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THE COLONISATION AND SETTLEMENT OF CYPRUS

INVESTIGATIONS AT KISSONERGA-MYLOUTHKIA, 1976-1996

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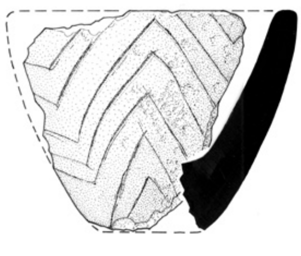

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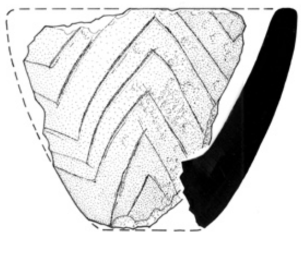

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Abbreviations

av	average
Cal BC	radiocarbon calibrated date BC
Diam	diameter
ex	exterior
frag	fragment
Ht	height
int	interior
L	length
max	maximum
min	minimum
sm	small
Th	thickness
W	width

Special List

asl	above sea level
B	Building
BI	Basket Impressed pottery
C+number	Flotation sample number
Cat.	Catalogue number (small finds)
CM	Cyprus Museum, Nicosia
CW	Coarse Ware pottery
Cb	Combed pottery
EChal	Early Chalcolithic period
GB	Glossy Burnished pottery
HB	Human Bone catalogue number
KAIS	Kissonerga Archaeological Information System
KM	Kissonerga-Mosphilia (small finds)
KMyl	Kissonerga-Mylouthkia (registered small finds)
LChal	Late Chalcolithic period
LEV	Lemba Experimental Village
LL	Lemba-Lakkous (small finds)
LNeo	Late Neolithic
M+number	Mollusca sample number
MChal	Middle Chalcolithic period
mbc	millennium bc (in uncalibrated C'4 dates)
NE	north-east
NW	north-west
pgs	present ground surface
PM	Archaeological Museum Paphos
PPNA	Pre-Pottery Neolithic A period
PPNB	Pre-Pottery Neolithic B period
PW	Plain White pottery
R+number	charcoal sample number
RM	Red Monochrome pottery
RW	Red-on-White pottery
S+number	Soil sample number
SE	south-east
SW	south-west
ves	vesicular

Pottery note:

The word "ware" is used almost exclusively in *LAP* I ("Red-on-White Ware"), while "pottery" is used almost exclusively in *LAP* II.2 ("Painted and Combed pottery"). Each volume has one exception to these generalisations ("Red Polished Pottery" and "Spalled Ware" respectively). RW and RMP in this volume refer to general styles of pottery, not to a specific ware.

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Current Activity: Mylouthkia…Again

by

Paul Croft

[*On 6 October 2000, after virtually all contributions had been received for publication, Paul Croft wrote from Cyprus about developments at Skourotos, immediately to the S of locality Mylouthkia (Fig. 26). These discoveries considerably alter our understanding of EChal Cyprus in general and Mylouthkia in particular. They are referred to in text only where it seems necessary to alert readers to these new perspectives. Thanks to the support of Dr. S Hadjisavvas, Director of the Department of Antiquities, plans are afoot to rescue as much information as possible from plots 106A/505 at Skourotos and to afford protection to intervening plots 75, 79 and 80. Although lying in locality Skourotos, occupation apparently belongs to the same site as reported here and hence, for the sake of convenience, it is also referred to as Mylouthkia.*]

The coastal lowlands of Cyprus, particularly in the vicinity of Paphos, have for a number of years been subjected to increasing disturbance and development. The reasons for this include changes in agriculture, construction of new houses and roads and, pre-eminently, the provision of ever more facilities related to tourism, the mainstay of the contemporary Cypriot economy. Despite the coastal site of Mylouthkia having long before been designated as an Ancient Monument, the construction upon part of it of the Queen's Bay Hotel in plots 77 and 78A/505 in 1989 marked the beginning of serious destruction of the archaeology here. We knew that it was not a matter of whether, but merely of when, the next onslaught would come.

A chance visit to the site on 11 March 2000 revealed that some superficial machine clearance of vegetation had taken place here and there in uncultivated plot 106 (in an area called Skourotos, adjacent to Mylouthkia proper). Since the plot is part of the Ancient Monument, further inspections were deemed prudent. A follow-up visit three days later found two mechanical excavators hard at work in the north end of the plot. Already three areas approximately 20 x 20 m in extent had been excavated to a depth of up to 1m, and a large portion of the northern half of the plot had been surface scraped. A multi-million pound tourist village was to be constructed, the completed development had already been leased to an international tour operator commencing in just over a year's time, and punitive damages would be payable by the developer if completion of the project was delayed. Even so, staff of the district museum halted the earthmoving early the following day, although this cessation proved to be only temporary. By this stage several archaeological features were visible. On 20 March, the Cyprus Department of Antiquities permitted the resumption of earthmoving, having invited me to be present. My instructions were that I should allow the work to continue unless I saw the machines slicing through archaeological features, in which case I was authorised to stop them in that vicinity. Thus began a three-month period of machine watching, rescue excavation, and arguing the case for preservation of as much as possible of what proved to be a very rich array of archaeological features. Some positive results were achieved, and a number of important features have now been preserved for future excavation or possible long-term conservation.

Amongst the features identified during this phase of rescue work were two shaft-like features. These are so similar in appearance, fill and location around the modern 21-25 m contours to Cypro-PPNB water wells previously excavated at Mylouthkia (see § 1) that they seem certain to represent further examples. Limited excavation of one of these succeeded in demonstrating the nature and age of the feature beyond reasonable doubt, adding substance to the argument that it should be preserved for future excavation. We hope to complete the excavation of this feature in the near future, and when we do we shall be working hard up against the back side of a block of flats. The location of the second new well was in the centre of another proposed block. In order to proceed with minimal disruption to the planned development, the ingenious developer, instructed that the feature was to remain accessible for future investigation, simply split the block of flats in half, leaving a gap of a couple of metres in the middle. This space is envisaged as a sort of paved concourse, covered by the roof of the building, to serve as a shady location for the rest and recreation activities of resident tourists. This is the contemporary environment in which the excavation of a deep ancient well shaft will be conducted.

The first graves, three in number, which unambiguously date to the EChal, also came to light. One of these was especially remarkable. In the base of a narrow shaft a tightly contracted adult body lay upon a stone dish which was encrusted with red ochre. Beneath this item, in the very bottom of the grave was a large saddle quern with its stone rubber. Still more remarkable than these associated artefacts, however, was the fact that the body had been interred in a headless state. Intriguing burial rites, indeed.

The EChal settlement of Mylouthkia consists mainly of an extensive spread of often very large hollows cut into natural sediments and infilled particularly with midden-like deposits. A number of such features were located and sampled during the rescue effort. These are now largely destroyed or built over.

Features of a most unexpected sort also came to light. A series of large ditches date to the EChal, and clearly form part of an extensive system which enclosed a significant tract of the coastal lowlands.

The longest observable stretch of ditch is straight (*c.* 42 m long); it is located some 200 m inland and runs approximately parallel to the coast; it has been machined away at one end and runs northwards beyond the plot boundary at the other. A section excavated through this ditch revealed it to be steep sided, 4.4 m wide and 2.7 m deep, and to possess a vertical-sided lower portion which would have made it particularly difficult to cross. A ditch of this size and conformation seems very likely to have been defensive in intention. At least two graves were cut into the top this ditch.

Located some 15 m east and running parallel to the first was a second ditch. So far only its width has been established, and this is 5.4 m. Its similar orientation, size, and also the close similarity of its fill to that of the first ditch strongly suggest that the two are contemporary and form part of the same ditch system. A double ditched enclosure may well be indicated. Furthermore, in view of the lack of wheeled transport and the absence from Cyprus of beasts of burden in this period, it seems unlikely that the material excavated when these ditches were cut was taken very far away, so banks would most probably have been constructed beside these large ditches.

Substantial linear earthworks of this sort, intended to enclose extensive areas of land, are quite unparalleled in prehistoric Cyprus. Their discovery implies the existence of social mechanisms for the mobilisation of labour to undertake large-scale public works. If, as seems overwhelmingly probable, they were defensive in nature, then another important implication is a need for communities to defend themselves in a period which has hitherto yielded no evidence of strife.

The contents of the present volume on the results of our previous work at Mylouthkia can hardly fail to impress the reader with the importance of the site. This brief update on some of the results of continuing work underscores the enormous potential that this ever-shrinking site clearly still possesses. Sadly, even as I write, yet another part of the Ancient Monument of Mylouthkia (plot 57) is being subjected to illegal development. As is commonly the case in Cyprus, construction has begun in advance of planning permission being granted, and archaeology has been damaged before the Department of Antiquities has even had a chance to respond to the planning application. Inevitably, conservation of the cultural and natural heritage of Cyprus conflicts with development aimed at the expansion of mass tourism, and it is only realistic to acknowledge that compromises do need to be made. In my opinion, however, especially in view of both its great importance and its "protected" status, Mylouthkia has already been compromised beyond the maximum acceptable degree. The custodianship of the Ancient Monuments of Cyprus is an unenviable task in these gold-rush times of frantic tourist development within an economy in which the tourist sector is heavily dominant. Even so, unless those responsible can find a way to draw the line here, the scheduling of the site of Mylouthkia will have achieved little more than ensuring the presence of an archaeologist to witness the galling spectacle of ongoing destruction, and to pick up the few remaining scattered pieces.

Introduction

Three major lacunae in the prehistory of Cyprus have bedevilled attempts to reconstruct a coherent general account of early developments on the island. These comprise gaps in our knowledge before the emergence of the mature Aceramic Neolithic (Khirokitian), between the latter and the LNeo (Sotira Culture), and between the last and the Chalcolithic (Erimi Culture). Protracted excavations at the coastal site of Kissonerga-Mylouthkia in the SW of the island have contributed significantly to filling in the first and last lacunae.

The first concerns the beginnings of human settlement on the island and the genesis of the well-known Khirokitian (e.g. Le Brun *et al*. 1987). Strikingly early Mylouthkia dates of the 9th millennium cal BC for this episode necessitate reappraisal of the colonising abilities of foragers and farmers in the East Mediterranean, processes of Neolithisation and the domestication of plants and animals. The second bears on insular settlement trajectories. At least on two occasions in the prehistory of this large island, apparently well established, sedentary communities virtually disappear from the archaeological record (e.g. Held 1992). This has raised questions about the long-term success of the colonists, island depopulation, and socio-economic strategies of insular societies. EChal Mylouthkia provides glimpses of behavioural modes during the earlier 4th millennium cal BC transition from the LNeo to the Chalcolithic. In sum, our results provide critical new evidence for an understanding of such issues as island colonisation, dispersal of early farming systems, settlement evolution and culture change and continuity.

In spite of the efforts of many fieldwork projects, both gaps persisted in the archaeological record for about half a century, hence it is necessary first to describe our research strategy and programme of investigations at Mylouthkia in order to appreciate how these impediments were overcome.

General research strategy

Lemba Archaeological Project research strategy focuses on systematic evaluation of relations between several pre-Bronze Age sites in the Lemba cluster of sites in the Ktima Lowlands of western Cyprus (*LAP* I, 1). These presumably exogamous communities were embedded in a matrix of extra-territorial relations and so we can only determine the evolution and characteristics of individual settlements by contextualising them within networks of regional interaction – social, economic, political – and their natural and built environments. How is this being accomplished?

In the 1970s, when the Project began, archaeologists concentrated on individual sites rather than the investigation of relationships between communities, partly as a result of the framework in which the Department of Antiquities granted Licences to Excavate. We were fortunate in successfully establishing the need to operate with multi-site and extensive survey licences in order to help resolve issues of site and period sequences, the possibility of settlement hierarchies amongst small-scale societies and relationships between proximate settlements and their hinterlands. These issues are critical to the study of many prehistoric East Mediterranean communities, and hence our research may be regarded as an evolving *c.* 25 year-old case study of inter-regional significance. The present monograph is an outcome of the application of this policy at one of the Lemba cluster sites, Kissonerga-Mylouthkia.

To further this research design, we re-surveyed the recently discovered site in 1976 after S. Hadjisavvas (1977) had brought it to our attention. This revealed a thin, limited scatter of artefacts on the surface and 24 organic and artefact-rich pits and other features in a *c*. 6 ha area. As shown in Fig. 26, the main concentration of sherdage and chipped stone is in and around plot 58/496. The distribution, chiefly between the 20 and 30 m contours, stops well short of the sea cliff edge. Archaeological features on the northern part of the site are located along the lip of the declivity carved by the Apis R. (Fig. 27: units 18-26). Discrete pits, which only came to light as a result of roadside and terrace cuttings, together with the relative absence of heavy stone grinding implements and walls, were entirely different from remains noted at that time at nearby Lemba and Kissonerga. On the other hand, the pottery seemed to be pre-Bronze Age, and some of it possessed affinities with what we were encountering in excavations at Lemba. At that time, sites were deemed worthy of excavation if they possessed architecture, but from the outset our strategy emphasised the significance of investigating ephemeral signs of extra-mural activities (*LAP* I, 127), and hence we proceeded to limited excavation. This policy eventually led to the recovery of evidence for settlers of the pre-Khirokitian lacuna, here referred to as the Cypro-PPNB, and the third lacuna, the little known Cypriot EChal.

The site and its environs

Kissonerga-Mylouthkia is a severely eroded coastal site located at the northern end of the Ktima Lowlands in the Paphos District, western Cyprus (Frontispiece 1, Pl. 3.1, Figs. 25-8). It is situated some 1 km NNW of the prehistoric site of Kissonerga-Mosphilia which we have partly excavated and published: *LAP* II.1, 2;

http://www.arcl.ed.ac.uk/arch/publications/cyprus/kissonerga/;

http://ads/ahds.ac.uk/catalogue/library/kiss_1_ba.cfm.

Because of the dominating size of the latter, we refer to it as Kissonerga; Kissonerga-Mylouthkia is referred to here as Mylouthkia.

On its north, the site slopes gradually to a pebble beach along the wide Mavrokolymbos Bay which extends some 3 km towards Maa. On the south it merges with a coastal plain fringed by a series of rocky coves. Its eastern boundary also lacks distinguishing topographical features. Terrain there inclines gently up to the escarpment below the old Pleistocene peneplane that forms the central spine of western Cyprus. To the west, the coastal slope descends to a *c.* 16 m high cliff bordering a cove that is delimited on its south by a prominent rocky point called *Kefalui* (Frontispiece, 1, Fig. 27).

Hadjisavvas (1977, 224), who discovered the site in 1975, describes it as having "a commanding position over a natural harbour". While this evokes the character of the site today, we do not know to what degree marine transgression or local uplift has altered the configuration since early Holocene times (cf. Van Andel 1989). In general terms, the shoreline on Cyprus was -120 m around 17,000 BP during the glacial maximum, -25 m at *c.* 8,000 BP and -7 m at *c.* 5,000 BP (Cherry 1990; Gomez and Pease 1992). The last two, early Holocene figures are pertinent here since they concern the investigated cultural evidence at Mylouthkia. In other words, according to Gomez and Pease the coast could have been *c.* 1.5-2.5 km further out than it is presently, and the offshore western islands of Petra tou Limniti and Yeronisos would have been part of the mainland. Applying their generalised reconstruction to Mylouthkia where there is a relatively gentle seabed decline off the site, suggests that at the time of its prehistoric occupation the site lay a distance from the coast, with obviously different physical characteristics. But there are many uncertainties in the complex issues of sea-level changes, and local research needs to be carried out to furnish evidence for the palaeocoastline (cf. Van Andel 1989). Since the earliest inhabitants' exploitation of marine resources was significant, we assume here that Mylouthkia was a coastal site in prehistory.

Mylouthkia is the northernmost site of the Lemba cluster which is the focus of LAP investigations (*LAP* I, Pl. 1). In terms of the Ktima Lowlands in general, the site is located at the interface between a coastal plain of spring fed undulating slopes that extend south from Kissonerga (below the Kissonerga-Kouklia escarpment), and a flat narrow coastal strip to the north that is cut by the minor rivers Apis, Mavrokolymbos and Xeros. The site, therefore, is situated on an ecotone, with alluvial deposits and Kanaviou Formation to its north, Athalassa Formation and its phreatic aquifers to the south. The latter has several prehistoric sites associated with springs and streams. More deeply incised rivers with swift run-off waters, and a consequent lack of settlements, occur to its north. The exception is the area of Peyia where there are lengthier streams, aquicludes and sites (Baird 1985). The next Chalcolithic settlement along the coast to the north, Maa-Palaeokastro (Bolger 1988b; Thomas 1988), occurs at a much greater distance than those to the south of Mylouthkia, and it was established in a very different position, on a promontory (Fig. 25). Yet further north, from Korallia to Ayios Georghios where the chalk hills absorb the water, there is again a correlation between site and water impoverishment. Critical water resources, therefore, may help to account for the disparities between settlement patterns to the north and south of Mylouthkia. With this in mind, Mylouthkia is an unusual member of the Lemba cluster area, which is characterised by accessible water resources. Here there is no slow stream. Instead, as is visible from seepages in adjacent seaside cliffs, Mylouthkia lies on an aquiclude, and this, as we shall see, determined some of the unusual characteristics of the settlement.

In the mid-1970s, there were only farm tracks leading to this area, but even then, some plots lay uncultivated (Hadjisavvas 1977, Pl. 79.3). Such limited cultivation as existed still employed the ox-drawn plough. Plough damage, therefore, was slight, but one north-south bulldozed track had cut deeply into the marl and its seaward-facing section disclosed several negative features. Part of plot 77 was under vines, and 55 had bananas, with the usual imported soil cover for this crop, and tomatoes (Fig. 26). It was clear from scattered stubble that most of the area was under cereal cultivation. Goodwin's (1978, 1157) brief account of the locality name does not give an etymology for Mylouthkia, but it may refer to millstones. The nearest body of fresh surficial water is the Apis River just to the north and a spring near the base of the seacliff some 150 m from the site (Frontispiece, 2). It is not known if the river was perennial or the spring existed in antiquity. Today (2002) the site is developed as follows, starting in the south and moving clockwise (see Fig 26): plot 106A/506 Paphian Sun Holiday Village; 78A/505, 405, 77 Queen's Bay Hotel; 76 undeveloped, partly quarried, 55-6, hotel, restaurant and houses; 57 west undeveloped, east, houses; 54, 58/496 bananas; and 75/473, 79/474 and 80/475 undeveloped, uncultivated.

Its negative features

From the outset, the nature of what transpired to be some 45 recorded negative features greatly exercised us, both in terms of their formation and the manner in which anthropogenic and other material came to fill these receptacles. Site formation issues were discussed with Ian Morrison, project geomorphologist in the 4th season, in 1980. His preliminary assessment so clearly outlines the issues we continued to face in accounting for the sub-surface features, as well as a number of interpretations, that it is quoted here *in extenso*:

"On the slope down to the sea, limestone outcrops where the overlying buff sandy marls, in which the sites [pits] are set, have been stripped off. These marls are of Pleistocene age and accumulated under marine or lagoonal conditions. Subsequently, when relative sea level had fallen, gullies were cut into their surface.

As would be expected with a deposit so vulnerable to erosion, gullying appears to have occurred over a wide range of periods. At present small-scale gullying takes place where construction work has disturbed the ground. On the other hand, road cuttings at 35 to 40 m asl show sections through ravines sharply incised into the fine marl but completely inflilled with heavy cobbles and gravels that derive from the hills inland. The layout of the local topography makes it seem unlikely that this could have happened at any time after the river Appis had cut down towards present sea level behind Mylouthkia.

The road cuttings also show cross sections of features of shallower profile, some 10 m or more across, containing not cobbles or gravel, but a fine infill derived from the marl itself. In some, but not all, of these diffuse dark banding could be traced and some yielded occasional worn sherds. However since they showed neither structures nor any stratigraphic evidence of purposeful human activity, it seems reasonable to regard them provisionally not as man-made features but as cross sections of gullies that were silting up when there were settlements nearby.

The main sequence of sites [pits] investigated at Mylouthkia is exposed in a seaward facing section flanking a track *c.* 25 m asl. From the intensity of the scatter of pottery, stone artefacts and other small finds, there was no doubt that this was an area of considerable activity. However, the farmed terrace gave little chance of recovering shallow structures, and the features visible in the *c.* 1½ to 2 m tall section along the track had some puzzling aspects.

One possibility was to interpret them as man-made pits. Some of their shapes seemed curious, but they certainly contained artefacts and debris, and some showed whitish horizons that might be interpreted as plaster floors. On the other hand they could not be said to be systematically lined, nor indeed were there any indications of specific uses. The whitish layers particularly evident in F [pit] 8 and F [pit] 22 were discussed in the field by the writer and Dr. Costas Xenophondos, with the conclusion that their nodular structure suggested natural calcretion horizons rather than artificial plaster. Consideration was given to the possibility that the pits represented holes dug for clay that became casually infilled with debris from nearby habitations. However, on balance it was concluded that their form could well be accounted for by a characteristic type of erosion of the marl observable in progress in the area at the present day.

In this, winter run-off cuts into the soft material and miniature channels eat back from the slopes, undercutting themselves to create curving chambers with flat floors graded to local base levels. Even the situation in F [pit] 2A/B and F [pit] 4, where sides overhang the flat bottom, is being replicated in several of the present day examples. In these, prehistoric pottery and stones from the surface are being washed in and being laid flat on the bottom of the chambers. These are buried as undermined marl fills from above, thus matching the pits in both form and stratigraphy.

Site F [pit] 16 presented a different kind of problem. Located below and immediately to seaward of the track along which the pits just discussed were located, F [pit] 16 only came to archaeological notice after several metres of marl had been removed from the surface. It had apparently been the bottom part of a shaft, but the original diameter of this is not clear because the surviving portion is somewhat "bag-shaped" (Peltenburg 1981, Fig. 1 [=*Preliminary 3*]), showing morphological and stratigraphic evidence of collapses enlarging the foot while prehistoric material was still accumulating in it. This material, which included organic remains, was varied in nature, and the stratigraphy of the deposit suggested that it had built up over a period, in wet conditions. The impression was of debris from a site on the surface above terminating haphazardly in the shaft. It did not seem an assemblage suggesting some particular type of activity likely to have been carried on at the base itself. This left open the problem of whether the shaft was natural in origin, or of its purpose, if it had been cut deliberately.

On the evidence surviving, it did not seem readily explicable in natural terms. One possibility considered was that it might overlie a sink hole, but excavation into the archaeologically sterile material beneath it showed that its base lay directly upon a deep brown compact clay. Terrace edge sections demonstrate that this stratum (*c.* 1 to 1½ m thick) can be followed extensively through the pale buff marls of the area, in which it forms an aquiclude. As the nature of the deposits with F [pit] 16 suggests (and as the ponding of winter rain in its remains confirms), the shaft would have gathered water. Since the debris from it and from the neighbouring sites [pits] along the track suggest settlements close by, it may have been dug during the Chalcolithic to serve as a well (or cistern, if surface run-off was also channeled into it). If so, it would seem to be one of the earliest examples so far located in Cyprus." (*Preliminary* 4, 56-7).

Morrison's comments on site taphonomy highlight one of our research aims during and after excavations: to evaluate the evidence for the origin and purpose of the negative features, and to account for the way in which fill material entered the archaeological record (see § 11 and § 24).

Periods of occupation

Datable material from the 1970s pits proved to be virtually all EChal. In later excavations, pits and other sub-surface features of other periods were also discovered.

Pottery was ubiquitous in all downslope pits mentioned by Morrison, but subsequent work revealed cylindrical shafts and other features without pottery and, in one, plentiful obsidian. The latter was held to be diagnostic of the Khirokitian, and initially we tentatively assigned these to the Aceramic Neolithic of Cyprus (Herscher 1998, 319). Radiocarbon dates from seeds, however, showed them to be much earlier and so, supported by the study of chipped stone, we argue below and elsewhere that they may be attributed to a newly discovered period of Cypriot prehistory, the Cypro-PPNB (see § 11 and McCartney and Peltenburg 2000; Peltenburg *et al.* 2000, 2001a, b). Also in subsequent excavations, we obtained unequivocal evidence for upstanding stone architecture. The ceramics from one destroyed structure, as well as its stratigraphic position, indicate that it post-dates the many recorded pits. Associated pottery may be assigned to the early stages of the MChal of Cyprus. As a result of further excavations, therefore, what was once thought to be a single period site mushroomed into an unusual multi-period site of quite outstanding importance for Cypriot prehistory.

The first of these periods has material that is so different and is separated by so many millennia from the other recovered periods that we decided to publish it separately as Part I of this report. It should be stressed

Table. Periods of occupation at Kissonerga-Mylouthkia

Period 1A	Cypro-EPPNB	*c.* 9,100 - 9,300 BP	*c.* 8,200 - 8,600 Cal BC
Period 1B	Cypro-LPPNB	*c.* 8,000 - 8,200 BP	*c.* 6,800 - 7,200 Cal BC
Hiatus			
Period 2	EChal	*c.* 4,600 - 4,800 BP	*c.* 3,600 Cal BC
Period 3	MChal	*c.* 4,600 - 4,700 BP	*c.* 3,500 Cal BC
Hiatus			
Late	Bronze Age-Medieval		*c.* 1,600 BC - AD 1600

however that it is located in the same area as much of the later occupation and hence it was probably affected by what came after and some of its material was undoubtedly re-deposited in later contexts. No material securely dated to the intervening Khirokitian and LNeo periods was recovered in survey or excavation. To anticipate § 11 and § 24, the chronology of Mylouthkia is given in the Table on p. xxxv.

The Late Period is represented by two coins (KMyl 97 and 1202), occasional sherds and, on the surface of plots 58 and 75, more worn Medieval glazed pottery. Little is known of a possible ditch system (see § 12.2), the only *in situ* feature that might belong to this period and so it will not be discussed further in this volume. "Modern" in the Period column of Appendix A refers to ploughsoil.

Phases of the investigation

Investigations at Mylouthkia have had a much interrupted history which can be divided into four phases. Since there were contingent factors that necessitated different retrieval and recording strategies, it is methodologically important to be aware of the phases of work.

First phase, 1976-1981: research

The first investigations lasted from 1976 to 1981, when they had to be curtailed because of pressing commitments at Lemba. The aim of our survey and excavation was to assess the nature of the contrast, whether functional or chronological, between Mylouthkia and Lemba. Its chronological position was not resolved until ^{14}C dates placed it earlier than Lemba. Investigated archaeological entities are reported as Units 1 to 89. For brief details of these units, see Appendix A. Preliminary results were published in *Preliminary* 1, 23-5; 2, 7, 18-20; 3, 28-31, 46-9; 4, 35, 54-7; *Prehistory* 1, 80-83; 2, 18-23; Betts 1979; Burleigh 1981; Elliott 1983; Peltenburg 1981.

Second phase, 1989: rescue

The second phase began after an interval of eight years in 1989 as a result of the construction of the Queen's Bay Hotel just inland from *Kefalui* (see § 12.2.1). The purpose of this work was to rescue material from discrete features that occurred some 50 m to the south of our earlier excavations in a zone where survey had provided only tenuous evidence for the existence of the site (Fig. 27). These salvage operations recovered evidence for some 11 features. Results are reported here as Units 100-110. With hindsight, we later concluded that one unit, well 110, belonged to Period 1. Thus, the first Cypro-PPNB feature to be excavated at Mylouthkia was in 1989.

Third phase, 1994-1996: research and rescue

We returned to research mode in the third phase of investigations. Its purpose was to test the theory that the original Chalcolithic ground surface may have survived in plot 58/496 and that we might find EChal structures contemporary with our recorded pits. We thereby hoped to obtain an idea of the planning and the nature of the habitations of the inferred settlement on this much deflated site. In the event, traces of contemporary wooden structures and later stone-based structures were found here. Cleaning in adjacent plots 76-7, moreover, led to the discovery and excavation of highly vulnerable features which extended the scope and research design of this phase of excavations. Because they had to be excavated after the conclusion of normal fieldwork, Cypro-PPNB features here, especially well 116, were treated as rescue operations. In summary, this phase disclosed the existence of two, previously unrecognised periods of occupation at the site, Periods 1 and 3. Archaeological entities of the third phase of investigations are Units 111-345.

Concerning Period 1, reservations about the aceramic date of relevant features (Herscher 1998, 319) were subsequently dispelled upon production of AMS dates (see § 11.1). Regarding Period 3, the major feature, destroyed structure B 200, was first reported as EChal (Herscher 1998, 319), but detailed analysis of its pottery (§ 14.9) now clearly shows that it belongs to the early part of the MChal.

In terms of fieldwork responsibilities, Gordon Thomas initially supervised excavations in plot 58/496, and when he returned to Edinburgh, Paul Croft continued work in and around B 200, with the result that discussion of discoveries is presented by both authors (§ 13). Preliminary reports include Herscher 1998; McCartney and Peltenburg 2000; Peltenburg 1996b and in press; Peltenburg *et al.* 2000, 2001a, b.

Fourth phase, 2000-ongoing: rescue

See Current Activity, pp. xxxi-xxxii.

Presentation of results

In previous LAP 'final' reports, we have largely restricted ourselves to intra-site analysis because the benefits of our multi-site policy could only be realised when we had completed assessments of all constituent sites and data from our Western Cyprus Survey. However, Mylouthkia investigations phases 2 and 3 yielded evidence for a hitherto unknown period of Cypriot prehistory, contemporary with the beginnings of agriculture in the Near East, and for the poorly known transition from the LNeo to the Chalcolithic. We felt that it was not possible to consider the material in any meaningful manner without contextualising it within a broader framework. Hence, we consider evidence from other sites and disciplines here, and bring forward arguments for treating this new period of Cypriot prehistory as the "Cypro-PPNB" precursor for the Khirokitian. Syntheses of results with preliminary conclusions are presented in § 11 and 24.

In *LAP* I, 2 we stated that this volume, the fifth in the LAP series of final reports (see List of References) would encompass results from Mylouthkia and survey, and that it would provide an overall synthesis of the project's researches. The subsequent evolution of work at Mylouthkia preclude this publication aim and so the other elements of the projected contents of this volume will appear separately. Results from work commencing in 2000 (Phase 4 investigations), will also appear separately. Given that quantity of information from Mylouthkia was assumed to be much smaller than that from Kissonerga, or even Lemba, we made the decision to include as much data as possible in a single volume rather than split specialised information from synthesis as in *LAP* II.1A-B. This particular die was cast before phase 3 of excavations furnished so much additional information, particularly with respect to all the evidence from the Cypro-PPNB wells. The result is that the volume is much larger than originally intended. It, together with additional information, is also available on the world wide web at two sites:

http://www.arcl.ed.ac.uk/arch/publications/cyprus/mylouthkia/
http://ads.ahds.ac.uk/catalogue/resources.html?mylouthkia.

Additional material there includes more detailed descriptions of registered small finds than in the abbreviated format of Appendix B.

Recording system

The Mylouthkia recording system is virtually identical with that employed at Kissonerga (*LAP* II.1A, lxiv). In the first and second phases of investigations, each pit was allocated a number and its contents ascribed to entities starting with sub-unit 0 or 1. This system was changed in phase 3 when all archaeological features were given a sequential number regardless of whether they constituted a unit or a sub-unit. Locations of discrete pits were fixed within plot boundaries, and phase 3 investigations in plot 58 were carried out within a localised grid. For the integrity status of units, that is OK, M and C contexts, see Appendix A. For descriptions of the registered (KMyl) and catalogued (Cat.) finds, see Appendices B and C.

Archive

Site records are currently archived in Archaeology, the School of Arts, Culture and the Environment, University of Edinburgh, with a duplicate set of plans, sections and unit sheets housed at the Lemba Archaeological Research Centre in western Cyprus. A National Monuments Record in Cyprus, one that we have called for since 1985 (see Preface in *LAP* I and Introduction in *LAP* II.1A), would be the proper place for archive storage. However, in spite of the increasing use of electronic media and digital archiving, a NMR has still not come into existence. Material from LAP investigations at the site is mainly deposited in the Paphos Museum. A few display objects are located in the Cyprus Museum, Nicosia, and some sherdage in the Ashmolean Museum, Oxford (Ash Mus 1978.42). Other material not included in this study is in the Cyprus Survey (CS 2298) and the Curium Museum at Episkopi.

Site details

Locality name:	Mylouthkia and Skourotos.
Position:	Map Ref. VD 443544. Cadastral Map XLV:41. Long 32^{o} 23' E., Lat 24^{o} 50' N.
Height (asl):	16 - 38 m.
Location:	Paphos District, 5.5 km north of Paphos, between the sea and the coastal road leading from Kato Paphos to Coral Bay. At present, the southern part of the site lies within the boundaries of the Paphian Sun Holiday Village, a central portion was destroyed in the construction of the Queen's Bay Hotel and much of the remainder lies to the north and east of this hotel.
Shape:	An oblong between the 16 and 38 m contours flanking the sea on the west, the Apis River on the north; southern limit unknown.
Area:	*c.* 235 x > 350 m; > 6 ha.
Condition (2002):	Parts of the site are affected by tourist-related developments, the threatened remainder lies in uncultivated ground or under bananas. For details, see above.
Monument Status:	The following plots are declared as "Ancient Monument" and subject to statutory planing permission restrictions: 55, 56, 57, 76, 77, 394, 398, 399, 400, 405, 473, 474, 475, 505 and 506, the last in locality Skourotos.

PART I

The Cypro-Pre-Pottery Neolithic B Occupation

Chapter 1: The Wells and Other Vestiges

by

Paul Croft

Evidence for human activity at Mylouthkia during the Cypro-PPNB came from two areas of the site. Firstly, an eroded well shaft (well 110) dating to this period was located amongst Chalcolithic and later features during the 1989 rescue excavations which took place in plot 78A/505 (Fig. 26). The circumstances of these excavations are described below.

Some years later, during the most recent phase of LAP work on the site (1994-96), a second area of the site was investigated which proved to contain a concentration of Cypro-PPNB features. In fact, the existence of one of these features (well 133) had been previously noted at the time of the 1989 rescue excavations in plots 76-7 as being a pit-like feature from which was eroding human bone, but it was not investigated at this time. Since the priority during the three short formal excavation seasons conducted with small groups of students in 1994-6 lay in rounding off our investigations of Chalcolithic Mylouthkia, most of the Neolithic archaeology was undertaken part-time and out of season by myself, with the kind assistance of various friends.

The inland, eastern end of plot 76, consists of a shallow quarry (Pl. 1.1; Figs. 26-7). Soft *havara* of the type that exists here readily breaks down into a highly calcareous white soil, and this has been sporadically extracted for a number of years. One of the purposes to which this white soil is put is the repair of soil roofs on older, traditional buildings in the area. Indeed, this very soil (quarried from plot 78A-B some 100 m distant) was successfully used to roof the first Chalcolithic-style roundhouse to be built in the area for some four millennia as part of a programme of experimental construction at nearby Lemba (*Preliminary* 13 , Croft *et al.* 1999).

Examination in 1994 of the exposed section of the quarry edge in the SE corner of plot 76 revealed two shaft-like features, their mixed, relatively dark, stony fills contrasting with the clean, white, natural *havara* into which they had been cut. These were eventually excavated as wells 116 and 133. Although the adjacent plot 77 had been subjected to terracing by bulldozing, a very small wedge of relatively undamaged land surface, several tens of square metres only in area, existed along the boundary of the two plots, extending from the track (which forms the eastern boundary of the plots) in a seaward (westerly) direction for some 12 m, very nearly to the lip of well 133 (Fig. 27). This small wedge of land proved to contain a concentration of Cypro-PPNB features, which were partly or fully excavated. Except in the case of well 116, the excavation of which was conducted as a matter of urgency, all PPNB deposits excavated during 1995-6 (all of which bear unit numbers higher than 259) were dry sieved through a 5 mm mesh. Additional samples were taken for flotation and wet sieving through a 1 mm mesh when this seemed desirable.

Well 110 (Fig. 37, lower inset)

Length: 2.85 m, Breadth: 1.90 m, Depth: 5.3 m
Location: Plot 78

It is described below how a dirty patch of redeposited *havara* was noted in the southern edge of large EChal pit 109, and how its removal revealed an oval feature 1.4 x 1.0 m in extent, which was the top of well shaft 110.0. Excavation of well 110 eventually revealed that it was without doubt a water well. The shaft was 5.3 m deep and, as preserved, rather irregular in profile. If ever it had been vertical-sided and cylindrical like the shafts of wells 116 and 133, the profile of shaft 110 had become grossly distorted due to collapse of its unstable *havara* sides: the shaft widened out considerably just below its top, and halfway down measured 2.85 x 1.90 m.

Fills 110.05-8

At the base of well 110 was the channel (now dry) of what had clearly been a small underground watercourse. The stream would presumably have entered the well bottom through a small (35 cm high) aperture on the NE side and exited through a more alcove-like (60 cm high) cavity on the SW side, flowing towards the sea. The lowest 2.5 m or so of shaft fill was 110.06, whilst the fills of the SW alcove and NE aperture were, respectively, 110.07 and 110.08. Although the very base of the shaft consisted of a rather irregular shallow gully 10-30 cm in width, there would probably have existed a greater depth of water than would be required simply to fill this little gully when the well was in use. The lowest fill, 110.06, was a fairly soft, mixed deposit of redeposited *havara*, which was not clearly distinct from the overlying fill 110.03, with which it merged. A centrally located small patch (diameter 50 cm, depth 9 cm) of clean yellow-white *havara* within the very top of major fill 110.06 was designated 110.05 and proved to be of no significance.

Emanating from the base of the shaft to the SW (110.07) and NE (110.08), the fill of the dried up stream channel consisted of blocky, redeposited *havara*, quite compact in places, with some finely laminated inwashed silts which contained small chunks of charcoal. Beyond the immediate vicinity of the well shaft the stream seems to have flowed in a pipe-like channel some 20 cm in diameter. After the end of the excavation large earthmoving machinery completely removed well 110, and a 10 m deep section was cut into the hillslope some 7 m east of where the well had been. In this section could be seen, at approximately the same depth and filled with the identical material, the upslope continuation of the watercourse.

Fills 110.01-4

Fill 110.03 consisted of generally clean redeposited *havara* which was generally more compact than the underlying 110.06, although the two deposits merged into one another. Fill 110.03 became dirtier towards the top where it consisted of crushed *havara* in a matrix of brown clayey silt. Finds, consisting of ground stone items and some sherds, were not abundant and were concentrated in the top of 110.03, none occurring below the top third or so of the deposit. None of the deposits beneath 110.03 yielded any finds, which meant that the lowest 3 m or so of the fill of well 110 was entirely devoid of finds.

In the top of 110.03, adjacent to the SW margin of the shaft, occurred a small pocket of different material some 40 x 27 cm in extent and 52 cm deep. Excavated as 110.04, it consisted of an upper stratum of distinctive, water-laid orange-brown sandy silt, not encountered elsewhere within well 110. Below this, 110.04 became greyer and included a significant quantity of mainly fist-sized stones, a dozen of which proved to be hammerstones, pounders, vessel fragments and the like. Although 110.04 was mystifying at the time of excavation, the excavation of wells 116 and 133 some years later showed that empty pockets created by subsidence existed within shaft fills. It now seems that 110.04 may be explained as such a pocket which became infilled with material which slumped and washed in from above. Finds within 110.04, therefore, presumably originated in overlying deposits 110.02/1.

Above major fill 110.03 (and pocket 110.04) was the uppermost fill of the shaft, 110.02/1. Beneath the 10-25 cm of redeposited *havara* which capped the very top of the shaft, upper fill 110.01 was a mixed, compact soil containing patches of brown clayey material and loose, dark grey granular soil, substantial chunks of compact *havara*, and lenses of grey, greasy rainwashed silts containing charcoal flecks and many stones. Fill 110.01 occurred down to *c.* 1.05 m below the southern lip of the feature, below which 110.02 was fairly arbitrarily defined, extending down a further 60 cm. Fill 110.02 is essentially like 110.01 but included a greater content of rainwashed silt lenses and was less stony. Upper fill 110.02/1 yielded moderate quantities of EChal pottery.

Even though sherds of EChal pottery were recovered from 110.01-4 in significant numbers (§ 14.8), these do not necessarily date the well itself, or even the accumulation of fill within its upper part, since they could be intrusive. At the time of its excavation, even though there was no reason to suspect well 110 to be other than EChal in date, the absence of any sherds from the lowest 3 m of its fill seemed suspicious. The subsequent discovery that nearby wells 116 and 133 predated the Chalcolithic by millennia prompted the matter of the date of well 110 to be viewed in a new light. Since the two datable wells establish the Cypro-PPNB as a period of well-digging in the vicinity, then 110 could also belong to this period.

The ground stone assemblage from well 110 is generally quite similar to the assemblages from the demonstrably Cypro-PPNB wells 116 and 133 and contains nothing with a distinctly Chalcolithic flavour. Sherds are only present in the top of well 110, and since it is known (from the excavation of wells 116 and 133) that well fills can contain hollow pockets, infiltration of intrusive sherdage seems especially probable under these circumstances. That the upper fill of well 110 was exposed in EChal times is evident from the fact that it was cut by pit 109 and its capping of redeposited *havara*, whether deliberately or inadvertently laid, constituted part of that pit's edge. Given that the volume of deposit represented by 110.02 and 110.04 plus the upper third (which yielded finds) of 110.03 is about three times as great as the volume of uppermost fill 110.01, the occurrence of a total of only 312 sherds in the former compared with 387 in 110.01 is certainly suggestive of the sort of fall off in quantity with increasing depth which might be expected in the case of intrusive material. Thus, a case may be outlined which favours the intrusive nature of the EChal pottery in its upper fills and the attribution of well 110 to the Cypro-PPNB.

From the fact that shaft 110 bottomed out on an underground stream it may be deduced that the well was completed and presumably used. However, the fact that the lowest 3 m of the fill of well 110 consists of clean redeposited *havara*, containing no cultural material whatsoever, suggests that the well may have collapsed shortly after its completion. This situation contrasts with wells 116 and 133, where lower fills were more mixed and included artefacts and bones and plant remains, suggesting that they may have been in use for longer periods of time.

Well 116 (Pl. 1, Figs. 11.3, 28-9)

Shaft diameter: 0.9 m, Basal diameter: 2.25 m, Depth: 8.50 m
Location: Plot 76 (east edge of quarry)

Well 116 was cut into the soft *havara* bedrock to a depth of 8.50 m and was clearly designed to intersect a small underground stream, the dried-up course of which was found at the bottom of the well. The well must originally have been at least somewhat deeper since no trace remained of the land surface from which it was cut, but a degree of deflation is not surprising since the land slopes significantly in this area down to the top of the coastal cliffs. That the wells at Mylouthkia provide powerful circumstantial evidence for water divining, or dowsing, having been used by PPNB people (the earliest known example of this behaviour) has been argued elsewhere.

A vertical, cylindrical shaft 0.90 m in diameter is preserved to a depth of 6.5 m and constitutes the upper three-quarters of the well. The verticality and constancy of the diameter of the shaft are striking. Cut into the smooth, regular side of the shaft were numerous small niches, clearly hand- and foot-holds. These are somewhat variable but average 13 cm in height and 15 cm in both breadth and depth. More than two dozen of these occur all around the circumference of the shaft and are not apparently disposed in any regular pattern.

Below its cylindrical upper portion, the shaft belled out, attaining a maximum diameter of 2.25 m at a depth of 8.1 m. At this depth (*c.* 14.7 m asl), the relatively soft homogeneous *havara* through which the shaft had been cut gave way to the fairly horizontal surface of a harder, nodular *havara*. The E-W orientated stream channel over which the shaft of well 116 was centred was based upon this impermeable surface. Thus, the stream appears to have flowed along the top of the aquiclude towards the sea, which lies immediately beyond the coastal cliffs some 90 m downslope. The very bottom of the well consisted of a circular, dished basin 1.5 m in diameter cut down some 0.3 m into the harder stratum, doubtless to permit the water to accumulate to a sufficient depth to make drawing it easy.

The ingress of the watercourse into the well bottom was on the eastern (landward) side. It comprised an aperture 60 cm wide and 35 cm high, but clearly narrowed down with increasing distance from the well. Its fill consisted of chunks of fallen *havara* to within 15 cm of the top of the channel, above which was empty space. The channel was excavated for a length of 50 cm. It appeared straight and visibly ran for at least 1 m eastwards.

A larger cavity marked the egress of the stream on the western (seaward) side of the well bottom. It was 80 cm wide and 40 cm high, and also choked up with chunky *havara* within 20 cm of its top. Some stones and silts of the well fill had penetrated up to 1 m into this outflow channel, which appears to follow a somewhat kinked course. It could be seen that the channel runs for a further metre beyond the metre length for which it was excavated, at which point it became completely choked up with *havara* chunks.

Fill 116.192

Lowest fill 192 occupies the round-bottomed, shallow basin which constitutes the bottom of the well. It consisted of sticky pale grey-brown silts in which laminations were visible in places, indicating the water-laid nature of this deposit. The deposit almost certainly formed whilst the well was still in use or, just possibly, immediately after its abandonment. Fill 192 contained a concentration of microfaunal remains, frogs, toads, lizards, snakes, shrews and particularly mice apparently having fallen into the well and died. Abundant small charcoal flecks and many stones (up to 1/4 football size) were present in basal fill 192.

Fill 116.191

Above basal fill 192 was 191, a browner, looser, more crumbly, clayey silt containing occasional substantial chunks of *havara* and very many stones. Fill 191 clearly represents post-abandonment infilling, and was not clearly distinct from major shaft fill 124 which lay above it. In both of these deposits a large proportion of the numerous stones, both limestone and harder materials, were small (fist-size or smaller) and very regular in shape, frequently tending toward the spherical and fitting perfectly into the hand. Although common sense dictates that these stones had been purposefully selected, they bore no particular signs of having been worked or utilised, and so were not saved. Numerous unambiguous hammerstones and pounders were also found in these deposits (see Appendix C).

Deposit 191 yielded four scraps of human bone - two ulnae, a vertebral centrum and a possible radius fragment of a foetal/neonatal baby (§ 5.1). A rib fragment from overlying deposit 124 represents a possible fifth piece of human bone from this well, and all may derive from the same small baby. The paucity of human bone, indeed of bone in general, in well 116 provides a major contrast with well 133.

Fill 116.124

Above 191 was 124, which represented a 5 m depth of shaft fill and constituted the major fill of well 116. Fill 124 consisted essentially of soft, crumbly, brown silt with a few stones (of up to three times fist-size) but many smaller cobbles and pebbles, including many ground stone artefacts, and even more numerous "suggestive stones" which nevertheless bore no actual traces of working or utilisation (see above). Occasional black or white ashy patches, and pale brown clayey patches, were encountered within fill 124. Charcoal flecks were abundant and occasional larger lumps of charcoal are not uncommon. Empty air pockets, mainly of football-size or smaller but occasionally larger, occurred sporadically within 124, the largest such empty pocket being 50 cm deep and occupying the whole of the SW quarter of the shaft. Limpet shells were abundant throughout, often occurring several together, one inside the other.

Fills 116.114, 123

The uppermost 3 m of well 116 had been sliced through by the toothed bucket of an earth moving machine, the east face of the quarry forming a near-vertical section. Thus fill 123 (above 124) and uppermost fill 114 of well 116 had been partly machined away.

Fill 123, which overlay major shaft fill 124, consisted essentially of grey-brown cloddy silt containing some stones, numerous cobbles and pebbles and some gravel. The deposit was variegated with patches of whitish-grey or grey-black ash. Charcoal flecks were present throughout. Above 123, uppermost fill 114 was a friable pale brown silt containing rounded stones, numerous cobbles and pebbles and some gravel. Occasional charcoal flecks and abundant limpet shells occurred throughout.

Due to the vulnerability of the feature to erosion and to possible further quarrying, the excavation of well 116 was conducted as a rescue operation. Shortage of labour and the necessity to complete the excavation as quickly as possible meant that comprehensive sieving could not be undertaken. Once at the ground surface, spoil was simply raked through by hand in a wheelbarrow prior to being dumped. Six soil samples (totalling 264 litres) were, however, saved for flotation and wet sieving (1 mm mesh).

Obsidian (see also § 2.5, 2.9)

Well 116 proved notable for the amount of obsidian which it yielded. Of a total of twenty-one pieces (compared with a single piece from well 133), eight were recovered during excavation and six from the wet sieve; in addition, seven were retrieved subsequently from the spoilheap once it had been washed by rains. Seven of the excavated pieces of obsidian came from major fill 124, one piece occurring at 17.10 m asl (the highest known occurrence of obsidian in the well), and the other six between 15.70 and 14.90 m asl. A further six pieces from fill 124 came from a 50 litre wet sieved sample (C518) taken from 15.25 m asl. Fifty litre wet sieved samples from 19.75 m asl and 17.00 m asl, and a 14 litre sample from 19.40 m asl contained no obsidian. Thus, it may be inferred that obsidian was rare above 15.70 m asl, but relatively abundant below this, at least down to 14.90 m asl. A further piece of obsidian was excavated from fill 192, the lowest fill of well 116, but a 50 litre wet sieved sample, amounting to 20% of the deposit, yielded no further pieces.

The fact that pieces of obsidian washed out of the excavation spoilheap strongly suggests that some obsidian from well 116 has been missed. Since the amount of obsidian found in this feature amounts to a conspicuous concentration of this normally rare material, it may be of interest to indulge in a little informed speculation regarding how much obsidian might actually have been present. In order to attempt a rough estimate, certain assumptions have to be made. For the purposes of the calculations which follow, the assumptions which have been made are optimistic ones, in order that the final estimate of the total amount of obsidian should be a conservative one. The first assumption is that all obsidian present in well 116 was recovered except from the obsidian-rich 80 cm of shaft between 14.90 and 15.70 m asl. The second assumption is that pieces of obsidian were evenly distributed throughout this section of the well shaft.

Since the 50 litre wet sieved sample (C518) represents roughly 10% of the total volume of soil contained in an 80 cm length of a 90 cm diameter shaft, and this yielded six pieces of obsidian, the total number of pieces present would have been sixty. Six further pieces were retrieved from this 80 cm of shaft fill during excavation, so a total of forty-eight pieces of obsidian is estimated to have been missed in this part of the well. Even assuming that the seven pieces from the spoilheap also came from this obsidian-rich region, forty-one pieces have still been overlooked. Thus, the twenty-one pieces of obsidian which have, by one means or another, been recovered from well 116 represent an estimated maximum of 34% of the sixty-two (60 + 1 higher up, at 17.10m asl, in fill 124; 1 from lowest fill 192) pieces actually present. In other words, an estimated minimum of 66% of the obsidian in well 116 has been thrown away with the spoil (77% of it having originally been consigned to the spoilheap). In view of the optimistic nature of the assumptions upon which this estimate is based, it seems likely that the actual recovery rate for obsidian was far worse than this, and that considerably more than the estimated total of sixty-two pieces had actually been present in well 116.

Whether importation of obsidian ceased after Cypro-EPPNB, or continued in a small way later on during the Cypro-PPNB, whenever it is found in post-Aceramic contexts it may be regarded as residual. Thus, the presence of an obsidian bladelet in an EChal (Period 2) deposit (fill 257 beneath B 200 in pit 300) located some 25 m upslope from well 116, may hint at the location of an EPPNB settlement, or at least another activity area, in the vicinity. It could lie on the virtually flat land to the east of the hollow, since fill 257 clearly eroded in from this direction. This locality, known as *Vikla*, meaning an observation post, is said to have been the site of a Byzantine watch tower (Goodwin 1978, 853-4), and from a PPNB settlement located here, residents would have an excellent view over the potential anchorage of the small bay directly below and the open sea beyond.

Well 133 (Pl. 2.1-2; Figs. 11.3, 28-9)

Shaft diameter: 0.9 m, Depth: 7.0 m
Location: Plot 76 (south edge of quarry)

Located some 11 m south of well 116, visible in the south edge of the quarry, was the very similar well 133. No other features were visible in the quarry edge, although subsequent investigation proved that further Cypro-PPNB features were preserved just to the east of well 133. The close proximity of two similar wells suggested successive use rather than synchroneity, and this was subsequently confirmed by radiocarbon dates indicating a chronological disparity of a millennium. Well 133 yielded a large assemblage of ground stone and, as in well 116, many additional stones fitted so well into the hand as to suggest that they were deliberately selected. Where working or utilisation could not be demonstrated, however, such stones were discarded.

Well 133 consisted of a cylindrical shaft some 0.9 m in diameter, which descends to a depth of 5.1 m below present ground surface, beneath which depth the well widened out somewhat in the manner of well 116. In well 133 the shaft widened out only on its S side, giving way to a cavernous chamber formed by two or more underground stream channels. As was the case with well 116, well 133 was cut down into soft *havara*, and stream flow was based on the fairly horizontal surface of an underlying stratum of hard, nodular, impermeable limestone, located at 15.50 m asl (some 80 cm above the base level of the stream in well 116). The total depth of well 133 is 7.0 m below present ground surface, but it must originally have been at least somewhat deeper since the Neolithic ground surface has eroded away.

The shaft has numerous small cavities cut into its edge to serve as hand- and footholds, and these were more regularly distributed than those in well 116. Most of them are disposed in two fairly vertically aligned, approximately opposed, major ranges (as on Fig. 29). The range on the SW-W side includes thirteen niches represented on the drawing plus two additional lower niches (centred 0.30 m below and 0.08 m W of the last drawn niche, and 1.20 m below and 0.15 m west of the same niche). The opposing NE-E range includes the sixteen niches shown on Fig. 29 plus an additional lowest niche located 0.35 m below and 0.10 m east of the last drawn niche.

Two minor, discontinuous ranges of niches, also opposed, occur on the NNW and SSE sides of the shaft. On the NNW side a single niche occurs at 19.95 m asl, below which a series of five niches occurs between 16.82 and 15.47 m asl. The minor range on the SSE side includes a vertically disposed range of four high up in the shaft at 21.26-19.90 m asl, and a single niche lower down at 16.62 m asl.

In a number of instances a series of linear marks was discernible, scored into the fairly horizontal "roofs" of the niches. These clearly represent pick-marks (fallow deer antlers presumably having served as picks) made by the well diggers.

Of the three probable extinct courses of the stream which were seen to exist on the S side of the base of well 133 (see plan 29), the eastern one is clearly the latest and is manifestly associated with the use of the well (although the SSE channel may possibly have been the original egress from the well bottom). It could not be determined whether this deepest, eastern channel (based 0.31 m deeper than the others) which turns sharply from S to E, is entirely natural or whether it was modified by PPNB people. The channel is filled up with mainly grey-brown and light brown laminated silts, and was excavated as far as a circular aperture (diameter 0.28 m), which occurs some 0.80 m SE of the well shaft. The channel is largest where it joins the shaft (0.65 m high and 0.55 m wide). Its lowest point is some 0.25 m above the base of the shaft, from which point it slopes upwards and becomes increasingly narrow as it approaches the aperture. Thus, the conformation of the shaft-base and channel are such that the well would have retained 0.66 m of water before it overflowed through the aperture.

At a slightly higher elevation than this eastern channel two earlier, larger, probable stream channels are apparent (on the SSE and SW). These are based upon the horizontal surface of a stratum of dense, gritty, impermeable *havara*. The SW channel and the lowest two thirds of the SSE channel contain a fill consisting mainly of chunky *havara* collapse and inwashed, waterlaid *havara*. The latest, eastern channel is incised through this more ancient channel fill and into the underlying impermeable *havara* bedrock.

The upper third of the SSE channel contained laminated silts identical to the fill of the eastern channel, which succeeded it. The fill of the ingress into the well (on the NNE side) consists, like the SSE channel, of chunky fill in its lowest two thirds and laminated fill in the upper third. This indicates that this single NNE channel represented the course of the stream throughout.

The fact that the earlier stream channels became silted up probably accounts for the irregular alignment of the latest, lower, eastern channel. The silting up of these earlier channels (particularly the SW and lower two thirds of the SSE channels) may well have occurred long before Cypro-PPNB times. If the larger size of these channels reflects a more powerful stream than later on, then they may have developed during the wetter conditions of the Pleistocene. Perhaps they silted up when flow became reduced to the extent that the stream no longer possessed sufficient power to keep its channel free of detritus. The small, later phase stream seems to have flowed initially in the very top of the large early phase SSE channel whilst later, perhaps during the life of the well, this course became blocked and was succeeded by the sinuous eastern channel. This latest channel may be entirely natural or partly cut by people.

Thus, whilst it is certain that the stream and the well which exploited it have a complex history, the foregoing interpretation must be regarded as tentative since it is based on excavations conducted, and observations made, by torchlight in the bottom of a very deep, dark hole.

That underground watercourses at Mylouthkia had a similarly complex history in very recent times is suggested by the statement of a local man who visited the excavations. He recalled that until the early 1950's water drawn from wells dug down to subsurface streams permitted irrigated cultivation of the seaward margin of the site of Mylouthkia. This man's family had cultivated water melons and beans on top of the coastal cliffs, only a few tens of metres downslope from our excavations. This pattern of land use reportedly changed after the earthquake of 1953, which caused severe damage in a number of inland areas in western Cyprus. Other areas, which were not so severely shaken, nevertheless suffered disruption of subsurface water flow. At Mylouthkia the wells dried up and the land, no longer irrigable, was rendered useless for cultivation. In another, similar instance recounted to the writer, a spring at Trachypedoula, an inland village in western Cyprus, was said to have suffered greatly reduced flow following the 1953 earthquake, but flow was reportedly restored to its former volume following the earthquake of 9th October 1996.

Fills 133.332-3

Returning to well 133, the basal fill 333 consisted of 20 cm of compact, sticky grey waterlaid silts with some stones and cobbles. Immediately overlaying this, and distinguished from it only in that it was almost devoid of stones, was fill 332, which was about 55 cm thick. These two lowest layers within well 133 essentially fill the cutting into the hard, impermeable *havara* and seem most likely to have accumulated whilst the well was still in use as a water source. Like basal fill 192 of well 116, lowest fills 333 and 332 of well 133 contained a concentration of microfaunal remains, representing "pit-trap" victims which fell into the well. Overlying shaft fills (329 and upwards) seem more likely to have accumulated after the well had gone out of use.

Fills 133.282, 329

Above 332 was fill 329, a sticky, less compact, reddish-brown clayey silt including a concentration of redeposited *havara* around the edge of the well bottom, and substantial clayey patches. Fill 329 merged into overlying shaft fill 282, a loose grey clayey, gritty silt containing many charcoal flecks. Fill 282 yielded the only piece of obsidian from well 133.

Fills 133. 331, 334

Within the cavernous chamber on the western (egress) side of the well bottom, corresponding in elevation with the bottom of shaft fill 282 and the upper part of shaft fill 329, was fill 331. There was no clear dividing line between the shaft fills and the chamber fills, 331 beginning rather arbitrarily some 40 cm into the chamber. Fill 331 was sticky and very heterogeneous in nature, consisting of more or less dirty redeposited *havara* and tumbled *havara* blocks surrounded by inwashed stratified silts and sands. It was in this latter, inwashed, component of fill 331 that artefacts were mainly found. Most of the fill of the eastern (latest) channel was excavated as 331, but the compact silts at the very base of this channel were designated as fill 334 (probably equating with 332/333).

Fills 133.264, 278-9

Returning to the fills of the shaft of well 133, fill 279, above 282, consisted of sticky brownish clayey silt containing numerous stones and cobbles as well as substantial chunks of *havara*. Fill 278 above was equally stony but less clayey and its *havara* content was more comminuted, giving a spotty, gritty effect.

Fill 264, above 278, was a generally compact grey-brown silt containing patches of clay, grit and powdered *havara*, and many stones, cobbles and pebbles. As noted for nearby well 116, empty air pockets occurred, and pockets of compact, laminated, muddy silts indicate where former voids had become infilled with inwashed material. These occurred mainly at the edge of the shaft.

Fill 133.260

Fill 264 merged into heterogeneous uppermost shaft fill 260. This consisted mainly of compact grey clayey silt (but less clayey than 264) with lenses of powdered *havara*. Close to the edge, however, 264 was often very loose and rubbly. On the south side of the shaft was a substantial empty air pocket 90 cm in depth, beginning at 21.02 m asl. Insertion of an inquisitive arm into this void yielded part of a human mandible, and subsequent work revealed Skull 1, a cranial vault (KMyl 1181). These items had broken off from other parts which lay together, firmly embedded in the compact component of fill 260 at 20.70 m asl. Thus, it is likely that these human remains derive from this level rather than having fallen into the void from higher up in the well shaft. (I recall having observed human bone in the vicinity of well 133 at the time of the 1989 rescue excavations and this had presumably eroded out from an even higher level in the shaft.)

From about the same level at which the human bone was embedded (20.70 m asl), complete but disarticulated caprine bones began to appear. These occurred mainly in the compact component of fill 260, but some were found in the rubbly peripheral component. About 35 cm below this was noted the first of many groups of articulated animal bone (a whole forelimb of a lamb or kid from the humerus to the third phalanges). Articulated caprine bone was abundant for the succeeding 4.25 m or so of the shaft fill (in fills 260, 264, 278, 279 to about three-quarters of the way down fill 282) and it would appear that a large number of unbutchered whole sheep and goat carcasses were disposed of in this well. Curiously, scattered and disarticulated human remains, some displaying a light degree of burning, also occurred sporadically for the succeeding 3.7 m (to about half way down fill 282). Below this level human bone was extremely sparse, consisting only of a few small scraps (from fills 329, 331, 332 and 333).

Pit 337 (Fig. 28)

Length: 1.23 m, Breadth: 1.15 m, Depth: 0.90 m
Location: Plot 76/77 boundary

Pit 337 is circular with a diameter of 1.2 m and preserved to a maximum depth of 0.90 m. It is vertical sided, in places even concave sided, and flat bottomed.

Fills 337.335-6

Lower fill 336 consisted mainly of pale brown silt containing numerous cobbles and several patches of dark grey ashy silt. Towards the edge of the feature the deposit is fairly sterile and contains a high proportion of powdered *havara* which presumably originated from the edge of the pit, perhaps suggesting fairly gradual infilling.

Upper fill 335 of pit 337 must originally have been identical with lower fill 336, but was much disturbed by the roots of shrubs and the burrowing of reptiles, as evidenced by the presence of many old reptile eggs.

Pit 337 contained many stone vessel fragments as well as hammerstones and pounders. Like wells 116 and 133, pit 337 also contained numerous cobbles which seem to have been selected for comfortable grasping in the hand, but which were not demonstrably worked or utilised, and so were discarded.

Pit 338 (Fig. 3. 28, 30)

Length: 3.75 m, Breadth: >2.05 m, Depth: 1.60 m
Location: Plot 76/77 boundary

This pit was cut into *havara* bedrock, exposed in the bulldozed north edge of plot 77. The feature was incompletely excavated due to a large mound of soil having been dumped on its northern part in recent years, but seems likely to represent the southern part of a sub-circular pit. The excavated portion is fairly flat bottomed, but has a shallow depression in its western part. The eastern edge of this pit varies from steep to vertical whilst the western edge is less regular, being undercut in places. The southern margin of the feature has been obliterated by bulldozing, but the fact that the base of the feature slopes up slightly towards the south suggests that the edge lay only a little beyond the preserved extent of the pit bottom. The converging alignment of the edges of the feature as they approach the section line (and of the edge traced a little beyond this line in the NW of the feature) implies that the excavated portion probably amounts to more than half of a sub-circular feature.

The fills of pit 338 are essentially silts deposited under a low-energy regime, laminated clayey/*havara* deposits being encountered almost throughout the sequence. Stones were numerous, generally ranging in size from half- to double fist-size. Many were manifestly hammerstones or pounders, and many more had probably served as such, but were discarded since this could not be proved.

The predominance of hammerstones and pounders, and also stone vessel fragments in the assemblage recovered from pit 338 accords with the evidence from nearby wells 116 and 133. However, whilst the original function of the wells is obvious, the purpose of large pit 338 is not. The sequence of silty fills in pit 338 relates not to its use, but rather to the period of its abandonment. It is possible that pit 338 could originally have been a *havara* quarry. *Havara* would almost certainly have been used as a building material in any nearby settlement, and it may have been convenient to quarry and prepare it close to a well if it was used in a way that involved mixing with water.

Lowest fill 356 of pit 338 consisted of compact redeposited *havara*, presumably originating from the sides of the feature, and contained only very sparse finds. Overlying this basal fill was a complex of fills numbered 355, comprising waterlaid silts of different sorts. Fill 355 occurs within undulations in basal fill 356 within which were concentrated very many cobbles and small stones. These included numerous demonstrable hammerstones and an even greater number of possible hammerstones, which were not kept. Fill 354 was a further complex of heterogeneous silty fills which overlay 355 and ranged from soft and ashy to compact. Above 354 was upper fill 352, a compact, laminated reddish-brown silt which contained *havara* patches and some pebbles and cobbles.

Occurring as a substantial lens within major upper fill 352 of pit 338 was fill 353, a layer of compact redeposited *havara*. This material was all but absent in the western side of the feature, clearly having originated from the eastern, upslope side.

Unit 340 (Pl. 2.5, 6; Fig. 30)

Early phase: pit. Late phase: activity area, very probably a building.

Length >3.4 m, Breadth >2.5m, Depth 0.40m
Location: Plot 76/77 boundary

Early Phase

Hollow 340 comprised a shallow, stepped cutting, descending to the south. Three nearly horizontal steps were preserved. The upper two steps are white natural *havara* surfaces, and are some 18 cm different in elevation. The third and lowest step, some 10 cm lower than the second, consists of the surface of a gravelly natural stratum within the *havara*. This had been trampled, and was designated surface 349. The fill which overlay natural on the lowest two steps was 348, a compact grey-brown silt containing patches of redeposited *havara* as well as numerous cobbles and pebbles. Fill 348 seems to have accumulated as the primary fill of pit 340.

Cut into the western side of hollow 340 and its fill 348 was small, shallow subcircular pit 345. The pit measured 1.6 x 1.4 m and was preserved to a depth of 0.35 m. It had a slightly dished bottom and was filled with compact red-brown silt 347. This fill contained many fist-sized cobbles which fitted comfortably into the hand, but since only a few of these were demonstrably hammerstones most were not saved.

Late Phase

Over the top of fill 348 of pit 340, and of pit 345 (filled with 347), which cut into hollow fill 348, was laid a plaster floor 339. Floor 339 consisted of up to 8 cm of waxy, fine textured, yellowish-white *havara*. In places it was thin but underlain by up to 7 cm of red-brown silty make-up material designated 346. Floor 339 was laid directly on the natural *havara* of the upper step of stepped pit 340, and it may indeed be that this step was cut during the late phase specifically to accommodate floor 339.

Hearth 343 consisted of a depression in floor 339. The hearth was 60 x 50 cm in extent, 10 cm deep, and located on the N edge of the floor, beside the edge of the pit. It was fairly rectangular in shape, with a rather rounded southern side. Its fill, 344, consisted to a large degree of cobbles (of fist size or smaller), many of which were burnt and fire shattered. Between the stones was dark brown silt and patches of dark grey ashy silt. Hearth fill 344 protruded up above the lip of the hearth, into building fill 341/342.

Lying over floor 339 was fill 342. This general building fill consisted of compact dark brown silt which tended to get looser and ashier within 5 cm or so of the floor. Overlying fill 341 was the root-disturbed upper part of this building fill.

Whilst the original purpose of 340 is unknown, certainly the late phase installation within it of floor 339 with associated hearth 343 seems to mark a change in the use of the feature. These modifications indicate that unit 340 was a purposefully constructed activity area during its late phase, very probably the bottom of a building. Only the NW sector of this poorly preserved building was excavated since it was either eroded away or had been cut away by pit 338 to the S and, although it clearly continues eastwards, this portion was not excavated due to the mound of soil having recently been dumped there. Its maximum preserved depth is 40 cm (from the surface of natural to the top of plaster floor 339) at the upslope (eastern) limit of the excavated area, but it would originally have been deeper, since the Neolithic land surface has been eroded away.

In support of the interpretation of feature 340 (late phase) as a building, it may be said that relatively soft *havara* plaster of the type used to make floor 339 is unlikely to have survived well outdoors, exposed to the elements. Also, whilst it must be admitted that no traces of a wall were found on the NW margin of feature 340 and nothing identifiable as building material was identified within it, the fact that the Neolithic land surface has been entirely eroded away means that these observations raise no particular problems for interpretation of feature 340 (late phase) as a building.

Pit 345 (Fig. 28)

Length: 1.6 m, Breadth: 1.4 m, Depth: 0.35 m
Location: Plot 76/77 boundary

Pit 345 was filled with 347, which cut the (early phase) lower fill 348 of pit 340, and was overlain by (late phase) floor 339 within 340. Complete details are given in the description of the feature 340 complex. Registered objects from fill 347 are assigned the context "340.347."

Gully 351

Late erosion gullies cutting top of pit 338
Length: 1.6 m, Breadth: 1.4 m, Depth: 0.35 m
Location: Plot 76/77 boundary

Unit 351, a small complex of erosion gullies, was incised into upper fill 352 on the W edge of large pit 338. The fill of these gullies, designated 350, was a soft ashy silt which contained many cobbles and smaller stones. A few small, abraded wheelmade potsherds (no further details) indicate the late date of these gullies.

Chapter 2: The Chipped Stone

by

Carole McCartney and B. Gratuze

The chipped stone collected from Mylouthkia represents a relatively small but highly informative sample, documenting the industry at the onset of Neolithic occupation on the island, Figs. 43-45. On the basis of chronology, provided by radiocarbon dates, as well as a number of differences in the chipped stone samples, it is possible to establish two phases of Aceramic occupation, Periods 1A and 1B. The implications of this two-phase division for the interpretation of the Aceramic period in Cyprus and the relationship between Cyprus and the surrounding mainland during the PPNB are significant. In order to fully explore these implications, the assemblage will be considered in terms of three levels of meaning. The first represents the discussion of fundamental variables of the *chaînes opératoires* that clearly distinguish the two samples and demonstrate technological development of the Cypro-PPNB industry. Secondly, differences in the tool typology are discussed comparing the Mylouthkia assemblage to other Aceramic assemblages on the island and parallels from the surrounding mainland. Thirdly, the specialised nature of the assemblage is considered in relation to the context of the excavated features and the site.

§ 2.1 Chronology

The radiocarbon dates assigned to wells 116 and 133 provide a basis for dividing the Period 1 occupation according to absolute chronology. These dates permit the chipped stone sample from well 116, Period 1A, to be assigned the Cypro-EPPNB according to the chronological sequence established for the northern Levant (M-C. Cauvin 1994a; M-C. Cauvin and J. Cauvin 1993). The activity documented at well 116, therefore, lies at the outset of the Cypro-PPNB, occurring in conjunction with the initial diffusion of PPNB cultural features from the Middle Euphrates northwards to areas of SE Anatolia and south towards the Damascene and the Jordan valley (Gopher 1996; Schmidt 1996, 366; M-C. Cauvin 1994a, 288; M-C. Cauvin and J. Cauvin 1993; J Cauvin 1977, 30-38; McCartney 2001). The chipped stone industry belonging to Mylouthkia Period 1A, therefore, needs to be considered in relation to developments in lithic technology concurrent with the advent of the PPNB on the mainland. Parallel Cypro-EPPNB dates from the sites of Parekklisha-Shillourokambos (hereafter Shillourokambos) and Kalavassos-Tenta (hereafter Tenta) require the comparison of the earliest materials from these sites with the Mylouthkia assemblage in order to place the salient features of this early chipped stone industry into an island-wide framework, and to demonstrate how the industry subsequently developed (McCartney and Peltenburg 2000; McCartney 1999, 2001; Briois *et al.* 1997; Guilaine *et al.* 1995; Peltenburg *et al*. 2001b). On the basis of radiocarbon dates, the industry from well 133 and related materials at Mylouthkia can be assigned to the Cypro-LPPNB according to the Euphrates model. At Shillourokambos, parallel Cypro-LPPNB dates belong to the Late Phase assemblage. Changes in the *chaînes opératoires* shown by the Middle and Late Phase assemblages at Shillourokambos correspond to the Mylouthkia Period 1B material. The Cypro-MPPNB phase at Shillourokambos (Early Phase B) is not attested at Mylouthkia. Changes in the dominant *chaînes opératoires* relating to the chronological sequence outlined above are considered in the following sections relating to the character of the sample, raw material utilisation, technology and tool types.

§ 2.2 The sample

Table 2.1. Period 1 artefact category counts and percentages

Category	*Period 1A* *n*	*%*	*Period 1B* *n*	*%*	*Total Sample* *n*	*%*
Cores+core fragments	1	0.71	36	5.23	37	4.47
Splintered pieces	0	0.0	2	0.29	2	0.24
C. T. E.	4	2.86	22	3.2	26	3.14
Hammer stones	0	0.0	2	0.29	2	0.24
Flakes	10	7.14	97	14.10	107	12.92
Blades	2	1.43	7	1.02	9	1.09
Bladelets	0	0.0	5	0.73	5	0.60
Chips	17	12.14	51	7.41	68	8.21
Spalls	1	0.71	5	0.73	6	0.72
Blank frags+chunks	59	42.14	338	49.13	397	47.95
Tools	35	25.0	99	14.39	134	16.18
Tool fragments	5	3.57	21	3.05	26	3.14
Tool resharpenings	6	4.29	3	0.44	9	1.09
Sample total	140	99.99	688	100.01	828	99.99

Note: materials from contaminated gully 351 n=8 are not included in Period 1B count; C. T. E. = core trimming elements

The sample of chipped stone collected from the Cypro-PPNB wells and other features is small (n=836); of these, only eight artefacts derive from contaminated contexts. Two of the latter (utilised flakes assigned to Period 1B) are included in the discussion of tool type as they were judged not to affect the overall tool distribution (see Table 2.8). All other tables list materials belonging only to "OK" or "M" status contexts. The use of "M" status materials was necessitated by the paucity of materials from purely "OK" contexts (pit cuts, for example), but the confined nature of the features from which individual samples were derived suggests a high degree of reliability in the samples. The potential re-utilisation of earlier material in the later Period 1B sample is discussed below; however, the character of the Period 1B industry is not altered by this possibility.

As Table 2.1 indicates, a total of 140 chipped stone artefacts (plus 21 pieces of obsidian) belong to Period 1A, with 688 pieces (plus one piece of obsidian) assigned to the Period 1B. The Period 1A sample was collected from a single feature, well 116, while materials from well 133, pits 337 and 338, hollow 340 and the contaminated material from gully 351 comprise the sample belonging to Period 1B. Only wells 116 and 133 have AMS dates; thus, the material from the remaining portion of the Period 1B sample (23% of the total sample) was assigned to Cypro-LPPNB on the basis of technological and typological similarity. Given that obsidian represents an imported material, it has been treated separately from the rest of the chipped stone assemblage dominated by various types of stone, mainly chert, all of which are local to the island (see obsidian catalogue below and the analysis by Gratuze § 2.9).

As Table 2.1 demonstrates, the sample assigned to Period 1A represents a very different type of assemblage from that of Period 1B in terms of the artefact categories present. Tools dominate the Period 1A sample, with one third of the entire assemblage consisting of tools, tool fragments, and tool resharpening pieces. The very low proportions of artefacts relating to core reduction activities (cores, core trimming elements and blanks) reinforce the interpretation of an assemblage based on tool use and re-utilisation. In contrast, the Period 1B sample shows an assemblage in which *in-situ* core reduction was more prevalent. Blanks (flakes, blades and bladelets) represent a significant proportion of the sample, which together with blank fragments and other core reduction debris (rather than tools) dominate the assemblage. The ratio of tools to the total sample reflects the above distinction (Period 1A = 1:4, Period 1B = 1:6.9), as do the tool to core ratios (Period 1A = 35:1, Period 1B = 2.75:1), blank to core ratios (Period 1A = 12:1, Period 1B = 3.03:1) and tool to blank ratios (Period 1A = 2.92:1, Period 1B = 1:1.10). These data suggest that the Period 1A assemblage was manufactured at some location away from well 116, with tool use, re-tooling and re-utilisation taking place at the well site prior to the deposition of the material into the well. A fuller range of chipped stone industrial activity is evidenced by the Period 1B sample. The distributions of specific raw material types for both cores and waste, however, differ from the raw materials seen in the blank and particularly the tool samples. This suggests that part of the Period 1B assemblage, like that of Period 1A, was produced away from the well head. Such broad similarities in the organisation of raw material exploitation in tool manufacture, tool function and the context of artefact deposition, including aspects like the detailed knowledge of the local water supply, demonstrate a great deal of organisational continuity between the Period 1A and 1B assemblages (see also § 1 and 3).

Table 2.2. Blank type relative percentages

	Blades		*Bladelets*		*Flakes*	
	n	*%*	*n*	*%*	*n*	*%*
Blanks - Period 1A	2	16.67	0	0.0	10	83.33
Blanks - Period 1B	7	6.42	5	4.59	97	88.99
Tools - Period 1A	12	60.0	3	15.0	5	25.0
Tools - Period 1B	22	36.67	0	0.0	38	63.33

Note: tools blank percentages exclude indeterminate examples n=15 and n=39 respectively, as well as 1=core and 1=spall belonging to Period 1B.

The artefact category differences represented by the Period 1A and 1B samples begin to illustrate shifts in the *chaînes opératoires* that document the chronological development of the Aceramic chipped stone industry at Mylouthkia. One fundamental shift in the *chaînes opératoires* of each sub-period is shown by differences in the proportions of each blank type recovered from the well-heads, and in the types of blanks used in the manufacture of tools (Table 2.2). These data show a clear shift in the numbers of blades and bladelets versus flakes employed for tool manufacture. Of the unworked blanks belonging to both the Period 1A and 1B samples, flakes overwhelmingly dominate, indicating an *in situ* "ad-hoc" element of flake production at the well heads during both sub-periods. The tools from each assemblage demonstrate a greater number of blade and bladelet blanks, but tools made from blade and bladelet blanks are clearly more prominent during Period 1A. It seems likely, therefore, that blade and bladelet blanks and tools were produced elsewhere and deliberately introduced to the context of the well heads (see Table 2.2).

§ 2.3 Raw material utilisation

Differences readily apparent in Table 2.3 distinguish the raw material utilisation practices in each of the Period 1A and 1B samples. The Period 1A sample is dominated by the use of a very high quality translucent chert which varies in colour from red-brown to yellowish-brown. Munsell colours recorded were reddish-brown (2.5yr 4/4, 5/3); red (2.5yr 4/6); dark red (2.5yr 3/6); brown (10yr 5/3); yellowish-red (5yr 4/6, 5/6, 5/8); reddish-brown (5yr 5/4, 4/4, 5/3); strong brown (5yr 4/6, 5/6); dark brown (5yr 4/4); brown (5yr 5/3, 5/4); light brown (5yr 6/4); and weak red (10r 4/4, 5/4). This material accounts for 43.75% of the total Period 1A sample, a figure that rises to 71.64% when only tools, blanks, the single core and core trimming elements are considered. As mentioned previously, the majority of the Period 1A sample appears to have been manufactured elsewhere than the context of well 116. Artefacts made from the fine translucent chert may have been produced from a small number of individual cores, judging from the apparent raw material similarity of a number of

Table 2.3. Raw material proportions for artefact category groups

Category	*T*	*Lb*	*Lt*	*Ltc*	*M*	*J*	*U*	*Ch*	*Ot*	*Obs*
Period 1A										
Nuclei	1	0	0	0	0	0	0	0	0	0
%	100.0	--	--	--	--	--	--	--	--	--
Core Trim.	2	0	0	1	0	0	0	0	1	0
%	60.0	--	--	20.0	--	--	--	--	20.0	--
Blanks	5	1	2	0	1	0	2	0	1	0
%	41.67	8.33	16.67	--	8.33	--	16.67	--	8.33	--
Debris	22	9	17	5	0	3	2	6	13	16
%	23.66	9.68	18.28	5.38	--	3.23	2.15	6.45	13.98	17.2
Tools	40	3	3	0	0	0	0	0	0	4
%	80.0	6.00	6.00	--	--	--	--	--	--	8.0
Total sample	70	13	22	6	1	3	4	6	15	20
%	43.75	8.13	13.75	3.75	0.63	1.88	2.5	3.75	9.38	12.5
Period 1B										
Nuclei	3	3	4	12	2	1	2	1	10	0
%	7.89	7.89	10.53	31.58	5.26	2.63	5.26	2.63	26.32	--
Core Trim.	1	3	6	5	2	0	1	1	3	0
%	4.55	13.64	27.27	22.73	9.09	--	4.55	4.55	13.64	--
Blanks	28	18	23	19	6	2	5	3	5	0
%	25.69	16.51	21.10	17.43	5.5	1.83	4.59	2.75	4.59	--
Debris	58	68	96	75	2	0	5	4	86	0
%	14.72	17.26	24.37	19.04	0.51	--	1.27	1.02	21.83	--
Tools	24	34	22	18	16	0	1	1	7	1
%	19.35	27.42	17.74	14.52	12.90	--	0.81	0.81	5.65	0.81
Total	114	126	151	129	28	3	14	10	111	1
%	16.59	18.34	21.98	18.78	4.08	0.44	2.04	1.46	16.16	0.15

Note: 'nuclei' includes all complete and fragmentary cores and splintered pieces, 'core trim.' = core trimming elements, 'blanks' includes all flakes, blades and bladelets, 'debris' includes chips, spalls blank fragments and chunks, 'tools' includes all tools, tool fragments and tool resharpenings. Raw material key: T=fine grained translucent chert, Lb=Lefkara basal chert, Lt=Lefkara translucent chert, Ltc=coarse Lefkara translucent chert, M=Moni chert, J=Jasper, U=Silisicified umber, Ch=Chalcedony, Ot=other (coarse, irregular materials including most frequently silicified sandstone and limestone), Obs.=Obsidian.

individual artefacts. A core trimming element from fill 116.123 refits to the only remnant core in the sample recovered from fill 116.114, demonstrating a final utilisation of this particular translucent core at the well-head. These two refitted artefacts also illustrate the homogeneous nature of the well fill. Artefacts classified as debris (dominated by small waste fragments, chips and chunks) demonstrate a different pattern of raw material utilisation focused on the "ad-hoc" reduction of a variety of inferior quality materials employed in a second distinct *chaîne opératoire* using irregular, coarse materials ready to hand near the well-head. This "ad-hoc" utilisation of coarse raw materials was governed in part by the lack of good quality chert sources in the local area (see McCartney in *LAP* II.1B, 258-259). Coarser Lefkara cherts, silicified umber and "other" raw materials within the "blanks" category of Table 2.3 correspond to this "ad-hoc" aspect of the industry.

The Period 1B sample is more varied in terms of the raw materials used. Lefkara cherts dominate the sample (59.1%). Differences in the proportions of various raw material types, however, can again be seen by comparing the major artefact categories. With the cores, core trimming elements and debris, Lefkara translucent chert and a coarser (or denser) variety of Lefkara translucent chert were most commonly used at the well head. In the group of materials assigned to the type "other" in Table 2.3, irregular, coarse raw materials prominent in the "core" and "debris" artefact categories represent the "ad-hoc" flake production at the well head. Most tools and blanks made of finer materials (especially translucent and "Moni" cherts) appear to have been produced elsewhere and carried to the well site, judging from the low proportions of such materials in other artefact categories in this sample. Basal Lefkara chert, along with the "Moni" and translucent cherts, dominate the Period 1B tool sample. Blanks show a relatively high proportion of the finer quality materials alongside the poorer quality materials which correspond to the use of both formal and "ad-hoc" manufacturing processes in the sample. Translucent cherts similar to those used in Period 1A occur in a wider range of colours and thus suggest the possibility that different sources were exploited during each sub-period. It is equally possible that some of the Period 1B translucent material represents the reutilization or scavenging of Period 1A artefacts, a behaviour documented for mainland assemblages dated to the end of the PPNB

(Quintero and Wilke 1995, 28-29). Of interest in the Period 1B raw material, distribution is the increased utilisation of "Moni" chert. While red-brown translucent cherts are known from a variety of locations on the island, "Moni" chert is abundant and perhaps exclusive to the Paphos district. Its increased utilisation seems to indicate an expanded exploitation of local regional resources during Period 1B. Overall, the total proportion of the fine quality translucent chert decreased in Period 1B. The selection of other relatively high quality cherts (like the "Moni" type) increases, representing a continued selection of better quality materials for the production of blade tools and blade blanks. "Ad-hoc" flake production at the well head during Period 1B exploited coarse and readily available materials. Obsidian figures as only a trace presence in the Period 1B sample, a *pièce esquillée* (see below). This single obsidian artefact, however, corresponds to the preference for the highest quality materials in the production of tools. The presence of both jasper and umber in the Period 1B sample further illustrates a more wide-ranging access to the island's raw material sources, selection practices reflected in other later Aceramic assemblages on the island like Kataliondas-Kourvellos (personal observation; hereafter Kataliondas).

Munsell colour designations for the Period 1B sample are indicated below. Except for possible differences in the translucent cherts, the colours listed here are characteristic of the entire assemblage. Translucent cherts with reddish-brown, red or dark reddish-brown colours (2.5yr 5/4, 4/6, 3/4) parallel those of Period 1A. Other colours include brown, light brown and pink (7.5yr 5/4, 6/4, 7/3) as well as light grey and dark yellowish-brown (10yr 7/1,4/6). Basal Lefkara cherts include white, light grey, very pale brown (10yr 8/1, 7/2, 7/3; 7.5yr 8/2; 5yr 7/1, 8/1) as well as pinkish-grey (7.5yr 7/2; 5yr 6/2 and pink, light reddish-brown, reddish-yellow and reddish-brown (5yr 7/3, 6/3, 7/4, 6/6, 5/4). Lefkara translucent cherts include reddish-grey, pinkish-grey and dark grey (5yr 5/2, 6/2, 4/1; 7.5yr 7/2, 4/0; 10r 6/1); light brown and grey (7.5yr 6/4, 5/0; 10yr 6/1); yellowish-brown and dark yellowish-brown (10yr 5/4, 4/6); and red (2.5yr 5/6; 10r 5/4). Coarse translucent Lefkara cherts are white, light grey (10yr 8/1, 7/2, 7/1; 5yr 7/1, 6/1, 8/1) and pinkish-grey (5yr 4/2). "Moni" cherts are represented by dark grey, reddish-grey, grey and light grey (5yr 4/1, 4/2, 5/2, 6/1, 5/1, 7/1); weak red (10r 5/4); and brown (7.5yr 5/2). Umber used at Mylouthkia is yellowish-brown (10yr 5/8), while jasper is red (10r 4/8).

The types of remnant cortex on blanks analysed in each of the Periods 1A and 1B samples further illustrate differences in raw material selection behaviours used during each period. Of the Period 1A blanks analysed, the majority (n=5, or 65% of the total blank sample) exhibited the type of cortex characteristic of river rolled cobbles, representing 100% of all Period 1A blank cortex. In contrast, only 23.88% of the blanks measured (n=16 or 59.26% relative to total blank cortex) in the Period 1B sample exhibit such cortex. A further 4.48% of the blanks measured exhibited fresh tabular cortex (n=3 or 11.11% relative to total blank cortex), and 11.94% of the blanks measured showed fresh pebble cortex (n=8 or 29.63% relative to total blank cortex). Thus, sources exploited during Period 1A were predominantly secondary river cherts, while both primary and secondary sources can be documented for the Period 1B sample. Though difficult to ascertain, the possibility of heat-treatment is indicated in both assemblages in roughly equal proportions (15.15% of the Period 1A tools compared to 16.28% of the Period 1B tools and 4.48% of the blanks) on the basis of extreme lustre, the darkening of raw material colour and light crazing. If present, heat-treatment, generally considered a characteristic of the PPNB, would have effectively extended the range of materials available in each sub-period (e.g. Nadel 1989; but see Quintero 1996 for comments contradicting the PPNB heat-treatment hypothesis).

A significant difference between the Period 1A and 1B samples in terms of raw material utilisation is the greater presence in the earlier period of obsidian. While only scarcely present in the Period 1B sample, it constitutes 12.5% of the total Period 1A sample. Obsidian artefacts occur only in the debris fragments and tool categories in this earlier sample. Like the majority of other tools from this period, obsidian was not initially reduced at the well site but was utilised and re-worked (see obsidian catalogue below). Analysis of eight of the Mylouthkia obsidian artefacts indicates Gollü Dağ as the source. This is the same source as other obsidian artefacts belonging to Aceramic sites in Cyprus (see § 2.9).

Discussion

The implications of the Period 1A and 1B raw material distribution are readily apparent when compared with assemblages from elsewhere on the island. At Shillourokambos, one of the major criteria used to differentiate between the Early and Late Phase industries was a shift in the utilisation of specific chert types. During Early Phase A and B (Cypro-E/MPPNB), high quality translucent chert dominated the industry. In the subsequent Late Phase (Cypro-LPPNB) industry, the proportions are reversed with "opaque" chert dominating the sample (Guilaine *et al.* 1995, 14-15). In more recent reports, the shift from translucent to "opaque" chert at Shillourokambos occurred during the Middle Phase, which though currently undated probably relates to the beginning of the Cypro-LPPNB (Guilaine *et al.* 2000a, Briois *et al.* 1997, 96-97; Guilaine and Briois 2001). Further evidence for the early use of high quality translucent chert comes from Tenta Period 5 and an undated assemblage from Ayia Varvara-Asprokremnos (hereafter Asprokremnos) near Nicosia (McCartney 1998a, 2001). At Mylouthkia we have dated confirmation of a shift in raw material exploitation during the Cypro-LPPNB towards the utilisation of more moderate quality, but perhaps more ubiquitous cherts. This shift is not only towards the use of "opaque" (Lefkara basal) cherts, as shown by the Shillourokambos assemblage, but to the wider range of Lefkara chert types and "Moni" chert illustrated by the Mylouthkia 1B sample. Experimentation with other raw materials such as umber and jasper, also in evidence at Mylouthkia, further illustrates an industry fully adapted to its resource environment as well as to changes in tool requirements (see below). It is important to note that the distinction illustrated at Mylouthkia between blade and flake *chaînes opératoires*, linked to fine and coarser raw materials respectively, represents a common feature of Levantine PPNB assemblages from the EPPNB onwards. It occurs, for example, at Dja'de, Jericho, Kfar Ha Horesh, Munhatta and Beidha (Quintero 1996, 235; Goring-Morris *et al*. 1994-5, 95-96; Coqueugniot 1994, 314-321; Gopher 1989c, 14-16, 26-27, 44; Crowfoot-Payne 1983, 667-668; Mortensen 1970, 14-21). As noted by Gopher (1994a, 389) this dichotomy in *chaînes opératoires* illustrates a diversity and flexibility in approach to the exploitation of raw material sources.

In relation to raw material exploitation during the PPNB on the mainland, it is also significant that the use of very high quality raw materials is listed as a prerequisite for naviform core reduction (Quintero 1996, 235). From the outset of the island's colonisation and introduction of the naviform reduction strategy from the mainland PPNB, high quality red-brown translucent chert was exploited throughout the island. The utilisation of a specific raw material such as translucent chert (seen in the Mylouthkia Period 1A sample) suggests a certain "pre-conditioned knowledge" which in turn indicates a close association with the workings of the naviform *chaîne opératoire* of the PPNB Levant as well as sufficient familiarity with their new island environment (Bar Yosef 1996, 212). As the new inhabitants slowly adapted to local circumstances, they found other moderate quality, but readily available materials suitable for their changing tool requirements (McCartney and Peltenburg 2000; McCartney 1999, 8-9; Peltenburg *et al*. 2001b; Briois *et al.*1997, 97).

This change in raw material selection appears to have been deliberate. Though raw materials used in the later part of the Cypro-PPNB appear to be more consistently available across the Cypriot landscape, sources of fine translucent chert were not exhausted. A similar pattern has recently been demonstrated for the highly prized pink-purple chert widely used across the PPNB Levant. At Ain Ghazal, for example, local coarser river cobbles were increasingly exploited at the end of the PPNB (PPNC). Mines near to the site producing the high quality pink-purple material, while not exhausted, discontinued in use (Quintero 1996, 235-236). Assemblages dominated by Lefkara basal chert, a nodular chert like the translucent material, produce the same diagnostic types of core shaping artefacts seen in the classic naviform sequence even after certain elements of the *chaîne opératoire* had altered by the Cypro-LPPNB (McCartney 1999; see also below). The utilisation of tabular chert, the form in which some Lefkara cherts predominate and more heavily used during the Cypro-LPPNB, however, generates assemblages with fewer of these diagnostic core reduction artefacts. Tabular cherts are more suitable to a generalised opposed platform (or "sub-naviform") core technology due to their naturally flat sides that require little formal core preparation. Opposed platform cores from other assemblages on the island (especially Tenta) show similarities to PPNB assemblages dating from the EPPNB on the mainland dominated by tabular cherts (McCartney 1999; Quintero and Wilke 1995, 20-22; Wilke and Quintero 1994, 20, 38; Quintero 1996, 235-236; Schmidt 1996, 366; Mortensen 1970, 15-17). Understanding the character of the raw material, therefore, is significant for the interpretation of changes in core reduction that occurred following the Cypro-MPPNB (see below).

The utilisation of obsidian parallels the exploitation of the translucent cherts at Mylouthkia, which as at Shillourokambos substantially decreased by the Cypro-LPPNB (Briois *et al.* 1997, 110-111; Guilaine and Briois 2001). Guilaine *et al*. (2000a, 81-82) view such changes as evidence of the island's isolation during the later stages of the Cypriot Aceramic. Interpretation of a number of technological and typological aspects in the Cypro-PPNB across the island, however, suggests increasingly regional changes like those taking place at the end of the PPNB on the mainland. Our perception of changes in the dominant raw material during the Cypro-LPPNB and the role played by obsidian must lie within this overall view of the chipped stone industry (see below).

§ 2.4 Technology

Core types (see Table 2.4)

The core types used in the present report are distinguished on the basis of platform configuration and follow those employed in the description of the Kissonerga assemblage; definitions of all core types may be found within the Kissonerga final report (McCartney in *LAP* II.1B, 256-257). The sample of cores from the Aceramic occupation at Mylouthkia is relatively poor. Period 1A yielded only one example, a small remnant core on a large thick flake (5.39 cm. maximum length), which was last used by a change of orientation approach, creating platforms crossed at 90 degrees. This single core does provide a certain amount of additional information regarding core reduction in the Period 1A industry. As noted above, the core is made of high quality red-brown translucent chert, demonstrating that a limited amount of core reduction of this favoured raw material was carried out at the well head. An irregular, crested platform rejuvenation blade refitted to this remnant core. While the crest succeeded in removing an overly battered platform, it also reduced the core material to an unworkable size and the latter was therefore discarded. The nature of the battering on both the core and core-trimming element demonstrates a last, rather futile attempt to address an already exhausted piece of favoured raw material. The paucity of other blade core reduction debris requires additional information regarding the *chaîne opératoire* of Period 1A blade production to be extracted from the character of the dorsal scar patterns discussed below.

Table 2.4. Core type and percentages

Core type	*Period 1A*		*Period 1B*	
	n	*%*	*n*	*%*
Alternating	0	--	6	20.0
Crossed	1	100.0	3	10.0
Discoidal	0	--	2	6.67
Mixed	0	--	14	46.67
On-Flake	0	--	2	6.67
Opposed	0	--	1	3.33
Single	0	--	0	--
Splintered	0	--	2	6.67
Total	1	100.0	30	100.01

The cores assigned to Period 1B illustrate different patterns in core reduction from those of Period 1A. While the single core belonging to Period 1A shows both blade and flake negative scars, the Period 1B cores are dominated by the production of flakes and exhibit only a few negative scars that can be labelled as bladelets. The focus on flake core reduction at the well heads has been mentioned earlier in the discussions of blank types and raw material exploitation and is clearly illustrated by the Period 1B core sample. A major proportion (80.0%) of the Period 1B cores are heavily exhausted. This suggests that some of the cores may have been utilised for flakes as a final stage of blank production that could have included previous blade removals. The majority of the Period 1B cores (60% of the sample), however, can be considered exhausted on the basis of the poor quality of the raw materials used. The latter belong exclusively to the "ad-hoc" core reduction which took place at the well head. Only 30.0% of Period 1B cores represent heavily exploited pieces of better quality cherts. The final 10.0% of the sample was discarded due to striking platform failures. Core size also illustrates the dominant use of poor quality materials at the well head. Core types made from coarser materials (alternating, 6.43 cm; crossed, 6.41 cm; discoidal, 8.68 cm; and mixed, 7.48 cm) show relatively large average core sizes. The cores-on-flake (3.57 cm), the single opposed platform core (4.84 cm), and splintered pieces (3.25 cm) represent more heavily exploited, finer quality raw materials and smaller average core sizes. While the single Period 1A core remnant shows no signs of platform preparation, 33.33% of the Period 1B cores exhibit faceting and/or grinding along the edge of the striking platform.

Butt types (see Table 2.5)

The butt types used in this analysis and listed in Table 2.5 are modified from Inizan, Roche and Tixier (1992, 81, Fig. 32) and are the same as those use to discuss the assemblage from Kissonerga (McCartney 1996a, § 6). Very few butts were preserved in the Period 1A sample (n=12), and most of these belong to a small sample of blanks made on coarser raw materials. Of the latter, plain butts dominate the sample, illustrating the simple core technology used in the "ad hoc" flake production at the well head. Only four tools retained intact butts, one each from the point plain, facetted, dihedral and compression types which would be at home in a variety of core reduction methods. The larger Period 1B samples of blanks and tools with intact butts are more representative. Both the blank and tool samples broadly mirror each other, with plain butts dominating both samples (nearly half of all blanks and tools measured). Facetted butts represent approximately a quarter of each of the samples, and the remaining 25% are distributed across other types. It is interesting to note that this final portion of the blank sample is dominated by compression type butts. While some of the flakes included in the sample could represent collapsed butts on flakes struck too near the core face edge, others may have been produced with a bipolar-on-anvil technique. The latter correspond to the presence of "splintered" cores in the Period 1B sample. The remaining tool butts from that period retain a portion of cortex, further illustrating the "ad hoc" flake *chaîne opératoire* used in the well head context.

Table 2.5. Butt type and percentages for blank samples and tools from Periods 1A and 1B

	Period 1A				*Period 1B*			
Butt type	*Blanks*		*Tools*		*Blanks*		*Tools*	
	n	%	n	%	n	%	n	%
Plain	6	75.0	0	--	31	46.27	24	48.0
Point Plain	0	--	1	25.0	3	4.48	5	10.0
Faceted	0	--	1	25.0	18	26.87	12	24.0
Cortex-facet	1	12.5	0	--	1	1.49	5	10.0
Cortex	1	12.5	0	--	4	5.97	2	4.0
Dihedral	0	--	1	25.0	1	1.49	1	2.0
Compression	0	--	1	25.0	9	13.43	1	2.0
Total	8	100.0	4	100.0	67	100.0	50	100.0

In general, the types of butts exhibited by both of the Mylouthkia Period 1 samples parallel those documented for other Aceramic assemblages on the island (McCartney 1999, 9-10; M-C. Cauvin 1984, 85; Le Brun *et al.* 1981, 31; Stekelis 1953, 409). Across Cyprus, a decrease from the Cypro-LPPNB is apparent in the amount of attention paid to the isolation of the butt prior to blank removal. Chipped stone tools in Aceramic assemblages from the Cypro-LPPNB onwards often exhibit broad plain as well as facetted butts. Unless substantial care is taken to isolate the butt on the striking prior to removal, the knapper will have poor control of the applied force, resulting in frequent blade failures. The blades produced exhibit a larger butt area and are generally broader and more "robust" (Quintero and Wilke 1995, 22-24; McCartney 1996a, § 6). The appearance at Shillourokambos of more "robust" blades with the advent of the Cypro-LPPNB has been used to suggest a decrease in skill resulting from isolation of the island from the mainland (Briois *et al.* 1997, 97, 110-111; Guilaine and Briois 2001; see also Ronen 1995, 188-189; Held 1993, 25). More recently, the progression towards increasingly robust blades at Shillourokambos has been attributed to a decline in the production of "preferential blades" from naviform cores for arrowhead manufacture during the Late Phase (Cypro-LPPNB) (Guilaine *et al.* 2000a, 80-81). The association of naviform core technology exclusively with the production of pointed blades for arrowhead production is at odds with research elsewhere associating standardised blade products with the manufacture of a variety of blade tools including arrowheads, glossed blades, retouched blades and burins (e.g. Kozlowski 1999, 9; Quintero and Wilke 1995). Considering this broader interpretation, the manufacture of long flat blades from the continued use of opposed platform cores after the Cypro-E/MPPNB in Cyprus demonstrates considerable continuity with the preceding, classic naviform tradition. The blades produced from the Cypro-LPPNB onwards were extensively utilised for the manufacture of glossed tools, a variety of retouched blades, and burins which correspond with later mainland PPNB assemblages, while representing responses to local tool requirements and raw material supplies. The decrease in platform edge preparation as well as punctiform and filliform butts in the later parts of the Cypro-PPNB may be understood, at least in part, by the frequent use of Lefkara translucent or basal cherts, materials which produce a sharp edge but often have numerous inclusions and tend to be brittle. The more robust blades produced on these materials were acceptable for the tool blank requirements from the LPPNB onwards in Cyprus. Changes in butt architecture as well as decreased concern with potential blade failure in an environment rich in suitable raw materials appear to document deliberate adaptations rather than failures resorted to in cultural isolation (McCartney and Peltenburg 2000; Peltenburg *et al*. 2001b).

By looking at other butt and ventral face variables, it is possible to illustrate more fully the nature of the techniques used during each of the Mylouthkia Aceramic sub-periods. The incidences of crushing and impact rings on blank butts in each of the samples are inversely proportional (12.5% crushing and 25.05% impact rings belonging to the butts from Period 1A; and 25.37% crushing and 16.42% impact rings from Period 1B butts). Both sets of figures appear to suggest a degree of hard hammer impact but may be more indicative of differences in raw material selection. More brittle and highly siliceous materials tend to ring-crack more readily, while coarser materials crush under either hard or soft impact (McCartney 1996a). The Period 1A blank sample contains 50% finer quality (translucent and Lefkara basal) cherts in contrast to 29.85% of these materials in the Period 1B blanks. The latter sample in contrast contains coarser materials such as the dense Lefkara cherts and other irregular materials representing 37.32% of the sample. While keeping in mind the small Period 1A blank sample size, the proportions of blanks exhibiting a lip on the ventral butt edge or an erraillure on the bulb both equal 50%. The parallel statistics from the Period 1B sample are 26.87% and 22.39% respectively. These figures more clearly suggest a greater amount of soft hammer (probably softer stone) utilisation in the earlier industry (see McCartney 1996a with references).

Dorsal scar patterns

Table 2.6a. Dorsal scar patterns, blanks versus tools

	Period 1A				*Period 1B*			
	Blanks		*Tools*		*Blanks*		*Tools*	
Dorsal pattern	n	%	n	%	n	%	n	%
Unidirectional	6	75.0	7	20.0	41	61.19	57	56.44
Bi-directional	1	12.5	18	51.43	3	4.48	12	11.88
Crossed	1	12.5	8	22.86	21	31.34	27	26.73
Radial	0	--	0	--	0	--	3	2.97
Cortex	0	--	0	--	2	2.99	0	--
(indeterminate)	0	--	2	5.71	0	-	2	1.98
Total	8	100.0	35	100.0	67	100.0	101	100.0

Table 2.6b. Dorsal scar patterns, blades versus flakes

	Period 1A (blanks+tools)				*Period 1B (blanks+tools)*			
	Blades		*Flakes*		*Blades*		*Flakes*	
Dorsal pattern	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Unidirectional	4	25.0	7	58.33	21	61.76	51	54.83
Bi-directional	10	62.5	2	16.67	4	11.76	7	7.53
Crossed	2	12.5	3	25.0	8	23.53	32	34.41
Radial	0	--	0	--	0	00	2	2.15
Cortex	0	--	0	--	1	2.94	1	1.08
Total	16	100.0	12	100.0	34	99.99	93	100.0

The dorsal scar patterns belonging to both the blanks and tools from each assemblage provide the clearest indication of the *chaînes opératoires* used during each stage of the Aceramic period at Mylouthkia (Table 2.6a-b). Bi-directional dorsal scar patterns dominate the blades and bladelets of Period 1A (in contrast to Period 1A flakes), and both blades and flakes from Period 1B. While unidirectional dorsal scars can result from various methods of core reduction (unidirectional, bi-directional or change of orientation), blanks with bi-directional scars are characteristically generated from cores with opposing platforms aligned on a single core face. Of course, opposed platform cores are variable depending upon the type and degree of formal core shaping prior and during blank removal. The incidence of core shaping varies in particular between nodular and tabular core forms, as noted above; this accounts for variability between cores and core trimming elements in different assemblages (McCartney 1999; Quintero 1996, 235-236; Schmidt 1996; Quintero and Wilke 1995, 20-22; Wilke and Quintero 1994, 20; Mortensen 1970, 15-17). Thus, while the preponderance of bi-directional dorsal scars belonging to the Period 1A blades is indicative of opposed platform core reduction, it is the occurrence of several examples exhibiting traces of earlier cresting which suggest the use of the naviform method (*sensu strictu*). These examples belonging to the tool sample represent blades or blade segments made of the high quality translucent red-brown chert. In contrast, the Period 1B sample at Mylouthkia exhibits no dorsal patterns indicative of such core preparation and is dominated instead in both the blank and tool samples by unidirectional dorsal scar patterns. The character of the core trimming elements in both Mylouthkia samples illustrates platform rejuvenation rather than core shaping, providing evidence of a late stage of core reduction consistent with the interpretation of "ad hoc" core reduction at the well heads (discussed above). The Period 1B sample, in contrast to that of Period 1A, shows an increased variety of dorsal scar patterns with a greater proportion of scars crossed at 90 degrees, a few radial patterns and two with remnant cortex. The latter can be associated with single platform, crossed platform, discoidal or alternating platform core reductions (McCartney 1996a, 55). The Period 1B sample, therefore, while demonstrating continuity in the use of opposed platform core reduction, shows greater diversity in approach to cores reduced with little or no formal core shaping.

Blank dimensions

Table 2.7. Average blank and tool dimensions (cm)

	Period 1A			*Period 1B*		
	L	*W*	*T*	*L*	*W*	*T*
BLANKS						
Blades	3.95	2.05	0.75	4.53	2.14	0.96
Bladelets	-	-	-	2.33	0.93	0.35
Flakes	3.75	3.32	2.92	3.13	2.85	0.86
TOOLS (complete tool blanks only)						
Blades	-	-	-	6.42	2.76	0.98
Bladelets	2.56	0.96	0.26	-	-	-
Flakes	3.29	2.92	0.81	3.86	3.57	1.05
TOOLS (complete and incomplete tool blanks)						
Blades	4.69	1.76	0.58	4.02	2.40	0.82
Bladelets	2.59	1.09	0.67	-	-	-
Flakes	3.79	4.06	1.19	3.74	3.44	1.10

Table 2.7 lists the average dimensions of blanks and tool blanks for Periods 1A and 1B. Measurements were made of the maximal length, width and thickness with the artefacts oriented along the striking axis. While problems with sample size (particularly for the Period 1A sample) are accepted, it is possible to see that the blades belonging to both the blank and tool samples of Period 1B are both wider and thicker than the Period 1A examples. Such differences in blade character compliment the distinction between the Early and Late Phase industries at Shillourokambos as noted in the discussion of butt type above. This change in blade character permitted the greater utilisation of locally abundant, more moderate cherts as documented above, but this needs to be discussed in terms of the tool blank requirements that stimulated such shifts in core technology and blade form (see below).

Discussion

The evidence provided by raw material selection, core type, butt type, dorsal scar patterns and blank size in the Period 1A and 1B samples from Mylouthkia, as elsewhere on the island, place the origin of the Cypriot industry in the PPNB *chaîne opératoire* of the surrounding mainland (Bar-Yosef 1996, 208; Quintero and Wilke 1995, 1994; Gopher 1994a, 387-390). The presence of naviform cores and evidence of naviform related opposed platform blade production, the use of high quality raw materials, and the preponderance of blades in the tool repertoire are characteristics that define PPNB industries from the EPPNB, reaching a peak in the MPPNB and becoming more regionally variable from the LPPNB onwards (Gopher and Goring-Morris 1998, 8; Gopher 1996, 153-155; Gebel 1996; Quintero and Wilke 1995; Coqueugniot 1994; Peltenburg *et al.* 2001b). The thin parallel-sided blades produced from fine raw materials and naviform cores were required for the manufacture of the arrowheads, harvesting tools, burins and retouched blades diagnostic of mainland PPNB tool assemblages (Kozlowski 1999, 9; J. Cauvin *et al.* 1998, 60-65; Quintero and Wilke 1995, 18-20; Bar-Yosef and Belfer-Cohen 1989, 64-65). The shifts in core technology and raw materials exhibited by the Mylouthkia 1B sample confirm the lithic sequence established at Shillourokambos and corroborated by evidence from Tenta and Asprokremnos. Together they demonstrate island-wide changes within the Cypro-PPNB chipped stone industry (McCartney and Peltenburg 2000, McCartney 1999, 1998a, 2001; Peltenburg *et al.* 2001b; Guilaine *et al.* 2000a, 78-81; Briois *et al.* 1997, 96-97; Guilaine and Briois 2001). These changes, which at Mylouthkia are dated to *c.* 8,000 BP, were initiated within the Middle Phase at Shillourokambos and were established by the Late Phase, dated to *c.* 8,000 BP. Similar shifts in core technology, showing a decreasing utilisation of bi-directional cores, more moderate quality raw materials, and greater numbers of flake tools are well documented in the later PPNB industries of the mainland Levant, also dated to *c.* 8,000 BP (McCartney 1999, Peltenburg *et al.* 2001b; Molist and Ferrer 1996, 433-437; Molist *et al.* 1994, 351-355; Quintero and Wilke 1995, 19; Garfinkel 1994, 551; Rollefson *et al.* 1992, 516-517; de Contensen 1993, 29; 1992, 53). In Cyprus, the changes appear to have commenced slightly earlier, and the stimulus for these changes seems related to the regional character of the island. A decrease in the presence of arrowheads shown at both Mylouthkia and Shillourokambos corresponds well with changes in animal husbandry documented at the latter site (Vinge *et al*. 2000, 8-11; Guilaine and Briois 2001). This apparent shift in the arrowhead tool requirement, however, fails to explain the continued presence of cattle at Kritou Marottou-Ais Yiorkis (hereafter Ais Yiorkis), arrowheads of LPPNB-Final PPNB character in assemblages like Kissonerga, and the widespread hunting of deer throughout the Aceramic period on the island (McCartney in *LAP* II.1B, 291; Simmons 1998a, 6). The continued use of opposed platform cores, augmented by a gradually increasing proportion of single platform cores in later Cypro-PPNB assemblages, illustrates the continued desire for long flat blade products, replaced only gradually from the Khirokitian by greater numbers of flake tools. Sites remained small in Cyprus, and the type of incipient specialisation described for large LPPNB sites in the southern Levant appears not to have occurred in Cyprus (Quintero and Wilke 1995; Gebel 1996; 1994). Blade production focused instead on the blade tools required for small scale farming communities (McCartney and Peltenburg 2000; Peltenburg *et al*. 2001b). The changes in the Cypro-PPNB chipped stone industry are explained less by reference to cultural isolation and more in relation to the social and economic realities of the island, which evolved as one of the many regional variants of the mainland PPNB interaction sphere from the LPPNB onwards.

§ 2.5 Obsidian

The presence of obsidian in the Aceramic assemblages at Mylouthkia has been noted above. This exotic material type belongs overwhelmingly to the earlier of the two Aceramic stages illustrated at the site. The discussion of the obsidian lends itself, both by the exotic nature of the material and by its preponderance in the Cypro-EPPNB sample, to the discussion of colonisation and the assumed subsequent cultural isolation of the island. These points will be addressed below following a catalogue listing the obsidian artefacts. All obsidian was registered and each artefact given an individual registration number. A total of twenty-four obsidian items were recorded at Mylouthkia, twenty-two of which were collected from Aceramic Neolithic contexts (twenty-one pieces from well 116 and one piece from well 133). The remaining two pieces from 300.257 and a surface find are treated below (§ 18).

Catalogue

KMyl 1091, well 116.0: splintered bladelet fragment; the proximal portion of the blank is missing but the distal exhibits clear bipolar removal damage. Recovered from spoil-heap. Length - 2.12 cm, width - 0.43 cm, thickness - 0.22 cm.

KMyl 1217, well 116.124: retouched blade; a prismatic narrow distal blade segment, exhibiting utilisation damage on both lateral edges. The use damage is especially heavy on the distal portion of the left lateral edge, while fine alternating retouch is present on the distal end of the right lateral edge. The distal tip is missing. Recovered from well level 14.90 m asl. Length - 3.53 cm, width - 1.08 cm, thickness - 0.31 cm.

KMyl 1220, well 116.124: *pièce esquillée*; a blade segment reduced by the bipolar-on-anvil technique. Recovered from well level 14.95 m asl. Length - 1.46 cm, width - 1.21 cm, thickness - 0.23 cm.

KMyl 1221, well 116.192: *pièce esquillée*; a medial blade segment reduced by the bipolar-on-anvil technique. This tool represents the reworking of a previously utilised blade, which exhibits inverse edge damage on the left lateral edge. Recovered from well level 14.45 m asl. Length - 1.63 cm, width - 1.20 cm, thickness - 0.32 cm.

KMyl 1222, well 116.0: splintered blade segment, recovered from the spoil-heap. Length - 1.23 cm, width - 0.94 cm, thickness - 0.25 cm.

KMyl 1223, well 116.192: chip, produced by a bipolar-on-anvil technique. Recovered from well level 14.45 m asl. Length - 0.80 cm, width - 0.47 cm, thickness - 0.14 cm.

KMyl 1224, well 116.124: *pièce esquillée*/burin; a prismatic medial bladelet segment reduced by a bipolar-on-anvil technique, with opposed complete burin-like facets running the whole of the left lateral edge. Recovered from well level 15.25 m asl. (wet sieve). Length - 2.02 cm, width - 0.52 cm, thickness - 0.23 cm.

KMyl 1225, well 116.124: splintered bladelet segment; a medial prismatic bladelet segment reduced by a bipolar-on-anvil technique. Recovered from well level 15.55 m asl. Length - 1.50 cm, width - 0.71 cm, thickness - 0.22 cm.

KMyl 1226, well 116.124: splintered bladelet segment; a prismatic medial bladelet segment reduced by a bipolar-on-anvil technique. Recovered from well level 15.00 m asl. Length - 2.11 cm, width - 0.95 cm, thickness - 0.27 cm.

KMyl 1227, well 116.124: chip; complete chip with compression butt. Recovered from well level 17.10 m asl. Length - 0.66 cm, width - 0.37 cm, thickness - 0.10 cm.

KMyl 1229, well 116.124: medial bladelet segment, exhibiting a possible bipolar-on-anvil type break. Recovered from well level 15.70 m asl. Length - 1.06 cm, width - 0.57 cm, thickness - 0.24 cm.

KMyl 1903, well 116.124: shatter fragment; recovered from wet sieve. Length - 0.45 cm, width - 0.21 cm, thickness - 0.18 cm.

KMyl 1904, well 116.124: chip; produced by a bipolar-on-anvil technique, exhibiting a compression butt. Recovered from wet sieve. Length – 0.69 cm, width – 0.50 cm, thickness - 0.13 cm.

KMyl 1905, well 116.124: shatter spall; recovered from wet sieve. Length - 0.86 cm, width - 0.22 cm, thickness - 0.13 cm.

KMyl 1906, well 116.124: shatter spall; struck from a blade edge. Recovered from wet sieve. Length - 1.25 cm, width - 0.14 cm, thickness - 0.21 cm.

KMyl 1907, well 116.124: chip; exhibits a compression butt. Recovered from wet sieve. Length - 0.52 cm, width - 0.33, thickness - 0.12 cm.

KMyl 1908, well 116.0: splintered blade segment; a prismatic medial blade segment reduced by a bipolar-on-anvil technique. Recovered from spoil heap. Length - 1.49 cm, width - 0.73 cm, thickness - 0.21 cm.

KMyl 1947, well 133.282: *pièce esquillée*; a medial blade segment reduced by a bipolar-on-anvil technique. Possibly re-working a utilised blade, with edge damage on the left lateral edge. Recovered from well level 16.60 m asl. Length - 2.03 cm, width - 1.06 cm, thickness - 0.32 cm.

KMyl 1951, well 116.0: chip; produced using a bipolar-on-anvil technique. Recovered from spoil-heap. Length - 0.71 cm, width - 0.60 cm, thickness - 0.19 cm.

KMyl 1952, well 116.0: shatter spall fragment; recovered from spoil-heap. Length - 0.92 cm, width - 0.30 cm, thickness - 0.32 cm.

KMyl 1953, well 116.0: chip; exhibits a compression butt produced by a bipolar-on-anvil technique. Recovered from spoil-heap. Length - 0.60 cm, width - 0.46 cm, thickness - 0.17 cm.

KMyl 1982, well 116.0: fragmentary medial bladelet segment; recovered from spoil-heap. Length - 1.80 cm, width - 0.60 cm, thickness - 0.30 cm.

Most of the obsidian pieces recovered from wells 113 and 116 represent small, heavily re-worked waste material in the form of chips, shatter fragments, bladelet and narrow blade segments. Five pieces can be described as tools. Four of the latter (three from well 116 and one from well 133) represent *pièces esquillées* distinguished from other splintered blade and bladelet segments on the basis of their more regular morphology and consistent edge damage along the splintered edges. However, it is possible that some of the pieces classed here as splintered segments could also be regarded as *pièces esquillées*, though they may have been used only briefly or fashioned but not yet utilised. Of note, two of the *pièces esquillées*, KMyl 1221 from well 116 and KMyl 1947 from well 133, represent re-utilised tools employed in the context of the well heads (see below). One of the examples classed as a *pièce esquillée* (KMyl 1224) appears to exhibit a more deliberately burinated left lateral edge. Artefacts generated by the bipolar-on-anvil technique have elsewhere been associated with the production of spalls and narrow bladelets; the boundaries between such classifications are often quite arbitrary (for a discussion of the bipolar-on-anvil technique see McCartney 1998b and 1996a). Notably, all but one of the obsidian artefacts in the Mylouthkia assemblage were apparently produced or re-used by employing a bipolar-on-anvil technique. Ten pieces represent chips and shatter spalls or fragments with obvious signs of compression fractures. Seven pieces represent splintered blade or bladelet segments. The latter may represent an early stage in the manufacture of *pièces esquillées* or pieces discarded as unsuitable for such tool use.

Only one of the obsidian artefacts recovered from Aceramic Neolithic contexts at Mylouthkia can be classified as retouched. This piece (KMyl 1217), representing the largest obsidian artefact in the sample, exhibits very fine regular alternating retouch on the right distal edge and edge damage on both lateral edges, with heavier damage on the left edge recalling other utilised tools belonging to both samples (see below). It is significant that this tool and two other artefacts (the *pièce esquillée*/burin KMyl 1224 and 1227 assigned to a Chalcolithic context (see § 18) preserve evidence of a prismatic, unidirectional dorsal scar pattern. This type of dorsal scar pattern is consistent with the dominant use of single platform bladelet cores and a pressure technique and is discussed elsewhere in relation to obsidian artefacts both on Cyprus and the surrounding mainland during the PPNB (Briois *et al*. 1997, 98, 105; M-C. Cauvin 1991, 173; McCartney in *LAP* II.1B, 261).

Obsidian is often noted in relation to the island's Neolithic colonisation and inferred subsequent isolation (Le Brun 1986,5; Ronen 1995,189; Stanley-Price 1977, 84; Briois *et al*. 1997, 110-111). These studies have considered the number of obsidian artefacts and the geographical proximity of Cyprus to Anatiolian sources, arguing for a direct linear relationship between the number of obsidian artefacts and the degree of contact with the mainland. Raw material sourcing analyses indicate that most, if not all Cypriot obsidian artefacts originated from the Gollü Dağ (Çiftlik) and Nenezi Dağ sources in Cappadocian area of central Anatolia (Stanley-Price 1977, 84; Ronen 1995, 189; Le Brun 1989a, 162; Briois *et al*. 1997, 108; Finlayson *et al*. in *LAP* II.1A, 205-206; Gomez *et al*. 1995, 504-506; Williams-Thorpe 1995).

The presence of obsidian is generally rare in the Levant prior to the EPPNB and its presence thereafter appears to be related to the distance from sources in Cappadocia or near Lake Van in the central and Taurus regions of Anatolia respectively (Williams-Thorpe 1995; M-C. Cauvin 1994b; 1991). Both authors have noted the variable presence of obsidian in assemblages along the Euphrates: while it is rare at Mureybet (phase IV), it represents 18% of the artefacts at LPPNB Bouqras. Obsidian artefacts collected in this region derive from both Cappadocian and eastern Anatolian origins, and occur in a wider range of types (including cores, blanks, tools and reduction debris) than that seen in Cypriot assemblages. Further south in the Levant, obsidian remained as only small proportions of the total assemblages at major sites such as Jericho (0.5%), Beisamoun (0.3%), or Abu Gosh (0.03%) (Williams-Thorpe 1995; M-C. Cauvin 1994b, 1991). The source of the obsidian reaching the southern Levant is invariably Cappadocian, like that of Cyprus, and the material was utilised primarily for specialised tools such as arrowheads. By the end of the PPNB in the Middle Euphrates as elsewhere in the Levant, obsidian occurs less frequently, consisting primarily of bladelets, arrowheads and other prestige objects (Williams-Thorpe 1995, 232-234; M-C. Cauvin 1994b; 1991, 166-174).

