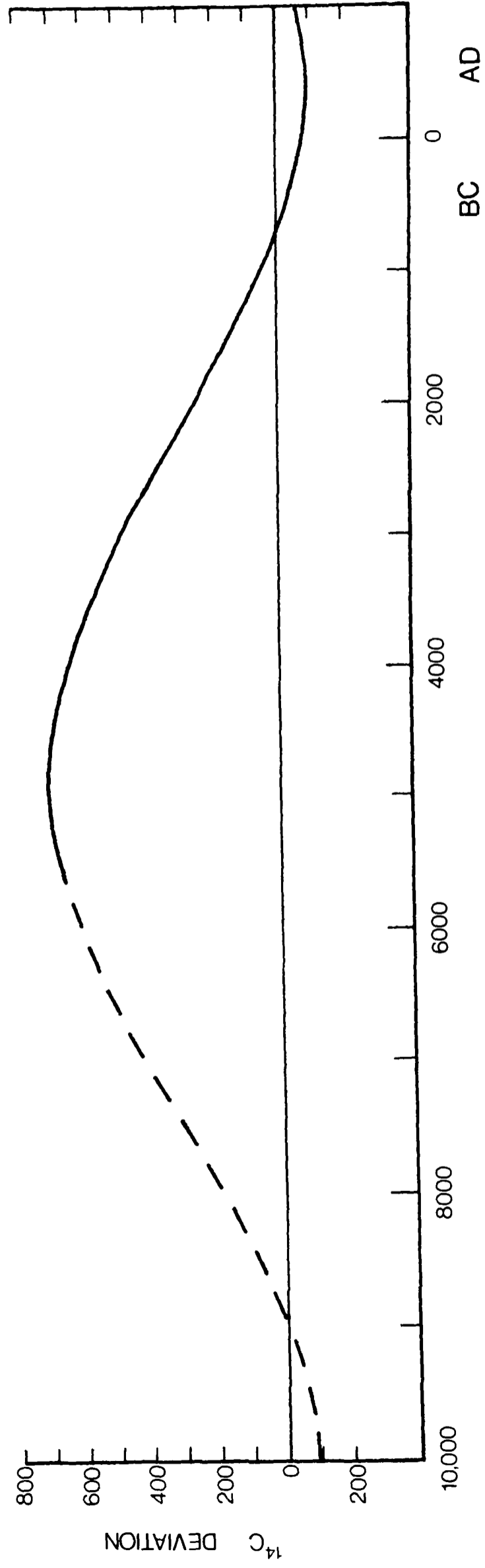


Fig. 54 Estimated ^{14}C calibration curve to 10,000 B.C.

TABLE 2

STAGES	DATES 5568 $\frac{1}{2}$ life	DURATION	DATES 5730 $\frac{1}{2}$ life	CALIBRATED DATES FROM FIG. 54	DURATION AFTER CALIBRATION
Mesolithic 2	10,000	1500	10,360	10,270	1420
	8500		8810	8850	
Neolithic 1	7000	1500	7270	7630	1220
	6000		6240	6800	
Neolithic 3	5000	1000	5210	5890	910
	3750		3920	4560	
Neolithic 4		1250			1330

and Neolithic 3 90 years shorter while Neolithic 4 was 80 years longer. The overall effect of calibrating these dates is that the Neolithic is seen to have begun and ended earlier than the uncorrected ^{14}C dates would indicate. The earlier stages during which the Neolithic way of life was formed, that is Mesolithic 2, Neolithic 1 and Neolithic 2, happened more quickly while Neolithic 3 and Neolithic 4 together lasted about the same length of time as the uncorrected dates had indicated.

NOTES

- 1 I owe this information to Père F. Hours S.J.
- 2 I am indebted to Mrs. L. Copeland for this data.
- 3 M. J. Cauvin has kindly given me much information about his excavations at Mureybat.
- 4 This was suggested to me in 1976 independently by Professors F. Hole, A.E. Marks and P.E.L. Smith.
- 5 Description based on an examination of the unpublished flints and report of D.V.W. Kirkbride (1960a, 114ff).
- 6 I owe this observation to A.J. Legge.
- 7 See also Moore, 1975.
- 8 Description of material derived from the published accounts and a study of the finds in the Damascus Museum.
- 9 Material studied at the Palmyra Museum and Oriental Institute, University of Chicago.
- 10 Description based on a study of a selection of the material in Damascus.
- 11 I have included here information obtained from a study of a comprehensive surface collection made by Copeland and Wescombe now in the Université Saint-Joseph, Beirut.
- 12 I have studied some of this material in the Damascus Museum but most of the finds from the soundings have been lost.
- 13 Material studied at the Oriental Institute, University of Chicago.
- 14 Material studied at the French Archaeological Mission, Jerusalem and at the kibbutz of Mayan Baruk.
- 15 Material examined at the French Archaeological Mission, Jerusalem and the Franciscan Monastery at Abu Gosh.
- 16 Many of which are now in the Pontifical Biblical Institute, Jerusalem where I have studied them.
- 17 Material from several of these studied in the Pontifical Biblical Institute and Hebrew University, Jerusalem, the British Museum and Royal Ontario Museum, Toronto.
- 18 Material studied at the French Archaeological Mission, Jerusalem.
- 19 Now in the collections of the Institute of Archaeology, University of London where I have examined them.
- 20 Material from this and other sites discovered by Kirkbride studied in the Amman Museum.

- 21 Collections deposited in the Amman Museum where I have studied them.
- 22 Collections in the Amman Museum labelled "Jebel Uweinid".
- 23 My comments are based on my study of the finds in the collections of the Oriental Institute, University of Chicago as well as the published accounts.
- 24 Material studied at the British Institute of Archaeology in Ankara and the Adana Museum.
- 25 Material studied in the Adana Museum, at Bryn Mawr College and the Peabody Museum, Harvard University.
- 26 Finds collected by Copeland and Wescombe; these and other material collected in the Beka'a by Besançon, Hours and Fleisch have been deposited in the Université Saint-Joseph, Beirut where I have studied them.
- 27 Information from the excavator, the late Miss E. Yeivin.
- 28 Material examined in the Palestine Archaeological Museum, Jerusalem and the Oriental Institute, University of Chicago.
- 29 Material studied at the Palestine Archaeological Museum, Jerusalem and the University Museum, University of Pennsylvania, Philadelphia.
- 30 Material examined at the Hebrew University, Jerusalem and the Shaar Hagolan Museum.
- 31 The excavated material was deposited in the National Museum, Beirut. Some surface finds are in the Université Saint-Joseph.
- 32 Most of this material is in the Université Saint-Joseph, Beirut where I have studied it.
- 33 Some of this material was deposited in the British Museum where I have seen it.
- 34 Material deposited in the Université Saint-Joseph, Beirut where I have studied it.
- 35 The pottery is in the Palestine Archaeological Museum, Jerusalem where I have examined it.
- 36 Material in the Palestine Archaeological Museum and the Ecole Biblique Saint-Etienne, Jerusalem where I have studied it.
- 37 I wish to thank the Rev. J. Mathers for drawing my attention to these flints now in the collections of the Palestine Exploration Fund, London.

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