As M-C. Cauvin has pointed out (1991, 167), we can best interpret the presence of obsidian as a total proportion within a given assemblage rather than comparing simple artefact numbers. Considering total proportions provides a clearer understanding of the importance of this material type within the overall industry of a site. Thus, Cypriot sites like Mylouthkia Period 1A and Shillourokambos exhibit relatively high proportions of obsidian in terms of the total assemblage, 12% and 2% respectively. The character of these two samples is similar in terms of the types of artefacts represented, including narrow blade and bladelet segments, a few of which exhibit marginal retouch, *pièces esquillées* and numerous small debris. These artefact types, as well as evidence of the use of a unidirectional pressure technique in their manufacture, correspond to the utilisation of obsidian in much the

PPNB Levant, as noted above. Other Aceramic assemblages on the island that contain small total proportions of obsidian still exhibit the characteristic core technology and artefact types, which remain consistent through the end of the Aceramic Period (e.g. Gomez *et al.* 1995, 506). Importantly, at Khirokitia, the recovery of a pressure retouched point tang illustrates the utilisation of obsidian for specialised or prestige tool types, like those seen more frequently on the mainland (Christou 1994, 664; M-C. Cauvin 1991, 166-174). Cyprus was no doubt on the fringes of the obsidian trading system, and its participation in such trade declined dramatically by the Cypro-LPPNB. The manner in which this exotic raw material was used on the island, however, is consistent with that seen in many mainland PPNB assemblages, particularly from other regions lying on the margins of the PPNB interaction sphere.

§ 2. 6 The tools

Tool classes

Table 2.8. Tool class counts and proportions

	Period 1A		*Period 1B*	
Class	*n*	*%*	*n*	*%*
Backed piece	1	2.86	15	14.85
Burin	8	22.86	1	0.99
Denticulate	0	-	6	5.94
Glossed piece	3	8.57	8	7.92
Notch	0	-	8	7.92
Perforator	4	11.43	4	3.96
Pièce esquillée	4	11.43	12	11.88
Point tang	1	2.86	0	-
Retouched	4	11.43	9	8.91
Scraper	0	-	1	0.99
Truncation	1	2.86	2	1.98
Utilised	9	25.71	35	34.65
Total	35	100.01	101	99.99

Note: The Period 1B sample includes two utilised pieces from the contaminated context 351.350; all other artefacts were collected from 'OK' and 'M' contexts.

The distribution of the various tool classes belonging to Periods 1A and 1B at Mylouthkia illustrates very different types of assemblages. The Period 1A sample is dominated by burins and utilised blades and flakes. *Pièces esquillées*, perforators, retouched flakes and blades and glossed pieces all feature strongly, but denticulates, notches and scrapers are absent. Backed pieces and truncations are present in low proportions. The high proportion of burins in the Mylouthkia 1A sample parallels a similarly high burin frequency in the assemblage from Asprokremnos, which is also similar in terms of raw material selection and core reduction strategy, (McCartney 1998a, 89, Table 3). The Early Phase A and B industry at Shillourokambos shows a significant number of burins as well as many retouched flakes and blades. Like the Mylouthkia Period 1A sample, the Early Phase A and B assemblages from Shillourokambos exhibit numerous *pièces esquillées*, especially in the obsidian sample. The frequent notches, scrapers and denticulates at Shillourokambos, however, do not figure in the earlier Mylouthkia sample. Glossed pieces and arrowheads from Mylouthkia 1A also differ from the types distinctive of the Shillourokambos Early Phase A and B industry (McCartney and Peltenburg 2000, Peltenburg *et al.* 2001b, Briois *et al.* 1997, 97; Guilaine *et al.* 1995, 24, Fig.10; Guilaine and Briois 2001; see also below).

With the Period 1B tool sample from Mylouthkia we see greater variety in the kinds of tools represented. The proportion of utilised flakes and blades is dominant; retouched flakes and blades, glossed pieces, perforators and truncations remain relatively consistent, while denticulates and notches appear (representing between 6-8%), and scrapers are present. Importantly, the proportion of backed pieces in the Period 1B sample increases, accounting for a relatively high percentage (15%) of the total tool sample. Tools of this kind have been documented in nearly all later Aceramic assemblages on the island and are particularly frequent in assemblages such as Khirokitia, Cap Andreas and Tenta (M-C. Cauvin 1984, 85; Le Brun *et al.* 1981, 35; McCartney 2001; Peltenburg *et al.* 2001b). Glossed pieces, often backed, are also prominent at sites like Khirokitia, Cap Andreas, Tenta and Ortos, while scrapers are more frequent at Ais Yiorkis and perhaps Kataliondas (M-C. Cauvin 1984, 85; Le Brun *et al.* 1981, 33, Table 8; Simmons 1994b, 41, Table 2; Simmons 1998a, 11, Table 5; Watkins 1979, 18). At Tenta, notches and truncations represent common tools, while recent work on the Kataliondas assemblage suggests greater numbers of truncations than previously reported (McCartney 2001; see also below).

Tool re-utilisation

An important aspect of the Mylouthkia Aceramic assemblage is the degree to which individual tools were re-utilised in each of the two sub-periods. Table 2.9 shows the numbers of re-used tools belonging to the tools classes discussed above and the distribution of tool classes based on the initial rather than final tool morphology. Though this shift in the proportions of specific tool class categories is unique to Mylouthkia, it is nevertheless instructive for general problems concerning functional or chronological interpretations of assemblages based on tool class proportions. For example, studies elsewhere have suggested that total percentages of glossed tools might be higher if incidences of re-utilisation and tool morphology (where gloss is not visible) were taken into consideration (e.g. Quintero, Wilke and Waines 1997, 265, 280-281).

In the Period 1A assemblage, a significant proportion of the tool sample (34.29%) represents the re-tooling and re-utilisation of earlier tools. The greatest changes in tool class proportions are found in the burin and *pièce esquillée* categories, both of which represent artefacts more frequently made by re-tooling or re-utilising other spent tools. Glossed pieces and arrowheads, in contrast, represent artefact categories whose original proportions became obscured with the latest tool use at the well-head. The resulting loss of arrowheads in the Mylouthkia tool distribution is relevant to the "problem" of finding arrowheads in Cypriot Aceramic assemblages. Other tool classes exhibit more modest changes, with notches appearing in the Period 1A classification, perforators decreasing, and both retouched and utilised flakes and blades increasing in the sample.

Table 2.9. Number of re-utilised tools and initial use tool class counts and proportions

Class	*Period 1A n= reused*	*Period 1B n= reused*	*Period 1A n*	*%*	*Period 1B n*	*%*
Backed piece	0	0	1	2.86	15	14.85
Burin	6	1	2	5.71	0	--
Denticulate	0	1	0	--	5	4.95
Glossed piece	0	0	6	17.14	10	9.9
Notch	0	0	1	2.86	8	7.92
Perforator	1	2	3	8.57	2	1.98
Pièce esquillée	2	5	2	5.71	8	7.92
Point	0	0	3	8.57	*1	0.99
Retouched	2	0	5	14.29	11	10.92
Scraper	0	0	0	--	1	0.99
Truncation	1	0	1	2.86	2	1.98
Utilised	3	4	11	31.43	37	36.63
Core	--	--	--	--	1	0.99
Total	15	13	35	100.0	101	99.99

* denotes a blade fragment with a zone of pressure retouch possibly derived from a discarded arrowhead.

In the Period 1B sample a lower proportion of the total tool sample (12.87%) was similarly recycled. Broadly speaking, these examples show parallel patterns of re-tooling and re-utilisation at this time, suggesting analogous patterns of behaviour which are deemed here to be contextually relevant (see below). The greatest changes in the Period 1B tool class distribution are seen with the *pièces esquillées*, implements most consistently produced by re-tooling. Glossed pieces increase somewhat and a possible pressure retouched point fragment appears in the distribution (see tool type discussion below). Burins, represented by the latter, pressure retouched item, disappear while denticulates and perforators exhibit moderate decreases. As with the proportions for Period 1A, both retouched and utilised flakes and blades increase somewhat, while four utilised pieces were made on previously retouched pieces.

Tool classes and types

The following section consists of the discussion of each tool class and the types used to distinguish individual artefacts within each class. Parallels are sought which help to illustrate Cypriot Aceramic origins in the PPNB cultures of the mainland and consideration of the Mylouthkia assemblage relative to other Aceramic Neolithic assemblages on the island are also discussed. It is necessary to focus on the most diagnostic artefacts, particularly the point tangs and glossed tools, which, though re-tooled and re-utilised at the well-head, preserve crucial evidence of diffusion from mainland forms. Individual tool classes are discussed in alphabetical order with specific types and attributes described under each class heading. The tool definitions and attributes used in the present report follow Inizan, Roche and Tixier (1992), unless otherwise stated.

Table 2.10. Tool types and relative percentages

Class	*Type*	*Period 1A n*	*% of class*	*Period 1B n*	*% of class*
Backed piece	alternating	0	-	1	6.67
	convex	0	-	6	40.0
	rectilinear	1	100.0	7	46.67
	and truncated	0	-	1	6.67
Burin	dihedral	1	12.5	0	-
	on-break	5	62.5	1	100.0
	straight-trunc	1	12.5	0	-
	convcave-trunc	1	12.5	0	-
Denticulate	alternating	0	-	3	50.0
	unifacial	0	-	3	50.0
Glossed	unretouched	3	100.0	6	75.0
	backed	0	-	2	25.0
Notch	single	0	-	5	62.5
	with retouch	0	-	3	37.5
Perforator	borer	3	75.0	4	100.0
	drill	1	25.0	0	-
Pièce Esquillée		4	100.0	12	100.0
Point Tang		1	100.0	0	-
Retouched	alternate	0	-	1	11.11
	alternating	1	25.0	3	33.33
	convex	1	25.0	2	22.22
	rectilinear	2	50.0	3	33.33
Scraper	end	0	-	1	100.0
Truncation	oblique	0	-	1	50.0
	straight	1	100.0	1	50.0
Utilised	abrasion	1	11.1	2	5.71
	wedge/chopper	0	-	6	17.14
	general	8	88.89	27	77.14
Total		35		101	

Note: tool types are based on final tool morphology.

Backed pieces

Backed pieces are defined as tools with abrupt or semi-abrupt retouch along a part or whole of a lateral edge, providing a blunted 'backing' to a utilised edge opposite. The character of this utilisation (though obviously use-wear analysis is needed to confirm the assertion) suggests that these tools represent cutting, perhaps harvesting, implements with the backing, enabling the tool to be hand-held or hafted for more stability (e.g. Anderson and Valla 1996, 352-357). While no gloss was visible on tools assigned to the backed category, it is possible that backed tools were used for reaping and that diagnostic gloss is not visible due to raw material type or duration of use (e.g. Quintero, Wilke and Waines 1997, 280-281; Anderson

1994, 80-81; Simmons 1994b, 42). That backed pieces are related to truncations (see below) is suggested by a few examples with both backing and truncation retouch (one each in Periods 1A and 1B). Backed pieces represent one of the hallmarks of the Cypriot Aceramic industry, being found in most if not all assemblages dating from the Cypro-LPPNB onwards (M-C. Cauvin 1984, 85; Le Brun *et al*. 1981, 35; Simmons 1994b, 41; Peltenburg *et al*. 2001b). Backed pieces were also present in low proportions in PPNB assemblages throughout the Levant (Molist *et al*. 1994, 360; Rollefson *et al*. 1992, 445; Gopher 1989c, 68; Crowfoot-Payne 1983, 684).

Four types were used in the present analysis to differentiate the backed pieces. Three of them are based on the delineation of the backing retouch: rectilinear, convex, alternating (or sinuous); the fourth type, backed and truncated is based also on retouch location (see Table 2.10). Within the Mylouthkia assemblage, the majority of backed tools were produced on blades (100.0 % of the examples from Period 1A, n=1; and 33.33% of all backed pieces in Period 1B, n=5, representing 62.5% of the examples identifiable to blank type). Three backed pieces made on flakes belong to the Period 1B sample. In both Periods 1A and 1B relatively good quality cherts were preferred for the backed tool class, including basal Lefkara cherts (100% in Period 1A, n=1 and 46.67% in Period 1B, n=7), translucent Lefkara chert (40.0% in Period 1B, n=6) and 'Moni' chert (6.67% in Period 1B, n=1). The majority of the backed pieces in the Mylouthkia sample represent broken tools (100.0 % n=1 in Period 1A, 66.67 %, n=10 in Period 1B), with the average tool size of the complete examples shown in Table 2.11. Backing retouched is primarily dorsal, but both inverse and bifacial examples are present in the Period 1B sample. Retouch is located on either left or right lateral edges, occurring as steep, scaled, sometimes sub-parallel retouch, occasionally on an otherwise naturally backed edge.

Table 2.11. Average tool dimensions (cm)

	Period 1A			*Period 1B*		
Class	*L*	*W*	*Th*	*L*	*W*	*Th*
Backed	*4.99	1.60	0.70	6.42	3.03	1.28
Burin	3.60	1.95	0.74	2.85	1.47	0.73
Denticulate	-	-	-	5.10	4.74	1.64
Glossed	*2.73	1.82	0.50	4.53	1.48	0.92
Notch	-	-	-	2.84	2.21	0.74
Perforator	2.56	0.96	0.26	3.45	3.21	1.33
Pièce esquillée	2.68	1.76	0.57	2.69	1.73	0.68
Point tang	*4.75	2.17	0.74	-	-	-
Retouched	*3.24	3.72	0.82	3.84	4.46	1.06
Scraper	-	-	-	2.30	2.49	0.86
Truncation	*5.63	1.90	0.70	2.95	1.95	0.64
Utilised	3.29	2.92	0.81	4.46	3.89	1.31

* broken tools, values for Period 1A perforators = the complete drill

Burins

Burins were defined as any piece exhibiting a burin blow, struck from a break, segment of retouch or an unmodified edge. Burins in the Mylouthkia assemblage were divided into four types representing angle burins, on-break, as well as straight and concave-truncations, and dihedral examples (Table 2.10). Chronological differences have been suggested for the burin class in some studies of Neolithic assemblages on the mainland, with angle burins on-break being linked to the EPPNB and shifting to greater numbers of truncation or "complex" burins in later phases of the PPNB (Baird in Garrard *et al*. 1994, 90; Garfinkel 1994, 556; Rollefson *et al*. 1992, 459. The high proportion of burins-on-break in the Mylouthkia 1A assemblage appears to correspond to this chronological distinction. Functional differences relating to site type have been suggested for the "burin" sites which are distinctive of the "desert facies" and exhibit very high proportions of burins within total tool samples (M-C. Cauvin 1994a, 289-295; M-C. and J. Cauvin 1993, 26; Betts 1987, 227-229; Muheisen and Rollefson 1985; Rollefson *et al*. 1982).

Burins found within the Mylouthkia assemblage were made exclusively on the high quality translucent chert. The Mylouthkia burins (where identified to blank type) were made predominantly on blade and bladelets segments, a PPNB characteristic noted earlier. Most of the burins in the assemblage can be considered as complete tools (62.5%, n=5, in Period 1A and 100.0 %, n=1, in Period 1B); their average dimensions are listed in Table 2.11. Burin facets reshape several Period 1A tools, including one Byblos tang, a practice reported in assemblages such as Kfar HaHoresh and Goraife (Goring-Morris 1994, 432; M-C. Cauvin 1977, 300). Debate exists concerning whether such modification represents true "re-tooling" without evidence of utilisation along the burin facets (Anderson and Valla 1996, 352-353). Similar examples have been interpreted as evidence for impact fracture, particularly in the case of arrowheads (Moss 1983, 146). It is interesting to note, however, that burins exhibiting traces of use along the burin facet were documented in the Jericho PPNB assemblage (Crowfoot-Payne 1983, 688-89). The single burin example assigned to the Cypro-LPPNB well 133 at Mylouthkia appears to represent similar recycling practices, but it could indicate the presence of a residual Period 1A artefact, or have been made on material scavenged from the earlier period. This Period 1B burin was made on the preferred translucent raw material of the earlier period and represents the re-tooling of a pressure retouched object, presumably an arrowhead fragment. Pressure retouch is not, however, unknown from Cypro-LPPNB or Khirokitian contexts on the island (for example Kissonerga), and the character of the retouch differs from the flat percussion retouch found on the Period 1A point tangs (see below).

Denticulates

Denticulates are present only in the Period 1B sample at Mylouthkia. The sample was produced entirely on flakes using relatively coarse stepped abrupt or semi-abrupt retouch. Two types were distinguished, unifacial and alternating. The former may represent heavily modified scrapers, while the latter resemble heavier examples of coarse alternating retouch (see below). The irregular retouch is either dorsal or bifacial with only one inversely retouched example. No specific raw material selection seems to have been practised for the denticulated pieces, with a variety of chert types having been employed; basal Lefkara (33.33%), translucent Lefkara (16.67%), dense translucent Lefkara (16.67%) and "Moni" (33.33%). Most of the examples (n=4 or 66.67%) represent complete tools; their average tool dimensions are listed in Table 2.11.

Glossed pieces

Glossed pieces represent a tool class defined not on the basis of the retouch character or tool morphology, but in terms of the gloss developed during use. Functions demonstrated by use-wear analysis of such gloss vary but are commonly linked to the cutting of plant materials, often cereals, representing characteristic tools in assemblages from the beginning of the PPNB on the mainland which evolved from earlier Natufian antecedents (Quintero, Wilke and Waines 1997; Anderson 1994, 63-64; M-C. Cauvin 1983). Two types were used to classify the glossed pieces in the present analysis, unretouched and backed. The numbers of each type belonging to Periods 1A and 1B can be found in Table 2.10. Interestingly, all of the glossed pieces exhibiting formal retouch belong to Period 1B. The Period 1A examples are unretouched and exhibit fine denticulation, possibly resulting from use although considerable debate exists as to the origin and purpose of such denticulation (e.g. Quintero, Wilke and Waines 1997; Anderson 1994). Two re-tooled *pièces esquillées* were made on similarly finely denticulated glossed blade fragments. Such finely denticulated glossed blade tools represent one of the PPNB hallmarks on the mainland, appearing with the EPPNB (e.g. Gopher 1996, 153). Importantly, though, finely denticulated examples occur in the Tenta Period 5 assemblage; the obliquely glossed crescent segments characteristic of Shillourokambos Early Phase B and found also at Tenta are absent from Mylouthkia (Briois 1997, 97; Guilaine and Briois 2001; McCartney 2001; Peltenburg *et al*. 2001b). While the glossed tools from Mylouthkia were made on blades dominated by bi-directional dorsal scars, the crescent segments from Shillourokambos and Tenta employed small blades or bladelets struck from the edges of flakes or unidirectional blade cores (Guilaine *et al*. 2000a, 79; McCartney and Peltenburg 2000). In relation to the sequence of glossed types on the mainland, the glossed segments from Shillourokambos suggest an "inheritance" from the Natufian period, but also reflect the continued use of microlithic forms in the Anatolian facies of the PPNB (Rosenburg *et al*. 1998; Anderson and Valla 1996; Kozlowski 1994). On the basis of present evidence, therefore, the glossed tools belonging to early PPN assemblages in Cyprus indicate a mixture of influences from the northern Levant. As on the mainland, backed and truncated glossed blade segments increase in the Cypriot assemblages dated from the LPPNB, although they never became as elaborate as those belonging to LNeo assemblages in the Levant (M-C. Cauvin 1983, 70; Peltenburg *et al*. 2001a).

All of the Period 1A glossed pieces (as well as the re-tooled *pièces esquillées*) were invariably made on the high quality translucent chert. In the following Period 1B sample, the cherts selected for use as glossed tools were more variable, with Lefkara cherts dominating (12.5% translucent, n=1; 62.5% Lefkara translucent, n=5; 25% basal Lefkara, n=2). Of the tools identifiable to blank type (33.33% n=1 in Period 1A, and 37.5% n=3 in Period 1B), all were made on blades. The gloss was located on either the right or left lateral edge and was extremely heavy in a number of examples, particularly those from both samples exhibiting signs of heat alteration. It is interesting to note that heavier gloss has been linked through replication to heat-treatment (Quintero, Wilke and Waines 1997, 278). The number of complete glossed tools was low (n=2 in the Period 1B sample); therefore, dimensional data listed for Period 1A in Table 2.11 represent measurements taken from incomplete tools.

Notches

Notches, like the denticulates, appear only in the Period 1B sample at Mylouthkia. Two types were distinguished, namely, single notches, and notch(es) accompanied by other segment(s) of retouch (Table 2.10). The majority of the Period 1B notches are simple single notches located on either lateral edge. Retouch is generally short, abrupt or semi-abrupt, stepped or scaled, and nearly equal between direct or inverse examples. Notches, like the denticulates, were produced on flakes (75%, n=6) with no blades represented in the sample. The raw materials used represent varieties of Lefkara cherts, basal Lefkara (25%, n=2), Lefkara translucent (25%, n=2) and Lefkara coarse translucent (50%, n=4). The average dimensions of complete examples are shown in Table 2.11.

Perforators

Perforators in the Mylouthkia assemblage were defined either on the basis of retouch or wear located on a pointed tip. The distribution of this retouch or wear was such that a twisting motion could be inferred. While perforators represent equal numbers (n=4) in each of the two sub-period samples, the Period 1A perforators represent a more significant proportion of the tool sample. Two types, borers and drills, were defined on an arbitrary basis of size, with the borers representing the more numerous and larger examples of the two categories (Table 2.10). Only one artefact, which belonged to Period 1A, was assigned to the drill type. Blank types, where identifiable, are predominantly blades and bladelets (one blade and one bladelet in Period 1A and one spall in Period 1B). One example from Period 1A was made on the distal portion of a flake. In the Period 1A sample both high quality translucent and Lefkara translucent cherts were utilised in equal proportions (n=2 each). During Period 1B, raw material selection for perforator production appears to have been more haphazard with one example from each of the translucent, basal Lefkara, and "Moni" chert types, with the final piece on a stone of volcanic origin, possibly pillow lava. Short, generally abrupt, retouch was distributed on both dorsal and ventral faces as it encircled the objective tool tip, forming straight and concave segments of retouch. Only one complete tool was present in each sub-period sample, the dimensions of which are shown in Table 2.11. Average diameters of the working tip are 0.75 cm for the borers and 0.42 cm for the drill from Period 1A, and 0.65 cm for the borers belonging to the Period 1B sample.

Pièces esquillées

Pièces esquillées are defined on the basis of bi-directional scarring created by tool use and/or formal shaping with the use of a bipolar-on-anvil technique. These tools are separated from more generic splintered pieces in the Period 1B sample on the basis of differences in overall shape (*pièces esquilées* are relatively flat rectilinear pieces while the splintered pieces are typically angular chunks), and accompanying edge damage (*pièces esquilées* show continuous angular, generally bifacial edge damage on one or both ends, while splintered pieces are more often simply battered). In general, the *pièces esquilées* belonging to both Mylouthkia Period 1 samples are small in comparison to other tools and represent the intensive utilisation of predominantly high quality raw materials. Materials utilised during Period 1A are dominated exclusively by translucent chert (n=4) and obsidian (n=3 KMyl 1220, 1221, 1224). In the larger Period 1B sample, raw material utilisation was still concentrated on the finer quality materials (n=7 translucent chert representing 50% of the chert examples and n=1 obsidian example KMyl 1947). Greater variety in raw material selection is evident in this tool class and in the Period 1B assemblage as a whole by the use of Lefkara and "Moni" cherts (n=1 basal Lefkara, n=2 translucent Lefkara, n=1 dense Lefkara and n=1 "Moni"). Blank type for the most part is not identifiable. Where blank type can be defined, blades are typical (n=1 Period 1A and n=2 Period 1B). *Pièces esquilées* represent an important aspect of the tool sample at Shillourokambos, particularly in the obsidian sample (Brois *et al*. 1997, 104, Fig. 2). Similarly, *pièces esquilées* on obsidian are present throughout the Levant and Anatolia during the PPN period at, for example, Dja'de on the Euphrates, Çafer Höyük in the Taurus region, or Jericho in the southern Levant (Coqueugniot 1994, 327, Fig. 10.4; M-C. Cauvin and N. Balkan 1985, 58, Fig 8.5; Crowfoot-Payne 1983, 661, Fig. 289.2-4). In the case of Mylouthkia, the preferred high quality translucent chert was used like obsidian for this tool type. It is possible that the translucent chert examples belonging to the Period 1B sample represent residual or scavenged artefacts of this valued raw material exploited for a second time during the later sub-period.

Point tangs

Three broken arrowhead tangs belong to the Period 1A sample. Two of these tangs were re-tooled/re-utilised, but they preserve sufficient detail to illustrate their original character. Because arrowheads represent the most chronologically diagnostic tool class belonging to PPN assemblages on the mainland, the Mylouthkia examples need to be discussed for the purpose of understanding the chronology and origins of the Aceramic industry on the island and the place of the Mylouthkia assemblage in this sequence. Generally, the Mylouthkia 1A arrowhead tangs represent potentially transitional E/MPPMB examples in relation to tools illustrated in assemblages on the mainland. The Mylouthkia Period 1A dates straddle the 9,200 BP boundary used to distinguish the EPPNB and MPPNB in the northern Levant, suggesting that both transitional and "retardation" effects need to be taken into consideration when interpreting these artefacts (Cauvin *et al.* 1998, 59-63; Gopher 1996, 153-155; 1989a; 1989b; M-C. Cauvin 1994a, 288-89).

All three of the Period 1A examples belong to well 116. All were produced on the high quality translucent chert, two examples on a red-brown coloured chert and the final example on a strong brown coloured chert. All three tangs were made on prismatic blades clearly produced by using bi-directional blade cores. One of the examples exhibits perpendicular remnant scars resulting from a former cresting of the core face. Each example exhibits formal modification with flat parallel or sub-parallel percussion retouch restricted to the tang, broadly resembling EPPNB arrowheads from sites like Mureybet IVA and Dja'de (M-C. Cauvin 1994a, 288-289; Coqueugniot 1994, 321-322, Figs. 3-5).

The first and only un-reworked point tang belonging to the Mylouthkia Period 1A sample is rather different from the other two examples. The tang is formed by flat retouch on the ventral face and by low angle to semi-abrupt retouch on the dorsal surface of both lateral edges. The tang is rather broad and somewhat irregular in outline with a slightly concave base. Perhaps most distinct is a pair of asymmetrical inverse notches just above the "tang" portion of the tool. This tool was probably rejected before completion, but the notches are clearly distinguished from the tang retouch, representing (however loosely) the tradition of notched arrowheads primarily restricted to the phases leading up to and into the early phase of the PPNB (Gopher 1996, 153; 1989a; 1989b; M-C. Cauvin 1994a, 288-289; Coqueugniot

1994, 321-322).

The other two Mylouthkia 1A tangs can be attributed to the Byblos arrowhead type (Gopher 1994b, 36-39). In spite of exhibiting flat retouch said to characterise the EPPNB of the northern Levant, the Mylouthkia Byblos tangs do not resemble the Mureybet tradition of proto-Byblos points. Instead, they resemble true Byblos forms such as the MPPNB examples belonging to Mureybet IVB and Aswad II (M-C. Cauvin 1994a, 288-289, Fig. 4.6-7, Fig. 7.5; 1974, 431, Figs. 2-3; Gopher 1994b, 39, Figs. 4.7, 17-18, 96). The first and most heavily re-worked example shows flat retouch thinning the ventral surface. This retouch is limited to the basal end of the blade and is partially obliterated on the right lateral edge by the burin blows from subsequent utilisation. Dorsal retouch on this example is semi-abrupt, shaping the "tang" along the left lateral edge, and preserved on the right edge where not truncated by burin blows. The "tang" is distinguished from the body of the arrowhead at an obtuse angle (160 degrees).

The second more complete Byblos point tang shows heavy abrasion re-utilisation partially obscuring original tang retouch on the left basal edge opposite a re-tooled concave backing made by abrupt and semi-abrupt retouch which partly truncates the earlier tang outline. Fine semi-abrupt retouch gradually disappears down the right medial edge. The relatively short tang itself, like that above, was produced by inverse flat retouch limited to the basal end. The tang was originally wider than at present and probably exhibited a symmetrical outline rather than the asymmetrical form of the tang as it presently exists. This artefact represents a more classic Byblos point tang with the tang set off from the body at 120 degrees.

Retouched pieces

Retouched pieces represent a moderate proportion within each of the Mylouthkia Aceramic period samples. Four types were used to distinguish kinds of retouched tools, based on edge delineation and retouch configuration, namely; rectilinear, convex, alternating and alternate retouches (see Table 2.10). The four examples identifiable to blank type belonging to Period 1A all represent flake tools. Flake blanks similarly dominate the Period 1B sample (55.56% n=5), though blade blanks represent one third of the retouched pieces. Raw material selection for the production of retouched pieces during Period 1A conforms to the translucent chert preference, while material selection in Period 1B was typically variable, representing both fine and coarse raw material types (n=2 translucent, n=3 basal Lefkara, n=3 coarse translucent Lefkara, and the only tool made on chalcedony, n=1). All of the Period 1A retouched pieces represent broken tools and only three of the Period 1B examples can be considered as complete, the average dimensions of which are shown in Table 2.11. Retouch in this tool class is generally semi-abrupt or abrupt, stepped or scaled, being located along the lateral edges in one or more segments of continuous retouch. Retouch during both periods was both direct and inverse.

Scrapers

In contrast to the later Chalcolithic industry where scrapers were more numerous, only a single example was recovered from Aceramic contexts at Mylouthkia; it belongs to Period 1B. This tool is an end scraper made by semi-abrupt convex retouch located on the distal end of a small flake; the tool is complete and its dimensions are listed in Table 2.11. Good quality "Moni" chert was utilised in the production of this small scraper, a material type apparently preferred for scraper production during the Chalcolithic period (McCartney 1998a, 283-284).

Truncations

Three tools were classified as truncations in the Mylouthkia Aceramic assemblage, two from Period 1B and a single example from Period 1A. Two of these tools (one each from Periods 1A and 1B) represent straight transverse truncations, while the third example, dating to Period 1B, is oblique (Table 2.10). All of the Mylouthkia Period 1 truncations were made on blades. A narrow prismatic blade of translucent chert belongs to Period 1A, in contrast to a wider, more "robust" "Moni" blade from Period 1B. The final Period 1B example was made on an irregular fragment of basal Lefkara chert. Since truncations represent segments, it is often difficult to determine whether they represent complete or broken tools, so the average dimensions of both samples are listed in Table 2.11. The type of retouch used is abrupt, located at the basal end in the case of the Period 1A example, and at the distal ends on the Period 1B examples. Truncations represent relatively low proportions in most mainland PPN assemblages and are perhaps more characteristic on glossed tools (Peltenburg *et al.* 2001b with references). Use-wear analysis performed on the assemblage from Khirokitia has shown that some truncations without gloss have been used as implements for cutting cereals (Coqueugniot 1984).

Utilised pieces

Utilised pieces are defined not on the basis of retouch, but by the presence of edge damage or wear along one or more of the tool's edges. Tools belonging to this class were selected on the basis of damage visible with a 20x hand-lens. Without systematic use-wear analysis, however, the examples listed here can only be regarded as representative of a potentially larger sample. Three types were used to differentiate the large number of utilised pieces in each sample (see Table 2.10). The most numerous "general" type refers to those blanks exhibiting continuous edge damage typically in the form of small angular edge scarring. The second type "abrasion" was designated for examples exhibiting a distinctly abraded edge with little or no additional edge damage. Pieces exhibiting substantial edge damage chipping and areas of abrasion, or secondarily abraded areas re-working earlier tools were included in the general category and are discussed in greater detail below. The third and final type of utilised piece comprises tools with heavy or coarse alternating chipped damage suggestive of use as a chopping tool or wedge; it is possible that these are coarser versions of the *pièces esquilées* discussed above.

In the Period 1A sample, eight of the nine utilised pieces were made on high quality translucent chert. The remaining example from the earlier sample is a Lefkara translucent chert. In Period 1B, raw material selection was typically more varied with relatively few translucent chert examples (n=3 or 8.57%), frequent "Moni" examples (n=8 or 22.86%), two coarse irregular materials including a re-used core (n=2 or 5.71%), and a majority of Lefkara cherts (n=11 or 31.43% basal Lefkara, n=8 or 22.86% translucent Lefkara and n=3 or 8.57% dense Lefkara translucent). Most blanks utilised without retouching were blades in the Period 1A sample (60% or n=6), less frequently flakes (n=1 or 10%) and a number of pieces of indeterminate blank type (n=3 or 30%). Blank selection used during Period 1B reflects a shift to the greater utilisation of flake blanks (n=18 or 51.43%), while blades represent a diminished proportion (20%, n=7). The re-use of a large alternating platform core as a 'chopping' tool represents a unique event in the Period 1B sample, illustrating the somewhat more opportunistic nature of the later assemblage. Only one of the Period 1A utilised pieces represents a complete tool; the remainder are broken or possibly broken tools. In the Period 1B sample, over half of the utilised tools are complete (n=18 or 51.43%) with the rest broken or indeterminate. Average dimensions of complete tools belonging to each sub-Period are listed in Table 2.11. Types of "backing" opposite utilised edges employed pre-existing natural cortex, dorsal scars or the blade butt as suitably blunted edges. Utilisation damage was located on proximal or distal edges as frequently as lateral edges, in contrast to the retouched tool categories where attention was predominantly focused on lateral edges. While the majority of the Period 1A edge damage is bifacial, more than half of the Period 1B wear was unifacial, located either on the ventral (n=8 or 22.86%) or more commonly the dorsal edge (n=16 or 45.81%), and suggesting differences in which such tools were held. Determination of complete examples in each sample was hampered by the apparent tendency to use flat breaks as an additional form of "backing" opposite the objective edge.

§ 2.7 Context and assemblage function

The context of the wells at Mylouthkia is relatively unique both on Cyprus and in the eastern Mediterranean more generally. Wells 116 and 133 are located in proximity to sources of sedimentary rock, secondary sources of volcanic and siliceous pebbles from the beach (though not including workable chert), and water. The details of the underground water table were known and exploited by the members of each Period 1 community. These factors played a significant role in determining the nature of the chipped stone industry at the site. In spite of differences in chronology, raw material utilisation, technology and tool types, the Period 1A and 1B industries illustrate a similar picture with regard to the contextual meaning of the artefacts' use and deposition. While it is possible that other occupation contexts exist somewhere under meters of Chalcolithic deposit, the assemblage discussed in the present report represents a peripheral industry exploited and deposited within a specific craft context.

The distribution of the chipped stone artefacts within various types of contexts is shown in Table 2.12a-b. In addition to well 133, pits 337 and 338, ditch 351 and hollow 340 are attributed to Period 1B on the basis of typological and technical consistency. As Table 2.12a illustrates, the deposition of the various artefact categories is broadly parallel between Periods 1A and 1B due to the prominence of the wells in each assemblage. Major differences exist in the proportions of cores, tools and tool fragments which correlate with the greater amount of core reduction during Period 1B, as previously discussed. Across the different context types from which Period 1B materials were recovered, the pattern is again one of general similarity. Pits 337 and 338 exhibit somewhat greater proportions of cores, core trimming elements, blanks and tools. This pattern suggests a somewhat higher degree of selection for the deposition materials in the pits. Furthermore, the inclusion of large amounts of debris in well 133 suggests that the core reduction which produced this waste took place near the well discard point. Hollow 340 is intermediary between the patterns represented by well 133 and the pits.

The distribution of specific tool classes between the wells and other features follows the patterns of total assemblage tool distributions of each sub-period. Tool class patterns are also broadly similar across the different Period 1B context types although pit contexts figure more prominently than the ditch or hollow features (Table 2.12b). The deposition of notched tools appears to be more distinct than other tool classes, with half of this category being recovered from the pits. The only burin belonging to Period 1B was also deposited in the pit features. Backed pieces, glossed pieces, perforators, *pièces esquilées*, retouched pieces, and utilised pieces were distributed between well 133 and the other Period 1B contexts, with the denticulates, scraper and truncations being recovered from only the Cypro-LPPNB well. In general, the tools recovered from the ditch and hollow contexts appear to be more fortuitously placed while the materials from well 133 and the pits appear to represent more deliberate deposition behaviours.

The meaning of the Mylouthkia Period 1 chipped stone assemblages is found in their apparent functional and contextual associations. The chipped stone

Table 2.12a. Total artefact category count and proportions according to context type

	Period 1A Well 116		*Period 1B Well 133*		*Pits*		*Ditch*		*Hollow*	
Category	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Core/Splinted	1	0.71	19	3.54	8	7.34	0	--	3	7.14
Hammerstone	0	--	0	--	1	0.92	0	--	1	2.38
Core frag/CTE	4	2.86	21	3.91	9	8.26	0	--	0	--
Blanks	30	21.43	129	24.02	30	27.52	2	25.0	6	14.29
Debris	59	42.14	276	51.4	38	34.86	4	50.0	24	57.14
Tools	35	25.0	75	13.97	18	16.51	2	25.0	6	14.29
Tool frag	11	7.86	17	3.17	5	4.59	0	--	2	4.76
Total	140	100.0	537	100.01	109	100.0	8	100.0	42	100.0

Note: 'blanks' includes all flakes, blades, bladelets, chips and spalls, 'debris' includes all blank fragments and chunks, 'tool frag' includes all tool fragments and resharpening pieces. The eight pieces are shown here are from the contaminated ditch 351.

Table 2.12b. Tool distribution according to context type

	Period 1A Well 116		*Period 1B Well 133*		*Pits*		*Ditch*		*Hollow*	
Category	n	%	n	%	n	%	n	%	n	%
Backed piece	1	2.86	13	17.33	2	11.11	0	--	0	--
Burin	8	22.86	0	--	1	5.56	0	--	0	--
Denticulate	0	--	6	8.0	0	--	0	--	0	--
Glossed piece	3	8.57	7	9.33	0	--	0	--	1	16.67
Notch	0	--	4	5.33	4	22.22	0	--	0	--
Perforator	4	11.43	3	4.0	1	5.56	0	--	0	--
Pièce Esquillée	4	11.43	8	10.67	2	11.11	0	--	2	33.33
Point tang	1	2.86	0	--	0	--	0	--	0	--
Retouched	4	11.43	8	10.67	0	--	0	--	1	16.67
Scraper	0	--	1	1.33	0	--	0	--	0	--
Truncation	1	2.86	2	2.67	0	--	0	--	0	--
Utilised	9	25.71	23	30.67	8	44.44	2	100.0	2	33.33
Total	35	100.01	75	100.0	18	100.0	2	100.0	6	100.0

assemblages belonging to both Periods 1A and 1B include a number of tools exhibiting specific wear patterns which appear to unify these morphologically different artefacts under a single functional umbrella. Abrasion (sometimes heavy), rounding, and light polish characterise the wear exhibited in this functional grouping. Artefacts showing evidence of such wear were distinguished with a 20x hand-lens and probably represent a minimal number that could be extended through use-wear examination. Seven tools (or 20% of the tool sample) from well 116 of Period 1A exhibited such signs of abrasion: a perforator from fill 116.123; and two retouched pieces, a truncation and three utilised pieces (including the large Byblos point tang) from fill 116.124. Sixteen examples (or 15% of the total tool sample) from the Period 1B assemblage exhibited similar wear patterns: three backed pieces (one each from fills 278, 279, 282 of well 133); three perforators (one each from fills 282 and 333 of well 133, and one from fill 354 of pit 338); a re-used core "wedge/ chopper" from fill 333 of well 133; and nine utilised pieces from fills 264 (a 'wedge'), 279, 282 (n=2), and 333, all from well 133; fills 353 and 354 from pit 338; fill 243 of hollow 340; and fill 350 of ditch 351. In some cases the abrasion occurs along one or both lateral edges or the distal or proximal end. Abrasion or rounding isolated on an edge corner, tip or break corner was found in three Period 1A examples and six Period 1B examples. A further Period 1A artefact worthy of special note was an utilised piece exhibiting red pigment on its dorsal surface. In the Period 1B sample, two further noteworthy specimens belong to the "wedge/chopper" utilised type: a chipped limestone flake exhibiting edge rounding; and a large re-used alternating platform core which shows abrasion and/or polish along one narrow end.

An exact functional interpretation of the Mylouthkia assemblage requires use-wear analysis. It is significant, however, that use-wear analyses from other sites in Cyprus, particularly on the Khirokitia assemblage, have demonstrated similar patterns of abrasion, edge rounding, and polish associated with the manufacture of stone objects. Specifically, the development of abrasion, edge rounding, polish, and edge chipping have been shown to be the result of mineral contact related to the cutting, grooving and incising of hard materials, particularly stone. Edge scarring or chipping as well as abrasion is more common when the chert tools is utilised on harder rocks such as diabase or basalt. In contrast, abrasion, edge rounding and polish, are more commonly attributed to contact with softer stone materials such as limestone, as chert tools are too brittle for more than the incising of the harder material types (Astruc 2001). Polish has been linked more specifically to the addition of water in the abrading process. This and other use-wear replication studies clearly demonstrate the use of chipped stone tools for smoothing, grooving and incising stone vessels initially shaped by pecking, grinding and percussion flaking (Astruc 1994, 2001; Anderson 1994, 64-79; Yamada in press). At Khirokitia, Astruc (1994) has demonstrated the association of chert tools in the manufacture of stone vessels as well as engraved pebbles, mace-heads and ornaments. It is interesting to note that Anderson and Valla (1996, 352-357) have differentiated between unretouched and/or lightly backed tools (such as the majority of the Mylouthkia examples) for stone working versus a harvesting role for more heavily backed implements more typical of larger Cypriot assemblages collected from various contexts.

Only seventeen of the 5,000 chipped stone artefacts considered by Astruc demonstrated signs of stone working. This indicates that the relatively small tool kits such as those found in well 116 and the features assigned to Period 1B could be representative of similar small scale stone working. Importantly, the types of implements found by Astruc to have been employed in stone artefact manufacture include perforators, unretouched (utilised) blades flakes and blank fragments, and pieces with burin facets used variously for scraping, grooving, incising and boring activities. The presence of a relatively larger number of burins in the Period 1A sample, therefore, may correspond well to the perforator, truncation, retouched, and utilised tools exhibiting clear signs of abrasion wear in this assemblage.

The associated finds in all of the Cypro-PPNB features at Mylouthkia except the contaminated ditch 351 correspond to the functional characteristics exhibited by the chert tools outlined above. Large amounts of ground stone, including numerous vessel and bowl fragments, mace-heads, grooved stones, beads and other ornaments were recovered from well 116 and particularly well 133. Similar finds were also recovered from pits 337, 338 and hollow 340. Numerous pounding tools and hammer stones were also recovered from these contexts. These features demonstrate the depositing of ground stone debris and manufacturing tools and associated chert tools all in close proximity to water and an abrasive agent (sand). The Aceramic chipped stone assemblages representing sub-periods 1A and 1B, therefore, can arguably be said to relate to the specialised activity of stone artefact manufacture, particularly stone bowl and vessel production.

Whether the contextual evidence from Mylouthkia represents evidence of true craft specialisation activity needs to be considered. Astruc has suggested that the association of stone manufacturing debris with a relatively simple (or “expedient”) chipped stone production technology and the lack of isolated ‘specialised’ contexts at Khirokitia represent general, non-specialised or “domestic” craft practices (Astruc 2001). Differentiating between two specific tool kits, Astruc (2001) associates one kit made on broad blades with a greater degree of specialisation because it is more technologically complex than the manufacture of flakes and blade fragments that compose the second stone working tool kit. At Mylouthkia during Period 1A, we see the selective utilisation of high quality chert and the use of technically intensive bi-directional (naviform related) core technology. Changes in the core technology of the Period 1B industry were made in association with changes in tool requirements, satisfied by a different, more “robust” blade product broadly similar to the blade tool kit described by Astruc. In spite of the simplification in technical complexity between Mylouthkia 1A and 1B, however, the chert tools utilised at the Mylouthkia well heads show considerable functional continuity; this suggests that manufacture of stone artefacts and their associated depositional processes continued regardless of changes in the industry of chipped stone. It seems likely, therefore, that in spite of their highly specific working associations, the organisation of the chipped stone and ground stone technologies developed separately according to different sets of requirements on a site specific basis.

The careful selection of specific high quality raw materials, the use of naviform core technology, and the production of fine standardised parallel sided blades are features which suggest the development of “incipient specialisation” in chipped stone industries of the southern Levant, beginning with the EPPNB and reaching a climax in the LPPNB (Quintero 1996; Quintero and Wilke 1995; Gopher 1996, 153-155; Gebel 1996; 1994, 393-394). This “incipient specialisation” is associated with considerable technical investment in a particular core technology, rather than in the tools formed, a technology expensive in terms of the raw material employed (Baird 1997, 373; Quintero and Wilke 1995, 24). While this kind of technical investment broadly characterises of Cypro-E/MPPNB assemblages such as Mylouthkia 1A, the additional ingredient of a large sedentary population base in which true specialisation could be supported is missing from the Cypro-PPNB. The classic naviform core technology was used to produce a highly predictable blade product employed in the manufacture of a variety of blade tools including arrowheads and glossed tools as on the mainland. Without the intensive demand for standardised blades that increased with the development of large villages in the Levant, this technological investment was reduced in Cyprus somewhat earlier than on the mainland, as illustrated by the Middle Phase assemblage at Shillourokambos. The more generalised opposed platform core reduction and the less standardised blades resulting from this method replaced the classic naviform method early in the Cypro-LPPNB. The more “robust” blade products produced were sufficient to meet the tool demands of small independent farming communities, reflecting the increasing regionalisation that began slightly later (*c.* 8,000 BP) in the Levant.

§ 2.8 Summary and implications

In summary, the chipped stone assemblages from Mylouthkia, like those of Shillourokambos, Tenta and Asprokremnos illustrate close parallels with the PPNB cultural system of the Levant. Such parallels include core technology and tool types, notably arrowheads, but indicate possible different antecedent populations, particularly in terms of the types of glossed implements represented. Changes in the *chaînes opératoires* of the chipped stone industry at Mylouthkia parallel those of Shillourokambos, indicating, like the assemblages of Tenta and Asprokremnos, that such developments cannot be considered in isolation, but were part of island wide events that characterise the Cypro-PPNB. These changes need not imply cultural isolation if understood in terms of industry requirements, namely the appropriate level of investment in core technology used to meet changing tool needs, and a response to constraints present in the chosen raw material. The "incipient" specialisation suggested for the mainland PPNB chipped stone industry seems not to have developed in the small scale agricultural communities of Cyprus. Instead, naviform cores (*sensu strictu*) were utilised in the Cypro-E/MPPNB, but were replaced in the Cypro-LPPNB by a generalised opposed platform core technology giving way gradually by the end of the Cypro-PPNB (the Khirokitian) to greater amounts of single platform core reduction and larger numbers of flake tools. The character of the lithic industry at the end of the Cypro-PPNB accords well with the increasingly regional nature of Final PPNB (PPNC) and post-PPNB assemblages on the mainland, which exhibit parallel changes in raw material exploitation, a simplified blade core technology, and a gradual shift from blade to flake blanks, starting at *c.* 8,000 BP (Baird 1997, 377; Quintero and Wilke 1995, 19-20). Though much of the detail defining the Cypriot lithic sequence remains to be documented, the fact that the Cypro-PPNB industries exhibit the "low levels of similarity" required for membership in the PPNB "culture group or system" can no longer be doubted (Gopher 1994a, 389; see also McCartney and Peltenburg 2000; Peltenburg *et al*. 2001b). That Cyprus became marginalised from the global economy of the day is witnessed in the rarity of obsidian and arrowheads, artefact classes found less frequently in other margins of the PPNB interaction sphere. However, the Cypro-PPNB industries, as illustrated by assemblages like that of Mylouthkia Period 1B, reflect the broader changes shown in mainland PPNB industries from *c.* 8,000 BP. This implies continuity of membership in the PPNB interaction sphere; at the same time, it demonstrates practical responses to local demands and pressures within small scale agricultural communities of the island.

§ 2.9 Provenance study of eight obsidian artefacts from the wells (B.G.)

Introduction

Eight obsidian tools from Aceramic Neolithic wells constructed in the 9th and 8th millennia cal BC by the first settlers of the western part of the island of Cyprus are studied here. The analytical method used for this work, named LA-ICP-MS for Laser Ablation Inductively Coupled Plasma Mass Spectrometry, is a new method that was first applied for obsidian provenance studies in 1995 (Briois *et al.* 1997; Gratuze 1999). For typological discussion of all obsidians, see § 2.9.

Analytical technique

The artefact is sampled by using a laser beam which is focused onto its surface through the window of a quartz sample cell. The diameter of the ablation crater can range from 20 to 200 µm and its depth is around 250 µm. The ablated aerosol is carried by an argon gas flow through nylon and tygon tubing to the injector inlet of a plasma torch, where the matter is dissociated, atomised and ionised. The ions are then injected, using a two aperture system, into the vacuum chamber of a quadrupole system where they are selected, depending upon their mass-to-charge ratio, by the quadrupole mass filter and are hence collected by a channel electron multiplier assembly. This technique allows a nearly non-destructive analysis of the objects.

To perform the most accurate and sensitive analysis, the elements are determined within different analytical menus. Their numbers could vary from two to four, depending on the number of elements determined and of their level of concentration. In routine conditions, two or three element menus are used for obsidian characterisation (Table 2.13). For each menu, three analyses are made, and the final concentration is the mean value of the three runs.

From twenty to fifty elements could be determined in obsidian samples. Detection limits, calculated on a pure quartz sample, range from a few tenths of ppb to some ppm, depending on the measured isotope and on the size of the laser spot. Reproducibility and stability are calculated for twenty analyses of the same sample over a week, and accuracy is given as the relative deviation between the average values obtained for twenty analyses of the glass reference material NIST 612 and the certified values given for this glass. Detection limits, reproducibility and accuracy are given in Table 2.14.

Results

The results show that all the chips have the same composition (Table 2.15). They should therefore originate from the same geological place. The following Cappadocian obsidian flows are relevant to the present study:

Table 2.13: Elements determined in obsidian material by LA-ICP-MS

H																	He
2 **Li** 7	Be											2 **B** 7	C	N	O	F	Ne
1 **Na** 23	1,2 **Mg** 24;25											1 **Al** 27	1,2 **Si** 28;29	1 **P** 31	S	Cl	Ar
1 **K** 39	1,2 **Ca** 44	2 **Sc** 45	1,2 **Ti** 48;49	2 **V** 51	Cr	1 **Mn** 55	1 **Fe** 56;54	Co	Ni	2 **Cu** 63	2 **Zn** 64	Ga	Ge	2 **As** 75	Se	Br	Kr
1,2 **Rb** 85	2 **Sr** 88	2 **Y** 89	2 **Zr** 90	2 **Nb** 93	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	2 **Sb** 121	Te	I	Xe
2 **Cs** 133	2 **Ba** 138	2 **La** 139	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Ac															

2 **Ce** 140	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
Th	Pa	2 **U** 238	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lw

Note: Above the elements are the menus where the elements are measured; below the elements are the isotopes on which the measurements are made.

Table 2.14. Detection limits, reproducibility and accuracy of elements analysed

H																	He
5 **Li** A,A	Be											2 **B** D,N	C	N	O	F	Ne
1100 **Na** A,B	4 **Mg** B,B											45 **Al** B,B	**Si** A,A	60 **P** E,N	S	Cl	Ar
300 **K** A,A	200 **Ca** D,A	3 **Sc** E,D	4 **Ti** A,A	0,5 **V** C,C	Cr	2 **Mn** A,B	130 **Fe** C,	Co	Ni	20 **Cu** E,D	2 **Zn** A,C	Ga	Ge	5 **As** C,N	Se	Br	Kr
2 **Rb** B,A	0,3 **Sr** A,A	0,5 **Y** B,A	3 **Zr** B,A	0,3 **Nb** A,B	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	0,2 **Sb** B,N	Te	I	Xe
0,5 **Cs** B,A	0,08 **Ba** A,B	0,06 **La** B,A	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Ac															

0,5 **Ce** A,A	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
Th	Pa	0,05 **U** A,A	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lw

Note: The detection limits are given in ppm above the element symbols, while levels of reproducibility (first letter) and accuracy (second letter) are abbreviated as follows: A = below 5%, B = from 5 to 10%, C = from 10 to 15%, D = from 15 to 20%, E = worst than 20%; "N" signifies that there are no certified values for that element

Table 2.15. Composition of the eight artefacts from the wells

Element	*K1217*	*K1220*	*K1220*	*K1221*	*K1224*	*K1225*	*K1226*	*K1229*	*K1947*	*Average*	*Std. dev.*
SiO2	76.4%	75.3%	76.2%	76.7%	76.1%	76.6%	76.1%	76.1%	75.6%	**76.1%**	0.4%
Al2O3	12.8%	14.8%	12.3%	11.5%	11.9%	11.3%	13.2%	14.5%	14.8%	**13.0%**	1.4%
K2O	4.62%	4.40%	4.57%	4.33%	4.21%	4.12%	4.17%	4.37%	3.99%	**4.31%**	0.2%
Na2O	4.32%	3.95%	4.42%	4.14%	4.13%	4.00%	4.37%	3.99%	3.85%	**4.13%**	0.2%
Fe2O3	0.96%	0.60%	1.56%	0.74%	0.71%	0.66%	0.92%	0.61%	0.85%	**0.84%**	0.3%
MgO	333	366	405	304	291	284	322	358	389	**339**	43
P2O5	462	79	802	334	554	467	723	71	640	**459**	260
TiO2	702	709	728	547	575	546	587	710	667	**641**	76
As	4.5	8.5	4.7	9.8	5.7	6.6	4.2	6.0	6.1	**6.2**	1.9
B	34	37	35	48	31	38	40	32	43	**38**	5
Ba	138	148	127	146	138	129	144	130	185	**143**	18
Ca	4655	4202	4455	3885	4617	3459	6339	5044	5529	**4687**	867
Ce	36	42	37	48	38	36	38	37	47	**40**	5
Cs	6.2	7.5	6.4	10.0	5.7	6.1	6.8	5.1	8.7	**7.0**	1.6
Cu	2.0	2.0	1.6	2.8	1.7	3.8	0.0	2.8	0.8	**2.0**	1.1
La	18	23	18	24	20	18	20	19	26	**21**	3
Li	49	49	53	42	42	42	49	42	52	**47**	5
Mg	183	197	194	211	175	164	197	168	265	**195**	31
Mn	378	467	403	534	403	380	444	395	571	**442**	69
Nb	26	28	26	31	23	25	25	24	33	**27**	3
Rb	153	182	166	215	154	156	162	150	213	**172**	26
Sb	0.7	0.8	1.0	3.5	1.7	0.8	0.4	1.0	1.1	**1.2**	0.9
Sc	25	19	28	26	16	23	42	12	34	**25**	9
Sr	10.3	11.2	9.3	10.8	9.4	9.2	9.9	9.3	13.6	**10.3**	1.4
Ti	368	372	364	398	377	319	375	356	455	**376**	36
U	7.9	10.8	8.7	12.0	5.4	8.3	8.4	6.2	10.5	**8.7**	2.1
V	0.3	0.2	0.1	0.3	1.0	0.3	0.1	0.7	0.1	**0.3**	0.3
Y	18	21	16	21	18	19	18	17	23	**19**	2
Zn	13	20	18	27	18	18	16	18	25	**19**	4
Zr	70	80	62	75	55	67	69	54	89	**69**	12

Table 2.16a. Average composition of the East Gollü Dağ sources involved in the obsidian trade between Turkey and Cyprus

	East Gollü Dağ sources 1977		*East Gollü Dağ 1*		*East Gollü Dağ 2*		*North West Gollü Dağ 1*		*North West Gollü Dağ 2*	
Element	*Average*	*Std. dev.*	*Average*	*Std. dev.*	*Average*	*Std. dev.*	*Average*	*Std. dev.*	*Average*	*Std. dev.*
SiO2	76.1%	0.3%	75.8%	1.1%	75.5%	1.5%	76.3%	1.7%	75.3%	0.9%
Al2O3	12.9%	0.8%	13.4%	0.7%	13.3%	0.9%	13.0%	1.2%	13.7%	0.7%
K2O	4.43%	0.12%	4.58%	0.29%	4.63%	0.23%	4.56%	0.20%	4.14%	0.26%
Na2O	4.28%	0.24%	4.57%	0.99%	4.94%	0.82%	4.52%	0.59%	4.27%	0.45%
Fe2O3	0.84%	0.22%	0.63%	0.10%	0.67%	0.04%	0.65%	0.08%	1.02%	0.31%
P2O5	**467**	166	**432**	823	**242**	364	511	449	923	814
As	**5**	2	**8**	1	-	-	-	-	-	-
B	**38**	6	**34**	5	**36**	-	34	4	40	3
Ba	**101**	33	**120**	36	**151**	18	407	107	473	36
Ca	**4882**	1261	**4761**	1046	**4750**	913	5028	1077	6262	852
Ce	**38**	5	**38**	8	**35**	11	51	13	61	5
Cs	**7**	2	**9**	2	**8**	2	6	1	6	1
Cu	**2**	1	**9**	5	**8**	4	7	5	1	1
La	**20**	3	**20**	4	**19**	6	32	9	36	3
Li	**48**	6	**77**	99	**32**	27	43	7	49	5
Mg	**170**	30	**239**	54	**281**	63	374	69	684	156
Mn	**439**	65	**479**	52	**517**	39	469	64	526	38
Nb	**26**	6	**21**	2	**22**	3	18	3	19	2
Rb	**181**	37	**182**	17	**191**	19	158	17	167	19
Sb	**1**	0	**1**	0	-	-	-	-	-	-
Sc	**26**	10	**9**	4	**10**	-	8	2	10	4
Sr	**8**	2	**9**	1	**14**	2	38	7	70	4
Ti	**359**	37	**281**	25	**329**	47	391	50	645	38
U	**9**	2	**9**	3	**7**	3	7	1	8	0
V	**1**	1	**0**	0	-	-	-	-	-	-
Y	**18**	3	**19**	2	**20**	3	18	4	19	1
Zn	**19**	4	**17**	4	**18**	4	20	3	34	6
Zr	**60**	13	**64**	5	**72**	10	75	15	119	8

Note: Values obtained in 1995 and recent average values obtained on the two East Gollü Dağ sources when the artefacts were analysed in 1997

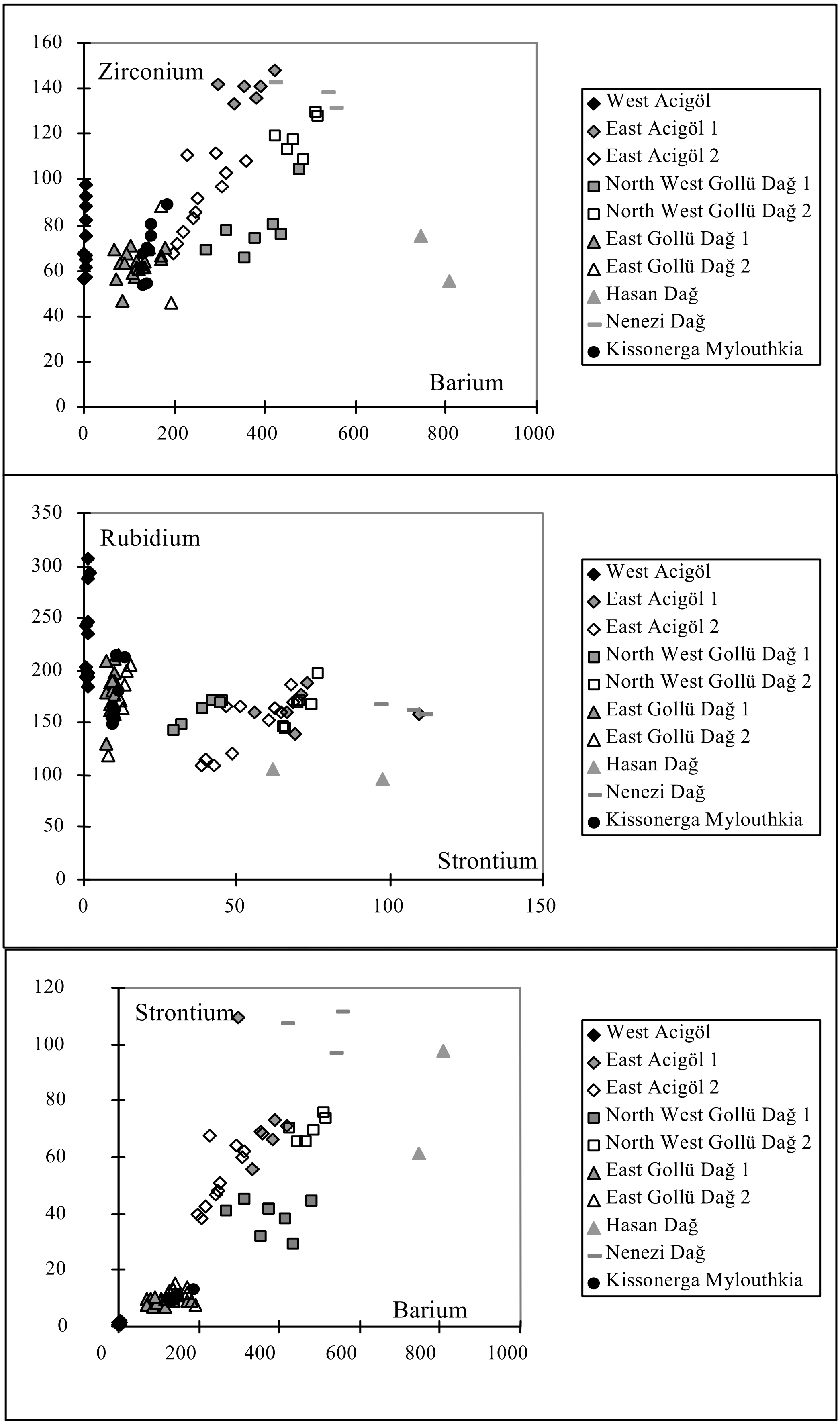

Fig. 2.1: Ba-Zr, Sr-Rb and Ba-Sr diagrams : comparison of the obsidian artefacts excavated at Mylouthkia with different Cappadocian obsidian sources

Table 2.16b. Average composition of some other Cappadocian obsidian sources

	Nenezi Dağ		*East Acigöl 1*		*East Acigöl 2*		*West Acigöl*		*Hasan Dağ*	
	Average	*Std. dev.*	*Average*	*Std. dev.*	*Average*	*Std. dev.*	*Average*	*Std. dev.*	*Average*	*Std. dev.*
SiO2	73.6%	1.3%	74.2%	0.7%	74.9%	1.2%	76.1%	1.1%	75.9%	0.6%
Al2O3	14.5%	1.4%	14.7%	0.9%	14.1%	1.3%	13.8%	1.1%	14.2%	1.4%
K2O	4.40%	0.26%	4.34%	0.06%	4.45%	0.27%	4.27%	0.29%	3.48%	0.59%
Na2O	4.84%	0.46%	4.63%	0.42%	4.46%	0.38%	4.45%	0.42%	4.60%	1.43%
Fe2O3	0.90%	0.05%	1.03%	0.14%	0.82%	0.16%	0.67%	0.04%	0.59%	0.05%
P2O5	1,115	1,524	349	258	858	1,338	325	350	955	1,098
As	7		7	1	5	1	11	1		
B	37	4	39	7	37	4	64	14	31	
Ba	505	73	363	45	260	51	4	1	776	43
Ca	8,405	1,352	6,867	1,054	5,814	835	3,913	913	5,516	1,725
Ce	67	2	52	5	39	9	28	4	38	3
Cs	7	1	8	2	6	1	13	2	4	
Cu	4	4	5	6	2	4	3	5	10	
La	41	0	30	3	22	5	13	2	23	3
Li	56	11	83	28	84	27	91	35	49	
Mg	973	51	738	103	452	54	149	107	1,043	99
Mn	528	63	452	52	372	66	515	132	389	58
Nb	18	2	19	1	15	3	30	7	12	2
Rb	163	5	163	17	147	28	235	44	100	6
Sb	1		1	0	1	0	1	0		
Sc	8	1	7	1	5	2	7	1	6	
Sr	106	8	74	18	54	11	1	0	80	25
Ti	676	87	494	38	385	47	170	24	584	116
U	8	0	8	2	7	2	12	3	5	0
V	4		1	0	1	0	0	0		
Y	19	0	22	1	19	3	35	7	13	4
Zn	32	5	33	6	25	6	24	4	18	1
Zr	138	6	140	5	92	16	74	15	65	14

The Acigöl Area

- West Acigöl: the obsidian comes from the Acigöl Crater, Güneydağ and the Korüdağ.
- East Acigöl (Antecaldeira): the obsidian comes from Kartalkayasi, Tuluce Tepe, and the White Tuffs (as defined by Keller 1989).

The Nenezi Dağ: the obsidian comes from a small place at the NW of the Nenezi Dağ.

The Gollü Dağ Area

- East Gollü Dağ: the obsidian come from two different places near Komürcü and from a small place at the NW of Kabaktepe (East of Kayirli).
- West Gollü Dağ: the obsidian come from the West of the small town of Kayirli and from the North of Bozköy.

The Hasan Dağ: the obsidian comes from Helvadere.

If we compare the composition of the artefacts with the composition of these flows (Table 2.16a-b and Fig. 2.1) we find that the obsidian artefacts from Mylouthkia are quite similar to the obsidian found on the East side of the Gollü Dağ. These are the obsidian flows of Kayirli (Kabak Tepe), and Komürcü in Cappadoccia.

The obsidian used to make the eight artefacts comes from the Gollü Dağ area. The same sources (i.e. Kabak Tepe and Komürcü, the two eastern Gollü Dağ sources, were also exploited for the nearby Kissonerga obsidians (Gratuze 1998). These sources, together with the Nenezi Dağ obsidian flow (Briois *et al.* 1997), have also provided the obsidian used by the occupants of the Cypriot Aceramic Neolithic site of Parekklisha-Shillourokambos.

Chapter 3: The Ground Stone Industry

by

Adam Jackson

[*For other ground stone objects see also § 4.2*]

This chapter is divided into two sections: first, a typology of aceramic ground stone from Mylouthkia; with a combined summary of rock types utilised in the manufacture of particular classes; second, a brief intra-site analysis of a select number of aceramic features followed by a conclusion.

§ 3.1 Typology

This section outlines a typological classification of the ground stone recovered from aceramic contexts at Mylouthkia. A total of 753 artefacts have been registered not including disturbed contexts of well 110 (this assemblage is considered in § 12.2). These are grouped below according to their general function(s): Axes, Flaked tools, Hammerstone, Hammerstone/ grinder, Pounder, Rubbing stone, Polisher, Cupped stone, Anvil, Perforated stone, Grooved stone, Macehead, Misc. objects, and Bowls. General descriptions of the defining characteristics of each type, along with totals and rock types, are provided.

The typology employed in this study is essentially that developed and applied by Elliott for this and other sites of the Lemba cluster (1981, 1983[1], *LAP* I, 70-93, 161-195; II.1A, 168-87). The bulk of the artefacts were recorded and classified by the author. Identification of type utilises attribute and use-wear identification (see Elliott 1983).

§ 3.1.1 Classes (see Table 3.1 and Fig. 3.1)

Axes

Total: 5 (4 fragments)

Rock type: diabase (80%), pyroxene andesite (20%)

Type 1 (Fig. 46.1)
Irregular convex-faces and sides; very convex blade; rounded butt (e.g. KMyl. 1173)

Type 2
Convex faces and sides; straightish blade; rounded butt (e.g. KMyl 1665, 1756)

[1] Some preliminary classification of the ground stone of Mylouthkia was published in an article by Elliott (1983). In this article, Elliott analysed the ground stone from the 1976-1980 seasons at Mylouthkia in order to 'investigate differences' between Mylouthkia and Lemba in the choice of rock types and the exploitation of sources. A detailed typological classification was not undertaken but inter-site parallels were noted.

Table 3.1. Number of artefacts from Cypro-PPNB contexts by class and rock type

Class	*Diabase*	*Pyroxene andesite*	*Basalt*	*Microgabbro*	*Gabbro*	*Dense chalk*	*Chalk*	*Reef limestone*	*Calcarenite*	*Chert*	*Mica sandstone*	*Quartz sandstone*	*Other*	*Totals*
axe	4	1	-	-	-	-	-	-	-	-	-	-	-	5
flaked tool	1	-	-	-	-	-	-	-	-	-	-	-	-	1
hammerstone	2	-	1	1	1	1	117	75	12	1	3	-	4	218
hammerstone/grinder	1	-	-	1	1	-	-	-	1	-	4	-	-	8
pounder	2	-	2	1	1	4	4	3	3	20	5	2	1	48
rubbing stone	-	-	-	-	-	-	4	1	-	-	-	-	1	6
polisher	1	-	2	-	-	-	-	-	-	-	-	-	-	3
cupped stone	-	-	-	-	-	-	4	4	6	-	-	-	-	14
anvil	-	-	-	-	-	-	6	5	3	-	-	-	-	14
perforated disc	-	-	-	-	-	-	1	-	-	-	-	-	-	1
grooved stone	-	-	-	-	-	-	7	-	1	-	-	-	-	8
macehead	-	-	-	-	-	-	-	-	-	-	-	-	1	1
misc. object	-	-	-	1	1	-	7	4	3	-	6	1	3	26
bowl	3	-	-	-	1	-	351	26	18	-	-	1	-	400
Total	14	1	5	4	5	5	501	118	47	21	18	4	10	753

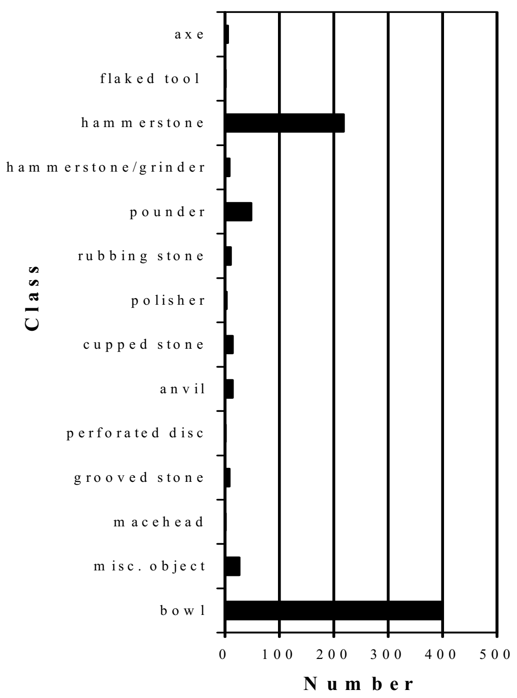

Fig. 3.1: Period 1: graph showing number of artefacts by class

Only one intact example of a Type 1 axe survives from aceramic contexts at Mylouthkia. Type 2 is represented by blade end fragments only. One example, KMyl 1756, has flattish convex faces and sides, and a width taper from body to blade. The blade is straight and the thick-sectioned body is pecked. There are some comparisons to be made with axe fragments from EChal/MChal features that may indicate the disturbance and redeposition of earlier aceramic material.

Flaked tools

Total: 1

Rock type: diabase

Type 1
Ovoid; flattish, convex faces; all round unifacial flaking and grinding use (e.g. KMyl 372).

The sole example of this artefact class shows deliberate flaking of the edges. In form it closely resembles Chalcolithic Type 1 flakes tools.

Flaked tools are present from the Neolithic and are paralleled at Sotira-Teppes (Dikaios 1961, labelled as 'flaked celts'). They also occur at Kalavasos-Ayious (Todd 1991), Kalavasos-Kokkinoya/Pamboulles, MiIiou-Rhodaeos, Androlikou (Elliott 1983,16) and Sotira-Kaminoudhia (Elliott 1983, 16; Swiny 1979).

Hammerstones (Pl. 6.2)

Total: 218

Rock type: chalk (53.7%), reef limestone (34.4%), calcarenite (5.5%), mica sandstone (1.4%), diabase (0.9%), basalt (0.5%), microgabbro (0.5%), gabbro (0.5%), dense chalk (0.5%), chert (0.5%), other (1.8%).

Type 1 (Pl. 7.2; Fig. 46.2)
Irregular plan and section; evidence of hammer use on one or more faces; unmodified except through use (e.g. KMyl 1098 (cf. grooved/pounder), 1081, 1762).

Hammerstones are one of the most numerous artefact classes from the Aceramic Neolithic features of the site. They are expedient tools, typically of chalk with limited use-wear and no attempt at modification except through use. They take many shapes, sizes and weights. The only consistent features are (a) the material used (predominantly chalk or reef limestone), (b) the lack of care for form, and (c) the evidence on one or more faces of pecking damage through hammer-type usage.

Hammerstone/grinders

Total: 8

Rock type: mica sandstone (50%), diabase (12.5%), microgabbro (12.5%), gabbro (12.5%), calcarenite (12.5%).

Type 1
Natural ovoid/sub-circular plan; plano-irregular or plano-convex in section; one or more faces, sides, ends used as hammerstone and/or grinder (e.g. KMyl 1048).

Type 2 (Fig. 46.3)
Ovoid/sub-rectangular shape; flattish section; bifacial hammer and grinding action; ground and pecked deliberately to shape (e.g. KMyl 1088, 1318, 1595).

Hammerstone/grinders have a limited occurrence during Period 1. Generally, they are of oval plan with flat or plano-convex sections. Hammering is indicated by hollow pecking in the centre of the faces and sometimes at the edges. Grinding and rubbing action is apparent on the flattened surface(s). There is a frequent occurrence of a tertiary use as a pounder in the wear sometimes found at the poles. Type 1 hammerstones lack any evidence of modification prior to use.

Pounders (Pl. 6.3)

Total: 48

Rock type: chert (41.7%), mica sandstone (10.4%), dense chalk (8.2%), chalk (8.2%), reef limestone (6.3%), calcarenite (6.3%), diabase (4.2%), basalt (4.2%), quartz sandstone (4.2%), microgabbro (2.1%), gabbro (2.1%), other (2.1%).

Type 1 (Fig. 46.4)
Spheroid/globular plan; pecked/ground use zone(s). (e.g. KMyl 1099)

Type 2
Elongated/irregular-ovoid plan; irregular, oval section; bipolar wear from pounding/grinding action; river/beach pebble modified through use (e.g. KMyl 1368)

Common to both types is one or more area of pecking damage from pounding type action. Similar examples have been found at Khirokitia, and Erimi-Pamboula (Dikaios 1953, 1936; Elliott 1983; Bolger 1988a).

Rubbing stones

Total: 6

Rock type: chalk (66.6%), reef limestone (16.7%), other (16.7%).

Type 1 (Fig. 46.5)
Ovoid, sub-rectangular; plano-irregular/convex section; one or more grinding facets; Often visible striations perpendicular to long axis (KMyl 1721).

These are commonly unmodified pebbles with one face flattened through grinding use. Many show evidence of secondary use as hammerstones and some a tertiary use as pounders. This makes classification more difficult. The distinction made with hammerstone/ grinders is dependent on the use-wear striations that run perpendicular to the long axis. These latter show up well on chalk limestone examples. The artefact type was used in a to-and-fro action rather than a circular one (Elliott 1983, 20).

Polishers

Total: 3

Rock type: Basalt (66.7%), Diabase (33.3%).

Type 1
Ovoid; small unmodified water rounded pebble; one or more polishing facets (KMyl 360, 1316, 1549).

These are commonly unmodified basalt pebbles. They occur also in Chalcolithic contexts at the site.

Cupped stones (Pl. 6.5)

Total: 14

Rock type: reef limestone, calcarenite (42.8%), chalk (28.6%), reef limestone (28.6%).

Type 1
Small irregular plan; one or two faces with pecked circular depressions; pecked exterior. (e.g. KMyl 1323).

Type 2
Large irregular plan; One or two faces with pecked circular depression; unmodified from original form. (e.g. KMyl 1573).

Type 1 are usually of a size and shape to be readily held in the hand with a regular circular depression averaging 6 cm diam. by 1.5 cm deep that was probably made by an up-and-down pounding action.

In the case of Type 2 there is a possibility of overlap in function and classification between anvils and cupped stones, especially where cupping is shallow. However, a distinction has been made through the differentiation of 'deliberate' cupping over cupping that is accidentally a product of use. The symmetry and working of the depression assists in such identification. Nevertheless, the cupping may be designed to facilitate the containment of material for hammering/pounding. This suggests a related function to anvils.

Anvils (Pl. 6.4)

Total: 14

Rock type: chalk (42.9%), reef limestone (35.7%), calcarenite (21.4%).

Type 1 (Fig. 46.6)
Large irregular pebbles or boulders; evidence of pecking on one or more faces; generally unmodified.

In the case of the larger boulder examples there can be no difficulty in distinguishing this from other classes that show some similarities of use wear and possibly design such as large Type 1 hammerstones or large Type 1 cupped stones. However, there are some possible overlaps with other types. To attempt to iron out these overlaps the author has utilised set criteria of size, practical fit to hand, shape and use wear.

Perforated disc

Total: 1

Rock type: chalk.

Type 1 (Pl. 8.4a, b; see § 4.2)
Discoidal; flat section; central hourglass perforation; well made (e.g. KMyl 1364).

This artefact is well made and of unknown function, though it is possible that it is a forerunner of later pottery discs.

Grooved stones (Pl. 6.6)

Total: 8

Rock type: chalk (87.5%), calcarenite (12.5%)

Type 1 (Pl. 7.3; Fig. 46.7)
Oval plan and section; pecked groove around mid-section circumference creating a biconical appearance (e.g. KMyl 1750).

Type 2 (Pl. 7.1; Fig. 46.8)
Quadrilobate; two bisecting grooves forming a four cornered object (e.g. KMyl 1103).

These artefacts rarely occur at Mylouthkia, and are predominantly made of chalk or limestone. Type 1 are largely oval waterworn pebbles unworked except for deliberate grooving (often in the centre of their length) that creates a biconical or waisted appearance. They serve an unknown function but two plausible interpretations are that they are figurative or that they acted as weights. They may be equated with 'notched stones' on the mainland. Type 2 has a single occurrence, and like Type 1 it is unclear as to its function.

Macehead

Total: 1

Rock type: Variegated fan conglomerate.

Type 1 (Pl. 7.4; Fig. 46.9)
Depressed spheroid; pecked and fine ground; central hourglass perforation drilled from both sides (KMyl 1505)

There was only one example of a macehead recovered at aceramic Mylouthkia, from well 133. The object is finely made, and the selection of material suggests an aesthetic preference.

Maceheads occur rarely at other aceramic sites within and outside Cyprus. For example, they are found in Anatolia at Hallam Çemi Tepesi (Rosenberg 1994; Rosenberg *et al.* 1995) and Nevali Çori (Schmidt 1988, 178, Fig. 17.1-2), and in the Jordan Valley at Netiv Hagdud (Gopher 1997). They also occur in Cypriot contexts at Cape Andreas-Kastros (Le Brun *et al.* 1981, Fig. 45.4-6), Kalavasos-Tenta (Todd 1978, Fig. 14) and Khirokitia (Dikaios 1953, Pl. CXXXVII; Cluzan 1984, Fig. 71.7; Astruc 1994, Fig. 102.2-5, Pl. XXVII.18). The choice of pink coloured stone presents a precedent for the use of red stones or red painted calcareous rocks for maceheads at Khirokitia (Astruc 1994, 253-4).

Miscellaneous objects

Total: 26

Rock type: chalk (26.9%), mica sandstone (23.1%), reef limestone (15.4%), calcarenite (11.5%), microgabbro (3.8%), gabbro (3.8%), quartz sandstone (3.8%), other (11.5%).

This 'class' covers a limited range of artefacts that either could not be categorically identified as a result of their fragmentary and damaged nature or occur once or rarely at the site. There is not the range or quantity of aceramic miscellaneous objects to match that from Chalcolithic contexts, particularly artefacts of igneous rock.

§ 3.1.2 Vessels (see Table 3.1, Pl. 6.1)

Bowls: 400 fragments

Rock type: chalk (87.8%), reef limestone (6.5%), calcarenite (4.5%), diabase (0.7%), gabbro (0.2%).

Type 1 (Pl. 8, 3a,b; Fig. 46.10)
Circular/ovoid mouth; convex sides; thick walls and rim; irregular uneven base; roughly pecked to shape inside and out (e.g. KMyl 1501).

Type 2
As above, but roughly pecked to shape on the outside, ground on the inside (e.g. KMyl 1431).

Type 3 (Fig. 46.11, 12)
Circular/ovoid mouth; convex sides; thick walls; plain rounded rim; flattish, rounded base; pecked and ground inside and out (e.g. KMyl 1002, 1069).

Type 4.1 (Pl. 7.6,7; Fig. 47.1)
Circular/ovoid mouth; straight even walls; plain or flat rims; flat base; pecked and ground inside and out; well made (e.g. KMyl 1237). Pl. 7.6 is a remarkably fine diabase vessel, thin walled, polished inside and out and with a raised band or strip running *c.* 1 cm around the rim.

Type 4.2 (Pl. 8.1; Fig. 47.2)
As above but with greater convexity to the walls (e.g. KMyl 1521, 1841).

Type 5 (Pl. 8.2; Fig. 47.3)
Igneous bowl; circular/ovoid mouth; shallow; stepped base; thick walls; plain rounded rim; pecked body; ground interior; well made (e.g. KMyl 368).

All stone vessel fragments from aceramic contexts were registered as small finds, including rim, base, and body fragments. The fragmentary nature of the assemblage as a whole made classification a difficult undertaking. However, a few general typological observations on the aceramic stone bowl assemblage may be made here. Vessels vary considerably in material, size, form and finish although fragments are all from open vessels. General types range from the crudely worked Type 1 examples to the finely ground symmetrical Type 4 forms.

Type 1 bowls are all rough pecked and lack fine finishing. There is no reason to believe that they are so only because they represent a particular stage of manufacture. Type 2 bowls show little concern for the aesthetic of a finely finished exterior; however, their ground interior distinguishes them from Type 1.

Type 3 bowls represent the largest class overall and cover vessels of many different sizes with varying degrees of working finish. Although there are few fragments that offer a diameter reconstruction, ovoid forms appear to be the most common.

Type 4 bowls are a large class and it seems likely that there is a greater variety of form than the fragmentary nature of the artefacts allows in this classification. For all sub-types there is evidence to suggest that oval/oblong plans were the most common. Generally, differentiation of the class of bowl is made on the nature of the flat bases and the quality of the finish. Few examples survive with both rim and base intact. Instead, the bases most commonly survive possibly because rims and sides tended to be finer and taller than those of other types and hence more fragile.

Most of the fragments are old breaks, many are very abraded, a number are burnt (some after breakage), and some have been recycled and reused (through hammering and grinding). A few examples of fragments with handles are known, with a small vertical lug on KMyl 1841, an ear-shaped lug near the base on KMyl 1575 (Fig. 46.13), a broken example of a perforated lug on KMyl 1521 (Fig. 47.4), and the stump of a ladle-like handle on KMyl 1171 (Pl. 7.7; Fig. 47.5). Spouts are very rare. KMyl 1305 (Pl. 7.5) is a trough spout with the break scars of a perforated lug directly below.

Parallels with other sites are by no means clear. However, some examples from Period 1B contexts are from low ovoid or sub-rectangular vessels with low convex profiles similar in form to those from Khirokitia, Cape Andreas-Kastros and other later aceramic sites (Dikaios 1953, Pl. CVII.147; Le Brun *et al.* 1981, Figs. 31-3; 1984, Fig. 58.2; 1989, Figs. 45-49). The rarity of igneous vessel fragments in well 116 and their absence in well 133 differ markedly from the relative abundance of igneous vessels at the aforementioned sites.

§ 3.2 Comparison of features, summary and conclusions

Fewer aceramic than Chalcolithic features were identified at Mylouthkia, yet a sizeable ground stone assemblage was recovered totalling 753 artefacts. Of these, 128 were recovered from Period 1A (e.g. well 116) contexts and 625 from Period 1B (e.g. well 133, pits 337-8 and B 340) contexts. The overwhelming majority of artefacts recovered were stone bowl fragments (50.9%) and hammerstones (27.6%) (see Peltenburg *et al.* 2000, 2001b).

Of those features excavated, only well 116 of Period 1A and well 133 of Period 1B warrant more detailed description of their comparative ground stone assemblages. Well 110, which yielded 65 registered ground stone objects, is not considered here on account of evidence that it was substantially disturbed during the Chalcolithic. However, it should be noted that quantities of stone vessel fragments and crude hammerstones identified from well 110 are consistent with other aceramic features at the site. The occurrence of querns, rubbers and pestles is not, however.

Period 1A, Feature 116: Total 128

The ground stone assemblage from well 116 is smaller and more varied than that from well 133 (Figs. 3.1-2). While it is impossible to explain this difference definitively, factors such as chronology, function, and location of the well in relation to settlement and on surface activities might have all played a part. Furthermore, the assemblages can reflect the timespan of infilling and can elucidate whether infilling was deliberate or whether it was natural and therefore post-dating use and occupation.

Radiocarbon data and chipped stone analysis have established marked chronological differences between Period 1A and Period 1B; typologically, however, there appear to be little indication of this difference. The particular occurrence of igneous vessel fragments in Period 1A may indicate some change in material exploitation by Period 1B. Alternatively, as will be discussed below, the differences between assemblages are as likely to reflect feature-specific discard activity and of activities at, or near, the well heads as they are a reflection of chronological variance (see also Peltenburg *et al.* 2000, 2001b).

Period 1B, Feature 133: Total 449

The ground stone assemblage from well 133 is extraordinary for the overwhelming proportion of stone vessel fragments and crude limestone hammerstones (numbering 283 and 114 respectively) it contained. A minimum number of vessels count of approximately

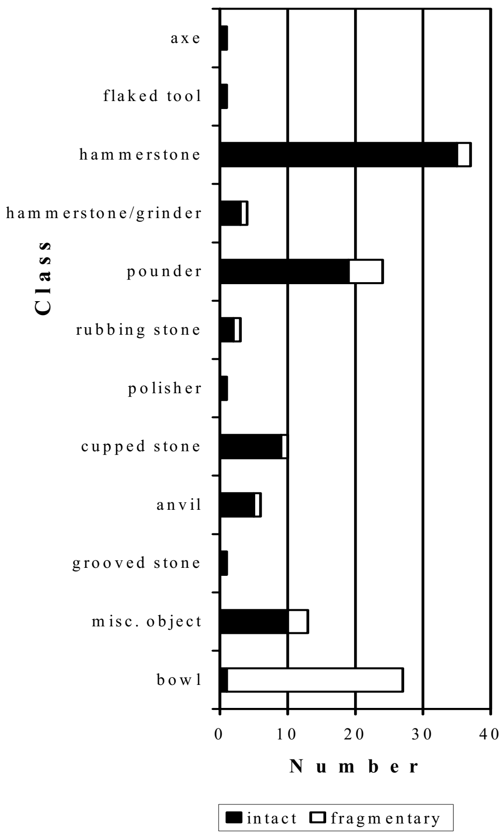

Fig. 3.2: Well 116: graph showing occurrence of ground stone by class and general condition

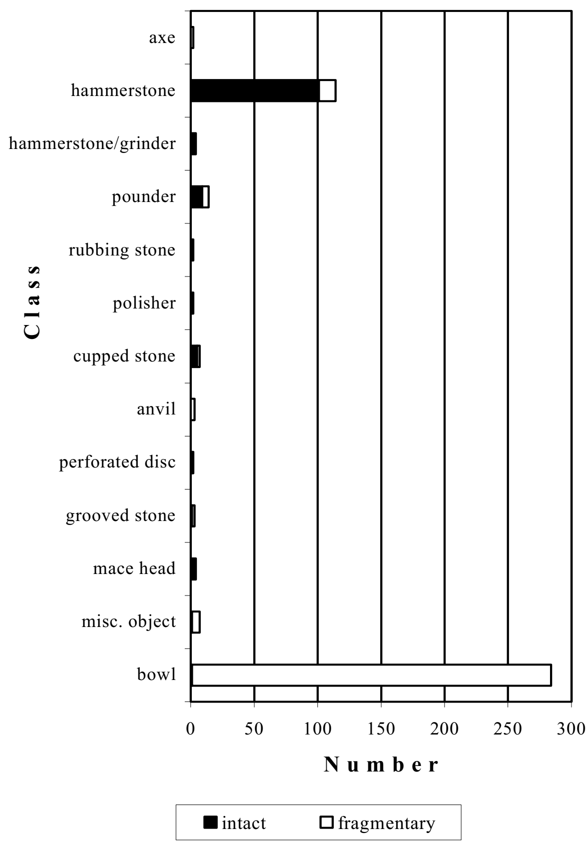

Fig. 3.3: Well 133: graph showing occurrence of ground stone by class and general condition

120, made on existing base fragments, suggests a remarkable concentration that resulted either from the deliberate choice of particular artefacts for infilling as an act of primary discard, or from redeposition of the artefacts (broken) on the surface. In the case of the latter, it is also possible that limestone bowls were being manufactured at the well head or that large concentrations of limestone bowl fragments had been deposited nearby. This first scenario is suggested by the apparently unfinished condition of the stone vessel fragments and is supported by analyses of chipped stone from the site (Peltenburg *et al.* 2000, 2001b; McCartney this volume). Their predominantly small size, the lack of joins, the abrasion and rounding of break edges, and the evidence of reuse of broken vessel fragments as hammerstones all suggest that the fragments might have been secondarily discarded (see Peltenburg *et al.* 2000, 2001b).

In addition to evidence of vessel manufacturing activity, well 133 produced a single example of a well-curated macehead. This finely worked artefact was made of an unusual pink fan conglomerate. Its colour and form are paralleled at later Khirokitia culture sites (see above), and given its rarity and presumed prestige value, this object might have been deposited with one or other of the secondary interments recovered from the well.

Period 1B, other features: Total 178

In close proximity to well 133 lie pits 337, 338 and B 340, the last with pit 340.345 below the floor. All appear to be aceramic. These features lack the quantity of ground stone shown by well 133, producing a total of 178 artefacts. The objects were of similar classes to those found in the wells with a preponderance of stone vessel fragments and hammerstones. Given their proximity to well 133, it is possible that they were contemporary with that feature.

Summary and conclusions

The repertoire of ground stone artefacts from aceramic contexts at Mylouthkia is limited, with an overwhelming majority of stone vessel fragments and crude limestone hammerstones in both Periods 1A and 1B (see Fig. 3.1). Cutting tools are rare and food processing equipment (e.g. querns and rubbers) are absent. Such a pattern is not seen at later sites of the Khirokitia culture (e.g. Khirokitia, Cape Andreas-Kastros and Kalavassos-Tenta) and is in marked contrast to the EChal/MChal assemblage of Mylouthkia. The contrast between the Mylouthkia aceramic assemblage and later aceramic and Chalcolithic assemblages might reflect chronological differences in economy and resource procurement or it might reflect the distance between the well head and place of habitation.

Despite the evidence of radiocarbon dates and chipped stone analysis confirming the gap in occupation between well 116 and well 133, little morphological difference can be observed between artefact classes within the assemblages of Periods 1A and 1B to indicate any chronological difference. However, the differences in the presence/absence and abundance of certain classes of artefact appear to reflect differing aspects of behaviour at the site and possibly an intensification of specialised activity. For example, it has been suggested that the abundance and condition of vessel fragments in well 133 indicate the proximity of manufacturing activity to the well head (see also Peltenburg *et al.* 2000, 2001b). However, chipped stone evidence from well 116 similarly indicates stone working, and stone vessel fragments occurred in significant proportions. This might suggest a continuity of activity from Period 1A and an intensification of such activity in Period 1B. The occurrence of a macehead and possibly also a well-worked perforated disc in the same feature may be related to the secondary interment of human remains.

In keeping with the smaller Kissonerga Aceramic Neolithic (Period 1A) assemblage (*LAP* II.1A, 179-80), there is also an overwhelming use of calcareous rock at Mylouthkia. Table 3.1 illustrates the number of ground stone artefacts from aceramic contexts by class and general rock type. Listed are the main igneous, calcareous and sandstone rocks. The category “other” includes unique occurrences like the variegated fan conglomerate used for macehead KMyl 1505. The choice of rock used for this artefact points to a deliberate selection for aesthetic and/or symbolic reasons, given the association of red with maceheads found in later contexts at Khirokitia.

Just as the repertoire of types is generally limited, so too the choice of rock types tends to exhibit little variation in the manufacture of certain artefact classes. For example, the bulk of the assemblage comprises stone bowl fragments and hammerstones that are made of chalk and, to a much lesser extent, of reef limestone and calcarenite. In the case of stone vessels it has already been noted above that later Khirokitia culture sites produced far greater quantities of igneous vessels. They also showed a marked preference for igneous rocks in the majority of other artefact classes. The rare occurrence of igneous rocks at Mylouthkia is matched by the rare occurrence of cutting tools or flaked tool scrapers that are commonly manufactured from such rocks. Similarly, abrasive rocks like mica sandstone and quartz sandstone are in little evidence, mirroring perhaps the rare occurrence of implements for food processing. The preference for “soft” rock types of calcareous nature probably stemmed from considerations of the ease of working, local availability, and functional requirements. However, it is possible that chronological or a culturally inspired regional heterogeneity contributed to such differences in resource exploitation as witnessed between Mylouthkia Period 1 and a number of sites of the Khirokitian.

Chapter 4: Miscellaneous Artefacts

by

Paul Croft and Edgar Peltenburg

§ 4.1 Worked bone (P.C.)

A small number of bone artefacts were recovered from Cypro-PPNB contexts at Mylouthkia. These are listed in Table 4.1 and are discussed below on a feature by feature basis.

Table 4.1. Bone and pig tusk artefacts from Cypro-PPNB contexts

BONE

Damaged Large/Small Robust Point: KMyl 1333.
Small Flat Point (perforated): KMyl 1219, 1912.
Needle: Cat.319.
Unclassifiable Fragment of Worked Bone: Cat.318.

PIG TUSK

Hook: Cat.320.

NB Details of the typological designations are given in the discussion of the larger body of Chalcolithic worked bone in § 17.8.

Well 116

In the main fill (124) of the shaft of well 116 was found a complete perforated point (KMyl 1219 Pl. 8.5, Fig. 71.3), Made on a sliver of longbone shaft, it is flat in section and has a broad, rounded butt end. The hourglass perforation in the butt is 2.0 mm in diameter. A fragment of a similar artefact (KMyl 1912) was found in nearby well 133.

A wet-sieved sample (C482) from the same unit (116.124) yielded a burnt fragment, possibly of the body of a needle (Cat. 319). Unlike most needles, however, the object is angular in section, so it may be a fragment of some other type of artefact, possibly a miniature point. Its surface has transverse striations resulting from grinding, and is highly polished.

A final artefact from well 116, a small hook (Cat. 320, Pl. 8.6, Fig. 71.13), was recovered from a wet-sieved sample (C519) from the very bottom (lowest 20 cm) of the well (116.192). It is made from a fragment of tooth, almost certainly pig tusk. The tip of the hook is eroded away, but this end retains some tooth enamel. The shank of the hook is double-notched on its back side, presumably for the attachment of a fishing line. With a total length of 12.7 mm and a thickness of 1.0 mm, this hook represents a very fine-scale piece of bonework. The notches with a maximum height (at the mouth) of 0.3 mm and 0.4 mm suggest the use of fine-gauge fishing line.

Hooks made of bone and tooth, presumably all fishhooks, were quite common at Cape Andreas and some have notched shanks similar to the Mylouthkia example (Le Brun *et al.* 1981, 61-2, Pl. XIV, Fig.56). Other hooks, with points that curve back almost to the shank, which is usually perforated, are known from Ceramic Neolithic Ayios Epiktitos-Vrysi (Peltenburg 1982a, Pl. 28d, Fig. 58.1) and Sotira-Teppes (Dikaios 1961, 203, Pls.104-105, no.233). These seem unsuited to fishing, and could well have fulfilled some other function, such as fasteners for necklaces (Peltenburg 1982a, § 4). Thus, whilst it would be unwise to assume that all small hooks are necessarily fishhooks, this seems most likely for the Mylouthkia example.

Well 133

From the upper fill (260) of well 133 was recovered the burnt tip of a smallish bone point (KMyl 1333).

In the outflow channel (331) at the bottom of well 133 was found a fragment of the butt of a flat-sectioned perforated point (KMyl 1912). The perforation is 3.8 mm in diameter. The complete object is likely to have been of similar type to the intact specimen (KMyl 1219) from well 116.124. Points of this general type, with a broad, flat perforated butts were quite abundant at Khirokitia (Dikaios 1953, Pls. XCIII, XCIV and CXL) where Dikaios (1953, 294) terms them "threaders". Similar artefacts are known from the Aceramic settlements of Tenta (Todd 1979, Fig.1.15-17) and Cape Andreas (Le Brun *et al.* 1981, Fig. 53.1-2). Examples are also known from later periods, for instance at Sotira (Dikaios 1961, 203, Pls. 104-5, nos. 657, 810) and Vrysi (Peltenburg 1982a, Pls. 27f, 28a; Fig.55) and Chalcolithic Kissonerga (*LAP* II.1B, § 20.7).

Pit 338

A wet-sieved sample (C541) from the upper fill (352) of large pit 338 yielded, along with various microfaunal remains, part of a third metatarsal of fox which bore signs of industrial utilisation. This item (Cat. 318) comprised the proximal articulation which had been neatly detached some 17 mm down the shaft of the bone by concentric grooving and snapping. It seems likely to represent debitage, the desired portion most likely having been the tubular shaft of the bone, perhaps for use as a bead. Beads made on shaft portions of small mammalian longbones have not been reported from Cypriot Aceramic sites, but at Cape Andreas similar items are of bird bone (Le Brun *et al.* 1981, 63, Fig. 56.12-13). That small mammalian longbones were utilised to make beads during the Chalcolithic is attested at Lemba (*LAP* I, 201, Fig. 84.8) and Kissonerga (*LAP* II.1B, § 20.7), although antler was more commonly employed for this purpose in Early Prehistoric Cyprus.

§ 4.2 Other Objects (E.P.)

[*For possible additional objects of this period found in later contexts, see § 17.2 and 17.5*]

Pendant and beads

KMyl 1228, 1230 (Pl. 8.7) are two cowrie shells, the first perforated, the second with possible chipped perforation. They may have been used as beads. Ridout-Sharpe notes that three dove shells (*Columbella rustica*) with similar grooves also occurred in well 116 (Table 9.4). None is perforated. The cowries were found 60-80 cm above KMyl 1170 (Fig. 70.5), an incompletely perforated pendant? associated with the only human body from well 116. Given the rarity of cowries, these examples could have accompanied the individual.

KMyl 1170 (Fig. 70.5) is a small, flat, broken pebble that was apparently discarded after perforations from opposite faces had been started. It is unique and may have been intended as a pendant. The object was found in well 116.191 at a depth of 14.95 m where parts of a late fetal individual or new-born were located, the only human remains from the well (§ 5.1). Given that KMyl 1170 is the only pendant? from the well, the association seems unlikely to be fortuitous. Were both regarded as 'incomplete'?

KMyl 1955 is a fragment of a dentalium from the fill of hearth 343 in B 340. Since there were no dentalia from the prolific well fills, and they occurred frequently in overlying Chalcolithic deposits, the possibility exists that this tiny piece is intrusive. The upper fill of the building was disturbed (see § 1, Unit 340). On the other hand, there were no other intrusives such as the plentiful Chalcolithic sherdage, some of it small, that lies in the area of B 340. More secure corroboratory evidence is required to substantiate the use of dentalia in Period 1 at Mylouthkia. Dentalia were exported during the PPNB from the Mediterranean to Asiatic settlements (Rosenberg 1999; Watkins 1996), and they were used subsequently in the Khirokitian as components of necklaces (cf. Dikaios 1953). Shells were used for pendants at Tenta contemporaneously during the Cypro-LPPNB (cf. Todd 1987, 85 from the structure 14 complex).

KMyl 2027 recalls Khirokitian dress pins, but it is too fragmentary to be certain.

Perforated disc

KMyl 1364 (Pl. 8.4 a, b) is about a third of a perforated, heavily striated stone disc. It was broken across the hourglass perforation in antiquity. The edge has been smoothed, in contrast to the flat faces. One face is scored by parallel lines over most of its surface, with scratch marks nearer to and roughly parallel with the edge. The other has more randomly placed score marks on its central face, and similar peripheral scratches as on the opposite face. The max preserved length is just under 8 cm.

This is a unique find from well 133 where the two joining fragments were found some 2 m below the surviving top. Seven other perforated stones were recovered from Mylouthkia, all from Chalcolithic contexts, none like this. There may have been a resurgence in the use of stone discs in the Chalcolithic since 41 examples were recovered from Kissonerga (*LAP* II.1A, 199). However, most of these post-date Mylouthkia Period 3, the final Chalcolithic occupation here, so there is little reason to doubt the contemporaneity of KMyl 1364 with the remainder of the well deposit. An earlier perforated disc of calcarenite from Aetokremnos Stratum 2/4 has a similar combination of parallel deeply scored lines and peripheral scratches on a face (Simmons *et al.* 1999, 150-1, Fig. 6-10). Its diameter is *c.* 10 cm, and like this one (diam. >10 cm?), is larger than other stone disks from Khirokitian sites. Reese suggests that such discs were used as platforms to fashion stone or shell beads and pendants, with the roughouts cradled in the hourglass perforation (Simmons *et al.* 1999, 150). This could account for the score marks, although it should be pointed out that similar combinations of marks occur on later picrolite figurines where initial workings have not been polished away sufficiently. Thus, the incisions could also be remnants of primary working rather than wear/use marks. No suitable beads were found in Period 1 contexts.

Miscellaneous

Two fragmentary stone objects of chalk and one of chalky reef limestone from well 116 cannot be assigned to a class.

KMyl 999 is a finely smoothed rectangular piece, plano-convex in section. This is possibly from a bowl.

KMyl 1050 is more intriguing. One face is convex with a deep incision bisecting the remaining surface. Longitudinal polishing striations extend across this surface. The reverse is completely sheared away. Such incisions occur on Chalcolithic stone figurines where they divide the legs for instance, but the findspot, in fill 124 of well 116, precludes such a derivation. The incision is narrow and sinuous hence unlike the grooves which occur on arrow-straighteners or grooved stones of the PPNB (cf. Aurenche and Kozlowski 1999, Figs. 2.6-7), or the incised pebbles of the Khirokitian (cf. Le Brun *et al.* 1994, 270-86, Figs. 96-9, Pl. 29).

KMyl 1175 (Pl.16.14) is a plaque-like piece broken from a larger object. One intact edge has been smoothed, as have both flat faces. There are faint parallel striations on one of these faces, but altogether different are two sharply incised X marks. The centrally placed one is made from one deep line just over 3 cm long, and a shallower partner. The adjacent, smaller X lies near one surviving corner of the object, and was more shallowly carved into a rougher surface. The original function of the object, and the meaning of the Xs, are unknown.

Chapter 5: Human Remains

by

Sherry C. Fox, Dorothy A. Lunt and Marie E. Watt

§ 5.1 The skeletal remains (S.C.F.)

A total of six individuals were recovered from two Cypro-PPNB wells at Mylouthkia. A single, incomplete individual of minimally late fetal age was recovered from one unit of well 116, the earliest known Neolithic well to date, and at least five individuals were recovered from six units of well 133. Determination of the minimum number of individuals is based upon duplication of the same skeletal element or representation of individuals of different ages or sexes. Sex and age data from each well are summarised within Table 5.1. Skeletal preservation ranges from fair to good. Post-mortem insect activity is observed on a long bone fragment of one individual from well 133. The remains from well 133 are mostly incomplete and represent at least two adult males, an adult of indeterminate sex, an adolescent and a child. Concentrations of bones were found in well 133 within fills 260 and 282 with a lacuna of human skeletal material within fills 278 and 279. These partial individuals appear to have been secondarily interred, although poor preservation could account for the incomplete nature of the late fetal/neonatal remains from well 116. Although temporal bones appear to be represented more frequently than other skeletal elements from Neolithic Mylouthkia, this could be due to the relatively greater preservation afforded temporal bones than to any selective interment of this bone in secondary burial. It is not known why some of the recovered bone fragments exhibit signs of burning, but none demonstrates more than minimal exposure to fire (cf. Ubelaker 1989, 35-8). The evidence additionally suggests that the burning could have occurred post-mortem, since edges of many bone fragments also appear charred, yet the heat generated from the burning is not likely to have been great enough to produce fracturing. One adult male reveals signs of a cultural practice known as occipital deformation or "head shaping" that formed during infancy, very likely from placement in a cradle-board. This particular type of cranial deformation is observed elsewhere on the island during the Neolithic (cf. Angel 1953). An estimate of living stature can be obtained for one adult, but unfortunately the sex of the individual is unknown. The only skeletal anomalies noted are extrasutural bones of a cranium, a septal aperture of a humerus and Pacchionian pits of an endocranium. A single paleopathological lesion is identified, that of healed cribra orbitalia within both eye orbits (frontal bone) of an adult male. This is possible evidence that the man suffered from anaemia at some point during his life.

Table 5.1. Sex and age of individuals from the Cypro-PPNB wells

Well	*Units*	*M*	*F*	*?*	*Ages*
116	116.124, 116.191	-	-	1	(1) 7½+lunar mos
133	133.260, 133.264	1	-	-	(1) 26+yrs
133	133.282, 133.329, 133.331, 133.332	1	-	3	(1) adult M; (2) adult; (3) 14-19 yrs; (4) 6-10 yrs

M=male; F=female; ?=indeterminate sex; mos=months; yrs=years

Well 116, fill 124, 191

A single individual of possible late fetal age was recovered from the earlier of the two Cypro-PPNB wells from Mylouthkia, well 116 (fills 124, 191). This individual is represented by only five bone fragments identified in the inventory below. Age is estimated from the overall size and morphology of the bones. With a preserved right ulna length of minimally 42.9 cm, this individual was of viable age (minimally 7.5 lunar months) at birth (Fazekas and Kósa 1978). It is possible that either this individual was stillborn or succumbed shortly after birth. Neither skeletal anomalies nor paleopathological lesions are observed among these late fetal/neonatal remains.

Inventory

- fragment of radius?
- fragment of right and left ulnae, both missing distal ends post-mortem
- rib fragment
- vertebral body

Well 133, fill 260: skull 1 (=KMyl 1181) (Pl. 2.3, 4)

Five bags within a large box and 6 bags within a small box represent minimally the remains of a single adult male recovered from this context. It is possible, however, that a second individual was recovered. In general, the remains are in fair to good condition. Four cranial fragments exhibit signs of charring. The colour of these burned cranial fragments ranges from black to black-brown; evidence of minimal exposure to fire. Lunt and Watt report the dental remains and associated mandibular and maxillary remains later in this chapter. The remains are incomplete and with the exception of a fragment of the first cervical vertebra (C-1) from fill 264 immediately below fill 260 only skull bones are identified, including a calotte. An inventory of the identifiable remains is listed below.

Based upon the presence of a supraorbital torus on the frontal, medium temporal mastoid processes and a pronounced nuchal area of the occipital, this individual is sexed as male. The age of this individual is adult, but no more precise age can be determined. Endocranially, the coronal suture is obliterated (minimally twenty-six years of age according to Angel *et al*. 1986, 191) as is the sagittal suture at both lambda and bregma (a line is visible at mid-suture). Both the coronal and sagittal sutures are visible ectocranially although they are fused. With no long bones recovered, living stature cannot be estimated.

Skeletal anomalies include extrasutural bones at both lambda (although the bone itself is not recovered) and on the sagittal suture approximately 2.33 cm from bregma. The only paleopathological lesion identified is cribra orbitalia of the frontal orbits. This is probable evidence for anaemia. Lastly, a type of cultural alteration of the cranium is observed known as cranial deformation, common for this time period in Cyprus, as the occipital is flattened, probably by a cradle-board (cf. Angel 1953; Schwartz 1974a).

In conclusion, it is not known what caused the burning of some of the bone fragments, but it was not severe and is likely to have occurred after the death of this adult male (cf. Ubelaker 1989, 35-8). It is interesting to note that this individual is largely incomplete. In fact, only skull fragments (cranial and mandibular) were recovered with the exception of a portion of the first cervical vertebra (C-1). This is probable evidence that although decomposition could have reached an advanced stage by the time his skull was secondarily interred in this well (cf. §6.2), desiccated soft tissue attachments likely allowed for the mandible and vertebra to be deposited with the cranium. During infancy, this individual spent time with the back of his head on a flat surface, probably a cradle-board. Angel (1953) found similar occipital deformation or "head shaping" at Khirokitia. At some point in his life, this man may have developed anaemia as evidenced by cribra orbitalia. The etiology of the possible anaemia is unknown.

Inventory

- a male calotte with portions of the frontal and both right and left parietals
- right and left zygomatics with a fused portion of left maxilla
- right and left temporals and a fragment of a zygomatic arch
- occipital squama and both occipital condyles
- fused right and left nasal bones
- minimally 12 additional cranial fragments including 2 fragments of orbital plate of frontal

Well 133, fill 264

In addition to the partially reconstructed first cervical vertebra (C-1) discussed above, only three human femoral fragments were recovered from this context. It is possible that they are all from the same bone from a single individual of adult age. Additionally, it is conceivable that these fragments are from the adult male described in fill 260 above. No observations of anomalous or paleopathological conditions are made on this material.

Well 133, fill 282: 'skulls' 2-4

Contained within twenty-five bags of a large box are represented minimally the remains of four individuals from this context. Although none of the individuals is complete, the remains range from fair to good condition. Post-mortem damage from insect activity is observed on the shaft of an adult fibula. Furthermore, at least two bone fragments, including a left zygomatic, exhibit minimal evidence of burning. The zygomatic is only partially burned and the other fragment is unidentifiable, minute in size and charred black. The minimum number of individuals is four based upon duplication of temporal bones (skulls 2-4) of adult size (of which one very likely represents an adolescent) in addition to the presence of another subadult, a child. Unfortunately, the adults and late adolescent cannot be completely segregated with any degree of certainty. Thus, the remains of the child are presented in addition to the commingled remains of the adults and late adolescent in the inventory below. Later in this chapter, Lunt and Watt present an inventory and discussion of their analyses of the teeth and associated jaws from these individuals. Additionally, an unclassed, unsided permanent mandibular incisor was recovered; it exhibits wear as observed by slight dentin exposure.

The sex of the child is indeterminate due to its immature age. A septal aperture of the humerus is visible, however, a feature more often associated with females than males (Hrdlicka 1932, 431-450 cited by Bass 1971, 115). Based upon a femoral head diameter of at least 46.0 cm, one of the adults is likely a male (Pearson 1919, 56 cited from Bass 1971, 173). Additional evidence of the presence of a male is found in cranial fragments with large temporal mastoid processes, a medium supraorbital torus of frontal, and a large frontal sinus. The sex of the other adult, as well as that of the adolescent, is indeterminate.

Based upon the size and morphology of a distal humeral diaphysis fragment, the child is estimated to be possibly between the ages of six and ten years. Although age indicators are preserved among the adult remains, such as a fused medial clavicle (indicating an age older than twenty-three years according to Angel *et al*. 1986) and a fused iliac crest, no more precise age estimates could be provided than "adult" with the exception of a sternal rib end exhibiting Phase 1 morphology. This age indicates an adolescent of only 14-15 years if female (İşcan *et al*. 1985) or 16-19 years if male (İşcan *et al*. 1984). Pacchionian pits observed on the frontal bone of one of the adults, however, are often associated with older adults.

One long bone, an adult left ulna (24.6 cm), was reconstructed from two fragments for purposes of estimating living stature. Unfortunately, the sex of the adult from which this bone came is indeterminate. Based upon Trotter and Gleser's (1952) formulae for white females, the reconstructed living stature is 162.80 cm ±4.30 cm (*c*. 5'2½"-5'5¾"). The reconstructed living stature is 168.05 cm ±4.72 cm (*c*. 5'4¼"-5'8"), if male, however, based upon Trotter and Gleser's (1958) formulae for white males.

Skeletal anomalies include a septal aperture of the humerus of the subadult and Pacchionian pits of the frontal of one of the adults. The latter may be simply an age indicator, although they too may be more commonly associated with females. No skeletal paleopathological lesions were identified among the remains of the four individuals recovered from this context.

Inventory of identifiable adult/adolescent skeletal remains

- 3 fragments of a frontal with a portion of left orbit and medium supraorbital torus and large frontal sinus
- paired right and left parietal fragments
- fragment of parietal
- right temporal fragment with medium mastoid process
- paired right and left temporal bones with large mastoid processes
- right temporal fragment
- petrous temporal fragment
- fragment of occipital squama
- lateral occipital fragment
- 2 occipital condyle fragments
- 3 fragments of the same occipital
- right and left greater wings of sphenoid
- sphenoid greater wing fragment
- right zygomatic and right frontal process of zygomatic
- 2 left zygomatics
- permanent mandibular incisor
- right and left mandibular condyles
- fragment of mandibular condyle
- C-2 fragment with odontoid process
- 2 fragments of a C-2, one with odontoid process
- 3 thoracic vertebral bodies
- 2 fragments of vertebral body
- 2 posterior vertebral arch fragments
- right clavicle fragment (missing medial and lateral ends post-mortem)
- 3 fragments of a right clavicle (medial end and shaft)
- lateral fragment of right clavicle
- fragment of left scapula
- 34 rib fragments, including fragments of two 1st ribs and a sternal rib Phase 1
- paired right and left humeral shafts
- 4 fragments of a right humerus shaft
- 2 humeral head fragments
- fragment of trochlea of humerus
- left radius shaft fragment
- possible right radial tuberosity
- reconstructed left ulna (maximum length=24.6cm)
- 1st metacarpal head
- base of right 3rd metacarpal
- right 5th metacarpal (missing head post-mortem)
- left 5th metacarpal
- proximal hand phalanx
- fragment of proximal hand phalanx
- proximal or middle hand phalanx
- 2 middle hand phalanges
- 5 fragments of ilium, including 2 portions of fused iliac crest
- fragments of 4 innominate (os coxa) acetabulae
- right and left ischia (left with acetabulum)
- fragment of right? acetabulum
- pubis fragment
- 2 fragments of a femoral shaft
- paired right and left femoral shafts
- fragment of femoral condyle
- portions of 2 proximal tibia
- paired right and left tibial shafts
- right talus fragment
- right calcaneus fragment
- left calcaneus fragment
- calcaneus fragment
- 2 unsided tarsal navicular fragments
- right 1st cuneiform
- left 1st metatarsal
- left 2nd metatarsal base
- left 4th metatarsal fragment
- proximal 1st foot phalanx

Inventory of child remains

- fragment of left frontal orbit
- parietal fragment
- right temporal fragment
- greater wing of sphenoid
- occipital fragment
- 2 rib fragments
- 2 vertebral arch fragments
- right distal humerus fragment
- right and left femoral shafts
- fragment of right humerus
- metatarsal shaft and partial base fragment

Well 133, fill 329

Only two articulating fragments of occipital were recovered from this feature minimally representing the remains of a single individual. Neither fragment is burned. The lambdoidal suture appears to be unfused, thus likely representative of a young individual, but the thickness of the bone (0.85 cm) indicates the probability of an adult, or possibly an individual with a paleopathological lesion, such as anaemia. Additionally, it is possible that these fragments are associated with the adolescent or one of the adults from unit 282, described above.

Well 133, fill 331

A single bone, that of a possible ulnar shaft is identified from this feature, suggesting the presence of a possible adult. It is possible that this fragment is associated with one of the individuals from fill 282, described above. No anomalous or paleopathological conditions are detected on this bone fragment.

Well 133, fill 332

Only two fragments of cranial bone, one of which is a probable parietal fragment, were recovered from this context, representing minimally a single individual. Both fragments are scorched from slight exposure to fire. The suture of one of the cranial fragments appears unfused indicating a young individual, yet the thickness indicates an individual of possible "adult" age. It is possible that these fragments are associated with the adolescent or one of the adults from fill 282 described above. No anomalous or pathological conditions are noted for either of these fragments.

§ 5.2 The dentitions (D.A.L. and M.E.W.)

The specimens from this site are in fairly good condition, though some of the teeth show post-mortem erosion of the enamel, of the type observed in the Lemba-Lakkous and Kissonerga material. As the specimens derive from three different periods, with only one or two specimens from each period, it is not possible to carry out population studies. All that can be done is to describe the individual specimens. In this chapter the dentitions from the Cypro-PPNB phase of the site are discussed; specimens from the Chalcolithic period are discussed in § 19.2.

Well 133, fill 260: skull 1 (= KMyl 1181)(Pl. 2.3, 4)

The main specimen consists of a largely complete mandible (part of the left ramus and left condyle missing), with ten erupted permanent teeth *in situ*. There is also the anterior part of a maxilla plus the left tuberosity, and these fragments carry ten erupted permanent teeth. A right third maxillary molar is present loose.

There is a very high probability that these specimens have come from the same individual. The isolated left maxillary canine of well fill 264 fits the appropriate socket in the maxilla from fill 260 and thus forms part of the same dentition.

The individual was clearly an adult, but a closer estimate of age is difficult to make. The incisors, canines, mandibular premolars and maxillary right premolars show relatively little wear, but the molars, from whose degree of attrition age is generally judged, have disappeared except for the maxillary third molars which by themselves are insufficient basis for an estimate of age.

There is evidence of severe dental disease in this individual. All the mandibular molars, both maxillary first molars and the maxillary left second molar have been lost *in vivo* (the maxillary right second molar was probably also lost *in vivo*, but this area of bone has been lost *post-mortem*). The molar loss had occurred some time before death and the alveolar bone was undergoing a healing process, though there is evidence of some residual infection in all areas. The healing process is further advanced in the mandible than in the maxilla, which suggests that the mandibular molars were lost first.

The cause of *in vivo* loss of molars is probably to be found in the maxilla. The crowns of the maxillary left premolars have been totally destroyed by dental caries, leaving only the root stumps *in situ* in the sockets. The pulps have been exposed, and small abscesses have formed in the bone around the root apices of these teeth. The maxillary left third molar shows an occlusal lesion of moderate size, and the maxillary right third molar has a pinhole occlusal opening leading into a carious lesion which is spreading horizontally below the occlusal enamel (detected by probe).

It seems most probable that extensive dental caries was the cause of *in vivo* loss of molars. The other dental conditions which might result in tooth loss are severe attrition leading to pulp exposure, and periodontal disease. Attrition cannot be involved here since the anterior teeth are only slightly worn. There is no evidence of periodontal disease in this specimen: indeed, in areas where the teeth are still standing, the alveolar bone is in particularly good condition and it seems extremely unlikely that periodontal disease could have been involved in the loss of the molars.

The very slight wear of the anterior teeth and premolars suggests that molar loss occurred quite early in adult life. The individual may have survived for some considerable number of years after molar loss but would have had reduced masticatory power and may have subsisted on a softer diet than normal, which would result in reduced wear of the remaining teeth. Alternately, it could be argued that loss of the molar teeth would place additional stress on the anteriors and premolars which should therefore show severe attrition, and the fact that they do not may suggest that the individual died only a few years after loss of the molars.

There are slight deposits of calculus, especially on the mandibular incisors.

This individual shows remarkably extensive dental pathology.

The mandible also shows a bone anomaly in the form of a 'torus mandibularis' or small swelling of bone on the lingual aspect of the mandible in the region of the left first molar. These features are usually bilateral, but in this case the torus appears on the left side only. The significance of these bone masses is disputed, but they are not generally considered to be pathological.

Teeth present, erupted	8	5 4 3 2 1 / 1 2 3 4 5	8
		5 4 3 2 1 / 1 2 3 4 5	
Teeth lost *in vivo*	6	/	6 7
	8 7 6	/	6 7 8

Well 133, fill 282

There are six bags with loose teeth or jaw fragments. The teeth have been identified as follows.

1) maxillary right first and second permanent molars and maxillary left second premolar and third molar, probably all from the same mature adult.
2) maxillary right permanent second incisor, canine, first premolar and second premolar, and maxillary left permanent first incisor, second incisor, canine and first premolar, probably all from the same mature adult; plus three unidentifiable root fragments.
3) fragment of left mandible with permanent first and second premolars and first, second and third molars *in situ*, from a mature adult.
4) mandible fragment with right first premolar and permanent left second incisor *in situ*, from a mature adult; also maxillary left first permanent molar from a child or adolescent.

5) maxillary right first permanent molar from a child or adolescent, mandibular right second permanent molar from a mature adult.
6) mandibular left second permanent incisor from a child or adolescent; maxillary left second premolar with partially formed root, from a child.

The left mandibular fragment from 3) fits with the right mandibular fragment from 4), and on the basis of size, morphology and attrition the right mandibular second molar from 5) appears to match the left mandibular second molar from 3). Thus the two mandibular fragments and the loose permanent second mandibular molar are probably all from the same jaw A and derive from a mature adult.

The four teeth in 1) appear to be from the same adult. The eight teeth in 2) also appear to form a set. The teeth in these sets are not duplicated: are they from the same individual? From the general appearance and the degree of attrition they could be, but the left second premolar of 1) is noticeably larger in both dimensions than the right second premolar of 2) and it therefore seems more likely that these teeth are from two different maxillae B and C.

The degree of attrition suggests that maxillae B and C and mandible A are all from individuals towards the upper end of the age range 25-35. Either maxilla B or maxilla C could be from the same individual as mandible A, all three could represent different individuals, or if the discrepancy in size of the maxillary premolars is an anomaly in development, the specimens could all derive from a single individual.

The maxillary left first permanent molar from 4) and the maxillary right first permanent molar from 5) are identical in dimensions and degree of wear and are probably from the same young dentition. The mandibular left second permanent incisor from 6) shows virtually no attrition and could well be from the same juvenile dentition D as the first molars. The developing maxillary left second premolar appears to be from a child aged approximately 11 years ±9 months. This tooth could be from the same dentition as the pair of first molars and unworn second incisor, but the association cannot be definitely established; though it seems likely.

Teeth present, erupted	A	7 4	/	2 4 5 6 7 8
Teeth present, erupted	B	7 6	/	5 8
Teeth present, erupted	C	5 4 3 2	/	1 2 3 4
Teeth present	D	6	/	5 6
			/	2

Chapter 6: The Animal Bones

by

Paul Croft

§ 6.1 Introduction to the zooarchaeology of the Cypro-PPNB

It has long been generally accepted that the deer, pig, sheep, goat and small carnivores which are regularly present in the Aceramic Neolithic village settlements of Cyprus were deliberately imported to the island (e.g. Croft 1988; 1989, 260-1; 1991, 63-64; Davis 1984, 147; Jarman 1976, 42; 1982, 66; Schwartz 1974b; Watson and Stanley Price 1977, 247). Recent discoveries on three Cypro-PPNB sites (Croft 1998; Guilaine *et al.* 1995; 2000; Şevketoğlu 2000, 72-9, 117; Simmons 1998a-b; Vigne *et al.* 2000) indicate conclusively that cattle must now be added to the list of very early animal imports.

Animal remains excavated from 1992 onwards at Shillourokambos, near Limassol, represent several phases of Cypro-PPNB occupation. These samples consist largely of the remains of pig, fallow deer and caprines (including both sheep and goat). Whilst the occurrence of these animals during the Cypro-PPNB was not entirely surprising in view of their presence later on during the Cypriot Aceramic Neolithic, the occurrence additionally of a small proportion of cattle bones (Vigne *et al.* 2000) was not to be expected. Indeed, the apparent absence of cattle from Cypriot bone assemblages dating earlier than the later 3rd millennium BC (i.e. the beginning of the Bronze Age) had long and often been commented on (Croft 1981, 47; *LAP* I, 207; 1991, 63; 1993, 205; 1996, 222; *LAP* II.1A, 211; 1998; Davis 1984, 150; Schwartz 1973, 216; Stanley Price 1977) and had constituted one of the enduring enigmas of Cypriot prehistory.

The small faunal sample (220 identified bone fragments) from the lowest level (early phase A) at Shillourokambos includes the remains of pig, fallow deer and caprines in the approximate proportions 4:2:1, and also a few cattle bones (Vigne *et al.* 2000). Fox and domestic dog are also present. Three radiocarbon determinations date this level to the 2nd half of the 9th millennium cal BC, corresponding in time with well 116 (Period 1A) at Mylouthkia and EPPNB in mainland western Asia (Fig. 11.1). Although the relative abundance of the various animal taxa in this earliest faunal sample from Shillourokambos might well be misleading in view of the small size of the sample, the remarkable fact of the presence of these animals in Cyprus at such an early date is not in doubt.

To avoid any possible confusion over the matter, mention must be made here of the deer and pig remains which have been reported from 10th millenium BC contexts at Cyprus' sole pre-Neolithic archaeological site, Akrotiri-Aetokremnos. Here four possible deer phalanges reported by Reese *et al.* (1999, 167) in fact seem more likely to be of pig (Vigne *et al.* 2000). Bones from this site attributed to pig by Reese *et al.* (1999, 164-67) comprise 13 foot bones plus a tooth fragment. All of these foot bones from Aetokremnos, whatever animal or animals they truly derive from, are interpreted by Reese as having been retained on animal skins which were imported to Cyprus, and not as indicating the presence of living pigs and deer on the island prior to the Neolithic. Vigne *et al.* (2000) consider that all of these bones might be intrusive.

Cattle remains are more abundant in the succeeding (early 1B) phase at Shillourokambos, comprising 8% of 1,110 identified specimens. Pig is no longer pre-dominant in the assemblage, which is somewhat deer-dominated, and the importance of caprines has also increased substantially. A cat appears in the faunal record at this time. This phase corresponds with mainland MPPNB (*c.* 8,100-7,400 BC). Subsequent phases (middle A and B) at Shillourokambos correspond with well 133 and the other features which represent Period 1B at Mylouthkia, and with the earlier part of mainland LPPNB (7,400-7,000 BC). These phases possess so little cattle bone that it seems likely to be residual, so cattle keeping presumably ceased at Shillourokambos around the middle of the 8th millennium BC. The combined faunal sample for Shillourokambos middle phases A and B is large, comprising 3,415 identified specimens, consisting overwhelmingly of pig, deer and caprines in balanced proportions. The final phase here dates to the end of the 8th millennium BC and apparently equates with the insular Khirokitia culture known from a number of other sites. In a faunal sample of 439 identified specimens, caprines have now risen to dominance, but deer and pig remains are still of considerable (and equivalent) significance. Animal remains from the final phase at Shillourokambos included not a single cattle bone, thus conforming to the general pattern of Khirokitia culture assemblages at Khirokitia itself (Davis 1984; 1989; 1994), Tenta (Croft 1991; in press), Cape Andreas-Kastros (Davis 1987; 1989) and Kholetria-Ortos (Croft n.d.), which also lack cattle remains.

Abundant obsidian at the northern coastal site of Akanthou-Arkosyko (Şevketoğlu 2000, 72-9, 117) implies that it belongs to Cypro-E/MPPNB, but until the site is more securely dated, the significance of cattle remains found here cannot be fully evaluated.

Limited test excavations in 1997 at Kritou Marottou-Ais Yiorkis, in the uplands of the Paphos district of western Cyprus, have established that this site dates to the Aceramic Neolithic and that cattle are present (Croft 1998; Simmons 1998a-b). (In fact the first cattle bone from the site was identified by me as long ago as 1980, it having been collected during Rupp's survey of the site (Croft 1993, 205), but the significance of this surface find remained most uncertain until the recent excavations). Three radiocarbon dates on Ais Yiorkis animal bone, including one on cattle bone, are consistent in suggesting a (probably mid-) 7th millennium BC date for this assemblage (Simmons 1998a, Table 9). Whilst the chronology of Ais Yiorkis appears consistent with an early stage in the Khirokitia culture, its cultural affinities have yet to be determined. The indications are, then, that cattle keeping persisted elsewhere in Cyprus for some centuries, possibly for up to a millennium, after cattle disappeared from the faunal record at Shillourokambos. It was in the west of the island that the cowboys of Aceramic Neolithic Cyprus apparently clung most tenaciously to the tradition of bovine husbandry.

Kholetria-Ortos, a Khirokitia culture settlement in lowland western Cyprus (Simmons 1994a-b), has been dated by a series of six radiocarbon determinations which suggest a date towards the end of the 7th millennium BC (Simmons pers. comm.). The faunal assemblage consists of caprines (about half, including both sheep and goat in the ratio 3:1), pig and deer (about a quarter each) with fox and cat also present. The absence of cattle from Ortos suggests that cattle keeping may have died out even in the west of Cyprus by this time.

Evidence from the Aceramic Neolithic sites of Shillourokambos (late 9th-8th millennium BC), Ais Yiorkis (7th millennium BC), and also Akanthou-Arkosyko have exposed the apparent absence of cattle from Cyprus prior to the later 3rd millennium BC as an illusion. Even so, it remains the case most, if not all, Khirokitia culture bone samples, and all Ceramic Neolithic and Chalcolithic samples from Cyprus, are devoid of cattle remains. Thus, in the present state of knowledge, the enigma of the total absence of cattle prior to the Bronze Age has been supplanted by the conundrum of their early disappearance, and the curious matter of their seeming absence from the island for the subsequent three or four millennia.

§ 6.2 Bones from the Mylouthkia wells and other Cypro-PPNB contexts

Well 116

In view of the fact that it is the only Cypro-EPPNB feature on the site, it is unfortunate that well 116 contained only small quantities of animal and human bone. The bone assemblage of well 116 contrasts greatly with that of nearby Cypro-LPPNB well 133 in which many whole caprine carcasses and significant quantities of human remains had been deposited. The rescue circumstances under which well 116 was excavated precluded the sieving of more than a tiny proportion of its fill, but this omission certainly does not account for the paucity of bone here. Half a dozen wet sieved samples (totalling 264 litres) taken from diverse locations within well 116, from fill 123 towards the top of the well shaft down to the very bottom, yielded no human or larger mammalian bone.

All of the very small amount of larger animal bone from well 116 probably represents carcasses which were eaten by people. A handful of pig bones and teeth came from fill 124, as did a distal humerus of goat and five caprine teeth. Underlying fill 191 yielded an atlas vertebra of pig and basal fill 192 a caprine first phalanx.

Human remains were only very sparsely represented in well 116. A pair of ulnae, a vertebral centrum and a possible radius fragment of a neonatal baby (§ 5.1), came from fill 191 whilst the overlying major shaft fill 124 yielded a rib fragment which could derive from the same individual. Whilst the fragile skeletal remains of such a small child might conceivably have decayed away almost completely, it seems likely that if a whole baby had originally been deposited here more than these few fragments would have survived and been recovered. Thus, very limited evidence slightly favours the inclusion of an incomplete human individual in the way that is more clearly evidenced in well 133.

Two scraps of bone from different species of unidentified small bird came from the wet sieved samples from fill 124. They were a proximal tarsometatarsus of a bird of about sparrow size and a first phalanx (digit ii, anterior) of an even smaller bird. These may represent human food remains, but might well be non-cultural in origin.

Many thousands of limpet shells were found in the fills of well 116, and it must be stressed that the 2,285 saved for analysis (see § 9) represent only a small proportion of them. It is suggested that limpets were washed and consumed here, having been carried up from the nearby coast, possibly by people returning to a settlement situated somewhat inland of the well. Additional evidence for the consumption of seafood in the vicinity consists of a few crab claws (often burnt) and several dozen pieces of fish bone scattered through the fills of well 116. A fish hook made on a sliver of pig tusk (Cat. 320, see § 4.1) from a wet sieved sample (C319) from basal fill 192 provides further evidence for marine-related activities here. If the locality was somewhat further from the sea than the present distance of a hundred metres or so due to lower sea level during the early Holocene, the coast would still not have been more than a few minutes walk away. It has been suggested by Gomez and Pease (1992) that at *c.* 9,000 BP, sea level around the coast of Cyprus would generally have been as much as 35 m lower than at present but, in view of the possibility of localised uplift, it is perfectly conceivable that the coastline of Mylouthkia some ten millennia ago was in much the same place as it is today.

As in well 133, many small creatures appear to have fallen into well 116 and died. Indeed, the largest category of bone in this well consists of the remains of microfaunal pit-trap victims. In addition to the mice, frogs, toads and reptiles that were also found in well 133, well 116 yielded remains of a shrew.

Reptiles, including lizard and snake, were relatively less abundant than in well 133, amounting to only a couple of dozen pieces. Amphibian bones, including both frog and toad, were relatively commoner in well 116. Although amphibian bones occurred throughout the fills of well 116, they were concentrated in the bottom fill 192, suggesting that these creatures may have been residents whilst the well was in use, rather than victims.

The 50 litre wet sieved sample (C519) from fill 192 at the very bottom of well 116 yielded, in addition to around 50 amphibian bones, over a thousand pieces of small rodent bone. This material included 50 upper incisors, all of which possessed subapical notches, indicating that they came from a house mouse (*Mus* sp.) (Harrison and Bates 1991, 251). Far lesser quantities of rodent remains occurred throughout the succeeding fills.

Finally, wet sieved sample C519 also yielded two left mandibles of a shrew. Shrew remains are also known in small numbers from Khirokitia (Davis 1989, 194 and Pl. XVIII). The modern shrew of Cyprus, the lesser white-toothed shrew (*Crocidura suaveolens*), is viewed by some as a distinct subspecies (*C. s. cypria*), and pre-modern specimens recovered from Late Bronze Age Kouklia and elsewhere have even allowed the definition of a second, smaller, presumably ancestral subspecies (*C. s. praecypria*) (Reumer and Oberli 1988). The determination of the affinities of the well 116 specimens from Mylouthkia must await the intended fuller study of the microfaunal remains.

Well 133

Animal bone from Cypro-LPPNB well 133 falls into four distinct categories, which are described and discussed below. Additionally, in order to interpret the animal remains and, more generally, the history of the well as a whole, the human bone (discussed in detail in § 5.1), constitutes a fifth category of bone which must also be considered here. Thus, the five categories of bone considered in what follows are: 1) whole caprine carcasses; 2) miscellaneous non-food animal remains; 3) bone refuse from food animals; 4) microfaunal pit-trap victims; and 5) human remains.

Whole caprine carcasses in well 133

An exceptional concentration of originally whole caprine skeletons accounts for the great majority of the bone from well 133, and indeed of all PPNB animal bone from Mylouthkia. At least eight immature and one mature sheep, twelve immature (including two rather uncertain attributions) and two mature goats seem to have been deposited in the well as complete, unbutchered carcasses. None of this material was burnt. As described above (§ 1), the uppermost of the more or less articulated caprine remains were found at 20.70 m asl and they occurred throughout the succeeding 4.25 m of the fill of the shaft. Far lesser quantities of scattered, disarticulated human remains also occurred sporadically from this level down through 3.7 m of shaft fill, below which level they were all but absent.

Not all of the caprine bones were found in articulation, due presumably to the subsidence and water action which is clearly evidenced in the fill of well 133, but very many of them were articulated. Despite comprehensive dry sieving through a 5 mm mesh, not all of the bones of these animals were retrieved. Some may have decayed away completely and, since excavation and recovery from a deep, narrow (90 cm diameter) vertical shaft of such a mass of very brittle bone was not an easy undertaking, some will have been destroyed during excavation and sieving.

It is a general principle that the fragile bones of young animals are susceptible to destruction to a greater degree than their teeth, which are more durable. It is also the case that immature bones of sheep and goats are especially difficult to separate. Thus, the matters of how many individuals are represented in well 133, whether they are sheep or goats, the age at death of these animals, are likely to be most reliably ascertained primarily through an examination of the mandibles. This is liable to be particularly true in the present instance, since these caprines clearly included a very high proportion of immature individuals.

Table 6.1. Wear data for caprine mandibular dentitions from well 133

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*
	score		*---------Payne (1987)---------*					*Payne (1973)*	
Unit	*S:G*	*genus*	*P4*	m_3	M_1	M_2	M_3	*Stage*	*Age*
264	1:0	sheep?	0	-				A	0-2m
260	0:2	goat	13L	0				B	2-6m
260	5:0	sheep	13L	0				B	2-6m
264	0:5	goat	13L	-				B/C	2-12m
260	0:4.5	goat	13L	-				B/C	2-12m
264	0:4	goat	13L	2A	0			C	6-12m
260	3:0	sheep	14L	0				C	6-12m
260	4:0	sheep	14L	2A				C	6-12m
260	3:0	sheep	14L	2A				C	6-12m
260	2:0	sheep	14L	2A	0			C	6-12m
278	3:0	sheep	14L	3B				C	6-12m
282	0:0.5	goat??	-	4B				C	6-12m
264	1:4	goat	14L	5A				C	6-12m
264	0:3	goat	16L	7A	2A			D	1-2y
260	0:2	goat	16L	8A	5A	0		D	1-2y
279	0:4	goat	16/19	9A	3B			D	1-2y
260	1:2	goat?	18L	9A	2A			D	1-2y
279	0:2.5	goat	20Z	9A	2A			D	1-2y
260	2.5:0	sheep	23L	9A	6A			E?	2-3y?
282	0:0.5	goat??	-	9A	6A			E?	2-3y?
260	-	?	15A	12A	9A		11G	G	4-6y

Column a gives the excavation unit.

Column b gives the score, expressed as a ratio, resulting from the examination of up to 6 of Payne's (1985) morphological characters which differentiate young sheep and goats. S=sheep, G=goat.

Column c gives genus estimation, with ? indicating low confidence and ?? very low confidence.

Columns d-h give Payne's (1987) codes for wear states for the individual teeth (4th premolar, 3rd milk molar and permanent molars 1-3).

Columns i-j give Payne's (1973) age stages and suggested absolute ages.

Twenty immature individuals and one adult caprine from well 133 are represented by mandibles. Application of the criteria outlined by Payne (1985) permits the genus of immature caprine mandibles to be estimated. However, in the case of the mandibles from well 133, breakage, disintegration, and the fact that many teeth were still embedded in their jaws meant that in no instance could all of Payne's criteria be assessed, and in some instances the estimation of genus is based on a single criterion only. Even so, in most cases a high degree of confidence attaches to the genus determinations which have been made. Employing the system of Payne (1985, Table 1), scores are presented in Table 6.1 for the set of morphological characters which he described for the second and third milk molars, and the first permanent molar of immature mandibles. When two or more criteria could be assessed and the resulting ratio favours one genus more than twice as strongly as the other, then the attribution to genus is viewed here as a confident one. A smaller number of assessable criteria or a more equal ratio result in a less confident attribution. Evaluation of the immature mandibles from well 133 in this way suggests the presence of eight sheep and ten goats which could be identified confidently or with slight doubt, and two more doubtful identifications of goats.

In addition to the evidence of mandibles, fused right distal radii indicate the presence of two mature goats and a mature sheep. Assuming that the one pair of adult mandibles which was found belongs to one of the three animals represented by a mature right distal radius, a minimum of twenty-three individuals (nine sheep and fourteen goats) seem to be represented in well 133.

Table 6.2. Representation of some caprine postcranial elements from well 133

Element	*fused*		*unfused*		*MNI*
	left	*right*	*left*	*right*	
distal radius	2	3	16	18	21
distal humerus	6	8	12	13	21
calcaneum	2	0	6	18	20
distal femur	2	1	18	15	20
proximal radius	8	5	10	10	18
distal tibia	2	1	14	16	18
proximal femur	2	2	15	13	17

Details of the representation of the more abundant post-cranial elements of these caprines are presented in Table 6.2. That the animals were introduced to the well as whole carcasses is deduced from the bones having been very frequently found in articulation and the complete absence of butchery marks. The "whole carcass" scenario also receives strong support from the similarity of the MNI (minimum number of individuals) figures deduced for the elements listed.

Table 6.1 presents tooth wear data for the twenty-one individuals represented by mandibles (in most instances pairs of mandibles). The wear state reference codes employed are those of Payne (1987) and the age stages and suggested ages also follow Payne (1973). Of these individuals, thirteen died at less than a year of age, eighteen at less than 2 years, and twenty at less than 3 years. Only one pair of mandibles represents an older (4-6 years) animal. Since the two additional individuals (not represented by mandibles) known to have been present here are represented by fused distal radii, it may be concluded that they were over 3 years of age (Silver 1969, Table A). The morphology of the radii (Boessneck 1969, 341-343) indicates that the three adult caprines include two goats and a sheep.

Given the robustness of the mandibles of mature individuals, the fact that only one pair of the expected three pairs of adult mandibles was recovered might seem surprising. This apparent anomaly may, however, be explained by the fact that mature examples of the later fusing articular ends (2.5 years of age or greater), as well as the pair of mature mandibles, came almost exclusively from the eroded top part of the well shaft, so the missing two pairs of mandibles seem likely to have eroded out of the feature. In fact, twenty-five fused examples of later fusing elements (five distal radii, four proximal tibiae, four proximal humeri, four proximal radii, four proximal femora, three distal femora, and a calcaneum) all came from upper fill unit 260, whereas only one such item (a calcaneum) came from lower down than this (the immediately underlying fill 264). An item of the small size of a caprine calcaneum might very well have fallen down a void from higher up.

A variety of possible explanations exists for the remarkable accumulation of caprine carcasses in the fill of well 133. It is quite possible that animal carcasses which were, for whatever reason, considered inedible by the local LPPNB community, were simply disposed of in the disused well shaft as a convenience. The well was presumably far enough away that the stench of decay would not pervade a nearby settlement. However, the juxtaposition of these caprine carcasses and purposefully deposited human remains (see below) distinctly invites speculation that we are not dealing simply with rubbish disposal, but rather some sort of ritual behaviour. It must be admitted that animal sacrifice and ritual deposition cannot be unambiguously demonstrated in well 133, but an explanation of this sort may be viewed, perhaps, as a distinct possibility.

That the situation which has been described for well 133 at Mylouthkia may not be unique is hinted at by the fact that the near contemporary PPNC (*c.* 7,900 BP) well at Atlit-Yam, Israel, contained a few fragments of human bone along with animal bones, some of which were articulated. The articulated animal bones were deposited in the upper part of the fill of the well after it had gone out of use, probably due to salination (Galili and Nir 1993, 267-9). Only when full details of the Atlit-Yam well are published will it be possible to assess whether it really compares with Mylouthkia well 133.

Despite having yielded a conspicuous concentration of twenty-three caprine carcasses, described above, the

Cypro-LPPNB well 133 at Mylouthkia contained relatively few bones which provided useful measurements. This was because the great majority of the twenty-three caprines was immature, only two goats and one sheep having attained an age of 3 years or greater. The nearby pits and building floor which also date to the Cypro-LPPNB yielded only a few scrappy animal (and no human) bones, almost none of which were measurable. Consideration of the limited metrical data reveals no surprises, the Mylouthkia Cypro-LPPNB caprines apparently falling within the general size range of those at Khirokitia (metrical data in Davis 1984; 1989; 1994).

Miscellaneous non-food animal remains in well 133

Bone which derived neither from the whole caprine carcasses nor from humans was not abundant in well 133, and most of this probably represents the remains of animals which were consumed by Neolithic people. Two groups of such bones stand out, however, as being less probably food remains.

Firstly, in upper fill 260, were found sufficient remains of a little owl (*Athene noctua*) that a complete carcass seems originally to have existed here. Secondly, lower down the shaft were located a few scattered cat remains; an astragalus occurred in fill 282, and in fill 329 were found a metatarsal, an unfused thoracic and an unfused lumbar vertebra, a caudal vertebra and a loose, unworn upper canine tooth. These cat remains seem insufficient to represent a whole carcass, and it therefore seems more likely that bits and pieces of dead cat fell into the disused well. Only one cat bone, the astragalus, was measurable, and had a greatest length of 17.9 mm (taken after von den Driesch 1976, 91) and greatest breadth of 13.4 mm. This seems rather large for domestic cat (*Felis catus*) and probably, therefore, represents a (domesticated?) wild cat (*F. sylvestris*). In fact, cat remains are known in small quantities from most Cypriot Aceramic Neolithic sites (Croft 1998; in press; n.d.; Davis 1989; Vigne *et al.* 2000).

Bone refuse from food animals in well 133

Animal remains which seem likely to represent scraps from carcasses which were eaten by people were relatively scarce but include small quantities of deer (*Dama mesopotamica*), pig, caprine and pigeon. Additionally a few unidentifiable fragments, small and very often burnt and abraded, fall into this category.

Eight fragments of deer bone occurred sporadically from fill 264 down to basal fill 333, and included two burnt pieces. Additionally, three groups of poorly preserved antler fragments occurred only in the lowest fills of well 133 (Units 332-4). Occasional pig remains occurred alongside the caprine carcasses, and also in the lower fills of the well down to the very bottom. A few of these pig remains were burnt. Several head fragments plus an atlas and an axis vertebra found in fill 282 suggest that a whole pig's head may have existed here and, similarly, two fragmentary maxillae in fill 329 suggest that a whole pig's head may also have occurred at this level. An accessory first phalanx of pig from 329 shows traces of having been gnawed by a mouse.

A few caprine remains appear, by virtue of their condition (for instance being burnt or abraded), to belong to the category of rubbish rather than deriving from the deliberately deposited whole sheep and goat carcasses. From fill 264 came a burnt distal metacarpal of goat and a pelvic fragment of sheep with old breaks which also appears most likely to represent food refuse. An immature distal articulation of a caprine femur from fill 279 is in less fragile condition than the bone of the carcass accumulation, its differing condition also suggesting that it is, rather, food refuse. A burnt second phalanx of goat from 282 is similarly refuse, as also may be several robust goat horncore fragments from the same fill, although the concentration of substantial goat horncores in the top of well 110 (see below) prompts speculation about the significance of such items. Finally, a shaft fragment of caprine humerus comes from considerably below the level of the lowest caprine carcasses.

Other probable bone refuse includes two bones of pigeon (*Columba livia*) from fills 264 and 282. The inventory for this category is completed by 4 fragments of fish bone from fill 329 and a burnt fish bone from fill 332. A burnt crab claw from fill 264 is probably also food refuse.

The comparative scarcity of bone which seems to fall into the category of food refuse in well 133 and the other nearby PPNB features is noteworthy. This, along with the relative scarcity of chipped stone, and the absence or scarcity of some ground stone types which are normally abundant in settlements, indicates that we are not dealing here with the full range of refuse which is to be expected within a settlement. It may therefore be suggested that, rather than representing simply the subterranean component of a deflated Cypro-PPNB village settlement, these features represent a different type of site which is hardly or not at all concerned with residency, and where only a restricted set of activities was habitually undertaken. In addition to water acquisition, specific activities in the vicinity may have included stone vessel manufacture, the working of flint and the exposure or entombment of the dead. Nearby well 116 further provides evidence for the working of obsidian and the preparation and consumption of marine molluscs. Of course, there may very well have existed nearby a contemporary settlement, a site of more conventional type, and this possibility is strongly favoured by the botanical evidence from the wells for crop processing and the presence of weeds of cultivation.

Microfaunal pit-trap victims in well 133

Many small creatures appear to have fallen into well 133 and died there. Remains of mice, frogs, toads and reptiles were found both in the lowermost fills (332-3), which are believed to have accumulated whilst the well was still in use as such (§ 1), and higher up, showing that the well continued to function as a pit-trap throughout the course of its infilling. As ever, the microfaunal remains which were recovered presumably represent but a small fraction of those present. Since the remains of these small creatures are chance inclusions in the well fill, they have not been studied in detail and will be mentioned here only briefly. It is hoped to present a fuller report on what should prove to be an important assemblage for the palaeontology of Cyprus at a later date.

Amphibian bones were the least abundant microfaunal remains, with only a couple of dozen of them occurring sporadically throughout the fills from top to bottom. Both frogs and toads were present. Many dozens of reptile bones, deriving from several species of lizard and a snake, also occurred throughout the fills.

Most numerous of all were small rodent remains which amounted to a gross or so in number. These included 20 upper incisor teeth which possessed a subapical notch, indicating that the creature involved here is a house mouse (*Mus* sp.) (Harrison and Bates 1991, 251).

Human remains in well 133

It has already been mentioned (§ 1 and above) that scattered, disarticulated human remains occurred sporadically in the shaft fill of well 133, overwhelmingly concentrated in the 3.7 m of fill between 20.70 and 17.02 m asl. These human remains, deriving (minimally) from a child, a late adolescent and three adults (§ 5), were far less abundant than the remains of the twenty-three caprines, together with which they occurred. Although interpretation of the human remains does not, strictly speaking, fall within the ambit of this chapter on animal bones, the most unusual juxtaposition of the two groups of material, essentially as components of a single bone assemblage, renders it difficult to contemplate the significance of the one without the other. The human bones constitute a significant aspect of the overall context in which the animal remains should be considered, and vice versa.

The distribution of these human bones within the well shaft differs somewhat from that of the caprine remains, since only the former show a pronounced tendency to be distributed peripherally, where the shaft fill was generally softer and more rubbly, containing numerous voids.

The artificially deformed skull and associated mandible (Pl. 2.3) occurred at 20.70 m asl against the southern edge of the shaft. Beneath this, at 19.62 m asl, was a tooth which proved to have derived from the skull and which must have fallen out of its socket subsequent to the deposition of the skull in the well. (This tooth was therefore amalgamated with those retained in the skull for the purpose of the report on the human dentitions; see § 5.2). In view of the fact that these items which lay a metre apart in elevation actually belong together, it also seems likely that an atlas vertebra, located against the NE edge at 19.22 m asl, might also belong with this skull (§ 5.1). Whilst these and other human remains located further down in well 133 do not consist of articulated skeletons, like those of the caprines, the anatomical coherence of this particular group of remains (skull, mandible and atlas vertebra) suggests that they may not have been completely disarticulated at the time of their introduction to the well shaft. Thus, the deposition of at least some of the human remains in an only partly disarticulated condition is perhaps the most likely scenario. These human remains must have been removed from another place where the decomposition of bodies occurred, perhaps graves or possibly a place of exposure. They were transported and deliberately introduced into the disused, partially infilled, well shaft.

Below the atlas vertebra, no further human bones were encountered for over 1.5 m (until 17.57 m asl), so if it is accepted that this vertebra (as clearly did the single tooth) made its way down from 20.70 m asl, where the skull and mandible had been deposited, then a break in the vertical distribution of human remains in well 133 amounting to just over 3 m is indicated.

At 17.57 m asl a number of human bones occurred, all peripherally located within rubbly fill, down to 17.32 m asl. At 17.27 m asl a mandible and several skull fragments were found, this time towards the centre of the shaft. At 17.23-17.02 m asl were located two skulls, one against the NW edge of the shaft, the other, along with several long bones, against the NE edge. Only 30 cm south of this second skull, at 17.18 m asl, was an unusual and attractive item, a pink conglomerate macehead (Pl. 7.4). Its proximity to the human remains indicates that it was deposited as part of the same event, and it might represent an item of grave goods. If this was so, it suggests that the act of depositing these human remains, even if not necessarily performed in the context of a ritual, might at least have possessed an emotional content and thus amounted to more than the simple disposal of unwanted bones. Alternatively, it must be admitted that an act of desecration of the dead and slaughter of livestock might conceivably be represented here.

Below 17.02 m asl human bone was extremely sparse, consisting only of a few small scraps (from lower fills 329, 331, 332 and 333) but the caprine carcasses, which occurred more consistently throughout the fill of the well, continued to be found for a further half metre or so down.

The occurrence of separate groups of human remains in well 133, the upper and lower concentrations perhaps having originally been separated by over 3 m of shaft fill, implies at least two separate major depositional episodes. How much time might have separated these episodes, or indeed the length of time over which the whole of well 133 came to be infilled, is not known. The stratified nature of the various fills of the shaft, and the considerable differences in the composition of these fill units indicate that infilling did not occur as a single short event, but was a more protracted process. It seems probable that the period of time involved would have been longer than some days, and should probably be measured at least in months, or possibly years. To what extent the deposits accumulated naturally as a result of water action and gravity remains uncertain, but the occurrence within them of so many artefacts (chiefly limestone vessel fragments and hammerstones - see § 3) and other stones, and substantial chunks of the *havara* bedrock certainly suggest that infilling was due at least partly to deliberate human action.

Two possible explanations occur to the writer for the tendency of the human remains (and indeed the macehead) to be located at the edge of the shaft of well 133. One explanation, here termed the "long drop" hypothesis, is that while the shaft was in the process of being infilled, the upper surface of the fill took the form of a heap, higher in the centre than at the edge. Thus, individual small items like disarticulated human bones, and particularly rounded items like skulls and maceheads, might tend, if dropped in from the top of the well, to slide or roll down the heap and accumulate peripherally. The fact that *havara* rubble (containing empty air pockets) tended to be concentrated towards the edge might also be explained in this way. Conversely, relatively large floppy items like dead caprines would probably have tended to remain where they landed if dropped in, rather than sliding down the heap towards the edge of the shaft.

A second possible explanation for the tendency of the human remains to be peripherally disposed in the shaft of well 133 may be termed the "purposeful placement" hypothesis. If the remains were not dropped into the well, but carried down the narrow shaft (easily done using the hand and footholds cut into the edge) by a person who then deposited them, that person would more than likely be occupying the centre of the shaft, and thus find it most convenient (in the confined space) to place the human remains peripherally. Placing them in the centre of the shaft would have involved a more awkward manoeuvre and would have perhaps increased the risk of the person trampling the items (this observation is based on our own behaviour whilst excavating the shaft). Unlike the human remains, the caprine corpses show no signs of having been purposefully placed so for their disposition, at least, an explanation of the "long drop" variety seems preferable.

According to Fox (§ 5.1), the minimal quantities of human bone from fills 329, 331 and 332, low down in well 133, could (on purely osteololgical grounds) have derived from the concentration of human remains higher up, in fill 282 above 17.02 m asl. In the case of the two small burnt skull fragments from 332, however, contextual evidence casts some doubt on this suggestion. Additionally, a small burnt fragment of human skull from lowest fill 333 was identified by the writer but not, apparently, recorded by Fox, and this also seems unlikely to have derived from the bone concentration in 282. That the few fragments from 332 and 333 did not derive from the 282 concentration above is suggested by the differing nature and origin of the deposits. These lowest fills were sticky waterlaid silts which apparently accumulated whilst the well was still in use as a water source, and into which the later intrusion of material from above must be considered as highly improbable. Overlying shaft fills, on the other hand, were deposited after the well went out of use, 282 being a loose, gritty silt. It is therefore most likely that the 332-3 skull fragments constitute a third distinct group of human remains in well 133, dating to an earlier phase in the sedimentary history of the feature than the two distinct bone concentrations which occurred higher up. Bone fragments of the lower group are so scrappy as to seem unlikely to have been deliberately deposited in the well. They do, however, suggest that pieces of human bone were "kicking around" at the head of an active well, and thus extend the history of the association between an off-settlement locality with water wells and the presence of the dead.

Pit 338

Apart from the two wells, the only Cypro-PPNB feature to yield more than minimal quantities of animal bone was pit 338 (Table 6.3). Most of the bone from this pit was of caprines or deer, although pig was represented. A single bone of fox, a robust worked proximal metatarsal (Cat. 318, § 4.1) also came from pit 338. Small quantities of rodent, reptile, amphibian, fish and crab (a burnt claw) remains also occurred. One rodent upper incisor is attributable to house mouse (*Mus* sp.) and three of the four amphibian bones compared with toad rather than frog.

Well 110

A number of animal bones were recovered from the upper part of well shaft 110. Despite the presence here of Chalcolithic sherds, the well itself seems likely to be of Cypro-PPNB date, the sherds most probably being intrusive into Aceramic Neolithic fills (§ 1). A degree of uncertainty attaches to the dating of the animal bones from these upper fill deposits (110.01-03) of well 110. Whilst some of the bones could be intrusive, as suggested for the sherds, the larger pieces, such as whole goat horncores and deer frontal fragments bearing the bases of unshed antlers, are less convincingly to be accounted for in this way. Thus, the substantial component of larger items would seem to be contemporary with the shaft fills, that is Aceramic Neolithic in date. The state of preservation of the minority of smaller bone fragments is similar to that of the larger items, so the whole assemblage is tentatively ascribed here to the PPNB. [Ed. Elsewhere, 110.01-02 is treated as Period 1+2]

The breakdown of identified fragments by taxa for well 110 is given in Table 6.3. Caprine remains from upper fill 110.01 consist almost exclusively of goat horncores, of which five were present. (In fact, two of these goat horncores were found in spoil removed by vandals who dug into deposits 110.01-03, and these are presumed here to have originated from fill 110.01). All of these are fairly substantial examples of the untwisted "scimitar" horncores which characterise the goats of pre-Bronze Age Cyprus (Croft 1996, 218). The original lengths of two of them (at the anterior keel) may be estimated at 36 cm and 47 cm.

Deer remains from fill 110.01 include a shed antler base, from 110.02 a substantial antler beam fragment, and from 110.03 two frontal fragments with attached antler bases and two shed bases. All other deer and caprine fragments are postcranial. Of the combined sample of eight pig fragments, half are cranial (fragments of three different mandibles and an upper tooth) and half postcranial.

Thus, although well 110 yielded rather few animal bones for detailed interpretation, a concentration on the deposition of goat horncores (five out of seven fragments of caprine bone) is clearly indicated. (It may also be recalled that one of the few caprine bones which did not seem to derive from one of the whole carcasses in well 133 (.282) was a fragmentary robust goat horncore.) The prominence of antler amongst the deer remains (six substantial pieces out of twelve identified fragments) also suggests selective deposition. The evidence for a bias towards head parts amongst the pig is equivocal, although the presence of two pig heads in well 133 may be recalled in assessing its significance.

In sum, patterned behaviour with regard to the deposition of animal remains in well 110 seems to be evidenced, although this did not include the deposition of whole caprine carcasses as in the apparently broadly contemporary well 133. However, points of comparison are hinted at (possible preferential deposition of pig heads and goat horncores), and the overall situation of unusual bone assemblages in both wells serves to underscore the potential significance of well shafts as foci for ritual activity during the PPNB.

Other Period 1B contexts

Identifiable animal bone from Cypro-LPPNB pit 337 included only a single identifiable bone each of deer, caprine and frog.

Building fill 342 of LPPNB complex 340 yielded a few small rodent bones and a burnt crab claw. A burnt crab claw also came from fill 344 of hearth 343 of the same complex.

Fill 347 of small LPPNB pit 345 yielded two abraded deer bones. Finally, two goat bones from fill 350 of gullies 351 almost certainly eroded out from LPPNB deposits.

Summary of Cypro-LPPNB faunal remains at Mylouthkia

The Cypro-LPPNB animal bone assemblage from Mylouthkia is dominated by the exceptional deposit consisting of twenty-three whole caprine carcasses from well 133. Apart from this material, the faunal assemblage is very small: excluding possibly contentious material from well 110, it consists of only sixty-three identified specimens of the main animals. Even so, the representation of caprines (twenty-three specimens) deer (twenty-one specimens) and pig (nineteen specimens) indicates fairly equal proportions, and this coincides with the results from Cypro-LPPNB (combined Middle phases A and B) Shillourokambos.

§ 6.3 The zooarchaeology of Cypro-PPNB Cyprus: discussion

The implications of the importation to Cyprus of cattle, pig, sheep and goat during EPPNB times for our understanding of the beginnings of animal domestication in western Asia have been discussed by Vigne *et al.* (2000). These authors conclude that whilst currently available mainland evidence suggests that pig (at Cayönü) and goat (at Ganj Dareh) were probably domesticated before the end of the 9th millennium BC, their very early occurrence at Shillourokambos (and now Mylouthkia) in Cyprus suggests that even earlier evidence probably remains to be found on the mainland. The presence of cattle and sheep in the Cypro-EPPNB at Shillourokambo*s* (but not established at Mylouthkia) similarly suggests that earlier mainland evidence than that presently available, which indicates the domestication of these animals around the turn of the 9th-8th millennium BC, might also eventually be forthcoming (Vigne *et al.* 2000 and references).

The recognition of the earliest stages of domestication on the mainland is liable to be problematic, however, since the animals involved will be osteologically indistinguishable from their wild ancestors, not yet having undergone any morphological change. When populations of animals were first taken under close human control, changes to the animals would, in the first instance, have been purely behavioural. Morphological changes (furnishing clear evidence of domestication) would have occurred only later, after a period of unspecified duration during which phenotypically wild animals were subjected to the human behaviour known as husbandry. In Cyprus, sheep remains from Khirokitia provide evidence for a slight size diminution during the course of the occupation there (Davis 1989, 308). Similarly, a slight size decrease for goats may be indicated during the two millennia or so between the late Aceramic Neolithic and Chalcolithic periods (Neolithic data from Davis 1989; 1994; Chalcolithic my own data).

The fallow deer, the final member of the package of imported larger mammals known from the Cypro-EPPNB at Shillourokambos (but not known at Mylouthkia until LPPNB), is not known to have been domesticated in western Asia, or elsewhere, in prehistory. Throughout the whole of the Cypro-PPNB at Shillourokambos (Vigne *et al.* 2000), and subsequently through to the end of the insular Aceramic Neolithic as it is known from a number of sites, Persian fallow deer (*Dama mesopotamica*) was of great economic importance. During the Late (Ceramic) Neolithic and Chalcolithic periods (5^{th}-3^{rd} millennium BC) the economic importance of deer was greater still. This heavy and enduring reliance on fallow deer represents a distinctly Cypriot adaptation, not replicated on the contemporary mainland. The early introduction and great importance of deer in Cyprus have prompted suggestions that they were domestic (e.g. Jarman 1976, 42-3; 1982, 66; Schwartz 1974b, 103) or even "semidomestic" (Ducos 1965, 4-5) animals during part or all of prehistory in Cyprus. Such speculations lack supporting evidence, however, although the possibility that early experiments in deer husbandry may have taken place cannot be denied. A comparison of metrical data for deer from the late Aceramic Neolithic (Davis 1989; 1994) and Chalcolithic (my own data) periods fails to reveal evidence for a size change of the sort indicated for the other, presumably domestic, small ruminants. The most economical interpretation of the evidence is that fallow deer were free-living animals, subjected to controlled hunting within a system game management (Croft 1988; 1991).

Importation to Cyprus in the second half of the 9th millennium BC of a number of animals which are seen to be domestic only slightly later in mainland western Asia constitutes strong circumstantial evidence for the domestic status of these animals at the time of their arrival on the island. Limited morphological evidence (for size diminution) supports this contention: although the Shillourokambos caprines seem morphologically wild and of unreduced stature, the pigs are a little smaller than western Asiatic wild boar (Vigne *et al.* 2000, Fig. 2) and there is slight evidence that the cattle may also have been of reduced size. Vigne *et al.* (2000) also consider that mortality data and element frequency distribution data further bolster the case for the Shillourokambos pig, cattle and caprines being domestic animals. Of course, escapees or deliberately liberated animals of any or all of these taxa may have established free-living populations from the earliest times (Croft 1991, 67).

The practice of cattle husbandry in the Aceramic Neolithic of Cyprus clearly lasted longer than is evident at Shillourokambos, where cattle occurred from the beginning, during the second half of the 9th millennium BC, and probably died out around the middle of the 8th millennium BC (Vigne *et al.* 2000). Presently available evidence suggests that cattle keeping in Cyprus ceased before the end of the 7th millennium BC, however, bringing to an end a tradition which had lasted for over a millennium, and possibly up to about two millennia. Whether the longevity of the practice justifies its being viewed as a qualified success, or its demise brands it as a failure, is a moot point. The apparent abandonment of

Table 6.3. Representation of various taxa from Cypro-PPNB contexts

feature	*116*	*116*	*116*	*116*	*133*	*133*	*133*	*133*	*133*	*133*	*133*	*133*	*133*
unit	*123*	*124*	*191*	*192*	*260*	*264*	*278*	*279*	*282*	*329*	*331/4*	*332*	*333*
caprine	-	6	-	1	+++	+++	+++	+++	+++	-	-	1	3
deer	-	-	-	-	-	1	-	1	3	1	1	1	3
pig	-	10	1	1	2	-	-	-	12	3	-	-	-
cat	-	-	-	-	-	-	-	-	1	5	-	-	-
fox	-	-	-	-	-	-	-	-	-	-	-	-	-
bird	-	2	-	-	owl	1	-	-	1	-	-	-	-
human	-	+	+	-	+	+	-	-	++	-	-	-	-
mouse	+	+	+	++	+	+	++	+	+	+	+	-	+
shrew	-	-	-	+	-	-	-	-	-	-	-	-	-
amphibian	-	+	-	++	+	+	-	+	+	-	+	+	+
reptile	-	+	-	+	+	++	+	+	+	+	+	+	+
fish	+	+	-	+	-	-	-	-	-	+	-	+	-
crab	+	+	-	+	-	+	-	-	-	-	-	-	-

feature	338	338	338	337	337	340	340	345	351	110	110	110
unit	352	354	355	335	336	342	344	347	350	110.01	110.02	110.03
caprine	3	6	2	-	1	-	-	-	2	6	-	1
deer	1	1	5	1	-	-	-	2	-	4	2	6
pig	1	1	-	-	-	-	-	-	-	3	2	3
cat	-	-	-	-	-	-	-	-	-	-	-	-
fox	1	-	-	-	-	-	-	-	-	-	-	-
bird	-	-	-	-	-	-	-	-	-	-	-	-
human	-	-	-	-	-	-	-	-	-	-	-	-
mouse	+	+	-	-	-	+	-	-	-	-	-	-
shrew	-	-	-	-	-	-	-	-	-	-	-	-
amphibian	+	+			+	-	-	-	-	-	-	-
reptile	+	+	-	-	-	-	-	-	-	-	-	-
fish	+	+	-	-	-	-	-	-	-	-	-	-
crab	-	+	-	-	-	+	+	-	-	-	-	-

NB numbers indicate numbers of identified fragments, + indicates presence, ++ indicates 30 or more fragments present, +++ indicates presence of whole caprine carcasses, "owl" indicates complete owl carcass.

cattle keeping prior to the Cypro-LPPNB at Shillourokambos, and the subsequent cessation of the practice throughout Cyprus suggest, perhaps, that the practice might best be viewed as a "qualified failure." Certainly, the bull symbolism which emerged in the earlier 10th millennium BC Khiamian culture in the Levant and attained prominence, even cult status, in the PPNB of mainland western Asia (Cauvin *et al.* 1998) seems to find no expression in the iconography of Aceramic Neolithic Cyprus.

Chapter 7: The Plant Remains

by

Mary Anne Murray

Twelve samples of charred ancient plant remains were recovered from several Cypro-PPNB features at Mylouthkia, the earliest plant assemblage recovered from Cyprus thus far. Radiocarbon dates, derived from specimens of charred seeds, range from *c*. 8,600 to 6,800 cal BC (Table 11.1). Of these samples, five are from Period 1A (*c*. 8,600-8,200 cal BC) and seven are from Period 1B (*c*. 6,800-7,200 cal BC). Five of the samples were from well 116, four from well 133, two from pit fills (pit 338), and one from the fill of B 340 (Table 7.1).

In addition to describing and assessing the plant remains, this chapter aims to address the following questions related to the agricultural economy of the Cypro-PPNB period: Are the plants wild or domesticated? Which plants were exploited as useful 'economic' taxa? What similarities or differences are there between the two wells, which are separated by *c*. 1,000 years? What do the weeds of crops reveal about agrarian practices? What evidence is there for continuity and/or change in agriculture between Mylouthkia Period 1 and later Cypriot botanical assemblages?

§ 7.1 Methodology

The ancient plants from Mylouthkia 1 have been preserved by charring. These were recovered by flotation, using 1mm and 250 micron mesh sieves. The volumes of sampled deposits ranged from 50 to 120 litres. In total, 880 litres of deposit were floated from 12 samples which contained 67.4 ml of charred plants (2,635 identifiable items) and 69.9 ml of wood charcoal**.** The plant samples (or flots) were analysed under a low power (10x to 64x) Wild MC3 microscope. All items, such as the seeds and chaff of cereals and other food plants, wild/weed species, and wood charcoal were extracted from each sample. Identifications of plant taxa were made on the basis of morphological characteristics and the comparison of the ancient specimens with modern comparative reference material. Identifiable taxa were recorded and counted for each sample and a final taxa list was then compiled for each site as a whole (Table 7.5). For wood charcoal samples and other hand picked wood charcoals from elsewhere on the site see § 8.

Several methods of quantification have been used to assess the presence (or ubiquity), density, abundance, diversity and preservation of the plants analysed here. These indices, particularly when applied in combination or as a group, help to take into account the influence of the many pre- and post-depositional factors affecting the composition of the plant assemblage. They also assist in identifying potential biases, such as depositional history and sample size. Five types of archaeobotanical analyses were applied to the Mylouthkia 1 plant assemblage, and each method was analysed further according to sample, context type and period in most cases (Table 7.1).

The first analysis was a determination of the presence (or ubiquity) of individual taxa or taxa group by context type and by period, which is quantified by the number of samples in which it occurs (Table 7.2). Due to the effects of plant characteristics (e.g. number of seeds), processing, charring, disposal, deposition, sampling, and recovery, this method is a more reliable measure of the relative proportions of taxa than a simple count of items since it is impossible to assume that the absolute numbers of seeds accurately reflect the original proportions (or the relative importance) of any plant taxa on an ancient settlement. The method demonstrates, for example, that a period may contain a high proportion of a certain taxon yet it may only be present in a very few samples. Secondly, the relative density of plant items in the samples was measured in terms of the average (mean) items per litre of deposit. This figure is a useful indicator of the relative 'richness' between samples. As a third assessment, the numbers of different taxa are counted for each variable. This figure helps to assess taxa diversity within the samples, and when used in conjunction with density (items per litre) can also help to distinguish between cereal wastes and purer crops. The fourth method is the calculation of ratios of crop items by comparing the numbers of wheat and barley grains and chaff. It is used for assessing the relative proportions of crop taxa (e.g. the ratio between 100 emmer grains and 50 barley would be 2:1) and may be useful for distinguishing between certain crop processing activities. The fifth method is the measurement of the mean density of wood charcoal, which is calculated as millilitres per litre for each variable. The results of the last four analyses can be found in Table 7.1, while the presence (or ubiquity) analysis of taxa is in Table 7.2.

The redeposited nature of the contexts (i.e. well shafts, building and pit fills) creates an uncertainty with regard to the stratigraphic integrity of the samples and therefore has an influence on their interpretation. A further restriction to their analysis is the comparatively small number of samples from the site as a whole (twelve), which, when broken down for analysis by variable, means there are often too few samples in any one category to make meaningful comparisons. This is exemplified in Table 7.2, for example, which shows the difficulty of comparing the presence of taxa from context types and periods where only one or two samples were taken (e.g. a taxon may be present in 100% of samples, but there may be only a single sample).

Table 7.1. Sample data

Sample	*481*	*482*	*517*	*518*	*519*	*530*	*531*	*536*	*538*	*539*	*541*	*542*	*Total*
Feature number	116	116	116	116	116	133	133	133	133	340	338	338	-
Context number	114	124	124	124	192	260	264	279	329	342	352	354	-
Volume of deposit (l)	50	50	50	50	50	50	120	50	100	110	100	100	880
Flot volume (ml)	4.2	3.2	1.1	1.3	0.3	3.3	2.6	13.3	0.8	0.3	33.0	4.0	67.4
Charcoal volume (ml) [1]	1.2	0.8	0.7	0.5	0.3	0.9	0.9	27.9	0.5	0.1	35.2	0.9	69.9
Charcoal density (ml/l) [1]	0.02	0.02	0.01	0.01	0.01	0.02	0.01	0.6	0.005	0.001	0.35	0.01	0.1
Number of taxa [2]	9	10	6	9	2	13	16	8	5	4	6	9	26
Number of items	216	131	56	70	5	386	488	248	137	63	90	745	2635
Items per litre [3]	4.3	3.0	1.1	1.4	0.1	8.0	4.1	5.0	1.4	1.0	1.0	7.4	3.0
Cereal grains per litre	1.2	0.6	0.3	0.4	0	0.7	0.3	0.2	0.1	0.04	0.04	0.3	0.3
All cereal grain	62	29	17	18	0	35	40	8	5	4	4	27	249
All cereal chaff **	50	3	9	0	1	82	53	109	54	14	6	345	726
All wild/weed taxa	60	41	10	24	2	222	344	92	70	33	62	392	1352
Wheat grain: barley grain	0.2	0.2	0	0.2	0	0.2	0.4	0.5	0	0.5	0	5	0.4
Wheat grain: wheat glumes	0.2	2.0	0	0	0	0.05	0.2	0.02	0.1	0.1	0.5	0.04	0.1
Barley grain: barley rachis	13	18	16	0	0	23	12	2	0	0	0	0	13.0
Cereal grain: wild/weed taxa	1.0	0.7	1.7	0.7	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Context type	*Well shaft fill*					*Well shaft fill*				*Building fill*	*Pit fill*		-
Number of samples	5					4				1	2		12
Volume of deposit (l)	250					320				110	200		880
Charcoal volume (ml) [1]	3.5					30.2				0.1	36.1		69.9
Charcoal density (ml/l) [1]	0.01					0.1				0.001	0.2		0.1
Number of taxa [2]	15					21				4	10		26
Number of items	478					1259				63	835		2635
Items per litre [3]	2.0					4.0				1.0	4.2		3.0
Cereal grains per litre	0.5					0.3				0.04	0.1		0.3
All cereal grains	126					88				4	31		249
All cereal chaff **	113					304				10	299		726
All wild/weed taxa	137					728				33	454		1352
Wheat grain: barley grain	0.2					0.3				0.5	6		0.4
Wheat grain: wheat glumes***	0.2					0.1				0.1	0.05		0.1
Barley grain: barley rachis****	17.2					8.5				0	0		13.0
Cereal grain: wild/weed taxa	1.0					0.1				0.1	0.002		0.2
Period	*1A*					*1B*							-
Number of samples	5					7							12
Volume of deposit (l)	250					630							880
Charcoal volume (ml) [1]	3.5					66.4							69.9
Charcoal density (ml/l) [1]	0.01					0.1							0.1
Number of taxa [2]	15					24							26
Number of items	478					2157							2635
Items per litre [3]	2.0					3.4							3.0
Cereal grains per litre	0.5					0.2							0.3
All cereal grains	126					123							249
All cereal chaff **	113					613							726
All wild/weed taxa	137					1215							1352
Wheat grain: barley grain	0.2					1.0							0.4
Wheat grain: wheat glumes ***	0.3					0.1							0.1
Barley grain: barley rachis ****	17.2					9.3							13.0
Cereal grain: wild/weed taxa	1.0					0.1							0.2

N.B. - Taxa counts include whole items and the whole grain equivalents of partial items.

1. Charcoal volume and charcoal density refer only to the volume and density of wood charcoal.
2. Number of taxa refers to the number of identifiable taxa and does not include those items which may already be included – e.g. if *Lens* spp. or *Lathyrus* spp. is present in a sample, then Vicieae tribe and LEGUMINOSAE – large seeded would not be counted since they may already be included in these identifiable items.
3. Items per litre demonstrates the relative density of plants by each variable (i.e., sample, context type, period). Wood charcoal is excluded from this count.

\+ All samples also contained completely indeterminate fragments.

** Chaff includes glume bases and excludes Cereal indet. culm nodes and awn fragments.

*** Wheat glumes are counted as glume bases including spikelet forks which count as 2 glume bases. Glume fragments not counted.

**** Barley rachis internodes only, not barley pedicels.

Table 7.2. Taxa List

Period			*1A*						*1B*				
Sample number	*481*	*482*	*517*	*518*	*519*	*530*	*531*	*536*	*538*	*539*	*541*	*542*	*Total*
Feature number	116	116	116	116	116	133	133	133	133	340	338	338	-
Context number	114	124	124	124	192	260	264	279	329	342	352	354	-
Volume of deposit (l)	50	50	50	50	50	50	120	50	100	110	100	100	880
Flot volume (ml)	4.2	3.2	1.1	1.3	0.3	3.3	2.6	13.3	0.8	0.3	33.0	4.0	67.4
Charcoal volume (ml) [1]	1.20	0.80	0.70	0.50	0.30	0.90	0.90	27.90	0.50	0.10	35.20	0.90	69.9
CEREALS													
Triticum monococcum	-	-	-	-	-	-	2	-	-	-	-	3	5
T. cf. monococcum	1	-	-	-	-	-	-	-	-	-	2	-	3
T. dicoccum	6	1	-	-	-	3	5	-	3	-	-	-	18
T. cf. dicoccum	1	-	-	-	-	-	-	-	-	-	-	-	1
T. monococcum/dicoccum	1	1	-	2	-	-	1	-	-	-	-	12	17
Triticum sp.	-	2	-	-	-	1	1	2	-	1	1	-	8
T. glume bases	27	-	6	-	1	63	25	91	31	6	2	199	451
T. glume fragments	29	30	-	-	-	-	20	19	8	-	5	18	129
T. spikelet forks	10	1	1	-	-	9	13	8	11	4	2	73	132
Hordeum sativum	39	18	16	13	-	23	24	4	-	2	-	-	139
Hordeum cf. sativum	-	-	-	-	-	-	-	-	-	-	-	3	3
H. sativum rachis internodes	3	1	1	-	-	1	2	2	1	-	-	-	11
H. sativum pedicels	-	-	3	-	-	-		-	-	-	-	-	3
Cereal grain indeterminate	14	7	1	3	-	8	7	2	2	1	1	9	55
Cereal awn fragments	2	-	-	-	2	-	-	-	-	-	-	-	4
Cereal culm nodes	1	-	1	-	-	-	1	-	-	-	-	-	3
LEGUMES													
Lens spp.	1	1	-	-	-	4	9	2	2	10	5	20	54
cf. Lathyrus sp.	-	-	1	3	-	-	-	-	-	-	-	-	4
Vicieae tribe	-	2	-	9	-	-	1	-	-	-	-	-	12
LEGUMINOSAE – large seed	7	11	2	4	-	6	-	3	2	3	5	-	43
FRUITS													
Ficus sp.	-	-	-	-	-	6	2	-	-	-	-	-	8
Pistacia sp.	1	1	-	-	-	-	-	-	-	-	-	1	3
OIL/FIBRE PLANTS	-	-	-	-	-	-	-	-	-	-	-	-	
Linum sp.	1	1	1	1	-	1	2	-	1	-	-	-	8
WILD/WEED TAXA	-	-	-	-	-	-	-	-	-	-	-	-	
cf. Adonis sp.	-	-	-	-	-	-	1	-	-	-	-	-	1
Fumaria sp.	-	-	-	-	-	-	1	3	-	-	-	-	4
Malva sp.	-	-	-	-	-	5	35	4	-	-	5	2	51
Trifolieae tribe	-	-	-	-	-	-	-	-	-	-	1	4	5
Scorpiurus sp.	-	-	-	-	-	1	-	-	-	-	-	-	1
cf. UMBELLIFERAE	-	1	-	-	-	-	1	-	-	-	-	-	2
Galium spp.	-	1	-	4	-	1	1	-	-	-	-	-	7
COMPOSITAE	-	-	-		-	1	1	-	-	-	-	-	2
Buglossoides tenuiflorum	-	-	-	1	-	-	-	-	-	-	-	-	1
cf. Echium sp.	-	-	-	2	-	-	-	-	-	-	-	-	2
CHENOPDIACEAE	-	-	1	-	-	2	1	-	-	-	-	-	4
Beta sp.	-	-	-	-	-	-	-	1	-	-	-	-	1
Rumex sp.	-	-	-	-	-	-	-	-	-	-	-	1	1
POLYGONACEAE	-	-	-	-	-	1	-	-	-	-	-	-	1
cf. LILIACEAE	-	-	-	-	-	-	1	-	-	-	-	1	2
WILD GRASSES	-	-	-	-	-	-	-	-	-	-	-	-	
Lolium sp.	-	-	-	1	-	73	180	53	50	18	35	174	584
cf. Lolium sp.	4	5	-	-	-	-	-	-	-	-	-	-	9
Phalaris sp.	3	2	1	-	-	-	1	1	-	-	-	-	8
Hordeum sp.	-	-	-	-	-	3	-	-	-	-	-	-	3
Avena sp.	6	2	-	1	-	-	-	-	-	-	1	-	10
GRAMINAE	47	30	8	15	2	135	121	30	20	15	20	210	653
NUTS & TUBERS	-	-	-	-	-	-	-	-	-	-	-	-	-
Nut shell fragments	1	1	1	-	-	1	3	6	-	-	-	-	13
Root/tuber indeterminate	1	3	1	-	-	-	-	-	-	-	-	-	5
OTHER													
Seeds indeterminate	10	9	11	11	-	7	10	13	5	-	2	4	82
Stem indeterminate	-	-	-	-	-	-	2						2
Vesicular indeterminate+	-	-	-	-	-	30	13	3	1	3	3	10	63
Textured fragments	-	-	-	-	-	1	1	1	-	-	-	1	4
TOTAL	216	131	56	70	5	386	488	248	137	63	90	745	2635

\+ All samples also contained completely indeterminate fragments.

N.B. - Taxa counts include whole items and the whole grain equivalents of partial items.

1. Charcoal volume and charcoal density refer only to the volume and density of wood charcoal.

Table 7.3. Presence[1] of selected taxa by period and context type

Period	*Period 1A*	*Period 1B*	*Well 116 (1A)*	*Well 133 (1B)*	*Building fill 340 (1B)*	*Pit fill 338 (1B)*
Number of samples	*5*	*7*	*5*	*4*	*1*	*2*
Volume of deposit (l)	*250*	*630*	*250*	*320*	*110*	*200*
All wheat	100%	100%	100%	100%	100%	100%
Wheat grain	60%	100%	60%	100%	100%	100%
Wheat chaff	80%	100%	80%	100%	100%	100%
All barley	80%	86%	80%	100%	100%	50%
Barley grain	80%	71.4%	80%	75%	100%	50%
Barley chaff	60%	57.1%	60%	100%	-	-
All large seeded legumes	80%	100%	80%	100%	100%	100%
All fruit	40%	43%	40%	50%	0	50%
All oil/fibre plants	80%	43%	80%	75%	0	0
All wild/weed taxa	100%	100%	100%	100%	100%	100%
Item						
Triticum monococcum	-	29%	-	25%	-	50%
Triticum cf. monococcum	20%	14.3%	20%	-	-	50%
Triticum dicoccum	40%	43%	40%	75%	-	-
Triticum cf. dicoccum	20%	-	20%	-	-	-
Triticum monococcum/dicoccum	60%	29%	60%	25%	-	50%
Triticum sp.	20%	71.4%	20%	75%	100%	50%
Triticum spp. chaff [2]	80%	100%	80%	100%	100%	100%
Hordeum sativum	80%	57.1%	80%	75%	100%	-
Hordeum cf. sativum	-	8.3%	-	-	-	50%
Hordeum sativum chaff [2]	60%	57.1%	60%	100%	-	-
Cereal grain indet.	80%	100%	80%	100%	100%	100%
Lens spp.	40%	100%	40%	100%	100%	100%
cf. Lathyrus sp.	40%	-	40%	-	-	-
Vicieae tribe	40%	14.3%	40%	25%	-	-
Leguminosae – large seeded	80%	71.4%	80%	75%	100%	50%
Ficus sp.	-	29%	-	50%	-	-
Pistacia spp.	40%	14.3%	40%	-	-	50%
Linum sp.	80%	43%	80%	75%	-	-
Nut shells	40%	43%	40%	75%	-	-
Root/tuber indeterminate	60%	-	60%	-	-	-
Wild grass taxa only	100%	100%	100%	100%	100%	100%
Non-grass taxa	60%	86%	60%	75%	-	100%

1 Presence (or ubiquity) analysis is a way of showing the relative abundance of taxa within the assemblage by quantifying the number of samples in which it occurs, e.g. if hulled barley is found in 8 out of 10 samples within a sample group (context type, period, etc.), then it has a presence of 80% within that sample group.

2 Chaff includes spikelet forks, glume bases and glume fragments for wheat taxa (*Triticum* spp.), rachis internodes and pedicels for barley (*Hordeum* spp.) and awn fragments and culm nodes and bases for Cereal indeterminate.

§ 7.2 The presentation of data

In the tables, cereals and other likely 'crop' taxa are listed first while all other taxa follow the order and nomenclature of the *Flora of Cyprus* (Meikle 1977, 1985). As is common with charred plant assemblages, certain taxa have been identified only to the genus level (e.g. *Lolium* sp.) or to the family level (e.g. Graminae indeterminate - unidentifiable wild grasses). The seed of the plant is always referred to in this table unless otherwise stated. The abbreviation *cf.* means 'compares with' and denotes that a specimen most closely resembles that particular taxon more than any other. Poor preservation and distortion from charring sometimes obscure diagnostic traits, thereby limiting the identification of certain items, e.g. legumes and barley rachis in these samples, while other items remain indeterminate for lack of matching reference material. Every sample contained completely indeterminate fragments.

The counts for each item in Table 7.1 represent the number of whole seeds in each sample, plus the number of equivalent whole seeds, which are carefully estimated from the fragments of each taxon. Since a certain amount of archaeobotanical material is always fragmentary, the whole grain equivalent (WGE) serves as a consistent quantification of these partial seeds (see Murray in *LAP* II.1B). For certain categories that have no single species to be equated to, such as 'Graminae indeterminate' (unidentifiable wild grass), a single equivalent species was chosen, i.e. *Lolium*, a known grass taxon. Likewise, items in 'Cereal indeterminate' were quantified using the average weight of a mixture of wheats and barley comparable to the proportions found in the range of the Mylouthkia samples. 'Vesicular indeterminate' are remains that have been subjected to very high temperatures and have a characteristic hollowed texture. Most of the vesicular material appears to be from either cereal or grass remains, and to quantify these items, they have been given a whole grain equivalent comparable to the known averages of 'Cereal indeterminate.'

On the list of taxa (Table 7.2), spikelet forks and glume bases of einkorn and emmer wheat (*Triticum monococcum* and *T. dicoccum*) are treated as single units. In the calculations, however, the number of spikelet forks was divided by two since glume bases represent one half of a spikelet fork. Calculations of hulled wheat chaff, therefore, were based on the glume base. The rachis fragments of barley (*Hordeum sativum*) were counted by each internode present.

Table 7.1 lists the sample data and quantification indices by sample, context type and period. Table 7.2 lists the raw count of each taxon by sample. Table 7.3 shows the presence of selected taxa and taxa groups by context type and period as a percentage of the total number of samples. Table 7.4 shows the items per litre of taxa groups by context type and period.

§ 7.3 The plant remains

The samples are composed of a varying mixture of cereal grain and chaff, legumes, wild/weed seeds (especially wild grasses), fruit and oil plants, nuts, roots/tubers, and wood charcoal. A wide variety of useful taxa (sometimes termed 'economic' taxa) are clearly present at Mylouthkia at this early date, including the domesticated cereals, einkorn wheat (*Triticum monococcum*), emmer wheat (*Triticum dicoccum*), hulled barley (*Hordeum sativum*, also known as *H. vulgare*) and their associated cereal chaff – spikelet forks, glume bases and rachis internodes, along with the remains of wild and/or domesticated lentil (*Lens* spp.), other large seeded legumes (e.g. *Lathyrus* spp., *Vicia* spp.), fig (*Ficus sp.*), pistachio (*Pistacia* sp.) and linseed/flax (*Linum bienne/usitissimum*) (Table 7.1). An analysis of the taxa published from Cypriot Aceramic Neolithic sites thus far demonstrates that the composition of crops and weeds present in the Mylouthkia 1 samples is commonly found on other Cypro-PPNB sites, as well as those of later periods (see Table 7.5; and Murray in *LAP* II.1B, Table 23.3 for a listing of 'economic' taxa from all published Cypriot sites to date).

The following is a brief description of the cereal and other 'crop' taxa found in the Mylouthkia 1 samples (see Table 7.2). For a further discussion of these taxa and for details on the wild/weed species also included here, see Murray in *LAP* II.1B.

§ 7.3.1 Cereals

The plant remains from Mylouthkia 1 include einkorn wheat (*Triticum monococcum*), emmer wheat (*Triticum dicoccum*) and hulled barley (*Hordeum sativum*). As these are the earliest domesticated cereals from Cyprus thus far, they are important for questions on species introduction and agricultural evolution on the island. For drawings of the cereal grains and chaff, see Fig. 7.1. The domesticated status of these cereals is also attested by the use of metrical analysis, which compares relative measurements of thickness versus breadth, a technique previously used to distinguish between cereal grains (e.g. van Zeist and de Roller 1991-92). The Mylouthkia cereals were compared with others from Neolithic sites in the Levant (the einkorn and emmer wheat grains were compared to fourteen sites and the barley grain was compared to ten sites). The subsequent scattergrams clearly group the Mylouthkia Period 1 einkorn, emmer and barley with domesticated cereals (Peltenburg *et al.* 2001a, 44-45).

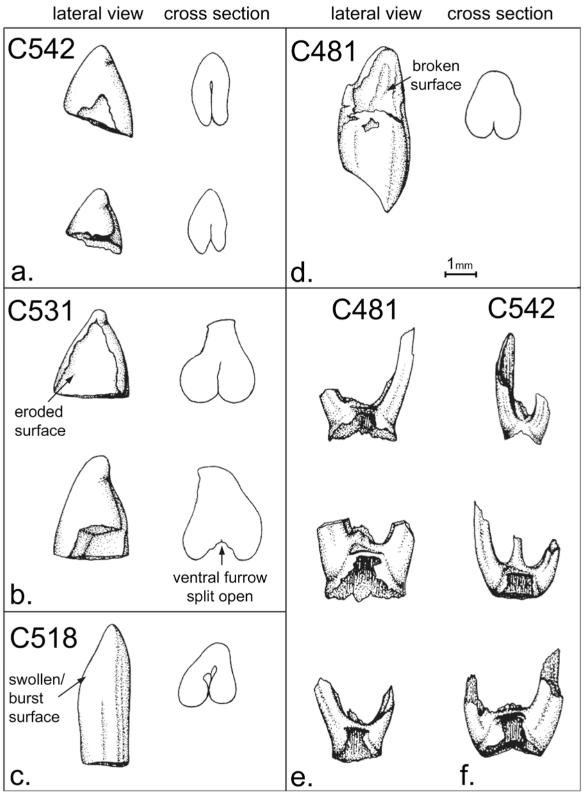

Fig. 7.1: Cereal grains and chaff from the wells. a) C542 *Triticum monococcum/dicoccum* apical fragments; b) C531 *Triticum monococcum* apical fragments; c) C518 *Triticum* cf. *monococcum*; d) C481 *Triticum dicoccum*; e) C481 Triticum *monococcum/dicoccum* spikelet forks; f) C542 *Triticum monococcum/dicoccum* spikelet forks. Drawing by S. Colledge.

Until recently, the wild forms of einkorn (*Triticum boeoticum*) and emmer (*Triticum dicoccoides*) had not been recorded archaeologically on Cyprus, and there appears to be no evidence to indicate that these were native taxa (e.g. Holmboe 1914; Christodoulou 1959; Meikle 1985; Zohary and Hopf 1994). The wild progenitor of domestic barley (*Hordeum sponteneum*) is recorded on the island (Meikle 1985); however, this species, too, has previously not been reported in archaeological material. The absence of these taxa thus far does not preclude the possibility of their presence in antiquity; however, if the wild progenitors of einkorn and emmer were not present on the island, then its early settlers must have brought the domesticated forms of these taxa with them. Recent reports of plaster impressions of these wild cereals at the Aceramic Neolithic site of Parekklisha-Shillourokambos will contribute greatly to this discussion (Willcox 2001 and personal communication).

Cereal grain and chaff comprise 37% of the total Mylouthkia 1 plant assemblage (cereal grain 9.4% and cereal chaff 27.5%). Cereal grain found in the samples may be present for several reasons, including cooking spills, the accidental mixing of grain and processing wastes stored in close proximity, or as part of the residue from sieving the crop to obtain a cleaned grain product. Upon analysis, the Mylouthkia 1 samples from both phases are likely to be the residue from the fine sieving stage of crop cleaning, a common component of Near Eastern samples. These samples are characterised by high ratio of glume bases and weeds to grains and low number of grains per litre (Jones 1986, 58; see also van der Veen 1992; Murray 2000; and Table 7.1).

In all, 249 cereal grains were recovered from the Mylouthkia 1 deposits: 52 of wheat, 142 of barley and 55 of primarily fragmented, indeterminate cereals. Of the 126 cereal grains from Period 1A (avg. 25.2 grains per sample; 0.5 grains per litre), 15 are of wheat (present in 60% of samples), 86 of barley (in 80%) and 25 are indeterminate grains (in 80% of samples). In Period 1B, there were 123 cereal grains (avg. 17.6 grains per sample; 0.2 grains per litre), 37 of which are wheat (in 100% of samples), 56 are barley (in 71.4%) and 30 are indeterminate (in 100%) (see Tables 7.1-4). In samples from both Periods 1A and 1B, there are 0.1 wheat grains per litre. For Periods 1A and 1B, there are 0.3 and 0.1 barley grains per litre, respectively. The Mylouthkia 1 cereals are as follows:

Triticum monococcum (einkorn wheat)

Einkorn grains are laterally compressed with a strong dorsal ridge and attenuated ends with a shallowly angled embryo end (see Fig. 7.1). In Period 1A, cf. einkorn grains are present in 20% of the samples, comprising 1% of the total cereal grains from this period. In Period 1B, einkorn grains are present in 29% of samples and cf. einkorn grains are present in 14.3% of samples, comprising 4% and 2%, respectively, of the total cereal grains from the period. For Period 1A, there are 0.004 cf. einkorn grains per litre. In Period 1B, there are 0.01 einkorn grains per litre and 0.003 cf. einkorn grains per litre.

Triticum dicoccum (emmer wheat)

Emmer grains generally have a flat ventral face and a high point above the embryo on the rounded dorsal face. The embryo is steeply angled (Fig. 7.1). Emmer grains are present in 40% and cf. emmer grains are present in 20% of Period 1A samples, comprising 5.5% and 1% of the total cereal grains for the period. For Period 1B, emmer grains are present in 43% of samples, comprising 9% of the total cereal grains for the period. In Period 1A, there are 0.03 emmer grains per litre and 0.004 cf. emmer grains per litre. Emmer was the principal bread wheat grown in the Near East prior to the free-threshing varieties (Zohary and Hopf 1994, 46).

Triticum monococcum/dicoccum grain (einkorn/emmer wheat grain)

For certain grains in the assemblage, it was impossible to determine if they are einkorn and emmer. These are present in 60% of the Period 1A samples and 29% of the Period 1B samples, comprising 3.2% and 11% of the cereal grains from that period. There are 0.02 of these grains per litre in Period 1A and 0.1 of these grains in Period 1B.

Triticum monococcum/dicoccum chaff (einkorn/emmer wheat chaff)

Einkorn and emmer are hulled wheats, meaning that after the threshing process breaks up the cereal ear into spikelets, the spikelets then need to be processed further to rid them of their chaff (spikelet forks and glume bases) in order to obtain a clean grain product. One spikelet fork consists of two glume bases (Fig. 7.1). Although the chaff of both einkorn and emmer were present, much of the chaff was in poor condition and not identified to species, and einkorn and emmer chaff were not quantified separately. Hulled wheat chaff as a whole was present in 80% of the Period 1A samples and in 100% of those from Period 1B. There are 0.4 items of chaff per litre in Period 1A and 1.0 items per litre in Period 1B.

Triticum sp.(wheat indeterminate)

This category contains whole and primarily fragmented wheat grains that were impossible to identify to species. Twenty percent of the Period 1A samples contained unidentifiable wheat, making up 2.0% of the total cereal grains for the period. For Period 1B, indeterminate wheat was found in 71.4% of samples, comprising 5% of the cereal grains for the period. There are 0.01 of these grains in both Periods 1A and 1B.

Hordeum sativum grain, also known as H. vulgare (domesticated hulled barley grain)

Barley is the most common cereal grain found in the Kissonerga Mylouthkia Period 1 assemblage. It is present in 67% of the samples from 1A, comprising 68% of the total cereal remains for the period. In Period 1B, it is present in 71.4% of samples, comprising 46% of the Period 1B cereal assemblage. There are 0.3 grains of barley per litre in Period 1A and 0.1 grains of barley per litre in Period 1B.

As with einkorn and emmer, hulled barley must undergo similar processing to separate the chaff that is strongly fused to the grain. Hulled barley is usually angular in shape with attenuated ends and slight longitudinal ridges, often with lemmas and paleas still attached. Two-row barley has two rows of fertile spikelets (one grain per rachis), and six-row barley has six rows of fertile spikelets (three grains per rachis), two thirds of which are slightly twisted around at the point of attachment (Zohary and Hopf 1994, 55). This characteristic was obscured for most of the barley present in the assemblage and a determination between two- and six-row barley was not attempted.

Hordeum sativum chaff, also known as H. vulgare (domesticated hulled barley chaff)

The distinction between two- and six-row barley may also be seen in the barley chaff, yet of the fourteen barley rachis fragments, none could be identified into categories of two- and six-row barley. Due to breakage, these features are often obscured in charred remains. Barley chaff was present in 60% of samples from Period 1A (0.3 items per litre) and in 57.1% of samples from Period 1B (0.01 items per litre).

Cereal grain indeterminate

Poorly preserved and fragmented grains that could not be identified to species were placed in this category. These are found in 80% of the Period 1A samples and in 100% of the Period 1B samples, composing 20% and 24% of the total cereal grain for each period. There are 0.1 indeterminate cereal grains per litre in Period 1A and 0.05 in Period 1B. Cereal chaff that was also unidentifiable to species included awn fragments and straw culm nodes.

§ 7.3.2 Legumes

Legumes, such as lentil, grass pea, and vetch, are winter crops, sown at the same time as wheat. Certain morphological features used for determining species have been obscured or are missing in this assemblage; without them it is difficult to distinguish between similar taxa, or between the wild and domesticated forms (e.g. Butler 1991). For example, the separation of certain legumes, such as members of the Vicieae tribe (i.e. *Vicia*, *Lathyrus*) and the Trifolieae tribe (i.e. *Trifolium, Trigonella, Medicago*, *Astragulus*) can be problematic due to the overlap of size, shape and other characteristics (e.g. Butler 1989, 1991, 1995, 1996). Both the large-seeded legumes (e.g. Vicieae tribe) and the small-seeded legumes (e.g. Trifolieae tribe) are traditionally considered good forage and fodder plants for animals. Some legumes are also prone to a type of crop mimicry where, due to selective pressure, a weedy vetch population, for example, can closely resemble an associated crop, especially the lentil. In this way, the weed may get unintentionally harvested and processed along with the lentil crop, thereby entering the archaeobotanical record (Barrett 1983, 264; Butler 1991, 61; Erskine *et al*. 1994, 327). Large-seeded legumes, including lentils, comprise 4.3% of total assemblage, while small-seeded legumes comprise 0.2%. In Tables 7.3 and 7.4, members of the Vicieae tribe, as well as other large-seeded legumes, have been grouped as ‘large legumes’, and members of the Trifolieae tribe and other small-seeded legumes have been grouped as ‘small legumes.’ Both large and small legumes may have been weeds or used as human food, animal fodder or famine food.

Lens spp.(lentils)

Lentils are present in 75% of all samples overall and in 40% and 100% of the samples from Periods 1A and 1B, respectively. The distinction between wild and domesticated lentils in archaeological material is based primarily on seed size, with the latter generally larger though there is great overlap between them. This indication of the wild or domesticated status of lentils often creates uncertainty on sites of an early date, particularly in areas such as Cyprus which also have several wild species, such as *Lens nigricans*, *L. ervoides* and *L. orientalis*, the wild progenitor of the domesticated lentil (e.g. Meikle 1977; Zohary and Hopf 1994, 94). Most of the fifty-four lentils from Mylouthkia Period 1 were immeasurable due to poor preservation or fragmentation, and no analysis of size distribution could be made. As at the nearby Chalcolithic site of Kissonerga-Mosphilia (with 195 measurable lentils, see Murray in *LAP* II.1A-B), it is likely that the assemblage represents the collection of both wild and domesticated species.

Large seeded legumes

This group, excluding lentil, was found in 80% of Period 1A samples (0.1 per litre) and in 86% of Period 1B samples (0.3 per litre). Several of the larger members of the Leguminosae family, such as *Lathyrus* and *Vicia* may also be present in the assemblage but are too poorly preserved or fragmentary to identify to species or genus. As with lentil, there is a great overlap between the wild and domesticated forms. Large seeded legume taxa may have been contaminants of other crops rather than the crops themselves, and many are traditionally used as animal fodder throughout the Eastern Mediterranean.

Small seeded legumes

Very few small seeded legumes are present, comprising 0.2% of the total assemblage. Period 1A contained no small legumes, while in Period 1B they are found in 43% of samples (0.01 per litre). As with large seeded legumes, these taxa are likely to have been weeds of crops, but they may have also been exploited as animal fodder, for example.

§ 7.3.3 Fruits and oil/fibre plants

Fruit and oil/fibre taxa present in the Mylouthkia 1 assemblage include fig, pistachio and linseed/flax. Fruit remains comprise 0.4% of the assemblage and are present in 40% of Period 1A samples and in 43% of Period 1B samples. There are 0.01 fruit remains per litre in both Periods 1A and 1B. Oil/fibre remains comprise 0.3% of the assemblage and are present in 80% of

Period 1A samples (0.02 per litre) and in 43% of Period 1B samples (0.01 per litre). The fruits of wild fig and pistachio were collected long before there is evidence for their cultivation, and these taxa were likely to have been 'tended' since early times. The wood of both fig and pistachio has been identified in the charcoal samples, and the use of the tree as fuel may also explain the presence of the fruits in the samples (see § 8).

Ficus sp (fig)

The remains of fig are found in 29% of Period 1B samples but none from Period 1A. There are 0.01 fig seeds per litre in Period 1B. It has been argued that there may be a bias against the recovery of fig remains because the seeds are so small (Zohary and Hopf 1994, 151), yet at nearby Kissonerga, fig was clearly over-represented due, in part, to the enormous numbers of seeds in each fig (see Murray in *LAP* II.1A-B). The smooth surfaced seeds of fig are ovate, often pyriform in shape and laterally compressed. The distinctive round hilum is located below the pointed apex. It is impossible to distinguish between the seeds of the wild and domesticated fig in archaeological material (Zohary and Hopf 1994, 155).

Pistacia sp. (pistachio)

Pistachio was found in 25% of all samples. They are present in 40% of the samples from Period 1A and in 14.3% of samples from Period 1B. There are 0.01 pistachio remains per litre in Period 1A and 0.001 in Period 1B. The pistachio have a thin rounded nutshell with a circular hilum crater. It is difficult to distinguish between the overlapping shapes and sizes of the various wild species although many early Near Eastern finds of the genus have been identified as *P. atlantica* (Zohary and Hopf 1994, 197). A method for distinguishing between species has been suggested by Kislev (1988, 238-9), using the shallowness of the hilum as the key criterion. It is claimed that this crater-like feature is very shallow, flattened or even slightly convex in *P. terebinthus* whilst in *P. atlantica* the crater of the hilum is noticeably deeper. This criterion would be less subjective (and therefore more reliable) if the hilum depths were somehow quantifiable. Apart from their fruits, which are also rich in fat and may have been a source of oil (van Zeist 1988, 60), pistachio trees are exploited for their resin and wood.

Linum bienne/usitititissimum (linseed/flax)

Linseed can be used for both its oily seed and for its fibres as flax. The seeds of the plant are found in 58% of the samples (80% from Period 1A and 43% from Period 1B). There are 0.02 Linum seeds per litre in Period 1A and 0.01 per litre in Period 1B. It is not clear whether the seeds of the oil and fibre plant linseed/flax are wild or domesticated. The Mylouthkia specimens are comparable in size to those from Cape Andreas-Kastros that van Zeist (1981, 99) recorded as wild/domesticated, i.e. *Linum bienne/usitititissimum*.

§ 7.3.4 Nuts and roots/tubers

Nutshell fragments comprised 0.5 of the total assemblage. They are present in 40% of the Period 1A samples (0.01 per litre) and in 43% from those of Period 1B (0.02 per litre). These fragments are small (rarely more than 4mm) and could not be identified to species although it is believed that at least some of them might be poorly preserved *Pistacia* fragments and perhaps *Prunus* fragments.

Roots/tuber fragments comprised 0.2 of the total assemblage. They are found in 60% of the Period 1A samples (0.02 per litre) and none are present in Period 1B. These were analysed using a scanning electron microscope (SEM), but none of their features were diagnostic enough to distinguish them beyond this category.

§ 7.3.5 Wild/weed taxa

Wild/weed taxa constituted 52% of the Mylouthkia Period 1 assemblage, and they are present in 100% of samples from both periods. There are 0.5 wild/weed taxa per litre in Period 1A and 2.0 per litre in Period 1B. All of the taxa included here are also present on most other Cypro-PPNB and later Cypriot sites (e.g. Table 7.5) and appear to largely represent weeds of crops found in other Eastern Mediterranean assemblages. Some of the wild taxa would have been potentially useful as food and fodder, as well as for fuel, building materials, textiles, bedding, tools, basketry, medicines, dyes and so on. As is common in charred plant remains, however, it is most likely that the majority of wild taxa found in the Mylouthkia 1 remains arrived on site as weeds of the cereal crops, and through various operations, such as winnowing, sieving and hand sorting; the weed seeds and chaff were gradually processed out to obtain a clean grain product. These residues were then burned as fuel, thus becoming charred and preserved (Hillman 1981, 1984a,b; Jones 1984, 1987, 1991). Further descriptions and details of all taxa appear in *LAP* II.1B, 323-28).

Wild plant resources would have been more plentiful in the spring and late summer/autumn when leaf, grain and fruit crops reach maturity. Unfortunately in charred remains, most plant tissues, such as soft fruits, leafy vegetables, young shoots, and some roots and tubers are not as readily preserved as robust seeds and fruit stones and are generally under-represented on most sites in terms of their relative importance to diet. Certain other taxa, whose leaves can be eaten as salad plants, produce seeds at a time when the leaves would be dried and unpalatable. Such plants brought onto site when in seed would have been unsuitable as food. The role of wild, non-weed taxa as is often obscured in the archaeobotanical record since these items are less likely to become charred and preserved.

It remains unclear to what extent wild grasses, wild legumes, and other taxa may have been used for as human food. In his analysis of the plant remains from Cape Andreas - Kastros, for example, van Zeist (1981,

99) queried whether the abundance of the wild grass *Lolium* might not be the result of its use as a food. These taxa were almost certainly an important source for animal forage and fodder. The interpretation of the role of wild taxa in antiquity may be influenced by modern cultural perceptions of food and fodder; for example, grass pea (*Lathyrus sativus*) is today considered a primary food crop in some areas, a main fodder crop in many more, as well as a last resort famine food in still other regions (e.g. Zohary and Hopf 1994, 114; Butler 1999).

Wild grass taxa comprised 48% of the entire assemblage (and 94% of all wild/weed taxa) and include *Lolium* sp., *Phalaris* sp., *Hordeum* sp., *Avena* sp., and Graminae indeterminate. Wild grasses are present in 100% of all samples from both periods (0.5 per litre in Period 1A and 2.0 per litre in Period 1B).

Wild non-grass taxa comprised 3.2% of the assemblage. These taxa are present in 60% of Period 1A (0.04 per litre) samples and in 86% of the Period 1B samples (0.1 per litre).

§ 7.4 Summary of results by sample, context type and period

§ 7.4.1 By sample

In the Mylouthkia Period 1 samples, barley grain is found in higher quantities than wheat grain (3:1), although hulled wheat is present in more samples (100% of samples in both periods). This is primarily due to the high numbers of hulled wheat chaff in the assemblage and, as is commonly the case, there is far more wheat chaff than barley chaff (51:1). There is more einkorn grain than emmer grain (2.4:1) although the numbers are small for both cereals. The ubiquity of wheat chaff, however, attests to the presence of these taxa throughout the sequence. Wheat and/or barley chaff is found in 92% of samples and is found in higher quantities than wheat or barley grain (3:1). Wild/weed taxa are present in 100% of samples and in higher quantities than cereal grain (5.4:1) although this is less marked in the Period 1A samples. There are 0.3 cereal grains per litre for the site as a whole, and 67% of samples are at or below this site mean. The high ratio of glume bases and weeds to grains and low number of grains per litre characterise samples which are likely to be cereal crop cleaning residues, and this appears to be the case with the Mylouthkia 1 samples (Jones 1986, 58; see also van der Veen 1992; Murray 2000; and Table 7.1).

For the site overall, most taxa and taxa groups were found in low densities (items per litre) (Table 7.4). Individually, no major trends emerge from the twelve samples of Mylouthkia 1, apart from sample 519 (from well 116), which has the lowest figures for most indices – number of taxa, number of items, items per litre, number of cereal grains, chaff, wild/weed taxa and all of the crop ratios (although other samples also have 0 figures for these ratios) – and in general produced fewer remains than the other samples. No single sample has consistently high figures for these indices. Of note in the Period 1A samples is 481, which has the highest number of cereal grains (62), while for Period 1B, sample 542 has the highest amounts of cereal chaff and wild/weed taxa, as well as the highest proportion of wheat grain to barley grain (5). This latter sample is from pit fill and may indicate the deliberate dumping of cereal processing residues.

§ 7.4.2 Summary of results by context type

None of the Mylouthkia 1 samples appears to represent primary deposits, but as one might expect, the remains from the well shafts and pits may be largely from redeposited fill. Well shafts and pits may be more likely to accumulate soil and debris and more likely to preserve material than other, more open context types such as floors and hearths. Although three context types are represented in the samples (well shaft, building fill and pit fill), the two wells, 116 and 133, will be treated separately due to the 1,000 year difference between them. The building fill and pit fill samples are all from Period 1B. When the samples from the two well shafts are combined as one context type, they consistently have the highest figures for all indices (except for having the lowest wheat to barley grain ratio, pit fill has the highest due to sample 542 discussed above).

Well 116 has more cereal grains than the other contexts, as well as the highest density of barley grain and chaff per litre, and the highest cereal to chaff and wild/weed taxa ratios. Well 133 has the most taxa groups with the highest density of items, including emmer grain, cereal chaff and wild/weed taxa. It also has the highest number of taxa. The fill of pit 338 has the highest densities of einkorn grain and hulled wheat chaff, as well as the highest densities of items per litre and wood charcoal. Most notable of the four context groups is the single building fill sample, which consistently has the lowest density of items per litre in all but one taxa group (well 116 has a lower density of lentils) (Table 7.4). A comparison of this context type in terms of the presence of taxa is less meaningful as there is only one sample to compare.

§ 7.4.3 Summary of results by period

Despite an age difference of a millennium between wells 116 (Period 1A) and 133 (Period 1B), the composition of plants did not differ as strikingly as one might expect. Both Periods 1A and 1B have more barley grain than wheat, 6:1 and 1.5:1, respectively and also more wheat chaff than barley chaff (Period 1A 13:1 and Period 1B 102:1). There are higher densities of einkorn and emmer grain and chaff from Period 1B (although the density of wheat grain and chaff was low in both periods). These elements were found in 100% of all samples from both periods. The reverse is true in the case of barley where both the presence and the density of items per litre of barley grain and chaff are higher in Period 1A.

Period 1A is most notable for having marginally

Table 7.4. Items per litre[1] by period and context type

Period	*Period 1A*	*Period 1B*	*Well 116 (1A)*	*Well 133 (1B)*	*Building fill 340 (1B)*	*Pit fill 338 (1B)*
Number of samples	*5*	*7*	*5*	*4*	*1*	*2*
Volume of deposit (l)	*250*	*630*	*250*	*320*	*110*	*200*
Cereals - einkorn grain	1 (0.004)	7 (0.01)	1 (0.004)	2 (0.01)	-	5 (0.02)
Cereals - emmer grain	8 (0.03)	11 (0.02)	8 (0.03)	11 (0.03)	-	-
Cereals - all wheat grain	15 (0.1)	37 (0.1)	15 (0.1)	18 (0.05)	1 (0.01)	18 (0.1)
Cereals - wheat chaff	105 (0.4)	607 (1.0)	105 (0.4)	298 (1.0)	10 (0.1)	299 (1.5)
Cereals - all wheat	120 (0.5)	644 (1.0)	120 (0.5)	316 (1.0)	11 (0.1)	317 (1.6)
Cereals - barley grain	86 (0.3)	56 (0.1)	86 (0.3)	51 (0.2)	2 (0.02)	3 (0.01)
Cereals - barley chaff	8 (0.3)	6 (0.01)	8 (0.3)	6 (0.02)	-	-
Cereals - all barley	94 (0.4)	62 (0.1)	94 (0.4)	57 (0.2)	2 (0.02)	3 (0.01)
Cereals - grain indet.	25 (0.1)	30 (0.05)	25 (0.1)	19 (0.1)	1 (0.01)	10 (0.05)
Cereals - all grain	126 (0.5)	123 (0.2)	126 (0.5)	88 (0.3)	4 (0.04)	31(0.1)
Cereals - all chaff	113 (0.4)	613 (1.0)	113 (0.4)	304 (1.0)	10 (0.1)	299 (1.5)
Cereals - all items	245 (1.0)	737 (1.2)	245 (1.0)	393 (1.2)	14 (0.1)	330 (1.6)
Legumes - lentil only	2 (0.01)	52 (0.1)	2 (0.1)	17 (0.05)	10 (0.1)	25 (0.1)
Legumes - all large seeded	41 (0.2)	72 (0.1)	41 (0.2)	29 (1.0)	13 (0.1)	30 (0.1)
Legumes - all small seeded	-	6 (0.01)	-	1 (0.003)	-	5 (0.25)
Fruit	2 (0.01)	9 (0.1)	2 (0.01)	8 (0.02)	-	1 (0.05)
Oil/fibre plants	4 (0.02)	4 (0.01)	4 (0.02)	4 (0.01)	-	-
Nut shells	3 (0.01)	10 (0.02)	3 (0.01)	10 (0.03)	-	-
Roots/tubers indet.	5 (0.02)	-	5 (0.02)	-	-	-
Wild grass taxa only	127 (0.5)	1140 (2.0)	127 (0.5)	667 (2.1)	33 (0.3)	440 (2.2)
Non-grass taxa	10 (0.04)	75 (0.1)	10 (0.04)	61 (0.2)	-	14 (0.1)
All wild/weed taxa	137 (0.5)	1215 (2.0)	137 (0.5)	728 (2.3)	33 (0.3)	454 (2.3)

[1] Items per litre indicates the relative density of items in each category. The whole number is the number of items and the number in brackets is the items per litre. This latter figure has been rounded up to the nearest number, e.g. 0.18 =0.2.

N.B. all cf. identifications have been included in the counts

more cereal grains than Period 1B and the highest cereal to chaff and wild/weed taxa ratios. Two of the samples had more cereals than wild/weed taxa. Period 1A also had less chaff (0.4 item per litre) than period 1B (1.0), and fewer wild/weed taxa (0.5 and 2.0 items, respectively). There are also slightly more cereal grain per litre in 1A (0.5 grains) than 1B (0.3 grains). Although all of these remains in Period 1A are low enough to classify the samples as likely to include the residues from cereal cleaning, it is less defined in Period 1A than in Period 1B. As noted, Period 1B contains more chaff and wild/weed taxa than Period 1A. It also has the highest number of taxa (twenty-four), due to higher diversity of wild/weed taxa, and the highest densities of items per litre (3.4) and wood charcoal (0.1). Period 1A has the very low densities of 2.0 items per litre and 0.01 ml of wood charcoal per litre, which may due to factors of preservation and taphonomy in the older samples. It is impossible to determine more from this with so few samples from either period.

§ 7.4.4 Discussion

With rain fed agriculture, einkorn, emmer, barley, lentils, other legumes and linseed/flax would have been sown in the autumn or early winter and harvested in the spring. The weed taxa from Mylouthkia and later Cypriot sites show this pattern since many of the associated weeds are those which seed in the spring and were most likely to have been harvested with the winter sown crops (e.g. Holmboe 1914; Hanf 1983; Meikle 1977, 1985). Nearly 100 years ago, before the widespread use of herbicides and the intensive agriculture of today, the Norwegian botanist Holmboe (1914, 225-7) visited Cyprus and made a detailed list of the weeds he observed growing in cereal fields at that time. The archaeobotanical evidence from sites throughout the island indicates that many, if not most, of the weeds of crops he observed at that time appear to have been part of Cypriot agriculture from the earliest times. Among the most common spring-seeding weeds found throughout Cypriot archaeobotanical samples, for example, are ryegrass (*Lolium sp.*) and canary grass (*Phalaris sp.*) (see Table 7.5). Of the samples analysed here, *Lolium* and *Phalaris* are found in 80% Period 1A samples, and in 100% of those from Period 1B.

Ancient fields were most likely to have been located in areas that naturally retained more moisture, near to springs and perennial or intermittent streams. Unlike plant assemblages from sites nearby, the Mylouthkia 1 samples do not contain truly wet-loving species, such as members of the sedge family, although this could be due to any number of factors, such as the location of cereal fields or the small number of samples. The cereals present could have been grown in a variety of locations; for example, barley thrives on good soils but can endure arid and saline conditions. It also grows better on relatively poor quality land than einkorn or emmer (Zohary and Hopf 1994, 55). One can only speculate to what extent Cypriot farmers grew their various cereal crops in a variety of locations in an attempt to minimise

Table 7.5. All botanical taxa from Cypriot Aceramic Neolithic sites

SITE	*Mylouthkia*	*Kalavasos Tenta*	*Khirokitia*	*Cape Andreas Kastros*
DATE	*8,600-6,800 BC*	*c. 7,000 BC*	*c. 6,000 BC*	*c. 5,500 BC*
CEREALS				
Einkorn wheat (*Triticum monococcum*) 1g	x	x	x	x
Einkorn wheat (*Triticum monococcum*) 2g	-	-	x	-
Emmer wheat (*T. dicoccum*)	x	x	x	x
Hulled barley (*Hordeum vulgare/sativum*)	x	x	x	x
LEGUMES (*LARGE SEEDED*)				
Lentil (*Lens spp.*)	x	x	x	x
Pea (*Pisum sativum*)	-	x	x	x
Grass pea (*Lathyrus sativus/Lathyrus sp.)*	x	-	x	-
Horse bean (*Vicia faba/narbonensis*)	-	-	x	x
Vetch (*Vicia spp.*)	x	x	x	x
FRUITS				
Fig (*Ficus spp.*)	x	x	x	x
Grape (*Vitis spp.*)	-	-	-	-
Pistachio (*Pistacia sp.*)	x	x	x	x
Hackberry (*Celtis sp.)*	-	-	x	-
Plum (*Prunus sp.*)	-	-	x	-
Pear (Pyrus sp.)	-	x	-	-
Bramble berries (*Rubus sp.*)	-	x	-	-
Caper (*Capparis spinosa*)	-	-	x	-
OIL PLANTS				
Olive (*Olea spp.*)	-	-	x	x
Linseed (*Linum spp.*)	x	-	-	x
WILD/WEED TAXA #				
Adonis sp./dentata	x °	-	-	x
Fumaria sp.	x	-	x	x
cf. Silene/Malva sp.	-	x	-	-
Spergula arvensis	-	x	-	-
Malva sp./sylvestris/nicaensis	x	-	x °	x
Genista sp.	-	x	-	-
Medicago sp./cf. minima	-	x	x	x
Trifolium resupinatum/ Trifoliae tribe	x	x	-	-
Astragalus sp.	-	x	-	x
Scorpiurus sp.	x	-	-	-
LEGUMINOSAE	x	x	x	x
cf. Pimpinella sp	-	-	x	-
UMBELLIFERAE	x °	-	-	-
Galium sp.	x	x	-	-
COMPOSITAE	x	-	-	-
Buglossoides sp./arvensis/tenuiflorum/offinale	x	x	x	-
Echium sp.	x °	-	x	-
Amaranthus retroflexus	-	x	-	-
Beta vulgaris	x	-	-	-
CHENOPODIACAE	x	-	-	-
Polygonum sp.	-	x	x	-
Rumex sp.	x	-	-	-
POLYGONAEAE	x	-	-	-
LILIACAE	x °	-	-	-
Schoenus nigricans	-	x °	x	-
cf. Carex sp.	-	-	x	-
Lolium sp./ cf. perrene/rigidum	x	x	x	x
Avena spp.	x	-	x	x
Phalaris sp.	x	-	-	x
Bromus sp.	-	-	x	-
Agropyron sp.	-	x	-	-
Hordeum cf. murinum	-	-	x	-
Hordeum sp.	x	-	x	-
cf. Setaria sp.	-	-	x	-
GRAMINAE	x	x	x	x

(see Waines and Price 1977; Miller 1984; Hansen 1990).
- All wild/weed taxa are in the order of the *Flora of Cyprus* (Meikle 1977, 1985).
° - denotes an identification of cf. (most closely resembles)

the risks of agriculture and to maximise yields in the case of the failure of any single crop.

In traditional Mediterranean and Near Eastern agriculture, harvesting is often done by cutting the cereals relatively low on the straw. A main tool used for harvesting cereals is likely to have been the sickle. Sickle blades are common in the Mylouthkia 1 chipped stone assemblage (see § 2). Ethnographic and experimental research has found that little effort is made to avoid most weeds using this harvesting method (Hillman 1981, 150; Willcox 1992, 167; Charles 1990, 54). For example, the high number of wild/weed taxa present in the Mylouthkia 1 samples (52% of the assemblage) provides evidence against the harvesting of cereals by exclusively cutting the ears, which, apart from twining and climbing plants, would produce few, if any, weed seeds. Moreover, if the wild/weed taxa present are relatively low-growing and arrived on the settlement with cereal crops, as is likely, then harvesting was probably carried out by cutting the cereal low enough on the straw to also include these weeds in the harvest (Hillman 1981, 1984a; Jones 1984). In one study of ancient Egyptian field weeds, for example, Fahmy (1997, 245) found that of the 112 weed taxa commonly found in ancient remains, 78 (70%) grow higher than 40 cm. He suggests that the traditional Egyptian method of cereal harvesting by cutting the straw at about 40cm above the soil was ancient Egyptian practice as well. Harvesting low on the straw is still commonly practised today throughout the Near East. Cutting cereals low on the straw has the added advantage of leaving cereal stubble in the fields for livestock to graze.

The practice of pounding the harvested cereal spikelets is needed to separate the einkorn, emmer and barley from the strong glumes and hulls that encase them. The high proportion of hulled wheat chaff (27% of assemblage) attests to this practice. This creates a by-product of wheat spikelet forks, glume bases and fragmented barley rachis internodes. Dehusking of cereal grain may have been done using stone or perhaps wooden mortars. In traditional Near Eastern agriculture, these items are often amalgamated with other processing by-products, such as sieving residues, to be burnt in domestic cooking and heating fires, and subsequently disposed of in middens, pits, and other contexts (Hillman 1981, 154).

After pounding and perhaps secondary winnowing(s), the broken chaff and more of the weed seeds and other debris are removed from the grain by sieves with a finer mesh than the bulk of the cereal grain. During this stage, prime grains (and large weed seeds) are retained in the sieve, and hulled wheat spikelet forks and glume bases, barley rachis internodes, tail grain and weed seeds smaller than prime grain are removed from the cleaned grain. The Mylouthkia samples from both Periods 1A and 1B have the characteristics of fine cleaning residues, i.e. high ratio of glume bases and weeds to grains and low number of grains per litre (Jones 1986, 58; see also van der Veen 1992 and Murray 2000).

While most of the weeds in the samples are below 2-3mm in size, the presence of larger items, such as some grasses, legumes and culm nodes imply that more than just fine cleanings are present and may represent the remains of hand sorting, the final stage prior to further processing, i.e. grinding, cooking, and so on. These hand-picked items are usually either fed to the animals, thrown directly onto a fire or amalgamated with other crop processing by-products for use as fuel and temper, for example (Hillman 1981, 1984a; Jones 1984).

The fact that most ancient plant remains are preserved through charring suggests their use as fuel, and indeed it has been argued by Miller (1991, 154) that before attempting any other explanation, archaeobotanists should first consider why ancient charred plants might not represent fuel use. Much of the plant material is likely to have become charred when the by-products from the processing of food plants, including the weed rich remains from cereal processing, had been subsequently used as fuel, thus becoming charred and therefore preserved. This may also include the fruit and nut remains, which were thrown or swept onto a fire. The wood charcoal from pistachio (*Pistacia sp.*) and fig (*Ficus*) were present in the assemblage, suggesting that perhaps the fruits, too, might have been charred in this way. Much of the assemblage appears to be from fuel remains composed largely of wood charcoal, crop cleaning residues, and other household debris. Other items such as grasses may also have been used. There is no direct evidence in these samples that animal dung was used as fuel.

As is common on many settlement sites, The Mylouthkia 1 samples are unlikely to come from a primary charring episode. Most samples are probably derived from secondary (or tertiary, etc.) deposits since spent fuel, including crop cleaning residues from hearths and ovens would have been periodically swept out and then redeposited into pits or well shafts, or scattered elsewhere on or off the settlement. None of the Mylouthkia 1 samples appears to represent primary deposits, and as one might expect, the remains from the well shafts and pits are likely to be from redeposited fill. Much useful information, however, still can be obtained from these non-primary contexts.

§ 7.5 Conclusions

As stated earlier, the composition of plants in wells 116 and 133 did not differ substantially, despite an age difference of a millennium between them. Period 1A contained marginally more evidence of barley, and Period 1B more evidence of einkorn and emmer wheat. Period 1B also had a higher diversity of taxa due to the higher numbers of wild/weed taxa present. The samples from the latter period were more clearly residues of cereal crop cleaning, but the Period 1A samples also showed these characteristics. In general, there was a low density of items throughout the sequence (although lower for the Period 1A samples), and with so few samples in the assemblage, little more can be determined from their composition.

The addition of the Cypro-PPNB Mylouthkia assemblage to the Cypriot archaeobotanical record adds an important new dimension to our understanding of early settlement and early agriculture on the island. In particular, the Mylouthkia archaeobotanical data demonstrate that the agricultural tradition evident in the Khirokitian was already well established on the island by the late 8th millennium cal BC and perhaps as early as the 9th millennium. While it is not possible to determine the origin of the Mylouthkia occupants by the plant remains they left behind, the evidence from the material culture remains (Peltenburg *et al*. 2000, 2001a) has certain parallels with the PPNB on the Levantine mainland. Had the early migrants arrived from this region and brought with them elements of the Levantine crop complex, including domesticated einkorn, emmer and hulled barley, then this stable agricultural tradition might have helped sustain them to successfully colonise the island. Further archaeobotanical investigation is required at other early Neolithic sites in Cyprus, Anatolia and the Levant to form an adequate basis for more detailed comparisons, as well as to address the issues of island colonisation, adaptation and regional diversity.

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Chapter 8: The Wood Charcoal Macro-remains: A Preliminary Report

by

Eleni Asouti

This report details the results of the microscopic examination of wood charcoal macro-remains from Neolithic and Chalcolithic Mylouthkia. Given the time constraints and the fact that the excavated deposits cover multiple phases of occupation, the analysis concentrated mainly on the wood charcoal assemblages retrieved from the earliest phases of the settlement, Periods 1A and 1B. The later occupational phases, Periods 2 and 3, which are characterised by more complex depositional contexts, have not been dealt with to the same extent.

§ 8.1 Sample selection and laboratory procedures

The Mylouthkia Cypro-PPNB deposits consist of a series of wells and pits associated with activity areas such as floors and hearths. For the purpose of this assessment, two wells (116 and 133) were targeted for analysis. Because well 133 had very poor charcoal preservation, archaeobotanical samples from another context (pit 338) were also included in the analysis. In an attempt to evaluate potential differences in taxonomic representation and preservation conditions between the aceramic strata and later (Chalcolithic) deposits, a number of samples were selected from the latter, including two Period 2 pits (100 and 108) and various sub-units from B 200 (Period 3).

Wood charcoal samples were first weighed on a high precision scale and then passed through a stack of laboratory test sieves (mesh sizes: 4 mm, 2 mm and 1 mm) in order to separate charcoal fragments into different size grades. All charred specimens smaller than 1 mm were generally excluded from further analysis. The remaining fragments were pressure-fractured with a razor blade in order to produce fresh, clean surfaces whenever possible in all three anatomical planes (transverse, radial longitudinal and tangential); they were then examined under a high power, epi-illuminating microscope at magnifications of x50, x100, x200 and x400. When available, specimens in the range of 4-2 mm were examined, whilst in a few instances those retained in the 1 mm mesh were also analysed to compensate for inadequate fragment numbers.

Identifications were made by comparison to fresh and charred specimens included in the C. A. Western wood reference collection held at the Institute of Archaeology (UCL), and to wood anatomical descriptions in Fahn *et al.* (1986) and Schweingruber (1990). The anatomical features used for the final identifications were those specified by Western (1969) for wood charcoal specimens deriving from trees and shrubs of the Eastern Mediterranean. Tables 8.1 and 2 summarise the taxonomic information available from the sampled contexts of Periods 1A-1B and 2-3, respectively.

§ 8.2 Taphonomic observations

Most samples from Period 1 yielded very few fragments larger than 2 mm (R372: 8, R373: 3, R375: 4, R392: 8, R393: 7, R398: 2, R400: 1, C532: 2). The overall low quantities of wood charcoals are, to some extent at least, reflected in the low charcoal weights recorded for the examined samples (for a full report and discussion of the densities of charred plant remains, see § 7 and 21. For well 116, well 133 and pit 338 the descriptions of the fill layers (silty infill with a substantial component of stones, cobbles and gravels) seem to suggest that a significant degree of charcoal breakage and loss must have occurred in the past as a result of discarding practices and post-depositional attrition (for example, through the process of infilling). Trampling, variations in surface exposure and sediment moisture, reheating and other physical processes might also have resulted in further breakdown of wood charcoals (cf. Lopinot 1984, 98).

Another factor affecting wood preservation could have arisen from the very nature of the fireplaces in use by the Neolithic settlers. Depending on the structure of the fire and the size of the consumed logs (i.e., shrubs and small branches as opposed to stem-wood proper) it is reasonable to infer that, for open fires at least, wood charcoals would be less likely to be preserved in large quantities due to the strongly oxidising heating environments (Smart and Hoffman 1988).

Although we can only speculate as to how frequently the Neolithic inhabitants of Mylouthkia cleaned their fireplaces, it seems plausible that disposal of firewood refuse was more or less unstructured. Empirical observations on the state of preservation of wood charcoals in open fires suggest that for the most part very little will remain in the form of sizeable fragments unless hearths are regularly cleaned and their contents disposed of in specific dumping locations away from the main activity areas. It has also been demonstrated ethnographically that in open-air hearths associated with activity areas, the cooking of plant and animal foods may lead to considerable intermixing of the basal deposits and the displacement of cinders, ash and fire-cracked stones due to the constant searching in the ashes for roasted foods (Binford 1983, 157). The effects of these processes on charcoal fragmentation and loss can be further heightened, as fires are re-kindled on a daily basis and the same routines repeated over long periods.

A quite different situation was encountered with samples deriving from pits 100 and 108 (Period 2) and B 200 (Period 3). Although the examined samples are too few to permit viable working hypotheses concerning taxon representation, they are nonetheless meaningful in terms of formation processes and the archaeology associated with these particular features. Pit fill 100.02 was cut in by a shallow, flat-bottomed ditch with post emplacements on a ledge, whereas pit 108 truncated another pit (109) partially filled with decayed building material. Both deposits gave the largest assemblages retrieved so far anywhere on the site, a fact perhaps not unrelated to their association with building materials and potentially the remains of structural timber (see Table 8.2; deciduous oak and pine, which dominate these particular assemblages, are both suitable candidates).

On the other hand, the wood charcoal assemblages retrieved from B 200, despite their apparently higher densities (mean weight value of 8.072 g compared to 0.743 g for the samples examined from Periods 1A-1B), were very poor in wood taxa. Indeed most of the fragments were completely unidentifiable, irrespective of the size of individual specimens. Sectioning and subsequent microscopic examination showed that wood charcoals were almost in a state of "fossilisation". Pores, vessel elements, fibres and rays were covered and/or substantially deformed by thick layers of carbonates and mineral inclusions. This was particularly obvious amongst the more sizeable fragments (> 4 mm) that predictably offer the largest surface area amenable to such transformations. This phenomenon offers an adequate explanation as to the high charcoal weights recorded for these samples. It may also explain why these weight values were not matched by equally high fragment counts: it has been observed that wood charcoal assemblages subjected to similar post-depositional alterations face the risk of loss of material due to excessive breakage caused by the over-concentration of mineral inclusions and precipitates (Greenlee 1992). Units 200.155, 159, 168, 293, 172 and 293 yielded as a whole only four identifiable fragments. These contexts (apart from 168, a potspread) comprised fill layers consisting mainly of whitish silts, yellowish ashes, mud wash and plasters (see § 13). Such sedimentary matrices are apparently responsible for the very poor preservation of charcoal remains in these deposits. Charcoals from units 200.276, 283 and from wall 277 were only marginally better preserved. These units represent floors (200.276, 283) and wall segments (277) that maintained traces of a former timber frame, as evidenced by the occurrence of postholes. The presence of *Pistacia* wood fragments on floor 200.283 is extraordinary compared to the other contexts analysed, andit is therefore possible that *Pistacia* logs and/or round-wood were used in the timber structure of the building. However, in principle, the same observations apply to these contexts as to the rest of the material examined from B 200.

§ 8.3 Reconstruction of past vegetation and human activities

The results produced by this preliminary assessment are not detailed enough to allow a comprehensive reconstruction of past vegetation and wood use. Based on the published information from this and other Aceramic Neolithic sites (van Zeist 1981, Miller 1984, Renault-Miskovsky 1989, Hansen 1991, § 7) it seems certain that the Neolithic inhabitants of Mylouthkia lived in a landscape characterised by typical Mediterranean woodland vegetation. The charcoal data point to the presence of a broad range of Mediterranean taxa such as evergreen and deciduous oak (*Quercus*), lentisk (*Pistacia*), wild carob (*Ceratonia*), fig (*Ficus*), honeysuckle (*Lonicera*), cherry (*Prunus*), strawberry-tree (*Arbutus*), tree-heather (*Erica*), various mints (*Salvia*, *Phlomis* and other members of the Lamiaceae family), legume, shrubs (Fabaceae indet., *Retama*, *Anagyris*), buckthorns (*Ziziphus*/*Paliurus*), chenopods (*Atriplex* type), cistus (*Cistus*), olive (*Olea*) and pine (*Pinus*).

It is difficult to delineate the specific vegetation catchments frequented by the Neolithic group during their firewood trips. The absence of hygrophilous elements (as for example tamarisk), if not accidental, is certainly instructive. Some of the shrubs found amongst wood charcoals (i.e., Lamiaceae, *Cistus*, chenopods) do thrive in dry, saline soils but they can also occur in woodland openings and/or drier patches of land. The co-occurrence of deciduous and evergreen oaks alongside the rest of the trees and shrubs reported here indicates a more or less dense woodland/forest cover, possibly of the *maquis* type (cf. Christodoulou 1959, 45-51; Zohary 1973, 154-155).

Although the available quantitative data do not warrant any firm conclusions as to which, if any, were the preferred firewood species, the overall impression is that wood (deriving from a wide range of taxa) was probably the main type of fuel in use by the Neolithic people at Mylouthkia, with pine and oak as the principal building timbers during later periods. It has been already pointed out how taphonomic processes (burning conditions, use and properties of wood, discarding practices, depositional environments and post-depositional transformations) may have impacted on the actual quantities and the fragmentation status of the charcoal assemblages recovered from both the Cypro-PPNB and later deposits. Elsewhere, it has been suggested, with reference to the archaeobotanical evidence from Khirokitia, that very small quantities of charcoal remains both in absolute terms and in their relative proportions to seeds, may indicate the use of dung instead of wood as the primary source of fuel (see Miller 1984). It is the opinion of this author that unless the site and context-specific formation processes are accounted for, statements about the intensity of use of plant resources, especially wood, based solely on density measurements (e.g., weights and/or counts), are at best ambiguous.

§ 8.4 Conclusions

The initial results from the laboratory examination of the wood charcoal macro-remains from Kissonerga-Mylouthkia have been very promising. In total, twenty-one taxa were recovered, thus allowing a tentative assessment of woodland composition in what concerns the earliest phases of the settlement. More importantly, perhaps, the evaluation of the various ways through which multiple taphonomic factors may have affected charcoal preservation and taxon representation offers a sound basis for addressing questions of wood utilisation (as fuel and timber) by the prehistoric communities living in this area. Future investigations could concentrate on the systematic sampling and retrieval of wood charcoals from a broader range of contexts and chronological periods in order to obtain a more complete picture of past vegetation, the local strategies of woodland exploitation and their impact on prehistoric environments.

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Table 8.1. Taxonomic frequencies for Periods 1A and 1B

Feature	*116*	*116*	*116*	*116*	*116*	*166*	*116*	*116*	*116*	*116*	*116*	*133*	*133*	*338*	*338*	
Unit	*114*	*114*	*123*	*124*	*124*	*124*	*124*	*125*	*191*	*191*	*192*	*260*	*264*	*352*	*354*	
Sample	*R372*	*C481*	*R373*	*R375*	*R392*	*R393*	*C517*	*C482*	*R396*	*R398*	*R400*	*C530*	*C531*	*C541*	*C542*	
Charcoal weight (g)	*0.752*	*0.142*	*0.704*	*1.143*	*1.792*	*0.231*	*0.175*	*0.180*	*1.079*	*0.436*	*3.460*	*0.282*	*0.338*	*0.172*	*0.255*	
Quercus (evergreen)	-	-	-	-	-	-	-	1	11	-	2	-	1	4	13	32
Quercus (deciduous)	-	-	-	-	-	-	-	-	-	-	5	-	1	-	-	6
Pistacia	12	2	11	-	1	-	13	13	1	-	44	3	5	3	-	108
Arbutus	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	2
Erica	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	2
Ficus	-	-	-	6	4	6	-	-	-	-	1	-	-	-	-	17
Prunus	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Lonicera	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Zizithus/Paliurus	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Fabaceae indet.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Ceratonia	-	-	-	-	-	-	-	1	-	-	-	1	4	3	-	9
Cf. *Retama*	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
Lamiaceae indet.	-	-	8	-	1	-	-	-	-	-	-	-	-	-	-	9
Salvia	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
Cf. *Phlomis*	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Cf. *Atriplex*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Cf. *Cistus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Graminae indet.	-	-	-	-	-	1	7	5	-	-	-	-	3	1	-	17
Indet.	16	14	3	3	57	29	10	31	8	12	24	26	14	9	14	270
Total	28	20	22	9	63	36	30	55	20	12	77	30	30	20	30	482

Table 8.2. Taxonomic frequencies for Periods 2 and 3

Feature	*100*	*108*	*B200*	*B200*	*B200*	*B200*	*B200*	*B200*	*B200*	*B200*	*B200*	*B200*	*B200*		
Unit	*2*	*2*	*155*	*155*	*159*	*159*	*168*	*168*	*172*	*172*	*276*	*283*	*293*	*277*	
Sample	*R414*	*R415*	*R384*	*R386*	*R378*	*R379*	*R382*	*R387*	*R381*	*R385*	*R417*	*R428*	*R424*	*R418*	
Charcoal weight (g)	*11.163*	*46.607*	*5.281*	*4.041*	*1.149*	*15.177*	*3.958*	*2.781*	*8.561*	*8.261*	*0.102*	*1.640*	*1.112*	*2.588*	
Quercus (evergreen)	-	-	-	2	-	-	-	-	-	2	9	-	-	-	13
Quercus (deciduous)	77	-	-	-	-	-	-	-	-	-	-	-	-	-	77
Pistacia	2	-	-	-	-	-	-	-	-	-	-	27	-	6	35
Olea	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Pinus	-	87	-	-	-	-	-	-	-	-	-	-	-	-	87
Cf. *Anagyris*	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Indet.	20	13	3	12	4	35	56	17	29	24	13	3	3	3	235
Total	100	100	3	14	4	35	56	17	29	26	22	30	4	9	449

Chapter 9: The Mollusca

by

Janet Ridout-Sharpe

Mollusca recovered from archaeological contexts fall into two main groups: those species which do not occur naturally on the site and which must therefore have been introduced by man, either deliberately for specific purposes or accidentally together with some commodity; and those species which do occur naturally on the site regardless of specific human activities, which can provide environmental data. To the first group belong all the marine shells and to the latter the land snails, with the possible exception of some of the larger species which may have been collected for food. Between these two groups fall the estuarine and freshwater species, which were probably introduced into the site together with vegetation and/or drinking water, but which can also provide environmental evidence.

The Mollusca from Kissonerga Mylouthkia were identified and divided into these three main groups for further study: marine shells, estuarine and freshwater shells, and land snails. The condition of the marine shells was examined to indicate whether they had been collected fresh (alive), presumably for food, or as worn and/or broken specimens. The marine shells were also examined for evidence of working or wear which might indicate utilisation. In general, the shells from this site were preserved in relatively poor condition and tended to be fragile and chalky in appearance.

All the species were counted to determine the minimum number of individuals (MNI) represented according to context and chronological period, to find possible reasons for their presence on the site and to see whether these reasons (anthropogenic or environmental) changed with time. The MNI was usually determined by counting shell apices but this was not always possible or the most appropriate method; where very large numbers (>100) of tiny land snails were present in a sample, numbers were sometimes estimated. Not all the shells could be assigned to a known context or period. These shells are included in the discussion to illustrate some aspects, such as shell condition, but are omitted from chronological and contextual analyses; this has resulted in some discrepancies among the figures in the tables. All the shells from Mylouthkia, including those of unknown provenance and unidentified shells, are included in Table 22.6.

A total of 298 molluscan samples, some of them representing duplicated or multiple sample numbers, were received from the excavations at Mylouthkia and examined, as follows: M1462-M1651 and M1653-M1702 (240 sample numbers), and eleven unnumbered samples. Forty-five of the samples (M1559-M1603) were obtained from flotation and eighteen samples (M1560 x3, M1564 x4, M1587 x5, M1589 x2 and M1592 x4) were from dry sieving; a further ten samples included a flotation fraction. These processes recovered large numbers of small species, mostly land snails, and therefore these samples were biased. Overall, sixty-four different features were sampled, some of which represented more than one context. Of the 298 samples, fifty-six (18.8%) represented just eight features (four pits and four wells) within the Cypro-PPNB (Period 1) and are considered here; the remainder were from the Chalcolithic settlement (Periods 2 and 3) and are discussed in § 22.

Table 9.1. The Mollusca from Period 1

Species		*No.*[1]
MARINE SHELLS: GASTROPODA		
Patella caerulea (possibly including a few *Patella aspera*)		1,998
Patella lusitanica (= *Patella rustica*)		357
Monodonta turbinata		53
Gibbula divaricata		2
Gibbula varia		2
Bolmarugosa		3
Erosaria spurca		2
TruncularIopsis trunculus		1
Columbella rustica		6
Pisania maculosa		1
MARINE SHELLS: BIVALVIA		
Glycymeris glycymeris		9
Glycymeris violascens		1
Acanthocardia aculeata		1
Callista chione		1
ESTUARINE AND FRESHWATER SHELLS		
Valvata cristata		2
?*Hydrobia* sp.		1
Pirenella conica		17
Melanopsis praemorsa		13
Ovatella myosotis		1
Lymnaea truncatula		2
LAND SNAILS		
?*Orcula* sp.		11
?*Lauria* sp.		3
Chondrula tridens		246
Oxychilus sp.		3
Vitrea sp.		9
Cecilioides acicula	}	
Cecilioides petitianus	}	3,583
Cecilioides tumulorum	}	
Helicella obvia		130
Cernuella virgata	}	
Candidula ?cyparissias	} = other Helicellinae	11,586
?*Xerophila cretica*	}	
Monacha syriaca		1,843
Theba pisana		34
Eobania vermiculata		1
Helix sp. (cf. *Helix pachya* = *Helix pomatia stenarochila*)		366

[1] Estimated minimum number of individuals (MNI).

Cypro-PPNB contexts at Mylouthkia yielded thirty-six species of Mollusca (ten marine gastropods, four marine bivalves, three estuarine species, three freshwater species and sixteen species of land snails). These species are listed in Table 9.1 with the MNI for each. The marine shells are poorly represented, both in numbers of species and individuals, except for limpets (*Patella* spp.) and topshells (*Monodonta turbinata*). Large numbers of land snails were recovered (approx. 17,800) and most (approx. 15,600) of these were obtained by flotation and/or sieving. Several aspects discussed in this chapter apply to the Mollusca from both the Cypro-PPNB and Chalcolithic periods, and a general summary is given at the end of § 22.

§ 9.1 The marine shells

Condition

Table 9.2 shows the condition of all the marine shells recovered from Mylouthkia in terms of whether the shells appeared to have been fresh/live-collected without evidence of beachrolling, or whether they appeared to have been collected as empty shells from the beach. The inference is that live shells were collected for food and empty ones were collected for other purposes, but this division into 'fresh' and 'worn' is subjective. Shells may acquire a worn condition in life through abrasion, and not all worn shells were necessarily collected from the beach, although broken shells with worn edges and shells with internal worm tubes (usually *Spirorbis pagenstecheri*) probably were. Broken edges of 'fresh' shells can help to indicate whether the shells were collected intact (edges sharp and unworn) or as beach specimens (edges smooth and worn). Not all 'fresh' shells represent food: some could have been picked up from the beach and others are too small to have been eaten and may have been gathered together with food species or some other commodity. Others may have been collected live or in good condition simply because these shells were highly prized objects.

Nevertheless, Table 9.2 indicates fairly conclusively that limpets (*Patella* spp.) and, to a lesser extent, topshells (*Monodonta* spp.) were collected as food: only four of 2,760 shells were beachworn. The remainder were fresh and unworn, and broken shells had sharp edges indicating that they had been broken *in situ*. Limpets and topshells have been recognised as food items on many archaeological sites in the Mediterranean (Reese 1978). The only other predominantly 'fresh' shells from the Cypro-PPNB were *Gibbula* spp., which are too small to eat but may have been collected incidentally with *Monodonta turbinata* as they share the same habitat. The relevance of the other 'fresh' shells will be discussed in § 22.

A total of 2,355 (93.3%) of the 2,525 limpets from dated contexts was recovered from Cypro-PPNB deposits, compared with only fifty-three (28.8%) of the 184 topshells. However, even this number of limpet shells does not represent a large quantity of food. In fact, the limpets were remarkable for their small size. Although in Cyprus *Patella caerulea* can grow to a shell length of 50 mm (Tornaritis 1987), of the 569 measurable shells of this species from a single context (116.124), nearly 70% were less than half the maximum size and only one exceeded 46 mm (see Table 22.2). Shackleton (1972) reported a similar phenomenon with the limpet shells from the Early Bronze Age site of Myrtos in Crete. This could imply that the local limpet population was being over-exploited and young shells were not being given the chance to mature, or simply that smaller shells were easier to remove from the rocks or that larger shells were discarded elsewhere. None of the shells showed obvious edge damage to show where they had been prised off the rocks, but the shells were mostly fragmentary and in poor condition.

Table 9.2. The condition of marine shells

Species	*PPNB*	*Chal*	*Fresh*	*Worn*	*Total*
GASTROPODA					
Patella spp.	+	+	2,552	3	2,555
Monodonta spp.	+	+	204	1	205
Gibbula spp.	+	+	31	1	32
Bolma rugosa	+	+	-	5	5
Potamididae	-	+	2	-	2
Cerithium vulgatum	-	+	2	2	4
Bittium reticulatum	-	+	44	-	44
Erosariaspurca	-	+	-	6	6
Phalium undulatum	-	+	1	-	1
Tonna galea	-	+	5	-	5
Charonia variegata	-	+	11	1	12
Bolinusbrandaris	-	+	1	-	1
Truncularìopsis trunculus	+	+	7	5	12
Muricopsis cristatus	-	+	-	2	2
Thais haemastoma	-	+	4	2	6
Columbella rustica	+	+	10	14	24
Euthria cornea	-	+	-	1	1
Pisania maculosa	+	+	1	3	4
Cantharus d'orbignyi	-	+	1	1	2
Mitra cornicula	-	+	-	1	1
Conus mediterraneus	-	+	-	8	8
BIVALVIA					
Glycymeris spp.	+	+	10	18	28
Cardita trapezia	-	+	2	-	2
Cerastoderma edule	-	+	1	1	2
Acanthocardia aculeata	+	-	1	-	1
Parvicardium spp.	-	+	4	-	4
Callista chione	+	-	3	-	3
Thracia distorta	?	?	1	-	1
SCAPHOPODA					
Dentalium sp.	-	+	-	1	1

Most of the topshells had been broken and the shells had 'fresh' broken edges, suggesting that they had been crushed *in situ* to extract the meat. *Monodonta* grows to a shell height of about 35 mm and the average shell height of the sixteen intact shells recovered was 18.8 mm (range 15.5-30.4 mm). It is possible that the smaller shells were discarded intact and uneaten, together with the *Gibbula* shells. Both limpets and topshells were frequently burnt and this could indicate that some of the shells were roasted before consumption.

On the assumption that limpets and topshells represented food species, it is possible that other

Mollusca found in association with these shells could also represent food. The occurrence of other species together with and apart from limpets and topshells is shown in Table 9.3. Unfortunately, in most cases the implications are contraindicated by the size and/or the condition of the shells, showing that an association with limpets and topshells on this site does not necessarily imply that a species was used as food and demonstrating the heterogeneous nature of the deposits. A possible exception is the large and presumably edible land snail *Helix* sp., 60% of which were found with limpets and topshells.

Table 9.3. The association of shells with limpets and topshells

Species	*With limpets/ topshells*		*Not with limpets/ topshells*	
	Samples	*%*	*Samples*	*%*
MARINE SHELLS				
Gibbula spp.	17	68	8	32
Astraea rugosa	6	100	-	-
Potamididae	1	100	-	-
Cerithium vulgatum	3	100	-	-
Bittium reticulatum	7	88	1	12
Cypraea spurca	3	75	1	25
Phalium undulatum	1	100	-	-
Tonna galea	3	60	2	40
Charonia sequenzae	7	64	4	36
Murex brandaris	1	100	-	-
Trunculariopsis trunculus	8	88	1	12
Muricopsis cristatus	2	100	-	-
Thais haemastoma	5	83	1	17
Columbella rustica	13	81	3	19
Euthria cornea	1	100	-	-
Pisania maculosa	4	100	-	-
Cantharus d'orbignyi	1	50	1	50
Mitra cornicula	1	100	-	-
Conus mediterraneus	4	67	2	33
Glycymeris spp.	13	48	14	52
Cardita trapezia	1	100	-	-
Cerastoderma edule	2	100	-	-
Acanthocardia aculeata	1	100	-	-
Parvicardium spp.	2	67	1	33
Callista chione	1	33	2	67
Thracia distorta	-	-	1	100
Dentalium sp.	1	100	-	-
LAND SNAILS				
Helix sp.	69	60	46	40

The significance of other marine shells from the Cypro-PPNB is unclear. *Trunculariopsis trunculus* is edible and the single shell was in fresh condition but overall this species was collected both 'fresh' and 'worn' and a single shell does not indicate a food source. Similarly, the dog cockles, *Glycymeris* spp., which are considered to have been eaten elsewhere (Reese 1978), occurred in both 'fresh' and 'worn' condition. *Bolma rugosa* is commonly found on beaches and the three worn shells from this period may just have been picked up out of casual interest. The single but perfect *Pisania maculosa* is another small shell which could have been gathered with topshells. The only species which may have had a special significance are the two cowries, *Erosaria spurca* (Pl. 8.7), and the small dove shell, *Columbella rustica*. Six shells of the latter were recovered, making it the most frequent marine species in the Cypro-PPNB after topshells. Both fresh and worn specimens of this species are common on archaeological sites throughout the eastern Mediterranean, and Biggs (1963) refers to its possible use as a love charm by modern Greek women. This shell, with its distinctive slit-like aperture, resembles other shells with slit-like apertures such as cowries and cones, with which it seems to have represented a symbol of the female sex and to have been highly prized in antiquity (*LAP* II.1A, 226).

None of the marine shells appeared to have been worked or showed wear patterns to suggest utilisation as tools.

Table 9.4. The number of Mollusca according to Period 1 contexts

Species	*Wells*	*(Well 116)*	*Pits*	*Other*	*Total*
MARINE					
Patella spp.	2,338	(2,285)	17	-	2,355
Monodonta turbinata	47	(40)	6	-	53
Gibbula spp.	4	(1)	-	-	4
Bolma rugosa	3	(2)	-	-	3
Erosaria spurca	2	(2)	-	-	2
Trunculariopsis trunculus	-	(-)	1	-	1
Columbella rustica	3	(3)	-	-	3
Pisania maculosa	-	(-)	1	-	1
Glycymeris spp.	9	(4)	1	-	10
Acanthocardia aculeata	1	(1)	-	-	1
Callista chione	-	(-)	1	-	1
ESTUARINE AND FRESHWATER SHELLS					
Valvata cristata	2	(2)	-	-	2
?*Hydrobia* sp.	-	(-)	1	-	1
Pirenella conica	2	(-)	15	-	17
Melanopsis praemorsa	4	(-)	8	1*	13
Ovatella myosotis	1	(-)	-	-	1
Lymnaea truncatula	1	(1)	1	-	2
LAND SNAILS					
?*Orcula* sp.	4	(1)	7	-	11
?*Lauria* sp.	3	(-)	-	-	3
Chondrula tridens	127	(11)	119	-	246
Oxychilus sp.	2	(-)	1	-	3
Vitrea sp.	4	(4)	5	-	9
Cecilioides spp.	1,467	(185)	2,116	-	3,583
Helicella obvia	100	(31)	30	-	130
Other Helicellinae	5,853	(734)	5,733	-	11,586
Monacha syriaca	606	(92)	1,237	-	1,843
Theba pisana	31	(29)	3	-	34
Eobania vermiculata	1	(-)	-	-	1
Helix sp.	232	(170)	133	1*	366

*Contaminated gully

Contextual analysis

Mollusca were found *in situ* in only two contexts in the Cypro-PPNB: wells and pits (Table 9.4). Four wells and four pits were represented by molluscan samples but most of the shells came from a single well, well 116. Over 2,000 limpet shells, representing 97% of the limpets recovered from the Cypro-PPNB, were found in this feature, as were forty (75%) of the topshells from this period. The shell evidence suggests that this particular well was used as a dump for food refuse. The relatively low numbers of shells found in the other wells and pits probably entered these contexts together with other site debris as they silted up, and give no indication of the original purpose of these features.

§ 9.2 Estuarine and freshwater shells

The occurrence of the brackish water snail *Pirenella conica* implies the presence of a nearby shallow lagoon or estuary. This is substantiated by the trace occurrence of ?*Hydrobia* sp. and *Ovatella myosotis*, which are associated with brackish mud flats. These snails feed on vegetation, and it is possible that they were introduced into the settlement together with seaweed, perhaps for construction purposes.

The freshwater *Valvata cristata* and *Melanopsis praemorsa* are gill-breathing species which indicate the presence of a permanent source of drinking water. *Valvata* prefers slow-flowing and still water and is not found in fast-flowing streams, whereas *Melanopsis* is found in lakes, rivers and streams. Between them, these species indicate a permanent water source of a type somewhere between the two extremes of stagnant ponds and fast-flowing torrents. In contrast, the amphibious *Lymnaea truncatula* is associated with freshwater marshes, waterside vegetation and temporary water sources. The low numbers of individuals of these species suggest their accidental introduction in drinking water.

§ 9.3 Land snails

Large numbers of land snails were recovered, representing sixteen different species (Table 9.1). Identification of small Helicellinae from Mediterranean islands is notoriously difficult and there is a dearth of literature on Cypriot land snails. In addition, juveniles of these species are almost impossible to tell apart. *Helicella obvia* alone is distinctive at all stages of development and is therefore considered separately; the remainder include at least three species (*Cernuella virgata*, *Candidula ?cyparissias* and ?*Xerophila cretica*), but since these snails all share the same type of habitat they are considered together as 'other Helicellinae' with no loss of data implied. Similarly, although more distinctive, the three species of *Cecilioides* (*Cecilioides acicula*, *Cecilioides petitianus* and *Cecilioides tumulorum*) also share the same ecosystem, and they too are considered together.

Most of the land snails are small to medium-sized species of no economic importance. The exceptions are the large land snails *Eobania vermiculata* and *Helix* sp. which are potentially edible. *Eobania* is a well-known synanthropic species throughout the Mediterranean region and is typically found in cultivated fields and vineyards. It has been argued elsewhere (*LAP* II.1A, 228) that this species is a relatively recent introduction to Cyprus and the presence of a single juvenile in a well context (well 133, fill 329) in the Cypro-PPNB may represent a modern intrusion. In contrast, the relatively large numbers of *Helix* sp. and its possible association with limpets and topshells (Table 9.3) suggest that this species may have been eaten. As with limpets and topshells, some of the shells show evidence of burning which could indicate roasting. The identity of this species is uncertain: in shell shape, sculpture and coloration it resembles the edible snail *Helix pomatia*, although the Cypriot shells are smaller and the umbilicus is relatively smaller or completely closed. It is possible that they represent *Helix pachya* which has formerly been described from Cyprus as a subspecies of *Helix pomatia* (= *Helix pomatia stenarochila*) (Reese 1978).

The large land snails and *Monacha syriaca* prefer scrubby vegetation with plenty of cover. In contrast, *Chondrula tridens* and the Helicellinae inhabit dryer open areas with short vegetation and little cover. The relative numbers of these land snails (Table 9.1) suggest that the second of these habitat types predominated during the Cypro-PPNB: the environmental implications of the land snail data are considered in § 22.

Cecilioides spp. can burrow to some depth and may therefore occur out of context. However, *Cecilioides* is possibly and *Oxychilus* and *Vitrea* are definitely attracted by decaying animal and plant material and as such may indicate midden deposits or burials. The presence of these species in Cypro-PPNB wells and pits may suggest the use of these features for rubbish disposal.

Similar numbers of land snails, including large numbers of juveniles, were found in both wells and pits (Table 9.4) and do not distinguish between these contexts with regard to their construction and/or function.

9.4 Fossils

Two fossil shells were found in Cypro-PPNB contexts. Part of the internal cast of a gastropod shell was found in well 133, fill 331 and an unidentified bivalve in pit 338. Fossils are fairly common on archaeological sites and Oakley (1978) considers that they were used as charms. It is possible that these fossil shells were collected locally, perhaps for the same reason as the beachworn shells, simply because of fascination with their shape and form. Their contexts do not suggest that they had any special importance, certainly none greater than that accorded to the 'love charm' *Columbella rustica*, which was found with rubbish in the 'midden' well 116.

Chapter 10: Fish Remains

by

Ruby Cerón-Carrasco

§ 10.1 Methods

The fish remains from Mylouthkia were recovered on site and by sieving. Identification of species was made using modern comparative reference collections. All fish remains were examined and where possible identified to skeletal elements and to species. When this was not possible, the remains were assigned to a higher taxonomic level, i.e. the family, or ultimately classed as "indeterminate" when these consisted of broken unidentifiable fragments.

The recording of preservation state of the bone was based on two characteristics: texture on a scale of 1 to 5 (fresh to extremely crumbly) and erosion also on a scale of 1 to 5 (none to extreme). The sum of both was used to indicate bone condition; fresh bone would score 1 while extremely poorly preserved bone would score 10 (after Nicholson 1991).

All elements were examined for signs of butchery and burning. The colour of burnt bone was recorded to allow investigation of the nature of burning, i.e. cooking and/or rubbish disposal.

In the general discussions below, as well as in § 23, the scientific name of the fish species identified is given as well as the name given to the species in English (E) and in Greek (GR) where possible. Nomenclature follows Wheeler and Jones (1989, 122-3).

§ 10.2 General results and taphonomy

A total of twenty-three contexts produced fish remains for all periods (Neolithic and Chalcolithic) of the site. A total of thirteen taxa were identified, consisting of nine identified to species and four to family level. Unidentifiable fragments, referred to as "indeterminate", consisted of mainly cranial fragments, ribs and fins rays. No measurements were taken because the surface damage to standard measure points of the bone was too great and because of lack of sufficient modern reference material for size comparison.

Evidence of burning was noted in several of the samples; these were burnt black and burnt white.

The fish bone material was very fragmentary, and a high proportion of these had surface pitting and were white and powdery. This was also observed in material from Kissonerga (Irving in *LAP* II.1A-B), which was explained in terms of chemical damage due to percolation of surface water which suspends salts and moves them into context (Irving in *LAP* II.1A-B).

The absence of otoliths in the assemblage is quite puzzling as these were present at Kissonerga; the fact that these are calcium carbonate would mean that they would survive chemical damage on bone. Their absence from this assemblage may be explained in terms of taphonomic loss, i.e. heads may have been discarded somewhere else, perhaps into the sea.

Table 10.1. Fish remains from Cypro-PPNB contexts

Context	*Element*	*Number*	*Species*	*Size*	*Texture*	*Erosion*	*Condition*	*Comments*
116.123	spine	1	Indeterminate	Unknown	4	4	8	fragment< 10 cm
	fin rays	2	Indeterminate	Unknown	4	5	9	fragments < 5 cm/burnt-black
	fin rays	3	Indeterminate	Unknown	4	5	9	fragments < 5 cm
116.124	fin ray	3	Indeterminate	Unknown	4	5	9	fragment < 5 cm
	fragments	3	Indeterminate	Unknown	4	5	9	< 5cm
116.192	pcver	1	cf. *Euthynnus alleteratus*	Juvenile	4	4	8	fragment
	pcver	1	Clupeidae family	Maturing?	4	4	8	
	cver	1	*Trachurus trachurus*	Maturing	4	4	8	fragment
	pcver	1	Serranidae family	Maturing?	4	4	8	burnt-black
	fragments	20	Indeterminate	Unknown	4	5	9	< 5 cm
133.329	cver	1	*Trachurus trachurus*	Maturing	4	4	8	
	fragments	3	Indeterminate	Unknown	4	5	9	< 5 cm
338.352	fin ray	4	Indeterminate	Unknown	4	5	9	fragments < 5 cm
338.354	cver	5	*Trachurus trachurus*	Mature	4	4	8	
	bran	1	Indeterminate	Unknown	4	5	9	fragment < 10 cm/burnt-black
	fragments	4	Indeterminate	Unknown	4	5	9	< 5 cm

Key to element representation: cver - caudal vertebrae; bran - branchiostegals.

§ 10.3 Discussion of the fish remains

The results of the analysis of the fish remains from Cypro-PPNB features at Mylouthkia are given in Table 10.1. Most of the fish remains from this period consisted of broken unidentifiable fragments (see Table 10.2); in addition, a few were burnt black, probably as a result of rubbish burning. The only identified species was *Trachurus trachurus,* i.e. horse mackerel (E) or scumpri (GR); the only identifiable elements were caudal vertebrae. *Trachurus trachurus* is a common fish found swimming in shoals, usually in open water. They are common near the coast during summer months but migrate to deep water during winter (Lythgoe and Lythgoe 1971). This species may be caught on line and hook (Bauchot and Pras 1993).

The remains of burnt fish fragments in this period and the remains of vertebrae of *Trachurus trachurus* are evidence of domestic fishing, which would have necessitated the use of a line and hook. The fact that very few fish remains were recovered from this period at Mylouthkia may be due to poor preservation, and even though only a single species was represented in this small assemblage, a particular specialised mode of fishing would have been employed which may have involved the use of boats to catch *Trachurus trachurus*.

Since *Trachurus trachurus* was one of twenty-two species or family groups represented in the assemblage at Cape Andreas- *Kastros*, dating to the 8th millennium BP (Desse and Desse-Berset 1994), the presence of horse mackerel at Mylouthkia in an assemblage from the Cypro-PPNB, therefore, is not surprising.

Table 10.2. Summary of species from Period 1 contexts represented by fragment count (NISP)

Species	*NISP*
Serranidae family	1
Clupeidae family	1
Trachurus trachurus	1
cf. Euthynnus alleteratus	1
Indeterminate	31
Total	35

Chapter 11: Conclusions: Mylouthkia 1 and the Early Colonists of Cyprus

by

Edgar Peltenburg

In the Introduction to this volume, and in the above chapters, we have emphasised that the exceptionally early status of Period 1 occupation at Mylouthkia helps to fill one of the major lacunae of Cypriot prehistory, namely the prelude to the Khirokitian. This section of our report seeks to establish its chronology more exactly before evaluating evidence for the nature of activities at the site. It will be argued that Mylouthkia was probably a precocious sedentary or semi-sedentary farming community which was founded in the mid-9th millennium cal BC. As one of the earliest recorded examples in Cyprus, it is fundamental to an understanding of the island's cultural and biological patterning from Neolithic into modern times. In order to contextualise the evidence within a very incomplete record, the section then treats some basic questions: where did these people come from, what light does Mylouthkia 1 shed on the colonisation of Cyprus, and is the evidence relevant to a better understanding of Mediterranean island colonisation and early farming dispersals? Lastly, does this and other new evidence provide the long-sought ancestry for the classic Khirokitian, hitherto generally regarded as the representing the earliest settlers of Cyprus? (See §1-10 for supporting data. These issues are also explored in McCartney and Peltenburg 2000; Peltenburg *et al*. 2000, 2001a-b).

§ 11.1 Chronology, terminology and the pre-Khirokitian sequence

Apart from dates afforded by parallels in Cyprus and abroad, particularly the chipped stone, Period 1 chronology is based on a small but consistent set of AMS dates obtained from short-lived carbonised seeds in wells 116 and 133. Period 1 dates (Table 11.1) were obtained from two materials, shells and seeds. The shell results are unfortunately far too early to be relevant for the time of use and abandonment of the wells. Paula Reimer, who kindly carried out this part of our dating programme, attempts to account for this anomaly:

"To evaluate the potential for using paired marine/terrestrial samples from archaeological sites to track changes to the reservoir correction over time, three mollusc shells from two well-fill deposits from the Kissonerga-Mylouthkia excavation, Cyprus, with paired terrestrial material dating to the 10th and 9th millennia bp, were submitted for AMS dating. Unfortunately, the mollusc radiocarbon were considerably older than the dates on short-lived terrestrial material from the same deposits and cannot be used for a reservoir correction. The extreme age of these shells suggests one of three possibilities: 1) the carbonates in the shells had recrystallised and been contaminated with groundwater containing old carbonates; 2) the shells were from a beach deposit through which the well may have been dug; 3) the shells were fossils collected and deposited in the well-fill. Definite fossil shells from the Aceramic Neolithic contexts have been found in a well and a pit at Kissonerga-Mylouthkia (§ 9). The dated shells, however, were not obviously fossilised. The oldest shell, a spiny cockle, appeared to be in pristine condition and was

Table. 11.1. Period 1 radiocarbon (AMS) date list

Context	Code	Sample Material	Years BP	delta 13C	Cal BC from Oxcal 1 sigma	Cal BC from Oxcal 2 sigma
Period 1A						
Well 116.124	CAMS- 66142	M1558a *shell*	34,150±250			
Well 116.124	CAMS- 66153	M1558b *shell*	28,310±130			
Well 116.124	OxA-7460	C482 *barley*	9,315±60	-23.0%	8,690-8,450	8,740-8,320
Well 116.123	AA-33128	C481 *grain*	9,235±70	-21.4%	8,550-8,290	8,630-8,280
Well 116.124	AA-33129	C482 *grain*	9,110±70	-23.4%	8,450-8,240	8,540-8,200
Period 1B						
Well 133.264	CAMS- 66144	M1546 *shell*	24,930±100			
Well 133.264	OxA-7461	C531 *Pistacia*	8,185±55	-23.1%	7,310-7,080	7,350-7,060
Well 133.264	AA-33130	C531 *Lolium sp*	8,025±65	-22.9%	7,080-6,820	7,140-6,690

Atmospheric data from Stuiver *et al*. 1998; OxCal v3.5 Ramsey 2000.

unlikely to have been recrystallised. The other two shells are of a species that produce aragonitic shells, so recrystallisation to calcite would be evident from X-ray diffraction (XRD). XRD measurements were carried out on these shells by the British Geological Survey and showed that the shells were predominantly composed of aragonite with a trace of calcite. This minor trace of calcite, even if it were composed of "dead" carbon, would not be sufficient to alter the radiocarbon ages of the shells to this extent. Therefore, the shells must have been from an older beach deposit and ended up in the well-fill either through slumping or from human collection and deposition. Obviously, extreme care is needed in evaluating whether samples for marine/terrestrial pairs are contemporaneous or not."

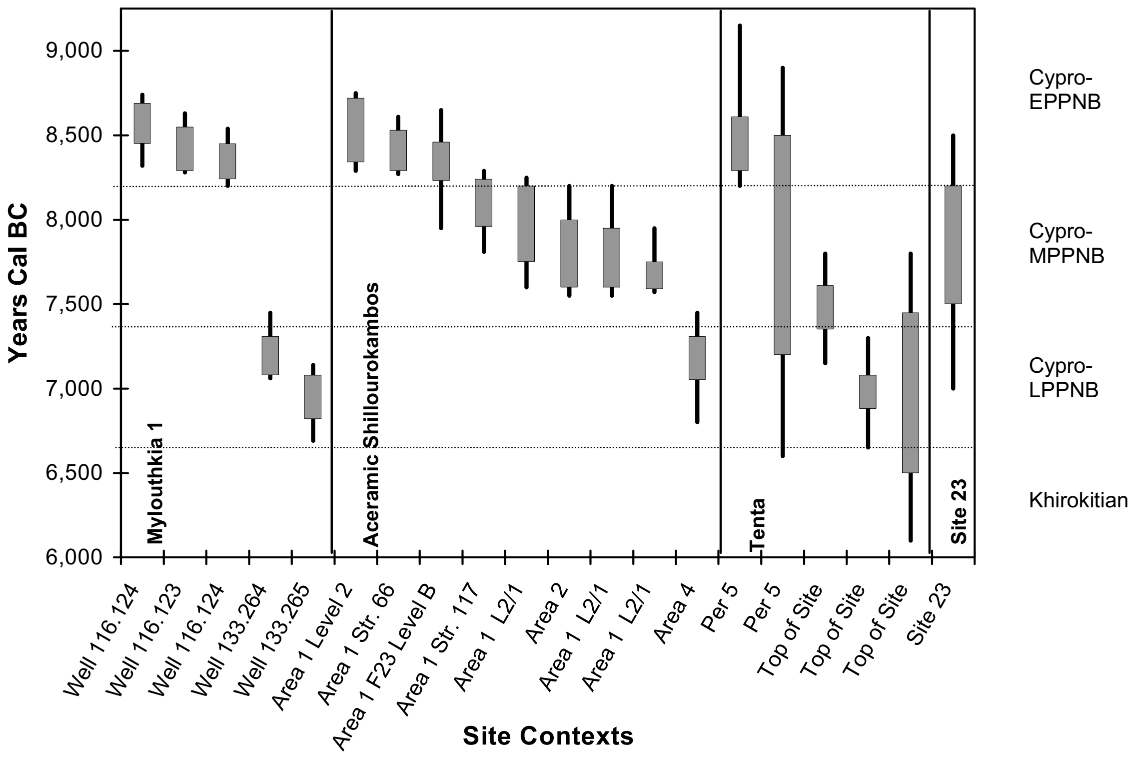
Since wells 116 and 133 showed neither signs of slumping nor evidence of having been cut through older beach deposits, we assume that these bivalves were collected for their own sakes or that they became mixed with building or other materials. The shell types, spiny cockle or *Acanthocardia tuberculata* (CAMS- 66142) and dog cockle or *Glycymens* (CAMS-66144, 66153), were exceptional in the wells and so probably derive from different collection strategies than the many limpets that were collected for subsistence. These dates are omitted from attempts to fix the chronology of the wells.

Period 1A

There are three further dates from well 116, two from the same flotation sample:

- AA-33128 comes from a 50 litre soil sample, C 481, collected from fill 123 at 20.75-20.55 m asl (Fig. 11.3, inset). This is adjacent to the interface with the topmost fill, 114, and was erroneously reported from there in McCartney and Peltenburg 2000, and Peltenburg *et al.* 2000, 2001a,b). Although only two objects were recorded from *c.* 1 m deep fill 123, it was notable for the amount of ash, with some charcoal and a concentration of probable red ochre.
- OxA-7460 and AA-33129 are barley and grain seeds respectively from well 116.124. Fill 124 is the main, 5 m deep deposit in the well that starts some 3 m below its surviving lip, at *c.* 20 m asl (Fig. 11.3, inset). The fill is immediately below that containing AA-33128. Assays come from sample C 482 which was a 50 litre sample of soil taken from near the top of the deposit, 19.75-19.80 m asl. The fill was noticeably free of objects at that depth (Fig. 11.3C), and there were above average concentrations of ash, charcoal (still minor) and phytoliths. Red ochre was also present. The two laboratories provide dates which, when calibrated at 2-sigma, are largely indistinguishable.

Results from these short-lived samples come from secure contexts within a metre of each other. They overlap at 1 sigma and so they provide a coherent set of dates belonging to the mid-later 9th millennium cal BC, that is *c.* 8,200 - 8,600 cal BC. Well 116 is thus one of the earliest known wells in the world. Contemporary ones exist at Shillourokambos (below), somewhat later ones at Mylouthkia (below), Atlit Yam (Galili *et al.* 1993) and in North Mesopotamia (Campbell 1997, 40-41).



Atmospheric data from Stuiver *et al*. 1998; OxCal v3.5 Ramsey 2000.

Note: Relevant dates from four other sites are considered in the text.

Fig. 11.1: Radiocarbon dates (single s.d.) from sites of the Cypro-PPNB period, c. 8,600- 6,500 cal BC. Dates from Guilaine et al. 2000a, Todd 1987

Three other Cypriot sites supply dates of this period. Of these, Shillourokambos Early A provides the strongest support for the Mylouthkia dating by virtue of its similar distinctive chipped stone industry, elevated quantities of obsidian and ^{14}C date range (Fig. 11.1). Guilaine *et al.* (2000a, 78, Table) and Willcox (2001, 129, Table 1) suggest a slightly later calibrated range for Shillourokambos, *c.* 7,800 - 8,200 cal BC. The samples are from charcoals, and while wood is likely to be longer-lived than seeds, and hence indicate slightly later dates for the cultural context than the ^{14}C dates, Mylouthkia 1A and Shillourokambos Early A should be considered as broadly contemporary. Oxcal 3.5 calibration suggests this should be mid to later 9th millennium cal BC. Tenta Period 5 has also yielded a similar mid-9th millennium cal BC date (Fig. 11.1) from a deposit that may underlie the stone-based architecture of the site (P-2972: Todd 1987, 174). Although attributed to Phase 5, it is not directly associated with the timber structures that characterise that phase. Not much is known about the latter, but associated and residual chipped stone at the site does not contradict an occupation of this time (McCartney, pers comm). Another site to yield dates of this period is Aetokremnos. Almost all of the six relevant dates are from bone which, according to Simmons, was affected by humate leaching that reflects a wetter climate with denser vegetation (Simmons *et al.* 1999, 193-208). Leaving aside the latter possibility, the bone dates are too inconsistent and undependable for indicating human occupation and the existence of pygmy hippopotamus at Aetokremnos at this time, and so they need not be considered here. There are, therefore, three sites which provide consistent evidence for dating some of the earliest settlements in Cyprus to the mid-later 9th millennium cal BC. Current research at Akanthou (Fig. 25) suggests that more sites await investigation (Şevketoğlu 2000a,b, 2001).

Period 1B

Two dates of this period were obtained from short-lived carbonised seeds in well 133.

- OxA-7461 is from a *Pistacia* seed, AA-33130 *Lolium sp*. They come from the same 120 litre soil sample, C 531, which was recovered from the second fill below the surviving top of the well, 264, between heights 19.75 and 19.90 m asl (Fig. 11.3A and inset). The sample lay between Skull 1 and its tooth, near the top of the column of caprine carcases. At this level of fill 264, clayey patches and numerous carbonised seeds could be seen. Some 14 registered objects were recovered from the same depth range. The dates are statistically the same at 95% level.

These dates suggest that well 133 was filled with material about a millennium later than well 116, a chronology that corresponds with the typological development of associated chipped stone and the fall-off rate of obsidian (§ 2). They correspond with a single assay from Late Phase Shillourokambos, Lyon-292, 8,125±70 BP. In Guilaine *et al*. 2000a this phase is dated 6,791-7,300, in Willcox 2001, 7,000-7,300 cal BC. It seems that these aceramic phases of the two sites belong to the late 8th - early 7th millennium cal BC. One other site certainly, and three more possibly, may have occupation of this time on the basis of ^{14}C dates. All three dates from Tenta 'Top of Site' belong to this period (Fig. 11.1) and two overlap with the Mylouthkia and Shillourokambos dates. One has a ± of 360 years, so it is not helpful, but the 8020±90 date from Structure 58 is virtually identical with Mylouthkia AA-33130. The much earlier date from the Structure 14 complex may be from a sample that was derived from underlying buildings at that locality. Downslope, another date of this period, P-2548, comes from an outdoor hearth that postdates Structure 27. It too is likely to come from a re-deposited sample or from old wood. Akrotiri Site 23 produced a date of 8,350±250 (UCL-350, shell, uncorrected for reservoir effect); it seems a multi-component but disturbed site with earlier and later material (Simmons *et al.* 1999, 254-8). At a single s.d., Dhali-Agridhi P-2775, and at two s.d. Ais Yorkis DRI-3441, also extend into the late 8th millennium cal BC. The latter is from a *Bos* metacarpal (Simmons 1998b, 237), so it will be useful to obtain corroboration from dates from other materials or to improve the accuracy of dates from bone samples. Aetokremnos also yielded two dates of this period, from shell and bone, but they are considered too late to be associated with occupation there (Simmons *et al*. 1999, 196). In terms of Cypriot prehistory, the significance of the secure dates from Mylouthkia 1B and other sites is that we now have a growing number of heterogeneous settlements that immediately pre-date the classic Khirokitian.

These new dates necessitate major revision of Cypriot prehistory. Since the early 1960s, when Dikaios obtained radiocarbon dates for Khirokitia, the earliest attested inhabitants on the island were dated to the 6th millennium cal BC. Then, in 1977, Todd began to publish dates from Tenta which eventually suggested that "the Aceramic phase in Cyprus may have begun well before most estimates allow" (Todd 1977; 1987, 184). During the 1980s, the first set of Akrotiri dates pointed to a far earlier occupation of the island (Simmons 1988, 21, Table 1). However, these dates were not universally accepted. For example, in 1989, Le Brun (Le Brun *et al*. 1989, 95) submitted that "there is no clear evidence of human presence in Cyprus before the sudden appearance, at the beginning of the 6th millennium, of a civilisation of farmers". Others accepted some Akrotiri dates, but not the earliest Tenta ones, with the result that we had a lengthy gap in Cypriot prehistory, from *c.* 9,500(?) to 7,000/6,500 cal BC (Knapp *et al*. 1994, 381-2, Fig. 1). In discussing Tenta dates, Held (1992, 121) postulated that an early stage of the Khirokitia Culture extended back into the 7th, but not 8th millennium cal BC.

The history of the modern recovery of early human habitation on Cyprus is shown diagrammatically in Table 11.2. Together with Shillourokambos and Tenta, Mylouthkia 1 has added a crucial 1500 years to the island's archaeological record, providing invaluable data on human colonisation of the island and necessitating revision of existing schemes.

Table 11.2. Extensions of the early prehistoric record of Cyprus in the last half of the 20th century AD

	CYPRUS			MAINLAND LEVANT
cal BC	Dikaios 1962	Knapp et al 1994	Peltenburg et al 2000	
4,500			Late Neolithic	Chalcolithic
		Sotira Culture	?	
5,000	Neolithic 1B (ceramic)			
5,500	Neolithic 1A (aceramic)	?	?	Pottery Neolithic
6,000		Khirokitia Culture	Khirokitian	
6,500		?		Final PPNB/PPNC
7,000			Cypro-LPPNB	LPPNB
7,500			Cypro-MPPNB	MPPNB
8,000			Cypro-EPPNB	EPPNB
8,500				
9,000				PPNA
9,500				
10,000		Akrotiri Phase	Akrotiri Phase	

(white box) Little/no evidence for inhabitation

Kalavasos Tenta

Most schemes assign the important site of Tenta to the full-blown Khirokitian (e.g. Le Brun *et al*. 1987). Todd (1987) posited five periods of occupation, Period 5 being the earliest. Dates from Periods 5 and 2 indicate occupation before Khirokitia, but he treated the first set with caution and rejected dates for the second. Period 5 comprised exiguous traces of post structures immediately below buildings of Period 2 and isolated features in natural elsewhere. Period 2 consisted of a discrete arrangement of circular, stone-based buildings in an area known as 'Top of Site', stratigraphically unconnected with other structures in the lower, downslope area. According to the prevailing orthodoxy of the 1980s, aceramic sites with circular stone architecture could not be earlier than Khirokitia. For this underlying reason, and because of his site phasing, a phasing that was discordant with the three 'Top of Site' ^{14}C dates, Todd attributed these structures of his Period 2 to the Khirokitian. He was at pains to point out, however, that the 'Top of Site' settlement was not stratigraphically linked to the lower area and that an earlier date remained a possibility. New data from Mylouthkia and Shillourokambos lend credibility to his suspicions, and with McCartney's forthcoming analysis of the chipped stone (pers comm), they point to a need for more thorough raising of the Tenta chronology.

Todd (1987, 173-8) obtained and published 21 radiocarbon dates from the site. For various sound reasons, he considered only 16 of these as trustworthy in his final analysis. Key to any evaluation of the Tenta assays is the fact that the majority come from external deposits on the Lower South Slope and many of these derive from levels above the structures with which they were often implicitly associated in the final report. Given our poor understanding of site formation processes on these slopes, it may be prudent to opt for a maximum security policy in dealing with Tenta dates, especially if we seek to determine dates for the architectural elements of the site. Such a cautious policy would admit only those samples which were found sealed below intact structures or found inside enclosed spaces where they are stratigraphically associated with walls and where erosion and other disturbance are less likely. Using this minimalist strategy, we would reduce Todd's list of 16 dates to 6, leaving the remainder to be considered when unpublished associated materials are better understood (McCartney, pers comm).

Top of Site

- K-T 8 Structure 14/15 8,480±110 BP
- K-T 20 Structure 58 8,020±90 BP
- K-T 19 Structure 34 8,010±360 BP

Lower South Slope:

- K-T 18 probably pre- Structure 9 9,240±130 BP
- K-T 15 possibly pre- Structure 1 8,720±400 BP
- K-T 14 pre- Structure 5 7,380±100 BP

The most secure Tenta dates come from Top of Site. There are no other dates from this discrete part of the settlement which should therefore be dated to the 2nd half of 8th millennium cal BC. The significance of this re-dating is that we have a coherent pre-Khirokitian settlement plan comprised of an imposing, *c.* 12 m diameter circular structure (14) flanked by rows of relatively thin-walled, small curvilinear buildings, some containing pillars. Architecturally dominant, the position of Structure 14 was further enhanced by topography since it was located on the crown of the small hill on which the site was founded. K-T 8 comes from the last phase of three superimposed buildings here, so the existence of two very large precursors for Structure 14, each with an exceptional red plastered floor, indicates that the hierarchical plan was an enduring one that may have originated well before these dates.

The Lower South Slope dates provide a *terminus ante quem* for buildings there, except for K-T 14 which postdates the use of a building in a localised sequence. McCartney's (pers comm) forthcoming detailed analysis of the chipped stone and the remainder of the dates suggest that all of the Lower South Slope architecture antedates the Khirokitian and that overlying erosion deposits are Khirokitian.

Terminology

A working terminology is required to provide a framework for discussion of this newly uncovered period of Cypriot prehistory. We have opted for the term Cypro-PPNB because of the impressively wide spectrum of links with North Syria and SE Anatolia, combined with the emergence of an insular identity.

Table 11.3. Chronological table of Neolithic Cyprus showing sites according to Districts

Cal BC	*PERIODS* *Peltenburg et al. 2000*	*PERIODS* *Alternate system*	*DISTRICTS* *Kyrenia*	*DISTRICTS* *Nicosia*	*DISTRICTS* *Larnaca-Famagusta*	*DISTRICTS* *Limassol*	*DISTRICTS* *Paphos*	*LEVANT*
4,000	**LNeo** **?**	**Ceramic Neolithic**	Vrysi Troulli II	Philia - Drakos A	Paralimni Khirokitia Kalavasos A	Sotira Kandou	Peyia Kissonerga 1B	Chalcolithic
5,000		**Late Aceramic Neolithic**						Pottery Neolithic
6,000	**Khirokitian**		Bellapais Troulli I	Petra-tou-Limniti Kataliondas? Dhali-Agridhi I	Khirokitia Cape Andreas Tenta		1A Ortos	
					1		Ais Yorkis	(PPNC)
7,000	**Cypro-LPPNB** **Cypro-MPPNB**	**Middle Aceramic Neolithic**		Asprokremnos	2-4	Shillourokambos Late Middle	Mylouthkia 1B	LPPNB MPPNB
8,000								
	Cypro-EPPNB	**Early Aceramic Neolithic**	Akanthou?		5?	Early	1A	EPPNB
9,000	**?**							PPNA
	Akrotiri					Akrotiri		
10,000								

Many features are inherited from the continental PPNA, so the links hint at an earlier population and/or conservatism on the island. They include subsistence plants and animals, building plans and settlement organisation, artefact types, techniques of working chipped stone and perhaps bone, exchange, and ideology and symbolism (see below; Peltenburg *et al.* 2001a; Stordeur in press). Developments in chipped stone at Mylouthkia and elsewhere allow broad correlation of established northern mainland phases with insular ones (§ 2). The term mainly refers to an interaction zone, typified by lithics technology, and not an archaeological culture in the Childean sense of the word. This era of Cypriot prehistory culminated in the florescence of a distinctive Cypriot aceramic expression referred to here as the Khirokitian, although society was surely more heterogeneous than implied by the 'type – site' label (Table 11.3). Khirokitia has a deep stratigraphy which probably extends into earlier periods.

§ 11.2 The nature of the Cypro-PPNB occupation

Effects of erosion and limited exposure mean that we have only meagre glimpses of Cypro-PPNB activities at Mylouthkia. Excavated components include a well of the mid-9th and two wells, a pit and an eroded structure of the late 8th - early 7th millennium cal BC. In spite of the paucity of these remains, we may make inferences about why people chose to use this locality, what well-digging meant to them, and the nature of the occupation. The last is primarily deduced from the fills of the wells and with specific reference to evidence for subsistence, stone vessel-making, and treatment of the dead.

As described in the Introduction, Mylouthkia is unlike other sites of the Lemba cluster since it is located on the present seashore away from streams. It is possible, therefore, that the sea played a role in choice of location. If the sea cliffs and water table had a similar configuration as today, coastal visitors would have discerned unusual water seepages and a spring in the cliff face (Frontispiece 2, Fig. 11.2). The appearance of fresh water in a dry spell may have been an attractive signal which encouraged settlement at Mylouthkia. From the slopes behind the low cliff tops, occupants commanded a rare sweeping view of the sea, especially to the north. And the cove bordered by *Kefalui* (Frontispiece 1, Fig. 26) provided safe shelter. While these marine orientations suggest that early occupants arrived by sea and that their activities remained intimately linked to the sea, much work needs to be done on the local sea-level history to determine if this reconstruction approximates coastal conditions in the early Holocene (see Introduction). If broadly correct, then Mylouthkia indicates that seafaring colonists had already reached the western side of the island in the 9th

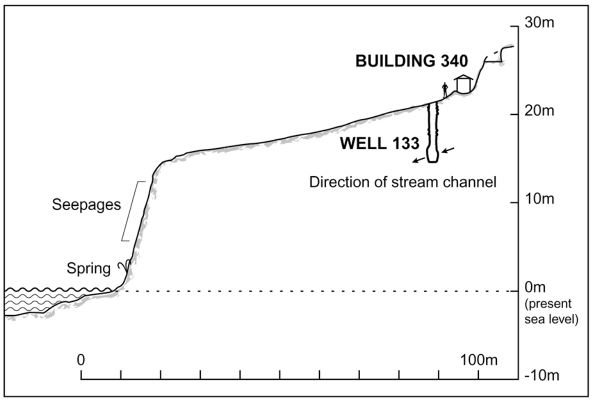


Fig. 11.2: Cross-section of site showing relationship of well 133 to water exiting at cliff face and present sea-level

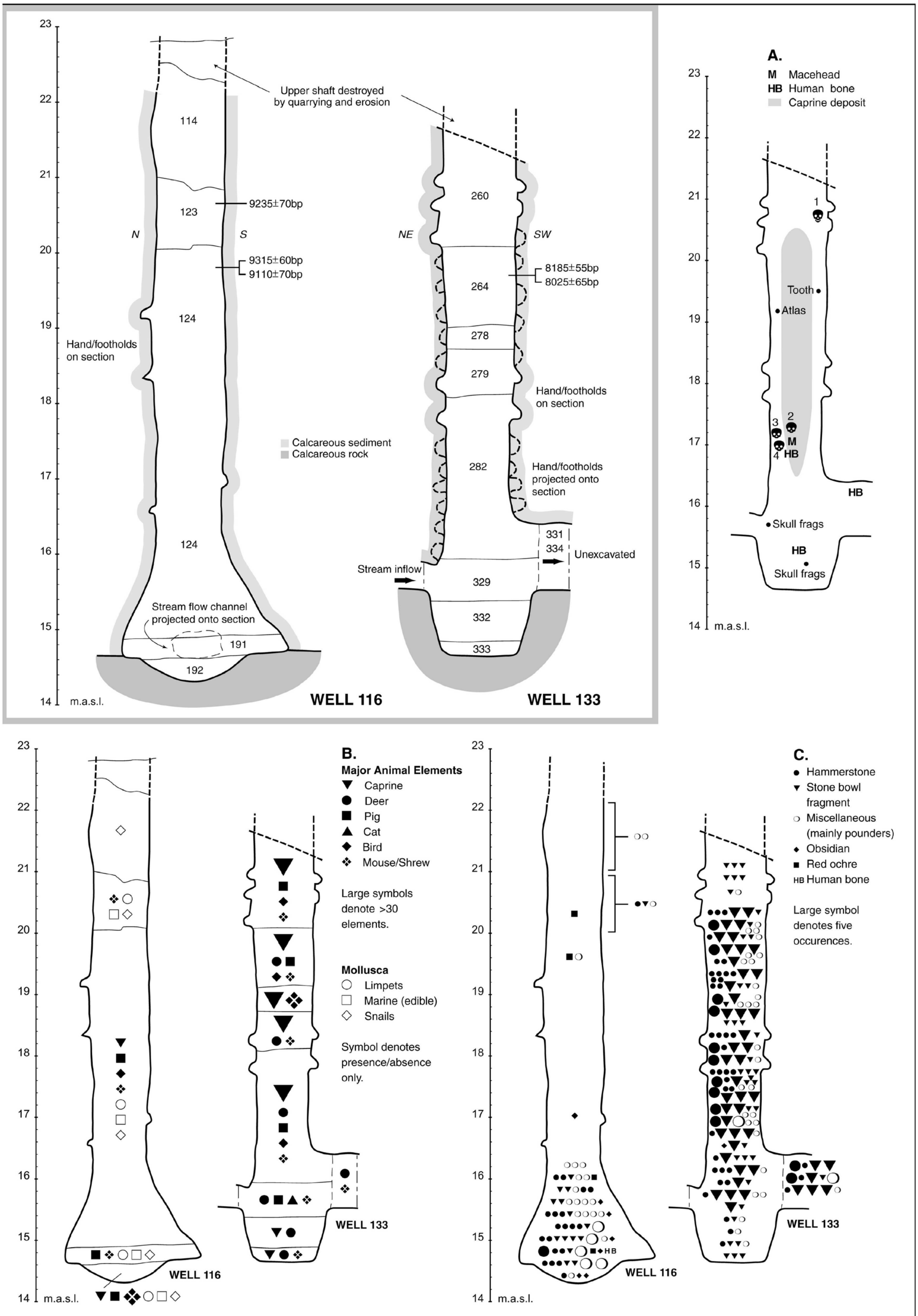


Fig. 11.3: Sections (inset) and profiles of wells 116 and 133. Inset shows fills and locations of dated samples.
A. well 133 human and caprine deposits;
B. distribution of fauna and Molluscs;
C. distribution of ground stone, obsidian and red ochre, with addition of human bone in well 116

millennium cal BC, and that the whole island, rather than just the east and centre, as in Bar-Yosef 2001, 23, Fig. 5, was part of the PPNB world.

The wells

Wells placed on the slopes above the low cliffs tapped subsurface water of the aquiclude. Aquicludes often consist of a sheet flowing on top of an impervious bed. The existence of channels at the bottoms of the excavated wells, however, suggests that water flowed in underground streams as part of a dendritic or braided system. Such discrete channels would have demanded great precision of well-diggers. They may have used hydrophilic plant markers and divining to locate suitable spots for digging. In any case, the earliest well here, 116, shows that well-diggers had already gained impressive proficiency. They removed a minimum of *c.* 5.4 m^3 of soil per well, probably with antler picks when the marl was wet, to give access to dependable, clean water. The tradition was probably developed by sedentary communities in East Mediterranean environments (Peltenburg *et al.* 2001a). Three smaller contemporary examples are known at Shillourokambos (Guilaine and Briois 2001, 41).

But why the effort to dig *c.* 9 m deep wells when very likely there were more easily accessed sources of water to hand? Prolific springs exist at nearby Kissonerga village, a small one beside the site, useful seepages in the cliff face (Fig. 11.2) and the river Apis flowed near the north of the site. There must have been special reasons for selecting a location that demanded input of considerable labour for the wells. Alternatively, if wells were intended to supplement extant water sources, then we might think of their construction as an embedded tradition of risk - buffering measures for the establishment of a sedentary lifestyle in the face of unpredictable fresh water supplies. Cyprus is chronically subject to droughts, so, until recently, well-digging was ubiquitous (Christodoulou 1959, 40, 62). Once a good water source was identified, wells tend to proliferate in that locality. With the recent discovery of yet more early wells at the site (see p. xxxi), Mylouthkia could be an early instance of that insular tradition. They suggest that occupants applied the same successful technology for at least a thousand years. There are, therefore, *a priori* reasons for assuming that, from an early stage of the site's use, settlers carefully mobilised labour for sustaining a viable settlement.

Although reminiscent of modern concentrations of wells in Cyprus, Mylouthkia 1 was not part of a unilineal evolution in well-digging. In the later Neolithic and Chalcolithic, *c.* 2,400 - 7,000 cal BC, when we have good settlement records, there are no recovered wells. Settlements then are regularly associated with streams and springs, so absence of wells may be due to a shift in settlement patterns in which immediate access to other dependable water sources became instrumental in determining the location of settlements. When wells reappear in the archaeological record, they occur in urbanised communities where other pressures existed for alternative water sources. However, there was probably great variability within early prehistoric settlement systems. Part of Tenta, after all, belongs to the Cypro-PPNB, and it is conveniently located beside the Vasilikos River. Two general points that emerge from diachronic consideration of these installations are that prehistoric wells may prove to be diagnostic of early colonising sites in Cyprus and that local adaptations eventually led to settlement patterns based on more accessible sources of water.

Their abandonment fills: general arguments for a settlement at Mylouthkia 1A-B

Much more about the nature of Mylouthkia 1 can be inferred from the abandonment fills of the wells. We assume from the unworn, intact walls of two of the well shafts that no great time elapsed between use and insertion of abandonment fills. Each well fill has a particular grammar of deposition (Figs. 11.3, 4). Only the contents of well 133 can be compared with material from a contemporary occupation. As there were no stratigraphic links, adjacent B 340 is assigned to the same period on the basis of the limited evidence of chipped stone. It had the same high proportions of stone bowl fragments and hammerstones (Table 11.4). Its smaller area yielded fewer objects than the wells, but they are the same in terms of typology and material. The only exceptional item, a piece of dentalium shell, may be intrusive (see § 4.2). Thus, it would seem that well 133 was situated near a structure and so may have been integrated into the 1B settlement comprised in part of semi-subterranean, curvilinear buildings (cf. Fig. 11.2).

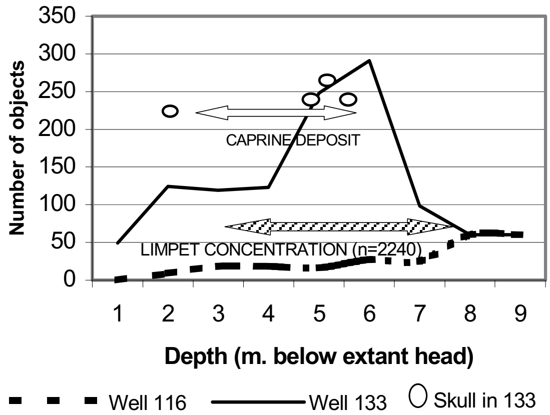


Fig. 11.4: Occurrence rate of objects in wells 116 and 133

We lack spatial relationships for the much earlier well 116, but it too was probably associated with nearby buildings. Signs of their previous existence come from fragments of constructional material in fill 124: daub lumps with a smoothed flat surface, one (S 425) with white coating as on the floor of later B 340, another with pink-tinted, unburnt surface (S 418) and several amorphous daub lumps (S 406, 415, 419). The pink coating may have been related to small nuggets of red ochre and small stones with attached red ochre which were also found in the well (S 309, 384?, 388?, 416 and 421?). Other markers of nearby occupation, arable farming and animal husbandry come from charred seeds of domestic crops, which very likely derive from hearth sweepings, and the faunal evidence. This data is consistent with the presence of a mid-later 9th millennium cal BC farming settlement with decorated timber and daub structures.

Fills of well 116: the nature of activities at Mylouthkia in the mid-later 9th millennium cal BC

There are three different discard groups (Fig. 11.3):

- basal or use deposits (191-2) with over 1000 rodent bones, mainly mouse, shrew and reptile, currently under investigation (Cucchi *et al*. 2002); part of same infant as in 124; stones as in the overlying deposits; 2 frags obsidian; hook; Mollusca; caprine and pig bones; and domesticated cereal crop seeds.
- initial infill or abandonment deposits (parts of 191 and 124 below 16.50 m asl) primarily contain expedient stone tools and 12 obsidian frags; 124 contained part of same infant as in 191.
- secondary fill deposits (114, 123-4 above 16.50 m asl) are marked by the absence of stone tools (but the continuation of chipped stone which occurs throughout) and the proliferation of Molluscs. Many thousands of limpets were found here, for example, often in nested clusters. Some 2355 of these are analysed in § 9.

Although it is likely that the many rodent bones in basal fills accumulated when the well was in use, perhaps because there was no built well-head of the type found at Shillourokambos (Guilaine *et al*. 2000b, 592, Fig. 5), it is difficult to distinguish use and abandonment deposits in the bottom two fills. The limpet abundance in the secondary fill suggests that the virtually empty shaft now became a receptacle for deliberately deposited refuse, much of it from shell-collecting. However, it would be incorrect to conclude from this that Mylouthkia was only visited at that time. Charred plant remains straddle the 16.50 m asl divide, and the richest assemblage of cereal grains, chaff and weeds comes from the top fill, 114. As these and the charcoals are probable hearth sweepings, settlement persisted at Mylouthkia after the well had ceased to yield water. Good preservation of the seeds suggests the settlement was close by and that they were deliberately dumped rather than eroded into the shaft. The well opening may even have received additional protection now since there are so few rodent bones in the upper levels. Another discovery makes clear that the community that dwelt at Mylouthkia 1A was not a specialised (landing/pioneering) party, but a breeding population. One of its offspring, a baby, was inserted with the lower fills.

Taken together, the evidence from well 116 demonstrates that Mylouthkia inhabitants were engaged in a suite of varied economic activities in the mid-later 9th millennium cal BC. They possessed a mixed agricultural economy. Wheat and barley were farmed, and the introduced caprine and pig were exploited in some manner. Fish remains occurred in almost every level, and these marine resources include horse mackerel, a fish that is found inshore in summer and can be caught with line and hook. Far from being a low preference mode of production, fishing was a traditional and important component of the subsistence economy. A fine pig tusk hook (Pl. 8.6) complements this evidence.

Table 11.4. Occurrence of objects in wells 116 and 133, Building 340 and Early Chalcolithic pit 1

Object Class/Unit	*Well 116*	*Well 133*	*Building 340*	*Pit 1**
anvil	6	8	-	2
axe	1	2	-	9
axe-grinder	1	-	-	1
bead	2	-	1	5
bowl frag (stone)	26	283	21	25
chipped stone	140	537	42	219
cupped stone	10	4	-	5
flaked tool	1	-	-	1
grooved stone	1	1	2	1
hammerstone	35	114	15	4
hammer/grinder	4	4	-	1
hook (pig tusk)	1	-	-	-
macehead	-	1	-	-
pebble grinder	-	-	-	-
pendant	1	-	-	1
perforated disc (stone)	-	1	-	-
pestle	1	-	-	2
point/needle (bone)	2	2	-	11
polisher	1	2	-	-
pounder	21	14	1	3
quern	-	-	-	3
rubber	-	-	-	1
rubbing stone	3	2	-	1
misc object	14	10	-	16
Total	271	985	82	311

* In addition in pit 1: 1 adze, 2 chisels, 12 figurines, 1 stopper, 3 hafts, 1 pick, 3 perforated stones, 23 pot discs, 5 pottery vessels, 13 worked antler and bone

In rain-fed agricultural conditions, people would have sown cereals and legumes in the autumn or early winter and harvested in the spring. Food procurement, therefore, is consistent with sedentary or semi-sedentary occupation. They obtained many types of shell from the seashore. Most limpets are smaller than normal. Reduced size points to over-exploitation at a time when we only have evidence for the beginnings of human activity in the region. Perhaps strand-loopers existed in the west prior to well use and infill, and groups were already making a significantly early environmental impact on the coastal ecosystem. Most topshells had fresh breaks indicative of *in situ* crushing for meat. Settlers probably cooked limpets since many of them were burnt. The hearth of later B 340 had many shattered stones, so likely pot boilers were discarded at point of use rather than in the well. Selective discard behaviour is also supported by the absence of obvious limpet scoops for detaching the shells or other stone tools for extracting and processing the flesh.

The >20 classes of artefacts from the initial closure of the well point to a far greater diversity of activities than this ecofactual data (Table 11.4). We can only guess at some of them, but the disproportionately high number of stone bowls, hammerstones and pounders is noteworthy since it suggests stone bowl-working, a craft that is still evident at the site nearly a millennium later. Inhabitants were also involved in transmaritime exchange networks. Unless it came as part of colonists' possessions, the presence of obsidian, ultimately from Gollü Dağ in central Anatolia, provides some idea of the extensive nature of this exchange. It is a feature of this period, one that virtually disappears by Mylouthkia 1B.

In sum, the character of ecofactual data, objects and building materials provides strong support for the inference of a settlement of Cypro-PPNB farmers and fisher folk in western Cyprus in the mid-later 9th millennium cal BC. Both wells also yielded remains of the house mouse, an introduced commensal, and one that prefers fresh refuse for most of the year (Cucchi *et al.* 2002). Its presence is used as a strong marker of permanent occupation (e.g. Bar-Yosef 2001, 6, Fig. 1). Settlers were not foragers at the geographical edge of the PPNB *koine* (cf. Bar-Yosef 2001, 25). They constituted a precocious extension of the farming socio-economic component of the PPNB world. So diverse are the well contents that Mylouthkia was clearly more than a taskscape hosting only specific activities (*contra* Peltenburg *et al.* 2001b). Settlers had timber structures, some of them painted, they exploited a diversity of terrestrial and marine staples, were mobile and informed enough about resources to obtain red ochre, cherts and exotic obsidian, and expended much labour in crafting stone bowls and securing fresh water. Indeed, the well both reflects and fostered the existence of permanent settlement in conditions where local surface sources were seasonal and precipitation variable. As a permanent fixture, it was a transmitter of cultural knowledge, a replicative device and a stabilising force on culture (cf. Donald 1998).

The proposal that Mylouthkia 1A was not an ephemeral occupation but a sedentary or semi-sedentary agricultural group means that western Cyprus likely witnessed the establishment of peoples with ideas of ownership, property and land tenure in the 9th millennium cal BC (cf. Renfrew 2001). This residential group exploited evergreen and deciduous oak (*Quercus*), and lentisk (*Pistacia*), and they sowed and harvested crops in what, according to our snail evidence, were dry, open areas. Mylouthkia 1A marks an era of localised disturbance to the ecosystem, when humans appropriated the landscape, hitherto mainly a physical reality, for a new, long-lived, socially constructed reality (cf. Tilley 1994).

Fills of well 133: the nature of activities at Mylouthkia in the late 8th millennium cal BC

There were significantly more artefacts deposited in well 133 than in 116 (Table 11.4). Their recurrence throughout fills, evidence for a major funerary deposit and the relative abundance of animal bone clearly signify different discard processes (Figs. 11.3, 11.4). Well 133 was probably deliberately decommissioned and filled.

There are two principal fills:

- Two units (332-3) in the basin below the stream channel, and probably unit 334. These silty deposits are considered as use fills, but the types and proportions of finds are roughly consistent with dominant types in succeeding fills. They comprise an anvil, bowl frags (6) and hammerstones (4). They were either pressed down into use fills or they are contemporary with use. Chipped stone numbers are also consistent by volume with overlying deposits. Mouse, amphibians and reptile were much more common in these use deposits when the well functioned as an efficient pit-fall trap. There are differences in terms of human and animal remains between these and later fills.
- Above were seven abandonment fills (329, 282, 331, 278-9, 264 and 260). Harder items occurred in a matrix of vari-coloured silts. Stones, cobbles and objects were found throughout; voids became more pronounced higher up. While discrete variations indicate different episodes, an extensive concentration of associated caprine and human deposits may be the result of a single major episode. So much meat in the well may account for the unusually high number of the snail *Cecilioides* spp. in its fill, since this snail is attracted to decaying animals and plants. Matrix variation, therefore, may not indicate chronological gaps of great magnitude. Hundreds of used ground stones occurred in the same fills as the caprine-human stack. Although they were also frequent below the stack, they were integrated with the caprine-human deposition and hence were deliberately included as part of the same burial 'event'. The synchronous deposition of ground stone was probably generated from dumps surrounding the abandoned well.

There seems little point in separating use and abandonment fills. Principal features of well 133 fill are good evidence for subsistence, disproportionately high numbers of stone vessel and hammerstone fragments and an unusual juxtaposition of human and animal bone.

Subsistence

Subsistence data (Figs. 11.3A, B and § 7) include charred seeds from four abandonment fills, animal bones from all use and abandonment fills, fish bones from one use and one abandonment fill and a negligible number of marine shells (not shown on Fig. 11.3B). There is thus a marked decline in limpets from well 116, and a notable increase in the quantity of animal bone. Deer and cat occur for the first time. Cattle, which are attested at Shillourokambos (Vigne *et al.* 1999, 2000), are absent in both Mylouthkia well fills. Horse mackerel suggest that fishing continued to play a role in the subsistence economy. The seed assemblage is very similar to that from well 116. Samples from both wells contain einkorn wheat (*Triticum monococcum*) and emmer wheat (*Triticum dicoccum*), as well as hulled barley (*Hordeum sativum*) (and associated cereal chaff - spikelet forks, glume bases, rachis internodes, culm nodes), lentils (*Lens* sp.), and large seeded legumes (e.g. *Lathyrus* sp, *Vicia* sp.). It would appear that, once established, the agricultural economy remained broadly similar for a millennium, a measure of the success of these early farmers. We may infer that this material was largely generated from a nearby agricultural settlement. This is supported by the palaeobotanical assemblage which is consistent with material that was accidentally charred in hearths and by the occurrence of burnt daub and samples of other building materials inside the well, and traces of sunken B 340 beside the well (Fig. 11.2).

In terms of discard practices, the charred seeds co-occurred with more explicit funerary evidence (see below), so we may assume that settlement waste accompanied funerary deposits while the well was open and, because of repeated instances of reptile remains, presumably unattended. Included in the non-funerary waste stream material was an abundance of ground stone objects.

Stone vessel manufacture?

Table 11.4 shows 14 classes of ground stone objects, fewer than in well 116. Classes are typologically similar to those in 116, but as they are expedient items we would not necessarily expect substantial evolution. Exceptions are the macehead (Pl. 7.4) and a pierced limestone disc (Pl. 8.4a, b) with earlier and later parallels in Cyprus and abroad (Simmons *et al*. 1999, 150-1, Fig. 6-10; Le Brun *et al*. 1981, Fig. 48.9, 11-12). The much greater total is accounted for by the second principle feature of the well assemblage, an overwhelming preponderance of stone bowl fragments and hammerstones, mainly found in fills from 15.50 to 20.30 m asl.

The stone vessel fragments (Pl. 6.1) and hammerstones (Pl. 6.2) together constitute 78% of some 448 ground stone artefacts recovered from the installation. A minimum number of 120 vessels is represented, none complete. They include fragments of large basins and smaller open and hole-mouth vessels of igneous stone and, much more commonly, chalk or limestone. Some have lugs; spouts occur rarely. In general, little typological distinction can be made between vessels from the Period 1A and Period 1B assemblages. The many hammerstones, pounders and anvils (Pl. 6.2-4) are generally crude hand-sized stones that have been modified through use.

One possible reason for the abundance of vessel fragments and hammerstones is because a dump of vessel-making tools and discard existed conveniently near the well-head. Its location here may be due to the need for fresh water in the manufacture of mainly soft stone vessels. Extensive use of nearby salt water would have resulted in salt efflorescence problems in finished products. The absence of joins, the worn state of the assemblage, evidence for working such as pecking, carving and rough grinding indicative of their unfinished state prior to fragmentation, and preliminary characterisation of the associated chipped stone are all consistent with the derivation from a dump of manufacturing debris. It is clearly not possible to separate the material from rituals attending the closure of the well and secondary burial, but it is felt that the condition of the stones outweighs arguments that we are dealing solely with rituals such as the fragmentation of objects and bodies in a social practice of creating bonds amongst the living and between them and the ancestors (cf. Chapman 2000a). As a similar concentration of tools and vessel fragments occurred in well 116, and the chipped stone also has features suitable for this craft, it seems likely that vessel-making was a major, long-lived tradition at Mylouthkia.

Further analysis of these discards is required, for example, to test the possibility that this craft was the primary *raison d'être* for the wells or if Mylouthkia was a centre of production for regional rather than site consumption. In any case, it is likely from this evidence and from the adjacent *havara* quarry for building plaster that well water was used for craft purposes in addition to the daily needs of the community.

Treatment of the dead

The majority of the well fill was carefully structured. Parts of at least two adults, an adolescent and a child were placed in two discrete locations, at 20.70 and just above 17 m asl, separated by part of a *c*. 4.25 m deep stack of caprine carcasses that extended below the lower concentration (Figs. 11.3A, 11.4). An artificially deformed skull of an adult male (Pl. 2.3) occurred above the stack of carcasses and a group of crania, long bones and other disarticulated human remains, some displaying a light degree of burning, together with a polished, pink conglomerate macehead (Pl. 7.4), near its base. In addition, scraps of human bone including more skull pieces, were found in almost all levels to the bottom of the well, where we would expect use phase material.

Although it was broken, skull 1 retained its mandible. This suggests that, unless wrapped, the skull was removed from a recently interred or exposed body which still retained soft tissue to hold at least some of the bones together at the time of its introduction to the nearly completely infilled well shaft.

The carcasses consist of 23 complete, unbutchered caprines. They include at least eight immature and one mature sheep, twelve immature and two mature goats. Carcasses lay in a heap in the central part of the well fill, whereas the human skulls occurred at the periphery of the fills.

When found in wells, it is usually assumed that bodies have been unceremoniously dumped inside and archaeologists do not comment, or they may refer to sacrifices and the sacred role of wells, or cite special circumstances such as means of rapid disposal, a signal to remnants of the defeated and in order to foul the water source. The patterned deposition in well 133, however, demonstrates that casual dumping will not suffice in this case. First are the associations: the unique reddish macehead with the group of crania, and the concentration of caprine carcasses. Second is the selection of body parts. Clearly, these are secondary burials in which certain body parts have been chosen for inclusion. This is especially evident in the disposal of the skull near the top of the fill. Third is the distribution. Skulls occur at the periphery of the fills, rather than in the centre like the caprines. They may have been dropped, of course, and then rolled to the edges, but the good condition of skull 1 favours more careful placement. Thus, multiple secondary burial rites are evident here rather than perfunctory dumping of bodies or the inhumation of individuals who were then cleared aside to make room for new insertions as so often happened in communal burials.

The intentional interment of secondary burials, macehead and whole animals, while remarkable, may be an elaborate instance of an early prehistoric Cypriot custom of depositing at least some of the dead in disused well shafts. The earliest example is the child from well 116 (above). Then we have a communal burial of some 30 individuals in disused well 23 at Shillourokambos (Crubézy in press). In this instance, parts of wild and domestic animals, including deer, pig skulls and caprine extremities, accompanied the human skeletal remains (Guilaine *et al*. 2000b, 590). Partial and sometimes manipulated animals were frequently interred with humans, but the Mylouthkia caprines were not butchered for consumption in a funerary feast, they were simply buried in an exhibition of sumptuous depletion of food resources during funerary rituals. Using as many animals as possible to sacrifice at funerals is symptomatic of behaviour often connected with elites, a categorisation supported by the inclusion of the unique pink macehead, but we have little evidence for social organisation at a time when more group-oriented society was more likely. Since the animals were complete but humans incomplete, the caprines were probably slain at the time of secondary burial and not obtained together with fragmentary human remains from primary or other contexts.

Burying or re-burying the dead deeply underground was a recurrent phenomenon in human history. As early as some 300,000 years ago about 32 individuals were purposefully disposed of in one of the Atapuerca caves (Parker Pearson 1999, 153). And Ross (1968) provides ample evidence for the sanctity and healing properties of wells in later prehistoric Europe, with many containing human remains, especially skulls. While this reminds us of non-functional aspects of wells and their fills, the Mylouthkia well 133 formal deposition with post-mortem skull removal may best be treated in the context of immediately earlier, mainland traditions. There, headless bodies and detached skulls are often associated with a selection of animal bones. At Kfar HaHoresh, decapitated bodies overlay a pit with some 200 auroch bones (Goring-Morris 2000). However, there is simply not enough evidence to infer that similar funerary traditions involving ancestor cults existed in both regions. Nonetheless, one suggestive detail, the caching of skulls in well 133, was a feature of mainland practices. Kuijt (2000b) argues that members of such recurrent caches come from a single social unit (e.g. household). If we treat skulls 1-4 and the caprine carcasses as one interment event, then the small unit here comprises two adults and two children with, at the top, an adult male (skull 1) who was distinguished by head-shaping. It should be noted that only this final interment was a skull burial; the others are crania. So, he is distinguished in several ways from the lower group which comprise more straightforward secondary burials.

We have not found later, aceramic Neolithic traces at Mylouthkia; hence, in terms of settlement history, it is possible that these well rites were related to settlement (or house?) abandonment behaviour. Occupants may have moved inland where the closest site, which also yielded large numbers of chalk bowls, occurs at Kissonerga almost a thousand years later (*LAP* II.1A, 12-16, 179-80). People at Ais Yiorkis, much further inland, had cattle and so they may have had different affiliations (Simmons 1998b). In this reconstruction, the well bodies are a result of the desire to dispose of skulls and other parts of recently deceased safely outside houses about to be deserted, or taken from recent graves, perhaps to prevent others from obtaining power over the community and its ancestors. Maceheads after all could indicate more conflict between Neolithic Cypriot communities than is commonly admitted. Examples of earlier mainland occurrences of the practice of removal of body parts upon house desertion come from Qermez Dere, where there were six detached crania in the abandonment fill of a building, and Jerf el Ahmar, where a headless body was found on the floor of deliberately destroyed PPNA structure 30 (Watkins 1989-90, 341; Stordeur 1999). These and other instances of eastern antecedents for features at Mylouthkia raise questions about the origins of its inhabitants.

§ 11.3 Where did the Mylouthkia settlers come from?

There is, of course, no simple answer to such a deceptively over-simplified question, but as they were amongst the first settlers in Cyprus and the first farmers in the world, an attempt should be made to indicate likely scenarios. Because Mylouthkia 1A is so early, and insular sites of that time possess so many affinities with those in Syro-Anatolia, the question bears upon many aspects of the transition to agriculture and farming dispersals, topics of accelerated research today (e.g. Bender 1978, Price and Gebauer 1995, Harris 1996, Smith 1998; Bar-Yosef 2001, Richerson *et al*. 2001). Three totalising models are frequently used to account for the appearance of agricultural communities: independent invention (by complex hunter-gatherers), stimulus diffusion (adaptation by native foragers) and demic diffusion (migration of farmers). In European archaeology, archaeologists have fruitfully considered wave of advance models (e.g. Renfrew 2000) and interactions between foragers and farmers, that is mosaic models in which there were farmer enclaves in hunter-gatherer territories (Van Andel and Runnels 1995; Price 2000; Zvelebil 2000). To assess these reconstructions requires details of pre-existing foragers, but in Cyprus we have an unhelpfully long evidential gap, perhaps a millennium, for occupation on the island between the desertion of Akrotiri and the appearance of Mylouthkia 1A (Table 11.3). If the very belated discovery of pre-Khirokitian sites has taught us anything, however, it is that we should not presume that the island was uninhabited then.

There are three general possibilities we might consider in seeking to elucidate the origins of the 9th millennium cal BC farmers in Cyprus.

1) Islanders

They were people whose ancestors had already colonised the island some time ago and had independently discovered a more-or-less settled way of life and agriculture. The process undoubtedly involved stocking the island with potential domesticates and other foodstocks as well as luxuries (e.g. plants for perfumes, foxes for furs). This process of intensification of food procurement, therefore, was one of interaction: it was not, nor could it be, carried out in isolation. In this case, independence means that islanders took the initiative to enhance their subsistence requirements from abroad and to engage in the complex business of domestication. The important point is that, in the give-and-take of these developments, islanders would have comprised a distinctive component of a mainland – island interaction sphere. They would have been economically and culturally part of a world in which many groups were actively engaged in the pristine Neolithic Revolution, a situation that differentiates Cyprus from Neolithic dispersals in Europe and other Mediterranean islands later. The special feature of this scenario is that islanders pro-actively appropriated potential domesticates and other species by translocating them across the sea. Even with close mainland contacts, islanders' material culture and ideology are likely to have diverged from those on the mainland.

2) Islanders and newcomers

They were a combination of native foragers and more recent arrivals of peoples who had begun to adopt sedentary ways of life with cultivation and incipient animal husbandry. The foragers themselves may already have started to adopt these new ways, as in 1). In such a fluid mixture, we are dealing with a continuous process in which there were people from an initial colonisation and those from booster colonisations, each at different levels or degrees of sedentism. If there were some resident groups who preferred foraging, the situation might be more like that in parts of Europe where contact between hunter-gatherers and foragers led to forager replacement, integration or marginalisation (cf. Zvelebil 2000). In the case of Cyprus, the mixture may have resulted from the assimilation of foragers who might be expected to have introduced cultural and other aspects of their previous existence. It is, of course, also possible that foragers absorbed farmers, thus creating a different balance. As in 1), this scenario presumes interaction between the island and mainland where there were overriding trajectories towards farming, so the circumstances here are different than in Europe. We might expect a greater or lesser degree of hunter-gatherer material culture and lifeways in this mixed scenario.

3) Farmer colonists

They were exclusively recent farming arrivals who utilised information from earlier visitors or other recent agro-pastoralist colonists elsewhere on the island. This possibility assumes that the landscape was either largely devoid of humans or sparsely occupied by foragers. In this case, we would be dealing with more of an event than the protracted transformations outlined in 1) and 2). By event is meant a series of population movements over a more circumscribed period of time. Its upper limits would be defined by the time that domesticated plants found in 9th millennium cal BC Mylouthkia had originally been domesticated. Current research (see below) suggests that this may have been during PPNA times.

These three possibilities essentially involve some of the most important transitions in human prehistory, the changes to sedentism and agriculture. Considerable research has been carried out on the emergence of the new lifestyles, and so the possibilities are best treated according to models of the origins and spread of agriculture.

Independent invention

Although some have questioned the relationship between humans and the pygmy hippopotamus bones at Akrotiri (most recently, Binford 2000), it seems likely that transient hunter - gatherers existed on the island at least a millennium before Mylouthkia 1A. An indigenist model, therefore, in which hunter-gatherers developed farming is a possibility. Long-term survival of such groups would have required populations of over 300-400 occupying different ecozones. The evidence for these people, however, is still limited to one site, the Akrotiri rockshelter. Simmons assumed that once the Akrotirians had exhausted the island's megafauna, they perhaps lingered to exploit bird and shellfish, but then abandoned Cyprus (Simmons *et al*. 1999, 323). Recently, he wondered if they could have been the founder population for the island's farming communities (Simmons 2001, 14).

In the absence of megafauna on the island, they would have had to import such animals to develop animal husbandry. Reports of deer from Akrotiri might have supported this reconstruction, but they have been re-attributed to intrusive *Sus scrofa* (Vigne *et al*. 1999, 51). If Held (1992, 134) is correct in his assumption that Persian fallow deer were naturally transplanted to Cyprus in postglacial times, they would have constituted what was later a prized insular resource. Wild barley existed on the island so it could have been domesticated locally (Willcox 2001, 134). Other founder crops, however, together with relevant farming techniques, would have had to be imported from continental farmers. In this case it is likely that foragers were engaged with farming developments on the mainland. Since many suitable plants for cultivation and of animals to domesticate were unavailable on Cyprus, it remains unlikely that we are dealing with a case of pristine development. In other words, the trajectory to agriculture was one of participation rather than total independence.

Putative Akrotirian successors, therefore, may have regularly visited the mainland, or exploited their island territory by visits from the mainland. But there are no signs then or in the Cypro-EPPNB that there were such numbers as to form complex hunter-gatherer societies with incentives to develop agriculture in the manner of cultivators in the Levant and SE Anatolia. While an antecedent hypothesis needs to be tested by the investigation of flint scatter sites left by more mobile groups, the impoverished island ecology makes it unlikely that these foragers were exclusively the ancestors of the occupants of Mylouthkia and other sites of the Cypro-EPPNB. The fact that the Akrotirians procured picrolite and used grooved stones and disks like their Cypro-PPNB successors in Cyprus is, by itself, insufficient to posit the existence of residual populations (Simmons *et al*. 1999, 147-51; Guilaine *et al*. 2000b; Şevketoğlu 2000; cf. Pls. 7.1, 2 and 8.4 here).

Alternatively, other mainland foragers with clearer links to cultivators of the PPNA, as suggested by traits within Cypro-PPNB chipped stone (McCartney forthcoming) and architecture (Peltenburg forthcoming), may have deliberately stocked the island with game, settled and, for reasons of economic advantage, status, or others, eagerly adopted farming. Again, this is not so much independent invention as adaptive responses to insular circumstances. Bar-Yosef and Meadow (1995, Fig. 3.4; Bar-Yosef 2001, 23, Fig. 5) may have such a scenario in mind when they depict the movement of sedentary hunter-gatherers from Anatolia to Cyprus. In this case, expansion, often attributed to the effects of farming, was already in train amongst hunter-gatherers, and the whole process may be regarded as one of intensification. Farming lifeways may simply have accentuated a pre-existing population dispersal trend on and beyond the mainland, one that may have been linked, for example, with strategies of mobility in response to the effects of the Younger Dryas.

Table 11.5. Selected parallels between the Cypro-PPNB and Syro-Anatolia. For chipped stone, see § 2.

	CYPRUS	*SYRO-ANATOLIA*
Architecture		
hierarchical plan	Tenta 'top of site', Cypro-M?/LPPNB (Todd 1987, Fig. 20)	Jerf el Ahmar, PPNA (Stordeur *et al*. 2000, 41, Fig. 12)
pit building	Mylouthkia 1B, Cypro-LPPNB (Pl. 2.5-6)	Abu Hureyra 1 (Moore *et al*. 2000, 112-122)
circular building	Shillourokambos: Cypro-EPPNB (Guilaine and Briois 2001, 41); Cypro-MPPNB (Guilaine *et al*. 2000b, 590), Akanthou (Şevketoğlu 2001, 10)	Jerf el Ahmar, PPNA (Stordeur *et al*. 2000, 33, Fig. 5)
circular pillar building	Tenta 'top of site', Cypro-M?/LPPNB (Todd 1987, Fig. 20)	Göbekli (Beile-Bohn 1998, 48, Fig. 20)
circular radial building	Tenta 'top of site', Cypro-M?/LPPNB (Todd 1987, Fig. 20)	Jerf el Ahmar, PPNA (Stordeur *et al*. 2000)
mudbrick	Tenta Str 17 and 36, Cypro-M?/LPPNB	Abu Hureyra 2 (Moore *et al*. 2000, 191-2, 478)
decorated pillar	Tenta (Todd 1987, Fig. 39)	Göbekli (Schmidt 1999)
red coloured floor	Tenta (Todd 1987, 45)	Abu Hureyra 2 (Moore *et al*. 2000, 194)
settlement enclosure wall	Tenta (Todd 1987, 53-60)	Halula LPPNB (Molist 1998a, 124, Fig. 9)
Ground stone		
macehead	Mylouthkia 1B, Cypro-LPPNB (Pl. 7.4)	Hallan Çemi (Rosenberg 1999, Fig 12)
grooved stone	Mylouthkia 1A, Cypro-EPPNB (Pl. 7.2)	Çayönü (Davis 1982, Fig. 3.12.2)
stone disc	Mylouthkia 1B, Cypro-LPPNB (Pl. 8.4a,b)	Abu Hureyra 1 (Moore *et al*. 2000, 175, Fig. 7.13c-e)
hammerstones	Mylouthkia 1A-B, Cypro-PPNB (Pl. 6.2)	Abu Hureyra 1 (Moore *et al*. 2000, 172, Fig. 7.8)
notched pebble	Mylouthkia, 1B, Cypro-LPPNB (Pl. 7.3, Fig. 46.7)	Abu Hureyra 1 (Moore *et al*. 2000, 174, Fig. 7.14)
"baton"	Shillourokambos: "small stone shaft with a rounded end encircled by a groove" (Guilaine and Briois 2001, 51)	Mureybit (Cauvin 2000, 49, Fig 20.1); Abu Hureyra 1 (Moore *et al*. 2000, 177-9, Fig. 7.16a)
Representational art		
feline, cf. Lion?	Shillourokambos Early Phase A (Guilaine and Briois 2001, 51, Fig. 9)	Jerf el Ahmar, PPNA (Jamous and Stordeur 1999, 64, Fig. 6.3)
anthropomorphic sculpture	Shillourokambos, Cypro-E/MPPNB (Guilaine and Briois 2001, 51, 'plaster' head); Guilaine *et al*. 2000b, Fig. 8	cf. extensive use of plaster, e.g. on skulls
anthropomorphic painting	Tenta: Todd 1987, Fig. 39	Halula MPPNB (Molist 1998b)
Incised stones		
misc. markings	Shillourokambos incised pebbles (Guilaine *et al*. 1998,37)	Jerf el Ahmar, PPNA (Jamous and Stordeur 1999, 64, Fig. 6.5,6)
hatching	Shillourokambos, Cypro-PPNB (Guilaine *et al*. 2000b, Figs. 1,7); Akanthou (Şevketoğlu 2000)	Abu Hureyra 1 (Moore *et al*. 2000, 174, fig. 7.12)

Acculturation processes

In this model, different forms of contact take place between foragers and farmers, and as Zvelebil (2000) describes, these lead to replacement, or integration and other kinds of forager survival. Where they adopt agriculture, they may do so in several ways. Members may join farming communities and through assimilation introduce aspects of forager culture to those groups. They may remain separate and adopt a farming way of life while retaining some aspects of hunter-gatherer traditions. Or, they may acquire selected farming practices and retain significant elements of hunter-gatherer existence, thus producing hybrid cultural traditions. In these and other possibilities, traits of the hunter-gatherer cultures persist in the new formulations.

To assess acculturation, we need to define something of the character of native hunter-gatherers. The Akrotiri rockshelter does not provide much assistance, unfortunately, as it has such a limited, and temporally remote assemblage. In any case, Akrotiri may be unrepresentative as it was a functionally specialised site. On the other hand, one of the most striking features of the Cypro-PPNB is the presence of so many traits of Syro-Anatolian farming cultures (see below). Of course, not all traits can be ascribed to that region. So, the difficulty remains of disentangling putative native hunter-gatherer contributions from adaptations by farmer colonists to their new environment.

In addressing acculturation processes, it is assumed that island foragers adopted agriculture from incoming continental farmers. Above, the question was approached from the perspective of hunter-gatherers taking initiatives across the sea. There may have been mixtures of both, and so the distinction between independent invention and adoption may be over-simplistic. In general, however, it may be noted that the poor quality of native subsistence resources provided a circumscribed biodiversity that would not have been attractive to foragers or supported intensive occupation (cf. Held 1992, 121). For many scholars, it remains likely that agriculture was introduced by Neolithic mainlanders (e.g. Vigne *et al.* 1999).

Migration of farmers

Another approach to the question of origins of these settlers builds on arguments for rapid population increase in farming homelands and an expansive ideology (e.g. Harris 1996; Cauvin 2000; Bellwood 2001). According to this model, soon after the Younger Dryas sea-borne mainlanders with their domesticated seed stocks, domestic and wild animals, inadvertent baggage like Mylouthkia's house mouse (Cucchi *et al. 2002*), farming technology and developed sedentary lifestyle colonised the island. As Bar-Yosef and Meadow (1995, 81) state, "when farmers move into a new territory they will carry with them seed stocks, domesticated animals, basic building preferences and lithic technologies".

The multiple, close parallels in subsistence, technology, settlement organisation, ideological indicators, and participation in the PPNB interaction sphere are best interpreted as evidence for the presence of mainland farmers who emigrated to the island. Table 11.5 lists a selection of the close analogies of Cypro-PPNB architecture, ground stone and figurative work with specifically earlier instances in Syro-Anatolia. Other material similarities include chipped stone types (§ 2) and worked antler (Stordeur in press). Many of these are not simply material remains that have diffused beyond the hands of their creators. They incorporate expertise (e.g. naviform technology), social organisation (cf. architecture) and ideology (cf. art) that show little signs of adjustment to hypothetical indigenous cultural realities.

Modifications, like the use of opaque cherts, do occur, but these appear later, a consequence of local adaptations and a growing insular identity. The chronology, therefore, fits a colonising pattern since the parallels are most diverse and intense in the earliest periods, that is in the Cypro-EPPNB and early MPPNB. In addition to the artefactual correlations of Table 11.5, there are all the faunal and floral species which were translocated from Syro-Anatolia. As Willcox (in press) argues, the cereal assemblage was very similar to that in Syro-Anatolia, so as in the case of artefacts, farming shows few signs of selections from a continental suite in order to fit the social and other needs of indigenes. Although these traditions and artefacts are only proxies for people (cf. Price 2000), the convergence of evidence lends support to the colonising model.

Possible origins of colonist farmers

Table 11.5 demonstrates that a wide array of connections are overwhelmingly with inland Syro-Anatolia, specifically the Middle-Upper Euphrates basin of the Levantine Corridor. These might be epitomised by our mid-later 9th millennium cal BC single-grained einkorn since DNA studies, supported by archaeobotanical distributions, indicate that it was domesticated in SE Anatolia (Heun *et al.* 1997). Its occurrence there is hardly earlier than in Cyprus, but this may be the result of a very poor database (Peltenburg *et al.* 2001a) or the extreme rapidity of agricultural spread in appropriate environments (Bellwood 2001). SE Anatolia is also the region that has yielded the same combination of cereals which make up the Cypriot assemblage, and the one proposed as the core area for the development of agriculture (Lev-Yadun *et al.* 2000).

Not all 9th millennium cal BC evidence from Cyprus points to that inland region. Fallow deer, which form such an integral part of the Cypriot faunal assemblage, are virtually absent from Euphratean sites. They were probably more common in the woodlands to the west. Other evidence indicates that settlers in Cyprus also had relations with central Anatolia. It consists of obsidian from Gollü Dağ, which in well 116 amounts to a high 12% of the assemblage, and chipped stone traditions at other sites (McCartney forthcoming). These features point to links with other parts of Anatolia, perhaps via the Cilician Plain where we have unfortunately lost one of the most extensive coastlands in the East Mediterranean (cf. Vigne *et al.* 1999, 55-6; Bar-Yosef 2001, 23, Fig. 5; Van Andel 1989). The suggestion receives some support from the wealth of Cypro-PPNB remains, including much Anatolian obsidian, on the shore opposite Cilicia, at Akanthou (Şevketoğlu 2000).

Despite the many clear archaeological links with inland Syro-Anatolian areas, it is unlikely that farmers from that area migrated *c.* 200 km over wooded terrain and then a minimum of 60 km across the Klidhes straits from the Cilician palaeoplain, or 80+ km from the area of Ras Ibn Hani to Cyprus (Held 1992, 159, Fig. 3). They would not have had the necessary boat technology, maritime travel expertise and knowledge of their target to establish permanent bases on the island. The dynamics of island colonisation in this case imply the existence of indigenous PPN coastal agro-pastoralists habituated to overseas enterprises and aware of the arable potentials of Cyprus. Akrotiri shows that their predecessors visited Cyprus when lower sea levels created stepping-stone islets in the Klidhes strait. In other words, reduced distances facilitated the formation of a history of sea-crossings and the transmission of enduring information, much as Broodbank (2000, 116-7) argues for the pre-Neolithic Aegean. Their successors in this area were probably part of the PPNA-B interaction sphere. Coastal products like Mediterranean shells reached Hallan Çemi (Rosenberg *et al.* 1998, 31) and Abu Hureyra (Moore *et al.* 2000, 166, Fig. 7.1), evidence of inter-regional exchange links with the Euphrates Valley and further east. In contrast to Guilaine *et al.* (2000a), who maintain that the earliest farmers in Cyprus were derived from PPNB cultures in Upper/Middle Euphrates valley, it is suggested that the Cypro-PPNB at least partly evolved from as yet undetected W. Syria/S. Anatolian populations. The similarities with inland regions are due to the widespread distribution of the PPNB and our enhanced knowledge of sites in the Euphrates valley.

The quest for parent zones in the intervening area, and especially along the coasts, is bedevilled by lack of survey/excavation and the effects of marine transgression. Copeland (1981) demonstrated the existence of PPNA sites between the Levantine Corridor and the Mediterranean, for example at Tell Qaramel just north of Aleppo, and Mazurowski (pers comm) has recently shown how rich such a settlement may be. Their evidence will be important in determining whether transitions to agriculture in the intermediate zone occurred as early as in the Levantine Corridor, and if the wild progenitors of domesticates, like the sheep that disliked the assumed dense vegetation of coastal zones, existed there (cf. Uerpmann 1987, 127). Assuming that they did exist along the palaeocoasts, what impelled them to colonise instead of visit the island?

One recurrent motive adduced for colonising is the exploitation of rare and valuable resources. Willcox (in press) draws attention to the rich array of fruit trees on the island, but this is to argue retrospectively since we cannot be sure they existed there beforehand. In fact, with the disappearance of the late Pleistocene dwarfed megafauna, the Akrotiri sequence points to an impoverishment of subsistence resources, not a plenitude of foodstuffs (Simmons *et al.* 1999, 323-3). Islands, of course, are often renowned as centres for fishing expeditions, yet the coastal Akrotiri rockshelter which might be expected to provide evidence of fishing yielded only one fish bone. Inhabitants of the latest levels had turned more and more to the meagre supply of meat from birds. The site may well be anomalous, but in the absence of other sites and evidence for distinctive exports from the island in pre-colonising times, we should consider other possible triggers for colonisation.

Early Holocene East Mediterranean shorelines were generally much lower than today (Van Andel 1989; Cherry 1990, 192-4; Gomez and Pease 1992). Marine transgression has altered coastlines appreciably, with the result that mainland and islands are further apart today and we have lost extensive coastal tracts. That settlements along the diminishing littoral had to be abandoned during this period because of inundation of their territories is confirmed by the remarkable PPNC site of Atlit Yam, now *c.* 8-10 m under water (Galili *et al.* 1993). Neolithic communities along a submerged Levantine coastal platform from 2 to 40 km wide, therefore, suffered gradual or, depending on locus, abrupt impoverishment of subsistence resources and ecological stress. Migration inland, where there were likely to have been other groups, would have entailed loss of territory, possible conflict, community fission or major changes in subsistence strategies. The alternative, namely targeted colonisation of a known but sparsely or sporadically populated large offshore island, may have proved attractive in this situation.

To sum up, it was the subsistence benefits of the agro-pastoral package that enabled mainland farmers with knowledge of the island and its restricted endemic subsistence resources to successfully colonise it. Since marine transgression affected the entire mainland coast, displaced groups with differing PPNA/B traditions, origins and alliances may have made their way to the island. These extensive rather than focal origins, and adaptive processes in the consolidation phase of colonisation, account for some of its material culture heterogeneity, for example in the island's chipped stone assemblages (§ 2.8 and McCartney forthcoming). It seems less likely that successful colonisation came about exclusively as a result of possibility 1, outlined above. Had this been the case, we would have expected more autonomous cultural material in 9th millennium cal BC sites.

§ 11.4 Island colonisation

The discovery of such early pre-Khirokitian farmers on Cyprus significantly alters the picture of the island's colonisation as drawn for us by Cherry (1990) and especially by Held (1989, 1992). The awkward pre-Khirokitian gap to which they refer is now filled by details of 9th-8th millennium communities with little resemblance to the Akrotirians and close affinities to PPNA-B groups in Syro-Anatolia. While a case was made above for ecological stress as a trigger for population dispersal to the island, migration studies convincingly point to the need to evaluate major movements of people as episodes within a long lasting process, ones embedded in the ideologies of homelands (e.g. Anthony 1997, Burmeister 2000, Gamble 1993). In the Pacific, where island colonisation research has had a long history, voyaging ideologies are recognised as having played a dominating role, but this ideology may not have counted for much in the Levant. The situation is also quite different in the Cyclades where Broodbank (2000, 129-43) cogently argues that the configuration of the many islands and the mainland led to ideologies of expansion (cf. Irwin's 'nurseries') and to colonisation. It is important, therefore, to consider the social context of the colonisation of Cyprus. In the current absence of secure information about colonists' parent communities, this can only be addressed in a general manner.

As mentioned above, the growth of agriculture on the adjacent mainland undoubtedly led to population increase. Many have felt that demographic pressure, perhaps as local pulses, led to outward migration. In the Near East, the LPPNB saw a proliferation of settlements and the emergence of large sites, features which have been regarded as incentives to population dispersal, indeed an exodus, from the Levantine Corridor at this time (e.g Cauvin 2000, 137-206; Byrd 1992). But this is much too late to account for the EPPNB appearance of farmers in Cyprus, even allowing for the unlikely construct of demographic explosion. Cauvin himself did not believe in it, preferring to argue that the Neolithic Revolution wrought considerable psychological changes amongst nascent farmers, ones that resulted in an expansionist ideology (Cauvin 2000, 200-205). Viewed as too "messianic" (Hodder 2001), others have speculated that sedentism, and particularly agriculture, promoted new ideas of prestige and trade, perhaps with competitive feasting (cf. Hayden 1990). Sedentary groups claimed ownership of land and resources in such a way that the extension of territory became a means of prestige enhancement. In general, the new ideology concerned acquisition of social control and power, and so any strategy, including migration, should be considered at this juncture of human development (Mithen 1998, 255-6). Colonisation, therefore, might be associated with changes in homeland ideology (cf. Gamble 1993, 234).

Prestige is one of the 'push' factors considered by Anthony (1997) as an incentive for migration. His examples refer to individuals and groups who are denied opportunities for advancement at home and who seek to improve their status by migration. It is difficult to evaluate the role of prestige when we know so little of the parent communities. Apart from the acquisition of land *per se*, we have seen there were no outstanding resources in Cyprus that may have attracted potential colonists. Distinctively Cypriot materials like picrolite have not been found on mainland sites as evidence of sought-after resources and commodity exchange. There may have been some organic products like the rich array of wild fruits which were desirable (Willcox in press), but more needs to be learnt of homeland species before we can assess desirable organics as economic motives for colonisation. In the present state of research, it seems likely that factors impinging on decision-making included capability in transmaritime ventures, eco-system stress due to massive marine transgression and knowledge of the target.

A central tenet of most migration studies is that migrants had pre-existing knowledge of their goal, usually supplied by advance scouts who collected information on social conditions and resource potentials, and who relayed this back to possible migrants (e.g. Anthony 1997). Such background information was a prerequisite for well organised, purposive colonisation. Thus, it is likely that the successful Cypro-EPPNB colonists or their predecessors relied on an existing information network.

Information could have been supplied by such impermanent occupants as those at Akrotiri. In D. Schwartz's (1970) 4-stage model of successful colonisation, Akrotirians comprise the first, exploration, while Mylouthkia 1A represents the second, settlement. Applying a modified version of Schwartz' useful framework (Table 11.6) allows us to envisage island colonisation as a protracted episode in a continuum of contacts with the island, but one which was qualitatively different from earlier utilisation since greater control of subsistence resources permitted permanent occupation.

The line between stages 1 and 2, exploration and colonisation, may be more blurred than in this stadial model since it is likely that we are dealing with a lengthy process of Neolithisation in which wild foodstuffs and potential domesticates were brought over with several re-introductions, replenishments and, like the cattle later on, failures. In other words, while we now have a rough chronological outline for the rate of transition from discovery to colonisation to establishment in Graves and Addison's (1995) Model 2 for settlement of an island, the processes in these stages need to be teased out. Investigation of particular strategies for sustained island settlement, like Vigne's assessment of the faunal record, are required to appreciate colonisation, adaptation and consolidation processes (Vigne *et al.* 2000). In this view, colonisation was not a single migratory event, but an evolution of semi-permanent users increasingly becoming settled. Additionally, we should recognise that mainland coastal communities related to those users and facing reduced circumstances may have made fateful decisions to migrate to Cyprus. This could have involved individuals or families joining kin or other relations on the island, but they were probably embedded in corporate groups, and hence large parts of communities moved *en bloc*. As Kopytoff (1987) found in African tribal societies, population movement to frontier areas involved the gathering of the broadest possible group of kin. In our case, this critical mass was also necessary to ensure success in stabilising island communities.

Table 11.6. Stages in the colonisation of Cyprus

Stage	*Dates BP*	*Dates cal BC*	*Colonisation stages*
Akrotiri	10,665*	9,703*	**Exploration:** Transient forager visitors
?	*c.* 9,700	*c.* 8,700	**Colonisation?** First agro-pastoral or forager settlers
Cypro-EPPNB	?-9,100	?-8,200	**Colonisation:** Early agro-pastoral settlers
Cypro-MPPNB	9,100-8,500	8,100-7,500	**Consolidation:** contact with mainland
Cypro-LPPNB	8500-8000	7,500-7,000	**Expansion:** less external contact
Khirokitian	8,000-6,500	7,000/6,500-5800/5500	**Florescence** of Aceramic Neolithic

* average of a large number of dates (Simmons *et al.* 1999)

Broodbank and Strasser (1991) provide a speculative model of a single venture, and more recently, Broodbank (2000, 108) proposes that laden canoes in the Aegean could manage no more than two days and a night at sea, or about 50-60 km. This is the minimum required transit from the mainland to Cyprus. We do not know the type of boats that plied Levantine coastal waters in the PPNB, but the point to emphasize here is that in the context of intense interaction in the PPNB, it is unlikely that colonisation consisted only of a single event with a Noah's arc of faunal introductions. Thus, the process was probably varied, with different population origins implied by the diverse knapping technologies in a hybrid industry (McCartney forthcoming), and it included substantial influx events. Mylouthkia 1A and other sites indicate that colonisation was well under way by the mid-later 9th millennium cal BC. The most likely types of migration were local, that is within the regional environment, chain migration in which migrants joined kin in unfamiliar country to reside there, and coerced, whereby environmental change prompted displacement decisions.

One implication of the treatment of colonisation as a punctuated, long-term episode concerns routes. Held (1992, 136) suggests paths that led from eastern landfalls gradually along the coasts and across the Kyrenia range inland to the lower river valleys of the south. This intuitive pattern fails to take into account the social matrix in which decisions for re-location are made, both in homelands and Cyprus, let alone the vagaries of winds and currents. Pre-existing knowledge of the island and kin or other relations on it rather suggests that Cyprus was an integrated part of the cognitive maps of mainland coastal dwellers. This would have resulted in decisions for migration based on targeting specific locales for social, economic or other reasons, that is historically contingent routes rather than a single linear and sequential colonising pattern. The agro-pastoral site of Mylouthkia 1A, as far away from putative northern and eastern landfalls as one can get, has 9th millennium cal BC AMS dates that hint at leapfrogging colonisation in which newcomers consciously selected optimal niches.

Lastly, migrations to Cyprus should not be construed as the first step in the formation of a maritime voyaging ideology that led to further colonisation of the Mediterranean. Later expansion into the Aegean seems unconnected and no doubt involved a regional interaction sphere with a long history of island-hopping contacts (Broodbank 2000, 111, 115-7). Mediterranean island colonisation, therefore, was not part of an inevitable expansive disposition from the early PPN but was a consequence of local circumstances and decisions (cf. Bowdler 1995). Thus, the evidence from Cyprus suggests that the mechanisms of Neolithic dispersals need to be resolved empirically in terms of the patterns of regional and local development rather than by the application of totalising models.

§ 11.5 The evolution of the Khirokitian

Prevailing models of successful island colonisation predict that a phase of initial settlement leads to niche or habitat shifts, rapid adaptation and consolidation (e.g. Keagen and Diamond 1987). The adaptive stage is one of societal restructuring in which populations adjusted to new environments and were subject to founder effects in which only certain facets of the parent body are retained by the fraction of the parent that migrated. As a consequence, donor groups and migrant offspring rapidly diverged, and homeland characteristics were speedily lost, making it difficult for archaeologists to establish links by trait analysis.

This problem is evident in earlier researches on the genesis of the fully-fledged Khirokitian. Two hypotheses were developed to account for the lack of convincing analogies abroad for these farmers. A colonising hypothesis assumed that the Khirokitians were indeed the earliest settlers, and it posited dual colonising processes to account for the unique character of the Khirokitian: accelerated changes consequent upon colonisation from the mainland, a concept akin to evolutionists' allopatric speciation, and an elaboration of traits (Stanley Price 1977). Well before that proposal, Dikaios had suggested that a phase antedating Khirokitia would be found in Cyprus, and this became known as the antecedent hypothesis (Dikaios 1962, 193; Watkins 1973).

Now that ^{14}C dates confirm a long sequence of human occupation on the island prior to the Khirokitian, we need to assess how precursors relate to that group

(Fig. 11.1). Antecedence, after all, does not necessarily equate with origins. And even if the genesis of the Khirokitian does prove to lie within the Cypro-EPPNB, we still need to account for the emergence of such a *sui generis* culture; if, for example, it was the result of isolation, or booster immigration. Mylouthkia 1A and B provide only a fraction of that evidence. Any consideration needs to take account of other sites of the period, and because they are only partly published, such an assessment must be regarded as highly provisional (Table 11.3).

From the Cypro-PPNB to the Khirokitian

That the Cypro-PPNB contributed profoundly to the formation of the Khirokitian is evident from a wide spectrum of practices. Some are briefly outlined below. Eventually, these will need to be evaluated in detail, diachronically and regionally, to assess the nature of the evolution. The current state of research permits a tentative general view, one framed by the radiocarbon chronology that points to uninterrupted occupation on the island from the Cypro-EPPNB to the classic Khirokitian.

Technology. Chipped stone will probably provide the most detailed insights into developments leading to the Khirokitian. It is already clear that the skilled Levantine naviform reduction process and preference for high quality translucent cherts were largely replaced in Mylouthkia 1B by the use of unidirectional core technology and opaque cherts. These later features of Cypro-LPPNB assemblages and diagnostic tool types continue into the Khirokitian. The decline in use of arrowheads and obsidian reflects increasing marginalisation of Cyprus within the PPNB interaction sphere and practical responses to local requirements within small-scale agricultural communities. However, overseas contacts were maintained as is clear from continued access to obsidian and carnelian in the Khirokitian, and in general terms from parallel changes with post-EPPNB chipped stone assemblages outlined above (§2.8).

The Khirokitian is well known for its ground stone industry, and especially for its flourishing stone vessel production. This highly distinctive characteristic was already a feature of Mylouthkia 1A (Table 11.4), one that increased in elaboration during the course of the Cypro-PPNB. Specific examples underlining continuity of style with the Khirokitian include the diabase grooved bowl of Pl. 7.6 (cf. Dikaios 1953, Fig. 134.692), bridge-spouts with attached perforated lugs (Pl. 7.5; cf. Dikaios 1953, Pl. 114.928, 1394-5) and notched stones (Pl. 7.3), later adapted as schematised figurines (cf. Dikaios 1953, Pl. 95. 938, 1401). Low sub-rectangular trays increase with time at Mylouthkia and become a feature of bowls from Khirokitia, Cape Andreas-Kastros and other later sites (Dikaios 1953, Pl. 107; Le Brun *et al*. 1981, Figs. 31-3; 1984, Fig. 58:2). One bowl (Pl. 14.4) has its entire external surface covered with parallel zigzags, a motif found on vessels at Kissonerga, Kelokedara-Schismorotsos and Khirokitia (*LAP* II.1A, Fig. 95:17; *ARDAC* 1992, Fig. 72; Le Brun *et al*. 1994, 204, Fig. 84). Decorative elaboration which typifies the Khirokitian would thus seem to be a late development since very few Mylouthkia 1A-B fragments are decorated, and the most elaborate is from a Period 1B context.

Picrolite for special objects was much favoured by at least the Cypro-MPPNB (Guilaine *et al*. 2000b), but the evolution of highly stylised Khirokitian picrolite ornaments still needs to be documented. This raw material was unavailable on the mainland where a greater variety of materials were used for ideographic items. Its extensive use on Cyprus documents a process of adaptation to local resources, narrowing of the range of produced shapes and accentuation of limited types.

Subsistence. A rich agricultural tradition was introduced into Cyprus by Mylouthkia 1A. As shown in Table 7.5 the remarkable feature of this tradition is the recurrence of the same edible and weed taxa throughout the aceramic Neolithic. It included einkorn and emmer wheat, hulled barley, and the wild and/or domesticated forms of lentil, pea, grass pea, vetch, horse bean, olive, fig, grape, pistachio, hackberry, wild plum and pear, caper and linseed. Such resilience may have been due in part to farmers' concentration on introduced species in the absence of native progenitors (with the exception of wild barley). On the mainland, in contrast, farming was only in the process of consolidation at that time (Garrard 1999; Willcox in press). There, multi-directional shifts between agriculturist and hunting lifestyles may have been commonplace, whereas options were more limited on Cyprus where there seems to have been greater commitment to food producer status. This precocious risk management strategy distinguishes the Cypriot agricultural, and hence social, development trajectory. High levels of *Lolium*, absence of naked wheat and presence of *Prunus* eventually further distinguish the Cypriot ecosystem (Willcox 2001, 135).

A similar picture is emerging with respect to translocated fauna. While varied feralisation, replenishments from the mainland and management and hunting strategies will have created different assemblage proportions, the similarity of Khirokitian stocks and those in the Cypro-EPPNB are noteworthy. Cattle may no longer be present in the last stages of this sequence, but the animal husbandry package remained essentially intact. Here one should mention that not all transmitted fauna were for subsistence and that we should be wary of separating the economic from the symbolic. Cat, fox and dog were presumably brought for other purposes, and they too persist into Khirokitian cultural deposits. On the continent, bulls played important symbolic roles in society, and so their disappearance in Cyprus altered islanders' ideological developments and not just economic ones. A focus on management/hunting of the introduced fallow deer was also an insular adaptation that continued to play a role well after the Neolithic.

Thus, there are elements of continuity in the subsistence economy, with signs of a distinctively endemic agriculture-and-deer subsistence system gradually emerging in the later stages.

Social Organisation. Archaeology can provide varied evidence for social organisation, and in the Cypriot context, the circular building format of the Khirokitian provides a major arena for discussion. Circular buildings have been regarded as indicating a mobile existence or, in Flannery's 1972 influential study, egalitarian society. The origins of the Khirokitian examples were once sought in the Natufian, but this was always unlikely for morphological and chronological reasons. Now we have evidence for their prior existence in the Cypro-LPPNB at Tenta, and less detailed but nonetheless secure evidence for circular buildings in the Cypro-E and MPPNB (Table 11.5). The circular buildings of the Khirokitian may be divided into at least two principal types: pillar buildings and radial structures (Peltenburg forthcoming). Both have precursors at Tenta. Together with the curvilinear antecedents they indicate a long insular history for the type.

Their persistence also suggests that there were no further major influxes from Syro-Anatolia onto the island after the Cypro-EPPNB, ones that could have contributed to the emergence of the Khirokitian. During the continental PPNB, when society grew significantly in size and complexity, rectilinear buildings became the norm (e.g. Cauvin 2000, 82, 98-100). The innovation represents a major, sustained shift in social organisation, and so had there been new migrants they might have been evident in the appearance of their rectilinear architecture in Cyprus. None has been found. Nor have any of the associated inconspicuous details which, according to Burmeister (2000), carry more weight in migration studies.

The evidence is not yet clearly to hand, but it may be suggested that distinctive settlement layouts were often repeated during the 9th - 6th millennia, and that these reflectively created the social fabric of communities (cf. Wilson 1988; Parker Pearson and Richards 1994). Key to this possibility is Tenta, like later Khirokitia, enclosed by a wall. There, a large hilltop radial structure was raised above the flimsy pillar buildings on the slopes (Todd 1987). It was an enduring arrangement as the structure was the last of three superimposed major ones that dominated the rest of the settlement. Their dominance was further accentuated by their position on the crown of the hillock. Choice of topography clearly figured in the creation of the social structure of the community. It is of some interest, therefore, that the same physical configurations of hills with prominent crowns were also selected for settlements at sites like Khirokitia, Troulli and Kataliondas. Unfortunately, erosion has dissuaded fieldworkers from investigating hilltops. Nonetheless, the natural shape of these and other sites recall that of Tenta and some would have been suitable for the same type of architectural, spatial and social organisation.

The layout of Tenta, and presumably other Cypriot Neolithic villages, closely recalls a much earlier example at PPNA Jerf el Ahmar in which a disproportionately large central building is regarded as a communal or public building with storage facilities (Stordeur *et al*. 2000). In addition to this general structuring principle, there are specific similarities. We noted above that there were two major types of circular buildings in Cyprus, pier and radial structures. The central Jerf el Ahmar building is of the radial type found at the top of Tenta (Peltenburg *et al*. 2001a, 41, Fig. 4). Other PPNB Syro-Anatolian sites have the circular pillar building as later in Cyprus (Peltenburg forthcoming). When house and village organisations are considered together with other material culture parallels (Table 11.5), it seems unlikely that these were fortuitous. The most economic solution, therefore, is to treat the Neolithic Cypriot circular buildings and village plans as integral to the *habitus* of migrants from Syro-Anatolia. The question of why these people retained the social organisation which gave rise to such plans when the neighbouring continent developed a significantly different trajectory will be taken up presently.

There are many other insights into social organisation, but one of the most striking is the practice of head-shaping. A feature of the Khirokitian (Angel 1953), it is now also seen earlier, at Mylouthkia (§ 19.1), and hence is another argument for continuity. Whether head-shaping is indicative of social differentiation or mere widespread cradle-boarding remains to be seen. Le Mort (in press) observes that that the human population at Khirokitia has the same morphology as that in the Cypro-PPNB.

Ideographics. The Khirokitian exhibits a varied repertoire of object classes relating to ideography: maceheads, incised stones, batons and figurines. Each has prototypes in the Cypro-PPNB. The macehead from well 133 (Pl. 7.4) is of the same globular shape and colour as later. Makers chose a rather rare pink stone for this object, one that at Khirokitia was imitated by painting calcareous rocks red (§ 3). The second class demonstrating continuity is that of incised stones (e.g. Dikaios 1953, Pls. 89, 90). They may now be linked with the frequency of earlier grooved and other stones incised with hatching and similar designs (Table 11.5). In this case, the similarities are generic rather than detailed. A third class consists of batons, that is small cylindrical rods, usually with encircling incision. An example from Khirokitia (Le Brun *et al.* 1994, Fig. 101.12) is a successor to an earlier one on the island and the many well known examples to the east (Table 11.5). Lastly, the schematic figurines which are such a hallmark of the Khirokitian (Dikaios 1953, Pls. 95-7). These mainly asexual representations are distinguished from the corpulent explicitness of mainland counterparts. There are few examples from the still poorly known Cypro-PPNB sequence, all from Shillourokambos. They display contrasting styles. One female figure has a heaviness emphasised by deeply incised lines, as on the mainland (Guilaine *et al*. 2000b, 594, Fig. 8; cf. Cauvin 2000, 26-7, Figs. 6.2, 7.1). The other relies on subtle modelling and low relief to effect a minimalist but powerful rendering (Guilaine and Briois 2001, 51, Fig. 9). This style was most influential in the development of the manner in which humans came to be depicted in stone later. It would seem that the heavy type died out in Cyprus.

On the continent, the heavy female figurine, and bull representations, were the major symbols of the early Neolithic. Cauvin (2000) argued that the Woman and the Bull were depictions of deities that reveal a revolution of symbols at the outset of the Neolithic, ones that evoke a radically new and formative conception of the world. By the time of the Khirokitian in Cyprus, both have disappeared from the archaeological record. Neolithic cattle are last recorded in the early Khirokitian or slightly earlier (Simmons 1998b). And the female figurines are then replaced by schematised, asexual renderings (Dikaios 1953, Pls. 95-7). These are significant departures from mainland norms, ones that seem to have gradually evolved during the 7th-6th millennia cal BC and that signify the development of a distinct island cosmology by the Khirokitian.

Treatment of the dead. With more data, this may be one of the most fruitful avenues of investigation for the development of the early Neolithic in Cyprus. In Khirokitian sites, single inhumations under and beside buildings were a standard rite (Niklasson 1991, 11-109). The custom already existed at Cypro-LPPNB Tenta. Before then we have a few instances of primary and secondary communal burials (above). It is too early to conclude that there was a growth of emphasis on the individual, but secondary burials and use of deep wells are not attested in the Khirokitian. While there were important changes in treatments, therefore, there were also elements of continuity. Some time ago, Stanley Price (1977, 81) pointed out the special attention given to some skulls at Khirokitia. Skull emphasis is displayed earlier at Tenta, where certain skulls were raised on slabs and covered by another (Niklasson 1991, 109), and at Mylouthkia, where special treatment is evident in the well 133 deposit.

Conclusions. Although many details need to be worked out, we have shown that there was probably a continuous cultural development from the Cypro-EPPNB leading to the Khirokitian. Mylouthkia 1A, therefore, stands near the beginning of that insular evolution. In contrast to founder principle models that predict rapid change from the source area (Keagen and Diamond 1987), the adaptive phase was prolonged, more in line with Model 4 of Graves and Addison's (1995) island colonisation sequences in which appreciable periods of time separate discovery, colonisation and establishment. This may be because whole communities migrated rather than fissioned sectors, because Cyprus had a similar environment to adjacent coastlands and because there was only at most a sparse indigenous population with little or no cultural assimilation. It is only by the Cypro-LPPNB some 1000 years after the intrusion that the chipped stone industry changes substantially, that cattle are missing from the Shillourokambos faunal record and that deer constitute a distinctively significant subsistence element. The Khirokitian, therefore, emerged as a truly independent florescence only after long-term, insular evolution.

When that happened, it was a *sui generis* phenomenon with apparently only faint links to its distant origins (but cf. Peltenburg forthcoming). Some suggest that this was the result of isolation (e.g. Guilaine *et al*. 2000a), but small amounts of imported obsidian and carnelian demonstrate selectivity in continued transmaritime contacts. It is not enough to state that this selectivity was part of the wider trend of disintegration at the end of the PPNB described by Rollefson and Köhler-Rollefson (1989), though that may have been a contributing factor. It is perhaps more appropriate to look at the internal and external situation together.

We have seen that early Cypriot agro-pastoralists had to make exceptional investments in their subsistence introductions, ones that from the beginning set them apart from groups in their homeland. The emphasis was on tried and tested 'artificial' subsistence patterns on the island. Willcox (in press) draws attention to the contrast between Cyprus where farming seems well established in the mid-later 9th millennium cal BC and SW Asia where it was still in the process of becoming established. This was probably due to the insular situation described above, one that led to a more thorough investment in farming practices. As a consequence, geographically marginal Cyprus was at the forefront of early agricultural developments. In contrast to the situation of resource abundance on the mainland, risk management for subsistence resources and for humans in their new, bounded surroundings may also have encouraged co-operation and suppressed the growth of individual or sub-group interests of the kind that characterised the PPNB of the mainland (cf. Kuijt 2000a).

Yet, there are only 25-35 sites of this long, *c.* 3,000 year, period attested on the island (Held 1992). Actual numbers were certainly higher, but the small surface scatters, consistent with only a few buildings, if such existed at all on these sites, are likely to be representative. With such a low population density, there was little competition for productive resources. Thus, conflict for territories and the need for institutions to regulate access to resources or to integrate larger populations were virtually non-existent.

Accordingly, it was the limited influx of migrants, inhibitors of population expansion, restricted ecosystem and, above all, lack of inter-group competition that promoted continuity in the transmission of the cultural system on the island. These conditions of stability in the face of profound mainland changes should not be understood as the result of a closed system and isolation. Transmaritime exchanges persisted. Yet, they seem restricted to low volumes, and so they did not entail social re-organisation such as might follow from the need for surplus production for trade purposes. By the same token, the restricted nature of long-distance interaction also implies that many islanders were untroubled by the socio-economic gulf that increasingly separated them from developments in Syro-Anatolia. In these circumstances, there was no need for them to accentuate their differences from 'the other'. It would be misplaced to think of cultural continuity as a protest movement, a conscious disavowal of what had become increasingly alien mainland social systems. Rather, we have the gradual emergence on one of the largest Mediterranean islands of a self-sustaining culture which developed its own identity (cf. Broodbank 2000, 20-21).

This island ideology was no doubt forged over a prolonged period, but ultimately the roots of its distinctive elements lay in the adaptive transformations of colonisation, a process of altering space and time (cf. Gosden 1994). In establishing a successful existence in a new world largely bereft of the older social and environmental surroundings, settlers confronted perceived instability by retaining many traditions for lengthy periods. In other words, there was a deliberate creation amongst these bounded societies of a dynamic of stability in the face of what, for some at least, must have been a precarious experiment. Transmaritime contacts were maintained, but it seems the islanders increasingly had use for only a few exotics, preferring instead to emphasise their own material culture as an interactive expression of insular identity. The ascendancy of the communal system in Cyprus, in contrast to the individualising tensions on the mainland, was maintained because it was advantageous to do so, because there were insufficient incentives for change, and because of the reinforcing effects of a distinct evolutionary trajectory as seen, for example, in the Khirokitian elaboration of stone vessel manufacture which was such a major activity already at 9th-8th millennium cal BC Mylouthkia.

PART II

The Chalcolithic Settlements

Chapter 12: The Pits and Other Negative Features

by

Paul Croft and Gordon Thomas

[*Surveyed Units 12, 21, 22 and 23 were found to have no archaeological reality and hence are cancelled. For registered and catalogued finds from features in this chapter, see Appendix D*]

§ 12.1 Units 1-34 (G.T.)

These units are dispersed north of plot 79 and comprise a mixture of recorded, surface-scraped and excavated entities.

Pit 1, large hollow. Pl. 3.3-5, Figs. 28, 31-2
Diameter: *c.* 7.0 m, Depth: 1.9 m
Location: Plot 58

Pit 1 is a large, irregular, multi-phase hollow, roughly circular in shape with fairly steep sides and a broad, level base. It sits on the present edge of the plateau in Plot 58 facing NW looking out over the bay of the Apis and Mavrokolymbos Rivers. The W and N parts of the feature have been truncated by terracing for the track which now sweeps around this section of the Mylouthkia headland. It is cut directly into the underlying *havara* subsoil, truncating a short, narrow stretch of an earlier gully or streambed filled with water-eroded pebbles (1.10) which runs along the S edge of the hollow. Erosion and at least two phases of ploughing have removed the uppermost layers of the feature as well as the contemporary ground surface scoring deeply into the extant *havara* and upper deposits.

The final form of the excavated hollow is 7.0 m wide across at its greatest surviving diameter and is 1.90 m deep at its central point. On all sides of the hollow, except for the W side which is missing, the edges are almost vertical with a narrow ledge 0.40-0.80 m wide and *c.* 0.30 m deep running in an irregular band around the surviving circuit of the hollow. The base of the hollow is a fairly level but slightly dished surface with a deeper oval hollowed area 2.30 m in length along its E-W axis and 1.60 m wide lying at the N end of the base of the feature. A later concentration of human bone had been inserted roughly central to this smaller internal hollow. A total of seven shallow postholes with diameters of *c.* 0.07 m were arranged around the edge of the hollow, some directly into the base of the hollow and some situated on the upper peripheral ledge. A larger posthole with a diameter of 0.10 m was located in the centre of the SW part of the base of the hollow and two other shallow scoops of similar sizes were found in the lower N hollowed area. These various features reflect a palimpsest of activity on the site in which five phases of human occupation can be detected.

Phases 1-2: Units 1.13, 1.15

The earliest phase of activity involves the digging of the initial part of the hollow with a base stepping down to the slightly deeper N section. Three larger, shallow postholes were cut directly into the base of the pit at this stage. The base of this pit was lined in places with a 0.01 m thick layer of clay which was itself overlain by a 0.40 m thick layer of soft, loose ashy soil stratified in horizontal lenses and containing large concentrations of small stones, bones and potsherds, one containing red ochre. This infill constitutes the second phase of activity.

Phase 3: Units 1.11, 1.16

A third phase of activity saw dense bands of compacted silicates accumulating over the infill phase 1.13, probably as a result of the deposition of large amounts of organic material within the confines of the pit. These silicate layers are 0.02-0.04 m thick and occur in two episodes separated by a 0.44 m thick layer of a loose crumbly brown soil, 1.11b, which itself contains ash, *havara* and silicate lenses. All the lenses and strata from this phase of deposition slope gently into the pit forming a broad, dished hollow. At the base of the first phase of silicate deposition, cut into the edge of the underlying N hollow, were a skull and several disarticulated bones, KMyl 83, lying in amongst a lens of stones and ash (1.16; Fig. 31 Phase 3 lower).

The second episode of silicate deposition also appears to be associated with the extension of the boundaries of the hollow to form the maximum extent of the feature. In plan and in section this appears as the narrow ledge around the perimeter of the hollow and is to be associated with the insertion of the seven smaller postholes around the edge of the extended hollow (Fig. 31 Phase 3 upper). The final event of this phase sees the upper silicate layer, the postholes and the ledge being covered by a 0.20 m thick layer of dark grey, cloddy soil with consolidated lumps of brown clay loam which were recorded as being possible constructional material from an earth or daub wall (1.11a).

Phase 4: Units 1.03, 1.05, 1.07, 1.09, 1.14, 1.17

Evidence of more concentrated activity now comes from the fourth phase of activity in the hollow which has become more pronounced due to earlier deposition and slopes quite steeply to the centre of the feature. Again, the surface of the underlying deposits is covered with fine layers of ash and silicates over the floor of the hollow, forming a compact and distinct surface. A circular shallow pit of 0.75 m diameter containing a thin layer of ash overlain by a concentration of small stones, sherds and bone lay in the NW corner of the hollow and may have been a hearth or fire pit (1.14/1.07). A second possible hearth, pit 1.03, lay to the W of this and consisted of a 1.0 m diameter irregular shallow pit filled with ash, small angular stones, shell and bones, some burnt. Along the base of this possible hearth were traces of a thin layer of white clay or plaster. An irregular band of water worn and heat cracked stones and pebbles set in a compact clay-like layer 0.50 m wide lay along the W, N and S perimeter of the hollow (1.05/1.09). It also contained concentrations of bone, antler and sherds and patches of looser, darker charcoal flecked soil. Four distinct small postholes were also detected in this band of eroded and damaged material.

Lying partly over the band of stones and clay and partly within the SW part of the hollow (1.05) were the badly disturbed and disarticulated human remains considered under KMyl 78, associated with a smashed but largely complete closed vessel, Cat. 404. A second and even more damaged concentration of skeletal material, also designated as KMyl 78, occurred to the N of this on the N edge of the hollow. The entire area of the hollow and the human remains was covered in a 0.40 m thick layer of compact, cloddy clay-like soil which effectively levelled off the shape of the hollow leaving what could only have been a very shallow, gentle dip in the ground surface.

Phase 5: units 1.0, 1.01, 1.02, 1.04, 1.06, 1.08, 1.10, 1.12

Traces of a final phase of activity in the hollow are detectable immediately below the plough soil over the entire area excavated (1.02/1.04). Fine lenses of ash, a possible hearth (1.12) represented by a shallow pit 1.15 m in diameter filled with pebbles, bone and ash, and another small pit (1.06) indicate generalised activity in the area.

Pits 2A-B, partly excavated pits. Pl. 3,6, Figs. 28, 33
Diameters: 0.8 m (2A); 0.95 m (2B)
Depths: 0.5 m (2A); 0.72 m (2B).
Location: west edge of site below Plot 58

Unit 2 comprises a group of pits detected in section along the cutting for the track at the west edge of the site below plot 58. These pits were badly damaged by the cutting for the road and were not excavated to any great depth, being cleared only enough to distinguish some of their shape and contents. Two of the pits, 2A and 2B, are cut into the *havara* and are overlain by a layer of brown loam containing few sherds (2A.02). This was itself overlain by a more recent ploughsoil containing characteristic recent sherd material (2B.02).

Pit 2A is a straight-sided flat-bottomed pit cut into the underlying *havara* for a depth of 0.50 m. The original depth of the feature is unknown, but indications are that it, like the adjacent pit 2B, was truncated by agricultural activity prior to the construction of the road. The pit is *c.* 0.80 m wide and, from the section, appears to be regular in shape although the length of the feature was never ascertained. A layer of stones and pebbles lay along the base of the pit which was largely filled with a hard, greyish, prismatic soil containing lumps of *havara* (2A.03). A fine layer of eroded, water-laid *havara* separated this from the overlying ancient ploughsoil (2A.02).

Pit 2B lies 0.40 m immediately to the S of 2A. It is slightly larger, being 0.95 m wide and 0.72 m deep and with fairly steep sides and a flat bottom. This pit was excavated into the roadside for a distance of 0.85 m, revealing a regular curved shape to the plan of the floor of the pit with a tendency to become bell-shaped further in from the roadside. The base of this pit was also covered with a layer of large angular stones and small water-worn pebbles lying in a compact deposit of compact, friable, dark grey/brown loam *c.* 0.20 m thick (2B.04). Several large sherds and two worked stones were also recovered from the deposit. The upper part of the pit was filled with a fairly soft, grey, ashy soil containing some large rounded stones and sherds (2B.03). This is overlain by the old ploughsoil layer (2B.02) which sits partly within the pit due to the slightly higher pit-edge along the S side. There was a concentration of sherds in this layer within the area of the pit.

A third, much later, pit was also detected in the upper, recent ploughsoil directly over pit 2A. This was a fairly round-bottomed feature 1.0 m wide and 0.40 m deep containing only recent material.

Pit 3, terrace-scraped hollow. Fig. 27
Dimensions: unknown due to damaged state
Location: Plot 58

This is a broad, shallow hollow which appeared only in the newly cut track and was heavily damaged by that activity. It lies along the W edge of plot 58. The surviving base of the feature is 2.40 m long and 0.38 m deep with a smaller inner cut 0.90 m wide and 0.80 m long into the section. There are some stones and pebbles associated with the fill of the hollow and it is sealed by a thin layer of what appears to be eroded *havara* material.

Pit 4, terrace-scraped bell-shaped pit. Fig. 28
Width: 1.0 m, Breadth: unknown, Depth: 0.80 m
Location: Track below plot 58

This pit lies along the track below plot 58 and is a bell-shaped pit, roughly circular in plan with a fairly flat bottom and regular inward sloping sides. It is 1.0 m in diameter and 0.80 m deep with a fairly homogenous soft black ashy soil containing large rounded stones. Along the base of the pit is a thin layer of soft greenish/grey ash several centimetres thick. Within the upper fill is a large lump of more compact, friable brown soil and larger stones.

Pit 5, large terrace-scraped hollow. Pl. 3.2, Figs. 28, 33
Length: 14.0 m, Breadth and Depth: unknown
Location: Plot 58

Pit 5 is one of the largest features detected in section. It lies along the track cutting on the W edge of plot 58 below B 200. A length of 14.0 m of deposits was exposed in the cutting although the lowest part of the pit was never uncovered leaving its total depth a matter of speculation. Due to the unstable nature of the overlying deposits and the proximity of the upper field edge, it was decided not to explore this feature despite the tantalising quality and quantity of the recovered sherdage and other artefacts coming from all layers.

At least two main phases of activity are detectable from the exposed section of the hollow. An earlier, lower hollow with a length of *c.* 10.50 m was cut directly into the underlying *havara* and has a fairly steep side along its NW edge. This is filled with a grey ashy layer max. 0.40 m thick which itself overlies a layer of softer, brown soil just visible dipping down from the NW margins of the hollow. The upper levels of the feature represent another phase of activity in which a much larger hollow with more sloping sides and a broad, flat bottom was formed directly over the lower hollow. This second hollow is 14.0 m long and max. 0.50 m deep as detected in section. In the NW part of this hollow is a concentrated jumble of stones bordering and overlying a thin compact white *havara*-like layer. A small pit is also associated with this part of the deposits being cut into the underlying earlier layer. The greatest concentration of sherds, stone tools and bone comes from this area. The possibility that this could represent a collapsed building founded on the deposits along the edge of the larger hollow should not be ruled out.

Although no direct stratigraphic link was established between this hollow and the large hollow, pit 300, under

B 200, the close proximity of two such large features should alert us to the possibility that they are closely associated and may even be part of the same feature.

Pit 6, terrace-scraped ashy pit. Fig. 27
Length: 0.40 m, Breadth: unknown, Depth: 0.05 m
Location: Below plot 58

This appears in the trackside section below plot 58 and consists of an ashy band 0.40 m long and 0.05 m thick beneath the ploughsoil. It contained no archaeological material.

Unit 7, unexcavated structural material. Fig. 27
Length: 5.50 m, Depth: 0.50 m
Location: Plot 75

A possible structure in plot 75 has been cut by the track section and survives 5.50 m long, 0.50 m thick lying *c.* 1.0 m below the present ground surface on the western edge of plot 75. It consists of two concentrations of stones which appear to contain between them a layer of very black ashy material, all of which is founded directly on the *havara* subsoil. Much of the sherd material removed from the feature seems to be of recent origin.

Pit 8, broad shallow pit
Length: 1.80 m, Breadth: unknown, Depth: 0.30 m
Location: Plot 75

This feature consists of a broad shallow pit 1.80 m long and 0.30 m deep revealed by the cutting for the track along the western edge of plot 75. The pit is fairly regular in shape with a shallow, flat bottom and steeply sloping sides. The main fill is a soft grey/brown ashy soil. Near the base is a lens of eroded *havara* material similar to two other thin, white lenses lying above the feature. A regular, thick ashy deposit lies directly on top of these two thin lenses. This feature was excavated for a depth of 0.30 m into the section at which point the E side of the pit was located. These clearing operations yielded the copper hook of Pl. 16.8.

Pit 9, terrace-scraped pit. Figs. 27, 33
Length: *c.* 7.0 m, Breadth: unknown, Depth: 2.0 m
Location: Plot 75

Along the track cutting on the W edge of plot 75 is another large hollow/pit which has been partially revealed by the road works. It is *c.* 7.0 m in length with a recorded depth of *c.* 2.0 m although the bottom of the feature was not uncovered by the road section. The shape of the hollow is of steeply sloping sides, particularly on the NW edge which is more regular and steeply cut into the *havara* subsoil. There are two main episodes of deposition within the feature distinguished by truncation of the lower levels and a different orientation in the general dip or slope of the levels associated with the two phases. A hard, compact brown surface also separated the two phases of activity across the entire pit.

The lower levels belonging to the earliest deposits in the pit consist of fine layers of ash interspersed with soft, dark brown, ashy soil containing some stones and artefactual material. The direction of the tip lines suggests that the main source of deposition into the pit was from the NW. These levels are truncated by the compact surface which demarcates this phase from the next. The upper levels within the pit are more gently sloping and consist of harder, grey ash deposits in two major levels with a concentration of stone in the upper of these two levels.

Unit 10, unexcavated concentration of stones. Fig. 28
Dimensions: area unknown
Location: Plot 76

A concentration of *c.* 20 stones averaging 20-30 cm. length lie in the quarry base within the S part of plot 76. Some sherds and flints lying nearby on the surface may be associated with this feature.

Unit 11, surface-scraped feature. Fig. 27
Dimensions: unknown
Location: Plots 76-77

In the terrace cut section towards the coast between plots 76 and 77 a group of artefacts, including a large quern stone (left on site), sherds, flint and bone lying in a random arrangement, define a possible feature. There is no clear extent to the feature neither is there any evidence of ash or anthropogenic soils, all the material lying in a loose, brown eroded soil. The lack of any clearly defined feature suggests that this may represent material eroded from features or deposits in the vicinity. Considering the extent of the sheet erosion along the edges of these fields, this is the most likely interpretation.

Pit 13, unexcavated pit
Length: 1.3 m, Depth: min. 0.60 m
Location: Plot 59

This feature appeared in section during the cutting for the main Paphos-Coral Bay road and lies along the W edge of plot 59. It is a flat-bottomed pit *c.* 1.3 m long with roughly vertical sides. A *c.* 2-3 cm thick layer of dark ash lies along the base of the pit and is overlain by a 10 cm thick layer of grey soil with angular pebbles and a large rounded stone. The whole is sealed by a sterile layer of redeposited *havara*.

Pit 14/31A-B, unexcavated group of pits. Fig. 27.
Dimensions: unknown
Location: Plot 59

Located along the section cut for the main Paphos-Coral Bay road along the NW edge of plot 59, feature 14 is a large pit with stones along its base and a few lenses of occupation material above these although the main fill consists of silt/alluvial deposits. Two smaller pits (31A-B) were also revealed to the north and south of this larger pit.

Pit 15, terrace-scraped ashy hollow. Fig. 28
Length: 1.2 m, Depth: 0.25 m
Location: Plot 79

This feature appears along the W edge of plot 79 on the track cutting and consists of a lens of loose ashy material *c.* 1.2 m long and 0.25 m thick containing some small pebbles and several sherds.

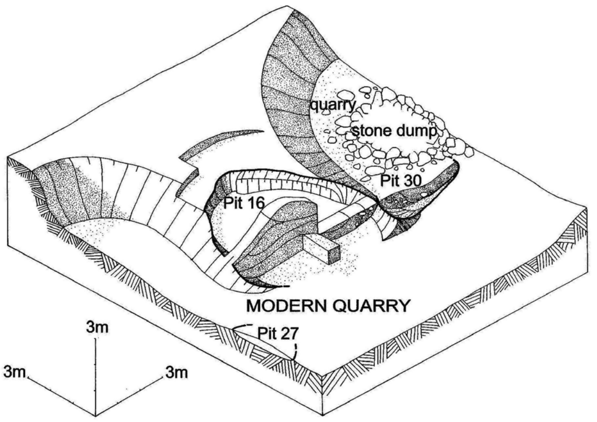


Fig. 12.1: Isometric view of pit 16, partly excavated

Pit 16, large sub-circular pit. Figs. 28, 34
Length: 7.0 m, Breadth: 6.5 m, Depth: 1.60 m
Location: Plot 76

Pit 16 is a large sub-circular pit which was originally 7.0 m long by 6.50 m wide surviving for a depth of 1.60 m. It sits centrally in plot 76 on the NW edge of the Mylouthkia headland, which has in recent years been deeply quarried and subsequently heavily eroded. Its survival is a curious but happy accident of fate which has left it as a shoulder of preserved archaeological deposits projecting into the centre of the quarried area. This modern activity has virtually removed all of the W edge of the pit and about one third of its original contents as well as completely destroying the prehistoric ground surface from which it was dug. It is apparent that the quarrying was intent on removing the natural *havara* subsoil, leaving the impure parts of the quarry where prehistoric activity had contaminated the calcareous clays with ashy and stone-filled deposits. The effect of this was to remove most of the pit itself while leaving much of its contents intact. The onset of excavation was, therefore, presented with the unique opportunity of being able to excavate the pit from the side as well as from the top. It was possible to determine the exact sequence of deposits from the exposed N part of the pit before any trowel was put into the ground.

The pit is roughly oval in shape with the greater axis being N-S. The N extent of the pit can just be detected as a slightly dished area of staining and ash where the bulldozer had clipped and removed that part of the pit. The surviving sides of the pit to the S are either quite vertical or slightly bell-shaped sloping down to a fairly regular and smooth flat base. There is a low ledge stretching along the SW perimeter of the base of the pit. Very little else can be said about the shape, depth or configuration of the original pit as this had all been completely destroyed before excavation began. A total of five episodes or phases of activity can be detected in the surviving morphology and stratigraphy of the pit.

Phase 1: unit 16.06

Overlying the ledge of natural *havara* along the SW edge of the base of the pit was a distinct deposit of a lighter brown friable soil which had been truncated and covered by later deposits. It is possible that this ledge represents the surviving base and side of an earlier pit which had been destroyed almost completely by the digging and use of the larger pit. If so, then the deposits lying on this ledge, 16.06, represent the earliest material from this feature and were preserved exposed along the S edge of the base of the later pit.

Phase 2: unit 16.07

Lying immediately on the floor of the pit is a complex layer of ash, reddish brown soil and *havara* lenses containing fine patches of black material and bands of silicates (16.07). These lie to a depth of 0.20 m along the edge of the pit rising to a depth of 0.55 m at the centre. Various sizes of heat-cracked stones and larger calcareous blocks are also found throughout the layer. The lenses and the layer in general do not dip down into the pit, but rather gently follow the contours of the pit floor, lying fairly level across the flat base of the pit rising but over a heap of compact brown soil lying in the centre of the excavated area.

Phase 3: units 16.04-05

By far the greatest surviving depth of deposits belongs to the overlying layer (16.04) that also contained a much higher proportion of the recovered artefacts. This general layer is 0.40-0.60 m in depth and follows the slightly domed shape established by the underlying phase 2 deposits although there is now also a gentle dip in from the sides of the pit. The deposits consist mainly of grey ashy soils with *havara* flecks and lumps formed in several fine and ill-defined lenses. There is a general division into two sub-units within the layer separated by thin bands of black/grey ash which is more pronounced in the E half of the pit. Each sub-layer is also composed of many finer, badly defined lenses which are generally quite localised and do not encompass the entire internal area of the pit. The upper level is a fairly sterile band of grey ashy soil with *havara* flecks while the lower level is a softer, grey-brown soil again with *havara* flecks. This lower level is particularly prolific in finds. There are many heat-cracked stones lying along the edges of the layer along with bone, antler and large quantities of pottery all lying dipping in towards the centre of the pit. At the centre is another concentration of pottery and heat-cracked stones, some of which are quite large. The layer is heavily flecked with charcoal and contains several lumps of red ochre. Along the base of this layer are considerable amounts of silicates and decayed organic material which appear as thin layers of randomly arranged fragments of plant stalks, leaves, seeds and charcoal. These silicates are very noticeable, adhering to the undersides of any solid objects like stones, potsherds, bones, etc. There is also a very distinctive green tinge to the lower surfaces of almost all of the material from this layer.

In the E part of the pit what appears to be a small pit, 16.05, was cut or formed in the thicker ashy soil build-up between the two sub-units of phase 3. This was filled with a series of alternating bands of thin grey ashy lenses and a harder brown soil.

Phase 4: units 16.0-03

The final phase of preserved activity in the pit is represented by three separate but heavily eroded layers, 16.01-03. The recent cutting of the pit during quarrying activity and the subsequent devastating erosion which followed have left a mounded shape to the remains of the contents of the pit with the latest deposits, 16.01, being very poorly preserved only at the apex of the mound and very little else of the subsequent layers surviving. Fine ashy soils with heavy concentrations of charcoal, stone artefacts, flint, antler, bones and pottery are typical of the three layers. Heat-cracked stones are also quite common occurrences.

Phase 5?: unit 16.08 (=30)

Immediately to the SW of the main pit is a secondary pit which, ultimately, must either have cut or been cut by pit 16 itself. The vital link between the two pits has been destroyed by quarrying. The pit is 3.30 m in length (original width not preserved) and survives to a depth of 0.80 m. It is a broad flat bottomed pit with a slightly overhanging S edge and a sloping N edge. Its fill consists of an initial crumbly brown soil and stone, 16.08, which appears to have slumped in from the N and lies only along that edge of the pit. Subsequent very fine layers of horizontal water laid silts comprise the bulk of the contents of this pit.

Pit 17, surface-scraped ashy hollow. Fig. 28
Length: 3.0 m, Breadth: unknown, Depth: 1.3 m
Location: Plot 76

Situated in plot 76 at its NE corner, this feature consists of a shallow ashy hollow *c.* 3.0 m long and 1.3 m deep; it is unexcavated. It is rich in sherds and contains some large bone and flint and thus clearly represents a fairly extensive *in situ* feature. Stratified deposits and large stones are apparent within the feature although they are difficult to define without excavation.

Pits 18/19/20, surface-scraped hollows. Fig. 27
Dimensions: unknown
Location: Plot 54

Situated in plot 54 facing N and exposed by agricultural terracing, this series of features was difficult to define due to heavy scrubland growth. However, they do resolve into three distinct concentrations of material stretching over 50.0 m, probably representing three pits/hollows with some intervening occupation deposits.

Pits 24/28, truncated pits. Figs. 28, 35
Total length: 8.5 m, Total width: 3.5 m, Depth (pit 24): 0.58 m. Depth (pit 28): 0.35 m
Location: Plot 76

These features, which comprise a shallow and heavily eroded group of pits lying on the edge of the recently quarried area by the roadside in plot 76, initially evaded detection and were only noticed after several seasons of erosion had revealed them to be *in situ* deposits. The initial cutting for the track and the quarrying which had taken place in this area have completely truncated the top of these pits, leaving only the lower 0.36 m of deposits intact. It is not known whether the two pits comprise two separate features or whether they constitute the scooped base of a single larger pit. Taken together, the features form in plan an elongated, waisted oval with a long NE-SW axis of 8.50 m and a width of 3.50 m.

The contents of the pits were mixed layers of grey ashy soil and a harder crumbly brown soil, both of which appear to have slumped into the larger S part of the pit from the S in several episodes. These are interspersed with several finer lenses of grey ash containing concentrations of burnt, heat-cracked stones with some silicates also present. Pottery, bone and other artefacts are also recorded from these levels.

Unit 25, surface scatter. Fig. 27
Diameter: *c.* 6.0 m
Location: Plot 54

Identified as a surface scatter in the terraced slopes of plot 54 about 6.0 m NE of pit 18, this feature consists of a concentration of large and small sherds, bone, ground stone tools and medium to large stones lying in a roughly circular area *c.* 6.0 m wide. Patches of ashy soil are also evident amongst the debris.

Unit 26, surface scatter. Fig. 27
Dimensions: unknown
Location: Plot 54

Lying in the same field as pits 18-20 and 25 (Plot 54), this feature is a similar concentration of sherds in an area scattered with sherds and other cultural material. Heavy scrub growth impeded definition of the feature, but large stone artefacts (not collected) and patches of grey ash were identified.

Unit 27, sherd concentration. Fig. 28
Dimensions: unknown
Location: Plot 76

A small concentration of sherds lying near pit 16 may represent material taken from the larger *in situ* pit.

Pit 28 (see Pit 24, above)

Pit 29, shallow flat-bottomed pit
Length: 1.25 m, Breadth: unknown, Depth: 0.40 m
Location: Plot 59

Along the western edge of plot 59 and revealed by cutting for coastal road, this pit appeared *c.* 2.0 m below the present ground surface. It is a shallow, flat-bottomed pit with rounded flared sides creating what would have been a broad open pit. The dimensions across the top are 1.25 m and across the base 0.80 m with a depth of *c.* 0.40 m. The fill is a fairly homogenous crumbly brown silt with some medium sized stones at the centre and little indication of any stratigraphy apart from a very thin lens along the base. This feature was excavated inwards from the section for a depth of *c.* 0.10 m at which point the base curved upwards to form the eastern edge of the pit.

Pit 30 (see Pit 16 phase 5, above)

Pit 31A-B (see Pit 14)

Pits 32-4, unexcavated pits. Fig. 27
Dimensions: unknown
Location: Plot 59

A series of pits were revealed during major construction work on the main Paphos-Coral Bay road along the W edge of plot 59. These contained lenses of grey ash as well as flints and pottery.

§ 12.2 Units 100-110, 300 (P.C.)

§ 12.2.1 Units 100-110

The Queen's Bay Hotel now occupies Plots 77 and 78A/505, its construction having effaced all archaeological features in the area. In December 1988 I accompanied a member of the Department of Antiquities to observe earthmoving operations prior to the construction of the hotel, but by this time the site had already been greatly damaged by previous, unsupervised, bulldozing, which had been halted by the Department. At this time it was felt that little or no archaeology could be preserved here.

Earthmoving operations persisted sporadically, and on 18 January 1989, on a periodic inspection of the site, I noted in the churned-up land surface in the south-central portion of the plot, an area of recently exposed dark soil containing EChal sherds. Rescue excavation commenced immediately and continued intermittently until early September 1989. This work was conducted on a part-time basis with the occasional assistance of friends and students. Common sense dictates that the archaeological features investigated and described represent only a fraction of what had existed prior to relatively recent terracing and the more recent bulldozing in preparation for hotel construction. This small "grab sample" of archaeology obtained by the 1989 rescue work spans possibly seven millennia of human activity in the locality and, combined with the results of more recent investigations at Mylouthkia, underlines the great potential of the site. Despite extensive damage on the seaward side, much of the site of Mylouthkia probably remains intact under the upslope agricultural fields. In view of its seaside location it is inevitable that proposals will be made, probably sooner rather than later, for the tourism-related or residential development of what remains of this important site. In the light of the results of our archaeological investigations, it is to be hoped that very careful consideration will be given by the relevant authorities before permission is granted for any further development of the area.

Initially, what remained of three pits (100-102) and a portion of a ditch (103) were excavated. After a couple of weeks pit 104 was exposed on the eastern margin of the plot and was excavated. An area of preserved archaeology towards the north of the plot which contained units 105-110, was also revealed and investigated over subsequent months. Since available time and labour were very limited, sieving was not undertaken on these rescue excavations.

Pit 100, shallow hollow with somewhat undulating bottom. Figs. 27, 35
Dimensions: length 4.5 m, breadth >3.5 m, depth 0.50 m
Location: Plot 78A/505, south-central area

The surface of pit 100 had apparently been eroded by normal processes of slope erosion prior to bulldozer damage, which truncated the feature somewhat on its western side. Bulldozing had obscured the relationship between pits 100, 101 and 102, but it seemed likely that pit 100 was cut by both of the other features. Pit 100 was clearly cut by ditch 103 on its southern margin. Four superimposed stratigraphic units were defined within pit 100.

The primary fill of pit 100, present throughout most of its bottom, was fill 100.04. This was a pale grey crumbly clay containing much *havara* eroded in from the edges of the pit and with many charcoal flecks and stones. This basal fill graded into overlying major fill 100.03, so the distinction is somewhat arbitrary. In the western portion of the pit, fill 100.04 was grittier than elsewhere and contained sherds which had been trodden flat into the pit bottom, indicating that some activity took place within the pit. It is clear, however, that this activity was neither intense or long-lived since the eastern portion of this small hollow was not apparently much trampled.

Fill 100.03, the main fill of the hollow, was as 100.04 but with only occasional *havara* lenses. The verdigris which characterised pit 16 (see § 12.1) occurred throughout 100.03.

Separating 100.03 from the overlying fill 100.02 in the central part of pit 100 was a lens of dark brown peaty material up to 5 cm thick. It consisted of uncarbonised, unmineralised, fibrous vegetative material, probably recent roots.

Fill 100.02 comprised a sequence of thirteen or more thin, fairly horizontal layers of up to 1 cm in thickness but generally less. The general nature of these thin layers was either clay (as fill 100.01) or crushed *havara* containing more or less black ash. Fill 100.02 was preserved only in the east and central portions of the feature.

The upper fill of the feature, 100.01, consisted of compact pale grey-brown clay with occasional charcoal flecks, much crushed *havara* and many scattered stones. Fill 100.01 was preserved only in the upslope, eastern portion of the feature.

The top few centimetres of deposit here were machine-disturbed and material assigned to pit 100.0 and 100.02.

Pit 101, eroded base of small circular pit. Figs. 27, 35
Dimensions: diameter 1.0 m, depth 0.20 m
Location: Plot 78A/505, south-central area

Pit 101 was the much eroded and damaged bottom of a small pit located in the western margin of pit 100. It was circular with a diameter of 1 m as preserved. Fill 101.01 was virtually indistinguishable from fill 100.03, but it was somewhat gritty with much crushed *havara*.

Pit 102, flat-bottomed hollow with possible post emplacements. Figs. 27, 35
Dimensions: length 2.8 m, breadth >1.35 m, depth 0.60 m
Location: Plot 78A/505, south-central area

As preserved, pit 102 represents the eastern end of what must clearly have been a much more extensive feature, the western end of which had been bulldozed completely away. Pit 102 probably cut pit 100 to its east and was probably cut by ditch 103 to the south, but this is uncertain due to the shallowness of the deposits at the point of intersection of the two features. Pit 102 measured 2.8 m NW-SE, although the main, deeper part of the feature measured 2.4 m. The NE-SW dimension is greater than 1.35 m and the maximum preserved depth 0.60 m.

The fill, 102.01, was homogeneous, consisting of a compact grey clay containing many *havara* flecks and chunks.

Peripherally located in the bottom of pit 102 was an arrangement of possible post emplacements, suggesting that pit 102 was a roofed depression. Certainly, the bottom of pit 102 was heavily trampled, with many sherds pushed down into the surface of the natural.

Descriptions of these emplacements, from north to south, are:

a) small subcircular depression, 11 x 15 cm, 3 cm deep, less convincing than the others.
b) posthole-like circular depression 15 cm in diameter, 9 cm deep.
c) posthole-like subcircular depression 24 x 19 cm, 8 cm deep.
d) platform-like cut into pit edge in east corner.
e) posthole-like subcircular depression 28 x 24 cm, 4 cm deep.

All of the above (a-e) involve recesses having been cut into the edge of the pit. Most convincing as postholes are (b) and (c), which have been cut down to a distinctly lower level than the bottom of pit 102 generally. Emplacements (b), (c) and (e) are evenly spaced, being 57 cm apart from centre to centre, whilst emplacement (a) lies 67 cm from (b), and platform (d) lies about midway between (c) and (e).

The marks left by the antler pick of the original Chalcolithic excavator of the hollow were clearly visible. These are angled downwards to the left, suggesting that the worker was right-handed (see also pit 104).

Ditch 103, shallow, flat-bottomed ditch. Figs. 27, 35
Dimensions: length >3.6 m, breadth 1.8 m, depth 0.40 m
Location: Plot 78A/505, south-central area

Excavated for a length of 3.6 m, ditch 103 is 1.8 m wide and 0.40 m deep. The gradual change in its alignment from E-W upslope to N-S downslope in excavated portion suggests that this may be a corner (of a substantial enclosure?).

The NW (outer) edge of the ditch slopes downwards fairly evenly, although with variable steepness. The morphology of the S (inner) edge is more complex, as it has a stepped profile throughout its excavated length. The shoulder in the profile is fairly horizontal and 20-30 cm wide; located upon it, at what seems to be the very corner, is a circular depression 25 cm in diameter and 10 cm deep. Radiating away from this potential posthole to the east and the south are shallow linear depressions up to 17 cm wide and 7 cm deep. Despite their shallowness, these features have a purposeful appearance, perhaps representing the remains of some sort of fence placed on the shoulder of the inner edge of the ditch.

Ditch 103 clearly cuts the southern margin of pit 100, and probably also cut the very edge of pit 102.

Fill 103.02, in the lowest few centimetres of the ditch, incorporates a complex series of lenses of marl, grit, gravel, pebbles, sands and clays which were clearly water-laid.

Fill 103.01 is the main, upper fill of the ditch. On the southern side of the ditch it consisted of compact whitish marl containing sandy patches, and much grit, gravel and pebbles. This deposit extended beyond the southern margin of the ditch to cover the horizontal surface of natural to a depth of up to 15 cm. Finds were very sparse in this fraction of 103.01.

On the northern side of the ditch, fill 103.01 was much less stony, consisting mainly of relatively pure, soft yellow-white marl which contained substantial lenses of grey-brown sticky clay. This material, perhaps originating from pit 100, which is cut by the ditch in this vicinity, yielded the great majority of the finds. Ditch 103 was sealed by marly colluvial topsoil.

Although no pottery or other items from ditch 103 indicate a date later than EChal, the fact that nearby ditches 105-7 are interpreted as part of a ditch system dating to a considerably later period indicates that a high degree of scepticism might prudently be exercised in assessing the date of ditch 103 on the basis of the small quantity of finds.

Pit 104, small, barrel-shaped pit. Fig. 27
Dimensions: diameter (max) 1.15 m, depth 1.20 m
Location: Plot 78A/505, eastern edge (SE corner)

The western, larger half of this pit was cut away by terracing, but it appears to have been circular with a diameter of *c.* 0.90 m at its mouth. Its maximum diameter of 1.15 m was attained at 0.40 m above the flat base of the pit, and its basal diameter was 0.93 m. Pickmarks visible in the *havara* edge of pit 104 angled downwards to the left, as in pit 102.

The lowest fill, 104.02, consisted of soft yellow-brown silty material containing many *havara* flecks and small chunks, and some stones. Above this the main, upper fill 104.01 was loose and heterogeneous in nature, containing much red-brown-black burnt daub which was mostly quite friable in texture, but contained some coherent lumps. Occasional, very soft black ashy lenses were present and these were especially rich in sherds. Some stones were present throughout. The lowest portion of 104.01 comprised an exceptionally large ashy stratum.

Ditch 105/106. Figs. 27, 36-7
Dimensions: length 23.5 m, breadth 1.5 m, depth 0.55 m
Location: Plot 78A/505, northern area

A 7 m length of ditch was excavated as ditch 105. Its eastern portion ran NE-SW for some 4.5 m, downslope of which it bears off to the WNW, forming a corner of some 120 degrees. At its NE end, where it is best preserved, it is 1.5 m wide and 0.55 m deep, with an open U-shaped profile. Towards the corner, however, this profile had become increasingly distorted by the gullying effects of running water on the soft *havara* bedrock, and around the corner, where the slope was steeper, a series of gullies and solution hollows, the latter up to about a metre in depth, renders the profile of the feature virtually unrecognisable as that of a ditch.

The fill of ditch 105 consisted of a poorly sorted, heterogeneous mix of boulders, stones, pebbles, gravel, sand and silt. The great bulk of this was excavated as fill 105.01, which contained a very considerable number of large stones. Beneath this, 105.02 comprised fill of the lowest 10 cm or so of the ditch proper as well as that of most of the gullies and solution hollows. It was less stony and more silty and sandy than 105.01. The fill of an exceptionally large hollow in the ditch bottom was excavated as 105.03 and consisted almost entirely of lenses of silt and sand, containing very few stones. The similar fill of a smaller hollow immediately to the south was designated 105.04. There would appear in retrospect to be no archaeological justification for distinguishing four stratigraphic units within what appears to be a heterogeneous whole. Ditch 105 had been bulldozed away on its western extremity.

Some 4.5 m to the NW of ditch 105 was located what was clearly another section of the same ditch. The intervening space had been totally eradicated by bulldozing. This portion was numbered ditch 106, and was excavated for a length of some 4 m. Its alignment is the same as that of ditch 105, and surface scraping revealed that it ran for a further 8 m or so towards the WNW. Its fill, 106.01, consisted of a compact mixed sandy silt containing quite numerous stones some of which were very large. In profile ditch 106 was shallow and much distorted by gullying.

A perforated sherd of Late Bronze Age White Slip pottery (KMyl 661) was found in 105.02. This item was not insubstantial in size (3.9 x 2.6 cm), and its context is judged to be reliable. Two Iron Age sherds were identified in the 105 assemblage, and several others in ditch 106 (**§**14.8). Thus, it seems clear that ditches 105-7, and very possibly ditch 103, form part of a system of land boundary or drainage ditches dating to the first millennium BC or later.

Ditch 107. Figs. 27, 36
Dimensions: length >5.5 m, breadth ?3.2 m, depth 0.40 m
Location: Plot 78A/505, northern area

Some few metres north of ditch 106 was located a further probable section of eroded ditch. It was excavated for a length of some 5.5 m, and found to run ESE/WNW. It is argued above that, along with ditch 105/6, ditch 107 forms part of a post-Chalcolithic ditch system (see also §14.8).

The fill of ditch 107 was broadly comparable with that of ditches 105 and 106 and, although heterogeneous, may best be characterised as a compact pale brown silt containing many pebbles and stones, particularly in its lower part. In its southern half the fill was excavated mainly as 107.01, with the lowest 40 cm or so being arbitrarily distinguished as fill 107.02. The fill in the northern half of the excavated portion of ditch 107 was designated 107.03. In fact, there is no archaeological justification for considering the fill of ditch 107 as other than a single heterogeneous unit.

Pit 108, irregular hollow. Figs. 27, 37
Dimensions: length 6.5 m, breadth 3.2 m, depth 1.14 m
Location: Plot 78A/505, northern area

Pit 108, a large, irregular hollow, was revealed by relatively light bulldozing on the eastern periphery of the northern area of plot 78A. The pit took the form of a main, subcircular (3.2 x 3.6 m) portion with a linear, somewhat sinuous extension (3 m long x 1.4 m wide) to the NE. Pit 108 cut virtually the whole length of the western margin of larger pit 109.

The upper fill of the main hollow, 108.01, consisted of very mixed clayey soil with much *havara*, many stones and some ash. Beneath 108.01, within the central depression of the main hollow, lay fill 108.02, identical with 108.01, but securely stratified within the lowest part of the hollow. The counterparts of these two units within the NE arm of the feature were fills 108.03 and 108.04. (Finds from the former may have suffered a minor degree of contamination due to slight overdigging into pit 109.) In sum, pit 108, large as it is, contained only one fill, the units in which it was excavated having been arbitrarily defined. Naturally, this fill was somewhat variable from place to place, but no genuine stratigraphic distinctions could be observed within it, suggesting rapid, deliberate infilling. Pit 108 was completely excavated.

Pit 109, large shallow subcircular hollow. Figs. 27, 37
Dimensions: length 8.9 m, breadth 7.3 m, depth 1.35 m
Location: Plot 78A/505, northern area

The presence of pit 109 was revealed by the excavation of the eastern edge of pit 108, which cut pit 109. Partial excavation only was possible for pit 109, revealing it to be a rather irregular oval shape with a maximum (NE-SW) diameter of 8.9 m. Pit 109 cut well 110.

The initial approach to the exploration of pit 109 consisted of the excavation of its western margin, cutting back to the minimum extent required to produce a N-S aligned section. Beyond this was left a 0.25 m baulk, and to the east of this was cut a 1.2 m wide trench through the hollow. A further 0.45 m baulk was succeeded by a 1.3 m trench, which it was hoped might locate the eastern margin of the feature. Since it did not, it became necessary to broach the upslope area to the east of this last trench. An area extending up to 10 m E of the 1.3 m trench was surface-scraped with a tractor bucket to remove the hard-baked topsoil (in mid-August) and then hand cleaned. This procedure succeeded in locating the eastern edge of pit 109 some 3.1 m upslope of the trench and, furthermore, showed the area immediately to the east of the hollow to be devoid of archaeological features.

In the eastern margin of the hollow and in the 1.2 m trench, the sequence of fills (top to bottom) ran from 109.01-4. Upper fill 109.01 consisted of compact mixed grey-brown clayey soil with many pebbles and small to medium sized stones. Beneath this was 109.02, a stratum of up to 20 cm of redeposited *havara* which varied in purity, and in texture from powdery to chunky. The presence of *havara* chunks suggests that 109.02 had been deliberately deposited. The underlying 109.03 is similar to upper fill 109.01, and the lowest fill, 109.04, that of the central hollow of the feature graded into 109.03, but was generally less mixed, consisting primarily of clayey silt.

In the more centrally located 1.3 m trench**,** fills 109.06, 109.07 and 109.08 correspond with fills 109.01, 109.02 and 109.03 to the west. (Fill 109.04 does not extend further west than the 1.2 m trench, and therefore it has no counterpart).

Into the eastern end of pit 109, once it had been located, was cut a small sounding designed to check that the stratigraphy here corresponded with that in the central and western parts. The fill within this sounding, 109.05, consisted of fairly compact, mixed, grey, ashy soil that contained a few stones. This material quite closely resembled 109.01/3/6/8, but 109.05 contained more silts and ash. (Nothing resembling white layer 109.02/7 was present in the sounding, and this is assumed to have petered out further downslope).

Apart then from the substantial lens of redeposited *havara* 109.02/7, the fill of pit 109 is comparatively homogeneous, suggesting rapid infilling.

Well 110, eroded well shaft. Figs. 27, 37
Dimensions: length 2.85 m, breadth 1.90 m, depth 5.3 m
Location: Plot 78A/505, northern area

A localised dirty patch in the *havara* of the southern edge of pit 109 was investigated and proved to be redeposited material which formed a 10-25 cm thick capping to an earlier feature (see § 1). Its removal exposed the clean, undisturbed *havara* lip of well shaft 110, which measured 1.4 m N-S by 1.0 m E-W. The capping layer of redeposited *havara* may have been deliberately laid, or may simply have developed due to trampling when pit 109 was dug.

Although this was not suspected at the time of its excavation, there subsequently emerged strong evidence that well 110 dates to the Cypro-PPNB period. The EChal pottery found in its upper fill, 110.01 - 03, is now viewed as intrusive (see §14.8).

§ 12.2.2 Pit 300. Figs. 28, 42

Pit 300, very large hollow containing B 200
Dimensions: length >9.1m, breadth >6.2m, depth >3.6m
Location: Plot 58/496

This pit, the largest of all pits so far noted at Mylouthkia, came to light in 1994. Extensive dry sieving was undertaken, and samples were wet sieved where this seemed desirable.

Pit 300, although very incompletely excavated, is clearly of enormous size, but few details are known of its morphology. Small parts of its perimeter exposed on the eastern and western sides are 9.1 m apart, but the maximum diameter of the hollow could easily be greater. Pit 300 measured more than 6.2 m in a NE-SW direction, and it is greater than 3.6 m in depth (excavation did not reach the lowest point on its bottom). Where the lip of the feature was exposed in the E, the edge sloped down at an angle of *c.* 45 degrees to a depth of half a metre or so, below which depth it became vertical. The deep sounding (3.4 x 0.75 m) immediately S of B 200 provided only a partial profile in the SE of pit 300, but did not locate the upper lip of the feature. Here, the edge of what seems most likely to be an upper step in its profile (probably located at a depth of about 1.5 m below the upper lip) gave way to a near vertical slope which descends to a second, fairly horizontal, step some 1.9 m in width at a depth of perhaps 3.2 m below the top of the hollow. The hollow was cut into natural *havara*.

The fill of pit 300, as revealed in the deep sounding, consisted of a lower sequence of compact fills, above which lay a series of less compact, friable, mainly ashy deposits.

Fill 258/261, the lowest fill of pit 300 encountered in the sounding, occurred discontinuously above *havara* bedrock. It occurred both in a shallow depression on the second step (258) and to the west of this step, where the base of the hollow slopes off to unknown depths (261). Fill 261 was excavated to a depth of 0.40 m in the deeper, westerly part of pit 300 before excavation was halted at this level: to have pursued the deposit further down would have necessitated the westward extension of the 4 m deep excavation, which available labour would not permit. Fill 258/261 consisted of compact, redeposited *havara* chunks and wash which contained a few sherds and small stones. It may well be the basal fill of the whole hollow, but this is not certain due to the limited investigation of this very large and deep pit.

Overlying fill 258/261, fill 257 consisted of a 0.85 m deep succession of alternating thin layers. Beige coloured bands 2-5 cm thick contained a concentration of comminuted *havara*. Such bands alternated with layers 2-20 cm thick of compact pale grey-brown silt which contained some (but much less) *havara* and numerous charcoal flecks. Both fractions of fill 257 were distinctly laminated in places and clearly represent inwashed material.

Fill 256, above 257, was a compact, white-flecked, brown silt which contained many cobbles and small stones. The lowest quarter or so of the fill contained notable quantities of orange and black burnt building material. The deposit as a whole was somewhat laminated, indicating that it was mainly: if not wholly, water-laid.

Above fill 256, unit 255 consisted of two distinct, and probably quite separate components; a fill and a surface (possibly a floor). The lower, fill fraction of the unit, which yielded all of the finds, consisted of up to 20 cm of compact brown silt containing many small stones and cobbles. Above this, the top part of the unit was a well-made floor or surface up to 5 cm thick, made of crushed *havara* plaster. The lower, fill component seems more likely to represent an accumulation of silt (like the underlying fills 256-8) than a deliberately laid substrate for the floor.

Fill 255 was thus the uppermost of the series of compact fills in the lower part of pit 300. The overlying floor, surface 255, represents the earliest evidence for human activity within the pit. Underlying deposits seem to be mainly, probably entirely inwashed. Whilst the *havara* component of these lower fills of pit 300 probably originated from the edges of the feature, the other components, including artefacts and other cultural material, clearly originated from the east. The unabraded condition of much of this material suggests human activity in the immediate vicinity.

Upon surface 255 lay fill 253, a fine orange-brown silt accumulation, representing the lowermost of the series of less compact deposits in the upper part of pit 300.

Fill 249 lies above fill 253. As described for fill 255, 249 consisted of a lower fill-type component topped by a thin surface. The bulk of 249 was fine grey-brown silt containing small cobbles and flat stones. This material was very intermittently topped by a patchy floor surface of hard yellowish-white plaster. This surface was overlain by fill 245, a thin (1-5 cm thick) accumulation of fine grey-brown ashy silt. The deposit was gritty and contained an abundance of small pieces of chipped stone.

Above fill 245 lay fill 237, a fairly loose, gritty grey-brown silt. This was in part overlain by surface 235, an intermittent spread of compact yellowish-brown silt with a patchy surface of hard, nodular yellowish-white plaster. (Surface 235 did not extend to the line of section 128).

Unit 218 was a series of at least five compact pale yellowish-brown silt surfaces, probably created by trampling rather than having been deliberately constructed. This series of surfaces overlay surface 235 or, where 235 was absent, fill 237.

Above the series of surfaces 218 lay surface 197, a fairly compact, somewhat ashy light grey-brown silt. On the top of this, a few patches of crumbly white granular plaster attested to the former existence of a floor.

Surface 196 overlay 197 and consisted of a compact, fine yellowish-grey ashy silt. A thin scatter of plaster nodules in the top of the deposit suggests the former existence of a formal plaster floor. Surface 196 in the deep sounding immediately south of B 200 equates with 317 and 309 beneath the building. Together these units form an extensive surface within the upper part of pit 300, which immediately underlies B 200 (see description of surface 317 below). Wall 126 of B 200 rests directly upon floor 196/317 immediately north of the deep sounding.

Above surface 196 in the deep sounding lay fill 181, pale yellowish-grey ashy silt, and upon this deposit lay plaster surface 177. The latter consists of hard, nodular white lime plaster containing grit and small pebbles. Wall 126 of B 200 lies within a shallow cut into 181, whilst surface 177 is certainly contemporary with the wall since immediately east of the section line it was clearly observed that the surface curved up to join with the plaster of the exterior wall face. Thus, surface 177 and overlying deposits are best considered along with B 200 (Fig. 42).

The sequence of units which overlay surface 255 and predated B 200 thus consists largely of layers of inwashed silts and other detritus, suggesting that the gradual infilling indicated by the more compact deposits in the lower part of pit 300 continued in much the same way. The major difference is that in the upper series of units, silt deposits are interspersed with plaster floors and less formal trampled surfaces, indicating human activity within the top of the hollow (as opposed to the passive accumulation evidenced in its lower part). These upper deposits tend to contain more ash and less *havara* than the lower ones, that is to say, they are more cultural and less natural in their composition. Thus, it is likely that human habitation came closer, or at least became more intense in the locality, in the later phase. This basic division between lower and upper fills within pit 300 receives confirmation from the ceramic evidence.

Relationship between Pit 300 and Building 200

Immediately NE of the deep sounding, outside the SE sector of B 200, surface 177 was underlain, successively, by fill 179, trodden muddy surface 184 and fill 193 (not excavated). This sequence seems to correspond with fill 181 (which underlay surface 177) in the deep sounding. The two fills of this sequence were similar and resemble 181. Sandwiched between them, 184 consisted of up to 5 cm thickness of an orange-brown trodden mud surface with occasional orange-white granular plaster flecks. Immediately adjacent to the exterior face of wall 126 was a band of irregular width (max 35 cm), containing a greater or lesser concentration of granular white plaster. This component of surface 184 proved to be the fill of a shallow foundation cut (foundation trench 200.194) for the wall, which was up to 15 cm deep against the wall face. The granular plaster in the fill of this cut was essentially the same material as the wall face, whilst the trodden muddy surface 184 is that which would have been walked upon by the builders of B 200. Thus, B 200 was constructed during the deposition of fill 179/193 (=181).

The continuation of surface 196 beneath B 200 consisted mainly of surface 317. This surface is equated with small patches of identical material in the NW of the building and beneath its wall in the NE sector, which were designated 309. Surface 317 was preserved throughout most of the southern half of B 200 but, except for 309, was eroded away in the northern half. What remained of this extensive, stable surface had been exposed throughout B 200 by its builders and re-used as the earliest floor within the building. Where damaged, surface 317 was repaired with floor series 283, in many places underlain by make-up layer 305.

Excavation of underfloor make-up 305 revealed that it, and extensive surface 317 which it abutted, was underlain by a horizontal surface of soft grey-brown silt, surface 313. This may well equate with the surface which constitutes the top of 197 (see above), which underlay surface 196 (=317) in the deep sounding some 2.6 m to the south. Surface 317 was exposed but not extensively excavated. Within surface 317, overlain by make-up deposit 305 (for floor 283 of B 200), was plaster basin 314. It was a roughly circular depression in the surface, measuring 54 x 44 cm and 10 cm deep. It was made of crumbly orange-white plaster which occurs only intermittently on surface 313, and filled with grey-brown silt (from which derive all of the finds attributed to 314).

Beneath wall 126 in the NE sector of B 200 and intruding into surface 309 (=317) was a series of five small depressions. These were disposed over a distance of 1.05 m in a fairly straight line, aligned NW-SE. The NW trio of these were at least fairly convincing as postholes, whilst the SE pair seem more likely to have been created by root disturbance. This pair is connected by a shallow groove which, like other such grooves in the vicinity, is interpreted as the imprint left by a long-dead large root. In fact, wall 126 in this sector was located within an extensive area of post-B 200 root disturbance, the wall having apparently protected the underlying portion of surface 309 from its most severe effects. At the time, however, the excavator of this linear spread of small depressions interpreted it as representing a timber wall (wall 277) belonging to a building (B 290), a possible timber precursor of the overlying, more solidly built wall 126 of B 200 (Christou 1996, 1083). However, removal of wall 126 for a further 1.10 m to the SE of this alignment of probable and less probable postholes in order to ascertain whether it continued, revealed no evidence of even potential postholes, but only the surface 309. Thus, timber wall 277 and B 290 would seem, retrospectively, to represent an over-interpretation of flimsy evidence, and should be discounted. The "postholes" (one convincing, two fairly convincing and two unconvincing) may be viewed only as part of a scatter of essentially uninterpretable features which predate B200 and intrude into underlying surface 309/317/196.

Other features which seem to have been cut into the extensive surface 317 (=309/196) before the construction of B 200 upon it were pit 315 (=274) and posthole 318.

Pit 315 (=274) was circular with a diameter of 60 cm, vertical sided and flat bottomed. Its fill, 316, was a soft grey-brown silt which contained several large stones (including rubber KMyl 1421). Fill 316 was sealed by a patch of silty surface which closely resembles surface 317, and thus seems to have been cut from this surface and abandoned whilst the surface was still in use.

A final feature which is cut into surface 309 (=317) and seems likely to be associated with this surface rather than with the overlying B 200, is posthole 318. This circular (34 x 32 cm) round-based posthole was 18 cm deep and contained fill 319, compact crumbly white plaster. Crevices in surface 309 had also been filled in with identical plastery material, probably representing repair of the surface prior to its re-use as the initial floor surface within B 200. It must be admitted that both posthole 318 and pit 315 could conceivably belong to an early stage in the use of B 200, and are attributed here to the pre-building phase with a slight degree of uncertainty.

In the sounding which revealed the eastern margin of pit 300, a series of fills of pit 300 was excavated which predate B 200. The upper part of this small series was truncated by the foundation cut for wall 126. Since these deposits lay some metres away from the floors and fills explored to the SE and south of B 200, no equivalences may be proposed. Beginning with the lowest one excavated, these fills are: fill 226; fill 220; surface 219 (cement like consistency, up to 5 cm thick, slopes up steeply to cover the *havara* edge of pit 300); fill/surface 217 (on fill 217, up to 2 cm thick, granular white plaster, sloping like surface 219); fill 216.

Chapter 13: Buildings

by

Paul Croft and Gordon Thomas

[*Buildings are also reported in pit 1, phases 3-4 and pit 102. See* § 12 and 24.2, 4]

§ 13.1 Building descriptions (G.T.)

Building 152, circular timber structure (Pl.4.1-2, Figs. 28, 38)
Diameter: 4.4 m
Location: Plot 58

Within one of the test trenches laid out across the site in 1996 the very ephemeral remains of structural elements suggested the location of a building or other structure. Upon extending the area of investigation it was apparent that the fragile remnants of a circular timber building sitting in a slight hollow and with its internal fixtures intact was indeed preserved here. A floor surface surrounded by postholes and with a mud ridge, potsettings and a hearth was revealed. Unfortunately, nature conspired against the excavation, and before a complete photographic and drawn record of the building had taken place, the excavations were flooded by a series of torrential downpours which inundated the site, causing substantial damage to the fragile remains. In particular, the transformation of the subsoil into several centimetres of mud meant that a complete section of posthole evidence along the SW of the building has vanished. Delays caused by the flooding as well as the unique nature of these early remains - the only preserved EChal building in Cyprus - prompted the decision to preserve this part of the site and not to excavate below the exposed floor surface. Only one small sounding was put through the floor of the building in order to determine the shape and nature of the deposits associated with the underlying hollow. Accordingly, a permeable membrane was placed over the remains, which were then carefully backfilled.

The building sits on level ground at the N edge of large hollow or pit, 136/166, which had already been largely filled with erosion deposits, 166.149/171, before construction of the building had begun. There are no clearer indications as to the nature of this hollow as time did not permit its excavation.

The building is constructed within a 4.4 m wide circular hollow, 161, which has twenty-six postholes, 147, preserved along its S half. The postholes occur in a band along the S arc of the building about 0.50 m wide and are of different sizes and depths. In the SE, the perimeter of the hollow is interrupted by a broad ramp sloping down into it. This hollow had been infilled with *c.* 0.30 m. of deposits, 161.162, before the earth and plaster floor, 152.188, was founded upon it. The interior of the structure is characterised by a low earth bank, 152.129, with, at its W terminal, a stone setting containing a ceramic vessel, 152.154, and, at its E terminal, a shallow clay plaster basin, 152.165. This arcs around an arrangement of two massive socketed stones, 152.186-7, both set in stone packed pits cut into the floor. To the N of these is a Type 1 hearth, in pit 185, with a complicated history of reuse. Along the E edge of the floor area is a group of stones, stone tools and other artefacts set directly onto the floor and clearly part of the original *in situ* contents of the building.

The interior of the structure had been packed quite closely with a fill of stones and blocks of consolidated mud, 152.111, .122, .182, from which sample S392 was taken. The mud was a buff/brown compact, fine silty clay with few coarser sands but with quite a granular texture. There were some irregular voids, *c.* 10%, and many tiny casts of the stalks of organic material, (*c.* 2.0 mm long, 10-30% of the sample). All this is indicative of a prepared structural mud. A surface on top of this was preserved, but it was very weakly structured with no lamina in evidence. This may well have been the result of exposure to weathering of the material after it had been laid within the structure. Several pits, 119, 143-5, 156, 158, and a channel, 139, were cut through this deposit in and around the building from later levels which have now been completely erased by erosion and agricultural activity.

Beneath the protective shield of layer 152.111, the entire contents and fixtures of the building were preserved. The complete structure of the floor, 152.188, survives in one small patch where it seems to have been subject to burning, sample S404. It was a dense orange/white clay layer 24.0 mm thick and had a laminated structure at the surface which had been smoothed roughly to give an irregular finish with some burnishing. There were very few coarser sands, the bulk of the material being composed of medium to fine clay sediments, and there were no organics in evidence. It had been coarsely structured parallel to the surface in thick lamina with some finer ones in evidence, all fairly weakly developed. The lamina nearest the surface were mottled with a bricky red structure, probably from burning, and a very fine slip or slurry of white clay lay on the surface itself and in the uppermost micro-cracks. This had been overlaid on the compacted earth surface of the underlying deposit 161.162, which filled the hollow 161 within which the building was constructed.

The mud ridge, 152.129, is 0.15 m wide by 0.10 m high stretching in an arc 2.60 m across and sits almost directly up against the SW wall of the building. It was constructed of a friable reddish/brown silty material, sample S243, which was loosely structured and very granular in texture. There was a low clay content, *c.* 15-25%, appearing mainly as large white clasts. Voids were quite small, 0.5-2.0 mm, and comprised *c.* 10-15% of the sample. The organic content was very low, *c.* 1-5%, and quite poorly preserved. The surface, although roughly smoothed, was not well structured and had no evidence of laminations. This is a well sorted but poorly mixed and roughly prepared material which would not have provided a durable or finely finished fixture.

At the western tip of the mud ridge arc was a stone setting, 152.154, consisting of a quern, KMyl 452, set in a reddish/brown mud matrix identical to the rest of the mud ridge. Smaller flat stones, also in a mud matrix, were edge-set around it to support a ceramic vessel, KMyl 447. The entire setting is 0.60 x 0.40 m in plan standing 0.25 m high and is open ended to the N.

At the opposite end of the mud ridge is a damaged plaster basin, 152.165, which has been constructed upon the slightly broadened E terminal of the ridge. It survives as a shallow, square depression 0.40 x 0.30 m in plan and 0.07 m high lined with a hard white plaster and furnished with a low rounded rim which survives on the north and western sides. It was constructed from a fine, dense, hard brown/orange clay over 42.0 mm thick, sample S403. Voids constituted *c.* 10-20% of the sample and organics, which were very poorly preserved, another *c.* 5%. There were strongly structured clay lamina internally organised in vortex patterns. The surface had been smoothed to give a fairly fine regular finish, creating a surface layer of finer laminations *c.* 5.0 mm thick. A very thin slip of white clay covered the entire surface and penetrated the micro-cracks, which had formed in the drying process.

The two socketed stones, 152.186-7, sit at right angles to each other and are both set into ill-defined pits dug into the underlying deposits and supported with a packing of small stones. They lie within the arc of the mud ridge against its W arc. To the side of these settings, between them and the ridge, is a group of stones including some stone tools. A large quern, KMyl 398, lies face down in amongst the stones and fragments of another quern, KMyl 451, and a pounder, KMyl 397, were also recovered.

To the N of these lies what may be the hearth of the building, 185. It consisted of a broad shallow pit 1.10 x 0.85 m in plan and 0.20 m deep into the base of which had been cut a smaller, circular pit 0.30 m diam. and 0.08 m deep. This smaller pit appears to have been a fire pit and was packed with small, angular heat-cracked stones, burnt mud, black soil and some sherd material. A large CW tray, KMyl 436, had been placed directly over this, supported on a low ring of mud set around the edge of the fire pit. At some later date, the base of a large piriform flask, KMyl 437, had been pushed through the floor of the CW tray causing it to break, distort, and collapse into the fire pit. The flask base was itself supported on a ring of mud. This packing to support the pointed vessel in the hearth was a compact, very fine orange/buff clay with some coarser sands present (<1.0 mm, *c.* 5%). There were some organics and voids but these were small, <1.0 mm, and were only *c.* 1-5% of the sample. Clasts of whiter clays were present but there were no structural laminations. This was a roughly prepared material and cannot have been intended for any long term structural use.

Building 290, timber structure (Fig. 39)
Length: 3.60 m. Breadth: 2.60 m
Location: Plot 58

Only a few meagre remains of this structure were recovered due to the construction of the later buildings B 330 and B 200 on the same site. Parts of the walls and floor of building B 200 were removed in order to examine the foundations and structure of the building and it was during this exercise that the earlier structure, B 290, was located and cleared. The E and W parts of this structure were never exposed as this would have entailed the demolition of most of the wall circuit of building B 200, leaving very little of this remarkable building intact.

A large oval-shaped scoop or hollow was initially founded in the upper deposits of the earlier hollow 300 cutting down through the existing uppermost layers in that hollow. The hollow was *c.* 2.60 m along its E-W axis and *c.* 3.60 m N-S with a small ramp or "island" of material left projecting 1.0 m into the scoop in the SW corner. The base of the hollow was levelled off along the top of surface 313, which had been formed in the upper deposits of hollow 300 below surface 317. Within the hollow, the remains of a surface associated with the building B 309 were preserved along the edges under wall 200.126. This dipped down gently into the depression where it merged with the underlying surface 313. Along the NE edge of the building scoop and cut into surface 309 was an irregular curved shallow channel 1.40 m long and *c.* 0.50 m wide within which five postholes were preserved. The entire interior area of the hollow had been infilled with a soft, grey ashy deposit, 200.305. This effectively levelled off the depression formed by the hollow and formed the foundation for surface 317, which was established beyond the immediate confines of the building. To the S of the building scoop, set along its edge and cut into surface 317, were many stakeholes. This surface extends S from the building beyond the confines of the excavated trench and may indicate an intermediate phase between the end of building B 290 and the construction of buildings B 330 and B 200.

Inside the building beside the NW edge of the scoop was a shallow basin, 313.314. It is cut into surface 313 with dimensions of 0.54 x 0.44 m, a depth of 0.10 m and is edged with a compact orange/white plaster-like material. A stone vessel fragment, KMyl 1391, and a hammerstone came from the grey/brown silty fill of the basin. Other artefacts came either from directly upon the floor of the scoop or upon surface 309 sealed by the later wall 200.126. These include; a rubber, KMyl 1386, and a pounder, KMyl 1387. Scattered across the floor were a stone bowl, KMyl 1396; three pounders, KMyl 1388-9, 1390; a hammerstone/grinder, KMyl 1392; a rubbing stone, KMyl 1409; a grinding slab, KMyl 1410; a chisel, KMyl 1408; a polisher, KMyl 1400; and a shell, KMyl 1393.

A rubbly grey, ashy layer of silts and small stones, 200.305, was found directly upon surface 313. Over this and within the interior area of the building scoop were at least three finely laminated hard plaster-like layers of silty material, 200.283 (lower 3 layers). It is not known if these represent repeated accumulating floor surfaces inside B 290 or eroded material deposited after B 290 had been abandoned, but in either case the effect was to level up the depression caused by the construction of the building to match that of surface 317. These deposits eventually also spread over 317 as well where they merge with the earliest levels inside B 200.

Building 330, stone structure with no foundation
(Fig. 39)
Dimensions: unknown.
Location: Plot 58

This building was largely constructed over the remains of B 290, covering its entire W half. Very little of this building survives, however, due to the destruction of its S half during the construction of B 200. Only a short NE stretch of the wall, 330.323, the entrance, 330.327, and a part of the floor, 330.326, were recovered in excavation.

The wall, 330.323, was traced for a distance of 4.00 m. with a gap in the N of 0.62 m for the entrance. It was 0.60 m wide and was preserved to a maximum height of 0.48 m. There is no clear foundation for the wall, which appears to sit directly upon the underlying natural *havara* and silty deposits of surface 309. In construction it consists of a haphazardly built stone rubble core set in rough courses and bonded with a grey/brown mud mortar containing chunks and fragments of *havara*. The interior face of the wall had originally been rendered with a coat of reddish/brown mud up to 0.02 m thick. An entrance, 330.327, was located facing N. It is 0.65 m wide at the inner wall face and is well defined by the E door jamb, with only the inner corner of the W jamb being identified with reasonable confidence.

On the interior of the building a patch of flooring was uncovered along the arc of the preserved wall, 330.326. It is constructed of a granular and nodular white plaster-like material 0.03-0.10 m thick, lying directly upon the silty deposits of surface 309. The floor curves up against the inner wall face and slopes gently S towards the centre of the building for a distance of nearly 2.0 m. No other part of this floor surface was identified. It is overlain by deposits 330.325 and 330.199, which occur only over the floor and appear to be associated with the occupation or decay of the building.

Building 200, circular structure with stone foundation
(Pls. 4.2-5, 5; Figs. 24.1,2,3a-c, 28, 40-2)
Diameter: 6.0 m
Location: Plot 58

This is by far the grandest and best preserved structure found on the site. Its survival is a matter of fortunate circumstance and owes much to the quality of its construction and to its location within the slight dip afforded by hollow 300, where it was protected from the worst effects of the sheet erosion which has stripped so much from the ancient land surfaces at Mylouthkia. The building is the last in the series of structures and activities that took place on this part of the site, and its construction did much to damage and also preserve parts of the underlying buildings B 290 and B 330. By the time of its construction, hollow 300 would have appeared as a very broad, shallow depression in the landscape with fairly steep well-defined sides along the E and possibly N edges. It is clear that the latest levels within the hollow had been deposited after the construction of building B 200 and that the continued inflow of sheet erosion material into the depression must have had some impact on the occupational and structural history of the building. Four phases of construction, occupation and site formation can be associated with building B 200.

Phase 1: construction (major units include 200.126, 200.189, 200.214, 200.275, 317)

The first phase in the construction of the building involved the cutting of a broad flat-bottomed pit, 214/194, within the existing upper deposits of hollow 300 to give a level foundation for the walls and floor. This was detected along the S, E and part of the N circuit of the building where it can be seen as a 0.50 m deep cut which slopes outwards in an irregular circle for 0.20-0.70 m from the exterior base of the wall. Along the W arc of the building the cut was barely detectable in section only where it was very shallow, indicating that the foundation pit had created a circular open ended terrace into which the building had been set. In one of the few places where a section had been put through the wall of the building, some indication of the detail of the foundation can be seen. Here, the foundation was stepped down into the pit with a shallow ledge over which the wall had been constructed with the inner face of the wall resting on the base of the pit, and the outer face resting on the upper ledge. At the point in the wall circuit where the entrance was to be located, the surface from which the foundation hollow was cut, 177, projects into the building as a step down into the hollow. This may be a continuation of the ledge noted along the E perimeter. The digging of this foundation terrace effectively removed all of the S and W parts of the earlier building B 330 and cut down to the firmer layers of the surfaces of 200.283 (lower layers) that had built up in and over building B 290. Packed into the foundation cut, against the wall of the finished building, was a mixture of different types of fill material, 182/184, 200.215, consisting of what appears to be loosely consolidated white plaster-like fragments, compact and loose grey ashy silts and colluvial sediments.

The wall of the building, 200.126, was set directly onto the floor of the pit around its perimeter and partly straddling the ledge where this existed. This defined a structure with a diameter of 6.00 m. The wall itself is av. 0.60 m thick and survives to a maximum height of 0.57 m. It is constructed with a rubble core 0.45-0.55 m wide of large and small stones bonded in a mud matrix. Within the rubble core of the section of wall that was demolished (about one third of the length) a total of thirteen artefacts were recovered. In places there appear to be attempts to build with an inner and outer face of carefully laid stones packed with smaller rubble stones, while in other places large stones are set projecting through the entire width of the wall. Some coursing of the stonework is in evidence although, in general, it is quite haphazard and has the appearance of mass rubble-like construction. Both faces of the wall are smoothed or finished off in a rendering of the same mud matrix as the core although in places the stone core does project through.

The rough nature of the construction of this wall can be seen along the SE arc where a stretch of *c.* 2.00 m expands to a width of over 0.80 m at a height of *c.* 0.40 m above the base of the wall where it bulges alarmingly inwards as an overhang of up to 0.20 m. This was initially thought to represent the deformation and progressive collapse of this part of the wall although, bearing in mind the manner of construction over the rest of the wall, the building methods used may also be the cause of this irregularity. Experience with the experimental construction of such buildings has shown that in a circular structure these irregularities are neither uncommon nor are they particularly dangerous. It is clear that during the initial stages of construction of the building this overhang was tolerated with the earliest floor surfaces 200.283 (upper layers) running up to the base of the wall. However, by the first identifiable occupation the bulge was covered by a coat of compact whitish brown mud render 0.05 m thick, 200.275, resting on floor 200.283 along this part of the wall interior creating a more vertical face. The second phase of occupation in the building, floor 200.276, saw the addition of a further coat of render, also 200.275, which ran in a continuous application with the floor. Built in with the render along the base of the wall are three hammerstones, KMyl 1414-6.

An entrance to the building was located facing almost due S, 200.189. It was 0.60 m wide at the inner and 0.80 m wide at the exterior door jambs. There does not appear to be any attempt at greater care with the construction of either jamb although they are both quite well formed in mud over the rubble stone core and both survive intact.

Immediately inside the doorway almost against the western door jamb is a double pivot stone, KMyl 1192, sitting in the top of rubble filled pit, 200.274/315. [Ed. The pivot was used in phases 2 and 3 and is attributed to 200.211.] This was a circular feature 0.64 m in diam with vertical sides 0.54 m deep and a flat base. It had been packed with several large stones, 200.316, including rubber KMyl 1421, which projected above the floor surfaces of the building. The actual outline and edges of the pit, however, had been concealed by a patch of silty material. The poor preservation of the floors at this point makes an assessment of any associations with this pit difficult. It may either pre-date the building or be part of the building's initial construction, but its use as a base for the socketed stone is significant and for this reason is associated with the earliest doorway arrangements.

Roughly central to the building is a group of three pits which appear to be cut directly into the underlying layers 317 and 200.283 (lower layers) and which are also partly overlain by the later surfaces of 200.283. Pit 200.307 is a small, roughly circular feature 0.60 x 0.70 m. It has almost vertical sides to a depth of 0.15 m below which the bottom slopes gently downwards to an irregular central depression 0.22 x 0.26 m and 0.08 m deep. The pit is filled with grey/brown silts and clean gravels with a few pieces of shell, bone, sherds and calcarenite blocks including a hammerstone, KMyl 1401, and a pounder KMyl 1402. Slightly to the SE of this pit is a second pit, 310, which is a roughly circular feature 0.70 m in diam with fairly steep sides and a gently dished base 0.27 m deep. It is filled with ash and rubble, including a hammerstone, KMyl 1405, and a large flat stone which sits on the E edge of the pit angled down towards the centre and shows evidence of pecking on its upper surface. A third pit to the E of this is a shallow, oval feature 0.60 m x 0.90 m which is largely filled by the foundation structure of hearth 271. However, part of the edge of this pit is overlain by the later layers of floor 283 upon which the hearth of the latest floor in the building is constructed (see below).

One other pit, 292, situated in the SE part of the building just in from the entranceway, also clearly belongs to the initial construction stages of the building. It is 0.88 x 0.64 m and 0.22 m deep with gently sloping sides and a flat base. There is some evidence that this feature may have been recut on several occasions. In the centre of the pit sits the stone setting 200.286 featuring a large mortar, KMyl 1349 (see below).

Phase 2: occupation I, Floor 200.283 (major units include 200.126, 146, 200.189-90, 200.212, 200.271, 200.283 upper layers, 200.285, 200.296-99, 200.301-03, 200.320)

The first identifiable phase of occupation over most of the building ironically appears at a time when the building had already undergone a major refurbishment. Nearly 0.15 m of erosion deposits had accumulated against the S exterior face of the building, 178 and surface 146, taking the level of the outside ground surface above that of the entrance threshold. It is clear that this episode of erosional deposition also extended to the interior of the building with the accumulation of some of the silty surfaces of 200.283 and the silt deposits within pits 200.292, 315 and 309 being the results. Three courses of mud and stone blocking consisting of several large flat stones, 200.250, were inserted in the doorway at this point to a height of over 0.30 m. The large stones were stepped slightly inwards and rested on surface 146 effectively creating a small niche on the interior of the S part of the wall. Whether the stonework was carried up for the full height of the doorway is unknown, but it does survive to the same height as the wall at this point. The possibility that it represents the complete blocking of the doorway or the creation of a window ledge must be considered. It is unlikely to be a raised threshold due to the steep drop on the interior of the building and the presence of structural mud on the exterior surface of the stones. At the same time that this was built, the exterior face of the S arc of the wall was refurbished with the application of a compact crumbly brown render, 200.190, which also rested upon surface 146. The render was 0.14 m thick and survives for a height of 0.18 m. Its application would have created a flush exterior wall face by covering over the projecting lower stone of the door blocking 200.250 although this terminated in a sharp right angle just to the E of the doorway.

In the NW wall of the building a second entrance was located, 200.212. It is 0.60 m wide at the inner door jamb and 0.70 m wide at the outer door jamb with an earth threshold. Two artefacts – a bone spatula, KMyl 1346, and a pebble grinder, KMyl 1347 – lay on the threshold. As with entrance 200.189, there is no particular care or structural features associated with the construction of the door jambs, which are also formed largely in mud over the stone rubble core. Of interest is the stretch of the building wall arcing to the N of this entrance. There is a very clear, well built, stone straight line join 0.80 m N of the N door jamb. This section is preserved to a greater height and is better built than the section between it and the doorway. There is no obvious structural reason for this anomaly although an alteration of the doorway arrangements is suggested. It would appear from the definite finished nature of the straight line join, though, that a gap in the perimeter of the wall at this point was always part of the original design of the building.

The internal floor of the building during this phase, 200.283 (upper layers), consisted of several lenses of compact white laminated surfaces which extended over most of the building interior, sometimes appearing in patches of up to 8 distinct surfaces. These floors are by no means clear throughout the building and neither is the relationship between the various features associated with them. The laminated silty structure of these earth floors is suggestive of water deposition at various stages, which may explain their patchy nature and the concealment of various pit edges by the floor. It is a fair assessment to suggest that the phase 1 pits 200.292, 200.307, 200.310 and 200.315 continued as distinct features throughout this phase of occupation. The area immediately to the SW of the hearth was peppered with stakeholes although not enough survived to establish any pattern. In the SE area of the building, several artefacts were found lying in the laminated build up of surfaces. These included a flaked tool, KMyl 1381, and a miscellaneous object, KMyl 1382. In the same area, but attributed to 285, are KMyl 1348, 1398, 1412 and 1413.

In the centre of the building a hearth, 200.271, was constructed over the central pit in the group of three described above. This is a poorly preserved example which appears to have undergone several refurbishments in its lifetime and which survived in the same position throughout both of the major occupations in the building. It is roughly circular in shape with a diam of 0.70 m, standing to a finished height of *c.* 0.10-0.12 m. However, the hearth would have been partially buried by subsequent floor build-ups leaving only 0.08 m showing in the final phase of the building. A rubble and mud plaster core constructed in the base of a shallow pit formed the basic structure of the hearth. This was covered in an orange-white plaster-like material to form an upstanding platform hearth with a central firebowl 0.20 m. in diam and 0.07 m deep. There appear to be at least one, possibly two, refurbishments of the hearth although only the latest is clear with the plaster from that episode resting over an ashy deposit, 200.270, which is 0.04 m deep and covers most of the area over and around the hearth. This is most probably to be associated with the later phase of occupation in the building, floor 200.276. A rubber fragment, KMyl 1298, comes from within the rubble core while from the ashy layer 270 comes a pounder, KMyl 1279, some flint, antler and pebbles. A flaked tool, KMyl 1344, and a rubbing stone, KMyl 1397 lay beside the hearth.

Several postholes extend in a band across the middle of the building from W to E. The first two of these, 200.296 and 200.297, are 0.14 m. and 0.16 m. in diam with a maximum depth of 0.08 m. are in the W central part of the building. These are quite shallow, fairly ill-defined postholes which only appeared clearly in this floor surface although they may equally have been cut from higher up in floor 200.276. The third posthole, 200.301, is clearly associated with this floor sequence beside the hearth and is *c.* 0.26 m in diam and 0.23 m deep. Two smaller postholes to the S of these, 200.298 and 200.302, are also clearly from floor 200.283 and appear to be paired with the larger postholes. A further, much larger, posthole, 318, is located against the NW wall of the building. It is 0.34 m in diam and 0.18 m deep, making it a very distinct feature for a moderate sized post.

In the N part of the building lie several distinct features. A small, very badly preserved basin 0.45 m in diam with the remnants of a mud or plaster lip sits up against the NE wall. This is perhaps to be compared to a much larger and very well preserved example which lies against the N wall and a smaller one that sits directly in front of it. The larger feature, 200.299, is a circular, vertical sided, flat bottomed pit 0.64 m in diam which had been cut to contain vessel KMyl 2022. This was the broken, re-used basal portion of a large jar that had been set into the pit and had been packed around with ashy silts and fragments of daub. It contained a flaked tool, KMyl 1350, and a hammerstone, KMyl 1351. The floor around the sunken vessel was raised slightly to form a low lip or rim, 200.294, which was a maximum 0.10 m. wide. Sitting on the NW edge of the rim was a broken inverted quern, KMyl 1380. A second, smaller pit, 200.303, lies due S of 200.299. It is a circular pit 0.42 m in diam with steep vertical sides and a flat bottom into which had been inserted vessel KMyl 2023. The absence of any rim sherds suggests that this vessel too was a broken basal portion put to reuse in this installation. The base of the vessel was also missing and had been infilled with a granular white plaster-like material. Clean, compact, brown silts accumulated in much of the depth of the vessel before three stone tools including a hammerstone, KMyl 1358, and a pounder, KMyl 1359, were placed in it. The accumulation of more plastery silts in and over the vessel eventually obscured this feature. To the E of it lay another flaked tool, KMyl 1383, and a dentalium shell bead, KMyl 1340.

In the S part of the building the phase 1 pit 200.315/316, which contained the pivot stone, KMyl 1192, continued as a feature within this phase. The pivot stone appears to sit on the edge of the pit, suggesting that its position there was secondary to the original purpose of the pit. As described above, the later levels of floor 200.283 eventually concealed this feature. To the E of this on the other side of the blocked doorway was another pit, 200.292, which, like 200.315/316, had been cut early in the construction history of the building and was partially concealed by the later level of floor 200.283. It contained a stone setting, 200.286, which consisted of a large stone mortar, KMyl 1349, which had a large regular rounded depression at its centre. The mortar was held in position in the pit by several smaller packing stones and is surrounded by eroded laminated silty deposits and charcoal. The packing stones included three hammerstones, KMyl 1354-5, 1357, and a grooved stone, KMyl 1356. Some broken pebbles hammered in around the mortar suggest forceful ramming of the packing material into position. Floor 200.283 overlies the deposits within this pit although the socketed stone continues to project through this and is sealed only by the final repatching of the floor.

Phase 3: occupation II, floor 200.276 (major units include 200.126, 200.151, 200.159, 200.168-9, 200.172, 200.175, 200.180, 200.211-2, 200.221-5, 200.227-34, 200.236, 200.238-44, 200.246-8, 200.265-69, 200.271-2, 200.276, 200.281, 200.291)

This phase comprises the main surviving and best preserved period of activity in the building. There is no evidence for any accumulation of deposits between phases 2 and 3, the floor of the latter, 200.276, being founded directly over the floor of the former, 200.283. It is also clear from the deposits within the building that at the end of phase 3 the building had experienced some form of catastrophic destruction leading to its complete abandonment. The disposition of artefacts and fixtures on the floor of the building reflects the initial stages of that destruction as well as the final activities which took place within the building immediately prior to its destruction. Most of the artefacts associated with the floor 200.276 are embedded within the matrix of the lower levels of 200.211, which lies directly upon the floor surface itself. This is a very mixed layer of compact, friable ashy soil and plasters which appear to have accumulated on the floor in a single episode of deposition. In the S part of the building, this equates with 200.151/159, a similar type of deposit which also overlies 200.172, a series of water laid deposits lying directly on the floor in the SE hollow.

The floor of the building, 200.276, is a poorly preserved earth surface less than 0.06 m thick and characterised by a patchy distribution of granular white nodules. It is, in places, difficult to distinguish from overlying deposits, 200.211, leaving a floor which can be both patchy and discontinuous. There is some evidence of refurbishment in places where thicker patches of floor material can be seen. Also associated with this floor is a second phase of rendering 0.02-0.03 m thick which is plastered over the wall interior, 200.275, and appears to have been applied along with the formation of the floor. This wall render is by no means preserved over the entire interior face of the wall and survives best within a few centimetres of the floor.

The S entrance, 200.189, survives as an accessible space within the building. Whether this is as a blocked niche, window or entrance with a raised threshold is unknown and has been discussed above. However, it is significant that the pivot stone, KMyl 1192, continues to be a feature in this area despite the presence of considerable amounts of artefacts and vessels in the immediate vicinity. The NW entrance, 200.212, also continues in existence although, again, there are considerable amounts of artefactual debris in and around this part of the building. Immediately in from the entranceway on the floor of the building sit two large flat stones whose purpose can only be considered as steps or surfacing to provide a firmer footing on a vulnerable part of the floor. No socketed stone has ever been found in the vicinity of this doorway, which is curious considering the abundance of other *in situ* material in the area.

The rest of the interior of the building is fairly densely packed with fixtures and positioned artefacts. The floor area of the building can be divided into four unequal quadrants centred on the hearth. The hearth, 200.271, at the centre of the building is a refurbishment of the earlier hearth although this phase survives in a much smaller and very poorly preserved state. It is 0.60 x 0.80 m and sits upon a broad apron or heap of ash and plaster, 200.280, which had accumulated over and around the earlier hearth for a distance of *c.* 0.60–1.0 m from the centre of the hearth. Several vessels, including deep bowl, KMyl 1922, a flask, KMyl 2020, three holemouth jars, KMyl 2016-8, a closed vessel, KMyl 2019, and sherd scatters 200.262-3 lie over or near the hearth, as do a number of other artefacts, including a large flat stone on the SW edge of the hearth, three stone lids, KMyl 476, 494 and 505, a pottery lid, KMyl 473, and two axes, KMyl 1278 and 507.

In the SE of the building, the smallest of the quadrants, is an area almost devoid of artefacts and fixtures. It is formed of a slight depression defined by the floor surface around entrance 200.189 and the mound around the hearth, 200.280. A posthole, 200.272, sits on the NW edge of the depression near the edge of the hearth mound. It is a circular hole 0.26 m in diam with vertical sides for a depth of 0.24 m and a rounded bottom.

The NE quadrant of the building is characterised by a large shallow hollow which takes up most of the floor space in this area. It is bounded on the S by a low, triangular shaped, ridge-like mud structure associated with deep bowl KMyl 1925. This is 0.70 m wide where it touches the wall, projecting for 0.60 m into the building. Investigation of the ridge revealed it to be no more than the accumulation of compact mud deposits over the floor, creating a distinct mounding in this area. The ridge banks up against the wall and is associated with several artefacts including a holemouth vessel, KMyl 440, a deep bowl, KMyl 1925, and a polisher, KMyl 272. The hollow to the N of this occupies most of the NE quadrant of the building with its apex at the hearth. It is a fairly shallow feature containing a group of vessels, including a bottle, KMyl 439, a deep tray, KMyl 438 and a holemouth jar, KMyl 441, against the E wall. Several smaller artefacts, including a hammerstone, KMyl 1186, and a conical stone, KMyl 1185, lie along the S edge of the depression. A large upturned quern, KMyl 1292, overlies posthole 200.281 at the N part of the hollow, and an upturned stone rubber, KMyl 1191, and a small clay pinch pot, KMyl 1180, lie on the floor immediately to the W of this. A second posthole, 200.175, lies between it and the group of vessels. Both postholes are quite deep, vertical holes with diameters of 0.22 m and 0.20 m, suitable for fairly substantial upright members.

By far the most significant deposit within the area of the hollow is a human skeleton, KMyl 1197, lying just to the NE of the hearth. It was situated within the first 0.10 m of the deposits, 200.211, that overlie the floor. It is in a very poorly preserved condition with most of the bones decayed beyond recovery. Some of the bones were found lying amongst the ash from the nearby hearth, 200.270, discolouring them and leaving them slightly burnt. There is also clear evidence of some post-depositional deformation or crushing of the remains, especially the skull. The body appears to be lying on its left side with its legs brought up towards the chest in a lightly flexed position. However, the state of preservation of the bones and the crushed nature of the skull and pelvis make it difficult to know with certainty whether the body was lying fully on its side or whether it had been deposited in some contorted position within the destruction debris of the building. There are no artefacts specifically associated with the body, nor is there any feature clearly constructed to contain it.

The NW area of the floor of the building from the doorway, 200.212, to the start of the hollow described above contains one of the highest concentrations of artefacts within the building. These appear to lie scattered in a haphazard and chaotic fashion over the entire area of this part of the floor. However, closer examination suggests four identifiable patterns or groups of artefacts and fixtures.

Dominating this area, and indeed the whole building, is a low semi-circular plinth, 200.221, constructed against the N wall. The plinth is constructed of mud and stone rubble and is 0.70 m wide projecting 0.60 m into the building and standing *c.* 0.50 m high. It is built directly on top of the sunken ceramic vessel feature, 200.287/299 associated with Phase 2 (Occupation 1, floor 283). Three flasks, KMyl 457, 1927 and 2014, a deep bowl, KMyl 1923, and potspreads 200.239 and 242, lie in front of the plinth, all apparently smashed *in situ*. 200.242 also contains an elongated stone and an adze, KMyl 527 (assigned to 200.211). To the W of the plinth, stretching along to doorway 200.212 and placed against the wall along the edge of the floor, is a second collection of ceramic vessels and artefacts. The vessels, two deep trays, KMyl 1920-1, and a closed vessel, KMyl 1930, appear to be smashed *in situ* and are associated with 11 stone axes, KMyl 461-4, 471, 474-5, 488-9 and 492, some utilised chipped stone fragments, Cat 392-3, and a hammerstone/grinder, KMyl 495, lying amongst the sherds of the vessels or immediately in front of them on the floor. A third group of associated artefacts lies to the NW of the hearth and is centred around a broken quern, KMyl 1280, and a large inverted quern, KMyl 1190, which overlies a stone rubber, KMyl 1293. Two ceramic vessels, a holemouth jar, KMyl 2015, and a sherd scatter, unit 200.267, lie smashed to the W of these. In the area around the querns and vessels are three pestles, KMyl 472, 487, 1272; two pounders, KMyl 496-7; two axes, KMyl 460 and 508; an adze, KMyl 506; a hammerstone, KMyl 525; and a stone lid, KMyl 486. The fourth collection of artefacts lies slightly to the NE of the hearth and is more difficult to define as a cohesive group. It is spread over a disturbed area of floor through which the underlying fill deposits of pit 200.307 from the preceding phase have been exposed. One large fragment of a broken stone basin sits on edge half buried in the pit but with its upper part exposed. A collection of stone artefacts, including three stone lids, KMyl 500-1, 503; two axes, KMyl 504, 1277; an adze, KMyl 466; a pounder, KMyl 1285; and a hammerstone/grinder, KMyl 1290, lie in the area. Of interest is the collection of bone, antler and shell artefacts; a bone point, KMyl 1193; 5 antler beads, KMyl 1194-5, 1282-4; a dentalium shell bead, KMyl 1196 (from Unit 270); and a piece of worked shell, KMyl 1286. These are associated with two fragments of utilised chipped stone, Cat 384, 388. The proximity of the human remains, KMyl 1197, may also be of some significance for these discoveries.

The SW part of the building is less densely packed with artefacts although there are considerable concentrations against the wall. However, the area in from doorway 200.212 past the hearth and across to the SE of the floor area is relatively clear. One significant feature is a posthole, 200.320, sitting just in from the doorway on the S. This was a circular hole with diam 0.25 m and a pointed base 0.14 m deep. Behind the posthole against the wall was a collection of stone tools, including two axe-shaped grinders, KMyl 526, 1297, and a small adze, KMyl 470. Several ceramic vessels – a spouted bowl, KMyl 1924, a deep tray, KMyl 1926, and a closed vessel, KMyl 2024 - sat near these just out from the wall. The greatest concentration of material in this area, however, is located around a low projecting ridge or pier, 200.269.

This second, low mud and stone ridge-like feature, 200.269, lies against the SW wall of the building from which it projects at right angles before looping N to define and enclose a small bin or basin containing a collection of artefacts and vessels. The ridge is 0.15 m wide and only a few centimetres high although when it turns N it also splays out to be 0.62 m wide. The entire feature projects from the wall for a distance of 1.22 m. Lying over the ridge itself is a broken, inverted quern, KMyl 1189, as well as another flat stone and some smaller artefacts; an axe, KMyl 1182; a chipped stone burin; and a pendant, KMyl 1187. Within the bin defined by the ridge is an odd collection of densely packed artefacts. These include a bone needle, KMyl 1296, a conical stone, , KMyl 1273, a stone bowl, KMyl 1521, three axes, KMyl 516-7, 1281; two stone lids, KMyl 520, 1275; a hammerstone, KMyl 513; a multiple tool of chipped stone; and a stone rubber, KMyl 1188, as well as several other stones. A deep bowl, KMyl 1917, a flask, KMyl 1928, and a closed vessel, KMyl 2021, were also found inside this bin.

Immediately to the S of the ridge lies another dense collection of artefacts, 200.151, sitting over and around the fill of phase 1 pit 200.315/316 containing pivot stone, KMyl 1192. The main focus of this group appears to have been an organic "vessel", 200.240, that survived as a clay filled or lined "basket/container" in which the possible organic component of the vessel had been reduced to a compact friable grey ash. The vessel was circular in shape with a diam of 0.35 m and height of *c.* 0.10 m high and seems to have been filled with a local bentonitic clay (Pl. 4.4). A stone lid, KMyl 480, and a rubbing stone, KMyl 482, rested on the rim of the "vessel" while an axe, KMyl 499, was found inside it. Around the base of the "vessel" is a collection of artefacts including an antler; two axes, KMyl 481, 542; an adze, KMyl 543; a pounder, KMyl 539; two bone points, KMyl 519, 540; a chipped stone core and utilised flakes; and grooved picrolite (?), Pl. 16.13. Against the junction of the ridge, stone setting 200.269, and the wall of the building, holemouth jar, KMyl 1919, sits partly on a flat stone placed on the floor and partly on the ridge itself. It is associated with an axe, KMyl 515, and a fine abrader, KMyl 518. A fourth vessel, a deep tray, KMyl 1929, sits slightly to the E of the organic vessel but still over the fill of the earlier pit. To the S of this the socketed stone from the earlier phase of occupation, KMyl 1192, still appears as a feature in this area. A large chipped stone scraper and a utilised chipped flake lie beside this in the area of the former doorway 200.189. Stretching in a band *c.* 1.0 m out from the wall along the edge of the open floor space dipping down into the SE quadrant is another small collection of artefacts. These include several stones and antler; two stone lids, KMyl 523, 532; two axes, KMyl 530, 541; a fine abrader, KMyl 535; a limestone pendant, KMyl 531; and a dentalium bead, KMyl 537.

One final element of interest from this phase of activity in B 200 is the existence, mainly in the western half of the building, of a series of water laid laminated silty deposits, 200.172. These lie directly on the floor at this point and contain, embedded within them, some of the artefacts and ceramic vessels in the eastern quadrant. Posthole

200.175 was also covered by these deposits. There is some evidence to suggest, however, that the building continued in use after the deposition of these silts with the upturned quern, KMyl 1292, and the human remains, KMyl 1197, partially overlying them.

Phase 4: Destruction and Collapse. (major units include 113=195, 200.117=200.198, 137, 140, 148, 200.155, 200.160, 164, 200.170, 178-79, 203-08, 209=146, 210=199, 200.211, 213, 200.254)

The building appears to have been destroyed in a single, dramatic event that sealed the artefacts and materials lying on the floor and destroyed the roof, exposing the walls and interior to further erosion and decay. As well as the initial destruction there are at least two further clear episodes of collapse and post-occupation activity on the site.

The initial deposits lying directly on the floor consist of *c.* 0.08-0.12 m of a very mixed compact material containing some ash but mainly an unsorted soil type with clasts of consolidated sediments, plasters and reed impressed daub, 200.211 (lower level). It is clear that much of this material represents elements derived from the main structure of the building itself. This is spread fairly evenly across the entire interior of the building and contains within it the impressions, as ashy ghost stains in the soil, of two timber elements. A second episode represented by a similar type of soil but devoid of the structural material overlies this layer. In both deposits distinct talus slopes of eroded material can be seen forming along the base of the walls, especially against the E and N wall faces. In places, fragments of wall plaster can be seen lying on the surface along the interface between the eroded talus slope and the layers that were subsequently deposited.

Directly covering the uppermost level of 200.211 is a compact, silty brown soil, 195/159 which lies in the slight dip formed by the collapsed deposits and wall stub of B 200. These appear to be deposited in several episodes and are particular to the interior of the building only. Towards the centre of this deposit lies a heap of small to large sized stones embedded in a fine, compact laminated layer, 200.202. This is, in turn, overlain by fairly sterile, compact silty brown deposits, 113, and surfaces, 117, containing some smaller stones lying along the interface with subsequent layers. These now also appear outside the building, indicating that by this stage the building had ceased to exist as an upstanding feature. All subsequent deposits have been removed by agricultural activity.

§ 13.2 Discussion 1 (G.T.)

Two clear types of buildings can now be identified from the archaeological remains at Mylouthkia. A good chronological and stratigraphic separation between the two types has also been established with these excavations. Both types of building are circular and are set into slight hollows although there the similarity seems to end. Before the excavations at Mylouthkia, no strong evidence had existed for the type of buildings which were in use during the EChal despite speculation based upon tantalising glimpses from excavations at Maa (Thomas 1988) and Kissonerga (*LAP* II.1A, pp. 24, 240, Fig. 24). Links with an earlier architectural tradition in the Neolithic of Cyprus are now also emerging with the discovery of these buildings. The larger, and better preserved B 200 also greatly extends our knowledge of the type of architecture and internal arrangements of structures from the very early MChal period.

The Early Chalcolithic house at Mylouthkia

Mylouthkia now boasts three, and possibly four, buildings which can be grouped together as representative of the EChal house type. These are: phases 3-4 in Unit 1, Unit 102, B 152 and 290. Of these the best preserved is B 152, which can give a clearer idea of the form of the other structures. The precise date of B 290 is difficult to determine due to its poorly preserved state and lack of datable *in-situ* finds; it has been attributed to Period 3 elsewhere in this volume.

The lack of any clear walls in B 152 does present a difficulty with its interpretation. However, there are several considerations which indicate that this was an enclosed structure. The recovery of only 26 postholes along part of the S arc of the building can be augmented with the inclusion of many more such postholes along the rest of the SW arc, which were destroyed during flooding before being recorded. To the N, where no postholes were recovered, ploughing had seriously damaged the ancient ground surface and would have removed any such evidence. It is not unreasonable to assume the continuation of post uprights in some form along most of the N arc of the building. Indeed, several flat stones along the perimeter of the floor area, three along the NW arc, and one in the south-east amongst the postholes may have acted as the base supports for timber uprights. An analysis of the structure of the material overlying the floor of the building, sample S392, indicates that some of it, at least, was structural mud and may have been part of the demolished wall itself. This would suggest a timber and mud wall of some form had enclosed the floor space of the building. It is not possible to determine whether this wall was solid for its full height or whether it represented a more open type of structure. However, if the postholes are projected around the entire extent of the building, then this gives a structure with a diameter of around 6.0 m. The irregular appearance of the preserved pattern of postholes along the southern arc of the wall may also suggest several phases of construction or repair work to the building, with an initial phase being associated with the initial cutting of hollow 161 and the second phase associated with the preserved floor and fixtures.

There is no clear evidence of the location of any entranceway to the building. A consideration of whether the wall was solid or open, of course, determines the answer to this question. However, an examination of the plan of the structure shows that the outline of the floor area is quite clearly and regularly delineated for most of its circumference except in the south-east where a broad sloping ramp projects upwards from the floor to the preserved ground surface. The proliferation of postholes in this area and the presence of this broad sloping ramp suggest that this may well have been the site of an entrance into the building. The possible existence of some sort of wide sunken porch here should also be considered, giving the building a slight “balloon” shape in plan.

The preservation of parts of the fragile floor, the mud ridge, potsetting and plaster basin suggest two aspects of B 152. Firstly, it is clear that such fragile fixtures could not have been left open to the elements for even a short period of time. There is no evidence for water erosion of the fixtures themselves, nor is there any evidence for the deposition of water laid silts in and around them. This would surely have been the case had the structure been open to the sky at any point in its existence. It must then be concluded that the building had indeed been roofed. Secondly, the material constituting 161 had been deposited over the building and lay directly upon the floor and fixtures with no evidence of these having been damaged or eroded. This suggests that 161 was deposited shortly after the roofing had been removed and before natural erosion had caused much damage to these internal fixtures. Whether or not this was a deliberate act cannot be stated with certainty although the quick succession of events suggests that this may well be the case.

The other buildings on the site from this period are far less forthcoming due to their damaged and fragmentary natures. Both pit 1 (phases 3-4) and pit 102 are founded in some sort of hollow, pit 1 possibly on the infill of a pre-existing pit. The postholes around pit 102 appear quite regular and may well have supported substantial members. The evidence from pit 1 is much less satisfactory and may indicate a less substantial structure although the ashy nature of the underlying deposits makes any assessment difficult. In both cases, structural mud has been discovered either within the fill of the building or from the immediate vicinity, suggesting the use of mud in the walls. With B 290, the preservation of a small patch of floor with artefacts and the bases of the postholes of a timber frame wall beneath the later wall of B 200 is fortuitous but does give a slightly better idea of how these buildings were constructed. Here the floor is clearly seen rising up along the edge of the interior floor space to form a slight lip preserving and defining a channel with the postholes at its base, and which would originally have held the structural mud part of the wall. From this it would appear that the posts formed the core or main structural element of the wall with the mud acting more as an infill material. The impression of some sort of withy or branch in the mud around these postholes can be interpreted either as post destruction root action or as crude wattling woven between the posts and supporting the mud. Neither view can be supported with certainty, leaving the exact nature of these walls a matter of continued speculation.

From these remains it is possible to define a house type belonging to the EChal period (Ed. For other EChal buildings see *LAP* II.1A, §3.2). The construction of a shallow, dished foundation hollow with an earth floor formed over a rubble infill layer appears to be a common theme. This hollow may be roughly circular or oval in plan and does not appear to be any larger then 4.0-5.0 m in diam. The walls are constructed in timber and mud and appear as an irregular ring of postholes and post-settings around the edge of the hollow. A possible, more detailed view of how these walls were formed has been presented by evidence from B 290, discussed above, with timber posts supporting a possible wattle and daub structure. B 19 at Lemba is the only building of this type with preserved stretches of mud associated with timber uprights. Here the mud element is on the inner face of the timber posts, suggesting a slightly different arrangement. Clearly, we still have some way to go before a more definite assessment can be made. In B 152 and B 290 the preserved outline of the building indicates that access may have been gained by way of a slight ramp into the structure, giving a slightly distorted shape to the outline of the hollow. From these two surviving possible entrances a doorway facing the SE appears to be the favoured orientation of the building.

No direct evidence exists for the exact form of the roof although it can be demonstrated from the fragility and intact nature of the fixtures in B 152 that this did indeed exist. The extensive deposits of lenses of organic material in the levels associated with the Unit 1 building have very clear echoes of similar deposits in levels I-IV at Erimi (Dikaios 1936, 9). An assessment of whether this is to be associated with collapsed roofing material, flooring, or some other structural element must await further excavation and analysis.

The types of fixtures uncovered inside B 152 are, so far, unique in this period and may not be representative. Installations very similar to this have also been found at LNeo Vrysi, particularly on Floor 2 of House 7 (Peltenburg 1982b, 33, Pl. 20f). Similarly at Philia-Drakos A, large socketed stones were found set into broad basins finished in a high quality plaster (Karageorghis 1969, 510, Fig. 141e). Unlike those at Mylouthkia, the Philia basins were outside the main buildings but were thought by the excavator to have been housed in less robust structures. The relationship of socketed stones, hearths and vessels is also quite common at Sotira, and their incorporation within a ring or bank of mud is strikingly demonstrated in Houses 11 and 24 (Dikaios 1961, 75, 117, Pls. 25, 33, 46, 52). The occurrence of such a distinctive structure on an EChal site is a significant indicator of links with earlier periods. The only other fixtures from any of the Mylouthkia buildings are the plaster lined basin within B 290 and the damaged hearth in pit 1. Comparisons with B 19 at Lemba and EChal B 2180 at Kissonerga, where similar earth floors are set into a hollow and similar shallow plaster lined basins lie along the edge of the floor space, are evident. There is no clear indication of the internal segmentation of the Mylouthkia buildings which is so characteristic of the slightly later buildings at Lemba Period 1. However, the lack of any extensive preserved areas of floor at Mylouthkia, apart from B 152, means that this is hardly surprising. It would appear that the fragile nature of these buildings has meant their survival on most sites is fortuitous, with subsequent massive erosion and prehistoric building activity destroying most of the evidence.

The Middle Chalcolithic house at Mylouthkia

The form of B 200 bears many similarities to later buildings of the MChal period from Kissonerga, Lemba Area II and Erimi although there are enough differences for it to sit easily with its slightly earlier date and to tie in with the remains from Lemba Period 1. The impressive size and solidity of the structure with a diameter of 6.0 m, although not remarkable for the Chalcolithic as a whole, is nonetheless unusual for such an early date and may indicate greater social diversity and change than was evident in the EChal.

The structure of the building

The construction details of the building both set it apart from other known Chalcolithic structures but also link it in with the thousand year long tradition of Chalcolithic architecture. Its most distinctive contributions to our knowledge concern its wall, wall plaster and roof.

The form of construction of the wall of B 200 stands out from other structures of the period. The description above has indicated its irregular pattern of mass construction that is unlike any other upstanding wall. There appears to be no set format in construction seen in other MChal walls where a regular stone foundation with inner and outer facing stones, a rubble core and mud superstructure prevail. Neither does it follow the pattern of LChal walls, which are stone and mud built but in a very regular form using smaller stones set with inner and outer facings. This wall appears rather as a form of mass rubble construction in which the stonework is not consistently laid in courses or as facing stones but rather as the bulking agent of what is effectively a mud-built wall. Compared to similarly dated buildings from Lemba Area I, it appears massive and much more substantial. However, this could be deceptive. The circumstances of preservation of the building at Mylouthkia are unusual and have resulted in the survival of a wall type that may not normally resist the processes of erosion and decay. When examined from a standpoint of site formation processes, the walls at Lemba are not that dissimilar. Both seem to be a mass rubble construction with the occasional lapse into more regular building practices. It is the size of the Mylouthkia building and the quality of its preservation that create the difference. The recovery of thirteen different artefact types from within the wall is also noteworthy. These could arguably be the result of the accidental inclusion of previously discarded material during the building process, and it is likely that some of the artefacts did arrive in the wall in this fashion. However, the possibility of deliberate deposition should not be ruled out.

Wall plaster has been recorded from both the interior and exterior of the building where it survives as fragments lying in the fill deposits of the foundation cut. In both cases the material appears to be a type of mud render rather than true plaster although an exact designation must await further study. Of interest is the repeated plastering on the interior of the building, which is in keeping with the long-term use of the structure and the evidence for several phases of activity. The incorporation of three hammerstones within one phase of replastering along the base of the wall is significant and should probably be considered as a deliberate act. Whether this is in the form of a dedication or as an attempt at reinforcing the vulnerable base of the wall plaster where it merges with the floor is a matter of speculation. However, the latter is a practice recorded in other buildings, most notably from buildings B 1000 and B 1046 at Kissonerga (*LAP* II.1B, 24-5).

As with all buildings of this type, evidence for the form of roofing is the most problematic aspect of its interpretation. With B 200 we are in a slightly better position. A row of three postholes from the first floor level, 200.283, is seen to run across the floor to the S of the hearth. These appear to be twinned with two smaller postholes lying just to the S of the larger ones. The shallow depth of these postholes, which is no more than the thickness of the floor itself, suggests that the posts were originally founded on the bare earth of the floor, with the deposits comprising floor 200.283 accumulating around them. It would not be unrealistic to see these posts as the upright providing additional support to the main E-W ridge beam of the roof structure. The presence of a palimpsest of stakeholes between the postholes also suggests the presence of some sort of structure or screen possibly even to roof height. In the second main phase of occupation in the building, floor 200.276, the postholes are much deeper, more distinct features. However, the presence of three of them along the perimeter of the building with only one in roughly central position is frustrating. The very damaged nature of this floor may be a factor to be taken into consideration. Within the destruction debris of 200.211 across the entire floor area, the occurrence of reed and timber impressed daub fragments, some substantial, provides a further clue as to the form of the roof. The amount and nature of the fragments suggest that they come from the initial layer of mud covering over the reed matting of a flat timber and earth roof.

The layout of internal space

The layout of the building and the types of features present bear comparison with many of the later buildings from Lemba and Kissonerga. The first occupation within the building, floor 200.283, retains a possible partition and doorway arrangement described above. The hearth is a classic Chalcolithic feature. This is the circular platform Type 3 hearth (*LAP* II.1B, 42) with a central firebowl and is found in many buildings throughout the period. The socketed stone or mortar set into the floor just inside the S entrance appears to be in an awkward position although a similar arrangement was also recorded at Kissonerga B 2 (*LAP* II.1A, Fig. 32). The sunken basins in the floor at the N end of the building are remarkable for the quality of their preservation but, as features, are not entirely unusual. It is likely that the bases of broken vessels have been reused and founded into these features that is of interest. That, and the position of the features at the rear of the building against the wall directly opposite the S entrance are also noteworthy.

The segmentation of interior space is a common feature throughout the Chalcolithic and is formalised in the early phases through the use of low mud and stone ridges or shallow scooped areas. In particular, the relatively empty areas in the SE and E are characteristic although at Mylouthkia it has been made less prominent through the use of differing floor surfaces. This sort of layout, as well as the mud bin 200.269, is reflected in the slightly later buildings B 5.2, 8.2 and 9.2 at Lemba (*LAP* I, 23, 26, 29). The construction of the mud and stone bench or pier 200.221 directly over the sunken basin from floor 200.283 is of interest and may suggest continuity of use or the lasting focus of this position as a significant place within the building.

Building alterations

It is clear from the evidence that the building underwent considerable alteration in its lifetime. The moving of the doorway from its original position at 200.189 in the S to a NW position may have happened very early in the use of the building. This is to be linked to the blocking of doorway 200.189 and the addition of a thick layer of render and stones along the SW side of the building. Additionally, the existence of a straight line joint just to the NE of doorway 200.212 suggests that it too is not in its original, planned position and may have been moved before it had even been completed. Inside the building, the presence of thick deposits of fine, laminated water laid silts which overlie the edges of the very earliest pits in the floor suggests a convincing reason for all these alterations. Flooding and the erosion of surface soils from the E is a recurrent feature of this site, a fact which became all too clear during excavation. The sequence of strata within hollow 300 and the build-up of layers against the E wall of B 200 indicate that such events also occurred in prehistory. It is evident that flooding through doorway 200.189 and possibly at the original position of doorway 200.212 had inundated the building very soon after its completion. The blocking of the S doorway and the construction of a new doorway in the NW would have helped to alleviate this problem. However, there is some evidence from the NE part of the building that further flooding affected the building around the time of its destruction, and it may have been an unpleasant feature of this house that at certain times of the year it was a dank and wet place. There is very clear evidence of further flooding within the building in the form of very finely laminated silts, 200.172, covering most of the E half. These appear to lie mainly within the lower lying hollows found in this part of the building where they merge with the later floors of 200.276.

Destruction and collapse

One of the most intriguing aspects of this building is the manner of its destruction. The presence of a human skeleton on the floor of the destroyed structure is an added interest which will lead, inevitably, to much speculation and trivialisation of this archaeological event. It is worth reviewing the evidence in order to clarify the circumstances of the destruction. Clearly, there was a dramatic episode which brought about the end of this structure, but whether this was as a result of a single catastrophic event or merely as a result of the decision to abandon must be considered more carefully. A superficial view of the evidence suggests that fire was the main cause of this sad event. However, this need not have been the case and is not clearly borne out by the evidence.

The stratigraphy indicates that there are two distinct episodes representing the immediate destruction of the building followed by several more gradual events. The lowermost deposit, 200.211, directly overlying the floor, is a very mixed layer with consolidated lumps of material, daub and fine, compact multi-coloured sediments but with very little black or grey ash. It was amongst this material that the majority of the artefacts were recovered. Quantities of black ash were recovered but mainly in and around the central hearth, which is to be expected. The uppermost deposit of 200.211 is almost devoid of any structural material and consists of several layers of soil similar to the initial lower layers of 200.211. The formation of a distinct talus or erosion slope along the edges of the wall is an interesting feature of all the layers of 200.211. These are frequently associated with fragments of plaster and stones which can be seen lying orientated along the interface surface between the layers, and which probably reflects material being eroded and falling off the crumbling walls. It appears that this defines the first two stages of destruction of the building with the lower part of 200.211, the initial collapse of the roof into the building. It brought down some consolidated structural material from the walls. The upper part of 211 is characteristic of a more gradual series of events in which natural erosion processes continue to bring small amounts of material off the walls, forming graded deposits spread across the entire area of the building interior. It is during this stage that the lower parts of the wall became embedded within the erosion material, giving them protection from further decay. Above this, and still within the area defined by the walls, are compact laminated layers containing stones embedded within them. The position of the largest stones in the centre of the hollow created by the collapsing building suggests that this layer represents the final disintegration of the walls themselves. With the mud being washed out through erosion, it forms a mound around the base of the wall stubs and causes the loosened stones to fall out and roll towards the centre of the hollow. Three distinct events are, therefore, in evidence: the collapse of the roof, the gradual erosion of the upstanding structure, and finally the complete disintegration of the unprotected upper part of the walls.

The reed impressed daub found in such amounts in these deposits is also thought to provide evidence of burning. However, this is not necessarily the case. A soil constructed roof laid dry does not retain the shape of the underlying timber and reed supports, even with the intervention of fire. This type of roof turns immediately to dust upon its destruction with no record surviving of its original construction. A roof laid as mud, however, does survive in the evidence. The impressions are retained in the mud as it dries, and these survive regardless. Fire is not a necessary element in their preservation and cannot be assumed from this evidence.

Within deposit 200.211 the ghost stains of two sections of timber were also recovered lying in and amongst the destruction debris. One of them is orientated roughly E-W along the line of the underlying postholes of the first floor, 200.283, and between two of the larger postholes from the second floor, 200.276. The second one lies orientated in NW-SE near the NW wall. Both are very short stretches of timber stains and are composed only of loose black ashy silts. The absence of charcoal from these stains is intriguing and suggests that decomposition rather than burning is the cause of these marks. The skeleton also appears to exhibit evidence of burning which would explain its poor state of preservation. However, this is not reflected in the calcination of all the bones, and its position overlying the black ash from the hearth may give the superficial impression of fire induced discoloration.

On balance, it is not possible to identify with any degree of certainty the exact form of destruction of this building. Further work needs to be carried out on the material to determine the exact nature of some of the deposits. However, there are clear signs of several types of events taking place over a long period of time, perhaps years or decades. The possibility of a gradual abandonment should not be ruled out: the identification of water laid deposits over the artefacts in the E half of the building may, in fact, lend substance to this view. The presence of the skeleton in an apparently non-funerary context is all the more intriguing from this point of view. However, a similar occurrence in the building phase of pit 1 should also be borne in mind, and the possibility of a recurrent cultural practice should be investigated.

§ 13.3 Discussion 2 (P.C.)

§ 13.1 conveys the basic description of MChal structural remains and related artefact distributions which came to light in the very top of the extensive EChal pit 300; the bulk of this need not be reiterated here. Although a high degree of agreement exists between us, I take issue with certain of Thomas' interpretations; therefore, I present in this section some alternative, often contradictory views. I have also included remarks which supplement the above description and discussion.

The reader must judge the merits of my belief that I am qualified to provide alternative views to the above report. It devolves from the fact that I was primarily responsible for the excavation, first (field) interpretation and compilation of the written and drawn record of B 200 and of the underlying units which have been ascribed to B 290. A limited degree of participation by Thomas in the actual excavation and recording of the relevant archaeological units is acknowledged, primarily involving the excavation of the latest phase of occupation of B 200, for which he and I shared responsibility. Nevertheless, his description and discussion are based to a great extent on records not made by himself, of archaeological units he did not excavate and often did not see.

Building 200

Inevitably, a complex structure such as a substantial prehistoric building, with a complicated history of construction, use, modification, destruction, decay, final collapse and post-depositional disturbance, is bound to present problems during excavation and interpretation. Ultimately, the solutions to some of these problems were not clear-cut. This situation, less than satisfactory, will be familiar to all excavators of complex prehistoric sites.

The description of B 200 presented above details a sequence of events from initial construction to final decay and burial, and in general outline the sequence of major events and the significance of major components (structural and otherwise) in B 200 is fairly clear. However, my opinion on several aspects of B 200 diverges from that presented in § 13.1, and these issues are considered to merit further discussion and clarification here. In the following sections the discussion has been divided as above into the various phases in the existence of the building. An additional section discusses specifically the two entrances to the building.

Phase 1: construction

In the previous discussion the statement is made that "At the point in the wall circuit where the entrance was to be located, the surface from which the foundation hollow was cut, 177, projects into the building as a step down into the hollow," (p. 119). Firstly, it must be presumed that "the entrance" refers here to entrance 189 rather than to the second entrance 212, which Thomas sees as contemporary (a matter discussed below). Secondly, 177 was a plaster surface abutting wall 126 of B 200 and does not predate the building. Silt deposit 181, which underlay 177, had been cut into to reveal silt surface 196/309/317, upon which wall 126 was constructed. Thirdly, the foundation cut was not made in such a way that any earlier deposit "projects into the building as a step down into the hollow" in the manner described on p. 119. Furthermore, the digging of the foundation terrace did not, as stated in § 13.1, expose any of the succession of surfaces numbered 283 (further discussed below in relation to "B 290") since these surfaces abutted wall 126 and were clearly, therefore, constructed within B 200.

The description of wall 126 offered on p. 119 states correctly that there exist, at least in places, "an inner and outer face of carefully laid stones packed with smaller rubble stones, while in other places large stones are set projecting through the entire width of the wall," with some coursing of the stonework evident. This is hard to reconcile with the observation that the wall "has the appearance of a mass rubble-like construction" (p. 120), a style of construction in which, Thomas subsequently informs us, the stones are included simply "as the bulking agent of what is effectively a mud built wall" (p. 125). Although haphazard in places, the stonework is rather more structured than his reference to "its irregular pattern of mass construction" (p. 125) would suggest, as a glance at the plans and sections of B 200 in Figs. 40-2 will confirm.

It is suggested above that in the SE sector of the building where the wall "bulges alarmingly inwards" (resulting in an overhang of 0.20 m at a height of only 0.40 m) this may owe more to "the building methods used" than to "deformation and progressive collapse" (p. 120). In his experience with experimental construction of such buildings Thomas finds that "these irregularities are not uncommon". However, my own experience with experimental construction has not found that walls are afflicted, either commonly or rarely, with pronounced bulges of this sort. To Thomas "it is clear that during the initial stages of construction of the building this overhang was tolerated", but he quotes no particular evidence to substantiate the belief that it existed at such a very early stage in the history of the building, and to me it seems unlikely that such a low standard of workmanship would have been tolerated at this one point in an otherwise well-constructed building. Given that the upslope SE side of B 200 is very likely to have been damaged by unwelcome water flow (see also the discussion of entrance 189 below), post-constructional deformation seems to be by far the most probable explanation for the bulging wall. That the most complete set of floors of the 283 series abutted the lower part of wall 196 beneath the bulge suggests that the floor was protected from trampling during the use of the building by the existence of a bulge here.

Phase 2: occupation 1

A degree of ambiguity exists in the previous discussion regarding the nature of 283, excavated and recorded by me as a closely stratified series of (up to eleven) white plaster floors. Whilst Thomas refers to these as a "floor", a term which implies that they were deliberately laid, they are said to consist of "several lenses of compact white laminated surfaces" which are "suggestive of water deposition" (p. 120). Elsewhere, he describes them as "silty surfaces" resulting from "erosional deposition", and although no unit number is quoted, these must surely equate with the "thick deposits of fine, laminated water laid silts which overlie the edges of the very earliest pits in the floor" which have been attributed to recurrent flooding. Notwithstanding limited flooding necessitating the sealing of entranceway 189 in the south of the building (see below), I adhere firmly to my original description of 283 as an often renewed, deliberately laid thin white plaster floor.

Whilst it is true that "the area immediately to the SW of the hearth was peppered with stakeholes," (p. 114), it should be noted that these could not be traced to a level above silt surface 317, which (along with its continuation 309 and 196) not only served as the original floor within B 200 but underlay the whole area beyond the bounds of the building. The stake holes could well predate the building, therefore.

Of the array of six postholes ascribed to floor 283, only three (298, 301 and 302) seem securely attributed. Two postholes are only insecurely to be attributed to floor 283, and one is definitely misattributed. According to the excavation records, posthole 297 seems rather more likely to relate to overlying floor 276, and 296 clearly relates to this upper floor. Posthole 318 predates floor 283 as preserved, but given the multiplicity of tightly stratified surfaces represented by this unit number, it could just conceivably have been a feature within an earlier version of surface 283 than that which sealed the posthole. These observations reduce the line of three postholes (296, 297 and 301), proposed to have accommodated posts which provided additional support for an E-W aligned main ridge beam, to one post (301) plus a second, uncertain, example (297). Given the conclusion that B 200 had "a flat timber and earth roof", it is rather confusing to refer to its main supporting member as a "ridge beam" (p. 125).

Pit 315, attributed in § 13.1 to floor 283 (p. 122), is viewed here as most probably having been sealed by silt surface 317 (an opinion recorded at the time I excavated the pit) and should therefore pre-date B 200. The location of pivot stone KMyl 1192, which presumably provided for the pivoting of a door in entranceway 189 immediately above the south-eastern edge of this pit, is regarded here as fortuitous.

Listed, but accorded only brief mention in the description above, are pits 307 and 310, located adjacent to one another immediately north-east of central hearth 271. Since both of these may be significant for understanding the range of activities which took place upon floor 283 in the central area of the building, they will be described here.

Pit 307 was especially unusual in terms of both its morphology and fill. It was a fairly circular pit, 0.60 x 0.70 m, with a maximum depth of 0.25 m. It had an unusual profile, with almost vertical sides descending to a depth of 0.15 m, and its bottom sloped gently down to an irregular central depression (0.22 x 0.26 m) up to 0.08 m in depth. The fill (306) of pit 307 is, to the best of my recollection, unique for a Chalcolithic pit fill in Cyprus. It consisted of an estimated 75% gravel and grit and included abraded marine mollusc shells, indicating the origin of the material. This material occurred in a matrix of 25% grey brown silt. A few pieces of chipped stone, animal bone fragments and sherds, along with a hammerstone (KMyl 1401), a pounder (KMyl 1402), and a bone point (Cat. 315), occurred within what was otherwise a remarkably clean gravel deposit. On the bottom of pit 307 were ten or so limestone pieces, mostly irregular blocks of calcarenite of fist size to double this size. The implication is either that gravel was being deliberately stored in B 200 or that it was being used in some way *in situ* within pit 307 (it might conceivably have functioned as a soakaway, conveniently located beside a hearth on which cooking was undertaken). Although pit 307 was sealed by floor 283, the floor was so poorly preserved above the pit fill that it seems quite likely to have existed for a time as a feature of this floor, but eventually to have gone out of use and been patched over during one of its many refurbishments.

Pit 310, located contiguously on the SE side of pit 307, was of a more ordinary shape. It was circular in plan (0.67 x 0.70 m) and 0.27 m deep, with steep sides and a gently dished bottom. Its fills were largely unexceptional: upper fill 311 was very stony loose grey-brown ashy silt and lower fill 312 was a stony soft brown silt. A notable find from the upper fill was grooved stone KMyl 1406, whilst the lower fill yielded hammerstone KMyl 1405 and a piece of debitage from the working of antler (Cat. 317). Pit 310 seems most likely to have been cut from floor 283, but since the floor was not well preserved in this area this is not absolutely certain. A large stone 0.56 x 0.37 x 0.15 m sloped down at an angle of 45 degrees from the NE lip of the pit, where it protruded 0.15 m above the poorly preserved surface 283. The stone showed clear signs of having been used as an anvil or similar object on its upper surface, but did not appear purposefully worked. This item or installation may be associated more confidently than pit 310, in the top of which it occurred (probably due to it having slumped in) with activities that took place upon floor 283. Within upper fill 311 was located an area of notably loose black ashy soil containing burnt stone fragments (*c.* 10 litres in volume). This was not a distinct fireplace within the top of the pit, but occurred just as a poorly defined patch. If pit 310 was indeed in use as a feature of floor 283, as has been suggested, then it would not be surprising if it accumulated some burnt material from adjacent hearth 271.

Phase 4: destruction and collapse

Since the evidence clearly suggests that B 200 was destroyed by fire, it is necessary to question the assertion that whilst "a superficial view of the evidence suggests that fire was the main cause ... this need not be the case and is not clearly born out by the evidence" (p. 126).

During the excavation of B 200, I was struck by the colourful nature of the main fill deposits, interpreted as building collapse material. Apart from ash, these deposits contained large quantities of building material which was manifestly burnt to a variety of colours from black, through yellows and oranges, to red. More than hearth ash and sloppy house-keeping are indicated here.

Two clearly defined streaks of loose black ash in fill 211 (Fig. 41), radially aligned within the building, seem to represent burnt timbers, very possibly fallen roof beams. The lack of coherent pieces of charcoal in these streaks, noted above, does not provide strong support for the interpretation that the streaks represent decayed rather than burnt timbers when it is considered that the remains have been exposed to millennia of root and insect disturbance, as well as water percolation. In any case, complete combustion may have occurred. "Timber stains" are described above as composed of "loose black ashy silts" (p. 127), and since ash can only result from burning, the streaks of ash are more likely to represent the remains of burnt timbers.

The skeleton of a child (KMyl 1197) on the floor of the building seems clearly to belong with the other items on and just above the floor, and there is no evidence for it having been introduced post-destruction. It is thus very likely that the child was a victim of the conflagration which destroyed the building. The skeleton was in poor condition, but the child seems to have been sprawled out, legs extended and one hand under the head, in a manner far more consistent with collapse than deliberate placement of the body. This description of the position of the body is based upon the excavation notes which do not support the statement the body lay "with its legs brought up towards the chest in a lightly flexed position" (p. 122).

Examination of the skeletal remains revealed only limited evidence for burning (§ 19), but since fire can kill without necessarily leaving even slight traces on the bones, the heavy burning or "calcination" that Thomas would seem to expect on the bones of a fire victim is by no means inevitable under the circumstances.

Evidence for the existence of only 0.5 m or so of building destruction material and for the gradual accumulation of overlying levels of material deriving from the subsequent decay of the structure suggests that, immediately following the death of the individual, the body could probably have been retrieved without a huge investment of human effort. The fact this did not occur probably indicates a lack of desire on the part of the living to do this; either they considered recovery of the body for formal disposal to be too much effort to be worthwhile, or possibly it was simply viewed as appropriate to leave the body *in situ*. Either way, the destroyed building becomes, in effect, a mortuary structure.

Osteological evidence that B 200 was destroyed by fire is forthcoming from the animal remains. Deposits which are interpreted essentially or largely as building destruction material (units 151, 155, 159, 170, 172 and 211) yielded a total of eighty-three pieces of identifiable animal (mammalian) bone of which twenty-one (25%) were recorded as burnt. By contrast, upper (post-conflagration) building decay deposits (units 113, 117 and 202) yielded a total of sixty-five pieces of which not a single piece was burnt. Exterior deposits in the deep sounding which are broadly contemporary with B 200

(Units 117, 137, 140, 146, 177 and 178) unfortunately yielded rather few bones for reliable comparison (one burnt out of thirty-two, or 3%). Finally, deep sounding deposits which predate the building yielded 245 identifiable animal bones of which 22 (9%) were burnt. The evidence furnished by the incidence of burning of animal bones is by no means conclusive, but it seems sufficient to designate the destruction deposits within B 200 as containing a conspicuously high frequency of burnt bones. This supports the suggestion, manifest from the overall composition of the layers themselves, with their high content of burnt building material and ash, that the building was destroyed in a conflagration.

The existence of water laid deposits over the artefacts in the eastern half of the building is mentioned in § 13.1, 2 as possible evidence for gradual abandonment, but these seem most likely to have resulted from pre-destruction flooding in the manner described in the discussion of entrance 189.

In sum, the presence of the child's body on the floor amongst a very large and diverse assemblage of artefacts, covered by building destruction deposits which contained much burnt building material as well as animal bone, seems to me to be at odds with the proposition that "the possibility of gradual abandonment should not be ruled out" (p. 125). On the contrary, the evidence favours the sudden destruction of the building by catastrophic conflagration from which, by all appearances, the child could not be saved nor possessions salvaged.

Multiplicity of entrances

In the course of excavations conducted by the LAP since 1976 at the sites of Lemba and Kissonerga, numerous well-preserved substantial buildings of the M-LChal have been revealed. The discovery of B 200 at Mylouthkia makes it the third site to present such remains. Elsewhere, single entrances are distinctly the norm. Two exceptions to the general rule occurred at Kissonerga – B 86 and B 1161 – both possessing two entrances. In both cases the entrances seem to have been successive and non-contemporary (*LAP* II.1A, 29, 43-44). On the basis of the evidence, it is not impossible that the two entrances of B 200 (189 and 212) were in use at the same time; however, there exists a strong *a priori* case to the contrary. Whilst Thomas has stated that the doorway was moved from the S (189) to the NW of the building (212), he nevertheless seems to flirt with the idea of contemporaneity when he argues that the straight line join located 0.80 m N of the N jamb of door 212 implies "that a gap in the perimeter of the wall at this point was always part of the original design of the building". In my view, the archaeological evidence retrieved at least somewhat favours the idea that the two entrances were successive and not contemporary, thus conforming to the established norm. Problems with S entrance 189 seem to have motivated the breaking out of a new entrance 212 on the NW.

The infilling of pit 300, beneath B 200, was apparently a protracted process, to judge from the diversity of fills involving the washing-in of material from the area to the E. The construction of B 200 in the top of the largely in-filled hollow did not alter this long-term process, and entranceway 189 seems to have been vulnerable to flooding, allowing silts, originating upslope to the east, to be carried into the building (cf. laminated deposits of lower unit 172). The SW portion of the building seems to have been particularly badly affected (hence Thomas' observation that the artefacts and installations upon the floor in this quadrant are more sparsely distributed than elsewhere in the building).

Changes made to this entrance are clearly a response to the problem of flooding although the exact purpose of these changes is unclear. Entranceway 189 was at least partially, and probably completely, blocked. Exterior surface 177 penetrated half way through entrance 189 and was abutted by floor 252, which paved the inner half of the entranceway. This floor was eroded away along a line just within the building, but it seems almost certainly to equate with floor 283, the earliest floor constructed within the building. Externally, compact grey silt layer Unit 146 accumulated over surface 177 and was capped by a laid surface represented by a spread of nodular white *havara*. In the entranceway, surface 146 gave way to occupation deposit 251, a more heterogeneous unit consisting of compact brown ashy silt including some washed-out building material. Over 146 and 251 was laid, horizontally, a very large flat stone which spanned virtually the entire width of the exterior portion of the entranceway. This stone may represent merely the lowest course of a partial or complete blocking of the entranceway, which was constructed as a single event. Alternatively, it may have remained alone for a time as a doorstep, representing the first of a sequence of threshold-raising events as in-washed deposits continued to accumulate outside and inundation of the building persisted as a problem. A second, somewhat smaller, flat stone was positioned on top of the first, possibly as a second phase threshold, once exterior deposit 140, a layer of compact grey ashy silt with a trodden surface, had formed up over 146 and against the lower blocking/threshold stone. That the blocking of doorway 189 extended higher than this second flat stone cannot conclusively be demonstrated, but the fan of eroded constructional mud (unit 250) which emanated from the door-blocking into the interior of the building suggests that an upper portion of the door-blocking, above the flat stones, was constructed of mud. The distinctly fan-like conformation of unit 250 strongly suggests that water-flow through the doorway into the building continued to be a problem, even after the doorway had been partially or totally blocked. The fact that this fan of brown silt partly covered a socketed stone (KMyl 1192), almost certainly the pivot stone for the door, suggests that entrance 189 went out of use, and thus that the doorway was, ultimately, completely blocked (even if not rendered waterproof).

The second, and in my view secondary, doorway to B 200, entrance 212, was located on the NW side. Significantly, this is the downslope side, which would presumably not have been susceptible to flooding (by water flowing in from upslope to the E) as had been original entrance 189 on the S side.

The south-western jamb of doorway 212 is well constructed whereas the north-eastern jamb is less so, consisting of a stretch of rubbly, comparatively ill-organised walling some 0.80 m in length which seems, at its north-eastern end, to abut the neatly finished terminal of a well-built stretch of walling to the NE. Several possible explanations exist for this arrangement. Thomas cites the straight line junction of poor and good quality walling to the NE of entrance 212 as evidence for its planned existence from the beginning. The absence of such neatness of construction in the jambs of the S entrance 189, demonstrably (on stratigraphic grounds) an original feature of the building, however, has led me to the opposite view. Whilst a less than meticulous style of initial door jamb construction might not significantly jeopardise the stability of the doorway, breaking a new doorway through a pre-existing stretch of walling might well call for greater care in jamb construction if the maintenance of structural stability is a consideration. Thus the careful construction of the SW jamb of doorway 212 and the straight line join somewhat to its NE argue in favour of this doorway having been a secondary modification to the original structure.

Perhaps in the first instance, entrance 212 was constructed as an exceptionally wide (*c.* 1.35 m) doorway, extending from the south-west jamb to the straight line junction, and subsequently reduced by rebuilding the north-east jamb to its final, very narrow (0.50 m) width. Such a wide doorway might well have been overly ambitious and proved unstable, explaining a subsequent width reduction. Shortage of time unfortunately precluded the dismantling of the wall in this sector, an operation which might have resolved the problem. Alternatively, it is possible that a hole which was considerably larger than the entranceway was initially made, terminating at a pair of tidily aligned stones within the wall (other such points exist around the wall) to the north-east and a single appropriately aligned stone to the south-west. If this was so, then the latter was retained as one jamb, but the former was covered by a block of walling to reduce the entranceway to its desired narrow width. Whatever the detailed history of doorway 212, constructional differences from doorway 189 hint at non-contemporaneity. The location of 212 on the downslope side of the building is also consistent with it having been situated, with the benefit of hindsight, in order to avoid the flooding and silting suffered by its predecessor.

“Building 290”

Some of the archaeological units which underlay B 200 have been interpreted by Thomas as representing “the few meagre remains” of a building (B 290). Much of what follows reiterates details already presented in (pp. 115-9) above in which these units are discussed as representing the uppermost pre-structural contents of pit 300, but this reiteration has been found necessary in order to sustain the argument here that none of these units can, in fact, be related to any particular building. In sum, it is contended here that “B 290” does not really exist.

The wall (277) of “B 290” is allegedly represented by an alignment of five postholes cut into surface 309 where the surface was preserved from the worst effects of root action by overlying wall 126 of B 200. These features were located and excavated by Thomas although the task of drawing and describing them for the excavation records fell to the present writer, whose observations were as follows: only the central feature was wholly convincing as a posthole; the NW pair was only moderately convincing, and the SW pair seemed more likely to have resulted entirely from root disturbance, and are indeed connected by a probable root-track (mentioned by both myself and by Thomas above), a number of which were found in the vicinity.

Removal of wall 126 for a further 1.1 m to the SE of this alignment of features revealed a complete absence of even potential postholes cutting into compact silt surface 309 (see also Fig. 114). Thus, at the very best the “timber frame wall” (p. 124) 277 is 1.05 m in length, might be only 0.55 m long, and may even consist solely of a single undoubted posthole. It was apparently his revealing of these five small features which is referred to when Thomas states that “B 290 was located and cleared” (p. 118), since the other deposits attributed to this building were excavated or revealed by the present writer.

The irregular curved shallow channel in which Thomas places his “timber frame wall” seems more likely to be a localised linear depression created by compression of the underlying deposits beneath the weight of wall 126. I would thus adhere to my original conclusion that any genuine postholes amongst the vestiges of unit 277 constitute part of a scatter of uninterpretable features which predate B 200 and intrude into surface 196/309/317. To refer to this unit as a wall seems to be an over-interpretation of the meagre evidence, as does the use of this putative wall as one of the main strands in an argument for the existence of a whole building.

I have described surface 196/309/317 (underlying surface 313) and make-up 305 as units relating to the uppermost part of pit 300, prior to the construction of B 200 (§ 12.2.2). Beneath the N part of B 200 the very extensive upper surface 196/309/317 was heavily damaged by erosion (down to the level of underlying surface 313) and the irregular, ragged-edged depression thus created became in-filled with unit 305. Large-scale post-B 200 root disturbance has clearly augmented pre-building erosion to a significant degree to obliterate surface 309 beneath the NE part of the interior of B 200.

It was immediately beneath wall 126 that the only small patch of the surface, which contained the five "postholes" mentioned above, was preserved in this sector of the building; it was largely protected from root action by the overlying wall.

It is presumably this irregular area of early erosion, augmented by later root disturbance, located immediately S and SE of the "postholes", which is referred to as "a large oval shaped scoop or hollow … cutting down through the existing uppermost layers" in pit 300 (p. 114). It is said to possess "a small ramp or 'island' left projecting into the scoop in the SW corner" (p. 118). In § 13.1 this is interpreted as a probable entranceway corresponding closely with a similar arrangement excavated in the SE part of nearby B 152 (Fig. 38). This "island" would seem to correspond with a portion of surface 317 which juts out a little further than the main body of the surface along its irregular, eroded northern edge. Any resemblance to the probable entranceway of B 152, some 10 m to the NNE, must be viewed as fortuitous, so the conclusion that in buildings of this type "a doorway facing the SE [sic] appears to be the favoured orientation" (p. 124) seems to be based upon the single example of B 152 only.

From the vicinity of the five "postholes" which allegedly represent the wall of B 290, it is stated that surface 309 (into which they intruded) "dipped down into the depression where it merged with the underlying surface 313" (p. 118). As the excavator, I would prefer to describe the situation as a distinct step down along the line of the internal face of wall 126 resulting from the destruction of surface 309 by root action where not protected by the overlying wall. Pre-existing surface 313 (including plaster basin 314) is said to have been re-used as the floor of "B 290" (p. 118). However, Thomas has interpreted deposit 305, which was make-up material deposited above surface 313 in an irregular depression where surface 309/317 was eroded away, as the fill of his building. Moreover, deposit 305 did not form "the foundation" for surface 317 (p. 118): rather, it postdates 317 and is directly overlain by plaster floor 283 (upon which was found, incidentally, rubber KMyl 1386, which Thomas included in his building). I have firmly attributed floor 283 to B 200 since it clearly abuts the inner face of wall 126 of B 200 and cannot, therefore, represent either "accumulating floor surfaces inside B 290 or eroded material deposited after B 290 had been abandoned"; nor can it be said to "merge with the earliest levels inside B 200" (p. 119) to which it clearly belongs. In the SE sector, floor 283 was seen to consist of a minimum of eleven separate plaster layers abutting wall 126, indicating that the floor was often remade.

In sum, my excavation records indicate that the more credible elements of so-called wall 277, along with surfaces 196/309/317 and underlying 313, and make up deposit 305 were not related to any definable structure. No evidence for the existence of a "B 290" somewhat resembling the uncontentious B 152 was apparent to me during the course of my excavations of these units (with the exception of wall 277, excavated by Thomas), and the possibility (implied by his reinterpretation) of inadequate standards of observation having been applied during excavation is robustly rejected.

Chapter 14: The Pottery

by

Diane Bolger and Jenny Shiels

The first phase of excavations at Mylouthkia (see Introduction) yielded fourteen pottery vessels and 30,713 sherds; these are discussed below. Thirty-four features in total were investigated, and those which can be dated on the basis of ceramic evidence and/or radiocarbon dates fall firmly within the EChal, Mylouthkia Period 2.

Phase two excavations produced eleven features, all of which contained Chalcolithic pottery. A total of six vessels and 11,553 sherds resulted from these excavations. The dating of this material proved to be more problematical due to the somewhat peculiar nature of the ceramic assemblage, the paucity of radiocarbon dates, and the likelihood that several of the excavated features post-date the Chalcolithic. A radiocarbon sample from pit 108, however, has furnished a date of *c.* 3,700-3,600 cal BC and thus places this feature firmly within the EChal (see § 24). Pottery from all of the excavated features of this campaign is discussed below.

A total of thirty-nine vessels and 13,723 sherds were recovered during the third phase of investigations. Some of this pottery, including material from B 152, dates to the EChal period. Two additional buildings, B 200 and B 330, appear on the basis of ceramic and radiocarbon evidence to belong to the early phase of the MChal, Mylouthkia Period 3. One of the primary objectives of this report is the attempt to seriate the material from these buildings and from other areas of the site. This is a fundamental goal given the differences in the nature of human activity in the three areas of excavation and the paucity of stratigraphic links between them.

§ 14.1 Processing procedures

Processing procedures for Mylouthkia pottery conform largely to those adopted at Kissonerga (for details, see *LAP* II. 1A-B § 5.1, 17.1). All sherdage from Mylouthkia has been White Processed, a departure from procedures at Kissonerga where there were larger numbers of sherds and many more disturbed contexts. The Kissonerga typology of rims, bases, lugs and spouts has been adopted for Mylouthkia as well, but not all of the Kissonerga types have been identified here as Mylouthkia has yielded a far more restricted morphological range. In addition, two rim types have emerged at Mylouthkia that did not form part of the Kissonerga repertoire, Type 39, a rectangular vessel and Type 40, a pinch pot.

The one significant departure with processing methods at Kissonerga has been the adoption of multivariate analysis for both complete vessels and sherdage. Standard taxonomies comprising categories of "wares" have not been employed as they could not be readily applied to the ceramic assemblage here. This was also the case with much of the earliest pottery at Kissonerga (see *LAP* II.1A-B) where a similar, multivariate approach was adopted for processing ceramics prior to the late MChal (Period 3B) when "wares" seem to emerge. As all of the Mylouthkia deposits antedate that later phase of MChal, an exclusively multivariate approach has been adopted for processing in which ceramics types are not classified as "wares" but as associations of ceramic attributes. For example, surface treatments are discussed in association with particular fabric types, such as GB-a; RM-b; RW-c. According to this methodology, ceramic analysis shifts from tracing the rise and fall of different ware types, to determining the rise and fall of discrete and independently variable ceramic traits. This has allowed for greater sensitivity to the changes in techniques of vessel manufacture used by the potters and has made it possible to trace more accurately the developments in ceramic technology that occurred at Mylouthkia during the course of the 4th millennium.

§ 14.2 Morphological types

Rims

Type 1: Platter
Medium to large size bowl type with sharply flaring walls; rim diameter often measures twice the height, or more. Occurs with BI, CW (rarely), GB, PW, RM, RW and "X". Figs. 48.1, 56. 2-10.

Type 2: Hemibowl
Small to medium bowl type with hemispherical body; wall height varies in proportion to rim diameter, yielding some true hemibowls and other slightly deeper hemibowls. Occurs with CW (very rarely), GB, PW, RM, RW and "X". Figs. 48.2, 56.1, 12, 16-17.

Type 3: Deep Bowl
Bowl with roughly vertical walls; at least twice the depth of a hemibowl; rim diameter usually measures about one-half of height. Occurs with CW (very rarely), GB, PW, RM, RW and "X". Figs. 48.4; 49.4, 6-8; 52.6; 56.11, 13-15, 18.

Type 4: Tray
Medium to large size circular shape with low vertical walls; frequently with flanged bases and vertical ear-type lugs. Some have very thin bases which would not have withstood transport; these are usually thin-walled, with U-shaped openings and untreated surfaces. Others have thicker walls and wide flanged bases and are often treated with a thin red wash or paint and burnished. Occurs primarily in CW, but also occasionally with GB, PW and RM. Figs. 48. 9-12; 49.1, 5; 58. 19-21.

Type 5: Holemouth
Small to medium size vessel with slightly globular body and restricted rim; rim diameter is substantially shorter than maximum body width and often roughly equivalent to the base diameter; rims are usually plain but can be flattened and everted. Bases are usually flat, but can be slightly raised. This type occurs with GB, PW, RM, RW, "X" and (very rarely) CW. Figs. 50.1, 3; 52.8; 56.19-28; 57.1-5.

Type 7: Flask
Small and medium sized closed vessel with globular body, pointed base, cylindrical neck, and straight or everted rim. Occurs with GB, PW, RM, RW and "X"; one miniature example exists in plain fired clay. Figs. 52.7; 54. 9-11; 57.6-9.

Type 17: Spouted Bowl
Deep bowl with short tubular spout attached about 1 cm below the rim and projecting upwards at an angle; spout terminates just above rim level. Occurs only in RM and "X". Fig. 49.3.

Type 24: Storage Jar
Medium to large size vessel with plain wide rim, slightly convex walls and flat base. Occurs almost exclusively in RM. Fig. 51.3-5.

Type 28: Vessel of Unknown Shape
This type number was used for assignment of rim sherds of unknown shape.

Type 29: Lid
Flat, usually circular or oblong shape; sometimes with a central lug grip on upper face. Only one certain example occurs (KMyl 473, in RM); other possible examples occur in fired clay. Fig. 48.7-8.

Type 30: Saucer
Small flat disc-shaped vessel with low upturned rim. Two examples only, one in GB and one in "X". Fig. 54.6.

Type 31: Deep Tray
Medium to large size vessel with roughly vertical walls; this shape is similar to the tray (Type 4) but with higher walls, larger lugs and more pronounced flanged bases. Found primarily with RM, but also occasionally with GB. Fig. 50.2, 4, 6-7.

Type 32: Spouted Platter
Medium to large size open vessel with straight, flaring walls, flat base and tubular spout (one example of an open spout also recorded). Occurs primarily with GB and RM, occasionally with RW and "X". Fig. 59.1, 2, 5, 7, 8.

Type 35: Bottle
Small to medium size closed vessel with globular body, flat base and long cylindrical neck. Occurs with RW and "X". Figs. 52.1; 54.7; 57.10-11.

Type 38: Jar Stopper
Circular plan with terminal plug of varying length; occurs only in plain fired clay. Fig. 54.4, 8.

Type 39: Rectangular Vessel
Small, low-walled vessel with flat base and right-angled corners; fragmentary examples only have been found, in GB and RW. Figs. 48.5-6, 52.4-5.

Type 40: Pinch Pot
Small, irregular pinch pot with plain thick rim, elongated ovoid body and pointed base. One example only exists, in plain fired clay. Fig. 54.2.

Bases

Type A: Flat
This is the most common base type at Mylouthkia. It occurs with BI, CW, GB, PW, RM, RW and "X". CW bases recorded as Type A, however, almost invariably derive from trays and thus should be regarded as an element of the standard flanged (Type C) base. Fig. 57.12-16.

Type B: Omphalos
Flat with exterior raised in centre, and interior raised to a rounded knob. Occurs with CW, GB, PW, RM, RW and "X". Fig. 49.2, 57.17-18.

Types C-D: Flanged
The flanged bases (Types C-D) are also common types. Type C, the coarse flanged base, is found invariably in association with coarse ware and other Fabric E trays; occasionally it occurs in GB, PW, RM, RW and "X". The finely flanged variant, Type D, occurs primarily in RM, and less frequently in CW, GB and PW. Fig. 57.21-27.

Type E: Pointed
The pointed base is found exclusively on flasks. Its terminal end can vary from a stubby, rounded knob to a narrow point. It occurs with CW (very rarely), GB, PW, RM, RW and "X". Fig. 58.1-7, 9-10.

Type I: Raised
The raised base is typologically similar to the omphalos, but lacks an interior central knob; the raised area covers most of the surface of the base, creating a ridged profile. It occurs with GB, PW, RM, RW and "X". Fig. 57.19-20.

Spouts

Type A: Tubular
Cylindrical spout of short to medium length, usually less than 10 cm. Most commonly found just below the rim of spouted platters, although it is also found approximately one centimetre below the rims of spouted bowls. Occurs very rarely with CW; more frequently with GB, RM, RW and "X". Fig. 59.1, 3-9.

Type B: Shallow trough
U-shaped spout; slightly curved section. Rim of spout continues directly from rim of vessel, probably from a spouted platter. Only one example occurs, with GB surface treatment. Fig. 59.2.

Lugs

For a complete list of all lug types in the Kissonerga typology, see *LAP* II. 1A-B , § 17.1. The various lug types found at Mylouthkia have been amalgamated into six groups based on shared morphological features:

Pierced Lugs (Types A, C, JJ)
Pierced lugs at Mylouthkia are small and probably used for suspension of bottles; they occur with RM and RW. These lugs are rare at Mylouthkia. Type A occurs only with GB; Type C with GB and RM; and a suspected Type JJ in a surface treatment which could not be identified with certainty as it was heavily abraded. Fig. 58.16.

Horn Lugs (Types D-F, Q, U, KK)
This group occurs in GB, RM and CW. Unlike the small ones from Kissonerga, these are large and bulky and are normally attached to tray or deep tray shapes. All types are common at Mylouthkia. Type D occurs in CW, GB and RM; Types E and F in GB only; Type Q in RM; Type U in CW; and Type KK in RM. Fig. 58.19.

Ear Lugs (Types G, H, L, N)
This group occurs commonly on trays and especially deep trays at Mylouthkia, and primarily in RM. They are positioned on opposite sides of the vessel, immediately below the level of the rim. Type G occurs in CW, GB, PW, RM and "X"; Type H in CW and RM; and Types L and N in CW only. Fig. 58.18, 20.

Horizontal Ledge (Type LL)
One example only found at Mylouthkia, a large heavy lug from a CW tray; its shape is rather horn-like, but it is set perpendicular to the vessel body and has a flattened upper face. Fig. 58.21.

Strap Handle (Type Z)
One example only found at Mylouthkia, in RM. Its smallish size suggests it was used on a medium sized vessel, perhaps a holemouth.

Tab Lugs (Type W)
The tab lug is similar to the Kissonerga knob lug but comes to a point at the end. Two examples occur, one in CW and one in GB.

§ 14.3 Surface treatment

Vessel surfaces on Mylouthkia ceramics can be divided into three distinct groups: monochrome, patterned, and coarse. Two additional processing categories exist. The first, known as category "X", was used for RW and RMP sherds that were difficult to distinguish due to their small sizes and the technical similarities. For example, a sherd painted solid red and classified as RM may actually have derived from the painted portion of a RW vessel. Rather than guess at the correct attribution, the decision was made to separate out this indeterminate group from the RMP and RW categories so that all sherds attributed to those categories were accurately assigned. The second processing category is known as "Plain White" (PW) and is used for sherds which had a white slip but lacked painted motifs.

Monochrome finishes

Glossy Burnished (GB)
Deep pink or reddish-brown paint applied to unslipped or self-slipped surface. Very highly burnished, producing a highly lustrous surface; sometimes individual strokes are visible.

Plain White (PW)
White slipped surface. Represented by sherdage only, and very likely represents unpainted areas of RW vessels; no complete vessel of PW was discovered at Mylouthkia.

Red Monochrome (RM)
Caramel to reddish-orange paint; usually unslipped, but sometimes a thin buff slip is visible under the paint. Lightly polished.

Patterned finishes

Combed (Cb) (Frontispiece, 6)
Pink lustrous paint applied to wet-smoothed or self-slipped surface; combing with a multiple tool in parallel wavy bands. Only a few sherds of Cb have been found at Mylouthkia.

Painted and Combed (PCb)
Like Cb, but combing applied not to entire vessel but to painted band motifs. Only one sherd of this type was recorded at Mylouthkia.

Red-on-White (RW)
Patterned sherds, usually with a buff or whitish slip under motifs in red paint. Paint can be either glossy or matte, and varies in colour from red to pink to yellowish red. Twenty-six motif types (plus an additional category for unidentifiable motifs) were identified in the pattern analysis of this sherdage and are illustrated in Pls. 11, 12.1-2, Figs. 14.1, 52, 57.1, 60.1-3, 5-6, 9, 12.

M1 Rim band
M2 Vertical bands pendant from rim
M3 Vertical bands pendant from rim band
M4 Rim dashes (short)
M5 Rim dashes (medium)
M6 Rim dashes (long)
M7 Base band
M8 Lattice-filled area (broad strokes)
M9 Lattice-filled area (narrow strokes)
M10 Lattice bands (broad strokes)
M11 Lattice bands (narrow strokes)
M12 Broad solid bands
M13 Narrow solid bands
M14 Chevrons (broad strokes)
M15 Chevrons (narrow stroke)
M16 Reserve bands or slits
M17 Checkerboard pattern
M18 Solid circles or blobs
M19 Rows or groups of dots
M20 Solid circle with radiating strokes
M21 Wavy or curvilinear bands
M22 Parallel bands (narrow)
M23 Parallel bands (broad)
M24 Perpendicular or intersecting bands
M25 Converging bands
M26 Solid triangles
M27 Unidentifiable motif

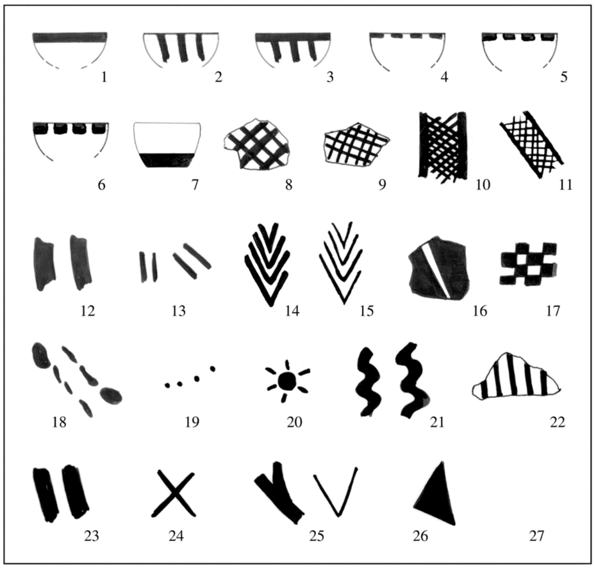


Fig. 14.1: Red-on-White pottery motifs from Mylouthkia

Other finishes

Basket Impressed (BI)
The designation BI refers to sherdage on which basket impression was meant to be visible; it occurs always on the exterior of the vessel, most commonly on bases, but also on exterior walls of bowls to just below the rim. BI should not be confused with the technique of vessel construction also observed at Mylouthkia in which the basket impressions are concealed with additional layers of clay or slip and hence not visible as an end product (Pl. 12.5). The latter is thought to have helped in keying exterior layers to the core of the vessel. Several examples of this type are illustrated in Pl. 12.3.

Coarse (CW)
Untreated or wet-smoothed surfaces, Fabric E. The term "Coarse Ware" here is used only for Fabric E without paint; when painted, the surface treatment designation is used first, followed by Fabric E (so, for example, RM-e denotes coarse fabric with RM surface treatment).

Incised
Incision was rare on sherds at Mylouthkia but several examples are known in PW, RW and GB; all are horizontal strokes incised on the exteriors of vessels with restricted necks (Fig. 60.8, 11, 14).

Category "X"
As at Kissonerga, this is a processing category used when sherds could not definitely be attributed to RM or RW, but clearly came from one or the other. Thus small RM sherds with white slips which may in fact have derived from painted areas of RW vessels have been processed as category "X". The results is that sherds processed as RM or RW do indeed represent those surfaces. The problem overlap of RM/RW at Mylouthkia is not as serious here as it was at Kissonerga; only a small proportion of the Mylouthkia assemblage, therefore, has been attributed to category "X".

§ 14.4 Fabrics

A total of seven major fabric types were identified among the Mylouthkia sherdage and vessels (A-G):

Fabric A

Colour: reddish yellow to light reddish-brown (5YR 6/4, 7/6; 7.5YR 7/4).

Hardness: soft to medium hard.

Aplastics:

Type: rounded to slightly angular grey igneous and rounded white grit; coarse organics; occasional red chert inclusions.

Size: 0.1-0.2 mm (grey); < 0.1 mm (white).

Density: low to medium (grey); medium to dense (white); low to medium (organic).

Break: smooth to slightly irregular.

Comments: mostly through-fired; occasional pale grey 'phasing' core in centre of open sherds and near interior of closed sherds.

Fabric B

Colour: reddish-yellow to pink and grey (5YR 7/6; 7.5YR 7/4, 7/6; 5YR 6/1).

Hardness: medium hard.

Aplastics:

Type, Size, Density: as for Fabric A, but a higher % of organic filler.

Break: irregular.

Comments: never through-fired as is Fabric A; margins or interior layer consistently grey; occasionally totally grey core; core is distinct, unlike phasing grey of Fabric A.

Fabric C

Colour: red to light red to reddish yellow (10R 5/6, 6/6; 7.5YR 7/6); distinct grey to dark greyish brown core (7.5 YR 5/1; 10YR 3/2).

Hardness: medium hard.

Aplastics:

Type: soft white rounded to slightly angular limestone; smaller, harder white grits.

Size: coarse to very coarse size (*c.* 1.0 mm) for limestone; medium to coarse (0.1-0.5 mm) for gritty white.

Density: medium to heavy.

Break: irregular, sharp bricky fracture.

Comments: sharply laminated central grey core. Identical to Kissonerga Fabric C in colour, lamination, and heavy concentration of gritty white filler. The Mylouthkia version, however, is coarser with larger size aplastics, often more densely concentrated.

Fabric D

Colour: reddish-brown to light reddish-brown to dark grey.

Hardness: soft to medium hard.

Aplastics:

Type: angular grey igneous ('micaceous'), coarse organics.

Size: very coarse (1.0-3.0 mm).

Density: medium igneous. Medium to heavy organics.

Break: irregular.

Comments: crumbly with many large inclusions. Often with high % of organics and dark grey central core (on open vessels) or core interior (on closed vessels). Igneous filler similar to micaceous angular filler particles of MChal RW and RMP at Kissonerga. Here, however, organic tempering occurs in much denser concentrations.

Fabric E

Colour: dark grey to reddish brown (5YR 4/1; 5YR 4/4, 5/4).

Hardness: soft to medium hard.

Aplastics:

Type: angular grey igneous and chopped organics.

Size: coarse igneous (*c.* 1.0 mm); coarse to very coarse organic (1.0-3.0 mm).

Density: medium to heavy.

Break: very irregular, friable; crumbles easily.

Comments: higher % of organics and larger, more numerous inclusions than Fabric D. Occurs almost exclusively (painted or unpainted) in large tray shapes.

Fabric F

Colour: weak red to red (2.5YR 6/4, 6/6).

Hardness: medium hard.

Aplastics:

Type: angular grey igneous, chopped vegetable, occasional Mamonia siltstone.

Size: medium to coarse (0.2-0.5 mm).

Density: medium.

Comments: distinguished as a discrete fabric in 1996 when sherds with fabrics containing Mamonia siltstone were discovered in conjunction with RM surface (primarily in vessels from B 200) linked it to Fabric D at Kissonerga, the standard fabric of early MChal (Period 3A) there.

Fabric G

Colour: very pale brown to pink. (10YR 7/4, 8/4; 7.5YR 7/4).

Hardness: soft.

Aplastics:

Type: grey igneous and white limestone.

Size: medium (0.2 mm and smaller)

Density: low.

Break: slightly irregular; flaky, laminated surface crumbles easily.

Comments: first identified in 1996, when B 200 vessels studied showed this fabric to occur frequently in association with RW surfaces.

§ 14.5 Vessel manufacture

As with other Chalcolithic pottery in Cyprus, the ceramics from Mylouthkia are hand-made, with techniques of pinching, slab-building and coil-building being most common (see Bolger 1988 and *LAP* II. 1A, § 5 for a discussion of these techniques at other Chalcolithic sites). Coiling was particularly favoured at Mylouthkia for the manufacture of medium to large size vessels and is easily visible in section. Normally two or three coils overlap, but as many as four or five occur in some instances, a phenomenon that has also been observed at Kalavasos-Ayious (Kromholz 1981). Other techniques, such as scoring and basket impression, were employed on non-visible coils for promoting better adhesion to the outer layer of clay and creating a more satisfactory working surface for decorating the vessel (Pl. 12.5). Vessels were decorated most often by painting with monochrome or, less frequently, in patterns. The occurrence of paint on coarse tray shapes shows that even utilitarian vessels were sometimes decorated. Several sherds, in particular flask necks, show the use of incision to demarcate painted areas, but relief decoration was used in only a single instance (Fig. 54.3). A sherd with drilled perforations (KMyl 86, Fig. 55.7) may also hint at other decorative techniques of which we have only limited knowledge. Burnishing was widely practised and appears in its most highly developed form on Glossy Burnished pottery, where surfaces are so lustrous as to appear to be glazed. Overall one can observe the multi-stage and labour-intensive processes that were employed in manufacturing this simple hand-made pottery. Experiments with some of the above techniques (see § 14.11) enable us to appreciate even further the elaborate and time-consuming nature of the technical processes involved and have begun to lay the groundwork for assessing developmental stages in ceramic craft specialisation throughout the Chalcolithic period.

§ 14.6 Catalogue of vessels and miscellaneous pottery

The following is a catalogue of registered vessels, catalogued vessels and miscellaneous pottery. Due to the adoption of multivariate analysis, they are grouped by surface treatment rather than by ware. Vessels were given registration (KMyl) numbers when complete or substantially represented. The only exceptions are the six catalogued finds (Cat. 399-404) which derive from early excavations at the site and are now known only from drawings. Miscellaneous pottery objects comprise a variety of functions other than lids, and have been given KMyl registration numbers.

Registered vessels

A total of fifty-nine vessels with complete profiles extant were recovered from the Mylouthkia excavations. They are labelled in the following catalogue by surface treatment/fabric (GB-a, RM-f, RW-g, etc.) and are further arranged according to small find number. For figure and plate references, see Appendices B and C. For explanations of surface treatment, vessel morphology, and fabric types.

Glossy Burnished

KMyl 87. GB-? Platter (Type 1)
Platter with plain rim and slightly raised base. Rim-base assemblage totalling approximately 40% of vessel has been preserved; remainder has been restored. Surfaces well preserved. Fabric/slip not visible due to restored condition. Colour: 2.5YR 5/8 (red). Burnishing in thin diagonal strokes (1-2 mm wide) on exterior and equally thin vertical and horizontal strokes on interior. Pl. 9.1, Fig. 48.1. Pit fill 1.05.
Rim: 22 Base: 5.8 Ht: 8.5

KMyl 224.01. GB-b Rectangular Vessel (Type 39)
Base, wall and corner fragment from rectangular vessel. Less than 10% of vessel preserved. Heavily abraded. Thin light brown slip under paint. Colour: 2.5YR 5/6 (light red). Occasional burnishing strokes (*c.* 2 mm wide) visible on exterior vessel wall. Pl. 10.8, Fig. 48.5. Pit fill 1.05.
Preserved L: 4.7 Preserved W: 3.3 Preserved Ht: 2.9

KMyl 224.02. GB-b Rectangular Vessel (Type 39)
Base, wall and corner fragment from rectangular vessel. Less than 10% of vessel preserved. Surfaces very heavily abraded; no burnishing visible. Thin light brown slip under paint. Colour: 5YR 5/6 (light reddish brown). Pl. 10.8, Fig. 48.6. Pit fill 1.05.
Preserved L: 6.7 Preserved W: 3.1 Preserved Ht: 3.1

KMyl 411. GB-b Lid (Type 29)
Fragmentary circular lid with lug grip on centre of upper surface. Approximately 20% has been preserved. Encrusted and heavily abraded, especially on upper surface. Medium buff slip under paint. Colour: 2.5 YR 6/6 (red). No traces of burnishing. Fig. 48.8 Ditch fill 107.1/2.
Diam: 10 Preserved Ht: 2.9

KMyl 437. GB-? Flask (Type 7)
Base and lower body assemblage of flask with pointed base. Approximately 20% of vessel has been preserved; tip of base missing. Medium hard pinkish-buff fabric with irregular, brittle break. Grey igneous and chopped organic filler. Exterior surfaces encrusted; interior untreated. Vessel constructed in three distinct layers; paint applied to outer layer without further slipping. Colour: 10R 4/8 to 5/8 (red). Traces of vertical burnish strokes (4-5 mm wide) on lower body exterior. Fig. 48.3. Hearth 152.183.
Rim: missing Base: pointed Preserved Ht: 9.6

KMyl 442. GB-b Hemibowl (Type 2)
Hemibowl with plain rim and flat base. A single rim-base sherd only is preserved, comprising about. 10% of vessel. Surfaces well preserved, with slight encrustation on interior. Slip not detectable; paint appears to be applied directly to vessel surface. Colour: 2.5YR 5/8 (red). Traces of horizontal burnishing strokes (2-3 mm wide) on exterior; interior polished but individual strokes not visible. Fig. 48.2. Pit fill 100.02.
Rim: 12 Base: 12 Ht: 4.2

KMyl 443. GB-? Tray (Type 4)
Tray with fairly thick rounded rim and flat base. Rim-base assemblage, totalling less than 10% of vessel, preserved. Surfaces well preserved. No detectable slip; paint appears to be applied directly to vessel surface. Colour: 10R 4/4 to 4/6 (weak red to red). Burnishing strokes on interior in horizontal and diagonal strokes (3-4 mm wide); on exterior in diagonal and vertical strokes (3-4 mm wide). Fig. 48.10. Pit fill 100.02.
Rim: 18 Base: 18 Ht: 9.4

KMyl 445. GB-d Tray (Type 4)
Tray with thick rounded rim and very slightly flanged base. A single rim-base sherd comprising less than 10% of vessel has been preserved. Exterior surface somewhat encrusted and abraded; interior heavily encrusted. Base interior bears traces of burning. Exterior has no apparent slip; paint thickly applied directly to body of vessel. Colour: 10R 3/4 to 4/4 (dusky red to weak red). Some vertical burnishing strokes (3-5 mm wide) visible on exterior surface. Fig. 48.12. Pit fill 108.02.
Rim: 42 Base: 32 Ht: 13.2

Red Monochrome

KMyl 438. RM-? Deep Tray (Type 31)
Small deep tray with slightly flanged base. Preserved in two rim-base assemblages comprising approximately 25% of vessel. Surfaces somewhat encrusted and abraded. No slip detectable; paint applied directly to vessel surface. Colour: 5YR 5/6 to 5/8 (yellowish red). Some surface polish, but no detectable burnishing strokes. Fig. 48.11. Potspread 200.168.
Rim: 22 Base: 19 Ht: 12.6

KMyl 440. RM-? Closed Vessel (Type 28)
Body sherds and possible base core of large closed vessel of unknown type, possibly a holemouth. Approximately 25% of vessel has been preserved. Surfaces heavily abraded. Fairly thick chalky yellowish-buff slip under paint. Paint almost entirely fugitive, preserved only in small random patches. Colour: 2.5YR 5/4 to 5/6 (weak red to red). No traces of burnishing. Potspread 200.180.
Rim: missing Base: missing Ht: indeterminate

KMyl 441. RM-? Holemouth (Type 5)
Holemouth with short collar neck and flat base. Rim missing. Preserved in two body assemblages and 15 non-joining body sherds, together comprising approximately 30% of vessel. Surfaces encrusted and heavily abraded. Medium thick soft buff to orangey-buff slip. Paint preserved in random patches on body exterior. Colour: 2.5YR 5/6 to 6/6 (red). No burnishing visible. Potspread 200.169.
Rim: missing Base: indeterminate Ht: indeterminate

KMyl 444. RM-e Tray (Type 4)
Tray with thick rounded rim, flat base and vertical lug. Five sherds, four of which form a rim-base profile, are preserved which together comprise about 10% of vessel. All surfaces heavily abraded, particularly near the base. Thick buff slip under paint. Colour: 10R 3/2 to 4/4 (dusky red to weak red). Several diagonal burnish strokes (3 mm wide) visible where surface better preserved. Fig. 50.2. Pit fill 104.01.
Rim: 24 Base: 30 Ht: 14.2

KMyl 448. RM-b Hemibowl (Type 2)
Hemibowl with plain rim and broad flat base. A single rim-base sherd only, forming approximately 15% of vessel, preserved. Surfaces encrusted and abraded, especially base interior. Soft chalky pinkish-buff slip under paint. Colour: 2.5YR 5/6 to 6/6 (red). No traces of burnishing due to surface abrasion. Well fill 110.01.
Rim: 14 Base: 10 Ht: 6.1

KMyl 473. RM-d Lid (Type 29)
Circular disk-type lid with slightly upturned edge and central lug grip. More than 90% preserved, with bits of edge and lug grip missing. Lower surface entirely abraded. Upper surface heavily abraded and encrusted. Medium thick light brown slip under paint. Colour: 2.5 YR 5/8 (red). No burnishing visible due to surface abrasion. Fig. 48.7. Occupation deposit 200.211.
Diam: 9.7 Preserved Ht: 3.7

KMyl 1919. RM-? Holemouth (Type 5)
Holemouth with plain rim, globular body and slightly raised base. More then 95% preserved; only small bits of rim and upper body missing. Exterior surface heavily pitted, encrusted and abraded. Interior heavily encrusted. No slip visible; paint appears to be applied directly to vessel surface. Colour: 10R 5/6 to 5/8 (red). No burnishing visible due to surface abrasion. Pl. 9.5, Fig. 50.1. Potspread 200.234.
Rim: 9 Base: 4.2 Ht: 16.2

KMyl 1920. RM-f Deep Tray (Type 31)
Deep tray with slightly flanged base and two vertical ear type lugs. Approximately 90% of vessel preserved; small areas of base and body missing; edges of base partially chipped away. Heavy abrasion around lugs. Interior walls are heavily abraded and have several deep horizontal striations. Thin buff slip under paint. Colour: 2.5YR 4/8 to 5/8 (dark red to red). Traces of horizontal burnishing strokes (3-4 mm) on exterior surface. Pl. 10.4, Fig. 50.4. Potspread 200.225.
Rim: 19 Base: 22 Ht: 13.1

KMyl 1921. RM-f Deep Tray (Type 31)
Deep tray with flanged base and two vertical ear type lugs. Approximately 95% of vessel preserved; small areas of rim, base and body missing, and edges of base partially chipped away. Exterior surface well preserved except on lugs, where some surface abrasion is visible. Base interior heavily abraded, as are areas of interior walls. Thin buff slip under paint. Colour: 5YR 5/8 to 6/8 (red to reddish yellow). Very few traces of burnishing strokes, but surface appears to have been lightly polished. Pl. 10.3, Fig. 50.6. Potspread 200.225.
Rim: 22.8 Base: 23.2 Ht: 17.2

KMyl 1922. RM-f Deep Bowl (Type 3)
Deep bowl with plain rim and ovoid body; base missing. Approximately 75% of vessel preserved. Surfaces heavily abraded especially interior, and exterior near base, with some surface encrustation. Thin soft buff slip under paint. Colour: 2.5YR 6/8 (red). Surface exhibits a dull polish, but no burnishing strokes are visible. Fig. 49.4. Potspread 200.244.
Rim: 20 Base: missing Preserved Ht: 18

KMyl 1923. RM-f Deep Bowl (Type 3)
Deep bowl with plain rim, tapering sides and slightly raised base. Preserved in one rim-base assemblage, forming about 50% of vessel. Surfaces abraded and encrusted in patches on exterior, and entirely on interior. Thin buff slip under paint. Colour: 2.5 YR5/6 to 5/8 (red). Vertical burnishing strokes (2-3 mm wide) visible on better preserved areas of exterior surface. Fig. 49.6. Potspread 200.243.
Rim: 21 Base: 6 Ht: 14.3

KMyl 1924. RM-f Spouted Bowl (Type 17)
Spouted bowl with plain rim, flat base and tubular spout just below rim. Approximately 95% preserved; small areas of body and rim missing. Large portions of interior and exterior surfaces highly abraded; base interior encrusted. Thin buff slip under paint. Colour: 2.5YR 5/8 (red). Where exterior well preserved, vertical burnishing strokes (2-4 mm wide) are visible extending from rim to base. Pl. 10.1, Fig. 49.3. Potspread 200.266.
Rim: 17.8 Base: 5.7 Ht: 12.3

KMyl 1925. RM-f Deep Bowl (Type 3)
Deep bowl with plain rim and slightly raised base. Preserved in one rim-base and one body assemblage, which together comprise about 30% of vessel. Exterior heavily abraded on base and patches of body; interior surface entirely abraded. Thin buff slip under paint. Colour: 2.5YR 5/8 (red). Traces of vertical burnishing strokes (2-4 mm wide) visible on exterior surface. Fig. 49.8. Potspread 200.265.
Rim: 31 Base: 7.7 Ht: 21

KMyl 1926. RM-d Deep Tray (Type 31)
Large deep tray with flanged base and two vertical ear lugs. More than 95% of vessel preserved; only bits of rim, body and base are missing. Edges of base exterior chipped off in places. Surfaces abraded; large patch near one lug desurfaced; heavy surface wear around the other lug. Interior heavily abraded and somewhat encrusted. Very thick, soft buff slip. Surface colour varies considerably: 2.5YR 5/8 (red); 5YR 5/8 (yellowish red); 5YR 4/4 (reddish brown). No burnishing visible due to surface abrasion. Pl. 10.2, Fig. 50.7. Potspread 200.224.
Rim: 35 Base: 38.5 Ht: 17.5

KMyl 1927. RM-f Flask (Type 7)
Flask with short cylindrical neck, globular body and pointed base. Approximately 95% of vessel preserved; small areas of rim and body missing. Surfaces differentially abraded; some areas are well preserved, some very abraded, with a burnt patch on one side of lower body exterior. Soft buff slip of medium thickness under paint. Colour: 7.5 YR 5/4 (brown) to 2.5YR 5/6 (red). Traces of diagonal burnishing strokes (2-3 mm wide) visible on well preserved areas of body exterior. Pl. 9.7, Fig. 50.5. Potspread 200.222.
Rim: missing Base: pointed Preserved Ht: 44

KMyl 1929. RM-e Deep Tray (Type 31)
Deep tray with flanged base and horizontal lugs. Preserved in three pieces, two rim-base sherds and one base sherd, totalling about 20% of vessel. Edges of base partially chipped away. Surfaces heavily abraded, especially interior walls. Thick yellowish buff slip under thin application of paint. Colour: 7.5YR6/4 to 5YR 6/6 (light brown to reddish yellow). Burnt patch below lug. No traces of burnishing. Fig. 48.9. Potspread 200.236.
Rim: missing Base: indeterminate Ht: 13.3

KMyl 1930. RM-? Closed Vessel (Type 28)
Rounded base and lower body from vessel of unknown type. One large base assemblage, totalling approximately 20% of vessel, has been preserved. Broken edge straight and smooth, as if deliberately cut for re-use. Exterior heavily abraded, with paint remaining only in patches. Medium hard thin off-white slip under paint. Surface colour: 2.5YR 5/6 (red). No traces of burnishing due to surface abrasion. Fig. 51.1. Potspread 200.238.
Rim: missing Base: rounded Preserved Ht: 25

KMyl 1933. RM-? Tray (Type 4)
Rim-base sherd of tray with thick rounded rim and flat base. A single sherd only, comprising less than 10% of the vessel, has been preserved. Interior surface entirely encrusted; exterior partially encrusted. Surface lumpy and uneven. Thin buff slip under thin application of paint. Colour: 5YR 6/8 (reddish yellow). No evidence of burnishing. Fig. 49.5. Unit 0.
Rim: 26 Base: 26 Ht: 8.2

KMyl 1987. RM-d Tray (Type 4)
Tray with rounded rim and thin flat base. A single rim-base sherd, comprising less than 10% of vessel, has been preserved. Surfaces fairly abraded; interior heavily encrusted. No apparent slip. Exterior surface varies in colour from 2.5 YR 5/4 (weak red) to 2.5 YR 4/1 (dark reddish grey). Matte paint exterior, slightly glossy interior. No traces of burnishing. Fig. 49.1. General 300.255.
Rim: 24 Base: 23 Ht: 8

KMyl 2015. RM-b Storage jar (Type 24)
Holemouth with slightly everted rim and flat base. A single rim-base assemblage, totalling about 75% of vessel, has been preserved. Surfaces heavily abraded and somewhat encrusted. Colour: 5YR 6/6 - 7.5 YR 5/6 (reddish yellow to strong brown). No burnishing visible. Fig. 51.3. Potspread 200.223.
Rim: 24 Base: 14 Ht: 55

KMyl 2016. RM-b Storage jar (Type 24)
Holemouth with slight collar neck and very slightly raised base. Approximately 80% of vessel preserved. Surfaces heavily abraded and slightly encrusted. Colour: 5YR 5/6 (yellowish red). No burnishing visible. Fig. 51.4. Potspread 200.227.
Rim: 12 Base: 8 Ht: 44

KMyl 2017. RM-b Storage jar (Type 24)
Holemouth with slender body, slightly everted rim and flat base. Preserved in several non-joining rim, base and body assemblages totalling about 90% of vessel. Surfaces encrusted and very abraded. Slightly glossy paint. Colour: 10R 5/8, 2.5YR 5/6 (red). No burnishing visible. Fig. 51.5. Potspread 200.227.
Rim: 14 Base: 10 Projected Ht: 39

KMyl 2018. RM-d Holemouth (Type 5)
Rim and body sherds from holemouth with everted rim. Very few joins, but about 30% of vessel is represented. Surfaces heavily pitted and abraded. Matte paint. Colour: 5YR 6/6 (reddish yellow). No burnishing visible due to surface abrasion. Fig. 50.3. Potspread 200.227.
Rim: 12 Base: missing Ht: indeterminate.

KMyl 2019. RM-f Closed Vessel (Type 28)
Body sherds totalling about 50% of a large closed vessel of unknown type. Surfaces heavily encrusted and abraded. Matte paint. Colour: 2.5 YR 6/6 (red). No burnishing visible due to surface abrasion. Potspread 200.228.
Rim: missing Base: missing Ht: indeterminate

KMyl 2021. RM-f Closed vessel (Type 28)
Body assemblages and sherdage forming approximately 30% of a large closed vessel of unknown type. Surfaces heavily abraded, with some encrustation. Matte paint. Colour: 5YR 5/6-6/6 (yellowish red to reddish yellow). Fig. 51.2. Potspread 200.233.
Rim: missing Base: missing Preserved Ht: 8.6

KMyl 2022. RM-f Closed Vessel (Type 28)
Lower body and base of large vessel of unknown shape with small omphalos base. About 50% of the vessel survives; rim and upper body missing. Exterior surface abraded and heavily encrusted with silicates. Interior bears scant traces of red paint near broken edge. Lower body interior largely desurfaced. Matte paint. Colour: 10R 4/8, 2.5YR 4/8 (red to dark red). Fig. 51.6. Potspread 200.287.
Rim: 63.4 (at broken edge) Base: 5.8 Preserved Ht: 39.4

KMyl 2023. RM-f Deep Bowl (Type 3)
Large deep bowl with raised base. Non-joining rim and base assemblages forming approximately 50% of vessel. Exterior surfaces heavily encrusted and abraded. Base interior heavily pitted. Matte paint. Colour: 2.5YR 5/6 (red). No burnishing visible, probably due to surface abrasion. Fig. 49.7. Potspread 200.295.
Rim: 41 Base: 4.4 Projected Ht: 31.4

KMyl 2024. RM-b Closed Vessel (Type 28)
Base and body fragments from medium sized closed vessel, probably a holemouth with wide omphalos base. Approximately 50% of vessel has been preserved. Vessel constructed in three layers which are heavily laminated and break apart easily. Surface heavily abraded. Matte paint, great variation surface colour. Colour: 2.5Y 3/1 to 7.5YR 5/8 to 5YR 5/6 (very dark grey to strong brown to yellowish red). No burnishing visible due to surface abrasion. Fig. 49.2. Potspread 200.266.
Rim: missing Base: 8 Ht: indeterminate

Red-on-White

KMyl 225.01. RW-? Rectangular Vessel (Type 39)
Fragment of base, wall and corner of rectangular vessel. Less than 10% of vessel preserved. Constructed in three distinct layers. Thick buff slip preserved on exterior surface; paint almost entirely flaked away. Paint colour: 2.5YR 5/6 (red). Interior grey, untreated. No traces of burnishing due to surface abrasion. Pl. 10.7, Fig. 52.4. Pit fill 28.01.
Preserved L: 6.9 Preserved W: 3.8 Preserved Ht: 6.1

KMyl 225.02. RW-? Rectangular Vessel (Type 39)
Description as for 225.01, but this vessel is somewhat smaller. Pl. 10.7, Fig. 52.5. Pit fill 28.01.
Preserved L: 5.4 Preserved W: 3.5 Preserved Ht: 3.8

KMyl 439. RW-a Bottle (Type 35)
Bottle with globular body tapering slightly toward base; narrow cylindrical neck and flat base. Rim-base assemblage, plus 5 additional sherds preserved, together comprising about 50% of vessel. Surfaces heavily abraded; paint flaked off in many places. Thin soft yellowish-buff slip under glossy red paint. Painted motifs: solid checkerboard from rim to base of neck; probable circuit of solid triangles on upper body at base of neck; between and below these, five groups of thin-lined chevrons; lower body and base painted monochrome. Paint colour: 2.5YR 5/8 (red). Interior untreated. Traces of thin burnishing strokes (1-2 mm wide) on lower body exterior. Fig. 52.1. Potspread 200.168.
Rim: 4 Base: 8 Ht: 28.8

KMyl 447. RW-? Holemouth (Type 5)
Holemouth with plain rim and slightly omphalos base. Approximately 75% of vessel preserved; areas of base and body and almost entire rim missing. Interior encrusted and heavily abraded at base. Exterior slightly encrusted; some abrasion of painted motifs. Fairly soft chalky pinkish-buff slip underneath painted decoration on exterior. Paint colour: 10R 4/8 to 5/8 (red). Motifs: 8 wide bands running from rim to base; these vary in width from 2-4 cm and are irregularly spaced. Base exterior also painted monochrome. Exterior burnished in thin (2-3 mm wide) roughly vertical stokes. Pl. 9.4, Fig. 52.8. Fill 152.153.
Rim: 14 Base: 6.3 Ht: 19.3

KMyl 1917. RW-g Deep Bowl (Type 3)
Deep bowl with plain rim, thin walls and slightly raised base. A single rim-base assemblage, forming about 25% of vessel, preserved. Exterior surface somewhat encrusted and abraded; interior heavily abraded. Exterior monochrome; on rim interior, remains of five rim dashes still visible as motifs; remainder are abraded away. Thin off-white slip under matte paint. Colour: 5YR 5/6 to 5/8 (yellowish red). Traces of vertical burnishing strokes (2-3 mm wide) visible on exterior body. Fig. 52.6. Potspread 200.233.
Rim: 18 Base: 7 Ht: 10.8

KMyl 2020. RW-g Flask (Type 7)
Non-joining rim and body assemblages from flask; base missing. Approximately 50% of vessel preserved. Surfaces heavily abraded; only scant traces of paint remain, with no discernible motifs. Matte paint. Colour: 5YR 6/6 - 6/8 (reddish yellow). Fig. 52.7. Potspread 200.228.
Rim: 6 Base: missing Preserved Ht: 23

Coarse Ware

KMyl 436. CW Tray (Type 4)
Tray with thin walls, flanged base and U-shaped opening. More than 90% of vessel preserved. Small bits of rim and base missing. Some missing base areas filled with plaster for consolidation. No slip or paint. Colour of fabric: 7.5 YR 4/2 (brown). Pl. 9.3, Fig. 53.5. Hearth 152.183.
Rim: 51 Base: 43.5 Ht: 11

KMyl 446. CW Tray (Type 4)
Tray with thin walls, plain “pinched” rim, and thin slightly flanged base. A single rim-base sherd, forming less than 10% of the vessel, has been preserved. Surface hand-smoothed but irregular and lumpy. No slip or paint. Colour of fabric: 2.5YR 5/6 (red). Fig. 53.2. General 131.
Rim: indeterminate Base: indeterminate Preserved ht: 8.8

Fired clay, ? ware and “X” vessels

KMyl 56. Fired Clay Jar Stopper (Type 38)
Hemispherical stopper with damaged terminal plug. Finger-smoothed; no slip, paint or burnishing. Slightly pitted and encrusted. Colour of fabric: 7.5YR 7/3 (pink). Fig. 54.4. Pit fill 1.11.
Diam: 5.1 Preserved Ht: 3.7

KMyl 124. Fired Clay Dish (Type 30)
Fragmentary shallow dish with gently rounded base and sides. Approximately 60% preserved. Rim chipped underneath. Smoothed surfaces. Heavy angular grit and chopped straw temper. Surface finish not visible due to “verdigris” effect. Pl. 10.5, Fig. 54.6. Pit fill 16.01.
Diam: 8.5 Base: rounded Ht: 2.5

KMyl 130 Fired Clay Hemibowl (Type 2)
Fragmentary hemibowl, roughly and unevenly shaped by pinching. Approximately 70% preserved. Surfaces reduced and smoothed; traces of burnishing or possible wear on base. Brown to dark grey edges; rough fracture; angular grit temper. Pl. 9.2, Fig. 54.5. Pit fill 24.01.
Diam: 5.0 Ht: 2.2

KMyl 457. ?-e Flask (Type 7)
Small flask with globular body and pointed base. Rim and neck missing, but about 80% of vessel, including entire base, has been preserved. Exterior surface encrusted and abraded. Not traces of slip or burnish; vessel possibly hand smoothed only. Fabric colour: 7.5YR 7/4 (pink). Pl. 9.6, Fig. 54.9. Occupation deposit 200.211.
Rim: missing Base: pointed Preserved Ht: 8.6

KMyl 1180. Fired Clay Pinch Pot (Type 40)
Small torpedo-shaped pinch pot with thick walls, thick rounded rim and stubby pointed base. Approximately 90% of vessel preserved; small bits of rim and body missing. Surface slightly encrusted and abraded. No apparent slip. Surface colour: 10YR 8/4 (very pale brown). Dusky grey patch on one side running from rim to base, possibly from firing. No detectable burnishing. Fig. 54.2. Occupation deposit 200.211.
Rim: 4.1 Base: pointed Ht: 8.6

KMyl 1918. "X"-g Bottle (Type 35)
Bottle with probable cylindrical neck, slightly omphalos base and two shallow vertically pierced lugs at base of neck. Approximately 80% of vessel preserved; rim and neck missing. Encrusted near base; entire exterior surface heavily abraded. Thin chalky buff slip on exterior; scant traces of monochrome paint preserved on body exterior. Colour of paint: 5YR 5/6 (yellowish red). No visible signs of burnishing. Pl. 10.6, Fig. 54.7. Potspreads 200.230/231.
Rim: missing Base: 4 Ht: 16.8

KMyl 1928. ? surface/fabric Flask (Type 7)
Flask with short cylindrical neck, globular body and short stumpy base. Approximately 90% preserved; only small areas of rim and body missing. Exterior surface entirely de-surfaced, with only minuscule bits of slip and paint preserved. Heavily pitted. Large burnt area on lower body near base. Interior untreated. Colour of fabric: 10YR 7/3 (very pale brown). Pl. 9.8, Fig. 54.11. Potspread 200.233.
Rim: 5.4 Base: pointed Ht: 38

KMyl 1931. Fired Clay Jar Stopper (Type 38)
Circular disk-type stopper with damaged terminal plug. Approximately 90% preserved; plug and small bit of circular edge missing. Surface smoothed but not painted, slipped or burnished. Colour of fabric: 7.5YR 8/3 (pink). Fig. 54.8. Pit fill 300.257.
Diam: 4.2 Preserved Ht: 1.8

KMyl 1988. ? surface/fabric Closed Vessel (Type 28)
Neck and upper body of closed vessel of unknown shape, probably a bottle or flask. Less than 10% of vessel preserved; rim and base missing. Surfaces extremely abraded and very fragile. A roughly ovular disk-shaped stone (5.6 x 4.4 cm) lodged into top of neck, perhaps having served as a stopper. Fabric similar to Fabrics A and B, but tawny in colour with dense concentration of rounded igneous filler. Colour of fabric: 7.5 YR 5/6. No traces of slip or burnish due to surface abrasion. Fig. 54.1. Potspread 200.232.
Rim: missing Base: missing Preserved Ht: 5

KMyl 2014. "X"-a Flask (Type 7)
Base and lower body assemblage of flask with pointed base. Approximately 50% of vessel preserved; surfaces heavily abraded. Colour of paint on best preserved sherd: 5YR 5/6 (yellowish red) . No burnishing visible due to surface abrasion. Fig. 54.10. Potspread 200.222.
Rim: missing Base: pointed Preserved Ht: 16.5

Catalogued vessels

Cat. 399. ? surface/fabric Deep Bowl (Type 3)
Small deep bowl with plain rim, flat base and irregular surface; three relief knobs preserved in a line on lower body directly above base. No description. Fig. 54.3. Pit 24.0.
Rim: 9 Base: 6.3 Ht 6.6

Cat. 400. CW Tray (Type 4)
Tray with flanged base and U-shaped opening. Fig. 53.4. Pit fill 1.05.
Rim 44 Base: 44 Ht: 9.9

Cat. 401. CW Deep Tray (Type 31)
Vessel known from drawing only. Deep tray with walls tapering toward rim; flanged base. Traces of paint, so may have been a RM or GB surface. Fig. 53.3. Cadastral plot 76.
Rim 21.2 Base: 30.5 Ht: 18

Cat. 402. CW Tray (Type 4)
Tray with flanged base and walls tapering toward base. Fig. 53.1. Cadastral plot 76.
Rim: 26.7 Base: 22.4 Ht: 8.6

Cat. 403. GB-? Platter (Type 1)
Platter with flaring rim and flat base. Fig. 48.4. Pit fill 16.04.
Rim: 18.3 Base: 10.2 Ht: 11.5

Cat. 404. ? surface/fabric Closed Vessel (Type 28) Pit fill 1.05.

Table 14.1. Catalogue of miscellaneous sherds and pottery objects

KMyl	*Material*	*Class*	*L*	*W*	*Th*	*Unit*	*Description*	*Fig.*
10	GB-d	misc. sherd	5.8	5.1	3.8	0	Lug Type D	
86	GB-b	misc. sherd	-9.8	-8.6	1.2	1.05	sherd with 3 perforations	55.7
88	fired clay	misc. object	5.8	5.2	1.4	1.05	possible lid or jar stopper	
160	? ware	misc. sherd	-5.9	-3.6	3.7	1.11	anthropomorphic vessel frag.?	55.9
229	fired clay	misc. object	-4.3	-4.2	3.3	16.04	perforated	
257	GB-b	misc. sherd	-4.6	-2.8	-2.5	16.06	Base Type I from bowl	
291	fired clay	misc. object	-10.5	11.2	1.8	0	possible lid	
357	CW	misc. object	6.5	-4.3	1.8	105.01	disc-shaped; function unknown	
420	GB-a	burnisher?	4.3	3.7	1.0	167	triangular plan	55.3
572	fired clay	misc. object	-7.2	-	3.2	100.02	possible pestle or jar stopper	55.8
661	White Slip	perforated sherd	-3.9	-2.6	0.4	105.02	perforated body sherd	
685	GB-b	perforated sherd	-7.5	-4.5	1.4	107.01	perforated body sherd	
775	"X"-b	misc. sherd	7.6	7.6	1.6	108.02	base core or lid	55.1
1151	Medieval	misc. sherd	-6.4	-3.6	-	0	glazed stem base	
1210	fired clay	misc. object	3.9	3.4	-1.6	300.249	possible jar stopper	55.4
1216	RM-?	misc. object	-7.8	-6.1	4.1	0	object with multiple perforations	55.2
1916	fired clay	misc. object	12.8	-	5.8	300.257	cylindrical pestle	55.5
1932	fired clay	misc. object	-5.3	-2.9	2.0	300.218	possible building material	
1934	fired clay	misc. object	-	-	3.8	324	spherical object	
1942	fired clay	misc. object	4.8	3.1	-3.1	200.126	irregular; function unknown	
1956	RW-a	perforated sherd	-3.5	-3.1	1.3	213	perforated rim sherd	
1969	RW-?	perforated sherd	-4.3	-3.1	1.0	200.126	perforated rim sherd	
1970	RM-a	misc. sherd	-3.9	3.7	1.5	201	fragmentary; unknown function	
1985	? ware	misc. sherd	-2.1	-1.7	0.2	200.113	perforated; possible Iron Age	

§ 14.7 Discussion of ceramics from Units 1-34

Examination of approximately thirty features explored at Mylouthkia between 1977-80 yielded fourteen pottery vessels and a total of 30,713 sherds. Pottery was recorded in Units 1, 2B, 4, 5, 9, 15, 16, 18-20, 24, 28, 30; no pottery was recorded from Units 2, 7, 10, 17, 25-27 and 31-34. Table 14.2 provides an overall ceramic profile of relevant pottery-bearing features by surface treatment (GB, RW, BI, CW, Cb) and by morphological type (Types 1-5, 7, 24, 28; open and closed body sherdage). As fabric analysis was not undertaken during the 1970s excavations, fabric could not be included as a variable in the study of the sherdage from these units. However, sherdage retained after the excavations and housed in the District Archaeological Museum, Paphos, has been studied in order to gain a general idea of fabrics and their correlations to shapes and surface treatments.

Pits 1 and 16 are conspicuous in Table 14.2 for their large sherd counts, attributable in part to their relatively large depths and areal extents; both contained ashy ceramic-rich deposits and are discussed in detail below. Pit 1, a 1.9 m deep pit of roughly circular plan, accounts for more than half of the total sherdage from these features, yielding over 17,000 sherds and six fragmentary vessels (KMyl 56, 87, 224.01, 224.02; Cat. 400, 404). Pit 16, with a total of over 9,000 sherds, may have produced sherdage in roughly equivalent numbers to pit 1, had it not been truncated by terracing operations. It was roughly ovular in plan (7 x 6.5 m) with a preserved depth of 1.6 m. In addition to the sherdage, a fragmentary platter (KMyl 1986) was found here. Pit 24 was slightly smaller in plan (3.5 x 5.0 m). Although it is estimated to have had an original depth of about 2.0 m, it was truncated to a preserved depth of only 0.6 m. Despite this, pit 24 yielded 900 sherds and a deep bowl (Cat. 399).

The remaining features contain no complete vessels and very small numbers of sherds, either because they were not fully excavated (pits 4, 5, 9, 15, 18-20) or on account of their small sizes and truncated upper strata (pits 28, 31). Finally, two CW tray fragments (Cat. 401-402) were recovered from superficial contexts.

Vessels and miscellaneous pottery

Excavation of Units 1-34 yielded a total of fourteen registered/catalogued vessels and seven miscellaneous pottery objects (including two surface finds):

Vessels: KMyl 56, 87, 124, 130, 224.01, 224.02, 225.01, 225.02; Cat. 399-404.

Miscellaneous Sherds and Pottery Objects: KMyl 10, 86, 88, 160, 229, 257, 291.

Shapes

The restricted range of shapes here is striking and characteristic in general of other known EChal assemblages. Only seven rim types occur, of which four are open shapes (Types 1, 2, 3 and 4) and three closed (Types 5, 7 and 24). Type 1, a platter with plain wide rim and flaring walls, dominates the morphological assemblage, accounting for 68% of all identifiable rims (if we exclude Type 28, rim of unknown shape). Rim diameters on Type 1 vessels range from about 14-54 cm; small examples tend to have steep sides, and larger ones sharply angled profiles. Some are outfitted with spouts and are technically spouted platters (Type 32) with rim diameters ranging from 24-51 cm. Other open shapes are far less frequent. Type 2, the hemibowl, accounted for only 2% of identifiable rim types, and rim diameters varied from 15-25 cm. Type 3, the deep bowl, comprised only 8% of rims; diameters ranged from 13-38 cm. The final open shape, a tray with flanged base (Type 4), also occurs much less frequently (7% of total identifiable rims). Base diameters are better determinants of vessel size in this instance, as most rims are badly damaged or entirely absent; base diameters ranged from 26-46 cm. It should be noted that some of these examples are actually deep trays (Type 31) but

Table 14.2. Analysis of sherdage from Units 1-34

Unit	*GB*	*RW*	*BI*	*CW*	*CB*	*Rim 1*	*Rim 2*	*Rim 3*	*Rim 4*	*Rim 5*	*Rim 7*	*Rim 24*	*Rim 28*	*Open Body*	*Closed Body*	*Total Sherdage*
1	11,715	1,119	-	1,817	-	678	19	119	119	91	60	33	1,521	6,341	3,887	17,434
2B	274	16	-	77	1	-	-	-	-	-	-	-	62	120	97	401
4	13	-	-	2	-	1	-	-	-	-	-	-	-	12	-	15
5	260	2	-	26	-	13	-	10	7	9	-	1	8	100	95	319
9	243	12	-	41	-	12	-	10	3	3	1	-	9	105	96	346
15	6	1	-	5	-	1	1	-	-	-	-	-	-	6	4	13
16	3,342	180	16	932	-	653	15	6	14	16	73	4	398	1,658	1,289	9,044
18	60	4	-	3	-	4	-	4	-	3	-	-	3	26	19	67
19	109	3	-	3	-	6	1	5	-	1	-	-	2	49	42	124
20	100	7	-	-	-	3	4	3	-	1	-	-	1	45	38	117
24	900	142	-	109	-	34	-	-	2	1	4	-	169	551	198	2,027
28	206	57	-	39	-	9	4	-	-	-	1	-	45	129	59	535
30	116	9	-	38	-	1	2	1	-	-	-	-	16	61	50	271
Totals	17,344	1,552	16	3,092	1	1,415	46	158	145	125	139	38	2,234	9,203	5,874	30,713

were not processed as such in the 1977-79 seasons; these tended to be smaller than the trays, ranging in diameter from 14-32 cm.

Closed shapes occur infrequently in this assemblage and are outnumbered by open types by about a 6:1 ratio. A preference for open over closed shapes is corroborated by body sherdage, with open body sherds numbered 9,203 (30% of the total sherdage) and closed body sherds 5,874 (19%). It is perhaps of functional significance that the vast majority of closed vessel types derived from pits 1 and 16; these are discussed in greater detail below. Only three closed types have been identified, Type 5 (holemouth jar), Type 7 (flask with pointed base), and Type 24 (storage jar with slightly convex walls). The holemouth and the flask occur in roughly equal proportions (6% and 7% respectively), while the storage jar occurs even less frequently (2%). Holemouths range in size from rim diameters of 8-20 cm. Flask rims are rare or poorly preserved; one recorded example had a rim diameter of 5 cm. With regard to storage capacities, there were no Type 24 rims sherds sufficiently preserved to calculate their diameters.

In addition to rims, bases, lugs and spouts were recorded among the sherdage. A total of 1,558 bases were recorded, the most common being the flanged coarse base (Type C) found on trays (769 total). Other types included the flat base (Type A, 286 total); the omphalos base (Type B, 171 total); the flanged fine base (Type D, 96 total); the pointed base, found on flasks (Type E, 40 total) and the raised base (Type I, 1 only). An additional Type I base (GB-b) was registered as a miscellaneous pottery object (KMyl 257). The remainder of bases were unidentifiable (195 total).

Spouts and lugs occurred relatively infrequently (92 lugs, 133 spouts total). Of the lugs, nine identifiable types were recorded (A, D, E, F, G, H, L, U and W), all in small numbers. The remainder were unidentifiable (52 total). In addition, a miscellaneous pottery object, KMyl 10, is actually an ear-type lug of GB-d. Only one spout type was identified, the tubular spout (Type A) well attested at other Chalcolithic sites. The spouts here, though, differ from later (MChal) types in that they are normally joined to the vessels by a square-cut aperture. Nearly half the spouts from Units 1-34 derive from pit 16.

Two possible lids were registered as miscellaneous pottery objects, KMyl 88 and 291. Both are of fired clay, but whereas KMyl 88 is small and slightly concave, KMyl 291 is flat, elongated and substantially larger (see Table 14.1 for dimensions). Two final miscellaneous objects derive from these early features. KMyl 229 may have been a loom weight as it is pierced horizontally near its upper terminal and has wear marks that suggest it was suspended during its use (see also § 17.2). KMyl 86 (Fig. 55.7), a sherd with three drilled perforations arranged horizontally on the exterior face of a GB-b body sherd, appears to be purely aesthetic and hints at other, rarer, types of vessel decoration of which we appear to have little knowledge.

Fabrics

Although fabrics were not analysed systematically on the present assemblage, pottery saved from the excavations and stored in the Paphos Museum was examined for evidence of fabric. Two fabric types (C and E) were observed in association with GB, both corresponding to fabric types identified in the more recent excavations at Mylouthkia and described above in § 14.1. Fabric C comprises the vast majority of the sherdage and is the standard fabric used in all shapes with GB and RW; the single sherd of Cb was made of this fabric as well. In addition, however, a small number of sherds from coarse fabric trays (Fabric E) were found with GB and even RW surfaces. RW was also observed in small numbers during the motif analysis on sherds of Fabrics A and B (see Table 14.20).

The majority of CW from the assemblage derived from pits 1 and 16 (Table 14.2). Almost all of this sherdage derived from trays, either as Type 4 rims, Type C bases, ear lugs, and body sherds. The exceptional shapes all derive from pit 16 and are discussed below.

Surface treatments

Although vessel surfaces were treated in a variety of ways, including slipping, burnishing, and painting with monochrome and patterned decoration, there was an overwhelming preference in Units 1-34 for glossy burnished (GB) surfaces. As indicated in Table 14.2, over 17,000 sherds (56% of all sherdage) were treated in this way. Red-on-White (RW), in contrast, occurred infrequently, with just over 1,500 sherds recorded (5%). Basket Impressed (BI) was even rarer (16 sherds); all recorded occurrences derive from pit 16 and were found in association with sherds retaining red ochre on their surfaces (see discussion of pit 16 below, §14.11 and 17.5). Pottery archive records show that Plain White (PW) was not used as a processing category in these early excavations at Mylouthkia; several sherds with white slip (and without red paint) have been observed in the Paphos Museum, however, and it is likely that PW sherdage was initially processed as RW. Two final observations are relevant in this context. In the first place, the discovery of a sherd of Combed pottery (Cb) in pit 2B (Frontispiece, 6) is potentially important for a linking the site ceramically to the preceding LNeo period. Secondly, the marked absence of RM surface treatment may serve as a chronological indicator and can help to establish ceramic links to the other excavated areas at Mylouthkia.

RW motif analysis (see Table 14.3)

A total of 120 sherds from Units 1-34 were selected for analysis. This number represents almost all of the RW saved from the 1977-79 excavations and now housed in the Paphos Museum; therefore it can be considered a representative sample. Motifs are illustrated in

Fig. 14.1. Table 14.20 provides information on the occurrences of motifs, as well as correlations with shapes, fabric types and paint types. As the two RW vessels from these units (KMyl 225.01, 225.02) retained no identifiable motifs, the analysis of RW rests solely with sherdage.

As indicated in Table 14.20, most of the RW sherds were attributable to Fabric C (54.2%); this is not surprising as it was the most common fabric recorded overall among these units. Fabrics A and B occur as well, but much less frequently (20.8% and 17.5% respectively). Paint on RW sherdage is normally glossy (64%); only 10% was matte (the remainder was abraded). The glossy red paint used to decorate the RW pots, it should be noted, is identical to that of GB; the latter differs from RW only in its lack of patterned motifs. Although motifs are applied to bases, spouts and vessel bodies, rims were most frequently chosen as decorative zones (45 sherds or 37.5% of all RW sherds, were rims). In general, there was a slight preference for closed over open body shapes, and in the case of open shapes a preference for painting interior rather than exterior surfaces.

A total of 150 motifs were recorded in the analysis. Most sherds (94 or 78.4%) retained only one motif, whereas 22 sherds (18.3%) had two motifs and four sherds (3.3%) three motifs. As indicated in Table 14.20, the overall motif/sherd ratio was 1.25:1.

Twenty-one identifiable motif types were recorded in varying frequencies. The most common motifs (i.e. which amounted to at least 10% of total motif occurrences) were M2, M11, M12 and M17. Two motifs, M1 and M10, occurred fairly frequently (between 5-10% of total occurrences). Motifs occurring infrequently (less than 5% of total occurrences) were M3-5, M 9, M13-16, M18, M21-26. Five motifs (M6-8, 19-20) did not occur at all in these units.

Only a single motif combination occurred more than two times; this is M1/3, of which there were five recorded occurrences. Thus there is evidence that indicates bowls were often decorated on their interiors with rim bands and bands pendant from the rim. Two combinations occurred twice: M10/17 and M17/24. This would appear to suggest that lattice and checkerboard motifs were frequently favoured. The remaining motif combinations occurred only once each. Those that combined two motifs on a sherd were M1/9, 1/24, 2/5, 4/27, 10/22, 11/27, 12/13, 12/24, 15/18, 17/22, 17/25, 21/27, 22/25, 23/26. In four instances three motifs were recorded on a sherd: M1/21/27, M2/9/12, M18/26/27 and M21/22/26. While this information suggests that a wide range of motifs was employed in the decoration of RW pottery in these units, it does not help to define the overall principles of design configuration favoured by Mylouthkia potters.

Pits 1 and 16: ceramic analysis by level

As shown in Table 14.4, the majority of sherds from pit 1 have GB surfaces (67%), and belong to platter shapes (more than 50% of identifiable rims). In addition, there are the large number of CW sherds from Type 4 trays with U-shaped openings (10% of total sherdage). RW occurs less frequently, comprising just 6% of the total.

Twelve strata within pit 1 yielded ceramics (pit 1.01-1.08, 1.11 and 1.13-1.15). As can be seen from sherd counts in Table 14.4, the majority of this pottery derives from three strata: 1.02, 1.05 and 1.11. Unit 1.02, an earthen floor that contained a hearth and a stone setting, yielded pottery of every shape other than Type 24. Most of this was GB (71%), but CW was also represented in healthy proportions (15%).

Pit fill 1.05, containing charcoal, stones and human skeletal remains, is ceramically the most interesting level in pit 1. It may have been part of a building (see § 12.1, 24). Five vessels were excavated from this level: a GB platter, KMyl 87; two rectangular vessels, KMyl 224.01-224.02; a CW tray with U-shaped opening, Cat. 400; and a GB closed vessel of unknown type, Cat. 404. The latter is known from photographic records and would appear to be an unusual flask with horseshoe-shaped neck and globular body; its base is not visible in the photograph. In addition, two possible figurine fragments (KMyl 71, 72; see § 15), a sherd with multiple drilled perforations (KMyl 86), and a possible lid or stopper (KMyl 88) were recovered.

Pit fill 1.05 yielded a far greater number of sherds than any other level (over 7,000); the bulk of these were GB (4,788), but also noteworthy here are numbers of RW (412) and CW (532) sherds. All shapes are represented, the majority again being GB platters (393 Type 1 rims). Also significant are higher than usual numbers of closed vessels: Type 5 holemouths (48), Type 7 flasks (22) and Type 22 storage jars (3). One possible flask was directly associated with the skeleton of an adult (see § 19.1 for details).

Pit fill 1.11, a dark brown level of clayey silt heavily laden with organic material, contained a jar stopper (KMyl 56) and high proportions of sherds in all categories. Again, GB platters dominate, but an unusually high number of storage jar fragments also occurred (40 total). The most unusual find in this unit was the fragmentary remains of what appears to be the face of an anthropomorphic vessel, KMyl 160 (Pl. 10.9, Fig. 55.9). Its rough, unworked interior suggests that it is derived from a closed vessel such as a flask or bottle. Sharply convex modelling on the exterior forms a hair line and a brow ridge, and oval perforations below them may have been intended as an ear and an eye. The fabric is unusual and does not correspond to known fabrics in the Mylouthkia repertoire; a thin red wash was preserved in patches on the exterior. If indeed this is an anthropomorphic vessel fragment, it is significant as no other examples have been recorded for the EChal of Cyprus. Anthropomorphic vessels are known from Lemba and Kissonerga, but in MChal contexts only. As these vessels are associated with ritual or ceremonial activities, the significance of KMyl 160 would appear to be even greater since it would push back the earliest

Table 14.3. Motif Analysis of Red-on-White Sherdage from Units 1-34

Motif No.	*Description*	*Total Occurrences*	*Motif Combinations*
1	rim band	12	4 alone; 5+M3; 1+M9; 1+M24; 1+M21/27
2	vertical bands pendant from rim	15	13 alone; 1+M5; 1+M9/12
3	vertical bands pendant from rim band	5	5+M1
4	rim dashes (short)	1	1+M27
5	rim dashes (medium)	4	3 alone; 1+M2
9	lattice area (narrow strokes)	4	2 alone; 1+M1; 1+M2/12
10	lattice-filled bands/checks (broad strokes)	9	6 alone; 2+M17; 1+M22
11	lattice-filled bands/checks (narrow strokes)	15	14 alone; 1+M27
12	solid bands (broad)	20	17 alone; 1+M13; 1+M24; 1+M2/9
13	solid bands (narrow)	3	2 alone; 1+M12
14	chevrons (broad strokes)	1	1 alone
15	chevrons (narrow strokes)	4	3 alone; 1+M18
16	reserve bands/slits	2	2 alone
17	solid checkerboard	15	9 alone; 2+M10; 1+M22; 2+M24; 1+M25
18	solid circles/blobs	2	1+M15; 1+M26/M27
21	wavy/curvilinear bands	4	1 alone; 1+M27; 1+M1/27; 1+M22/26
22	parallel bands (broad)	7	3 alone; 1+M10; 1+M17; 1+M25; 1+M21/26
23	parallel bands (narrow)	4	3 alone; 1+M26
24	perpendicular/intersecting bands	7	3 alone; 1+M1; 1+M12; 2+M17
25	converging bands	6	4 alone; 1+M17; 1+M22
26	solid triangles	3	1+M23; 1+M18/21; 1+M21/22
27	unidentifiable motif	7	2 alone; 1+M4; 1+M11; 1+M21; 1+M1/21; 1+M18/26

Table 14.4. Stratigraphic profile of pit 1 sherdage

Pit	*GB*	*RW*	*CW*	*Rim 1*	*Rim 2*	*Rim 3*	*Rim 4*	*Rim 5*	*Rim 7*	*Rim 24*	*Rim 28*	*Open Body*	*Closed Body*	*Total Sherdage*
1.01	715	10	122	8	-	2	6	-	7	-	116	331	227	896
1.02	2,657	91	546	45	1	2	27	4	2	-	450	1,218	963	3,764
1.03	105	-	44	-	-	-	-	-	-	-	18	57	61	160
1.04	77	4	11	-	-	-	-	-	-	-	12	45	19	100
1.05	4,788	412	532	393	8	49	38	48	22	3	363	2,663	1,531	7,096
1.06	25	-	15	-	-	-	-	-	-	-	2	22	-	43
1.07	190	3	42	-	-	-	-	-	-	-	26	116	49	284
1.08	25	1	6	-	-	-	-	-	-	-	5	9	12	36
1.11	2,476	470	344	197	10	58	41	38	24	30	408	1,309	822	3,781
1.13	602	93	127	30	-	5	3	1	5	-	79	329	189	1,116
1.14	19	-	4	1	-	-	3	-	-	-	-	13	5	23
1.15	36	35	24	4	-	3	1	-	-	-	33	29	9	135
Totals	11,715	1,119	1,817	678	19	119	119	91	60	33	1,512	6,141	3,887	17,434

Note: missing units contained no pottery

Table14.5. Stratigraphic profile of pit 16 sherdage

Pit	*GB*	*RW*	*BI*	*CW*	*Sherds with ochre*	*Rim 1*	*Rim 2*	*Rim 3*	*Rim 4*	*Rim 5*	*Rim 7*	*Rim 24*	*Rim 28*	*Open Body*	*Open Body*	*Total Sherdage*
16.0	306	14	-	32	-	25	-	4	2	10	1	-	11	107	132	414
16.01	189	22	4	57	1	10	-	-	1	1	-	1	40	76	70	1,026
16.02	133	5	2	39	-	429	-	1	-	-	-	-	18	27	7	604
16.03	163	32	1	52	130	-	2	-	3	-	1	-	50	78	60	755
16.04	1,724	88	9	536	71	180	6	1	6	3	68	3	160	849	806	4,441
16.05	33	-	-	9	-	1	1	-	1	-	-	-	6	17	11	55
16.06	81	6	-	22	-	3	1	-	1	1	3	-	10	45	30	129
16.07	713	13	-	185	27	5	5	-	-	1	-	-	103	459	173	1,620
Totals	3,342	180	16	932	229	653	15	6	14	16	73	4	398	1,658	1,289	9,044

Note: unit 16.08 contained no pottery

recorded date of such practices by at least half a millennium.

The excavated levels within this pit have been divided into five phases (§ 12.1). The earliest of these, Phase 1 (=pit fill 1.15), contained only 135 sherds, with platters and open sherdage dominating the assemblage. GB and RW occur in equal proportions. In the remaining phases, Phase 2 (=Unit 1.13), Phase 3 (=Units 1.11, 1.16), Phase 4 (=Units 1.03, 1.05, 1.07, 1.09, 1.14, 1.17) and Phase 5 (=Units 1.0, 1.01, 1.02, 1.04, 1.06, 1.08, 1.10, 1.12), greater numbers of sherds were recovered and GB far outnumbers RW. Platters and open sherdage continue to dominate. Other shapes and surface treatments occur in similar proportions in all phases, and thus there is little evidence for functional or chronological variation.

Pit 16 (see Table 14.5 for sherd profile) has been divided into five phases. Phases 2-4 (and especially fills 16.01, 16.04 and 16.07) had high sherd counts, whereas Phase 1 (=fill 16.06) contained only 129 sherds. GB sherdage dominates in all phases, occurring primarily in platter shapes (including a fragmentary vessel, Cat. 403, and the base of a GB bowl, KMyl 257) and spouted vessels (high number of spouts). In contrast, RW occurs in consistently low proportions.

Unusual and especially noteworthy is the presence of BI in fills 16.01-16.04 (Phases 3-4). These represent the only recorded examples of BI in Units 1-34. The most unusual BI sherd is a bowl fragment with banded rim and basket impressions on the body immediately below (Pl. 12.3). Pit 16 also yielded 229 sherds retaining red ochre on their surfaces and suggesting special activities not found elsewhere among the other pits (see Frontispiece, 4 and § 17.5). The fabrics of these sherds were unusual, varying from finely levigated buff-tempered to coarse fabrics with heavy limestone grit temper; they did not correspond to any established fabric type at Mylouthkia. In addition, closed body sherd counts were higher in Phases 3-4, attaining levels roughly equivalent to open body sherds. Fill 16.4 in particular yielded an unusually large number of flask rims (68 total), as well as a fragmentary platter (Cat. 403) and a possible loomweight (KMyl 229). Therefore, there is good evidence for functional differentiation in the later phases of pit 16.

§ 14.8 Discussion of ceramics from Units 100-110

When hotel construction at Mylouthkia Plot 78A/505 late in 1988 presented a threat to observable archaeological deposits, the LAP began its second phase of investigations (see Introduction). The result was a series of eleven features (pits, ditches and a possible well) of varying shapes and sizes, ten of which yielded sherds of GB, RM, RW, BI and CW. Pit 101, a damaged and eroded pit base, was excavated but produced no sherdage. All of the other excavated features yielded pottery, much of it heavily abraded; a total of 11,553 sherds have been processed and recorded. The bulk of this pottery derives from features 100, 105, 108 and 109. Pits 100, 108 and 109 were irregular in shape and varied in size. Feature 105 has been interpreted by the excavator as a post-Chalcolithic drainage ditch, and with it probably also belong features 106 and 107. The remaining features, pit 102, ditch 103, pit 104 and well 110 (probably a Cypro-PPNB well, re-used as a dump during the Chalcolithic), produced relatively fewer sherds, but they furnish important evidence for ceramic relations between these units and those of the earlier excavations further upslope.

Tables 14.6 and 14.7 provide ceramic profiles for sherdage from Units 100-110. As these tables indicate, multivariate analysis has been adopted, with attributes processed as independent variables into rim types, body types and surface treatments (Table 14.6), and into fabric-surface treatment correlations (Table 14.7). Other morphological types (bases, lugs, spouts) are not presented in this table but are included in the discussion below. Although some features are stratigraphically later than others (e.g. pit 100 was probably cut by pit 102; pit 109 was cut by pit 108), there is no evidence of

Table 14.6. Analysis of sherdage from Units 100-110

Unit	GB	RM	RW	BI	CW	*Rim 1*	*Rim 2*	*Rim 3*	*Rim 4*	*Rim 5*	*Rim 7*	*Rim 17*	*Rim 24*	*Rim 28*	*Rim 32*	*Open Body*	*Closed Body*	*Total Sherdage*
Pit 100	139	730	29	3	243	29	12	-	3	1	3	1	-	23	-	483	334	1,392
Pit 102	38	164	3	-	21	13	3	1	-	1	1	-	-	12	-	116	67	297
Ditch 103	2	41	1	-	13	3	-	-	-	1	2	-	-	1	-	25	22	95
Pit 104	14	79	2	-	29	8	4	-	17	-	1	-	-	8	-	86	9	137
Ditch 105	125	619	16	-	156	68	9	2	7	6	2	-	2	28	1	593	328	1,494
Ditch 106	33	49	11	-	27	5	-	-	-	1	-	-	-	5	-	89	34	326
Ditch 107	2	297	1	-	27	7	1	-	14	-	2	-	-	14	-	122	149	423
Pit 108	960	1,200	75	-	213	111	12	1	5	7	17	2	4	169	4	1,104	892	3,377
Pit 109	577	1,218	59	1	301	114	18	4	3	5	6	1	3	98	2	1,132	830	3,307
Well 110	199	242	22	-	64	29	12	-	-	1	3	1	-	23	-	225	186	705
Totals	2,089	4,639	219	4	1,094	387	71	8	49	23	37	5	9	381	7	3,975	2,851	11,553

Note: pit 101 contained no pottery.

any significant ceramic differences between them. With few exceptions, all units share the same range of ceramic traits.

Manufacturing techniques observed on the pottery from Units 100-110 are generally akin to those from 1-34. Slab building in layers continues as the main construction technique, and the practice of repairing broken pots with mendholes persists (Pl. 12.4). Pottery on the whole is heavier, with thicker rims and heavier walls, and burnishing is not as prevalent. CW trays lack U-shaped openings, and more are manufactured in Fabric D, which is not as crumbly and friable as Fabric E. For other shapes, Fabrics A and B have replaced Fabric C as the most common fine-wear fabric type.

Table 14.7. Fabric-surface treatment correlations of Glossy Burnished and Red Monochrome sherdage from Units 100-110

	Unit	*GB -a*	*GB -b*	*GB -c*	*RM -a*	*RM -b*	*RM -c*	*RW -a*	*RW -b*	*RW -c*
Pit	100	115	14	3	531	83	2	27	1	-
Pit	102	34	4	-	100	29	-	3	-	-
Ditch	103	-	-	2	16	13	1	1	-	-
Pit	104	8	6	-	40	15	3	2	-	-
Ditch	105	105	20	-	506	53	-	15	-	-
Ditch	106	23	10	-	18	13	-	10	1	-
Ditch	107	-	1	-	214	64	-	1	-	-
Pit	108	243	629	36	355	560	25	16	56	2
Pit	109	298	266	1	602	414	22	33	23	1
Well	110	78	113	6	71	111	14	11	9	1
Totals		904	1,063	48	2,453	1,355	67	119	90	4

Note: pit 101 contained no pottery

List of vessels and miscellaneous pottery

Vessels: KMyl 411, 442, 443, 444, 445, 448
Miscellaneous Pottery: KMyl 357, 572, 661, 685, 775.

Shapes

Platters dominate among the rim types, accounting for 65% of total identifiable examples (this excludes Type 28, unidentifiable rims). Other open shapes include the hemibowl (Type 2, 12%), deep bowl (Type 3, 1.3%), spouted platter (Type 32, 1.2%) and tray (Type 4, 8.2%). The latter differ from trays in Units 1-34 in their thicker bases, heavy lugs, and lack of U-shaped openings (this sturdier type of tray does exist in Units 1-34, but only in relatively small numbers). In addition, a new bowl type is present (the spouted bowl, Type 17), albeit in small numbers (0.8%). Body sherdage indicates a preference for open shapes, outnumbering closed sherds by about a 3:2 ratio. Rim diameters of platters range from 16-59 cm, and average about 35 cm. Hemibowls are on the whole smaller, normally ranging from 13-28 cm in diameter, but a rim of 35 cm was found in ditch fill 105.03 and pit fill 108.04 produced an exceptionally large example of 64 cm. There were no examples of rim Type 3 sufficiently preserved for measurement. Type 4 flanged bases, however, had diameters measuring between 12-64 cm.

Closed shapes are identical to types identified in Units 1-34 and are limited to the holemouth (Type 5), flask (Type 7) and storage jar (Type 24). Together these types comprise only 11.6% of identifiable rim types. Whereas holemouths and flasks are fairly evenly distributed among the features, the storage jar occurred only in units 105, 108 and 109. Rim diameters of these types are not easily obtained as they occurred in low numbers and too little of the rim was normally preserved to attain accurate measurements. Where measurements could be calculated, however, holemouths averaged around 18 cm in diameter; flasks between 5-8 cm, and the storage jar 40 cm.

Table 14.8. Motif analysis of Red-on-White sherdage from Units 100-110

Motif No	*Description*	*Total Occurrences*	*Motif Combinations*
1	rim band	18	2 alone; 6+M3; 2+M4; 2+M8; 2+M10; 2+M16; 1+M27; 1+M3/10
2	vertical bands pendant from rim	1	1 alone
3	vertical bands pendant from rim band	7	6+M1; 1+M1/10
4	rim dashes (short)	4	2 alone; 2+M1
5	rim dashes (medium)	4	3 alone; 1+M27
6	rim dashes (long)	2	2 alone
7	base band	2	2+M12
8	lattice area (broad strokes)	9	6 alone; 2+M1; 1+M17
9	lattice area (narrow strokes)	5	3 alone; 2+M24
10	lattice-filled bands/checks (broad strokes)	9	6 alone; 2+M1; 1+M1/3
11	lattice-filled bands/checks (narrow strokes)	8	7 alone; 1+M15
12	solid bands (broad)	4	2 alone; 2+M7
14	chevrons (broad strokes)	13	12 alone; 1+M19
15	chevrons (narrow strokes)	3	2 alone; 1+M11
16	reserve bands/slits	6	4 alone; 2+M1
17	solid checkerboard	7	6 alone; 1+M8
18	solid circles/blobs	1	1 alone
19	rows/groups of dots	1	1+M14
21	wavy/curvilinear bands	1	1+M27
22	parallel bands (broad)	12	10 alone; 2+M25
23	parallel bands (narrow)	21	21 alone
24	perpendicular/intersecting bands	8	5 alone; 2+M9; 1+M25
25	converging bands	9	5 alone; 2+M22; 1+M24; 1+M27
27	unidentifiable motif	38	34 alone; 1+M1; 1+M5; 1+M21; 1+M25

Of the 623 bases recorded from these features, the most common was the flanged coarse base (Type C, 301 total); other types represented were the flat base (Type A, 144 total); the omphalos base (Type B, 66 total); the fine flanged base (Type D, 7 total); and the pointed base (Type E, 29 total). KMyl 775, a miscellaneous object, may have been a base of Type A that was re-used, possibly as a lid. Lids in general are rare in these features, and only one other example occurs, KMyl 411 in GB-b. Spouts and lugs also occur infrequently, with only 72 lugs (mostly fragmentary D and G types from trays) and 20 tubular spouts (Type A) recorded. The majority derive from pits 108 and 109. Finally, KMyl 572, an oblong object tapering at its lower terminal, may have functioned as a jar stopper or small pestle similar to another example in clay from pit 300 (KMyl 1916). The remaining miscellaneous objects from this area also have uncertain functions. KMyl 357 is a disc-shaped object in CW; KMyl 685 was a perforated sherd of GB-b; the perforation in this case can most likely be interpreted as a mendhole.

Surface treatments and fabrics

Although four of the registered vessels listed above were GB (KMyl 411, 442, 443 and 445), percentages in Table 14.7) indicate a declining preference for GB surfaces, which account here for only 18.1% of the total sherdage. Instead, RM surfaces dominate (40.2%), outnumbering GB by more than 2:1 while RW, BI and CW continue at much the same proportions as in Units 1-34 (here, RW comprises 1.9% of total sherdage; CW 9.5 % and BI less than 1%). Three of the excavated features yielded pottery of post-Chalcolithic date. A White Slip sherd, KMyl 661 and two sherds of late Archaic pottery were recorded in ditch 105 (Fig. 59.9, 11); several Cypro-Geometric sherds were found in ditch 106, and several abraded sherds of probable Middle Bronze Age date were found in ditch 107. Field notes taken during the excavation of these units indicate greater numbers of these later ceramic types and suggest that these features are post-Chalcolithic in date.

GB is used fairly frequently as a surface treatment in Units 100-110, but it is not often used in association with Fabric C, the primary fabric type associated with GB in Units 1-34. Only 48 sherds of GB-c (0.4% of total sherdage) were identified here, in contrast to 904 sherds of GB-a (7.8%) and 1,063 of GB-b (9.2%). Similarly, RM occurs relatively infrequently in association with Fabric C (67 sherds or 0.6% of the total), occurring far more frequently with Fabric B (1,355 or 11.7%) and especially Fabric A (2,453 or 21.2%). RW follows suit, with only 4 sherds (0.03%) occurring in association with Fabric C, 90 (0.8%) with Fabric B and 119 (1.0%) with Fabric A. If all three surface treatments are considered together, Fabric A totals 3,496 (30.3%), Fabric B totals 2,508 (21.7%), and Fabric C totals 119 (1.0%).

PW from these excavations amounted to 257 sherds, a very small number which supports the hypothesis that they are likely to be derived from RW vessels. CW occurred in most of the features from these excavations, although the majority were derived from pits 100, 108 and 109, and from ditch 105. All were tray shapes, with the exception of two Type 5 (holemouth) rims from ditch 105 and pit 109 and a Type E flask base from well 110.

RW motif analysis

A total of 165 sherds were selected for analysis. These represent almost all of the RW saved from the 1988-89 excavations and can therefore can be considered a representative sample. Motif types are illustrated in Fig. 14.1. Table 14.20 provides information on the occurrences of motifs as well as correlations with shapes, fabric types and paint types. As there were no complete vessels of RW from these units, the analysis of RW rests solely with sherdage.

Most sherds were attributable to Fabric A (65.5%), which was the most common fabric recorded overall among these units. Fabric B occurs less frequently, but still accounts for nearly 30% of the sherdage, while Fabric C occurs only infrequently (4.2%). A single sherd in Fabric D was also recorded. Paint, where preserved, is primarily matte (50%) while less than 7% of sherds were glossy. The matte paint appears to be the same used on RM vessels. Seventy-two sherds (nearly 50% of the total) had heavily abraded surfaces which did not allow for attribution to either of the other categories.

Although motifs are applied to rims, bases and walls of open body vessels, the majority of RW sherds from these units came from closed vessels (91 total). There was a greater than 4:1 preference for closed over open bodies, and in the case of open shapes a preference for painting interior surfaces. Recorded motifs totalled 193. Most sherds (135 total, or 82%) retained only one motif, whereas 29 sherds (17.6%) had two motifs and 1 sherd (0.6%) 3 motifs. The overall motif/sherd ratio was 1.17:1.

Twenty-three identifiable motif types were recorded (see Table 14.8), occurring in varying frequencies. The most common motif type, comprising at least 10% of total motif occurrences, was M23 (narrow parallel bands). Three motifs, M1, 14 and 22, occurred fairly frequently (between 5-10% of total occurrences). Motifs occurring infrequently (less than 5% of total occurrences) were M2-12, M15-19, M21, M24 and M25. Three other motifs (M13, M20, M26) were not recorded in these units.

In general there were few motif combinations on RW sherds from Units 100-110, and the motif/sherd ratio was lower here than on the sherdage from Units 1-34. Only one combination of motifs occurs more than two times; this was M1/3 with six occurrences. M1 occurs twice each with motifs 4, 8, 10 and 16, and once with M3/10, indicating that the combination of rim band and other motifs was a popular design configuration. Other motif combinations were M7/12, M9/24, M22/25 (twice each); and M8/17, 11/15, 14/19 and 24/25 (once each). The high occurrence of M27 (unidentifiable motif) reflects the high levels of abrasion observed on RW pottery from these features.

§ 14.9 Discussion of ceramics from Units 111-356

The phase 3 campaign at Mylouthkia returned to plots 58 and 76. These yielded remains which were far different from the previous pits excavated here, as they yielded buildings with stone foundations and possible timber-constructed precursors. A total of 13,723 sherds were recorded, and overall processing results are presented in Table 14.9a-b. With the exception of a fragmentary RM-? tray from a superficial context (KMyl 1933), the pottery from these units is according to context (i.e. building). Four assemblages are considered, beginning with what is possibly the earliest structure, B 152, which, on the basis of ceramic evidence, would appear to date to the EChal. Subsequently, ceramic assemblages from two early MChal buildings are discussed, B 330 and 200. In addition, pottery from a sounding in pit 300 is presented with a view to better understanding the relative chronological ceramic sequence at the site. Seriation of ceramics from all excavated areas is undertaken below in order to link features investigated in the three phases of excavations.

Building 152 ceramics

Registered vessels: KMyl 436, 437, 447

B 152, situated in the northern precinct of phase 3 excavations, was a large (*c.* 2.5 x 3 m) shallow basin-like feature partially demarcated by a mud ridge; its original diameter may have been closer to 6.0 m. It may have been a structure. The compacted surface of the floor, which existed in patches as a lime plaster surface and contained two large socketed stones, together with a plaster basin and *in situ* pottery vessels, has suggested to the excavator that this feature was a building although its construction was considerably less substantial than that of buildings at Lemba and Kissonerga.

Three pottery vessels were found as potspreads on the floor of B 152: a large CW tray with thin base and U-shaped opening (KMyl 436, Fig. 53.5); a GB flask with stubby pointed base (KMyl 437, Fig. 48.3), and a RW holemouth vessel decorated with broad vertical bands in glossy red paint (KMyl 447, Fig. 52.8). In addition, 640 sherds were recovered from eight units associated with B 152 (Units 111, 153, 154, 163, 182, 183, 185 and 187). Five additional units (Units 122, 129, 165, 186 and 188) yielded no pottery. Tables 14.10, 11 furnish a general ceramic profile of this feature.

A total of 76 rims were recorded, of which 46 could be assigned to a type. Of that number, 34 (or 74%) were platters (Type 1). These were accompanied in very small numbers by rims of Type 2 (hemibowls), Type 4 (trays), Type 7 (flask), Type 24 (storage jar) and Type 32 (spouted platter). Body sherdage indicated a preference for open shapes in general and platters in particular, with open sherds outnumbering closed by about a 4:3 ratio. In addition to rims, a small number of bases were recorded (Type A-4; Type B-4; Type C-18; Type E-1). There were no lugs, and only a single fragmentary spout of unidentifiable type.

With regard to surface treatment, GB predominates. Of the 640 total sherds in these Units, 324 (50%) were GB. Most were associated with Fabrics A (132 total) and B (175 total); only a few sherds had GB surfaces in association with Fabric C (3 total). RM occurs less frequently, with 83 sherds recorded; this amounts to only 13% of the total. Most of these were associated with Fabric A (49 total), but RM sherds were also found in Fabrics B (26 total) and C (5 total). RW occurred very infrequently here; only 14 sherds were recorded, amounting to about 2% of the total sherdage; these were associated with Fabric A (5 total) or B (9 total). There was no BI, PW or CW in the sherdage from these units, although the large CW tray (KMyl 436) shows us that the latter did exist. Its fabric is extremely friable and its morphological features (thin, flanged base; thin walls; U-shaped opening) bear unquestionable affinities to CW from pits 1-34 nearby.

Nine sherds from B 152 retained painted motifs. The majority of these were Fabric A (6 total), although Fabrics B (2 total) and C (1 total) were also represented. Two rim types occurred (a hemibowl and a flask) as well as an omphalos base; the remainder was body sherdage (4 closed; 2 open) Paint was in most cases glossy (5 total); two sherds had matte paint, and the remainder were abraded. Motifs were more or less equally positioned on interior and exterior surfaces (5 exterior total; 4 interior). Only a few motifs occur. These are M1 (rim band), M5 (medium rim dashes), M12 (broad solid bands), M24 (perpendicular/-intersecting bands) and M27 (unidentifiable motif). Most sherds had only a single motif per sherd, but two had two motifs each (M1/5 and M1/27). In addition, M23 (broad parallel bands) was observed on the exterior surface of the single complete RW vessel from B 152, a small holemouth jar (Type 5). The linear nature of these motifs, as well as their application in glossy paint, are in keeping with RW known at Kissonerga and elsewhere in EChal contexts.

In conclusion, one is struck by the "early" characteristics of the pottery: the high percentage of GB, the restricted range of shapes, the presence of stubby bases on flasks, and the glossy quality of the paint on RW. Only the low incidence of Fabric C and presence of some RM might suggest that B 152 is somewhat later than features 1-34. While there is no stratigraphical relationship between this building and the two buildings excavated further to the south (B 200, B 330), the ceramic analysis of B 152 sherdage strongly suggests that it predates those structures and therefore represents an earlier cultural phase of the settlement.

Building 330 ceramics

When stones appearing in the baulk north of B 200 were investigated, they proved to belong to the remains of a building (B 330); the latter had been cut by B 200 and therefore predates it. Five units associated with B 330 yielded pottery. These were fills 199, 308 and 325; wall 323 and floor 326. There were no registered vessels from this building, but a total of 733 sherds were recorded, with major types profiled in Table 14.12.

Platters dominate in this assemblage, with 22 Type 1 rims (or about 55% of total identifiable rims) recorded. The hemibowl, however, occurs more frequently than

Table 14.9a. Analysis of sherdage from Units 111-356 (Glossy Burnished and Red Monochrome)

	GB -a	*GB -b*	*GB -c*	*GB -d*	*GB -e*	*GB -f*	*GB -g*	*GB -?*	*RM -a*	*RM -b*	*RM -c*	*RM -d*	*RM -e*	*RM -f*	*RM -g*	*RM -?*
Rim																
1	106	188	8	3	1	-	-	9	102	47	2	2	1	7	-	7
2	30	87	-	2	-	-	-	-	75	54	1	10	-	4	-	6
3	1	8	1	3	-	-	-	-	3	11	-	-	-	2	-	2
4	-	-	-	1	-	-	-	-	-	1	-	2	-	-	-	-
5	2	6	-	2	-	-	-	1	5	5	1	2	2	1	-	2
7	3	6	-	-	-	-	-	-	3	4	-	-	-	-	-	-
17	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
24	-	6	-	26	-	-	-	1	4	8	-	3	-	-	-	-
30	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
32	1	5	-		-	-	-	1	1	-	-	-	-	-	-	-
28	88	207	1	22	7	-	-	1	224	151	1	33	13	14	-	61
Base																
A	1	16	-	3	2	-	-	-	23	12	-	20	5	-	-	5
B	4	6	1	-	-	-	-	-	9	2	-	2	-	-	-	-
C	-	-	-	5	3	-	-	-	-	-	-	31	10	-	-	1
D	-	-	-	1	-	-	-	-	-	1	-	1	-	1	-	2
E	1	1	-	1	-	-	-	-	-	4	1	4	-	-	-	-
I	5	15	1	-	-	-	-	-	4	10	-	-	-	1	-	-
?	3	12	1	6	1	-	-	-	4	11	-	11	3	-	-	1
Body																
Open	583	1,425	25	44	14			12	1,188	1,494	30	210	113	52	-	112
Closed	355	846	25	11	2	1		13	719	1,261	41	58	7	58	4	186
?	41	135	1		3			1	101	218	1	61	7	7	-	115
Totals	1,226	2,970	64	130	33	1	0	39	2,467	3,294	78	450	161	147	4	500

Table 14.9b. Analysis of sherdage from Units 111-356 (Red-on-White, Plain White, "X", Basket Impressed, and Coarse Ware)

	RW -a	*RW -b*	*RW -c*	*RW -d*	*RW -e*	*RW -f*	*RW -g*	*RW -?*	*PW*	*"X"*	*BI*	*CW*
Rim												
1	12	19	-	-	-	1	-	2	6	15	-	1
2	17	20	-	1	-	2	-	5	5	2	-	-
3	-	2	1	-	1	-	-	-	1	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	29
5	-	-	-	-	-	-	-	-	-	1	-	-
7	-	2	1	-	-	-	-	-	-	1	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
24	2	-	-	1	-	-	-	-	1	2	-	-
30	-	-	-	-	-	-	-	-	-	1	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-
32	-	1	-	-	-	-	-	-	-	-	-	-
28	12	9	2	-	1	-	-	3	14	6	2	20
Base												
A	-	-	-	-	-	-	-	-	5	2	2	21
B	-	-	-	-	-	-	-	-	2	1	-	-
C	-	-	-	-	-	-	-	-	3	1	-	133
D	-	-	-	-	-	-	-	-	1	-	-	-
E	-	-	-	-	-	-	-	-	1	-	-	-
I	1	1	-	-	-	-	-	-	1	1	-	-
?	2	1	-	-	-	-	-	-	6	1	-	3
Body												
Open	30	27	9	3	2	2	1	19	31	60	5	427
Closed	43	56	3	-	-	2	-	23	89	100	-	7
?	4	4	-	1	-	1	-	-	11	9	-	775
Totals	123	142	16	6	4	8	1	52	177	203	9	1,416

Table 14.10. Fabric-surface treatment correlations of sherdage from Building 152

Unit	*GB -a*	*GB -b*	*GB -c*	*GB Other*	*RM -a*	*RM -b*	*RM -c*	*RM Other*	*RW -a*	*RW -b*	*RW -c*	*RW Other*	*Total Sherdage*
152.111	19	64	1	7	2	3	-	-	2	2	-	-	134
152.153	-	-	-	1	-	-	-	-	-	-	-	-	4
152.154	-	3	-	-	-	-		-	-	3	-	-	7
152.163	109	62	2	1	47	23	5	3	3	4	-	-	406
152.182	-	21	-	-	-	-	-	-	-	-	-	-	35
152.183	-	23	-	4	-	-	-	-	-	-	-	-	42
152.185	1	-	-	-	-	-	-	-	-	-	-	-	5
152.187	3	2	-	1	-	-	-	-	-	-	-	-	7
Totals	132	175	3	14	49	26	5	3	5	9	0	0	640

Table 14.11. Morphological frequencies of sherdage from Building 152

Unit	*Rim 1*	*Rim 2*	*Rim 4*	*Rim 5*	*Rim 7*	*Rim 24*	*Rim 32*	*Rim 28*	*Body Open*	*Body Closed*	*Total Sherdage*
152.111	10	1	-	-	1	1	-	8	53	32	134
152.153	-	-	-	-	-	-	1	-	-	4	
152.154	-	-	-	-	-	-	-	-	3	3	7
152.163	20	-	4	-	2	-	2	18	112	97	406
152.182	2	-	-	-	-	-	-	1	11	12	35
152.183	1	-	-	-	-	-	1	2	22	10	42
152.185	-	-	-	-	-	-	-	-	-	1	5
152.187	1	-	-	-	-	-	-	-	2	2	7
Totals	34	1	4	-	3	1	3	30	203	157	640

we have seen elsewhere at the site, with a total of 13 Type 2 examples (35% of identifiable types). The remaining types, though familiar, occur infrequently: Type 4 (tray-1 total); Type 5 (holemouth-2 total); and Type 24 (storage jar-2 total). Most rims could not be classified, however, on account of their small sizes. The preference for bowls would appear to be corroborated by the body sherdage, which comprises primarily open sherds (221 total). Only 131 closed body sherds were recorded. Bases occur infrequently. The most common was the flanged coarse base (Type C) which occurred 12 times; the flat base (Type A) occurred 4 times; the raised base (Type I) 5 times; and the pointed and flanged fine bases (Types E and I, respectively) once each. No lugs were recorded, but there were 4 tubular spouts (Type A).

With regard to surface treatment, GB is the most popular, with 269 examples (37% of total sherdage). Almost all of these occur in association with Fabric B (256 total) although Fabric A was also recorded (7 total). GB does not appear to have been applied to sherds of Fabric C, and in fact Fabric C was not observed at all in these units. RM comprises 22% of the total sherdage and can be found in association with Fabric A (22 total examples) and Fabric B (137 total examples). CW and BI were not recorded in this building.

RW, as usual, occurred relatively rarely, with a total of only 5 sherds recorded (all in Fabric B). Four sherds retained traces of motifs, a rim sherd of Type 1 and three body sherds. Paint was glossy on three of the four sherds, and matte on one. Painted decoration was observed on the interior surface in three cases, and once on the exterior. Only two identifiable motifs were recorded, M3 (solid bands pendant from rim band) and M12 (broad solid bands). These were both applied in glossy paint, M3 to the interior of a platter rim, and M12 on the exterior of a closed body sherd. The other two sherds had motifs that could not be identified (M27).

In conclusion, the ceramic assemblage of B 330 is primarily comprised of GB, but Fabric C does not appear and RM is represented in greater numbers than in B 152. It is important to remember, however, that this building contained no *in situ* vessels and that sherdage statistics alone must be treated with great caution owing to the likelihood of redeposition. Relationships between B 330 and other excavated areas are explored more fully below.

Building 200 ceramics

Registered vessels: KMyl 438-441, 457, 473, 1180, 1917-1930, 1988, 2014-2024

Miscellaneous pottery objects: KMyl 1942, 1969. (The functions of these objects are unknown. KMyl 1969 is a sherd perforated just below the rim, perhaps used as a suspension hole. Another perforated sherd (Fig. 60.4) may be a mendhole from a fairly large vessel. KMyl 1942 is a small cup-like object with a flat extension on its lower terminal; its lower end is missing).

B 200, the most substantial structure at Mylouthkia, has yielded the most complete ceramic assemblage at Mylouthkia. Two large lumps of unfired bentonitic clay

Table 14.12. Analysis of sherdage from Building 330

Unit	*Rim 1*	*Rim 2*	*Rim 3*	*Rim 4*	*Rim 5*	*Rim 7*	*Rim 24*	*Rim 28*	*Body Open*	*Body Closed*	*Total Sherdage*
330.199	13	11	-	1	-	-	-	21	156	82	414
330.308	2	1	-	-	1	-	-	-	11	2	37
330.323	-	-	-	-	-	-	1	-	-	-	5
330.325	4	1	-	-	1	-	1	18	48	45	262
330.326	3	-	-	-	-	-	-	1	6	2	15
Total	22	13	0	1	2	0	2	40	221	131	733

Unit	*GB -a*	*GB -b*	*GB -c*	*GB Other*	*RM -a*	*RM -b*	*RM -c*	*RM Other*	*RW -a*	*RW -b*	*RW Other*
330.199	5	101	-	2	7	127	-	15	-	3	-
330.308	1	17	-	2	-	6	-	1	-	-	-
330.323	-	-	-	-	-	4	-	1	-	-	-
330.325	1	129	-	2	-	-	-	1	-	2	-
330.326	-	9	-	-	-	-	-	2	-	-	-
Total	7	256	0	6	7	137	0	20	0	5	0

Table 14.13. Frequencies of vessel types (rims) from Building 200

Rim	*RM -b*	*RM -d*	*RM -e*	*RM -f*	*RM -?*	*RW -a*	*RW -g*	*"X"*	*Fired Clay*	*? Ware*	*Totals*
3	-	-	-	4	-	-	-	-	-	-	4
5	3	1	-	-	2	-	-	-	-	-	6
7	-	-	-	1	-	-	2	1	-	2	6
17	-	-	-	1	-	-	-	-	-	-	1
29	-	1	-	-	-	-	-	-	-	-	1
31	-	1	1	3	1	-	-	-	-	-	6
35	-	-	-	-	-	1	-	1	-	-	2
40	-	-	-	-	-	-	-	-	1	-	1
28	1	-	-	3	1	-	-	-	-	1	6
Total	4	3	1	12	4	1	2	2	1	3	33

(potspreads 200.239 and 200.242) provide some evidence that pottery manufacture may have taken place here although the clay types do not appear to match those of recognised pottery fabrics. Reconstruction of sherdage from potspreads on the floor of B 200 yielded 33 complete vessels; these are listed immediately below. In addition, more than 4,600 sherds were recorded from units associated with the building; although these were not restorable, they provide additional valuable evidence concerning the latest phase of habitation at the site.

Vessel morphology

Thirty-three vessels were recovered and reconstructed from potspreads lying on the floor of B 200. Table 14.13 shows vessel types in relationship to fabric-surface treatment associations. The vessels found *in situ* within the building represent a limited range of shapes; conspicuously absent are platters and hemibowls. Deep bowls (Type 3) and spouted bowls (Type 17) are the only bowl types represented. The latter is represented by only a single example, but the deep bowl and three other vessel types (Type 31 deep tray, Type 5 holemouth, and Type 7 flask) occur frequently, almost to the exclusion of other shapes. The oddities of this assemblage are greater still when one considers that all seven vessels of indeterminate type from the building are closed shapes. If these are added to closed vessels of known types they account for almost two-thirds of all vessels present (21 total). This pattern contrasts markedly with other areas of the site and may indicate some functional specialisation for the building. Unusual too in this regard is the presence of the bottom half of a large *in-situ* storage vessel (KMyl 2022) incorporated into a stone bench (287); even at Kissonerga such large vessels are not found until later in the MChal. Rim diameters, vessel sizes and their associations with each other and with features and other artefacts within the building discussed under "vessel function" below.

Fabrics

A variety of fabrics are associated with the vessels of B 200. The most common was Fabric F, which occurs on more than one-third of the vessels (12 total) and always in association with RM. None of the vessels were of Fabric C. Fabric A is absent as well, but Fabrics B, D, and E are present. Four vessels had unidentifiable fabrics, which together with the first appearance of Fabric F, suggests experimentation with clay bodies at this time. Fabric G new as well, only used in association with RW surfaces. With regard to surface treatments, the most significant pattern here is the lack of GB. Twenty-five vessels (over 75%) are RM, and only a few are RW. While one of the latter has motifs in matte paint (KMyl 1917), a RW bottle, KMyl 439, has glossy paint that is reminiscent of painted styles of the EChal.

Although general shapes represented in B 200 are with few exceptions the same as elsewhere at the site, vessel attachments and articulation of structural elements differ. Innovations include new lug types, collar necks and flanged or everted rims on holemouth jars, as well as the first appearances of spouted deep bowls and large storage jars. There are also changes in materials and manufacturing techniques. Fabric F, for example, is a harder-fired product not used elsewhere at the site, while Fabric G is softer and tends to retain a soft slip more suitable for painting RW designs. The selection of different fabrics for different surface treatments is itself a major innovation. In terms of manufacturing techniques, multiple layering of vessel walls is not as common, although it can still be observed on large storage vessel KMyl 2022. While earlier techniques of scoring and basket impression, used to secure overlying layers of clay, are still in evidence, there are fewer mend holes. Perhaps this was due to the effectiveness of new fabric types, or greater efficiency in vessel manufacture, both of which attest to higher levels of craft specialisation.

Spatial analysis and vessel function

Variations in vessel shape and size are used in this section to determine the functions of vessels within B 200 from the perspective of their formal characteristics. In addition, in order to gain some understanding about the differential apportionment and use of interior space within the building, vessels are grouped according to their position within the building and within the framework of their contextual associations with other types of artefacts.

Four basic functional categories have been isolated for the vessels in B 200. These are based on the formal characteristics of the vessels themselves, on size as well as overall shape (i.e. open vs. closed) and relevant articulated features. For details concerning the criteria for these attributions, see *LAP* II.1B (164-65). The four categories established here are 1 = food preparation/ service [deep trays, bowls, spouted bowls, bottles]; 2 = liquid storage [flasks, storage jars]; 3 = dry storage [holemouths, storage jars]; 4 = miscellaneous functions [lid, miniature flask]. All vessels in B 200 showed distinct signs of heavy abrasion, particularly on their exterior and interior lower portions, thus underscoring their practical, utilitarian functions. The small number of patterned vessels further reinforces the utilitarian nature of the assemblage. It should also be noted that vessels intended for cooking or for ritual/ceremonial purposes (functions ascribed to some vessels at Kissonerga) do not appear to have existed within B 200.

B 200 had two distinct phases of occupation, designated respectively as Occupation 1 (floor 200.283) and Occupation 2 (floor 200.276). Only two vessels, KMyl 2022 and KMyl 2023, belong to the first occupation, and both were found within the building's N sector. The remainder of the vessels, thirty in total, belong to the second occupation. The striking contrast in vessel numbers between the two occupations is noteworthy and highlights the increasingly important role played by the ceramic industry in the process of sedentarism among the early cultures of the island. Stone bowls, which were found in relative abundance within the first phase of occupation, do not occur in the second occupation, where they appear to have been replaced by pottery vessels for functions of food service or preparation. The two pottery vessels in Occupation 1, a storage jar and deep bowl, suggest that storage of comestibles rather than food preparation or food service was the initial purpose for which ceramic containers were introduced into the building. That situation changed during Occupation 2, when pottery vessels increased in number and served an expanded range of functions.

In Occupation 1, finds associated with storage jar KMyl 2022 were a quern, two hammerstones, a flaked tool, and a stone bowl; the storage jar, a large closed vessel, was well suited for long term storage of dry goods, and may have been used to store grain which was then ground on the quern as needed. Immediately to the south of KMyl 2022 was a deep bowl (KMyl 2023); near it were a hammerstone, a pounder, and a flaked tool; this constellation of finds suggest activities associated with food preparation. Both vessels in Occupation 1 are monochrome (RM) vessels used for storage of food items rather than for service and were probably not intended for service or display.

In contrast to Occupation 1, Occupation 2 (Floor 200.276) was replete with pottery vessels; apart from a narrow "passageway" free of pottery between the entryway and the hearth, the only portion of the building lacking in pottery was its SE sector. Very few RW vessels (three total, or 10%) were found in B 200. The reasons for this may be functional but could also be chronological, as pottery statistics from Kissonerga show increased numbers of RW only within the later phases of the MChal (Kissonerga Period 3B). With regard to shapes, there were no shallow bowls, platters, goblets or other types of "dinner ware" such as were found in later MChal B 206 and B 855 at Kissonerga.

The thirty vessels from Occupation 2 have been grouped spatially into four sectors (I-IV), with each sector further divided into two sub-sectors, A and B. Each area contained one fairly large closed vessel, presumably for long-term storage of dry materials or liquids (KMyl 440, 1930, 2019, 2021). There was thus no exclusive storage area in the building. Rather, storage vessels were situated together with other types of vessels as part of ongoing domestic activities; this pattern may be fortuitous, but it suggests that special storage areas within buildings did not occur at Mylouthkia. Although several sub-sectors may have served as locations for more specialised endeavours (see Sectors IA, IIIA and IIIB below), most of the floor space within B 200 seems to have been allocated to more generalised activities involving the storage and preparation of food.

Sector I corresponds roughly to the SW quadrant of the building and has been divided into two subsectors, IA at the SW perimeter of the building and IB to the S of the W entryway. Vessels in Sector IA (KMyl 1917, 1919, 1928, 1929, 1988, 2021) have functions connected with food preparation, dry storage and liquid storage. They were associated with a varied range of finds, in particular a quern (KMyl 1189) and a variety of tools including rubbers, a hammerstone, a hammerstone/grinder, a pounder, eight axes, two bone points, an abrader and a polisher. Thus a varied range of activities was engaged in here; although many of those activities were probably associated with food preparation (i.e. grinding activities), it is also possible that chalk limestone lids for small bowls were being manufactured in the building. The high number of limestone lids in this sector (without accompanying bowls), the presence of grinding/polishing implements, and the presence of vessels for liquid storage (water being an essential ingredient in the grinding of stone implements) support this hypothesis.

Sector IB contained only three vessels (KMyl 1924, 1926, 2024). There was also a smaller number and more restricted range of other finds than in Sector 1A (two adzes, two axe-shaped grinders, and one hammerstone-grinder); the majority of the latter were situated in a cluster immediately adjacent to the wall of the building and therefore are not directly associated with the pots; only adze KMyl 459, hammerstone-grinder KMyl 522 and picrolite pendant KMyl 1187 were more closely associated with the pots, and the latter have functions of short-term storage and food preparation. The appearance of the pendant in this context, while interesting, has little apparent connection to the vessels in this area; however, it serves as yet another sign of specialised production within Sector I as a whole.

Sector II covers the NW quadrant of B 200, from the W entryway to the northern perimeter of the building. Sub-sector IIA is immediately adjacent to the W entryway and yielded four vessels with functions of food storage and preparation (KMyl 1920, 1921, 1930 and 2015). With regard to associated finds, Sector IIA is similar to Sector IA both in terms of the high numbers of axes found (twelve total here) and the wider range of tool types (pestles, rubber, adze, hammerstone, hammer-grinder). Pestles, pounders and the like provide further indications that this area was used primarily for the storage and preparation of food.

Located immediately to the E of Sector IIA, Sector IIB contained a distinctly different group of vessels, three flasks (KMyl 457, 1927, 2014) and a bottle (KMyl 1918), all of which were probably used as containers for liquids. Associated finds indicate a more restricted range and smaller numbers than in Sector IIA: a rubber, hammerstone, hammerstone-grinder, adze, axe-shaped grinder and a lid. The latter may have been used as a covering for one of the flasks. Otherwise, however, it is hard to associate these tools with the vessels in any meaningful fashion.

Sector III comprises the area in and around the hearth. Sub-sector IIIA was located directly by the hearth. Here, as in Sector IA, liquid storage vessels were found in association with stone lids (3 total), suggesting once again the possible manufacture of stone lids within the building. The existence of a pounder, an axe, a flaked tool, a polisher, and a bone point provide further evidence that industrial activity may have taken place in this area. Sector IIIB is located immediately to the N of Sector IIIA and yielded only two vessels, both of which probably functioned for the preparation of food or other materials (KMyl 1922, 1923). Lumps of clay as well as antler beads and possible worked shell provide tantalising suggestions of craft or other industrial activity here as well. Other tools found in this sub-sector include axes, adzes, three stone lids, and a hammerstone-grinder.

The final area in B 200, Sector IV, is located along the E wall to the N of the S entryway. Only a small scatter of vessels occurs here, two in Sector IVA (KMyl 440, 1925) and three in Sector IVB (KMyl 438, 439, 441). Similarly, only a small number of tools were found in association with the pottery vessels: a polisher, a hammerstone, a single bead, a bone needle, and a conical stone. With the exception of a stone polisher (KMyl 272), these are not immediately associated with the two pots in this sub-sector. Only one tool was found in Sector IVB, a pestle (KMyl 426). As with the pots, this area of the building is relatively free of finds; the pestle, together with pottery vessel KMyl 438, may indicate some preparation of food, but vessels KMyl 439 and 441 indicate it was used primarily for short-term storage and kept relatively free from other sorts of activities, at least at the time of the building's abandonment. Remains of a single sub-adult (KMyl 1197) were found immediately to the west of KMyl 441.

It seems that the area immediately to the right of the S entryway as one entered the building was deliberately avoided as a workspace. Similar spatial patterns have been noted at other buildings of the Chalcolithic (see, for example, building plans at M-LChal Kissonerga in *LAP* II.1A) and perhaps lend credence to the hypothesis that only the S entryway was in use at this time. In other respects, too, such as its lack of demarcated interior space to create discrete work areas, B 200 conforms to the pattern of other known buildings of the earlier MChal. More than any other building of the earlier MChal, however, B 200 at Mylouthkia best demonstrates the important role played by ceramics for the development of an increasingly complex culture. The flexibility of clay and the ability of potters to fashion a multitude of shapes and thereby to fulfil a greater range of needs than stone vessels no doubt were important reasons for the increases in volume and sophistication of pottery production at this time.

Sherdage

A total of 4,657 sherds were recorded from forty-four units in B 200, i.e. thirty-seven units which were not potspreads and an additional seven units (potspreads 229, 241, 248, 262, 263, 267 and 268) that failed to yield restorable vessels. Ceramic profiles of this sherdage by fabric/surface treatment are provided in

Table 14.14. Fabric-surface treatment correlations of sherdage from Building 200

Unit	*GB -a*	*GB -b*	*GB -c*	*GB Other*	*RM -a*	*RM -b*	*RM -c*	*RM -f*	*RM Other*	*RW -a*	*RW -b*	*RW -c*	*RW -f*	*RW Other*	*Total Sherdage*
113	3	61	-	-	39	4	-	-	7	-	-	-	-	-	414
200.117	52	48	3	4	167	96	-	-	14	1	-	1	-	-	846
200.126	-	39	-	3	-	44	-	-	7	-	3	-	-	-	206
200.151	1	-	-	-	2	-	1	-	48	-	-	-	-	6	160
200.170	-	-	-	-	7	5	-	-	17	2	-	-	-	-	86
200.173	-	168	-	-	-	2	-	-	14	-	-	-	-	-	267
200.175	-	-	-	-	-	-	-	-	6	-	-	-	-	-	8
200.190	-	-	-	-	-	4	-	-	-	-	-	-	-	-	10
200.202	-	-	-	-	2	-	-	-	42	-	-	-	-	1	89
200.211	-	18	-	-	141	-	-	-	47	-	1	-	-	10	653
200.215	1	5	-	-	1	2	-	-	2	-	-	-	-	-	18
200.229	-	-	-	-	-	-	-	-	5	-	-	-	-	-	5
200.241	-	-	-	-	-	-	-	-	13	-	-	-	-	-	25
200.248	-	-	-	-	-	4	-	-	-	1	-	-	-	3	8
200.250	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
200.251	-	-	-	-	-	-	-	-	5	-	-	-	-	-	11
200.262	-	-	-	-	17	-	-	-	-	4	-	-	-	-	63
200.263	-	-	-	-	5	-	-	-	-	4	-	-	-	-	10
200.267	-	-	-	-	-	-	-	2	2	-	-	-	-	-	5
200.268	-	-	-	-	-	-	-	-	44	-	-	-	-	-	78
200.270	-	1	-	-	-	-	-	2	2	-	-	-	-	-	14
200.271	-	1	-	-	-	12	-	-	42	-	-	-	-	1	86
200.272	-	-	-	-	-	-	-	6	1	-	-	-	-	1	15
200.275	1	4	-	1	2	25	2	-	8	-	1	-	-	-	90
200.276	-	2	-	-	13	21	-	10	13	1	-	1	2	-	100
200.277	-	-	-	2	-	2	-	-	-	-	-	-	-	1	11
200.280	-	-	-	-	-	-	-	13	-	-	-	1	-	-	19
200.283	-	221	-	11	-	19	-	-	10	1	1	-	-	2	426
200.284	-	-	-	-	-	-	-	1	1	-	-	-	-	-	4
200.288	-	-	-	-	-	-	-	1	2	-	-	-	-	-	5
200.289	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
200.293	1	16	-	-	-	5	-	-	1	-	-	-	-	-	40
200.294	-	-	-	-	-	4	-	-	-	-	-	-	-	-	4
200.296	-	-	-	-	-	2	-	-	-	-	-	-	-	-	4
200.299	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
200.301	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
200.302	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
200.304	-	10	-	-	-	-	-	-	-	-	-	-	-	-	22
200.305	2	233	-	18	7	112	-	-	31	2	20	-	-	8	687
200.306	-	12	-	-	-	-	-	-	-	-	-	-	-	-	22
200.311	-	-	-	-	-	-	-	-	25	-	1	-	-	-	42
200.312	-	11	-	-	-	3	-	-	2	-	-	-	-	-	27
200.316	-	52	-	-	-	-	-	-	4	-	2	-	-	-	72
Total	61	902	3	40	403	368	3	35	373	16	29	3	2	33	4,657

Table 14.14. Vessel morphology is indicated in Table 14.15, where units totalling 50 sherds or more have been tabulated. The prevalence of the platter shape (Type 1), especially in general levels 117, 305 and on floor 283, contrasts with the *in situ* remains within B 200 where none is found. Here it should be noted that floor 200.283 represents the makeup of the building floor, so it very likely contains earlier material; general 200.305 is bedding level below the floor, i.e. part of its makeup, and therefore likely to incorporate earlier material as well; and surface 317, adjacent to 200.305, should be earlier still, as it was a more ancient, eroded surface that was added to create a bedding for floor 200.283. Several additional shapes are typical of the range observed in other areas of the site, although the hemibowl (Type 2) occurs here in slightly higher numbers. There are a few deep bowls and trays, flasks and storage jars; this is corroborated by body sherdage counts in which open vessel types outnumber closed. Most rims could not be classified on account of their small sizes.

Several bases, lugs and spouts were recorded in these units, in frequencies that are similar to those observed elsewhere at the site. Base Type A is the most common (23 total); followed by base Type C (22 total); base Type B (7 total); base Type D (2 total); and base Type E (2 total). Lugs exhibit greater variety than before (Types C, D, G, H, Z recorded) but are represented by only one or two examples each. Four spouts only occurred, all of Type A.

Table 14.14 includes the full range of B 200 units and gives details of fabric-surface treatment associations. GB sherdage in these units totalled 1,006, or 22% of the B 200 sherdage and derives primarily from floors 173 and 283, and general 305. Approximately 90% of GB was associated with Fabric B, and only small percentages occurred in the other fabrics. Only three GB sherds, for example, were associated with Fabric C.

RM occurs in greater numbers, but not significantly greater, than GB; a total of 1,182 sherds were recovered, amounting to about 25% of the total sherdage. RM is associated in more or less equal numbers with Fabric A (403 total; 34%) and Fabric B (368 total, 31%), but only rarely with Fabric C (3 sherds total, or less than 1%). Fabric F, in which many of the RM complete vessels in B 200 are manufactured, occurs here as well, although in relatively small numbers (35 total; 2.6%). In addition, high numbers of "other RM" in these units suggest that a fair degree of experimentation with fabrics was taking place.

RW is rare, accounting for only 83 sherds, or less than 2% of the total sherdage. Most RW occurs in association with Fabric B or "other" fabric types, and higher than normal proportions of these other types suggests renewed experimentation with clay bodies.

Fabrics have been discussed above in conjunction with surface treatments, but here it should be stated that Fabric B occurred most frequently (about 29%), followed by Fabric A (about 10%). Fabric C, meanwhile, has all but disappeared, amounting to about only 0.2% of total sherdage. Fabric F is also observed in B 200 sherdage, although it is not demonstrated as strongly as among the complete vessels, amounting to only 0.8% of the total.

RW motif analysis of sherdage

A total of 34 sherds from B 200 units were included in this analysis; these constitute all RW sherdage with identifiable motifs from the B 200 excavations. Motif types are illustrated in Fig. 14.1, and Table 14.20 provides information on the occurrences of the painted motifs as well as correlations with shapes, fabric types and paint types. The overwhelming majority of the sherds were attributable to Fabric A (91.2%). Fabric B occurs much less frequently, accounting for only 5.9% of the sherdage, while Fabric C occurs on only 2.9%. Paint where preserved is primarily matte (76.5%); there were no sherds with glossy paint. The matte paint appears to be the same used on RM vessels. Nine sherds (26.5%) had heavily abraded surfaces that did not allow for attribution to either of the other categories.

With regard to shapes, the majority of RW sherds from these units came from rims (47.1%). There was more than a 2:1 preference for closed over open bodies, and in the case of open shapes a preference for painting on interior surfaces. More than 75% of the sherdage retained only one motif, whereas 20.6% had two motifs and 2.9% three motifs. Recorded motifs totalled 43, yielding a motif: sherd ratio of 1.26:1.

Thirteen identifiable motif types occurred, in varying frequencies. The most common motifs, comprising at least 10% of total motif occurrences, were M5, M6 and M12. Two motifs, M1 and M4, occurred less frequently (between 5-10% of total occurrences). Motifs occurring infrequently (less than 5% of total occurrences) were M8, M9, M10, M13, M18, M19, M20 and M22. The remaining thirteen motif types were not recorded in B 200.

Table 14.16 provides information on motif combinations from B 200 sherdage. Although most motifs occur in isolation, the motif combination M1/5 and M1/6 (rim band with medium and long rim dashes) shows that this design configuration continues to be popular. Matte paint and execution of motifs in finer lines, however, distinguish them from similar examples in Units 1-34 and 100-110. Rim dashes are present also in association with M19 (groups of dots), M18 (solid circles) and M20 (circle with radiating strokes). The latter is unusual and arguably the most interesting motif combination among this sherdage. A final motif combination (M10/13) suggests that lattice and band motifs continued on into the early phase of MChal.

Table 14.15. Morphological frequencies of rim types and body sherds from Building 200

Unit	*Rim 1*	*Rim 2*	*Rim 3*	*Rim 4*	*Rim 5*	*Rim 7*	*Rim 24*	*Rim 28*	*Body Open*	*Body Closed*	*Total*
113	3	2	2	1	-	-	2	23	76	48	414
200.117	29	5	-	-	2	1	1	25	173	127	846
200.126	3	1	-	-	1	-	1	14	46	23	206
200.151	-	-	-	-	-	-	-	3	23	29	160
200.170	1	1	-	-	-	-	-	-	7	30	86
200.173	3	-	-	-	1	3	-	16	96	48	267
200.202	2	-	-	-	1	-	-	1	13	25	89
200.211	3	4	1	-	1	-	-	10	81	92	653
200.262	3	1	1	-	1	-	-	2	3	9	63
200.268	4	1	-	-	-	-	-	-	12	24	78
200.271	1	1	-	-	-	-	-	28	17	8	86
200.275	-	-	-	-	-	-	-	28	20	13	90
200.276	1	1	-	-	1	-	-	9	28	19	100
200.283	16	4	3	-	-	-	-	15	135	79	426
200.305	43	3	1	1	3	1	1	33	188	144	687
200.316	1	-	-	-	-	-	-	7	37	11	72
Totals	113	24	8	2	11	5	5	214	955	729	4,323

Table 14.16. Motif Analysis of Red-on-White sherdage from Building 200

Motif No	*Description*	*Total Occurrences*	*Motif Combinations*
1	rim band	3	1 alone; 1+M5; 1+M6
4	rim dashes (short)	4	2 alone; 1+M27; 1+M18/20
5	rim dashes (medium)	5	3 alone; 1+M1; 1+M19
6	rim dashes (long)	6	4 alone; 1+M1; 1+M27
8	lattice area (broad strokes)	2	2 alone
9	lattice area (narrow strokes)	1	1 alone
10	lattice-filled bands/checks (broad strokes)	2	1 alone; 1+M13
12	solid bands (broad)	5	5 alone
13	solid bands (narrow)	2	1 alone; 1+M10
18	solid circles/blobs	2	1+M27; 1+M4/20
19	rows/groups of dots	1	1+M5
20	solid circle + radiating strokes	1	1+M4/18
22	parallel bands (broad)	2	2 alone
27	unidentifiable motif	8	5 alone; 1+M4; 1+M6; 1+M18

RW vessel design (KMyl 439, 1917, 2020)

KMyl 2020, a flask from potspread 200.228, was too abraded to yield evidence of painted motifs. KMyl 439 had three motif types: M15 (fine chevrons); M17 (checkerboard); M26 (solid triangles). These are motifs not seen in units of sherdage from B 200. Motifs are arranged in registers (checks on neck; solid triangles on upper body; chevrons on central body; lower body monochrome). This is new at Mylouthkia. On the other hand, the glossy red paint on this vessel, as well as the motif types and vessel morphology, are all earlier ceramic features. Only the finer fabric and thinner walls of this vessel, as well as the finer line style of the designs, suggest an evolving painted style. KMyl 439 was found on floor 173, which predates major floor 276. KMyl 1917, a deep bowl from potspread 233, was monochrome exterior and had rim dashes and other (abraded) linear motifs on interior. Although the design configuration (monochrome exterior, rim dashes interior) is not new, it is executed on a thin-walled vessel with caramel coloured matte paint.

Sounding in pit 300, south of Building 200

After the excavation of B 200 was complete, a small (3.4 x 0.75 m) sounding was made immediately to the south into deposits which underlay the building (=pit 300), with the aim of observing ceramic developments prior to its establishment. Twelve units within the sounding yielded pottery, and the details of shapes, fabrics and surface treatments as well as summary data on RW analysis, appear in Table 14.17a-c. It should be noted from the start, however, that although nearly 6,000 sherds were retrieved from the sounding, most come from Units 300.255-7, so sherd counts are “bottom heavy”. Comparison of percentages over time must take into account the fact that absolute numbers drop substantially in upper levels.

Shapes

Data for rim types in these units is limited (Table 14.17a), but in general the restricted range of shapes is in keeping with other areas of the site. There are three exceptions, however, with the appearance of Type 17 (spouted bowl) and Type 31 (deep tray), which are found also in B 200 but not in Units 1-34, 100-110 or B 152; and with the presence of a fired clay jar stopper (KMyl 1931) in fill 257. Type 2, the hemibowl, is less popular in lower levels but outnumbers Type 1 (platter) in surface 300.218 and above; platters all but disappear in upper levels of the sounding. Unit 255 yielded a complete profile of a RM-d tray with thin flat base (KMyl 1987). Above level 255 few rims were recorded, apart from those of Types 1 and 2. There is a preference for open shapes in all levels; this is evidenced by the rims themselves and corroborated by the more frequent occurrence of open (rather than closed) body sherds in all but the two uppermost levels.

Bases, spouts, and lugs are not included in Table 14.17, but did appear in the sounding in limited numbers. Flanged CW tray bases were very common in the lowest levels; these are the thin, friable variety, similar to KMyl 436 in B 152. General level 258 has 2 such bases, fill 257 had 13, general 256 had 26, and general 255 had 27; above general 255, flanged bases are less common and not as thin or friable, and sometimes they are treated with red monochrome wash or paint, like many of the trays from Units 100-110. In addition to Type C bases, several each of Types A, B, E and I occur as well, but in no discernible pattern. Lugs and spouts were rare and therefore contribute little to our understanding of relative chronological trends.

Fabrics and surface treatments

With regard to surface treatment, the main pattern of development discernible in Table 14.17b is the gradual replacement of GB by RM. GB surfaces dominate in general 258, and in fill 257 and general 256 occur in approximately equal numbers with RM. In Units 253 and above, however, RM is more popular. RW, in contrast, maintains more or less the same low proportions throughout the sounding levels.

Fabric C is present in small numbers (with RM, GB and RW surfaces) in lowest levels; above general 237, though, it declines and disappears entirely in surface 197 and above. Fabrics A and B dominate in all levels and are approximately equally represented. Finally, whereas sherdage of Fabric F appears in these units, Fabric F figures prominently within the B 200 itself and is identical to the standard fabric of early MChal (=Period 3A) Kissonerga. This distinction is important as it serves as the most reliable indicator for the date of the fill units within pit 300. Unlike B 200, where *in-situ* vessels belong clearly to the MChal tradition, the fill units within pit 300 very likely can be ascribed to EChal.

Table 14.17a. Analysis of rim types from sounding in pit 300 south of Building 200

Unit	*Rim 1*	*Rim 2*	*Rim 3*	*Rim 4*	*Rim 5*	*Rim 7*	*Rim 17*	*Rim 24*	*Rim 31*	*Rim 32*	*Rim 28*	*Total Rims*
177	1	-	-	-	-	-	-	-	-	-	-	1
300.181	4	6	-	1	-	-	-	-	-	-	23	34
300.196	1	3	-	-	-	-	-	1	-	-	4	9
300.197	5	8	2	-	-	-	-	1	-	-	37	53
300.218	9	50	-	-	1	1	-	5	-	1	55	122
300.235	-	4	-	-	-	-	-	1	-	-	1	6
300.237	6	5	-	-	-	-	-	-	-	-	8	19
300.253	11	6	-	4	-	-	-	-	-	-	12	33
300.255	28	26	4	3	1	3	1	1	-	-	43	110
300.256	60	20	2	1	3	-	-	3	1	-	78	168
300.257	25	21	6	1	1	3	-	26	-	1	53	137
300.258	9	1	-	1	-	-	-	-	1	-	2	14
300.261	-	1	-	1	-	-	-	-	-	-	2	4
Total	159	151	14	12	6	7	1	38	2	2	318	710

Table 14.17b. Fabric-surface treatment correlations of sherdage from sounding south of Building 200

	GB -a	*GB -b*	*GB -c*	*RM -a*	*RM -b*	*RM -c*	*RW -a*	*RW -b*	*RW -c*	*Body Open*	*Body Closed*	*Sherd Total*
177	-	1	-	-	2	-	-	-	-	2	-	5
300.181	-	30	-	6	51	-	-	5	-	33	46	146
300.196	1	23	-	2	21	-	-	1	-	23	19	66
300.197	14	87	-	97	11	-	3	6	-	116	80	491
300.218	53	27	1	286	189	2	20	3	2	316	176	726
300.235	-	-	-	-	31	-	-	-	-	22	6	37
300.237	13	8	1	226	60	4	4	-	-	228	81	361
300.253	1	1	-	72	22	9	4	2	-	99	30	169
300.255	161	39	2	234	335	6	24	1	1	398	299	1,205
300.256	170	347	12	135	357	9	6	5	-	593	369	1,474
300.257	103	114	9	240	119	9	7	3	2	381	221	925
300.258	82	-	-	-	-	-	2	1	4	37	33	121
300.261	9	-	-	15	-	-	1	1	-	15	10	41
Total	598	687	25	1,298	1,198	39	70	27	9	2,248	1,360	5,767

Table 14.17c. Analysis of Red-on-White sherdage from sounding south of Building 200

Unit	*RW Count*	*Single Motifs*	*Motif Combinations*	*Rim/Base Types*	*Body Open*	*Body Closed*	*Fabric*	*Paint*	*Location*
300.196	2	5, 13		rim 1	1		2A	2 matt	1 ext / 1 int
300.197	5	1, 5, 12, 27	M 1/24	rim 1	1	2	5A	1 gloss	1 ext / 4 int
300.218	11	1, 4, 5, 12, 13	1/3, 5/19, 12/19, 21/22	rim 1, 2, 7, 28	1	2	8A, 1C	8 matt, 2 gloss	4 ext / 7 int
300.253	6	4, 15, 19, 23, 25, 27		rim 1	1	4	4A, 2B	5 matt	4 ext / 2 int
300.255	13	1, 5, 6, 22, 24, 25, 27	M 14/18	rim 1, 2		7	8A, 1B, 2C	8 matt, 1 gloss	7 ext / 6 int
300.256	7	1, 12, 24, 27	M 1/2	rim 1, 28; base I	2	1	3A, 1B, 1C	3 gloss	2 ext/ 5 int
300.257	4	1, 22, 27		rim 1	3		3A, 1B	2 gloss	1 ext/ 3 int
300.261	3	3, 27		rim 1	2		1A, 2?	1 matt, 2 gloss	3 int

RW motifs

Seven units from the sounding yielded RW sherds with recognisable motifs (Table 14.17c). A total of 48 sherds and 55 motifs were recorded. In lower levels there is not much variety in motif types. Common motifs are bands pendant from rims on bowl interiors (M1/3), broad solid bands (M12), converging bands (M24) and intersecting bands (M25). In general 300.253, however, more finely executed motifs appear as well as new motif types: short, narrow rim dashes (M5), chevrons with narrow strokes (M15), and groups of dots (M19); these continue in Unit 218 in combinations not seen before. In addition, in Unit 218 and above narrow bands (M13) appear and gradually replace M12 (broad bands), a motif that was more popular in earlier levels. Paint varies from glossy to matte, but the data suggests that matte paint gains more favour in uppermost levels.

With regard to shapes of RW vessels, platters appear in every level; the repertoire diversifies somewhat starting at Unit 218 but still represents the standard range of early (=Period 2) Mylouthkia shapes. No real patterns emerge here, either with respect to open/closed ratios or with exterior/interior patterning (vessel interior are favoured in most units, but only slightly). Fabrics also fail to convey clear patterns although it is notable that there are no sherds of Fabric C in uppermost levels. Unfortunately, RW diagnostics are too poorly represented in these units to serve as useful chronological indicators.

Other pottery from plot 58

Registered vessels: KMyl 446, 1933.

Miscellaneous Pottery Objects: KMyl 420, 1210, 1916, 1932, 1934, 1956, 1970, 1985.

The registered vessels and miscellaneous pottery objects listed above derive neither from B 152, B 200, 330 or the sounding near B 200. For further details, see § 14.6 and Table 14.1.

The two vessels are trays; KMyl 446 is a CW tray from general level 131, below pit 119; KMyl 1933 is a rim-base profile sherd from a unit whose number was lost; hence it is being treated as a surface find. It has an unusual fabric that was more finely levigated than most trays, and had an RM surface.

The miscellaneous objects for which possible functions can be proposed include KMyl 420, a triangular shaped abrader/burnisher from general 167; KMyl 1210, a possible jar stopper with partially broken terminal "plug" from pit 300; and KMyl 1916, a cylindrical pestle from the same pit with wear marks on its lower terminal. This is the only recorded example of a pestle in clay from the site. The remaining miscellaneous objects have indeterminate functions. KMyl 1932 may in fact be building material, KMyl 1934 is a clay ball with three partial perforations; KMyl 1956 is a RW rim sherd with a perforation just below the rim, perhaps for suspension of the vessel; and KMyl 1970 a RM pottery fragment with two parallel edges and broken terminal ends; it is too flat to have been from a lug, and its function is indeterminate.

With regard to sherdage, PW was represented in very small amounts (154 sherds total) and as elsewhere is best regarded as representing unpainted areas of RW vessels. Finally, mention should be made of CW, which was found in all areas of the recent plot 58 excavations. All CW derives from tray shapes, with the exception of a single platter rim (Type 1) from general level 138 and 7 closed body sherds from the same unit which very likely represent holemouth jars.

§ 14.10 The Mylouthkia ceramic sequence

In the preceding sections pottery has been analysed discretely in each of the excavated areas without attempting to relate their respective ceramic assemblages. It remains, therefore, to establish links between areas through seriation of ceramic attributes; this is especially important given the lack of stratigraphic associations between them. In the following pages, rough seriations are presented for each of the independent ceramic variables included in White Process analysis (fabric, surface treatment and shape). Percentages given in each section have been arrived at on the basis of total sherd counts from each of the main excavated areas: the early pits excavated in the 1970s (Units 1-34); the pits and other features from phase 2 rescue excavations (Units 100-110); and the more recent plot 58 excavations (Units 111-328). The latter have been further subdivided according to buildings in the attempt to seriate ceramics from B 152, B 200 and B 330. Although B 200 and B 330 are related stratigraphically, there were no observable stratigraphic links

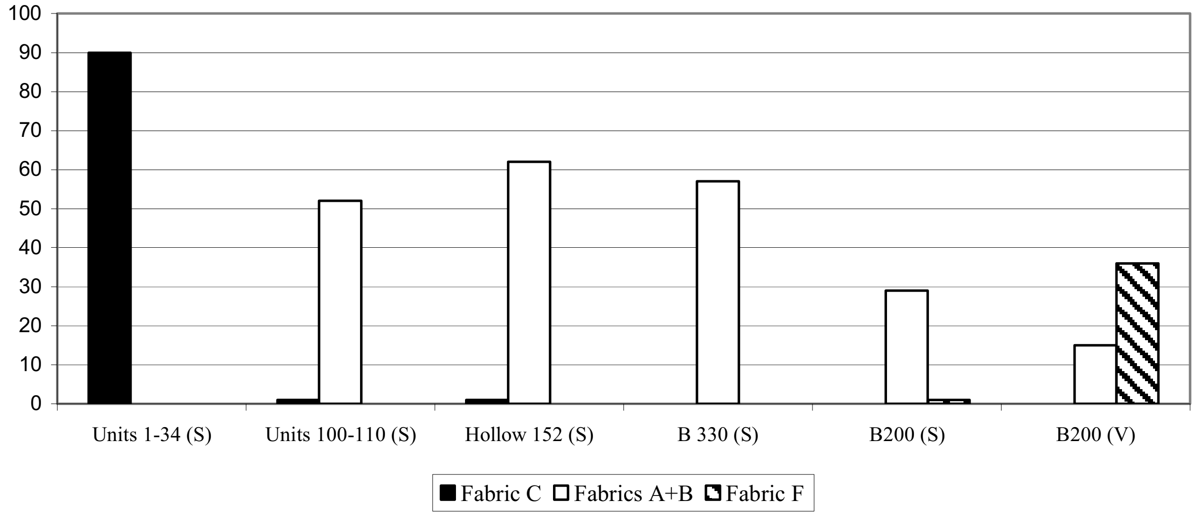


Fig. 14.2: Inter-area frequencies (%) of fabrics A, B and F
Note: V=vessels; S=sherdage

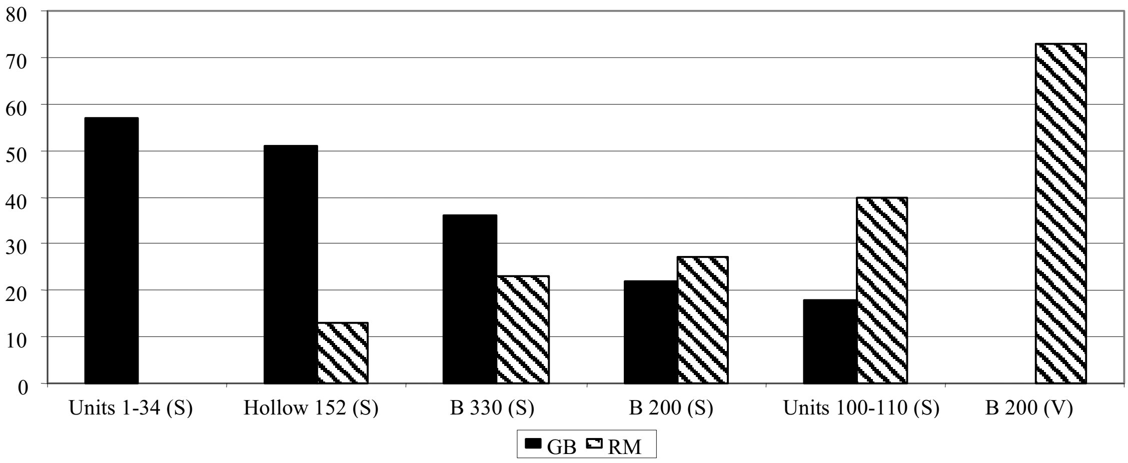


Fig. 14.3: Inter-area frequencies(%) of Glossy Burnished and Red Monochrome surface treatments
Note: V=vessels; S=sherdage

between them and B 152. The reliance on sherdage from these buildings is of course of limited use for seriation, as at least some of the sherdage is likely to be redeposited. Only B 200 yielded vessels in sufficient numbers to allow us to seriate data from complete vessels.

Seriation of fabrics

Four fabrics (A, B, C and F) were chosen for seriation since they show greater sensitivity to change than Fabrics D, E and G. As Fabrics A and B are quite similar in composition and, as they show similar fluctuations, have been combined in a following seriation illustrated in Fig. 14.2, which is based on data in Table 14.18 .

At Kissonerga, Fabric C is the standard fabric for Period 2 (EChal pottery), and Fabric F first appears on sherds and vessels of the early phase of MChal (=Period 3A). Although fabric analysis was not carried out on Units 1-34, examination of sherdage from the 1977-79 excavations in the Paphos Museum indicated that the overwhelming majority were of Fabric C. Comparison with Kissonerga, then, suggests that ceramics of Units 1-34 at Mylouthkia are the earliest in the sequence, while those of B 200 (where Fabric C has virtually disappeared and Fabric F made its first appearance) are the latest. Fabrics A and B did not occur at Kissonerga, and on the basis of the above seriation those fabrics would appear to belong to a later stage of the EChal, to which the ceramics of Units 100-110, B 152 and the majority of B 330 are attributable.

Seriation of monochrome surface treatments

Based on data in Table 14.18, the seriation of monochrome surface treatment (GB/RM) shown in Fig. 14.3 suggests the following relative chronological arrangement, with Units 1-34 being the earliest in the series and B 200 being the latest.

For the most part, the seriation is straightforward and poses no problems. The only real puzzle is the position of Units 100-110, which according to the results are to be placed almost at the end of the series. Other decidedly early features of the ceramics from these units make this unlikely, however, and suggest that the relatively low proportions of GB recorded may be due to heavy surface abrasion of the sherdage, which had the effect of inflating RM sherd counts while undervaluing those of GB. We shall return to this problem later.

Table 14.18. Inter-area analysis: surface treatments and fabrics

	Units 1-34		*Units 100-110*		*Units 111-328*		*Sherdage B 152*		*Sherdage B 330*		*Sherdage B 200*		*Vessels B 200*	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
GB	17,344	57	2,089	18	4,463	33	324	51	279	36	1,036	22	0	0
RM	0	0	4,639	40	7,101	52	80	13	181	23	1,234	27	24	73
RW	1,552	5	219	2	352	3	14	2	8	1	80	2	3	9
Fabric A	-	-	3,458	30	3,816	28	186	29	39	5	456	10	1	3
Fabric B	-	-	2,508	22	6,406	47	210	33	399	52	885	19	4	12
Fabric C	-	-	119	1	158	1	8	1	0	0	9	0.2	0	0
Fabric F	-	-	0	0	156	1	0	0	0	0	35	0.8	12	36
Fabric G	-	-	0	0	5	0.04	0	0	0	0	0	0	2	6

Table 14.19. Inter-area analysis: morphological types (rims)

Type	*Units 1-34*		*Units 100-110*		*Units 111-356*		*B 152 Sherdage*		*B 330 Sherdage*		*B 200 Sherdage*		*B 200 Vessels*	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
1	1,415	5	387	3	539	4	44	7	22	3	110	2	0	0
2	46	0.1	1	0.6	321	2	1	0.2	14	2	28	0.6	0	0
3	158	0.5	8	0.07	36	0.3	0	0	0	0	7	0.2	4	12
5	125	0.4	23	0.2	34	0.2	0	0	22	0.3	10	0.2	6	18
7	139	0.5	37	0.3	20	0.1	37	0.3	0	0	5	0.1	6	18
17	0	0	17	0.2	20	0.01	0	0	0	0	0	0	1	3
24	38	0.1	9	0.08	54	0.4	1	0.2	0	0	5	0.1	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	1	3
30	0	0	0	0	2	0.01	0	0	0	0	0	0	0	0
31	0	0	0	0	2	0.01	0	0	0	0	0	0	6	18
32	0	0	7	0.06	9	0.07	3	0.6	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	2	6
40	0	0	0	0	0	0	0	0	0	0	0	0	1	3

Note: N=number

Table14.20. Inter-area analysis: Red-on-White motifs

Units	*Fabric A*	*Fabric B*	*Fabric C*	*Fabric D*	*Fabric E*	*Glossy*	*Matte*	*Abraded*	*Rims*	*Bases*	*Spouts*	*Body Open*	*Body Closed*	*Interior*	*Exterior*
1-31	25	21	65	0	1	83	13	24	45	3	1	30	41	70	50
	20.8%	17.5%	54.2%	0%	0.8%	69.2%	10.8%	20%	37.5%	2.5%	0.8%	25%	34.2%	58.3%	41.7%
100-110	108	49	7	1	0	11	82	72	39	5	0	20	91	46	119
	65.5%	29.7%	4.2%	0.6%	0%	6.7%	49.7%	43.6%	23.6%	3%	0%	12.1%	55.2%	27.9%	72.1%
111-328	152	26	15	1	0	44	116	54	85	3	0	35	90	103	111
	71%	12%	6.1%	0.5%	0%	20.1%	54.2%	25.2%	39.7%	1.4%	0%	16.4%	42.1%	48.1%	51.9%
B 200	31	2	1	0	0	0	26	9	16	0	0	6	13	18	16
	91.2%	5.9%	2.9%	0%	0%	0%	76.5%	23.5%	47.1%	0%	0%	17.6%	38.2%	52.9%	47.1%

Units	*Motif 1*	*Motif 2*	*Motif 3*	*Motif 4*	*Motif 5*	*Motif 6*	*Motif 7*	*Motif 8*	*Motif 9*	*Motif 10*	*Motif 11*	*Motif 12*	*Motif 13*	*Motif 14*	*Motif 15*
1-31	12	15	5	1	4	0	0	0	4	9	15	20	3	1	4
	8%	10.0%	3.3%	0.7%	2.7%	0%	0%	0%	2.7%	6.0%	10.0%	13.3%	2.0%	0.7%	2.7%
100-110	18	1	7	4	4	2	2	9	5	9	8	4	0	13	3
	9.3%	0.5%	3.6%	2.1%	2.1%	1.0%	1.0%	4.7%	2.6%	4.7%	4.1%	2.1%	0%	6.7%	1.6%
111-328	26	7	3	13	22	9	0	2	4	6	7	21	9	4	8
	10.5%	2.8%	1.2%	5.3%	8.9%	3.6%	0%	0.8%	1.6%	2.4%	2.8%	8.5%	3.6%	1.6%	3.2%
B 200	3	0	0	4	5	6	0	2	1	2	0	5	2	0	0
	7.0%	0%	0%	9.3%	11.6%	14.0%	0%	4.7%	2.3%	4.7%	0%	11.6%	4.7%	0%	0%

Units	*Motif 16*	*Motif 17*	*Motif 18*	*Motif 19*	*Motif 20*	*Motif 21*	*Motif 22*	*Motif 23*	*Motif 24*	*Motif 25*	*Motif 26*	*Motif 27*	*M:S Ratio*	*2 motifs*	*3 motifs*
1-31	2	15	2	0	0	4	7	4	7	6	3	7	1.25 / 1	22	4
	1.3%	10.0%	1.3%	0%	0%	2.7%	4.7%	2.7%	4.7%	4.0%	2.0%	4.7%		18.3%	3.3%
100-110	6	7	1	1	0	1	12	21	8	9	0	38	1.17 / 1	29	1
	3.1%	3.6%	0.5%	0.5%	0%	0.5%	6.2%	10.9%	4.1%	4.7%	0%	19.7%		17.6%	0.6%
111-328	0	3	4	3	1	4	18	11	11	7	1	43	1.15 / 1	30	3
	0%	1.2%	1.6%	1.2%	0.4%	1.6%	7.3%	4.5%	4.5%	2.8%	0.4%	17.4%		14.0%	1.4%
B 200	0	0	2	1	1	0	2	0	0	0	0	8	1.26/1	7	1
	0%	0%	4.7%	2.3%	2.3%	0%	4.7%	0%	0%	0%	0%	18.6%		20.6%	2.9%

Seriation of RW surface treatment

As patterned pottery from these excavations was limited, RW from Units 111-328 has not been broken down into smaller analytical groups. Sherdage from B 200 has been listed separately in Table 14.20, however, in order to indicate its position in relation to the other areas of the plot 58 excavations. Here as elsewhere, we must remember that sherdage can be residual and that statistics must be used cautiously. It is unfortunate that the small number of RW vessels in B 200 and their poor preservation make use of *in-situ* material problematical.

Perhaps the best means with which to seriate the RW pottery from the site is a comparative analysis fabrics with which it occurs, as this has now been firmly established (see above). Statistics show that RW-c from Units 1-34 totalled 54%, as opposed to only 4% for Units 100-110, 6% for Units 111-328 and 1% for B 200. In contrast, RW-a and RW-b together totalled only 38% in Units 1-34, and more than 80% in each of the other areas.

Other criteria for comparison included the use of glossy or matte paint for RW motifs, as well as the location of motifs on interior or exterior surfaces of open vessels. The results in Table 14.20 show the vast majority of RW sherdage in Units 1-34 to be glossy (69%), whereas only 7% and 20% were recorded in Units 100-110 and 111-328, respectively. RW sherdage from B 200 had 77% matte paint and no glossy paint. Generally, these results conform to the evolution of RW at Kissonerga, where RW shows a similar chronological trajectory from glossy to matte paint. With regard to motif locations, the results are less clear cut, but Table 14.20 indicates slight differences in the placement of motifs, with RW from Units 1-34 having slightly higher frequencies of interior motifs than elsewhere. However, these differences are not great enough to be statistically significant. The same holds true for motif:sherd ratios, which do not appear to vary considerably between the different areas.

Frequencies of individual motifs were only of limited value for seriation, as most showed insignificant fluctuations between areas. Three motifs, however, were exceptions, M2, 4 and 6. Motif 2 (vertical bands pendant from rim) is most popular in Units 1-34, where it accounted for 10% of the total. This motif type occurred frequently in Period 2 at Kissonerga as well, and may thus serve as an additional link between the early pits at Mylouthkia and EChal occupation at Kissonerga. Two other motifs (M4, 6) are also known at Kissonerga, but in Period 3A (early MChal). Table 14.20 indicates that at Mylouthkia similar rim dash motifs are almost non-existent in Units 1-34 but occur more frequently in the other areas, especially in B 200, where they account respectively for 9% and 14% of all motifs types. Finally, two motifs which occur with some frequency in Units 1-34 (M11, narrow lattice bands and M17, checkerboards) also occur at Kissonerga in Period 3B. There, however, they are executed in matte paint, while at Mylouthkia they are applied in glossy paint typical of the EChal.

Seriation of rim types

Overall, rim types were not as sensitive to seriation as fabrics and surface treatments, and we appear overall to be dealing with a limited, largely constant range of shapes (see Table 14.19). In general terms, however, there is a gradual phasing out of the platter (Type 1) which accounts for 5% of total sherdage in Units 1-34 and 7% in B 152, and which has all but disappeared in B 200; there are no platters among the vessels from B 200. At the same time, new types appear in B 200 (30, 31, 32, 35, 40). Type 17 (spouted bowl) which is present in small proportions in Units 100-110, appears in greater amounts (3%) in B 200. On the basis of statistical results appearing in Table 14.19), the following seriation is suggested, with number 1 being the earliest and number 5 the latest in the series: 1) Units 1-34; 2) B 152; 3) B 330; 4) Units 100-110; and 5) B 200.

Inter-area correlations

On the basis of ceramic evidence, both intrinsically and in relation to stratified sequences at the neighbouring site of Kissonerga, Mylouthkia was occupied during the EChal and early MChal (=Kissonerga Periods 2 and 3A, respectively). The earliest features at the site are the features in plots 58, 75 and 76 (Units 1-34), which appear to pre-date the construction of the first buildings there. Apart from CW, and the presence of a few sherds of Fabrics A and B with RW surface treatment, pottery from Units 1-34 was manufactured entirely in Fabric C, which corresponds to the standard fabric of EChal pottery at Kissonerga (*LAP* II.1A, § 5.1). There is thus a decisive link between Units 1-34 at Mylouthkia and EChal occupation at Kissonerga. Elsewhere at Mylouthkia, Fabrics A and B (which were not recorded at Kissonerga) are also represented. In these other areas (i.e. Units 100-110 and 111-328) Fabrics A and B gradually replace Fabric C and are in turn replaced in B 200 by two new fabrics, Fabrics F and G. The seriation of fabric types at Mylouthkia therefore suggests that EChal occupation at Mylouthkia continued beyond the EChal occupation at Kissonerga, where the intermediary stage corresponding to Fabrics A and B was not in evidence. Fabrics similar to F and G, however, do appear at Kissonerga in ceramics of buildings from Period 3A (=early MChal); B 200 at Mylouthkia is therefore very likely to be contemporary with Kissonerga Period 3A.

With regard to surface treatment, well over half of the pottery (57%) from Units 1-34 at Mylouthkia had GB surfaces; RW accounted for only about 5% of the assemblage, and RM was not recorded at all. Rim types comprised a limited range, with the platter (Type 1) far outnumbering other shapes in all of the excavated units. RW sherds were most frequently (69%) decorated with glossy paint similar to that used for GB. Painted decoration was more frequently applied to vessel interiors, and motifs comprised a fairly wide range of linear motifs (see Table 14.20). Ceramic uniformity among sherdage in Units 1-34 suggests their contemporaneity, and the anomalies presented by pit 16 sherdage are probably based on functional rather than temporal differences.

At the other end of the chronological spectrum are the *in situ* ceramic deposits in B 200, comprising a total of 33 vessels. GB is absent here, and has been replaced by RM, which comprises 73% of vessels. Fabric C not in evidence, while Fabrics B and F dominate. RW continues as a minority, accounting for only 9% of vessels. The platter (Type 1) so popular in EChal, is not represented in B 200; instead a variety of other bowls (Types 2, 3 and 17) are present, in addition to other shapes (Types 29, 31, 35 and 40) not recorded in Units 1-34. RW decoration does not provide much evidence, as vessels are limited to three highly abraded examples. Fabrics, shapes and surface treatment link the building with buildings of Period 3A at Kissonerga, where similar ceramics have been found *in-situ* on floors of structures (see *LAP* II.1, § 5.3).

While the ceramics enable us with relative ease to establish terminal points in the sequence, the attribution of excavated areas other than Units 1-34 and B 200 to phases proves to be more difficult. In the case of Units 100-110 sherdage, heavy surface abrasion led us to consider other criteria such as fabric to determine relative chronological position. Also, some of these features (ditches 105, 106, 107) produced late pottery and may be post-Chalcolithic in date. Well 110, meanwhile, is thought by the excavator to be of probable Cypro-PPNB date, into which Chalcolithic pottery has later eroded. B 152 contained only three complete vessels, and sherdage, while fairly substantial, must be used with caution as it is likely to contain residual material. The same holds true for B 330, which contained only sherdage and no complete vessels. Rather than try to place these three components of the site into a chronological sequence, then, it seems more reasonable to group them together into an intermediate stage between Units 1-34 and the B 200 *in situ* deposits. The results of seriation in all three analytical categories (fabric, shape, surface treatment) demonstrate that these other areas are closely linked in time, that they ante-date B 200 and that they post-date the earlier pits (Units 1-34).

As discussed above, a sounding undertaken in pit 300 immediately to the south of wall 126 of B 200, yielded 5,726 sherds which are broken down according to multivariate groupings and by level in Table 14.17. Units in this table are listed in stratigraphic order, with the first unit (surface 177) representing the uppermost level of the sounding and the last unit (general 261) representing the lowest level of the sounding. The relative chronological position of the various units is best determined by comparing pottery statistics there with those of the other excavated areas of the site. Vessel morphology did not, unfortunately, demonstrate any clear patterns. Fabrics and surface treatment yielded somewhat clearer results. At the bottom of the sounding (Units 261-255), Fabric C is already in the minority, and disappears almost entirely above general 255. By the same token, Fabrics A and B were already well established at the bottom of the sounding, so the lowest levels of the sounding very likely post-date the ceramics of Units 1-34. Fabrics F and G (with correlates at Period 3A Kissonerga) are absent from the sounding units and make their first appearance within B 200 itself.

With regard to surface treatment, GB is well represented in lower levels of the sounding but drops dramatically above general 255. It is outnumbered by RM by about a 2:1 ratio in all but the lowest units (general levels 258 and 261). RM is well established in Units 257 and above. RW also well established from the bottom of the sounding, but it never represents more than a small percentage of the total sherdage. The absence of RM and RW in Fabrics F and G, the main fabrics of B 200 *in situ* vessels, places the entire sounding within Period 2. It is likely, however, given the strong presence of Fabrics A and B and RM surfaces, that these sounding levels date to a later phase of the EChal than the other Period 2 deposits in plots 58, 75-6, and that they ante-date the construction of B 200.

§ 14.11 The experimental replication of Chalcolithic pottery (J.S.)

Virtually all known prehistoric techniques of pottery-making, and most ethnographically observed ones, have a rather wide tolerance for the clays and other raw materials needed, so that almost any of these techniques could probably be implemented almost anywhere, if need be by introducing a few minor modifications. In pre-industrial societies, one must assume a considerable freedom for the potter.
(van der Leeuw 1993, 239)

Whilst pottery remains the single most abundant archaeological material available for study at Chalcolithic sites in Cyprus, comparatively little work has been undertaken by way of replication studies and experimental pottery production, both of which are fundamental in furthering our understanding of the problems and processes of manufacture encountered by potters in the past. Since 1992, several short seasons of pottery replication and experiment at Lemba Experimental Village (LEV) mark a preliminary stage in assessing the potential of such techniques when dealing with large, multi-period assemblages. We can now begin to evaluate as a whole the raw materials, pottery traditions and techniques employed at the multi-period sites investigated by the LAP. In addition, the potential now exists for identifying particular technical affinities between contemporary assemblages from other island sites and for further evaluating contemporaneity and contact based on specific ceramic characteristics which are not apparent using conventional methods of pottery analysis.

The ultimate aim of the experimental replication undertaken here is to broaden the scope of ceramic analysis by attempting to recreate an entire pottery production sequence, and to gain new insights into the processes and techniques of manufacture which may have been employed by potters in the past. In this section an overview of experimental work carried out at LEV in recent years will be provided, with particular attention being given to the results of replication studies of the Mylouthkia ceramics.

Background

The archaeological record of pottery production at Mylouthkia is ephemeral at best, and the presence of shallow ashy hollows is the only indication of potential firing areas. As experimental firings similarly left few traces of burning except for residues of easily disturbed light ash, the evidence for on-site production is likely to remain fugitive. However, there is supporting evidence for the use of local clays for the manufacture of pottery from the site as the replication studies here will attest. In addition, thin-section analysis of Chalcolithic pottery from the LAP sites (Robertson 1989) indicates a number of local clay sources at nearby Mavrokolymbos and Marathounda which could have been used in the manufacture of this pottery.

Objectives

The initial objective of the study was to locate local clay sources and to sample as many of these as possible. This would maximise the chances of identifying those clays which, when fired, might produce fabrics which could compare to the prehistoric pottery fabrics from the LAP sites. The results from experimental pottery replication could then be understood in the light of using similar raw materials to the ancient potter. The subsequent objective was to reconstruct the entire pottery manufacturing process with the emphasis on "explanation by correlation" as referred to by van As (1984, 137) with an emphasis on the replication of the predominant pottery type at Mylouthkia, Glossy Burnished (GB). The exceptionally high gloss achieved through burnishing in conjunction with the use of rich, red monochrome paints makes GB both visually attractive as well as technically accomplished, raising many questions as to the methods and techniques employed in its manufacture thus making it particularly appropriate for experimental replication.

As far as is practicable, no modern tools or materials were used in the production of experimental pottery, particularly where it is recognised that they could have an impact on the integrity of the final product. The methodologies and results of these experiments are presented below.

Local raw materials

Cyprus is rich in the variety and quality of its clays, and deposits of both calcareous and non-calcareous clays are to be found within a five-kilometre radius of Mylouthkia. However, locating and identifying clay is not always easy, and the assistance of a local potter, George Georgiades, was sought in the initial stages of this research. Further clay sources were discovered through conversations with local residents and by referral to thin-sectioning reports and geological maps of the region.

The clays used in the manufacture of GB may have been chosen for their particular characteristics as there is distinct fabric variation within the GB repertoire. The standard HCl field test (Hodgson 1976, 57) to determine carbonate content in clays was therefore applied to a range of Mylouthkia sherdage, and both calcareous and non-calcareous clays appear to have been used in the manufacture of GB. Further refinement of this clay selection process is evident at the site of Kissonerga, where non-calcareous clays of low porosity seem to be preferred for the production of RB/B pottery, the dominant ware of the late Chalcolithic period (Shiels 1993). The present investigations suggest that the wide availability of clay types around the LAP sites encouraged potters to experiment and be selective in their choice of clays from at least the EChal. This may have constituted the start of long-term ceramic tradition on the island as the practice of deliberately selecting clays for specific vessel types has been demonstrated by Barlow and Idziak (1989, 66) at sites of the Middle Cypriot Bronze Age.

Clay types and pottery fabric matching

Eight different clays have now been collected from within a five kilometre radius of Mylouthkia (Table 14.21). ICPS analysis of Clays 1-6 (Hatcher 1995) has confirmed the carbonate content of these clays whilst Clays 7 and 8 have yet to be analysed in this way due to being discovered only recently. Clays 1-8 were divided into calcareous or non-calcareous groups, and all but Clay 7 proved to be calcareous to some degree.

Table 14.21. Local clay fabrics comparable to sherdage from other Lemba Archaeological Project sites

Clay	*Source*	*Comparable to LAP sites sherdage*
Clay 1	Lemba stream	none yet matched
Clay 2	Tala village	RMP Kissonerga
Clay 3	Tala village	GB Fabric A GB Fabric B and C (inclusions vary) Mylouthkia
Clay 4	Emba quarry	none yet matched
Clay 5	Coral Bay road	Cb and RW Kissonerga white slips and slurries
Clay 6	LEV exposure	none yet matched
Clay 7	Mavrokolymbos	GB Fabric E (coarse trays) GB Fabric D (inclusions vary)
Clay 8	Mavrokolymbos	red slips

The clays were made into small (*c.* 3 x 3 x 1 cm) tiles which were then fired in pits or bonfires. The tiles were then sectioned, compared and matched to the prehistoric sherdage. Macroscopic and microscopic examination of these tiles, along with HCl testing and inclusions analysis, indicate that five of the clays resemble pottery sherdage from the LAP sites. Mineral samples from the same areas were also routinely collected for their potential as tempering material. As is to be expected from clays which are calcareous, chalks, cherts and limestone inclusions are often recognisable in the prehistoric sherdage, and serpentinite is present as a constituent of some clays due to outcropping around some of the clay sources.

Initial results suggested that two clays, one calcareous and one non-calcareous, each with very different and very distinctive properties, appear to have been used selectively in the production of specific vessels at Mylouthkia. Whilst there is no means of identifying the Chalcolithic clay sources, there are sufficient common attributes linking the local clays with the prehistoric fabrics to suggest that similar clay sources might have been exploited by Mylouthkia potters.

GB Fabrics A, B and C

Glossy Burnished Fabrics A, B and C are calcareous, and the best match for these three fabric groups is Clay 3 from Tala village *c.* 5 km to the east of Mylouthkia. GB Fabrics A, B and C are the commonest occurring fabrics employed in the production of GB and RW at Mylouthkia during Period 2. Ochre-rich Clay 3 is of a broadly homogenous consistency and in its natural state tends to be crumbly, containing only a few chalky pebbles and requiring minimal preparation before being ready for use after a few days of drying. Whilst Tala is unlikely to be the only local source for this particular clay, building developments and agricultural planting and terracing in the area may have obscured other previously recognisable clay exposures closer to the LAP sites. However, Tala remains a well-known clay source for potters today who regard it as one of the finest in Cyprus. It is equally suitable for hand-building as for wheel-throwing and it is still used by at least one commercial pottery near Paphos (G. Georgiades, pers. comm).

GB Fabrics D and E

GB Fabrics D and E are both non-calcareous, and Clay 7 from Mavrokolymbos is the best match for these two fabrics groups. At Mylouthkia Fabric E is used in the manufacture of GB, RW and untreated-surface coarse trays. The coarseness of GB Fabrics D and E do not suggest any preparation of the clay beyond some light crushing. In its natural state, Clay 7 would be of a particularly suitable consistency to manufacture these thick-walled coarse trays. In experiments, this hard clay required a longer drying time due to its greater impermeability, and its poor plasticity resulted in a stiff clay body that would have allowed the potter to maintain vessel shape whilst applying the various layers of slip and slurry used in the manufacture of these coarse trays. Examination of the larger sherdage of some of the coarse trays with GB surfaces shows these to have undergone rather elaborate treatment with up to four different clays being applied in separate layers. The very laminate structure of these coarse GB trays makes it possible to identify the discrete layers of clays and slips in the breaks in section. At Mylouthkia, GB coarse tray fabrics were constructed by modelling the initial tray shape from Fabric E/Clay 7 onto which a finer grained slip of calcareous red clay was applied, probably Clay 3 or Clay 8. This was followed by a slurry of chalky, cream-coloured clay similar to Clay 5, which appears to have been added as a rough textured keying agent prior to the application of a finer fraction slip, again similar to Clay 5. Finally, onto this fine white-slipped surface was added a very fine red paint which was then burnished. Given the perceived quotidian function of these trays, however, such seemingly labour-intensive treatment merits further appraisal of domestic ware production.

Tempering

Organic material in the form of chaff or perhaps dung is present in substantial amounts in fabrics with GB and RW surfaces. Organic tempering is known to add to the tensile strength of the pot, and its addition both hastens the drying process and promotes more even drying, thus reducing the possibility of cracking during firing (Rye 1981). This would have been of particular importance when using Clay 7, which is non-porous and thus slow-drying. The pores created when organic tempering material burns out during firing also create spaces which arrest cracks (Rye 1981, 27). The fired vessels then display similar qualities of abrasion and thermal shock resistance, as would a similar clay which is mineral tempered (Reid 1984, 63). Rice (1987, 407) also notes that the disadvantage of organic tempering is that it makes the fabric platy and the pot prone to laminar fractures, characteristics which are particularly evident in GB coarse tray sherdage.

Mineral tempering of experimental pots and tiles using crushed serpentinite displayed no obvious advantages over untempered or chaff-tempered pots either during firing or in the finished product. However, as Rye (1981, 26) has observed, the intended function of a pot will determine the potters choice of materials and until the experimental vessels come into functional use the purpose and effects of different types of tempering cannot be truly assessed.

Forming techniques

Coiling appears to have been a commonly used technique in the case of GB Fabric A, B and C vessels. For the purposes of replication, coiling was also found to be the easiest means of forming a pot using Clay 3/ Fabric C. The use of short coils in the construction of Mylouthkia GB Fabric C vessels was notable and during experimental replication using Clay 3 this clay, whilst plastic, is also porous and can dry out quickly so that coils would frequently break off without encircling the entire pot. In experiments, clays were not wedged beyond the most basic mixing although further wedging would have added significantly to their plasticity. However, it seems that the Mylouthkia potters made no particular effort to improve the plasticity of their clays and the prehistoric sherdage suggests that vessel function was not impaired by this short coil construction technique. Experimental pots were formed by coils around a clay base as they were at Mylouthkia, then smoothed both inside and out to seal the joins. Pots were then left to dry, first in a shaded but airy spot, then transferred into direct sunlight, the drying period covering about 3-5 days depending on the weather, the thickness of the vessels and the type of clay used. The duration of the drying period is gauged largely through feel, and the pots become noticeably lighter when ready to fire. This stage, like many others in the production sequence, is difficult to measure or record in any scientific sense. Indeed, as R. E. Jones (1986, 850) has noted, because potters work at an empirical level, "their 'potter's sense' is incapable of rigorous interpretation, let alone description". Experimental pots were all successfully fired, with no breakages occurring.

GB trays made from Fabric E/Clay 7 were slab built. This forming technique is consistent with the limitations of the non-calcareous Clay 7, which is much less malleable than Clay 3 but can be formed easily into slabs since it is firm and holds its shape well. This characteristic is partly due to the density of its coarse, angular inclusions. This clay is also similar to that used in the production of LChal RB/B, and it is clear that either substantial wedging would have been necessary to produce the RB/B vessel shapes or that such clays may have been collected from naturally levigated sources as referred to below. Clay 7 in slaked form with coarse inclusions removed was wedged for several hours by a potter in order to make a flask-shaped vessel. It proved to be plastic enough for this vessel shape but only after much preparation.

Pre-firing treatment

At the leather-hard stage with an average *c.* 7-10 mm wall thickness, the experimental pots were sturdy enough to work with quite freely. Microscopic examination of Mylouthkia GB sherdage indicated that prior to the application of slips and paints, the surfaces of some pots had been smoothed, either by self-slipping or by rubbing the surface of the pot with an abrader when the pot was leather hard. Both methods were tried, and it was noted that sherdage was particularly effective as an abrader where it approximated to the fabric type of the vessel in question. Furthermore, by using this light sanding technique it was possible to modify the actual shape of the vessel and to remove projecting inclusions whilst at the same time plugging any voids. (Today, electric sanders and grinding wheels are used by craft potters to alter vessel shape and also for burnishing.) This sanding down of the vessel prior to decoration compacts the surfaces, permitting a much finer finish, especially where burnishing is the ultimate goal. This treatment also reduces the likelihood of cracking during the firing process as surface voids and inclusions have been eliminated.

Slips

Slips are simply clays in water suspension and should not be confused with paints. In the Mavrokolymbos clay collection area it was noted that following heavy rainstorms, pools which had gathered at the foot of clay outcrops produced very fine, slaked clay which, as it dried, could simply be picked off the surface. The simple addition of water turned this clay into an excellent fine-grained slip without any further preparation. Such naturally occurring phenomena would have been exploited by potters in the past and collected for this very purpose.

Other experimental slips were prepared using a 1:4 ratio of dried crushed clay to water and then shaken vigorously until the clay was suspended in water. The mixture was then left to settle for at least 24 hours, leaving a gradation of fine to coarse deposits, the top deposit being the finest grained. This top layer was skimmed off and added to water to achieve the desired consistency for slipping and for making paints. From the examination of GB coarse ware trays as discussed above, these coarser grained deposits have been used as slurries applied directly onto the clay body as keying surfaces for the finer grained slips. In experiments slips were applied to the pot either by dipping it into the slip mixture or by brushing the slip onto the pot at the leather-hard stage and leaving it to dry thoroughly between applications and before the final application of paint. Calcareous clay slips and slurries were frequently prepared from a cream-coloured clay at Mylouthkia (e.g. Clay 5). Both the colour and the chalky consistency of this type of clay make it a good basis for applying the red paints which contrast sharply in the case of RW vessels. With the red monochrome GB, the reds appear richer in tone when applied to a light coloured surface, but for practical reasons the porous surface offered by the chalky cream-coloured clays may have also been preferred for its ability to key these paints effectively.

Paints

In section, the GB sherdage often shows a discrete layer of paint which is visible to the naked eye. Under the microscope this paint can clearly be seen to have been applied either directly onto the pot surface without any underlying slip or, more frequently, on top of a cream-coloured slip as described above. Experimental paints consisted of a slip with crushed ochre pigment added as a colouring agent and olive oil as a binding agent. The addition of a binding agent is that which distinguishes a paint from a slip (Rice 1987, 184); binding agents render the paint more permanent and add a protective skin which reduces permeability. Binding agents vary greatly, but amongst the most widely used are oils, fats and resins. Olive oil was chosen as a binding agent in this instance simply because it was easily available. Although it would also have been available to the Chalcolithic potter, it is acknowledged that it is much more likely that animal fats or resin of the terebinth tree (which botanical evidence confirms was present around the LAP sites) would have been a more economical binding agents.

The most successful ratio of binder to slip was a 1:5 mixture with added crushed red ochre pigment. Successful burnishing was dependent on the paint mixture containing a fairly precise ratio of binder to slip: too much oil made the paint soft and tacky and therefore impossible to burnish, whilst too little made the paint flake off during burnishing. We have no information at present as to the precise composition of these monochrome Chalcolithic paints, but most oils, fats and resins used in paints would have also acted as waterproofing agents. What did become clear from experiments, however, was that to achieve the extremely high level of glossy burnish finish approximating that on the very best examples of GB, the surface had to have been painted rather than simply slipped and burnished. Burnishing is, of course, quite possible on slipped surfaces alone, and there is evidence for this technique also being employed at Mylouthkia.

Both commercial powdered ochre and crushed raw ochre collected from the Limni copper mines some 50 km north of Mylouthkia have been used here, although more local ochre sources exist (see § 14.7 and 17.5) . The only appreciable difference noted was the very time-consuming business of grinding the raw ochre to a suitable fine powdered consistency for painting. Although the raw ochre has the advantage of being greatly varied in colour including bright yellows, oranges, reds and browns, it was also noted that colours other than the reds tended to become fugitive during burnishing. This may partly explain the predominance of deep red monochrome finishes. It should be noted, however, that firing conditions will also combine in determining the final colour of a vessel and it is therefore difficult to assess the true paint colours that may have been originally applied prior to firing. An example of this colour variance was highlighted when an experimental pot was painted with a deep red ochre pigment, burnished to a high gloss finish, and then fired in a bonfire for approximately 30 minutes. Following firing, the pot, whilst still in the fire, initially appeared to be a uniform brown. As the surrounding ash was blown away, however, and the pot surfaces exposed to an oxygenating atmosphere, the predominant red rapidly began to re-appear. The post-firing pot surfaces ultimately displayed the same high gloss burnish, but with a variety of reds, oranges and blacks, despite the pre-firing colour being uniformly monochrome red. This mottling can be observed on much of the prehistoric sherdage, and colour may vary greatly in vessels from one single firing episode.

Burnishing

From examination of GB sherdage, it seems that a high burnish was achieved in two ways, either by painting a non-calcareous slip onto a calcareous body directly, or by applying a cream-coloured calcareous slip and/or slurry as a keying agent before applying an iron-rich paint prior to burnishing. Under the microscope, surface paints were removed from samples of prehistoric sherdage by the LAP conservator Sharen Taylor and analysed using the HCl field test, confirming that non-calcareous paints were used for the final layer before burnishing. Non-calcareous paint has a practical function in that it is low in porosity whilst the iron content helps to give the characteristic rich, red colour associated with GB; the burnishing itself seals the vessel with a protective skin. S.E.M. analysis of high-gloss burnished pottery from Hacilar, a 6th millennium Chalcolithic site in Anatolia (Tite *et al.* 1982, 114), has shown the existence of techniques similar to those recognised at Mylouthkia. The study also notes a similar use of calcareous and non-calcareous clays for bodies, slips and paints as at Mylouthkia and concludes that non-calcareous slips and paints were used almost exclusively in the manufacture of high-gloss, burnished pottery from the 6th millennium in Anatolia up to the production of Roman Samian Ware. The very earliest pottery of the Near East is straw-tempered, red-slipped and burnished (Matson 1965, 206), and Mylouthkia GB pottery therefore reflects a very long, widespread tradition in early pottery manufacture in this part of the ancient world.

Considerable time and effort are required to achieve the type of gloss approximating a good GB finish. A variety of burnishing tools were used in experiments, including animal bone, wood and a variety of pebbles and stones. The most effective of these proved to be very fine-grained beach pebbles, which left the characteristic streaking effect so noticeable on much of the prehistoric sherdage. Stone tools from the LAP reference collection labelled as “pot-burnishers” were found to have too abrasive an effect on the pot surfaces, and only a material such as fine-grained basalt or andesite might have been suitable for this purpose (A. Jackson, pers. comm.) It was also confirmed that burnishing could only be successfully achieved when the pots were at the leather-hard stage (Fournier 1977, 36). Attempts to burnish a completely dry pot simply resulted in the painted surfaces being scraped off. Damping of dried surfaces did nothing to alleviate this problem, and it seems that the leather-hard stage is a crucial one when a high-gloss burnish is required. A planned production sequence was therefore a likely feature in the manufacture of GB since certain production processes needed to be completed within a limited timescale. As many of the production steps are skill-dependent, however, projected timescales are simply not feasible here.

Burnishing is a pre-firing treatment, but its effects are lost if firing temperatures reach beyond the 800°C range (Fournier 1977, 36). None of the Mylouthkia GB is likely to have been fired beyond this temperature range. Favourable comparisons can be made in terms of the range of interior/exterior and core colours exhibited in the experimental tiles and in the prehistoric GB sherdage. Colour is not in itself a reliable indicator of firing temperature, but if, as presumed, the prehistoric and the experimental clays are very similar, then their component clay minerals can be expected to fire to within a similar colour range at a similar temperature under similar firing conditions as is the case here.

Firing

Firing is the most critical and complex stage of pottery production. Changes which take place in the clay body of a pot during firing are influenced not only by the composition of the clay itself but by the firing conditions. The potter has little control over events once firing has begun; therefore, some degree of consistency at the manufacturing stage is important for the successful production of a pot.

There is at present no archaeological evidence for built kilns in Cyprus prior to the late Bronze Age, and it is usually assumed that pits, hearths and open fires were used for the firing of Chalcolithic pottery (Bolger 1988, 69). Rice has noted that throughout much of the world both in the past and up to the present day, pottery has been successfully fired without kilns (1987, 109). Indeed, there can be as many problems encountered with kilns as there are with open firings (Matson 1965, 162). The use of kilns, therefore, need not imply an evolutionary step towards a superior technology but may simply represent a response to fuel shortages and the need for increased production.

Experimental firing is presently at a very elementary stage. Trial and error, whilst providing useful results, highlight the considerable number of variables with which we must contend and which can, and will, have an impact on the final product. Among those variables are the original clay composition, the composition and quantity of tempering materials, the vessel shape, the vessel thickness, surface treatments, types of fuel and quantities of fuel, the duration of the firing, the environmental location of the fire, the location of the vessel within the fire, the number of vessels in the fire, the effects of radiating heat, the total amount of heat energy, and the oxidising and reducing atmospheres within the fire. Each of these variables merits individual assessment if we are to begin to attempt to determine their potential impacts on fired vessels. Experimental firings so far have included small bonfires and shallow pit fires, one of which was stone-lined, with the use of charcoal, dried vegetation, wood and dung as fuels.

In experimental firings, pots and tiles were placed on top of a layer of fuel, usually straw or other dried vegetation, with the remaining fuel being built around them. No pre-firing heating of vessels was undertaken around the fires, but it should be noted that seasonal temperatures were generally in the region of 30°C, and the pots were left for several hours in this intense sunlight prior to firing. The fires were left to burn out naturally as radiating heat also effects the successful firing of a pot. To reduce the possibility of breakages through thermal shock, pots were usually left in the fire for a full day following firing but were in any case usually too hot to handle beforehand. No loss or damage was sustained during the firing of any of the pots.

Experimental fires were generally no longer than *c.* 30-45 minutes duration and were based on Rye's (1981) ethnographic studies of pottery firings, which can be regarded as appropriate analogues for the type of firings that might have been undertaken at Mylouthkia. Evidence for short-term firing is explicit in Bolger's examination of GB Fabric C sherdage which exhibits "a sharply laminated central grey core". The latter is synonymous with a short firing and indicates that the organic inclusions in the clay have not had sufficient time to burn out. Thermocouples placed in the centre of the stone-lined pit fire gave temperature ranges of between 700-800°C, using wood and charcoal as fuel. Stoking ceased after twenty minutes whilst the temperature continued to climb for the following two hours during which it was recorded. A combination of wind which oxygenated the flame and the radiating heat within the stone-lined pit contributed to this temperature rise. A further firing in an open bonfire using only *c.* 3 kg of sheep dung burned smoky at first but then burned evenly for forty-five minutes to a cherry-red heat equating to *c.* 700° C on the visual scale (Fournier 1977), leaving only traces of burning around the grassy edges of the pit along with a light ash which was easily disturbed in wind. Test tiles from both of these fires were fired successfully, that is, within the maturing ranges of the clays so that the fired fabric was stable. Several tiles of Clay 2 from the stone-lined pit fire exhibited signs of damage, but these are believed to have been mainly the results of poor mixing in the manufacturing stage. No losses were incurred during firing of any tiles or vessels in subsequent fires even though the tiles and vessels were often in direct contact with the flames. These fires can produce a wide range of reduced and oxidised surfaces and cores in both pots and tiles from one single firing episode. The atmosphere, the temperature and the duration of firing, along with the clay composition, are the key variables which affect the successful firing of a vessel (Shepard 1961, 103).

As the firings were short in duration and the fires themselves were small features between *c.* 1-2 m in diam, the results of experimental firing are not necessarily reflective of the losses that might have been sustained in prehistoric firings where vessels may have been stacked or fires may have been larger or of longer duration. However, on a simple domestic production scale these results are indicative of the potential outcome of short-duration firings. Whilst the shortcomings of this particular part of the reconstructions are readily evident, the resulting colour variation along with the types of cores produced do indicate that the Mylouthkia potters are likely to have practised short firings for the production of GB.

Fuels

As we have no direct evidence for pottery firing at Mylouthkia, we have no indication of the likely fuels used. Whilst it has been suggested that prehistoric

Cyprus was heavily wooded (Stanley Price 1979, 13), wood or charcoal as a fuel source would have required some considerable effort in its collection and preparation, and it is therefore much more likely that a replenishable source such as dung would have been a preferred fuel. Today, dung remains a common fuel throughout the non-industrial world and especially in the Near East (Matson 1965, 210; Rye 1981, 104), and it is particularly appropriate for use in pottery firing as it burns evenly. Furthermore, because dung holds its shape there is little risk of debris collapse onto the pots, which are extremely fragile during the initial firing stages. This even-burning greatly reduces the risks of thermal shock, which is a problem with wood firing where the temperature rise is extreme, rapid and fluctuating in open firing conditions. However, in modern Cyprus wood is a common fuel for firing kilns, and the resultant charcoal has further uses as a cooking fuel, as London (1989, 75) observed at the village of Ayios Dhimitrios as recently as 1987. Both fuel types, therefore, have particular advantages, and both are equally likely to have had their place in ancient firings.

Experimental firings have included fuels such as wood, charcoal, dung and dried vegetation, but no advantage to the final product was observed by using one fuel type over another. Further research is required into this particular aspect of firing. Easy availability of fuel, however, may have been a significant deciding factor in the past and Matson (1965) notes the preferential use of replenishable agricultural wastes such as vine cuttings, stalks, dung and olive pulp, etc. in much of the Near East today.

Conclusions

The results from experiments and replication thus far demonstrate the potential for a more holistic appraisal of pottery production. At a technical level, suggestions can be made as to how and why certain features and attributes of GB pottery might have been achieved along with some of the likely problems encountered in its execution. Exploitation of the local environment, both within the immediate settlement area and further afield, are indicated by the use of particular raw materials. Finally, the production of GB shows Mylouthkia potters adhering to an enduring tradition in the manufacture of high gloss, burnished, red monochromes popular throughout the Near East and Anatolia over many millennia.

Whilst claims cannot be made by experimental archaeology to have found the solution to a question posed, this study has tried to isolate those attributes of GB which are reproducible and thus explicable in technical terms. Explanations beyond this level of analysis clearly lie outside the scope and limitations of this study. However, the socio-economic and cultural impact of pottery production in the archaeological record is such as to require increasingly diverse approaches in order to extract the full potential of this most ubiquitous of materials. Experimental and replication studies can therefore play a significant role in the future of ceramic research.

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§ 14.12 Ceramics and society at Mylouthkia

The evidence of whole vessels and sherdage, together with the results of Shiels' experimental work presented above, suggests that pottery production during the earliest phase of the Chalcolithic was a labour-intensive endeavour. The use of coarse clays that required layers of slurry and slip to achieve an effective surface for painting and burnishing was time-consuming, as the above results by Shiels indicate. The technique of layering appears gradually to have been abandoned with the use of new fabric types that required only a single slip prior to painting. The degree of experimentation with fabrics during the EChal and early MChal was considerable, as evidenced by the gradual phasing out of Fabric C, and the introduction of a series of clays (Fabrics A, B, F, G) which could be more efficiently shaped and coiled and which were less prone to fire damage as they did not contain heavy limestone grits. It was the greater efficiency of vessel formation during the MChal, perhaps, which afforded potters more time for patterned decoration, as suggested by the greater variety and complexity of RW designs.

During the early phase of the MChal, increasing levels of sedentarisation are suggested by the construction of the first buildings in timber and stone which replaced the earlier pits and timber structures of the EChal. Numbers of vessels increase at this time, as the evidence of B 200 shows us, and there is a new demand for large-scale storage. Larger storage vessels, such as KMyl 2022 (Fig. 51.6), which required considerable time to produce, were manufactured to meet these new demands. In addition, there was a greater variety of vessel types, presumably reflecting a wider range of domestic activities. Although these developments can be seen more demonstrably during the later phase of the MChal and the LChal, when occupation at Mylouthkia is no longer attested, it is clear that the process of craft specialisation was underway during the transition from the EChal to MChal, when potters started to become active transformers of their craft. At present, the ceramics from Mylouthkia constitute the best evidence we have in Cyprus thus far for the emergence of these fundamental technological and social developments.

Chapter 15: Figurines, Figurine Fragments, Unidentifiable Worked Stone and Pottery Fragments

by

Elizabeth Goring

§ 15.1 Introduction

This section uses the definitions and criteria set out in *LAP* II.2, 39-55 and *LAP* II.1A, 148. For detailed descriptions and references to illustrations see the Catalogue at the end of this chapter.

Forty-eight complete or fragmentary figurines and unidentifiable fragments probably from figurines were found at Mylouthkia. The majority are anthropomorphic, a number seem to be zoomorphic, and several are ambiguous. Fifteen of the figurines and figurine fragments are made from stone, of which four are of picrolite, and thirty-three from pottery. The figurines and fragments came from twenty-eight different contexts associated with twelve separate features across the site.

§ 15.2 Stone, other than picrolite

Materials

All eleven figurines and fragments in this category are made from soft stone - sandstone, limestone, chalk or calcarenite. As at Kissonerga, the majority (eight) are of chalk or calcarenite. There are no examples made from diabase.

Contexts

Four (KMyl 47, 98, 152 and 172) were found in undatable surface deposits. Of the remainder, most are likely to be datable to Period 2. Three (KMyl 165, 584 and 1141) were found in mixed contexts dated to Period 2, a fourth (KMyl 891) in a possible Period 2 context, and a fifth (KMyl 302) came from a disturbed context also probably assignable to Period 2. A single example (KMyl 1111) was found in a mixed Period 3 context, and one (KMyl 301) in a mixed late context.

Most of the seven datable examples were found in pit fills. One example was found in eroded ditch fill.

Physical characteristics

Only four of the figurines are complete. Of these, one (KMyl 1111) is probably to be understood as a zoomorph. Six are fragmentary, of which one (KMyl 584) is apparently a partially completed figurine roughout, perhaps re-used as a tool. One more (KMyl 172) is too fragmentary to be securely identifiable as part of a figurine and, if it is, what it represents.

Of the eleven, only two objects bore any definite indication of gender. KMyl 47 has curving hips, a flat belly with a slight swelling over female pudenda marked by three oblique incised lines, and emphasised buttocks. This figurine comes from an undatable context. KMyl 165, from a Period 2 context, has full hips and thighs and traces of a swollen belly towards its break edge. Although no pudenda or buttocks are shown, it is probably intended to be understood as female. Six have no indication of gender at all, and two more are too fragmentary to be assessed. KMyl 1111, the possible zoomorph, has pecked knobs and grooves of uncertain interpretation. As at Kissonerga, it seems that unequivocal representation of gender was not an essential characteristic of the stone figurines, but that where gender is explicitly shown, it is female.

It is not possible to assess the original posture of most of the figurines and fragments. Where posture is indicated (KMyl 47, 165 and 1141), the figurines could be intended to be upright or recumbent. These three examples all have divided legs, but only KMyl 165 has defined feet. None of the figurines will stand unsupported. Three examples (KMyl 98, 584 and 891) are particularly well weighted and feel comfortable held in the hand. This is particularly true of KMyl 584, which is perhaps reflected in the fact that it seems to have been subsequently re-used as a tool. The limited evidence therefore suggests that, as at Kissonerga, the Mylouthkia stone figurines do not tend to have well-defined postures, do not usually stand unsupported, and are best understood in terms of being held, propped up or placed lying down.

Only one example (KMyl 302) has any indication of arms, which are shown as bud-like sections worked within the outline of the torso. KMyl 172 could possibly be an arm from a large figurine. The lack of interest in representing arms contrasts markedly with the evidence from Kissonerga where arms are indicated more frequently and, where they survive, are almost always outstretched.

Three of the four complete figurines (KMyl 98, 301 and 891) can be described as schematic (for the definition of categories of execution, see *LAP* II.2, 42). The fourth (KMyl 1111) can be described as slightly detailed. Of the rest, which are fragmentary, three more (KMyl 302, 584 and 1141) can also be described as schematic, and KMyl 47 and 165 could be fully or slightly detailed.

Surface decoration on the stone figurines is apparently confined to very simple incision, mainly used for indicating legs. There is no evidence for the use of other methods such as drilling or the use of paint or ochre.

All of the figurines and fragments whose height can be estimated can be classified as medium-sized, defined as being 6 - 20 cm (*LAP* II.1A, 151). Figurines of this size are readily portable, and can be held comfortably in the hand although not enclosed within it.

Damage, wear and re-use

KMyl 47 has traces of wear polish down its sides and across the vulva area. KMyl 165 was apparently damaged and re-worked. Its right side has a prominent sideways projection, rendering it more than usually asymmetrical. This seems to have been intentional, or at least acceptable, as it was not a reject: it has been beautifully worked and finished even on the projecting side. It was subsequently re-used as a grinder. KMyl 302 has a pecked area in the centre of one face. KMyl 584 apparently began as a roughout for a partially completed or subsequently damaged figurine, which was later re-used as a tool. It has a deep, tapering hole gouged at one end where the head of the figurine was sheared off. KMyl 1111, whatever its original meaning, was subsequently re-used as a hammerstone/grinder. It bears pecked damage to one face, and its broad end was used for grinding. KMyl 1141 has some wear polish on its front face above the leg division, and some lighter polish on its back.

§ 15.3 Picrolite

There are four picrolite figurines or fragmentary figurines.

Contexts

One (KMyl 1423) is a surface find. KMyl 52 is from a mixed context associated with skeletal remains, part of one or more burials inserted into pit 1, and datable to Period 2. KMyl 106 is from pit fill, another mixed context datable to Period 2. KMyl 1203 is from a surface in the large pit 300, a mixed context datable to the end of Period 2.

Physical characteristics

Three of the four picrolites are anthropomorphic. Of these, only KMyl 106 is complete. KMyl 52 lacks its head and neck, and KMyl 1203 is a lower torso fragment. The fourth picrolite, KMyl 1423, which is damaged, is of uncertain interpretation. It can be viewed vertically as an anthropomorphic figurine, but is perhaps more convincingly seen horizontally as a zoomorph. In this position it can be understood as some kind of quadruped with a pear-shaped head, thick neck, pendulous belly and traces of two sets of legs.

Of the anthropomorphic figurines, one, KMyl 52, has an obvious indication of gender located in the lower genital area, although its interpretation is more ambiguous than it appears at first sight. It consists of a damaged projection which has generally been assumed to be a broken penis. This has attracted much attention as it would identify this object as a rare (unique?) example of a male picrolite figurine. However, as Morris points out (Morris 1985,128), it is equally possible to view this feature as swollen pudenda, "the apparent penis shape being a sculptural rendering of the female labia." The characteristic flexing of the legs in a tucked position is missing from this example. This posture has been convincingly demonstrated to be a stylised rendering of a birthing position (*LAP* II.2, 101; *LAP* II.1A, 153). The absence of flexing can be paralleled, and may be related to the figurine's relative age, but it could add weight to the differentiation of this picrolite from other more clearly female examples. Other characteristically female features, such as breasts, a swollen belly and emphasised hips, are also missing from this figurine, although their absence also need not preclude identification as female. The presence of marked buttocks should be noted.

Of the remaining picrolites, one (KMyl 106) has ledge-like buttocks, whilst the lower torso fragment KMyl 1203 has both marked buttocks and a slightly swollen belly. The interpretation of KMyl 1423 is too ambiguous for assessment of gender.

A pronounced swelling at the throat is a characteristic frequently present on picrolites from Kissonerga and elsewhere. None of the Mylouthkia examples shows unequivocal evidence of this.

KMyl 106 exhibits the standard leg posture common to picrolite figurines, with the legs flexed and tucked up under the body. Although KMyl 1203 is fragmentary, the angle of projection of the legs at the lower break edge suggests a similar posture. However, as noted above, the legs of KMyl 52 are unflexed. They are quite elongated, and the figurine is perhaps meant to be understood as upright.

The classic arm position for anthropomorphic picrolite figurines is outstretched, although the detailing may often vary. KMyl 52 and 106 both have outstretched arms, and provide good evidence for the kinds of variation which can occur. KMyl 52 has very broad rounded arms strikingly decorated with a lattice pattern on front and back faces. KMyl 106 has particularly truncated arms which were probably re-worked, perhaps as the result of damage.

Heads survive on two of the figurines. KMyl 106 has a simple indication of facial features in the marking of the eyes by two lightly incised horizontal lines. There is also a carefully rendered ridge around the back of the head, which may represent hair or a head-dress. The head is triangular and tilted back slightly on the neck, recalling that of KM 27, an undatable surface find from Kissonerga (*LAP* II.1A, Fig. 83.2). KMyl 1423 has an elongated head set horizontally on a thick neck (if the object is viewed vertically) or at right angles to its neck (if viewed horizontally). No facial features are indicated.

All four picrolites are less than 10 cm in height.

Marks of working

KMyl 106 has faint tooling marks over its surface. There are polishing striations all over the surface of KMyl 1203.

Damage, wear and re-use

There is some pecking on the top of the head of KMyl 106 and also under its feet. Its arms have probably been re-worked to accommodate damage. KMyl 1203 has been burnt.

§ 15.4 Pottery

There are thirty-three fired clay figurines, figurine fragments, and unidentifiable fragments probably from figurines. This represents two-thirds of the total figurine assemblage. Of these, twelve apparently belong to a decorated RW tradition, and twenty-one are apparently of monochrome wares of various fabrics. It is not possible to accurately identify the fabrics of a number of examples, either because of their condition or because they cannot be readily related to other ceramic wares as defined by the sherdage.

Contexts

Pottery examples were found associated with nine different features in various areas of the site. Thirty-one of the thirty-three are from pits. The remaining two (KMyl 1215 and 2029) were associated with a building (B 330).

Pit 1 was the most prolific, producing eleven pottery figurines or figurine fragments of the twelve associated with various layers within it (the twelfth example being picrolite). All are anthropomorphic. The five RW examples are all elaborate, and include a fragment from a seated figurine (KMyl 171). The six monochrome examples, although simpler, were each carefully modelled.

Only three features - Pits 1 and 109, and possibly B 330 - contained figurines of both RW and monochrome finishes. Pits 28, 100 and 300 produced only RW examples, whereas pits 16, 24 and 108 produced only monochrome examples. It is striking that pit 16 produced as many as ten pottery figurines (from a total of twelve figurines associated with it), of which none is apparently of RW. There are two possible zoomorphs amongst this group, and two fragments (KMyl 174 and 241) which are decorated with distinctive incised lines. The two fragments from pit 24 (KMyl 100 and 109) are very similar to each other, and bear parallel incised lines very close in character to those on KMyl 16 from pit 1.

Nearly all datable examples came from mixed Period 2 contexts. Exceptions are KMyl 89, 149 and 171, all from OK deposits of Period 2. Only KMyl 1215 (RW) and KMyl 2029 (uncertain fabric) came from contexts datable to Period 3.

Physical characteristics

None of the figurines is complete, or even nearly complete. The best preserved example is KMyl 58, which lacks its head and arms. The interpretation of the very fragmentary KMyl 149 is particularly problematic. It could be seen as a zoomorph, part of a vessel or perhaps even a mask.

The incomplete condition of the material renders the analysis of many aspects of the figurines' physical characteristics – notably gender, posture, arm position, and the degree of detailing – very difficult and in many cases impossible. There are few examples with identifiable gender characteristics amongst the anthropomorphic figurines. KMyl 58 and 1215 both have modelled breasts, while KMyl 59 and 74 have prominent buttocks. The very phallic head of the otherwise clearly female figurine KMyl 1215 is noteworthy.

Most examples whose posture can be guessed at were apparently intended to be seen as upright or recumbent (KMyl 58, 74, 85, 89, 170, 190 and 232); a number of these are simply leg fragments. KMyl 171 seems to be from a seated figurine. Arm posture is equally difficult to assess. KMyl 58 and 189 clearly have outstretched arms. KMyl 72 is an arm, a broad wedge shape which also seems to be outstretched. KMyl 1215, frustratingly incomplete, seems to have had upraised arms, which would be most unusual. KMyl 307, which may be an arm but is perhaps more likely to be a leg from a zoomorph, is bent at an angle, expanding to a broad hand/paw with eight fingers, toes or claws.

Amongst the RW examples, very few decorative techniques were employed other than the application of paint. KMyl 9 has pinched facial features, and pierced eyes and nostrils. KMyl 307 has incised toes. Incision is quite common on the monochrome figurines, appearing on ten of the twenty-one. Two (KMyl 59, 74) have pierced navels.

The state of preservation makes it difficult to assess which details of the figurines might originally have been selected for emphasis. Only one head (KMyl 9) survives, in very poor condition, but what remains hints at plenty of detail. It has brows, nose and eyes, and a strong suggestion of face painting or tattooing. Two examples were detailed with navels. The lack of swollen bellies may be noteworthy.

The painted decoration on the RW fragments is extremely fugitive, and indeed some details of the decoration are no longer visible. The surviving evidence suggests a limited variety of motifs, mainly linear. About ten different motifs can be identified: lines, arcades, bands, triangles, lozenges, dots, confronted linked triangles (forming a zigzag between them), meander, forked lines, and barred panels. The meander, forked lines, and barred panels appear only once, the latter two on the same very distinctive fragment (KMyl 307).

The most elaborately painted figurine is KMyl 1270. Its triangle/zigzags recall those on KMyl 120, but are differently orientated on the body. KMyl 85 is a leg fragment decorated with horizontal bands and vertical dashes resembling fringes. These motifs could represent clothing, body paint or tattooing. A similar fringe motif associated with legs is well attested elsewhere. There are six examples from Kissonerga, KM 61, 523, 778, 1475, 2010 and especially 3100, and another from Kalavasos-Ayious (South 1985, Fig. 3.4). KMyl 1215 has two distinctive motifs which are also comparable with decoration on figurines from Kissonerga. It has radiating stripes over the buttocks, reminiscent – at least in their location – of the much longer wavy lines radiating over the lower torso and hips of KM 299. Even closer are the three oblique rows of dots located over the shoulder blade area of the upper torso, which resemble the triple row on the childbirth figurine from the Ceremonial Area at Kissonerga, KM 1451. The latter has an additional dot-within-circle motif at the end of the rows, located over the shoulder blades. For general remarks on the painted motifs used at Kissonerga, see *LAP* II.1A, 157 and *LAP* II.2, 43, 54.

The fragmentary condition of the figurines makes an assessment of their original size somewhat unreliable. However, it seems that most of the RW examples must have been large (defined, as at Kissonerga, as between 20 and 30 cm in height). KMyl 1215 may have been smaller, of medium size. The sizes of the figurines of other fabrics are even harder to estimate. At least three (KMyl 189, 232 and 2029) are likely to have been large; KMyl 189 may even be of statuette dimensions (over 30 cm high). Six figurines were probably closer to medium-sized.

There is very little evidence to suggest whether any of the figurines originally stood unsupported. KMyl 1270 may have done so. KMyl 58 certainly did not.

§ 15.5 General remarks

The rather limited evidence for soft stone figurines at Mylouthkia indicates a fairly simple stone tradition mainly producing medium-sized schematic or slightly detailed figurines in chalk or calcarenite. Technical ability is competent but not startling. There is no particular emphasis on the detailing of gender or posture. One example, KMyl 1111, provides a tantalising hint of a more individualised or idiosyncratic vein, which is further supported by some examples amongst the picrolite and ceramic assemblage.

The evidence for picrolites from Mylouthkia is very limited, but the available evidence demonstrates a marked variability in type. The three datable picrolites, which all come from Period 2 (EChal) contexts, are quite different from each other. The fourth, undatable picrolite is unparalleled at present. It may be another example of what seems to be a particular interest at Mylouthkia in what are, to us, more ambiguous forms which are possibly zoomorphic in origin. The variation in the quality of the picrolite used for the figurines is noteworthy, ranging from the pale green with olive green mottling of KMyl 106 to the material with large flaws used for KMyl 1423.

The poor preservation of the pottery figurines is particularly tantalising since what remains hints at an elaborate repertoire. A significant proportion of the fragments comes from large, heavy figurines which must have been most striking in their original condition. As at Kissonerga, although there is internal consistency in the painted decoration of the RW figurines, there was apparently scope for a fair degree of individuality of expression in the forms and detailing. The use of incision for decoration may be a characteristic of the Mylouthkia monochrome ware figurines.

The proportion of figurines which may have been zoomorphic (perhaps seven out of the total assemblage of forty-eight from the site) may represent a distinctive aspect of Mylouthkia figurative art. This apparently provides a contrast with the Kissonerga figurine repertoire (*LAP* II.1A, 159).

§ 15.6 Catalogue of figurines, figurine fragments, unidentifiable worked stone and pottery fragments

[*The minus (-) sign in front of a dimension indicates the fragmentary axis of an incomplete object.*]

KMyl 9 **figurine**
pottery fired clay, fabric E
Ht -4.8 W -5.1 Th -3.6 cm
Figurine fragment. Crumbly and in poor condition. Flat disc-like head with rounded face. Brows and nose indicated by continuous low relief line pinched up from surface. Finely-pierced eyes and nostrils. Fugitive red-painted oblique lines across face to either side of nose. Head originally set tilted on neck, but neck now largely broken away. Traces of paint near neck. Pl. 13.9, Fig. 62.2.
Hearth 1.02, Period 2?

KMyl 16 **?figurine**
pottery uncertain fired clay fabric
Ht -2.8 W -2.7 Th 2.1 cm
Figurine fragment. Uncertain identification, perhaps arm, leg or lower torso. Ends missing top and bottom. Plano-convex section. Convex face bears longitudinal incision with deep horizontal incisions at slight angle to either side. Back flat and undetailed. Fig. 63.3; see also § 17.2.
Hearth 1.02, Period 2?

KMyl 47 **figurine**
stone calcarenite
Ht -7.8 W 4.9 Th 2.8 cm
Figurine fragment. Lower torso, from waist down, and legs. Slender waist expands to curving hips. Thighs and legs taper to rounded base. Three oblique incised lines at pudenda conjoin to form single vertical line dividing legs. Leg division line continues over base but not up back. Front face subtly modelled, with slight swelling over pudenda. Flat belly. Undetailed back, with strong, deeply worked horizontal plane marking buttocks. Faint asymmetric oblique grooves at waist, front and back. Surfaces carefully ground. Traces of wear polish across vulva area and down sides. Pl. 13.1, Fig. 61.1.
Cadastral Plot 76, Period ?

KMyl 52 **figurine**
picrolite dull blue-green
Ht -4.0 W 2.7 Th 0.7 cm
Fragmentary figurine. Complete except for head and neck. Large, broad outstretched arms set symmetrically on body, tapering in section towards rounded ends. Arms decorated back and front with irregularly incised cross hatching. Slender body expands to hips. Genital area marked at junction of torso and legs. Incised lines across torso/leg division and dividing legs. No feet indicated. Back with horizontal groove marking buttocks and incised vertical leg division. Pl. 13.6, Fig. 61.5.
Fill 1.05, Period 2

KMyl 58 **figurine**
pottery fired clay, fabric B
Ht -10.0 W -3.1 Th 2.1 cm
Fragmentary figurine. Unslipped. Head and arms missing. Cigar-

shaped with oval section. Elongated neck slopes down to torso. Arms originally outstretched. Remains of left arm slope slightly down. Breasts originally modelled in prominent relief, now broken away. Breasts divided by deep vertical groove cut top to bottom. Elongated featureless lower body and legs, tapering at bottom towards rounded end. Deep irregular vertical incision marks leg division. Small hole at about navel level where tool was driven into clay. Shallow horizontal lines and hollow across middle of torso above 'navel'. No swelling at belly. Undetailed back. Short horizontal incised line, approximately level with top of leg division on front, may mark buttocks. Cannot stand unsupported. Pl. 13.13, Fig. 63.7.
Fill 1.05, Period 2

KMyl 59 **figurine**
pottery uncertain fired clay fabric
Ht -3.1 W 2.0 Th 1.8 cm
Figurine fragment. Lower torso, broken top and bottom. Oval section. Deeply pierced dot on front apparently representing navel. Vertical incision below representing leg division. On back, prominent modelled buttocks, delineated by short emphatic lines and divided by deep oblique incision. Very slim hips. Fig. 63.4.
Fill 1.05, Period 2

KMyl 71 **figurine**
pottery uncertain fired clay fabric
Ht -3.9 W 5.4 Th 1.8 cm
Figurine fragment. Probably a lower torso, broken top and bottom. Plano-convex section. Trace of vertical incised line at break edge of convex face may mark location of pudenda or leg division. Back flat. Small hollow at each side. Traces of painted decoration. On front, vertical lines, some with fringes, wavy lines or arcades parallel to verticals (no longer clearly visible); on back, 3 horizontal wavy lines flanked by fringe motifs. Fig. 62.3.
Fill 1.05, Period 2

KMyl 72 **figurine**
pottery fired clay, fabric A
Ht -4.8 W -5.0 Th 2.9 cm
Figurine fragment. Left arm proper from large figurine. Broad, wedge-shaped fragment with rounded end, tapering towards end. Fragment projects from top of arm to break edge at start of neck. Back flat and undetailed. Traces of red painted linear decoration on front. Fig. 62.5.
Fill 1.05, Period 2

KMyl 74 **figurine**
pottery uncertain fired clay fabric
Ht -7.2 W 6.0 Th 4.8 cm
Figurine fragment. Lower torso and legs from large heavy figurine. Oval section. Front fairly flat, with dark discoloration at upper break edge. Sides taper slightly to lower end. Bottom end broken away, but traces of original surface suggest legs probably very truncated with no flexing, and rounded underneath. Deeply cut leg division. At top of leg division, tiny circle around a dot. On back, modelled left buttock partially survives. Right buttock broken away. Horizontal shallow groove marks lower edge of buttocks. Vertical leg division. Fig. 63.5.
Fill 1.05, Period 2

KMyl 79 **?figurine**
pottery GB-? or RW-?
Ht -2.8 W -3.1 Th 3.6 cm
Figurine fragment? Unknown identification, perhaps an arm or leg. One face flat, with a raised area beside break edge, perhaps once joining a torso; the other face convex.
Fill 1.05, Period 2

KMyl 85 **figurine**
pottery RW-b
Ht -8.7 W 3.7 Th 2.9 cm
Figurine fragment. Leg from very large heavy figurine. Round section. Elongated cylindrical shape, broken at top, expanding at front of lower end to form a splayed foot. Front of foot chipped away, but toes may have been suggested by modelling. Underside of foot uneven. Red painted decoration. On front, four horizontal bands with two rows of vertical dashes below. Two further horizontal bands above foot. Foot red underneath. Traces of three bands and vertical dashes on back, with two bands below. Pl. 13.10, Fig. 62.6.
Fill 1.13, Period 2

KMyl 89 **figurine**
pottery RM-b
Ht -5.0 W -3.7 Th -4.6 cm
Figurine fragment. (Right?) foot from large figurine, cf. 85, 232. Oblong section. Lower part of leg tapers before expanding towards foot. Lower edges broken away, but foot probably projected further at front than back. Flat oblong base. Surface glossy red all over including underside. Fig. 63.6.
Pit 16.0, Period 2

KMyl 98 **figurine**
stone sandstone.
Ht 8.1 W 4.1 Th 2.5 cm
Small complete figurine. Plano-convex section. Front convex, back slightly concave. Rounded top. Narrow elongated upper part, slightly tilted back; expands to broader lower end with rounded base. Surfaces carefully pecked and ground all over. Front face smooth, especially on lower part, back left unsmoothed. Cannot stand unsupported but feels perfectly weighted in the hand. Cf. 8. Fig. 61.2.
Unit 0, Period ?

KMyl 100 **?figurine**
pottery uncertain fired clay fabric
L -3.5 W -2.5 Th 2.7 cm
?Figurine fragment. Unknown identification. Broken edges at top, bottom and one side. Smooth surface with one incised line parallel to complete edge of fragment, and ten more at right angles to it. Cf. 16 and 109. Fig. 63.9; see also § 17.2.
Fill 24.01, Period 2

KMyl 106 **figurine**
picrolite pale green with olive green mottling
Ht 5.7 W 1.7 Th 1.5 cm
Complete figurine. Triangular head with face slightly tilted back. Eyes represented by two short horizontal lines. Top of head flat, expanding at back to suggest hair or head-dress, then sloping in to back of neck. Flat torso expanding gently to hips. Very truncated outstretched arms, probably re-worked. Legs project slightly forwards before hanging down in gently flexed position. Broad deep vertical groove divides legs. Undetailed back, slightly concave, with ledge-like buttocks. Shallow vertical division at buttocks and legs stops at feet. Surface of figurine smooth and polished with slight tooling marks. Some pecking on top of head and under feet. Frontispiece, 3, Pl. 13.7, Fig. 61.6.
Fill 16.01, Period 2

KMyl 109 **figurine**
pottery fired clay, fabric B
L -3.8 W -3.0 Th 3.4
Figurine fragment? Unslipped. Unknown identification. Convex faces. Broken edges at top, bottom and one side. Surface with 9 parallel shallow incisions, each shorter than the next. Each stroke has multiple striations as if done with a multi-pronged bristly implement. Fig. 63.8, see also § 17.2.
Fill 24.01, Period 2

KMyl 120 **figurine**
pottery RW-?
Ht -9.9 W -6.1 Th 4.5 cm
Figurine fragment. Part of lower torso and left side proper of large heavy figurine. Broken off top, bottom and down one side. Plano-convex section, with front slightly concave. Lower break at junction between hips and legs, which apparently projected forwards. Red painted decoration. Traces of 4 vertical lines and ?triangle. Two vertical lines down side. Back convex, with two rows of triangles, apex downwards, 3 surviving in each row. Trace of third row. Cf. decoration of 1270. Fig. 62.4.
Fill 28.01, Period 2

KMyl 149 **?zoomorph**
pottery uncertain fired clay fabric, but similar to KMyl 160.
Ht -8.8 W -12.1 Th 5.1 cm
?Figurine fragment. Unknown identification: possibly zoomorphic, or from some kind of hollow vessel, or even part of a mask. Irregularly shaped hollow object, broken off on all sides, with two hollowed projections at one end. Paint drips visible running down inner surface, suggesting projections may have pointed downwards. Pl. 13.15, Fig. 63.10.
Pit 16.0, Period 2

KMyl 152 **figurine**
stone limestone
Ht -4.6 W 3.6 Th 2.8 cm
Figurine fragment. Probably a head. Oval section. Oblong shape, one end broken away. Top rounded and pecked. Front plain, slightly tilted back, with horizontal striations. Neck expands towards break edge. Vertical shaping striations. Back flatter, with horizontal groove separating head from neck.
Hearth 1.02, Period 2?

KMyl 155 **figurine**
fired clay uncertain fired clay fabric
Ht 3.1 L -5.5 W 4.0 cm
Figurine fragment. Uncertain identification: possibly the rear end of a zoomorph rather than the lower part of a seated anthropomorph. Oblong section. One end broken away. Elongated cylindrical body, perhaps to be seen horizontally, with two projections representing the hind legs? Rear end/base concave, with slight groove running along back. Incised line extends between legs and along start of underside/front. Fig. 63.11.
Fill 16.03, Period 2

KMyl 165 **figurine**
stone chalk
Ht -5.9 W 4.9 Th 2.2 cm
Figurine fragment. Lower torso and legs. Strongly asymmetric, with left side articulated as normal but right side projecting significantly sideways. This may result from damage and re-working. Front carefully modelled and smoothed, with traces of swollen belly at top break edge. Torso expands subtly from waist to thigh, curving in at the hips. Further swellings mark knees and feet. Leg division indicated by deep vertical incision with multiple oblique cuts to left. Fine horizontal incisions mark the junction of torso and upper thigh, and leg and foot. Back face flat, smooth and undetailed. Parallel oblique and horizontal marks indicate re-use as a grinder. Some wear polish. Pl. 13.2.
Fill 16.04, Period 2

KMyl 166 **figurine**
pottery RM-d
Ht -9.9 W 4.0 Th 3.6 cm
Figurine fragment. Thin reddish wash. Unknown identification. Elongated cylinder broken off at both ends, with most of one face sheared away. Apparently rounded section. Surface begins to expand at one end, with trace of groove around break edge. Fig. 63.12.
Fill 16.04, Period 2

KMyl 170 **figurine**
pottery Uncertain fired clay fabric.
Ht -6.8 W 6.0 Th 1.8 cm
Figurine fragment. Probably legs and base. Irregular oval section. Top and bottom broken off. Front smooth and flat, with oblique striations. Shallow vertical incision marking leg division. Back undetailed and flat with uneven surface. Cf. 165. Pl. 13.16.
Fill 1.11, Period 2

KMyl 171 **figurine**
pottery RW-?
Ht -4.3 L 6.9 W -4.4 cm
Figurine fragment. Part of lower torso and left leg proper of large seated figurine. Front lower torso merges into thigh, which projects forwards before bending at knee. Knee damaged. Part of lower leg survives, hanging down. On back, smooth flat buttock, broken at top. Pronounced curve at lower edge. Surface very abraded, but traces of red paint visible. Stripes along upper thigh, horizontal bands on underside of thigh. Fig. 62.7.
Pit 1.03, Period 2

KMyl 172 **?figurine**
stone dark grey sandstone(?) with sandy-coloured veining
Ht 6.4 W -5.9 Th 2.9 cm
?Figurine fragment. Unknown identification, possibly left arm from large figurine. Oval section. One end rounded, the other broken away at ?junction with torso. Straight upper edge. Front slightly convex, back flatter. Surface smooth all over. Slight pecking at rounded end.
Unit 0, Period ?

KMyl 174 **figurine**
pottery fired clay, fabric B
Ht -3.6 W -2.4 Th -2.3 cm
Figurine fragment. Unslipped. Uncertain identification, possibly an arm. Probably oval section. Broken off at side and both ends, original shape uncertain. Three long deeply incised lines across one face with 2 shorter lines below. Back surface uneven. Trace of perforation near narrower broken end. Cf. 16, 100, 109.
Fill 16.04, Period 2

KMyl 188 **figurine**
pottery fired clay, fabric B
L -4.8 W 2.3 Th -2.0 cm
Figurine fragment. Unslipped. Uncertain identification: perhaps base of figurine like 58, or thigh from seated figurine. Probably oval section. Roughly cylindrical fragment broken off at side and one end. Smooth surface with suggestion of incised line parallel to side.
Fill 16.04, Period 2

KMyl 189 **figurine**
fired clay uncertain fired clay fabric
Ht -9.4 W -10.0 Th -2.9 cm
Figurine fragment. Neck, upper torso and arms from very large figurine. Oval section. Long neck, slightly tilted back, expanding to outstretched arms, probably originally rounded (both ends missing). Torso narrows below arms towards break. Front largely abraded, but traces of surface remain beside arm breaks. Slightly curved surface at break edge suggests start of breast cleavage. Back smooth and flat, with arms curving towards front. Pronounced horizontal ridge running between underside of both arms. Condition of front apparently due to burning. ?fabric unusual for feature 16. Pl. 13.17.
Fill 16.04, Period 2

KMyl 190 **figurine**
pottery uncertain fired clay fabric
Ht -3.6 W 2.6 Th 1.5 cm
Figurine fragment. Burnished and blackened. Legs and base. Oval section. Leg section tapers to base which is splayed back and front, concave underneath. Leg division indicated by deep incised line, on front only. Now stands unsupported, but backwards lean suggests it may not have done so when complete. Pl. 13.18.
Fill 16.04, Period 2

KMyl 232 **figurine**
pottery GB-?
Ht -5.7 W 4.4 Th 3.3 cm
Figurine fragment. Leg and part of foot from large, heavy figurine. Oval section. Flattened cylindrical fragment, broken off at one end. Ridge at front and sides near complete end (smoothly finished above, sheared away below), suggest foot projected forwards only. Underside flat, with traces of red paint. Back flat. Surface abraded, with traces of red paint all over. Fig. 63.13.
Fill 16.06, Period 2

KMyl 241 **figurine**
pottery uncertain fired clay fabric
Ht -3.1 W 1.8 Th 1.4 cm
Figurine fragment. Possible traces of RM slip on reverse. Uncertain identification, possibly a leg. Oval section. Elongated fragment broken off at one end, badly damaged at the other. Six parallel incised lines, and trace of seventh, across one face and continuing round side. At damaged end, part of perforation, or more likely a dividing groove or deep incision, perhaps marking remains of toes. No wear to suggest perforation was used, despite softness of fabric.
Fill 16.04, Period 2

KMyl 301 **figurine**
stone calcarenite
Ht 13.4 W 8.2 Th 6.1 cm
Complete figurine. Large, heavy bilobate figurine. Oval section. Small upper lobe tapers to an indentation on front, then expands to a strongly asymmetric larger lower lobe. Upper lobe tilts back. Slightly flattened base. Slight concavity on back, at level of indentation on front. Faces fairly smooth, sides rough. Pecked all over, with deeper pecking at indentation and towards base. Cannot stand unsupported. Pl. 13.3.
Fill 107.01/2, Period ?

KMyl 302 **figurine**
stone chalk
Ht -7.5 W 3.6 Th 2.2
Fragmentary figurine. Small cylindrical figurine, most of head broken away. Oval section. Groove divides lower part of head from body. Elongated body with upper torso tapering to a narrower slightly rounded end. Asymmetric bud-like arms delineated by grooves within outline of upper torso. Front and back fairly flat, one flatter than the other. Pecked and ground all over. Slight vertical faceting on flatter face. Longitudinal polishing marks on body, horizontal across one arm. Pecked area in centre of one face. Lower end of other face chipped. Cannot stand unsupported. Pl. 13.4.
Fill 109.02, Period 2?

KMyl 304 **figurine**
pottery RW-?
Ht -4.8 W 3.0 Th 2.7 cm
Figurine fragment. Uncertain identification, possibly a leg, lower torso or neck. Oval section. Cylindrical, slightly tapered, both ends broken away. Unusual chalky white slip with pinkish-red paint. Traces of linear decoration, perhaps hatching or zigzags.
Fill 100.03, Period 2

KMyl 307 **figurine**
pottery RW-b
L -11.3 W 3.9 Th 2.2 cm
Appliqué fragment. Right arm/hand or leg/paw (could be anthropomorphic or zoomorphic). Back surface broken away. Limb is angled at the top, and expands to a broad convex paw/hand with 8 fingers, toes or claws which curl under, each divided by a deep cut. Limb is decorated with very glossy red paint on cream slip. On upper part of limb, broad bands above and below 3 forked lines. Lower end decorated with two rectangular panels filled with short lines running parallel to the foot/hand. Double line to either side of limb. Red on toes/claws. Pl. 13.14.
Fill 109.03, Period 2

KMyl 412 **figurine/?zoomorph**
pottery RW-b
L -6.7 Th 2.1 cm
Figurine/zoomorph fragment. Uncertain identification, possibly a leg, from thigh to knee (but rather long and slender for this), or part of a snake. Round section. Elongated cylindrical shape with slender profile curving slightly towards one end. Both ends broken away. Traces of red painted decoration: linked open lozenge pattern at curve; dots and oblique dashes down one edge; solid red down other edge and one face. Part of surface badly abraded. Unclear if intended to be viewed vertically or horizontally. Fig. 62.8.
Pit 100.0, Period 2

KMyl 584 **figurine roughout**
stone chalk
Ht -11.0 W 8.8 Th 5.9 cm
Fragmentary figurine roughout, perhaps re-used as a tool? Fairly flat front face with convex bulbous head area, tipped back and ground smooth. Flattish lower torso with even outline and pecked surface. Left side proper evenly worked, and well-shaped by pecking. Back and right side proper with very irregular surfaces. Top of head sheared away and pierced with a deep hole, tapering towards its bottom, gouged out not drilled. This object appears to be a partially completed roughout, with one face left largely unfinished or subsequently damaged, which was then re-used in some manner. Figurine fits neatly in hand, with flat undamaged face in palm and thumb in groove at right side proper.
Fill 100.03, Period 2

KMyl 795 **?figurine**
pottery fired clay, fabric B?
Ht -3.9 W 2.1 Th 1.9 cm
Figurine fragment? Uncertain identification, possibly a leg. Irregular oblong section. Elongated shape, broken at one end, the other end uneven and damaged. Irregular surface: one face flat and smoothed, the other convex and uneven.
Fill 108.02, Period 2

KMyl 862 **?figurine**
pottery fired clay, fabric X/fabric B.
Ht -7.1 W -4.5 Th -3.3
Figurine fragment? Unknown identification. Irregular tapered shape, upper part and at least half of section broken away. Front and back fairly flat. Surviving side slightly convex with defined edge. Very smooth surfaces with traces of red paint all over. Tapered end abraded over a concentric area around a deep perforation. Original edge of hole survives unworn.
Fill 109.04, Period 2

KMyl 891 **figurine**
stone chalk
Ht 7.9 W 4.1 Th 2.6 cm
Complete small figurine. Plano-convex section. Elongated, expanding from top to lower end. Front convex, with head tilted back. Head rounded on top, base slightly convex. Flat back. Pecked all over, front ground smooth, especially at lower end, back mostly unsmoothed. Trace of shallow groove across middle of underside. Cannot stand unsupported, but well weighted and comfortable held in the hand.
Fill 109.06, Period 2?

KMyl 1111 **figurine/?zoomorph**
stone calcarenite
L 18.2 W 8.4 Th 7.3 cm
Complete large heavy figurine or zoomorph. Oblong section. Uncertain identification: could be seen horizontally as a mouse-like zoomorph, with nose, prominent eyes, ears and rump; or, perhaps less likely, vertically, as a figurine with features of uncertain interpretation. Elongated shape, expanding from one tapered end to the other broader end, which is partially broken away. Surface shaped all over by pecking (partly obscured by heavy concretion on one face). Tapered end encircled by a groove. Below this groove on one face, two pairs of large knobs, left proud by shaping of surface. Each knob also encircled by a pecked groove. One knob damaged. A deeper pecked groove runs over the broader end. Slight concavities to either side of groove, on same face as knobs, perhaps result from deliberate shaping rather than damage. Object subsequently re-used as a hammerstone-grinder: pecked damage to concreted face, broad end used for grinding. Pl. 13.5, Fig. 61.3.
General 210, Period 3

KMyl 1141 **figurine**
stone chalk
L -4.7 W 4.4 Th 2.8 cm
Figurine fragment. Lower torso and legs. Oblong section. Flat front. Straight sides expand slightly from near break edge to asymmetrically rounded end. Oblique deeply incised groove down lower end of front face. Similar shorter incision on back. Both incisions continue over underside of base but do not meet. Slightly convex back. Long shaping striations front and sides. Pecking over base and above groove. Front face rubbed smooth over grooved area, probably from handling. Smaller smoothed area on back, above groove. Fig. 61.4.
Fill 300.257, Period 2

KMyl 1203 **figurine**
picrolite
Ht -2.5 W 2.2 Th 0.9 cm
Figurine fragment. Burnt. Lower torso, from waist to thighs. Slender waist. Slightly swollen belly. Irregular horizontal groove at hips. Start of leg projection survives. Vertical groove from belly to lower break edge. Flat back, with ledge-like buttocks. Trace of vertical groove at buttock division. Sides convex to thighs, flat below. Polishing striations all over surface. Fig. 61.7
Surface 300.218, Period 2

KMyl 1215 **figurine**
pottery RW-b
Ht -7.9 W -3.2 Th 3.4 cm
Figurine fragment. Part of left side proper of torso, sheared vertically down middle, and horizontally at lower end of torso. Upper end formed as a domed terminal, its original surface intact, with no trace of modelled head. Perforation into end. Perhaps phallic? Body expands below terminal towards arm area. Remains of left arm

survive, apparently upraised. Sides of torso straighten below arm. Front convex, with remains of large pendulous breast. Back flat. Extensive traces of red paint on beige slip. On front, short bars and dots above and below breast and arm area. Horizontal row of dots at waist with vertical stripe below. On back, three oblique rows of dots across shoulder blade area. Horizontal row of dots round waist, continued from front. Below, broad tapering horizontal stripes emanating from vertical lines over buttock area. Original form and posture of figurine unknown in absence of lower part. Surviving part suggests a female figure with upraised arms, pendulous breasts, and phallic head. Pl. 13.11, Fig. 62.9.
General 330.199, Period 3

KMyl 1270 **figurine**
pottery RW-b
Ht -8.7 L 7.1 Th 4.5
Figurine fragment. Large fragment of lower torso from thick heavy figurine (but possibly a leg from a massive figure?). Oblong section. Convex faces. Cylindrical shape, expanding towards flat base with part of original surface surviving. Faces irregular but smooth. One face (A) well-preserved, the other (B) largely sheared away - unclear which was front. Complex red-painted decoration on pinky-beige slip on both faces and sides. Face A: At top left, two confronted triple zigzags, with reserved zigzag between. Outline of each zigzag painted first, then blocked in. Row of dots above, row of dashes below, vertical line to right. Pattern apparently repeated at top right but without vertical line. Below left, single triple zigzag facing left. To right, vertical line and vertical snaky meander. Similar pattern block apparently repeated at bottom right; traces of snaky meander survive. Face B: Traces of complex (?floral) motif above sheared edge consisting of two large dots above and joined to verticals, and two thick curved bars. Right side proper: Pair of confronted zigzags with row of large dots above, small dots below. To left, vertical line and vertical snaky meander. Traces of block of pattern below. Left side proper: Continuance of top right pattern block. No traces of paint on base. Figurine could probably stand unsupported. Pl. 13.12, Fig. 63.1.
Fill 300.257, Period 2

KMyl 1271 **?figurine**
pottery RW-b
Ht -4.2 W -4.0 Th -1.8 cm
Figurine fragment? Uncertain identification, perhaps front of left arm proper. Small roughly conical fragment, tapering towards end. Convex irregular surface, unsmoothed. Slight trace of rise at inner end of top edge. Downwards curve on lower edge. Traces of matt red paint over much of surface. Fig. 63.2.
Fill 109.03, Period 2

KMyl 1423 **figurine/?zoomorph**
picrolite
L 4.1 W 1.6 Th 2.5 cm
Fragmentary figurine/zoomorph? Uncertain identification: can be viewed vertically as a figurine or horizontally as a zoomorph. Seen as a horizontal zoomorph, can be read as a quadruped with pear-shaped head, thick neck, pendulous pointed belly and traces of two sets of legs (the hind legs sheared away). Heavy ridging on back above front legs could read as folds of skin. Seen as an upright figurine, head is very elongated and set horizontally on neck. Top of head convex. Extremely thick straight-sided neck, divided from head by groove. Below neck, arms project forward sharply, divided by broad vertical groove on chest. Arms would be horizontal, with horizontal groove all round, continuing over back. From front and sides, these could also be read as breasts. Body expands slightly below arms, and projects sharply at front to a pronounced point, divided by a shallow vertical groove. Legs sheared away, so original posture unknown. The picrolite is very flawed, and the presence of large flaws will have inhibited and dictated the form of this object to some extent. Pl. 13.8, Fig. 62.1.
Unit 0, Period ?

KMyl 2029 **?zoomorph**
pottery uncertain fired clay fabric
L -6.3 W 3.2 Th 2.9 cm
Figurine or appliqué fragment, perhaps zoomorphic? Dark red slipped surface with light burnish. Unknown identification but reminiscent of shape of appliqué fragment 307, which is a right leg or paw. Elongated fragment, upper and lower faces and sides intact, both ends broken away. Thick plano-convex section, one end broader than the other. Fragment curves along its long axis. Surfaces smooth but irregular, with gentle uneven ridges along length. Underside flat. No trace of painted decoration.
General 213, Period 3

Chapter 16: The Ground Stone Industry

by

Adam Jackson

[*For related ground stones, see also § 15.2, 17.2 and 17.4*]

This chapter is divided into three sections. In the first section, a typology of ground stone from EChal and MChal contexts (and surface finds) at Mylouthkia is outlined. The second section is a short intra-pit and inter-pit analysis of a select number of features. The third and final section contains discussion and conclusions.

§ 16.1 Typology

This section outlines a typological classification of the ground stone recovered from predominantly EChal/ MChal contexts at Mylouthkia. Also included are surface finds and the assemblage from well 110, which saw some disturbance during the Chalcolithic occupation of the site. A total of 929 items have been registered (including general surface finds and 65 from pit 110), with an additional 291 catalogued (see Appendix C). The latter are included in artefact class counts by feature and condition but are not considered in the more detailed typology and counts below. Artefacts are grouped below according to their general function(s): axes, adzes, chisels, flaked tools, axe-shaped grinders, hammerstones, hammerstone/ grinders, pounders, pestles, rubbing stones, polishers, fine abraders, pebble grinders, rubbers, querns, cupped stones, anvils, mortars, conical stones, pivot stones, perforated stones (see also § 17.2 pendants), grooved stones, semi-perforated cones, spindle whorls, bowls, lids, jar stoppers, and miscellaneous objects. General descriptions of the defining characteristics of each type, along with totals and rock type percentages, are provided. For a description of the typological classification employed, see § 3.

Axes (see Table 16.1; Pls. 14.1, 16.15)

Total: 94, 11 surface finds
Rock type: diabase (80.9%), basalt (9.6%), microgabbro (7.4%), pyroxene andesite (2.1%).

Type 1 (Fig. 64.1)
Irregular convex-faces and sides; very convex blade; rounded butt (e.g. KMyl 538).

Type 2 (Fig. 64.2-3)
Convex faces and sides; width tapers from body to blade; blade pecked/fine ground: body pecked/light ground (e.g. KMyl 13, 57).

Type 3.1 (Fig. 64.4)
Convex faces; facetting at sides near blade; rounded butt; blade pecked/fine ground; body pecked/light ground (e.g. KMyl 488).

Type 3.2 Fig. 64.5
As above, but blade flares from body width (e.g. KMyl 408).

Type 4 (Fig. 64.6)
Miniature axe; convex faces; flared blade; thick body; rounded butt; well finished (e.g. KMyl 709).

Type 5 (Fig. 64.7)
Convex faces; very convex blade; taper from body width to blade; pointed butt; ground all over (e.g. KMyl 499).

Types 1-3 match those from the Cypro-PPNB features. The appearance of these types in Chalcolithic contexts suggests either that there is no clear chronological sequence in typology of axes or that there was disturbance of aceramic deposits in antiquity.

Type 4 axes are the most common in the assemblage. However, this is a product of the quantity of intact axes recovered from burnt B 200. The other features produced axes of fragmentary, damaged or reused nature making typological classification difficult.

Type 5 is represented by only one example from B 200. This artefact is worthy of individual note as it appears to be carefully worked to an unusual form. The care taken to shape both ends suggests that the artefact was possibly bipolar in function.

Diabase is the common rock type used for the manufacture of axes. There is ample evidence that pebbles of ideal proportions and shapes were readily available from riverbeds and beaches, and were carefully selected. Some examples deviate markedly in form to the general body of axes, but a degree of standardisation of form is usually found. Grinding is normally concentrated to the cutting edge; the rest is usually pecked and/or lightly ground (Elliott 1983, 14). The cutting edge is invariably convex and the butt rounded or slightly squared. Some examples exhibit deliberate working of their sides, and sometimes faces, possibly to facilitate hafting (KMyl 1182, 1281).

Most axes exhibit heavy wear (e.g. chipped and or blunted blades, percussion traces to butt and sides), and many are in a fragmentary state (Pl. 16.15). Some show evidence of hammerstone usage to faces, or retouch, and/or reuse in another function.

Adzes (see Table 16.1; Pl. 14.3)

Total: 43, 7 surface finds
Rock types: basalt (37.2%), diabase (32.6%), pyroxene andesite (30.2%).

Type 1.1 (Fig. 64.8)
Trapezoidal; flattish, slightly convex faces; straight facetted sides; squared flattened butt; ground all over (e.g. KMyl 550).

Type 1.2
As above, but with rounded/pointed butt (e.g. KMyl 381).

Type 2.1 (Fig. 64.10)
Trapezoidal, flattish, slightly convex faces, convex sides, squared butt; ground all over (e.g. KMyl 2).

Type 2.2 (Fig. 64.11)
As above, but with rounded/pointed butt (e.g. KMyl 91, 477).

Type 3 (Fig. 64.9,12)
Flattish, slightly convex faces; convex or facetted sides; wide rounded butt; ground all over (e.g. KMyl 157, 524).

Type 4 (Fig. 64.13)
Plano-convex, slightly convex faces; convex sides; convex blade edge; ground all over (KMyl 181, 470).

Type 5
Plano-convex; convex sides; width taper from body to straight blade edge; rounded butt; ground all over (KMyl 459).

The majority of adzes are of triangular form, carefully made and multifacetted. Some asymmetry of form is common, and size varies considerably with Type 4 adzes appearing as generally the largest intact form in the Mylouthkia assemblage. Type 5 is represented by a single intact artefact that in blade design conforms to adze type, but whose overall form is unusual.

Basalt is the favoured rock for adzes, occurring in small, thin, flat-sectioned river and beach pebbles that often require little modification. In certain cases only the cutting edge is worked on these artefacts, hence the occurrence of irregular forms. The work edge bevel is steeply angled (50-75° angle), especially on the well worked examples (Elliott 1983, 14).

Like the axes, Mylouthkia adzes show marked traces of heavy wear and percussion to the blades. Some show evidence of resharpening. Several show hammer-type use wear to one or more faces.

Chisels (see Table 16.1; Pl. 14.3)

Total: 27, 5 surface finds
Rock type: basalt (68%), diabase (20%), mica sandstone (12%), pyroxene andesite (4%).

Type 1.1 (Fig. 64.14)
Cigar shaped; flattish, oval section; taper from body to blade and to butt; unifacially ground bevel to blade; ground all over, with multifacetted working visible (KMyl 399).

Type 1.2
As Type 1.1 but with bifacially ground blade.

Type 2.1 (Fig. 64.16)
Ovoid; flattish, slightly convex faces; unifacially ground bevel blade (e.g. KMyl 823).
Type 2.2 (Fig. 64.17)
As above, but with bifacially ground blade (e.g. KMyl 814).

Type 3 (Fig. 64.15, -18)
Miniature axe/adze shape; convex faces and sides; ground all over (e.g. KMyl 99, 382).

Chisels occur infrequently, perhaps partially as a result of recovery bias. They are characterised by a high standard of manufacturing finish with side faceting and sharp bevel. Use wear appears to be similar to adzes, with a high gloss (cf. Elliott 1983, 15). The basalt 'cigar-shaped' chisels found at Mylouthkia are a common form that occurs from the Neolithic and throughout the Chalcolithic. Side faceting on some gives them a flattened section.

Flaked tools (see Table 16.1)

Total: 46, 8 surface finds
Rock type: diabase (46.8%), basalt (40.4%), pyroxene andesite (6.4%), microgabbro (6.4%).

Type 1 (Fig. 64.19)
Ovoid, axe-shaped; flattish, plano-convex faces; unifacial flaked confined to one end to produce axe/adze type cutting edge (e.g. KMyl 745).

Type 2 (Fig. 64.20,21)
Ovoid; flattish, convex faces; largely all round unifacial flaking (e.g. KMyl 68, 222).

These artefacts are also found in aceramic contexts at Mylouthkia. Use wear would suggest a scraping or grinding function for the majority of these artefacts. Many also show signs of hammering and grinding/polishing use on their faces.

In the case of Type 2, there is evidence to suggest some are modified axes and that some others possibly served an adze type function. KMyl. 69 and 948, for example, were originally bifacially ground blades that were later subject to secondary flaking (Elliott 1983, 15). Dikaios suggested that flaking was a stage in the manufacturing process of axes (1961, 190; Elliott 1983, 16). Alternatively, Elliott has argued that flaking was not necessary and that finished axes do not show evidence of flaking.

Axe-shaped grinders (see Table 16.1)

Total: 26, 3 surface finds
Rock type: diabase (84.6%), microgabbro (12%), basalt (3.4%).

Type 1 (Fig. 65.1)
Axe shaped; convex and concave faces; rounded butt; blunt ground work edge at blade often in 'V' shaped profile; pecked all over (e.g. KMyl 197).

Type 2 (Fig. 65.2)
As above in form, but grinding not concentrated to 'blade'; grinding and polishing wear to faces (e.g. KMyl 526, 1297).

This artefact is identical in form to an axe except for the thick ground work edge that is usually smooth with two facets giving a distinctive 'V' shaped profile. Heavy wear, including chipping, is frequently common to butt, sides and work edge. Some artefacts indicate use of face for grinding/polishing and hammering (e.g. KMyl 1198).

Because of their morphological similarity to axes, it has been suggested that these artefacts represent either, a) an early stage in resharpening of an axe cutting edge or, b) reuse of an axe previously rendered unsuitable for use by wear (Elliott 1983, 18). A number do appear to have been axes. Once finished as axes, they were utilised as grinders and possibly wedges. However, at least one example was a grinder from the outset (e.g. KMyl 1198). Type 2 examples are intriguing. There are no ground facets to suggest former axe function nor is there any proof that these are axe blanks, particularly as they do show some use wear.

Hammerstones (see Table 16.1)

Total: 107, 2 surface finds
Rock type: reef limestone (33.3%), chalk (31.5%), mica sandstone (13%), calcarenite (10.2%), diabase (3.6%), basalt (1.9%), gabbro (1.9%), chert (1.9%), quartz sandstone (0.8%), other (1.9%).

Type 1 (Fig. 65. 3, 4)
Irregular plan and section; evidence of hammer use on one or more faces; unmodified except through use (e.g. KMyl 27, 144).

Hammerstones are one of the most numerous artefact classes from the Neolithic and Chalcolithic features of the site. They are typically of limestone with limited use wear and no attempt at modification to shape. They take many shapes, sizes and weights. The only consistent features are (a) the material used (limestone generally), (b) the lack of care for form, and (c) the evidence on one or more faces of pecking damage through hammer-type usage.

Hammerstone/grinders (see Table 16.1)

Total: 49, 2 surface finds
Rock type: quartz sandstone (29.2%), mica sandstone (23%), diabase (16.6%), reef limestone (12.4%), chalk (6.2%), microgabbro (4.2%), dense chalk limestone (2.1%), chert (2.1%), other (4.2%).

Type 1 (Fig. 65.5,6)
Natural ovoid/sub-circular plan; plano-irregular or plano-convex in section (similar to pounder Type 1); one or more faces, sides, ends used as hammerstone and/or grinder (e.g. KMyl 677, 801).

Type 2 (Fig. 65.7)
Ovoid/sub-circular plan; flattish section; bifacial evidence of hammer and grinding use; edges often pecked/ground to shape with some bevelling (e.g. KMyl 204).

Type 3 (Fig. 65.9)
Sub-rectangular shape; flattish section; bifacial hammer and grinding action; ground and pecked deliberately to shape (e.g. KMyl 793).

As for aceramic features, hammerstone/grinders from Chalcolithic contexts are predominantly of oval plan with flat or plano-convex sections with evidence of hammer use, grinding, and frequently of pounding. In the case of types 2 and 3, deliberate modification through pecking took place. Abrasive sedimentary rocks are preferred.

Pounders (see Table 16.1)

Total: 86, 1 surface find
Rock type: chert (19.5%), mica sandstone (10.4%), reef limestone (8%), calcarenite (8%), diabase (13.8%), microgabbro (5.8%), gabbro (5.8%), dense chalk (8%), quartz sandstone (4.6%), basalt (3.4%), chalk (2.3%), other (10.4%).

Type 1 (Fig. 65.8)
Spheroid/globular plan; pecked/ground use zone(s). (e.g. KMyl 397).

Type 2 (Fig. 65.10,11)
Elongated/irregular-ovoid plan; flattish oval section; bipolar wear from pounding/grinding action; river/beach pebble modified through use (e.g. KMyl 150, 913).

Pounders occur in large numbers at the site. A number of artefacts show multifunctional use as pounders, hammers, and grinders. A variety of rock types are used, but as a rule it appears that chert is preferred for Type 1 pounders.

Pestles (see Table 16.1; Pl. 14.2)

Total: 17, 1 surface find
Rock type: diabase (29.4%), mica sandstone (29.4%), microgabbro (17.6%), chalk (17.6%), dense chalk limestone (5.9%).

Type 1 (Fig. 65.12)
Cylindrical; squat; thick oval section; bipolar use; pecked and ground body (e.g. KMyl 567).

Type 2 (Fig. 65.13)
Conical; sub-circular section; head flattened and ground from use; pecked and ground body (e.g. KMyl 1422).

Type 3 (Fig. 66.1)
Conical; tall; sub-circular section; taper from head to top for grip; head flattened and damaged through use (KMyl 487).

Pestles are uncommon at the site as a whole, and intact pestles are rare. These generally have a pecked and/or ground surface and evidence of wear at head. They are distinct from pounders of the elongated type that have use wear at both ends (cf. Elliott 1983). A number show a flattened polished surface on part of one side suggesting secondary use as a rubbing stone. In general pestles occur rarely, and most features have yielded examples that are smaller, lighter, less regular, and less sophisticated than their counterparts at Lemba-Lakkous and Kissonerga (cf. Elliott 1983; *LAP* I, 80-81, 175-8; *LAP* II.1A, 172-3). This is perhaps a product of the nature, age, and function of the features excavated. Notably, B 200 has yielded the largest number for a single feature.

Rubbing stones (see Table 16.1)

Total: 33, 2 surface finds
Rock type: chalk (26.4%) dense chalk limestone (23.5%), reef limestone (17.6%), mica sandstone 17.6%), diabase (2.9%), calcarenite (2.9%), quartz sandstone (2.9%), other (5.9%).

Type 1 (Fig. 66.2,3)
Ovoid; plano-irregular/convex section; one or more grinding facets; often visible striations perpendicular to long axis (KMyl 191).

Type 2
Elongated; one or more grinding facets; often visible striations perpendicular to long axis; bipolar pounding/grinding use.

Only Type 1 examples are known from Chalcolithic contexts. A number of artefacts show multifunctional use.

Polishers (see Table 16.1)

Total: 10, 1 surface find
Rock type: basalt (70%), diabase (30%).

Type 1 (Fig. 66.4)
Elongated, ovoid; flat convex faces; one or more polished facets (e.g. KMyl 536).

Carefully selected small basalt and andesite pebbles with polished areas through use, possibly as pot burnishers.

Fine abraders (see Table 16.1)

Total: 8
Rock type: mica sandstone.

Type 1 (Fig. 66.5)
Boat shaped; flat lens section; carefully worked with bevelled edges; bifacial grinding evidence (e.g. KMyl 518/535).

These artefacts appear to be carefully formed and multifacetted. The choice of abrasive stone and the patterning of wear suggest as abrasive function, this combined with the care taken in their manufacture suggests a special function.

Pebble grinders (see Table 16.1)

Total: 27, 2 surface finds
Rock type: diabase (57.8%), basalt (38.5%), microgabbro (3.7%).

Type 1 (Fig. 66.6)
Small, oval waterworn pebble; oval section; one or more poles damaged through grinding action (e.g. KMyl 662).

These artefacts are essentially unmodified waterworn pebbles that have been used, often bipolarly, as grinders.

Rubbers (see Table 16.1)

Total: 26
Rock type: mica sandstone (57.9%), quartz sandstone (23.1%), diabase (3.8%), microgabbro (3.8%), chalk (3.8%), reef limestone (3.8%), other (3.8%).

Type 1
Sub-rectangular, elongated oval; Plano-convex; one ground flattish, slightly convex work surface (e.g. KMyl 1191).

Type 2 (Fig. 66.7)
Sub-rectangular, elongated oval; flattish section; bifacial use; one slightly convex face used as a rubber, the opposite slightly concave face as a quern (e.g. KMyl 1293).

Rubbers are generally the complementary artefacts to querns and are associated with the processing of foodstuffs. These are manufactured from hard abrasive rocks. Sometimes great care has been taken in their manufacture. Rubbers have a slightly convex work surface on the short axis only; wear striations are perpendicular to the long axis (cf. Elliott 1983).

Querns (see Table 16.1)

Total: 21
Rock type: mica sandstone (47.6%), calcarenite (28.6%), quartz sandstone (9.5%), microgabbro (4.8%), other (9.5%).

Type 1 (Fig. 66.8)
Large, saddle; elongated, sub-rectangular or ovoid; convex uneven base; concave work surface (e.g. KMyl 1189, 1190.)

Type 2 (Fig. 67.1)
Small; elongated oval; distinguished from above by size and by the fact that it requires something other than a rubber (e.g. KMyl 451).

These are predominantly made of hard and abrasive rocks. The work surface is ground smooth through use and the base is usually rough and unshaped. Fragments of querns are probably more common than the register suggests as a result of recovery and recording biases. Saddle querns appear to be most common overall but intact ones are rare. Type 2 querns may traditionally be confused with rubbers, but it is plain that they functioned as stationary querns. Type 2 examples are generally more carefully worked.

Cupped stones (see Table 16.1; Pl. 14.7)

Total: 36, 5 surface finds
Rock type: reef limestone (52.8%), chalk (38.9%), calcarenite (5.6%), other (2.8%).

Type 1 (Fig. 67.2-5)
Small irregular/variable plan; one or two faces with pecked circular depressions; pecked exterior (e.g. KMyl. 73, 93, 681, 914).

Type 2
Large irregular plan; one or two faces with pecked symmetrical circular depression; unmodified from original form (e.g. KMyl 1124).

Cupped stones of the Chalcolithic are broadly comparable to those few from the aceramic features at Mylouthkia. They occur in varying sizes and forms, and with varying degrees of modification, suggesting differing functions. A number of cupped stones show hammer and pounding use. One example is perforated at one end (e.g. KMyl 93), possibly for an unrelated function such as a weight; another has grooving around the sides (e.g. KMyl 681). The combination of functions suggests some close association of certain activities and/or multifunctional purposes for these artefacts.

Anvils (see Table 16.1)

Total: 16
Rock type: chalk (25%), reef limestone (37.5%), calcarenite (18.75%), mica sandstone (12.5%), quartz sandstone (6.25%).

Type 1 (Fig. 67.7)
Irregular pebbles or boulders; evidence of pecking on one or more faces; generally unmodified (e.g. KMyl 24).

In the case of the larger boulder examples there can be no difficulty in distinguishing this from other classes that show some similarities of use wear and possibly design such as large Type 1 hammerstones or large Type 1 cupped stones. However, there are some possible overlaps with other types. To attempt to iron out these overlaps the author has utilised set criteria of size, practical fit to hand, shape and use wear. Material selection is not so significant as it can be for other types (for example cutting tools).

Mortars (see Table 16.1)

Total: 2
Rock type: reef limestone.

Type 1
Large boulder; Irregular; deep symmetrical circular impression on one face; unmodified exterior (e.g. KMyl 453).

There are only two examples known from the site. These were large artefacts set in emplacements and not designed for portability. KMyl 1349 is a bifacial artefact. On one face is a mortar of equal depth and diameter to KMyl 453, and on the other a basin.

Conical stones (see Table 16.1; Pl. 14.5)

Total: 14
Rock type: mica sandstone (60%), quartz sandstone (33.3%), chalk (6.7%).

Type 1 (Fig. 67.6)
Conical; straight sided; ground flat oval/circular base; pecked and ground body (e.g. KMyl 176).

Type 2 (Fig. 67.8)
Conical; slightly convex sides; ground flat circular base; pecked and ground body (e.g. 954).

Type 3 (Fig. 68.1)
Conical; straight sides taper to small flattened top; ground flat oval/circular base; pecked and ground body (e.g. KMyl 1185, 1273).

These artefacts have an unknown purpose and publications indicate that they are so far unparalleled at any other Neolithic or Chalcolithic site in Cyprus. Their predominately oval shape and size would suggest that they are not 'pot shapers' (*Preliminary* 2; Elliott 1983, 27). Instead, the abrasive qualities of the rocks used in their manufacture implies a function as grinding blocks of some description (Elliott 1983, 27). Diameters vary from 8.5 to 17.5 and they are carefully formed. All show chip damage around the edge except for those examples from B 200 (e.g. KMyl 1185, 1273). Some have a pecked depression on the flat surface.

Pivot stones (see Table 16.1)

Total: 1
Rock type: chalk.

Type 1 (Fig. 68.2)
Large, oval boulder; one or more sockets formed by drilling spiral action (e.g. KMyl 1192).

The single clear example of this class found at Mylouthkia was recovered *in situ* to the inside right of the SW doorway of B 200. There is a double socket.

Perforated stones (see Table 16.1)

Total: 7
Rock type: reef limestone (57.1%), chalk limestone (14.3%), calcarenite (14.3%), other (14.3%).

Type 1 (Fig. 68.3)
Irregular oval shape; oval section; pecked and/or ground to shape; central or off-centre hourglass perforation. (e.g. KMyl 893).

These artefacts occur in limited number at Mylouthkia. Their function is obscure but commonly they are thought of as weights.

Grooved stones (see Table 16.1)

Total: 5
Rock type: chalk (40%), reef limestone (40%), calcarenite (20%).

Type 1: Oval plan and section; pecked groove around mid-section circumference creating a 'waisted' appearance (e.g. KMyl 300).

It is probable that these are related in function to the Type 1 grooved stones found in aceramic contexts and may be equated with 'notched stones' on the mainland. They rarely occur at Mylouthkia.

Semi-perforated cone (see Table 16.1)

Total: 1
Rock type: chalk.

Type 1 (Fig. 68.5)
Circular; conical section; central semi-perforation drilled in the base; well made (e.g. KMyl 468).

There is only one example of this artefact; its purpose is unknown. Manufactured from chalk, it is symmetrical and finely finished. No parallels have been found in publications of other Cypriot prehistoric sites.

Spindle whorl (see Table 16.1)

Total: 1
Rock type: chalk.

Type 1 (Fig. 68.4; Pl. 16.11)
Circular; conical section; central hourglass perforation drilled from both faces (e.g. KMyl 266).

There is only a single example of a spindle whorl from Mylouthkia. This is carefully made, and decorated with incised patterns.

Bowls (see Table 16.1)

Total: 150, 15 surface finds
Rock type: chalk (65.6%), reef limestone (25.2%), calcarenite (4.6%), diabase (3.3%), other (1.3%).

Type 1 (Fig. 68.6-8)
Circular/ovoid mouth; convex sides; thick walls and rim; irregular uneven base; roughly pecked to shape inside and out (e.g. KMyl 288, 850, 863).

Type 2 (Fig. 69.1)
Circular/ovoid mouth; convex sides; irregular uneven base; thick walls and rim; rough pecked exterior; ground interior (e.g. KMyl 219).

Type 3 (Fig. 69.2)
Circular/ovoid mouth; convex sides; thick walls; plain rounded rim; rounded base; pecked and ground inside and out (e.g. KMyl 67).

Type 4.1 (Fig. 69.3, 9)
Circular/ovoid mouth; straight even walls; plain or flat rims; flat base; pecked and ground inside and out; well made (e.g. KMyl 965).

Type 4.2
No Chalcolithic example.

Type 4.3 (Fig. 69.4)
As 4.1 above, but with rib on exterior at base of walls (e.g. KMyl 17, 908).

Type 4.4 (Fig. 69.5)
As 4.1 above, but with base interior domed (e.g. KMyl 853).

Type 5.1
Igneous bowl; circular/oval mouth; convex sides; flattish rounded base; plain rim; well made (e.g. KMyl 219).

Type 5.2 (Fig. 69.6)
Circular/ovoid mouth; shallow; plain rounded rim; rounded base; well made (e.g. KMyl 90).

Type 6 (Fig. 69.7)
Circular/ovoid mouth; straight even walls; plain or flat rims; omphalos type base; pecked and ground inside and out; well made (e.g. KMyl 812).

Registered bowl fragments include body as well as base and rim fragments. As with the aceramic assemblage, the fragmentary nature of the Chalcolithic assemblage as a whole has made classification difficult. However, a number of general classes can be identified, ranging from the crudely worked Type 1 examples to the finely ground symmetrical Type 4 forms. Both form and finish are useful in the allocation of type.

Type 1-3 are like those of the aceramic assemblage. Type 4 bowls are a large class, and it is the author's suspicion that there is a greater variety of form than the fragmentary nature of the artefacts would appear to indicate. For all sub-types there is evidence to suggest that oblong plans were the most common. Differentiation of Type 4 bowls has been made primarily on the basis of the flatness of their bases and the quality of their finish. Few examples survive with both rim and base intact. Bases survive most frequently as rims and sides tend to be finer and taller than those of other types.

Given the similarities between stone vessels (intact and fragmentary) recovered from aceramic contexts and those from Chalcolithic contexts, it is likely that Chalcolithic contexts are yielding redeposited aceramic material. This contention is difficult to prove (cf. § 17.6). Moreover, the occurrence of some forms (e.g. Type 4.4) in exclusively Chalcolithic contexts suggests that stone bowl manufacture did continue during the Chalcolithic at Mylouthkia.

Most of the fragments are old breaks, many are very abraded, a number are burnt (some after breakage), and some have seen recycling and reuse (through hammering and grinding). There is a high probability of recycling and redeposition of Neolithic stone bowl fragments in Chalcolithic contexts at Mylouthkia.

There are two incised vessel fragments of note. KMyl 101 (Pl. 14.6; Fig. 69.9) is a basal fragment of a Type 4 vessel with incised vertical dashes and crosses along the edge where the base and side join. KMyl 297 (Pl. 14.4; Fig. 69.8) is a body sherd (with part base and rim) and also from a Type 4 vessel; it is incised with a chevron pattern like those found in aceramic contexts at Kissonerga (*LAP* II.1A, Fig. 95.17).

Lids (see Table 16.1)

Total: 22
Rock type: chalk (91%), reef limestone (4.5%), quartz sandstone (4.5%).

Type 1: (Fig. 69.10)
Discoidal; flat or oval section; rough worked to shape (e.g. KMyl 501, 520).

A quantity of these artefacts have been retrieved from Chalcolithic contexts at Mylouthkia, principally from B 200 where they occurred in close association with the recorded potspreads.

Jar stoppers (see Table 16.1)

Total: 7
Rock Type: chalk (66.7%), reef limestone (22.2%), calcarenite (11.1%).

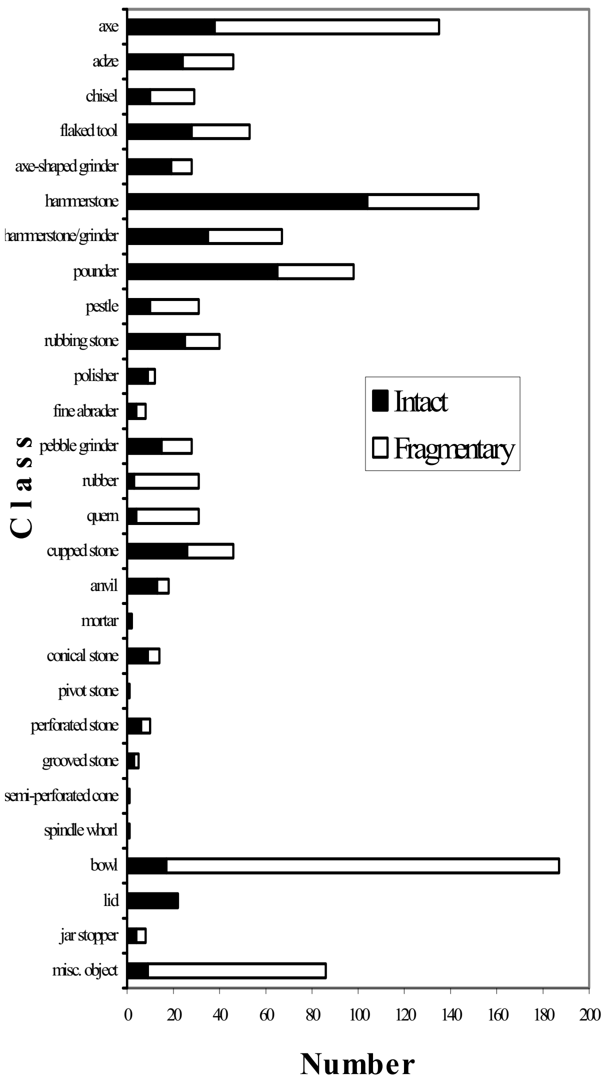

Fig. 16.1: Occurrence by class and condition (surface finds excluded)

Type 1 (Fig. 69.11)
Mushroom shaped; circular, convex top; tapering stopper stem to rounded point (KMyl 469).

These artefacts occur infrequently at Mylouthkia and could have been fitted into narrow necks of flasks.

Miscellaneous objects (see Table 16.1)

Total: 47, 1 surface find
Rock type: diabase (27.6%), basalt (17%), mica sandstone (14.9%), chalk (10.6%), quartz sandstone (6.4%), pyroxene andesite (4.3%), gabbro (4.3%), reef limestone (4.3%), microgabbro (2.1%), other (8.58%).

This 'class' covers a broad range of artefacts whose functions are indeterminate on account of their fragmentary and damaged state and/or their single occurrence at the site. A large proportion of these are diabase and basalt fragments from cutting tools, but their condition does not allow finer typological classification. Although these objects are customarily ignored in typologies, they are included here since their presence is of some interest to the following intra-feature and inter-feature analyses.

§ 16.2 Intrasite analysis

Fig. 16.1, which illustrates the occurrence of artefact classes by number and condition (including small finds and catalogue finds but excluding surface finds), reveals a broad repertoire of functional types with a significant proportion of tools for cutting, hammering, grinding and pounding. Stone bowl fragments are common, and the high numbers of fragmentary and unidentifiable miscellaneous objects reflect the overall fragmentary nature of many of the artefacts recovered, particularly those from pit and hollow features. Given that the assemblages from pit 16 and B 200 jointly comprise over 40% of the total number of stone tools, it is not surprising that they best match the proportions of artefacts found in the Chalcolithic assemblage as a whole. However, pits 16 and B 200 are arguably unique assemblages.

This section presents a statistical comparison of ground stone assemblages from selected EChal/MChal features at Mylouthkia with particular reference to typology and condition of artefacts (fragmentation). Qualitative and quantitative differences between the ground stone assemblages appear to indicate that the presence or absence of certain types, as well as their abundance, their associations with each other, and their diversity, are linked to feature function, storage, refuse practices and/or of activities carried out in the proximity of discard points.

Six features have been selected for detailed consideration: pits 1, 16, 108, 109, well 110, and B 200. Selection of these features was prompted by their differing forms and apparent functions. They have also produced the greatest numbers and varieties of ground stone. For descriptions of these features, see § 12 and 13. Figs. 16.2-7 illustrate the percentages (intact and fragmentary) of various artefact types by feature.

Pit 1: 79 total (including 51 catalogued finds) (Fig. 16.2)

The assemblage retrieved from pit 1 is small but varied. Sixteen classes are represented, including artefacts for cutting, scraping, pounding, hammering and grinding. There were three main productive levels: fills 1.02, 1.05, and 1.11. The most productive context is fill 1.05, followed by 1.11 and 1.02. Many classes are represented by a single or very low number of occurrences within the feature. Stone bowl fragments occur in overwhelming proportions, followed by miscellaneous objects. In the case of stone bowls, it is probable that where the sample size is small, types will not be represented proportionally (i.e. they will tend to be over or under represented). For example, stone vessel fragments may seem out of proportion, a product perhaps of the fact that one stone vessel may yield many fragments. In the case of miscellaneous objects, the number reflects the degree of fragmentation, a condition that is common to a significant percentage of identifiable artefacts as well. The apparent disarray of the artefactual evidence, as well as its incomplete and damaged condition, supports the hypothesis that this hollow functioned as a dump during much of its life.

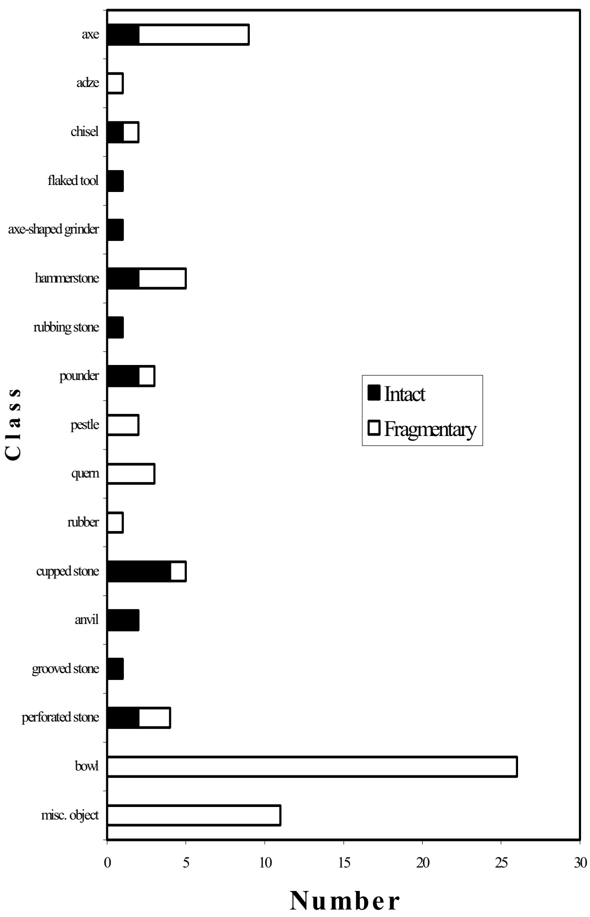

Fig. 16.2: Pit 1: occurrence by class and condition

Pit 16: 208 total (including 116 catalogued finds) (Fig. 16.3)

Pit 16 is situated 55 m down slope and SW of Pit 1, and was truncated by a quarry; subsequently, material has been lost. Excavations revealed two major phases in the construction of the pit, a shallow scoop (fill 16.06) followed by a much deeper one (fills 16.04, 16.07) that obliterated much of the first. As a result, it is feasible that there has been some recycling and redeposition of ground stone. There are no hearths or obvious floors to suggest that the hollow was anything other than a dump.

Pit 16, and in particular fill 16.04 which contained 111 artefacts, proved to be one of the most productive features for ground stone excavated at the site and yielded a wide range of functional types. On the basis of their fragmentary and unprepossessing appearance, a considerable number (116 in total) were given catalogue numbers as opposed to small find numbers. Prior to being discarded, the catalogued finds were examined by Elliott, who grouped them into general classifications (Elliott 1983).

In contrast to pit 1, pit 16 yielded a large number of cutting tools, specifically adzes and axes. Hammerstone/

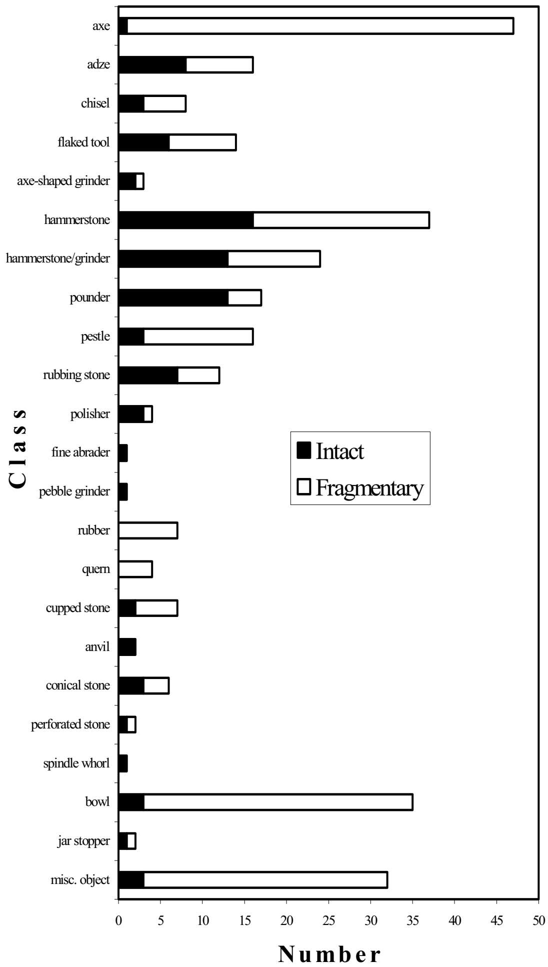

Fig. 16.3: Pit 16: occurrence by class and condition

grinders and rubbing stones also constitute a large proportion of the total. Given their site-wide rarity, conical stones occur in unique abundance. Flaked tools, rubbers, pounders, pestles and quern fragments were also recovered. However, stone vessel fragments represent a noticeably smaller percentage of the assemblage than in pits 1 or 109.

Pit 108: 86 total (Fig. 16.4)

Pit 108 is one of a number of adjacent hollow features (including pits 109 and 110) excavated in Plot 78. Since bulldozing had already taken place and is likely to have removed a portion of the upper levels of the feature, artefactual material will probably have been lost.

There was a notable occurrence of axes and flaked tools in this feature, but only one example of an adze and no chisels. All five examples of axe-shaped grinders show evidence of prior function as axes. Rubbers and pestles have a limited occurrence and querns, also associated with food preparation, are absent. Hammerstone/grinders and pounders occur but in limited numbers. In addition, there are a few examples of cupped stones and a number of stone vessel fragments.

A high proportion of the assemblage was categorised as miscellaneous by virtue of the fragmentary and damaged condition of the artefacts. However, rock type (igneous) and form (pecking and some grinding to shape) suggest that many were probably axe/adze type tools. Overall, the artefacts recovered were in a worn or fragmentary condition on discard.

Pit 109: 112 total (Fig. 16.5)

Pit 109 was incompletely excavated but nonetheless produced a substantial quantity of ground stone, including a broad range of tools for pounding, grinding, hammering, cutting and scraping. Hammerstone/ grinders and pounders are particularly well represented. There are also relatively high occurrences of cupped stones and stone vessel fragments. Axes, adzes and chisels are uncommon and generally found in the topsoil layer; only one axe fragment was found firmly within the stratigraphy of the feature although some worked stone objects labelled miscellaneous may well be fragments of axes or similar cutting tools. There is also an absence of querns and a limited occurrence of other artefacts commonly associated with food processing.

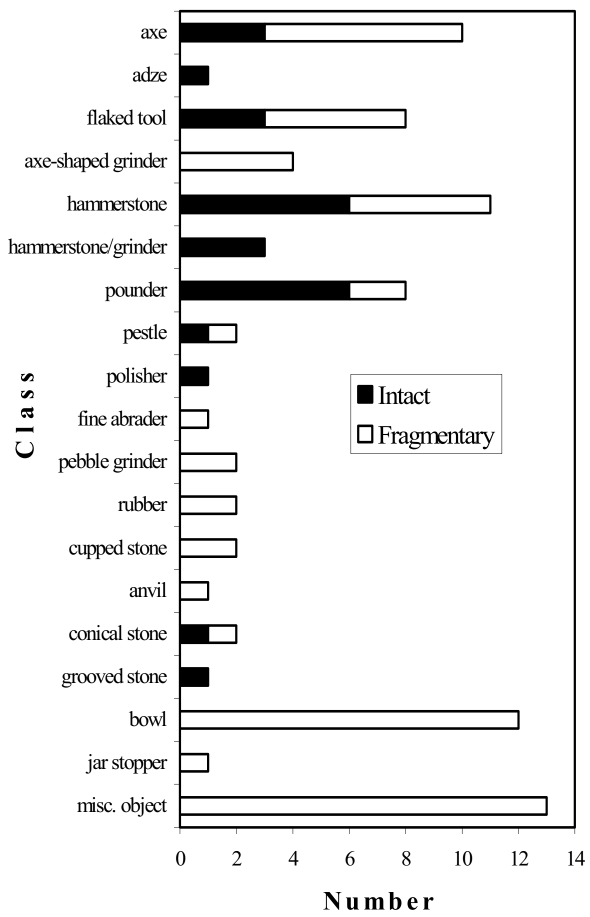

Fig. 16.4: Pit 108: occurrence by class and condition

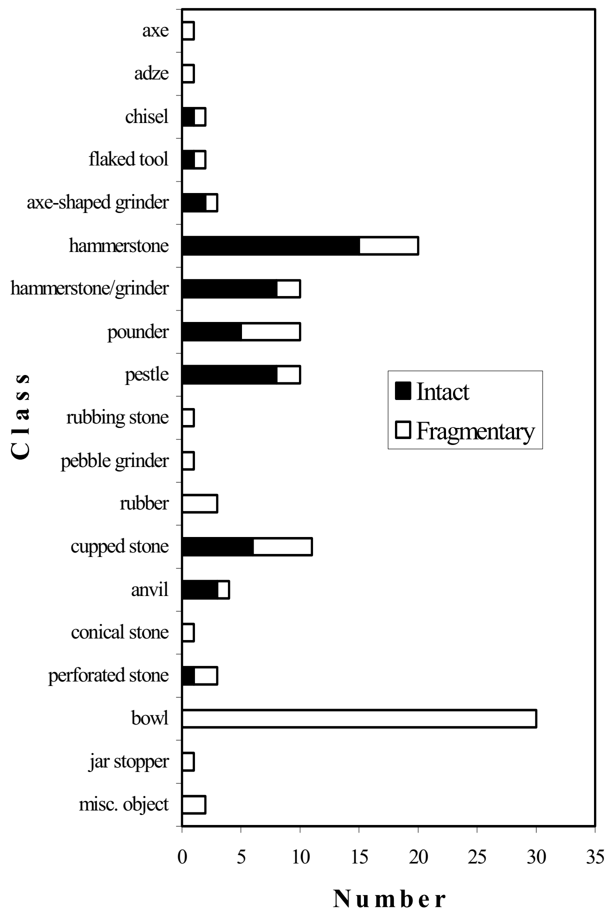

Fig. 16.5: Pit 109: occurrence by class and condition

Well 110: 65 total (Fig. 16.6)

It has been argued that feature 110 represents an aceramic well that was recut during the EChal. It might therefore be expected that the ground stone should contain a mixed assemblage. The assemblage recovered was small and limited in the variety of classes represented, but those classes present are consistent with those identified in Periods 1, 2 and 3 contexts. For example, the relative abundance of crude chalk hammerstones and of stone vessel fragments parallels features from Period 1 and subsequently supports the existence of a substantial aceramic component in the assemblage. However, the occurrence of other artefact classes that have been recovered exclusively from Chalcolithic features at the site (e.g. conical stones, querns and rubbers) in conjunction with pottery evidence suggests that deposition of ground stone occurred during the Chalcolithic period as well.

Building 200: 223 total (Fig.16.7)

B 200 is the sole example of a stereotypical MChal round house form on the site. Pottery analysis indicates a date early within the MChal, i.e. post-dating the majority of the pit and hollow features excavated at the site in the past, including those described above. Because the structure apparently suffered destruction by fire, it has yielded a remarkably intact and *in situ* living assemblage of artefacts and ecofacts.

The ground stone assemblage is the most varied and sophisticated of any one feature at the site and bears closest comparison to the assemblage from pit 16. Implements for cutting, grinding, pounding, pecking, and hammering were retrieved along with objects such as pot lids and jar stoppers. The majority were recovered from a single destruction layer, occupation deposit 211.

Axes and adzes were recovered in particularly significant numbers; together with chisels they constitute over 25% of the assemblage. There were thirty-two axes in total, a cache of unusual size. Although pit 16 yielded a slightly greater number, they were heavily worn and fragmentary at the point of discard. Querns and rubbers were also recovered from B 200, together with hammerstone/grinders, and pestles associated with food preparation and other activities. The situation of quern and rubbers in close association

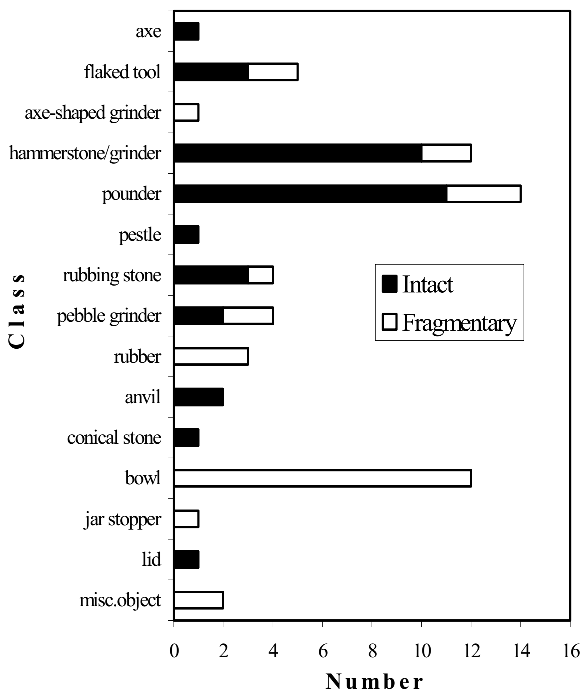

Fig. 16.6: Pit 110: occurrence by class and condition

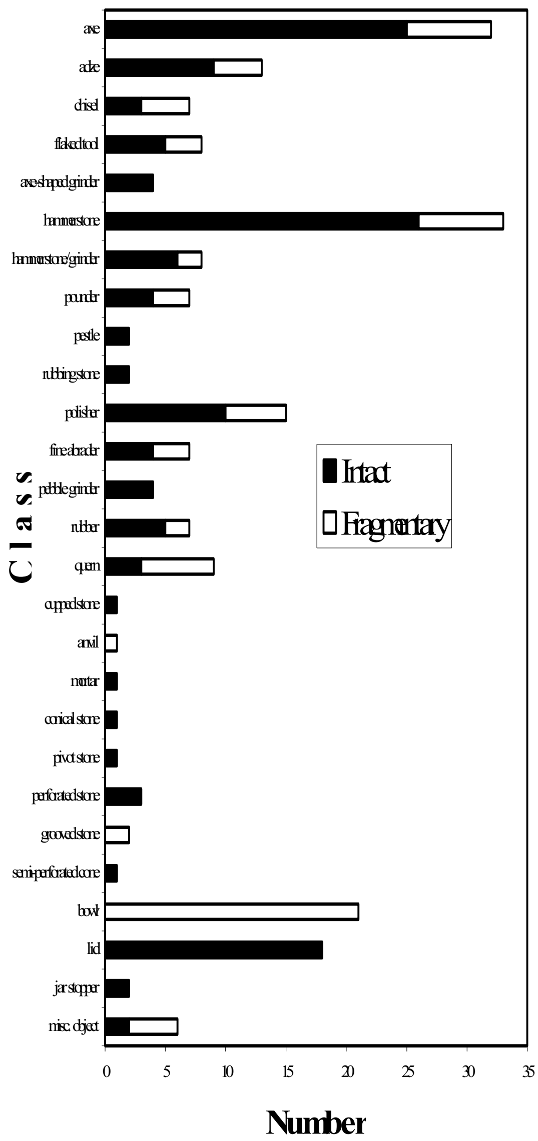

Fig.16.7: Building 200: occurrence by class and condition

suggested that these were stored, and possibly used, indoors (e.g. a quern, KMyl 1190, was placed upside down over rubber KMyl 1191 [Pl. 14.8], together with a substance tentatively identified as red ochre). In general, these artefacts occur infrequently at Mylouthkia.

In addition, the quantity of limestone discs retrieved from B 200 (identified as pot lids from their association with a considerable number of whole vessels) is unique at Mylouthkia. Conversely, there is an absence of cupped stones and very limited occurrence of vessel fragments.

§ 16.3 Summary and conclusions

Comparison of ground stone assemblages from the features considered in the preceding section, and from EChal/MChal contexts in general, reveals similarities and disparities that provoke a number of possible conclusions. First, there are overall similarities in artefact types that occur in spatially distinct features; this suggests a continuity of ground stone forms over time as well as possible overlaps in the period of use of certain hollow features. Despite pottery evidence indicating that the hollow features predate B 200, there are many affinities between their respective ground stone assemblages. Axes, adzes, chisels, pounders, querns, and rubbers are of common forms across the site, and are quite consistent with those recovered from other Neolithic and Chalcolithic sites in Cyprus. Because the artefacts show remarkable continuity of form over long periods of time, it is difficult to posit chronological relationships between features on the basis of their ground stone alone. Furthermore, functional aspects of the features (as discard points possibly linked to specific activities) combine with strong evidence of prolonged use, reuse and possibly recycling of artefacts before their discard, to create uncertainty over artefact type and chronology.

Second, similarities between the ground stone assemblages of certain features, specifically B 200 and pit 16, appear to shed new light on earlier interpretations. B 200 produced a broad and intact Mylouthkia repertoire of serviceable artefacts including a cache of axes, a number of adzes, chisels, polishers, hammerstone/grinders, pestles, rubbers, querns and conical stones. Significantly, all these items are found in pit 16, suggesting that this feature could have been the refuse dump of a similar domestic (singular or plural) unit. Naturally, the conclusion that pit 16 might have been the dump of one or more domestic units like B 200, is made here solely on the basis of their respective ground stone assemblages. From a ground stone perspective, there is no apparent reason to believe that the pit 16 or B 200 assemblage is extraordinary for an EChal and/or MChal occupation at the site. Parallels between the pit 16 and B 200 assemblages, however, do serve to highlight differences with those of pits 1, 108, and 109.

Third, differences in the condition (and finish) of artefacts are arguably reflections of curation or expedience, and indicative of feature function. Reuse, reworking, and recycling of implements is common at Mylouthkia. Thus, artefacts that had at one time been carefully formed axes exhibited evidence of subsequent use as grinders, hammers, polishers, and pounders, whereas hammerstones, pounders and rubbing stones (perhaps also cupped stones) were of crude types that exhibit little modification even through use and may have been the products of short lived expediency (cf. Binford 1979). The majority of artefacts from the pits were either artefacts of an expedient nature or well curated artefacts that were fragmentary and damaged from use and reuse, supporting the interpretation of the pits as 'dumps'. The difference in the condition of the artefacts from B 200 against those from the hollow features is illuminating but unsurprising, as virtually all those from B 200 show wear but were still serviceable, a situation that is in keeping with evidence that the building was destroyed by fire. In addition, while it has been noted that many artefacts from Mylouthkia show a multiplicity of functions, there are fewer from B 200 than from the pit features. This may imply a sophistication and curation of types that were stored (and perhaps utilised) indoors, and directs us to consider the possibility that *qualitative* disparities between assemblages may also be a reflection of spatial differentiation of storage, use, and related discard (between indoors/outdoors, and between various open air features).

Fourth, disparities between assemblages with respect to the presence or absence (or scarcity/abundance) of specific types could be due to 1) chronological developments 2) overlaps of class function 3) variations in feature function (and the storage, cleaning up, and discard activities of former inhabitants) 4) the degree of recycling of earlier deposits. In the case of chronology, stone vessel fragments occur principally in the EChal hollow features, particularly pits 1, 16, and 109. They are sparse in B 200, and their presence could be explained by their accidental inclusion in the building fabric. This scarcity of stone vessels (whole or fragmentary) could be a reflection of the period of occupation. The same may be true of other artefact types, such as cupped stones. In the case of (2) above, disparities in assemblage composition could also be a reflection of typological classification and/or the multi-functional aspects of certain implements. For example, B 200 yielded few crude pounders and rubbing stones, and those pounders that were retrieved included well worked spherical pounders that are unique to the feature. Hammerstone/grinders and pestles were retrieved of well worked type, and it is possible that they could fulfil the functions of cruder pounders and rubbing stones found in other features. In the case of (3) above, it is observed that there may well have been a reworking of aceramic deposits during the Chalcolithic particularly within the hollows, resulting in a higher occurrence of stone vessel fragments and other artefact types.

Fifth, the disparities between assemblages with respect to the presence or absence of certain types might not only be the product of chronological differences, overlap in functions between types, or the degree of mixing of deposits from different periods, but also of use, storage, and discard activity over the site. Radiocarbon dates suggest their contemporaneity, and the general character of those artefacts common to pits 1 and 16 indicate a similar cultural tradition, but there are significant *qualitative* and *quantitative* differences in their respective artefactual assemblages. Observing differences in the nature and variety of the artefactual remains recovered from pits 1 and 16, Peltenburg suggested that these possibly reflected the spatial differentiation of activities, and proposed that pit 1 constituted a domestic waste assemblage and pit 16 the dump of a craft activity area (*Preliminary* 2, 3). Nevertheless, disparities between the assemblages from pits 1, 108, 109, 16 and B 200 could be illustrative of differing discard activities and feature functions, thereby endorsing an earlier suggestion that there was an allocation of specific debris to certain features (*Preliminary* 3). For example, the pit 1 assemblage is qualitatively and quantitatively insignificant beside pit 16 and B 200. Differences cannot be easily dismissed by reference to size, volume of excavated material, or length of occupation. Pit 1 is large and multi-layered, like pit 16. Though it yielded less ground stone than pit 16, it did yield a greater quantity of human and faunal remains. This implies the *sorting* of refuse.

One interpretation is that there was an intention, and/or tendency, on the part of the inhabitants to deposit faunal and human remains in hollows and pits well away from the living areas, for plainly such material would be noxious during decay unless covered up immediately. It is also plausible that the faunal remains and marked quantity of flint from pit 1 indicate butchering activity nearby. Defunct ground stone

Table 16.1. Ground stone artefacts from Chalcolithic (Periods 2 and 3) contexts by class and rock type (excluding Cat. objects)

Class	*Diabase*	*Andesite*	*Basalt*	*Microgabbro*	*Gabbro*	*Dense chalk*	*Chalk*	*Reef limestone*	*Calcarenite*	*Chert*	*Mica sandstone*	*Quartz sandstone*	*Other*	*Totals*
axe	76	2	9	7	-	-	-	-	-	-	-	-	-	92
adze	14	13	16	-	-	-	-	-	-	-	-	-	-	43
chisel	4	5	17	-	-	-	-	-	-	-	1	-	-	27
flaked tool	24	2	17	3	-	-	-	-	-	-	-	-	-	46
axe-shaped grinder	22	-	1	3	-	-	-	-	-	-	-	-	-	28
hammerstone	4	-	2	-	2	-	34	34	10	2	16	1	2	107
hammerstone/grinder	8	-	-	2	-	1	4	6	1	1	11	14	1	49
pounder	9	-	1	6	5	7	1	11	9	19	12	2	4	86
pestle	5	-	-	3	-	1	3	-	-	-	5	-	-	17
rubbing stone	1	-	-	-	-	9	8	6	1	-	6	1	1	33
polisher	3	-	7	-	-	-	-	-	-	-	-	-	-	10
fine abrader	-	-	-	-	-	-	-	-	-	-	8	-	-	8
pebble grinder	14	-	11	1	-	-	-	-	-	-	-	-	1	27
rubber	1	-	-	1	-	-	1	1	-	-	14	7	1	26
quern	-	-	-	1	-	-	-	-	6	-	9	2	3	21
cupped stone	-	-	-	-	-	-	14	19	2	-	-	-	1	36
anvil	-	-	-	-	-	-	5	5	3	-	2	1	-	16
mortar	-	-	-	-	-	-	-	2	-	-	-	-	-	2
conical stone	-	-	-	-	-	-	1	-	-	-	8	5	-	14
pivot stone	-	-	-	-	-	1		-	-	-	-	-	-	1
perforated stone	-	-	-	-	-	-	1	4	1	-	-	-	1	7
grooved stone	-	-	-	-	-	-	2	2	1	-	-	-	-	5
semi perforated cone	-	-	-	-	-	-	1	-	-	-	-	-	-	1
spindle whorl	-	-	-	-	-	-	1	-	-	-	-	-	-	1
misc. object	14	2	7	1	2	-	5	2	-	-	7	3	4	47
bowl	4	-	1	-	-	1	93	42	7	-	-	-	2	150
lid	-	-	-	-	-	-	20	1	-	-	-	1	-	22
jar stopper	-	-	-	-	-	1	4	2	-	-	-	-	-	7
Total	203	24	89	28	9	21	198	137	41	22	99	37	22	929

artefacts being neither a particular health hazard nor generally offensive to eye and nose could be deposited in a hollow more proximate to dwellings or activities. Indeed, it is unlikely that inhabitants would expend great energy in transporting broken axes or quern stones. However, this remains a speculative hypothesis.

Three other features (pits 108-109 and well 110) are adjacent to each other and differ from those features above in assemblage composition and diversity. Like pit 16 and B 200, pit 108 has a significant proportion of axes; however, the numbers of flaked tools, cupped stones and stone vessel fragments are in marked contrast. Spatial, functional and chronological differences may all have been influential. Pit 109 (Fig. 37) shows a more extreme variation, with hammerstone/grinders, cupped stones, and particularly stone vessel fragments in overwhelming majority. Cutting tools are very scarce, implying a concentration on specific activities involving hammering, pounding and grinding. Well 110 (Fig. 37) is unusual in being almost totally devoid of cutting tools. Hammerstone/grinders, pounders, stone vessel fragments and miscellaneous worked stone items are most common. That the assemblage is both small and limited – more limited than any of the other features considered here – could be accounted for by differences in function and deposition. Stratigraphic observations indicate that the feature was formally a well which was possibly deliberately and rapidly infilled; it therefore may never have served as a deliberate receptacle for occupation refuse to accumulate over time. A further explanation for difference is prompted by the discovery of aceramic features of similar form at Mylouthkia, namely wells 116 and 133 (§ 1). Well 110 may be a reworked aceramic feature, and it is feasible that both pits 108 and 109, to a lesser extent, also contain reworked aceramic material.

In conclusion, the ground stone repertoire from Mylouthkia is varied to suit a broad range of functions and requirements. A similar variety is reflected in the exploitation and procurement of rock sources whereby functional or other requirements motivated the selection of certain materials. Table 16.1 illustrates the number of ground stone artefacts by general rock type, and includes both EChal/MChal contexts and general surface finds. Catalogued finds from pits 1 and 16 were not available for the study of rock type. A wide variety of rock types were utilised in the manufacture of the various artefact classes. However, it is clear that certain rock types were selectively chosen for certain classes, probably with a view to their specific functional requirements and factors such as ease of manufacture. For example, cutting tools were invariably manufactured from “hard” igneous rocks; querns, rubbers and hammerstone/grinders from abrasive mica and quartz sandstone; and stone vessels and cupped stones from “soft” chalk and reef limestone. For other, more expedient tool types such as hammerstones and pounders (e.g. those artefacts modified only through use), however, the rock type was less important or even unimportant.

Chapter 17: Other Artefacts and Materials

by

Paul Croft and Edgar Peltenburg

§ 17.1 Metal (E.P.) Pl. 16.8, 9; Fig. 71.12

Five metal objects were recovered from Mylouthkia: two coins from the surface and in a superficial deposit (KMyl 97, 1202), a small piece of iron, its number subsequently cancelled (see Slater in *Preliminary* 3, 46), a hook, KMyl 92, from pit 8, and a small plaque, KMyl 271.01, from pit 29. There was nothing about the typology of fills from these pits to suggest that they were later than the Period 2 pits. The objects were found in the course of our normal scraping in order to obtain fresh sections for recording purposes. In some cases, fills were probed in order to obtain datable sherd material and to define pit edges. In the case of pit 8, we excavated it for a depth of 0.30 m from the face. KMyl 92 was recovered from this operation. Pit 29 was excavated inwards from the section for a depth of *c.* 0.10 m, and KMyl 271.01 occurred at a depth of 0.30 m below the lip of the pit. Given that all tested pits 1 – 34 at Mylouthkia yielded material belonging to either Period 1 or 2, serious consideration needs to be given to the possibility that KMyl 92 and 271.01 belong to Period 2 and hence are the earliest known metal objects from Cyprus.

The hook, KMyl 92, has a possibly worn terminal, straight square-sectioned shank, curved to now short, blunt (worn?) hook tip, with no vestige of a barb. Length 1.3 cm.

Slater carried out instrumental neutron activation analysis of this cold-worked object (*in* Peltenburg 1982c, 41-7). Its relative purity indicated that it might be consistent with worked native copper, but Gale's later work on the hook suggested that this was unlikely and that it was probably made from metal smelted from ores (Gale 1991).

A hook recurs amongst the very limited number of metal objects from Chalcolithic Cyprus at Erimi, and it too is of very pure copper (Gale 1991, 48, Table 4). It may belong to the MChal period (Dikaios never included it in his publications of Erimi), in contrast to copper from Kissonerga and Lemba which only occurs in the LChal. It is probable that until more concerted production started in the Kissonerga Pithos House (*LAP* II.1A), occasional forays were made into metalworking for small objects. While there is no internal evidence from Mylouthkia to contradict its attribution to Period 2, endorsement of that date from properly stratified evidence would be welcome. Until that emerges, the first securely dated metalwork from Cyprus must be that from MChal Erimi and possibly Souskiou (Dikaios 1936, 50; Tylecote 1977, 321).

KMyl 270.01 is a small flat rectangular plate with corrosion product on one surface rendering a plano-convex section.

Slater examined samples of the corrosion product and the plate (in Peltenburg 1982c, 41-7). She found that it was a brass object with 7.8% zinc and therefore should be deleted from the assemblage of early copperwork from Cyprus. The small item is probably intrusive.

§ 17.2 Pendants (E.P.) Pl. 15. 4-12; Fig. 70.1-14

Following Project policy, the same typology and nomenclature is used here as in reports of other Lemba cluster sites. See *LAP* I, 283-8 and IIA-B, 189-95, 233-8.

Mylouthkia yielded only 14 pierced and one unpierced(?) pendant from a restricted typological repertoire. To these may be added a further ten possible pendants. Class 1 refers to unpierced, class 2 to pierced types. Recognisable types are:

Type 2.1 Plain drop (Pl. 15.9; Fig. 70.11)
One example, KMyl 305, of good quality picrolite. This is an unusually long and flat example of the type, approaching Type 2.2. It is furthermore distinguished by the secondary addition of two parallel incised lines placed transversely across the convex face near the base of the pendant. These markings are unique on provenanced picrolite pendants, but they recur on one of a group of three close parallels allegedly from Curium and formerly in the Pierides Collection. Goring (1988, 45.2-3) suggests that the incised lines might indicate ownership marks, as on some stone axes. The group of three pendants are very similar to KMyl 305 and one of them has a nick at the upper terminal as at Mylouthkia. When Goring published the Curium examples, the closest analogies were with LNeo instances at Sotira, but they are broader in relation to height, and they retain something of the original water worn pebble shape. These elongated, more finished works may all be EChal.

Type 2.2 Rectangular, flat-sectioned (Pl. 15. 11,12; Fig. 70.1, 2)
Two examples, KMyl 549 and 1187, both picrolite. KMyl 1187 is the largest picrolite pendant from Mylouthkia and neatly worked.

Type 2.5 (Unpierced?) Cylindrical body horizontal extensions (Pl. 15. 7; Fig. 70.3)
One example, KMyl 209. Since one terminal is broken, it is not possible to determine if it had been pierced, but its shape approximates to unpierced Type 5.

Type 2.15 Drop with elongated suspension rod and splayed or pointed terminal (Pl. 15. 5, 6, 8; Fig. 70.5-8)
Four examples, KMyl 105, 240, 531 and 1417. Mostly broken and small, KMyl 531 an outsize example.

Type 2.18 Lozenge (Pl. 15.10; Fig. 70.9)
One example, small, picrolite, KMyl 251.

Miscellaneous
Seven small, flat, pierced pebbles, most barely modified, may have served as pendants. Examples include KMyl 118, 220, 264, 562 (Pl. 15. 4; Fig. 70.10, 12-14). Sometimes they are pierced so that they would have hung awkwardly (KMyl 220), but most are pierced appropriately at the narrow end of their roughly oval plans. One fragmentary example, KMyl 264, has been carefully ground and polished. It may have served as another type of object. These items are also mentioned in § 16.1 under perforated stone.

Other fragments may also have come from pendants. They include KMyl 44 (Fig. 71.18), a dome-shaped picrolite pebble, tentatively drilled on a flat face, KMyl 7, 40 (both registered as miscellaneous objects) and 51 the terminals of tapered bars, and KMyl 66, registered as miscellaneous object, or possibly from a bead (Pl. 16.10 right; Fig. 70.10). The attribution of these fragments to the pendant category is quite uncertain: KMyl 40 could also have come from the arm of a figurine, for example. Clay was a medium not normally used for pendants, but unique KMyl 259 is such a simple pierced object, it is difficult to see what else it might have been used for, and KMyl 229, a pierced flat oval like some of the stones above, seems too light for a loomweight (§ 14.7) and may have been a pendant.

KMyl 16, 100, 109 (Fig. 63.3, 8, 9) are incised ceramic pieces with thick sections, and, on one face, parallel lines with central longitudinal incision. A more fragmentary example, KMyl 174, has traces of a perforation. Perforated examples from Ayious (South 1985, 74, Fig. 4.16) and Erimi (Karageorghis 1991, 37, Fig. 56) suggest these fragments may be pendants. They have Khirokitian stone precursors: cf. Dikaios 1953, Pl. 141.920.

For possible anthropomorphic pendants, see § 15, and for shell examples see § 22 and the pierced bivalve, KMyl 1950.

Material (Picrolite, serpentinite and chalcedony)

Pendant makers usually worked in picrolite, some of which was of highest quality Kouris blue, but much was of veined, inferior standard. Picrolite was mainly used for ornate Type 2.15 (3 of the 4 examples) and for the simple Type 2.2, rectangular plaques. When considered together with the related serpentinite, Mylouthkia yielded 17 objects of all kinds in this material, plus two from Period 1 and one from well 110. The Chalcolithic objects comprise seven pendants (KMyl 105, 240, 251, 305, 549, 1187, 1417), two possible pendants (KMyl 7, 44), four figurines (KMyl 52, 106, 1203, 1423), one bead (KMyl 1214), an unworked pebble (KMyl 1218), a miscellaneous object (KMyl 534) and a hammerstone (KMyl 929). The last is of serpentine and may be derived from Period 1 since this material was also used for an otherwise unique hammerstone in well 133 (KMyl 1338). The other well with secure Period 1 artefacts, 116, produced a pounder in serpentinite (KMyl 1098). A second example of the same material, KMyl 995, was recovered from well 110 which has mixed upper fills with much material derived from Period 1. It seems that serpentinite was occasionally used for tools in Period 1, but that it was replaced by softer picrolite for ideographic objects in Periods 2 and 3. The sources of serpentinite may be more widespread than good quality picrolite.

The unworked pebble of picrolite, KMyl 1218, suggests that this material was imported in raw form during the Chalcolithic to fashion small objects. One of the finest, and also the most enigmatic, is a probable picrolite, KMyl 534 from B 200 (Pl. 16.13). Smoothly polished, its shape, part of a flattened semicircle, and decoration, a ridge on one edge, groove on one face, are not readily paralleled in better known classes of Chalcolithic picrolites. Consequently, it comes from an unknown object type. Together with another picrolite with unusual, elaborate decoration from Lemba-Lakkous (*LAP* I, Pl. 46.19), it suggests that Chalcolithic picrolite carvers possessed a much broader repertoire than the repetition of pendant and figurine types would lead us to expect.

For chalcedony examples, see *Chronology*, below.

Manufacture and wear

Little can be concluded from macro analysis of such a small and generally worn assemblage. After the perforation of Fig. 70.1 wore through, someone started to drill another hole but discarded it before completing the perforation. Another tentative drilling, on KMyl 44, also suggests on-site secondary working. Both are made of picrolite.

Contexts and function

Pit 16 has a high number of pendants in terms of its volume of recovered soil, assuming all are pendants (6, or 35% of site assemblage). There are three small, fine picrolites (Pl. 15. 8, 10; Fig. 70.5, 6, 9) and three other unusual pendants. Two of these are flat oval mica sandstones (Fig. 70.12, 14), another of clay. They do not conform to established pendant shapes or material, and they are not assigned to type. Given the many unusual aspects of material from pit 16, they may not have served as pendants.

B 200 has only a few pendants but many dentalia and antler beads. There are no anthropomorphic pendants. If strung together, they would have made unconventional necklaces, so the assemblage suggests that there was a greater variety of body decoration than implied by the usual dentalium necklaces.

Chronology

Chalcolithic pendant makers preferred to work with soft stones in order to create finished, that is pecked, smoothed and facetted, products. Instances of chalcedony and miscellaneous rough perforated objects made of hard stones, therefore, may be Period 1 residuals. This observation gains a little support from the fact that the only secure Period 1 pendant? from well 116 was an unfinished chalcedony pebble, KMyl 1170 (see above § 4.2). There are three probable pendants of chalcedony or analogous hard stones from superficial deposits at Mylouthkia: KMyl 51, 209 and 562, all cylindrical shapes (Pls. 15.7, 16.10 left). Although considered together with other Chalcolithic pendants because of the assumption that material in the vicinity of Period 2 pits or on the surface of the site belongs to Periods 2 or 3, this does not mean that they could not have been made in Period 1. However, more explicit typological evidence is required from safe Period 1 contexts to assign these chalcedonies to the earlier period. Analogies from other sites are not particularly useful. Thus, KMyl 209 recalls Dikaios' picrolite 'amulet in form of hafted macehead' from Khirokitia. They have more spherical perforated 'ridges' that end roughly just above sphere (cf. Dikaios 1953, Pl. 141.762, 1006-7). Other objects belonging to this category of hard stones include KMyl 40 and 66 (Pl. 16.10 centre and right). They may be blanks for making small objects.

The very limited typological repertoire may point to a later *floruit* of pendant production. Distinctive type 2.15 with pointed terminal occurs in Periods 2 and 3, and at Ayious (South 1985, 74, Fig. 4.1, 7). The flat pendant from B 200 (Fig. 70.2) so closely recalls examples from Kissonerga that it could have come from the manufacturing centre there (*LAP* II.1A-B, 235, Pl. 36.7). Imported picrolite was already the most favoured material for pendants in Period 2, a dominance that continued into Period 3.

§ 17.3 Beads (E.P.) Pl. 15.1-3; Fig. 70.14-21

Following Project policy, the same typology and nomenclature is used here as in reports of other Lemba cluster sites. See *LAP* I, 283-8 and IIA-B, 189-95, 233-8.

Some 60 beads were recovered from Mylouthkia (Table 17.1). With the exception of dentalium beads and one serpentinite example, they are all of antler. While beads are listed here according to types described in *LAP* II.1B, 236, Paul Croft deals with bone and antler objects in Lemba Archaeological Project reports and the reader is therefore referred to § 17.3 for more detailed discussion of these objects. Not included here are the possible shell 'charm' beads, *Columbella rustica* and *Conus mediterraneus* (see § 22) or Type 1 perforated stones, some of which may have been beads (e.g. KMyl 63). [*Possible antler bead roughouts, KMyl 2012 and Cat. 295 are not included in Table 17.1.*]

Type 7 Cylindrical (Pl. 15.1 second from right; Fig. 70. 15-16)
Of the nine retrieved examples, all are antler save a unique serpentinite(?) example (KMyl 1214, Fig. 70.16) from Period 2 pit 300.249.

Type 8 Natural dentalia
The majority (18) come from B 200. Although it is assumed that they were spacers or beads of necklaces, we found no direct evidence for their use. Total: 24.

Type 10 Long barrel (Fig. 70.17-18)
Three examples, all short antlers. One, KMyl 449 (Fig. 70.18), is decoratively(?) incised around the circumference near a terminal. Surfaces facetted longitudinally.

Type 11 Cylindrical with central swelling (Pl. 15.1 left, 2, 3; Fig. 70.19-22)
The swelling can be convex or angular. Terminals tend to splay out from swelling, sometimes expanding sharply. Surfaces retain unsmoothed facets. This is a new addition to the LAP bead corpus. Total: 24.

Type 12 Cowrie
For this polished and perforated type, see § 4.2. This is a new addition to bead types from LAP excavated sites.

Table 17.1. Occurrence of beads by type and context

Period	2								3		
Unit	*1*	*16*	*28*	*104*	*108*	*150*	*152*	*300*	*200*	*Other*	*Total*
Type											
7	5	-	-	-	-	-	-	1	1	2	9
8	-	-	-	1	-	1	-	2	18	2	24
10	-	-	1	-	-	-	1	-	-	1	3
11	-	10	-	-	1	-	-	1	12	-	24
12	-	-	-	-	-	-	-	-	-	-	-
Total	5	10	1	1	1	1	1	4	31	5	60

Material

See § 17.4

Manufacture and wear

Evidence for the manufacture of Type 11 in B 200 is given below. There is also a possibility that the incision around Fig. 70.18 could have been for trimming purposes.

Most beads are too worn to offer macroscopic information on original wear. The dentalia from B 200 are nearly all discoloured by fire, small, but not overly broken up, smashed or water worn. With a min. length of 3.5 cm, KMyl 537 gives some indication of the intact nature of these beads, but it is clearly an impoverished and fragmented assemblage.

Contexts and function

Beads of the same types occurred in pits and buildings. The concentration of so many dentalia in a building (B 200) is unusual for Chalcolithic Cyprus. The antlers may well have been used as toggles or other non-personal ornaments (see § 17.3).

Chronology

All Chalcolithic types occurred in Periods 2 and 3, though in different proportions. The major novelty at

Mylouthkia, the antler bead, featured many times in Period 2 (18). There are only 11 in Period 3, but evidence for manufacture at that time indicates that these later beads are not derived and that the material was still being worked in the MChal at Mylouthkia. Pls. 15.2 and 3, beads from Periods 2 and 3 respectively, demonstrate a development from slender to more bulbous, flared types. Use of more durable stone is rare, and the repertoire of shapes limited when compared to LNeo and fully-fledged MChal assemblages. Table 17.1 shows the disparity of types in pits 1 and 16, a contrast that is typical of these assemblages. See § 17.3 for further discussion on possible internal evolution.

There are only four dentalia from Period 2 and 18 from Period 3. This occurrence pattern opens up the possibility that at Mylouthkia, dentalium necklaces only became established in the MChal. The diminution in size over time, ranging up to 5 cm long in Period 2 as compared to only 3.6 in Period 3, may be due to taphonomic or other factors rather than stylistic evolution. However, the same trend is noted in Type 11 antlers, whether one compares fragmentary or whole examples.

§ 17.4 The bone and antler industry (P.C.)

Mylouthkia provides no exception to the general rule that Early Prehistoric sites in Cyprus possess abundant evidence for the utilisation of bone and antler as raw materials for the manufacture of a diversity of items. Over two hundred pieces of worked bone (including antler) from Chalcolithic contexts on the site were either registered (141 pieces) or catalogued (75 pieces), and a classified list of this material is presented as Table 17.2. The material which was catalogued rather than registered comprises mainly pieces of antler debitage, as well as other items which were separated out from the bulk of the faunal remains at too late a stage in the preparation for publication of the register to be included in it.

The worked bone and antler from Mylouthkia consists mainly of the same types of artefacts as are commonly found on other Early Prehistoric Cypriot sites, and the following description and discussion of this body of material employs essentially the same typology as was used in the study of the material from nearby Kissonerga (*LAP* II.1A and 1B). For comments on the typology the reader is referred to *LAP* II.1B (Part 2), 242-48.

It is only necessary here to define briefly the terms employed in morphological descriptions. For the numerous needles and points the ends are referred to as *tip* and *butt*, being located at opposite ends of the *body* of the implement. The terms proximal, distal and shaft are reserved to convey anatomical information. A preliminary discussion of antler working at Mylouthkia has previously been presented by the writer (*Prehistory* 2, 18-23), and most of the comments made there on antler technology will not be reiterated here.

§ 17.4.1 Bone (including pig tusk)

Large Points and *Small Robust Points* are, after needles, the most abundant group of worked bone. These are sturdy, well-worked points which are envisaged to have been used as piercing implements. The two types are differentiated by overall length (>10 cm or <10 cm). Points of these types may or may not incorporate part or all of an articular end into the butt. Most of the items from Mylouthkia which fall into this combined category are damaged and cannot, consequently, be assigned specifically to one or the other type. Seven such points could be so assigned, and these include examples of each type, both with and without part of an articulation in the butt.

Table 17.2. Classified list of artefacts of bone, antler and pig tusk from Chalcolithic contexts

BONE
Large Point: With joint for butt: 390. Without joint for butt: 483.
Indeterminate: 540, Cat. 298, 312.
Small Robust Point: With joint for butt: 1914.
Without joint for butt: 356.
Damaged Large/Small Robust Point: 20, 55, 276.01, 484, 519, 1193, 1200, 1206, 1212, 1913, 1991, 2003, 2005-6, Cat. 278, 283-4, 286, 304,.316.
Fine Point: 276.02, 278, 280, 509, 1208, 1911, 1966, 1976, 2001, 2007, Cat. 299, 307.
Small Flat Point: 1964.
Crude point: Cat. 297.
Needle: 34, 133-4, 136-7, 139, 163, 239, 247, 256, 274.01-02, 276.03-05, 277.01-02, 279, 379-80, 545, 1183, 1236, 1294, 1296, 1910, 1943, 1946, 1958, 1960-63, 1965, 1967-8, 1971-5, 1995, 2008-9, Cat. 291-3,.300-3.
Miscellaneous Items
Spatulate Implements: 289, 396, 1211, 1213, 1346, 1902, 1994, 2002, Cat. 272, 290.
Double Ended Point: 201.
Miniature Point: Cat. 315.
Tube: 140.
Unclassifiable Worked Bone: 1989.01-02, 1993, Cat. 247, 294.
Unworked bone registered in error: 84, 153, Cat. 254-5.

ANTLER
Haft: 110, 208, 243, 254, 1901, 1999, 2000, 2004, Cat. 271.
Bead: Type 7: 6, 35, 46, 82, 154, 270, 353.
Type 10: 119, 449, Cat. 282.
Type 11: 135, 221.01-04, 233, 242, 246, 253, 275, 528, 544, 548, 1194-5, 1282-4, 1288, 1353, 1909, Cat. 285, 289, 296.
Unattributable bead frag: Cat. 280.
Worked Tine: 255, 269, 1915, 1990, 2010, 2012-3, Cat. 242.01, 242.04, 244, 265, 266, 269, 270, 281, 288, 295, 306.
Pick: 1997.
Debitage: Tine Tip: 11, 19, 43, Cat. 242.02, 249.03, 258.03, 260-1, 263-4, 273-7, 279, 287, 308, 313-4, 317.
Base: 50, Cat. 239.01-02, 240, 249.01-02, 251, 309, 311.
Other debitage: Cat. 241.01-02, 246, 258.01, 262, 268, 310.
Miscellaneous Worked Antler: 1996, 1998, 2011, Cat. 267, 305.

PIG TUSK
Miscellaneous Worked Pig Tusk: 389, 1992.

NB The numbers quoted above are registration small finds except for those prefixed by "Cat.", which are catalogue numbers.

Large Point KMyl 390 (Fig. 71.1), made on the proximal part of a metatarsal of *Dama*, is 123.4 mm in length and retains part of the articular surface as its butt. The tip displays considerable wear and damage, indicating that this point was put to forceful use. The mid-portion of the body is well smoothed from handling whilst the butt-most 35 mm of the implement is essentially unworn, with sharp edges. This disparity suggests that something was wrapped around the butt when the point was used in order to provide a better or more comfortable grip for the user.

KMyl 483, a second Large Point, is made entirely on a portion of longbone shaft, lacking any part of an articular surface on its butt. It has some ancient damage to the tip and is estimated to have had an original length of 103 mm. By contrast with Large Point KMyl 390, discussed above, the butt of KMyl 483 is well smoothed from handling, the mid-portion of the body being quite angular and displaying little smoothing.

With a length of at least 146.5 mm, KMyl 540, which has new breakage at its butt end, seems best placed amongst the Large Points, the irregular shape of its body favouring such an attribution over that of Fine Point (Pl. 16.2, Fig. 71.2). It is made on a sliver of a metatarsal of *Dama*, and it is unknown whether its butt included part of an articulation. Similarly, Cat. 298 and 312, broken bodies of points 80.9 mm and 75.6 mm in length, clearly represent Large Points. They are almost certainly made on metatarsi of *Dama*, but the nature of their butts is unknown.

Small Robust Point KMyl 1914 (Pl.16.1, Fig. 71.5) is made on the proximal portion of a metatarsal of *Dama*, and retains part of the articulation on its butt, which is somewhat worn by use. It is essentially complete, with only a little ancient damage to the tip, and is estimated originally to have been 74 mm in length. A perforation 3 mm in diameter, drilled from the exterior surface of the bone, is partially preserved on the edge of the body of the point some 15 mm down the shaft from the butt, but the implement clearly continued to be used after this perforation had broken.

KMyl 356, the second certain example of a Small Robust Point, is most probably made on a shaft fragment of a metatarsal of *Dama* and lacks any trace of an articular end. It is 73.2 mm in length and although it includes a natural perforation (nutrient foramen) close to the butt end, the edges of this perforation are not discernibly worn, so it is uncertain whether the perforation was deliberately incorporated or not.

More or less fragmentary points placed in the combined category of Damaged Large/Small Robust Points are represented by twenty examples. Of these, KMyl 1913 and Cat. 283 are certainly made on metatarsi of *Dama*, and KMyl 276.01, Cat. 278 and Cat. 304 almost certainly so, whilst several others might well have been.

Few of the Damaged Large/Small Robust points were patently manufactured of bones other than deer metatarsi; very fragmentary point KMyl 20 was made on a tibia of either caprine or deer, and KMyl 55 is the broken off tip of a point made on an ulna, almost certainly of deer.

Point fragment Cat. 278 displayed concentric grooving and snapping at its very tip, suggesting that it may never have been completed.

Fine Points are slender, the body of the point generally being parallel-sided and narrow in proportion to its length. Tips may be quite blunt or chisel-ended. The surface is normally well polished all over, often to a high gloss. Fine Points do not have articular ends for butts. Their fragility suggests that, rather than being piercing implements as may be envisaged for the Large and Small Robust Points, Fine Points would have fulfilled a more passive role as pins, perhaps for hair or clothing. The fact that all ten examples from Chalcolithic Mylouthkia are very fragmentary is also a reflection of the fragility of this type.

At Kissonerga the bodies of fine points seem always to have been more than 5 mm in diameter, and needles less than this (*LAP* II.1B). At Mylouthkia, however, the largest fairly unambiguous needles have diameters of up to 3.5 mm, and fine points seem sometimes to have diameters of less than 5 mm. Thus, KMyl 276.02 and KMyl 1966, a chisel-ended and a rather blunt pointed tip fragment are, despite their relatively small size, tentatively assigned to the Fine Point rather than the Needle category.

Needles are the most abundant type of bone artefact at Mylouthkia, being represented by fifty-one examples, all but two of which are fragmentary. The greater frequency of needles than any other Category of worked bone reflects the situation at Kissonerga (*LAP* II.1B) and would probably be the case for any Early Prehistoric Cypriot settlement assemblage which was recovered to a significant degree from the wet sieve. The two complete needles from Mylouthkia measured 35.0 mm (KMyl 34: Pl. 16.5, Fig. 71.6) and 71.4 mm (KMyl 139: Fig. 71.4) in length, although the existence of longer needles is attested by a damaged specimen (KMyl 134: Pl. 16.6; Fig. 71.7), which would originally have been a fraction longer than the 88.5 mm for which it was preserved. The eyes of needles were sufficiently intact for their (minimum) diameters to be measured in four instances, and these ranged from 0.8-1.5 mm.

The maximum diameter of the shafts of forty-nine of the fifty-one needles and needle body fragments ranged from 1.4-3.5 mm. Two pieces with slightly larger maximum diameters (KMyl 133 and KMyl 239) are also rather uncertainly assigned to the category of Needle, but it seems very possible that they are actually shaft fragments of Fine Points of unusually small size (see above).

Spatulate Implements are a heterogeneous group, ranging from somewhat pointed implements with rounded tips to implements with much more distinctly squared-off, broad, chisel-shaped working ends. All could have been polishers, possibly used in ceramic manufacture. They are relatively abundant at Mylouthkia. Larger Spatulate Implements are, like Large and Small Robust Points, often made on metapodials (particularly metatarsals) of *Dama* (cf. KMyl 289: Fig. 71.10; KMyl 1346: Pl. 16.3, Fig. 71.8; KMyl 2002; and almost certainly KMyl 1211). KMyl 396, a substantial Spatulate Implement probably made on a tibia shaft fragment of *Dama*, suggests that other bones were on occasions utilised for this type of artefact. Like the Crude Points, this item, and particularly Cat. 272 have had conspicuously little effort put into their manufacture.

Less abundant types, made of bone as opposed to antler or pig tusk, comprise various types of point and a tube. Each is represented at Mylouthkia by a single example.

Small Flat Points are flat-sectioned points less than 10 cm in length and made on slivers of longbone shaft or (rarely in Early Prehistoric Cyprus) rib. KMyl 1964 consists of the rounded butt end of a point which is estimated originally to have been around 3 cm in length.

Crude Points may be of any shape or size, but are characterised by a conspicuously low level of effort having been invested in their manufacture. Cat. 279 has a reasonably well-worked tip, but its edges and the medullary (interior) surface of the sliver of longbone shaft on which it is made are rough.

Double Ended Point. KMyl 201 is a complete example made on a thin sliver of longbone shaft (Pl. 16.4, Fig. 71.9). It is sub-rectangular in section and possesses striations on its surface, but is not polished.

Tube. KMyl 140 is a hollow shaft segment of a small long bone which is 2.8 cm in length (Fig. 71.11). It is possible that this could be a roughout for a tubular (Type 7) bead, but this seems unlikely since all seven examples of such beads are made of antler as, indeed, are all of the other twenty-eight (Types 10 and 11) beads from the site.

Miniature Point. Cat. 315 is a complete matchstick-sized point made on a sliver of longbone shaft. Its abraded and encrusted surface displays no sign of polish, but its rounded-off edges allow of no uncertainty regarding its status as an artefact.

Unclassifiable pieces of worked bone are few at Mylouthkia and include obviously worked fragments which are sufficiently small that it cannot be determined what type of artefact they belong to (KMyl 1989.01-02 and KMyl 1993). Other pieces are a heavily grooved and striated piece of *Dama* proximal metacarpal which was probably in the process of being made into something (Cat. 294) and an uninterpretable *Dama* distal metacarpal with traces of polish due to handling (Cat. 247).

A final unclassifiable piece which should be mentioned here is a piece of worked human bone (un-numbered and not listed in Table 17.2. In addition to the far more abundant animal remains, pits 1 and 16 both contained a quantity of scattered human remains in various of their fills. From hearth 1.12 came a burnt mature femoral head which had multiple striations on the cranial aspect of the neck. Also, the top (cranially situated) one third of the femoral head has been split off and the broken, and the exposed margin of the cortical bone is striated due to grinding. A second item, a small burnt fragment of probable femoral shaft which most likely derives from the same bone as the first, exhibited striations similar to those on the femoral neck. In this instance the cortical bone had been abraded completely down to the spongy, cancellous bone. For a human femur to have been subjected to such modification is extremely curious, and the writer is at a loss to propose any explanation or interpretation.

Worked Pig Tusk is represented by two pieces. KMyl 389 is a substantial piece with its one intact long margin striated and polished to form a sharp edge. KMyl 1992 is a smaller piece with smoothed edges, possibly in the course of being worked.

Discussion

Table 17.3 presents a breakdown of the worked bone from Mylouthkia and also from Kissonerga. Kissonerga is known to have been occupied from the Neolithic to the beginning of the Bronze Age, but the great majority of the bone artefacts recovered date to the M and LChal. These figures suggest a high degree of similarity in the composition of the two assemblages, which are probably fairly standard for Early Prehistoric Cyprus. The greater frequency of spatulate implements at Mylouthkia than at Kissonerga may reflect a greater overall prominence of burnishing as a surface treatment for ceramic vessels.

Table 17.3. Breakdown of worked bone assemblage from Mylouthkia and Kissonerga*.

	Points	*Needles*	*Spatulates*	*Other*	*Total*
Mylouthkia	43	51	10	5	109
	39%	46%	9%	5%	
Kissonerga	119	172	11	59	361
	33%	48%	3%	16%	

* data extracted from *LAP* II.1A, Table 8.1, 200

§ 17.4.2 Antler

Although additional worked antler items have been excavated from Mylouthkia since the writer's attempt some years ago to describe the nature of antler working at the site and the finished products of the craft (*Prehistory* 2, 18-23), the discussion of antler technology contained therein remains wholly pertinent. Some of the items referred to by "Cat." (Catalogue) numbers in this early paper have subsequently been allocated "KMyl" (registration or "small find") numbers, which supersede those original catalogue numbers. Where such items are mentioned below their old designations are quoted in parentheses. Catalogue numbers previously suffixed a, b, c, etc. are now suffixed .01, .02, .03, etc. The only other significant change which might give rise to confusion is that antler beads formerly referred to as Type I in Peltenburg's typology (*Prehistory* 2, 21) are now designated as Types 7 and 10, and those formerly referred to as Type II are now designated as Type 11.

Beads, made on longitudinally perforated sections of tine, are by far the most common antler artefacts at Mylouthkia. Leaving aside one bead fragment which was not attributable to type (Cat. 280), the thirty-five examples recovered are of three different types.

Type 7 beads are cylindrical, with more or less straight sides, although they may tend somewhat towards the barrel-shaped. The sides of Type 10 beads are convex to a pronounced degree, resulting in a distinctly barrel-shaped profile. Thus the distinction between the two types, particularly in the case of fragmentary pieces, may sometimes be somewhat unclear, since the difference is one of degree. For numbers see Table 17.1.

Of the seven beads originally published as "Type I Barrel-shaped" beads (*Prehistory* 2, 21), the five from pit 1 (KMyl 6, 35, 46, 82 and 270) are now allocated to Type 7, as is the unstratified specimen (KMyl 154). The example from pit 28 (KMyl 119) is allocated to Type 10.

KMyl 2012 (*Prehistory* 2, Pl. IV.3 centre), also from pit 1, may well be a blank for a Type 7 bead, strengthening the impression that Type 7 beads are concentrated in (but not entirely confined to) this feature. A further example of a Type 7 bead (KMyl 353) comes from general unit 113.

Type 7 beads are variable in length, generally from 3 cm to more than 5.5 cm. Maximum widths are generally of the order of 10-14 mm. KMyl 353 is shorter and broader than is normal for the type.

The three Type 10 beads were dispersed around the site. All were broken, but seem likely originally to have been 4-5 cm long with a maximum (central) diameter of 13-15 mm. KMyl 449 is the only example of a bead of any type which is embellished with incision, a shallow groove having been incised around the bead towards its one preserved end.

Type 11 beads, represented by twenty-four examples, are the most abundant type of antler bead at Mylouthkia. They are characterised by possessing a central bulge, normally pronounced. Either side of the bulge the body of the bead is roughly parallel-sided or flares out towards the ends.

The distribution of Type 11 beads at Mylouthkia is far from homogeneous: they are virtually confined to the large pit 16 (n=10) and within B 200 (n=12). Only two examples derive from elsewhere: KMyl 1909 is from pit fill 108.02 and Cat. 289 comes from surface 204 (=137) which is adjacent to and broadly contemporary with B 200.

Within B 200 the beads were not widely scattered, and most (at least seven Type 11 and the one unclassifiable bead) occurred in a concentration immediately north of the hearth and just west of the body of the child. Associated with this bead concentration were a shed antler base and two tines, apparently unworked, whilst additional unworked antler fragments were found in the general vicinity to the north and east (Fig. 24.4). This situation in which a concentration includes worked and unworked antler is strongly suggestive of antler working having been undertaken in this part of B 200, specifically the manufacture of Type 11 beads. Indeed, a worked (facetted) tine fragment (Cat. 295) from an unlocated wet-sieved sample (C533) from occupation deposit 211 could well represent a bead in the making.

Although all (with the one unattributable exception) are attributed to Type 11, there is, in fact, a degree of morphological variability between the antler beads from pit 16 and B 200. Those from pit 16 are always significantly wider at the central bulge than at the ends whereas the width of the ends (or sometimes just one end) of beads from B 200 often exceeds the width of the bulge. This tendency amongst the B 200 beads is exemplified to its greatest degree by KMyl 1288 (Fig. 70.21). Whether this variability amongst Type 11 beads has any chronological significance or simply reflects the idiosyncrasies of different antler workers is a moot point. However, even though the radiocarbon dates provide no evidence for the chronological priority of pit 1 over pit 16 at Mylouthkia, the occurrence in both pit 16 and the demonstrably later B 200 of only Type 11 beads (assuming the one indeterminate bead fragment to be from a bead of the same type) may reflect a later date for pit 16 than pit 1, which yielded only the simpler Type 7 beads. Ceramic evidence, specifically the presence of basket impressed pottery in both pit 16 and B 200 but not in pit 1, also hints at a possible later date for pit 16 than pit 1.

Against the argument which views Type 11 beads as a late type within the EChal, however, must be set the fact that essentially the same kind of bead (presumably made of antler rather than bone, although this is not clear) is also known from pre-Chalcolithic times at the Ceramic Neolithic settlement of Vrysi (Peltenburg 1982a, Fig. 56, nos. 261, 246 and 555). Even so, it is not inconceivable that the type went in and out of fashion. Beads with a central swelling were absent from Kissonerga and are not reported from other prehistoric sites in Cyprus.

Taken as a whole, Type 11 beads at Mylouthkia are variable in size. Lengths vary from *c.* 31-55 mm (mostly *c.* 35-48 mm) and widths at the central bulge vary from *c.* 9-18 mm (mostly *c.* 11-17 mm).

Undoubted beads of dentalium and other shells, and various sorts of stone were frequently deposited in Chalcolithic burials, but antler beads are unknown in such contexts. Thus, although it seems likely in view of their size and morphology, it is not certain that the more elaborate Type 11, or indeed any of the antler types which have been so designated here, really did fulfil a purely ornamental function as beads. In the absence of hard evidence, other uses may be envisaged. Antler "beads" of the types found at Mylouthkia could, for example, have been threaded with strings and attached as handles to containers such as bags, rather than having been decorative items for personal adornment.

Hafts, admittedly including slightly uncertain and often very fragmentary examples, are represented by nine examples at Mylouthkia. Antler hafts for stone and (rarely) metal tools, are commonly encountered at other Early Prehistoric Cypriot sites, for instance at Lemba-Lakkous (*LAP* I) and Kissonerga (*LAP* II).

Fragmentary specimen KMyl 2004, probably made on a trez tine, is unambiguously a substantial haft, and small fragments KMyl 1901 and Cat. 271 are also confidently identified as pieces of hafts.

Other probable hafts include KMyl 243 and KMyl 252, both of which are made on tines and have previously been described (*Prehistory* 2, 21). The small diameter (5 mm) and shape (square) of the hole in KMyl 252 suggests that it may have accommodated a metal implement rather than a stone tool. Other probable hafts are KMyl 110, 208, 1999 and 2000. Cat. 242.01 and Cat. 244, previously described as probable hafts (*Prehistory* 2, 21) are, upon re-examination, no longer considered particularly strong candidates (Table 17.2).

Antler Pick. KMyl 1997 (*Prehistory* 2, Pl. IV.4) is the only example of this type of implement from Mylouthkia. It consists of the base and lowest 42.5 cm of the beam of a shed antler. The trez tine has been removed by chopping but the brow tine, broken in antiquity, would have been retained as the point of the pick. This item has been described and discussed at some length in a previous publication (*Prehistory* 2, 22), where details of the only known Cypriot parallel from the Ceramic Neolithic settlement of Philia-Drakos A are also given.

Common sense suggests that antler picks must frequently have been employed in Prehistoric Cyprus, their apparent rarity being due to the difficulty of recognising them. Both of the specimens mentioned here have been identified largely due to their possessing polished surfaces on the "handle" of the pick in just those places where the hand would normally grip them, and such evidence might easily be overlooked or effaced by abrasion or erosion. Another possible reason why so few picks have been recognised from prehistoric Cyprus is that broken picks (usually, it may be supposed, with just a broken point) may have been recycled back into the antler industry as raw material, to be reworked.

Worked Tines comprise a heterogeneous group of eighteen items. Tines with shaved tips might conceivably have been employed as pointed implements; these are represented by KMyl 269 and KMyl 2013 (*Prehistory* 2, Pl. IV.3 right). Also in this category is KMyl 1990 (*Prehistory* 2, Pl. IV.5), a long worked tine 15.8 cm in length which is facetted (shaved) along the whole of its length. The tip was slightly damaged in antiquity, but had clearly been quite sharply pointed. The basal end has extensive ancient breakage and abrasion but bears distinct traces of having been detached by concentric grooving and snapping. The spongy core of the antler is absent for the basal 3 cm of the tine, although whether deliberately removed or simply absent due to erosion is unknown. This tine, although not perfectly straight, nevertheless seems unnaturally so, conveying the strong impression that it has been artificially straightened. Straightening of antler tines, easily accomplished when the antler is softened by soaking (Newcomer 1977, 293), was also attested at Lemba-Lakkous where a tine 19 cm in length was almost completely straight (*LAP* I, 202). KMyl 1990 has been described and discussed at length elsewhere (*Prehistory* 2, 22-23). Both examples may possibly have been projectile points.

Other worked tines include, *inter alia*, KMyl 1915, the blunt tip of which is shaved and polished, suggesting its use on soft material (cf. KMyl 1996, below). Tine frag Cat. 295 has been mentioned above as a possible bead in the making, and KMyl 2012 (*Prehistory* 2, Pl. IV.3 centre), a tine portion of appropriate shape and size, may also be a bead roughout. Cat. 265, a shaved, longitudinally perforated section of tine, seems too curved to be a bead in the making. It bears traces of having been gnawed by a mouse.

Miscellaneous antler artefacts/implements. A diversity of items fall into this miscellaneous category. These items comprise portions of the antler which are, or seem likely to be, other than tines. KMyl 1996 (*Prehistory* 2, Pl. IV.6) is a broken-off, unshed, spike-like, first-head antler with smoothing and polishing, especially on the tip, suggesting use for rubbing or polishing soft material. It has been fully described previously (*Prehistory* 2, 23), as has KMyl 1998 (*Prehistory* 2, Pl. IV.2 bottom left), a flat antler point made on a strip of antler beam.

Amongst other miscellaneous items is Cat. 267, a small shed antler base broken off in antiquity some 7 cm up the shaft. It retains its brow tine but has had its burr removed and has been smoothed all over. This worked antler base seems rather small to have been a pick head, and lacks any indication of heavy usage. Antler bases, unless they constitute part of a pick or a hammer, are usually discarded, so this worked base stands out as unusual. Its purpose remains quite unknown.

Discussion

The frequency of worked antler at Mylouthkia during the earlier part of the Chalcolithic seems very high compared with that of worked bone: Table 17.2 lists roughly as many pieces of worked antler as worked bone from Mylouthkia whilst the largely M-LChal assemblage from Kissonerga, for instance, included several times more pieces of worked bone than antler (to the items listed in *LAP* II.1A, Table 8.1 must be added thirty-three pieces of unregistered antler, mainly debitage, which show signs of working). Similarly, at M-LChal Lemba-Lakkous, the relative abundance of worked antler was quite low (*LAP* I, 294). Thus, it would appear that, just as economic dependence on deer was very great during the EChal prior to its gradual decline through the Middle and Late Chalcolithic and into the Bronze Age (Croft 1988; 1991; *LAP* II.1A), so may antler have been at its most prominent as an industrial raw material at this time.

§ 17.4.3 Worked bone and antler from Building 200

B 200 was destroyed by fire, so its excavation has presumably yielded the entire assemblage of artefacts which was contained within the building in so far as these have survived burning and the passage of the millennia. Bone and antler are fairly durable materials, and should have survived comparatively well, so the retrieved assemblage is liable to represent more or less the entire array of worked bone and antler items present in the building at the moment the conflagration began. For this reason it is worth reviewing the worked bone and antler from B 200. Table 17.4 lists all such material from the fills and floors of the building, i.e. that material which was very probably present in the building at the time of its destruction.

The commonest items are bone needles. All sixteen are fragmentary, and whilst it is likely that at least some of these tiny objects are intrusive or residual, it nevertheless seems probable that needles were genuinely abundant in the building.

The thirteen antler beads and the evidence for the working of antler in B 200 have been discussed above. Little remains to be added on that subject except to point out that a number of additional antler scraps were recovered from various contexts within the building, including pieces of obvious debitage (Cat. 313 and 317).

Bone points of various sorts (seven examples) occur in various places throughout the building, although particularly in the SW quadrant (fill 151). A single example of a spatula was recovered. KMyl 1346 is a substantial implement with a polished chisel-shaped working end.

Table 17.4. Bone and antler items from fills and floors in Building 200

Number	*Unit*	*Item*	*Comments*
151O	151	Antler	burnt tine
211R	211	Antler	burnt tine
211CA	211	Antler	base (shed)
211CB	211	Antler	burnt frags.
211BZ	211	Antler	two tines
Cat. 295	211	Antler	burnt, worked tine. Bead blank?
270B	270	Antler	tine
Cat. 313	276	Antler	debitage: tine tip
283A	283	Antler	tine frags.
Cat. 317	312	Antler	debitage: tine tip
KMyl 544	151	Bead	Type 11
Cat. 280	155	Bead	Indeterminate type. Burnt.
Cat. 285	173	Bead	Type 11
Cat. 296	211	Bead	Type 11. Burnt.
KMyl 1194	211	Bead	Type 11
KMyl 1195	211	Bead	Type 11
KMyl 1282	211	Bead	Type 11
KMyl 1283	211	Bead	Type 11
KMyl 1284	211	Bead	Type 11
KMyl 1288	211	Bead	Type 11. Burnt.
KMyl 1353	211	Bead	Type 11
KMyl 528	211	Bead	Type 11. Burnt
KMyl 548	254	Bead	Type 11
KMyl 1958	151	Needle	burnt frag.
KMyl 1960	151	Needle	frag.
KMyl 1961	151	Needle	frag.
KMyl 1294	172	Needle	burnt frag.
KMyl 1971	172	Needle	burnt frag.
KMyl 1972	172	Needle	burnt frag.
KMyl 1974	172	Needle	frag.
KMyl 1975	172	Needle	frag
KMyl 1183	211	Needle	frag.
KMyl 1296	211	Needle	frag.
Cat. 300	254	Needle	frag.
Cat. 301	254	Needle	frag.
Cat. 302	254	Needle	frag.
Cat. 303	254	Needle	frag.
KMyl 545	254	Needle	frag.
KMyl 1946	276	Needle	frag.
KMyl 483	151	Point	complete Large Point
KMyl 484	151	Point	fairly complete Large/Small Robust Point
KMyl 519	151	Point	frag. of Large/Small Robust Point
KMyl 540	151	Point	Complete large point
KMyl 1193	211	Point	fairly complete Large/Small Robust Point
KMyl 509	211	Point	burnt frag of Fine Point
Cat. 315	306	Point	complete Miniature Point
151N	151	Scapula	spine cut off and polished
151P	151	Scapula	abraded, apparently unworked
KMyl 1346	285	Spatula	complete chisel-ended implement

(Note: numbers with letter suffixes refer to field designations)

A final category of worked/utilised bone, not previously mentioned due to the uncertainty of its identification here, is a scapula used as a scoop or shovel. Two essentially complete right scapulae of *Dama* were found among the concentration of artefacts in the SW quadrant of B 200. One has had the spine of the scapula chopped off and, despite the fact that its surface is generally abraded, retains some indication of polish on the caudal margin of the blade. The other scapula is unmodified but its proximity to the first example and its inclusion in a concentration of artefacts suggests that it is not simply a discarded animal bone, and was used for some purpose. Deer scapulae which have been modified presumably for use as a scoop or shovel were found at both Lemba-Lakkous (*LAP* I, 201) and Kissonerga (*LAP* II.1B).

§17.5 Red ochre processing (E.P.)

Over 200 fragments of pottery retaining traces of red ochre were recovered from pit 16.01 (KMyl 223), 03, 04 and 07 belonging to phases 2, 3 and 4 of that pit (Table 14.5). Single instances also occurred in pit 1.15/13 and pit 108.01 (KMyl 758). A stone vessel, KMyl 303, with red pigment along the rim and traces of ochre on the interior, was found in pit 109.03, and possible traces of red ochre were on a B 200 grinding set (Pl. 14.8), above a lump of ochre (S444). More traces of ochre (S445) were found amongst three pots and hammerstones in the SW of the structure. The bulk of evidence for containers with red ochre, therefore, comes from pit 16 where, in addition to lumps of the raw material, there is other evidence to suggest that it was not simply used and discarded at Mylouthkia, but was processed at the site. Ochre was smeared all over cupped stone KMyl 117 from 16.01 and it thickly adhered to one surface of hammerstone/grinder KMyl 217 from 16.04 (Frontispiece, 5). Evidently, ground stone tools were employed to treat the material. Traces of possible ochre on the associated quern and rubber of Pl. 14.8 suggest continued production in Period 3.

Most of the ochre occurs as a pure, powdery, compact mass on the interior surfaces of basal fragments from thick-walled, monochrome closed vessels (Frontispiece, 4). The ochre may have been in solution since there are drip lines, laminations, splash marks and, in several cases, collections of the substance at the juncture of wall and base rather than evenly over the base. Internal traces vary from a thin skin to accumulations up to 1.5 cm deep. Ochre also adheres to some bowls and in one instance drip lines from the rim are visible. A blob amongst the spatters suggests residues from active mixing, extracting and filling rather than taphonomic processes such as secondary water action inside pit 16 or elsewhere. Before deposition in pit 16, the liquid ochre spilled out over broken edges where it dried to survive as stains. As there were no refit sequences, it seems that the containers were broken elsewhere and then a proportion of the fragments arrived in the pit together with their surplus contents.

Significant quantities of ochre must have been worked at Mylouthkia in Period 2, but the fragmentary nature of the evidence prevents quantification. It occurs on platters (1), trays (4) and deep bowls (3), but especially inside large flasks (7) and bottles (35) with flat everted rims and flat (A), omphalos (B), pointed (E) and raised bases (I) [See §14.2 for these pottery types in brackets]. Vessels frequently have walls *c*. 1 cm thick and although none could be restored, it is clear from sherd sizes and lower body diameters that these were large containers. Many from pit 16.03 were in contact with straw and other organics, but this is probably due to the ubiquitous occurrence of these materials in the pit rather than to net bags for the vessels. On the other hand, ochre may have been brought to the site in baskets, since one undissolved lump from pit 16.04 retained basket impressions. Combined evidence suggests that ochre may have been transported from sources to Mylouthkia in baskets, crushed with hammerstone/grinders in rough stone vessels/mortars and on anvils, mixed and perhaps stored in solution in pottery vessels. The variety of pottery types with ochre suggests that specific types were used for the different steps in ochre processing, ones that might be elicited from detailed analysis, or that there existed an *ad hoc* approach to the use of vessels.

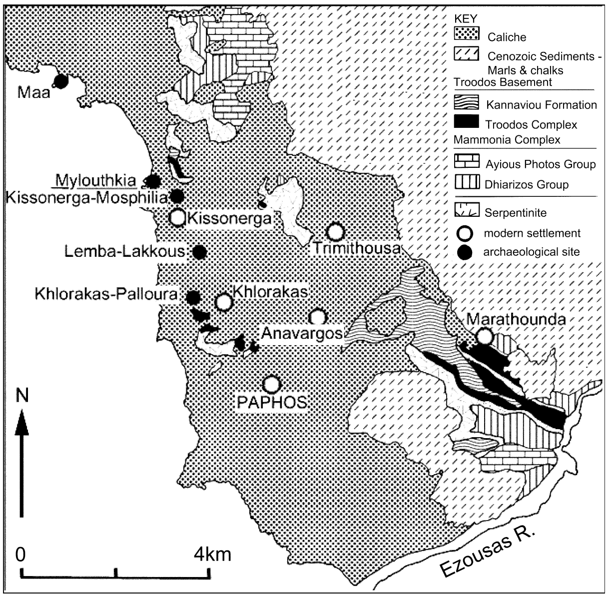

Fig. 17.1: Geological map of area of Mylouthkia showing possible sources of red ochre

The ceramic containers for working with the ochre are distinguished by their fabrics as much as their thick walls. These varied fabrics do not conform to the normal Mylouthkia repertoire (see §14.2). The vessels were probably built by the usual paddle and anvil technique, but they may have organic, limestone and other fillers in a coarsely textured matrix. Core colours include black, grey, brown and red. Surface burnishing of red monochrome finishes is evident, but in general surfaces are poorly preserved. The occasional inclusion of RW and BI shows that normal Mylouthkia pottery was also utilised, but the dominant fabrics, which occur in all pit 16 phases, are unusual. We have speculated that raw lumps were transported to the site in baskets, but this pottery suggests that yet more could have been brought in special, non-local, containers or that it was locally made and purpose-designed for working with red ochre. Breaks are unabraded, so confirming the local nature of disposal. In either case, red ochre processing seems to have involved an integrated set of craft activities where there are indicators of specialisation.

Sources of ochres and umbers in Cyprus are given in (*LAP* II.1B, 204). They are naturally occurring pigments consisting mainly of hydrated iron oxides, manganese oxides and sometimes clay. Closer to Mylouthkia, the umbers occur discontinuously within the Kannaviou Formation which mainly outcrops along the perimeter of the Troodos Massif (Fig. 17.1). These are poorly preserved to the north of the site, more intact to the SE due to the overlying chalk. There are 2 m thick umber exposures around Ayia Marina and to the east of Anavargos. Analysis would be required to determine if the people from Mylouthkia or others exploited the rich deposits, between Marathounda and Anavargos, some 6 km from Mylouthkia (pers comm, Scot Fraser). In the absence of beasts of burden, it is more likely that procured ochres would be transported the 6 km in baskets rather than heavy pottery containers. Hence, the closed vessels were probably used for storage, mixing and pouring rather than transport.

Ochre processors and refiners at Mylouthkia, therefore, probably obtained their ochre from local outcrops by transporting it to the site in baskets. There it was turned into powder and refined by crushing and pounding with multi-purpose stone tools. Liquid, presumably water or oil, was at some stage added to the powder to turn it into a paste kept in special closed vessels in Period 2. The paste must have been decanted to more suitable containers for use as paint and slips for such items as the ubiquitous red pottery of EChal Mylouthkia, or for other, unattested purposes [see p. xxxii for its use in burial rites]. Indeed, processors may have been potters (see § 14.11). Given the frequency of GBW in W. Cyprus, some of it may have been dried and transmitted to other western sites for pottery production. By comparison with the great variety of artefacts bearing pigments at Kissonerga, the assemblage at Mylouthkia seems specialised (cf. *LAP* II.1B, 204-5), a view consistent with the special-fabric storage containers. If transported to Mylouthkia for pot painting, then it indicates that pottery was made here rather than at the source of suitable clays (see § 14.11). So much transport implies considerable movement of raw materials in the landscape and it provides possible insights into the organisation of E/MChal pottery production.

§ 17.6 Miscellaneous (E.P.)

Pottery discs (Fig. 71.15)

Some 55 pottery discs were recovered from Chalcolithic contexts at Mylouthkia. Classification follows the Lemba and Kissonerga system: Type 1, plain; 2, partly pierced from one face; 3, partly pierced from two faces; 4, perforated. The assemblage is noted for the worn state of discs, their rough edges, sharp corners rather than circular plans, and thick walls. As a consequence, those with smoothed edges stand out. Numbers may be inflated through the inclusion of mend hole sherds (eg. KMyl 1246-7). As at other slightly later Chalcolithic sites, the majority (58%) belong to Type 4. Almost all (94%) come from the Period 2 pits (Table 17.5).

Table 17.5. Occurrence of pottery discs by type and context. (The disc from ditch 107 is from a late context)

Period	2								3	?	
Unit	*1*	*2B*	*16*	*24*	*107*	*108*	*109*	*300*	*210*	*?*	*Total*
Type											
1	-	-	-	-	-	1	1	-	-	-	2
2	-	-	-	1	-	3	2	-	-	1	7
3	4	1	3	-	-	-	-	-	-	-	8
4	11	1	6	3	1	1	1	1	1	1	27
?	8	-	-	1	-	-	-	-	-	2	11
Total	23	2	9	5	1	5	4	1	1	4	55

Material

Sherds of contemporary pottery were modified to produce discs. Some 70% come from GB vessels, a proportion reflecting the popularity of the ware (cf. Fig. 14.3). There is no evidence that particular shapes were chosen for the purpose of making discs.

Manufacture and wear

The perforations were probably made with contemporary stone perforators (Table 18.8), one of which retains traces of red pigment which was probably derived from the red monochrome finishes of the drilled pottery (see §18.5). Spiral drill marks are visible in some hourglass perforations (e.g. KMyl 421). Perforations were made from opposed faces, and most retained their initial hourglass profile. Cylindrical holes also occur (e.g. KMyl 193). Perforations were frequently misaligned (e.g. KMyl 31, 60 [Fig. 71.15], 210.02, 252, 290, 1243). A certain amount of trial and error occurred since drillings were started beside eventually(?) successful hourglass boreholes (e.g. KMyl 192.04). Surfaces were only occasionally macroscopically scored. The circles around the perforations are presumably manufacturing traces (KMyl 76, 228, 752), while other, more linear scratches may be the result of use (KMyl 14, 54, 421). There are too few scored marks to determine if they were more frequent on convex or concave faces.

Contexts and functions

As at Kissonerga (*LAP* II.1A, 197-8) almost all discs were found in extra-mural areas, but this is a bias inherent in the fact that almost all belong to Period 2, which has yielded predominantly non-structural contexts. The absence of discs from the rich inventory of B 200, however, serves to corroborate the extra-mural density noted at Kissonerga.

It seems unlikely that discs were used as spindle whorls. Most are under 10 gm, the minimum desirable weight for whorls, and the many discs with hourglass perforations would not fit securely to spindles. A significant proportion (36%), moreover, are not pierced or are only partly perforated. In addition, several have smoothed and bevelled edges as if used as smoothers or burnishers (e.g. KMyl 14, 48, 54, 76, 132, 192.01, 1244). The upshot is that this class probably served a multiplicity of purposes. Since many are broken across perforations of Type 4, pressure was no doubt brought to bear at that weak point. Some use suggestions may be dismissed, unfortunately without anything more positive to put in their place. Thus, their use as platforms for drilling beads is negated by the absence of surviving products. Lids have also been proposed, but the Mylouthkia examples are often too irregular and the sizes do not fit the pottery flasks.

Chronology

As mentioned above, the decline in Period 3 is a reflection of disposal practices rather than evidence of a real fall off. Period 3 is only represented by buildings, so we are lacking the extra-mural contexts to compare with the Period 2 pattern.

The issue of residuals

A number of objects in Period 2-3 contexts may well be derived from Period 1. As we are only beginning to appreciate the scope of the material record of these periods, certainty is misplaced. Of these objects, the stone bowls and perhaps the hammerstones represent the most outstanding problem.

Stone vessels

Chalcolithic Mylouthkia has yielded 181 stone vessel fragments, mainly from bowls. This is a high number for the Chalcolithic period in Cyprus. EChal Ayious, where some 80 pits were investigated, yielded only 39 vessels, Erimi an unknown number (>15) and Lemba 16 in Area I, which is chronologically closest in time to Mylouthkia (later Lemba Area II, n=31) (South 1985; Dikaios 1936, Fig. 12; Bolger 1988a, 97; *LAP* I, 89-90). It may be imprudent to compare the statistics from Kissonerga, since large numbers were recovered from deposits immediately overlying aceramic Neolithic pits. Hence, the same problem may exist there. In addition to suspiciously high numbers, Jackson notes that Types 1-3 are the same as in the Cypro-PPNB assemblage. Numbers, and type, therefore, suggest significant re-deposition. Some of the more elaborate examples may be singled out here:

1) KMyl 101 from pit 25 (Pl. 14.6). It has incisions along base/wall junction (cf. Dikaios 1953, Pl. 61.101). This well-made limestone bowl has a slightly convex base with deep V- or X - shaped incised decoration (cf. Pl. 16.14), perhaps part of a larger design, hatched and lozenge band around edge of base, straight, flared walls with trace of base of lug or spout, and fine scratch marks all over.

When compared with vessels from other Chalcolithic assemblages where there is no risk of on-site redeposition from the aceramic Neolithic, it proves to be unique. Thus, at Ayious, there are deep bowls, mortars and flat-bottomed shallow trays (cf. KMyl 75, 194), all undecorated. South (1985, 76) notes the difference with Mylouthkia, but this may, in part, be due to the very problem of redeposition. Erimi has a similar repertoire of heavy-walled bowls, but no trays. Only two vessels are articulated, one a fine 'andesite' bowl with open spout at the rim (Dikaios 1936, 46, Fig. 12, C1020) and the other a bowl with an incision below the rim (Bolger 1988a, 98). The range at Lemba is also dominated by plain, thick-walled vessels (*LAP* I, Fig. 75). Kalavasos B shows the continuation of fine, if thick-walled, work into the Chalcolithic (Dikaios 1962, Pl. 44.1, 2, cf. KMyl 288, Fig. 68.7). Thus, we either conclude that Chalcolithic Mylouthkia possessed an unusual vessel-making industry, or that KMyl 101 is derived from the Cypro-PPNB. Given the plentiful stone vessel fragments found in the wells which are judged to come from above ground dumps, residual fragments must have been common on the surface of the site in Chalcolithic times and hence there are *a priori* reasons for assuming that this, and presumably many other vessel fragments found in the Chalcolithic pits originally belonged to the Cypro-PPNB.

2) Another is KMyl 199 (Frontispiece 7), a discard bowl with spout partially worked, like KMyl 261. This is bridge-spouted, unusual in stone but cf. Khirokitia (Dikaios 1953, Pls. 114; 121.51, 373). The nearest Chalcolithic parallel, from Erimi, has an open spout (Dikaios 1936, 46, Fig. 12, C1020), but the type is otherwise unknown in the Chalcolithic.

There are probably many derived examples in Chalcolithic contexts, especially those with spouts, handles and made in diabase.

Hammerstone

KMyl 929, a hammerstone from pit 109.03. Made from serpentine, it may be derived from Period 1 since this material was also used for an otherwise unique hammerstone in well 133 (KMyl 1338). In addition, well 116 produced a pounder in serpentinite (KMyl 1098) and another example was found in mixed well 110 (KMyl 998). It seems as if serpentines were occasionally used for tools in Period 1, but that they were replaced by softer picrolite for ideographic objects in Periods 2 and 3. The sources of serpentinite may be more widespread than good quality picrolite.

Miscellaneous

KMyl 1169 (Pl. 16.12) from pit 300 is a portion of a thin flat stone slab with a sharply incised deep groove. This is unusual in the Chalcolithic, but grooved slabs like this do occur at Çayönü, for example, contemporary with Period 1 (cf. Davis 1982, Fig. 3.12.2).

KMyl 1216, one of the miscellaneous objects mentioned in Table 14.1, may prove to have come from an elaborately coiffured figurine in which tufts of hair (?) were inserted into deep sockets. Compare this fragment, Fig. 55.2, with Karageorghis 1991, 30, Fig. 36; 31, Fig. 41.

Chapter 18: Chipped Stone Report

by

Carole McCartney

The chipped stone collected from Chalcolithic contexts at Mylouthkia represents the vast bulk of the material excavated from the site. The present analysis focuses on the documentation of the entire assemblage of chipped stone from Periods 2 and 3, including the *chaînes opératoires* employed, tool types and contextual associations. While this report deals primarily with the internal relationships between the two Chalcolithic periods, consideration of the Mylouthkia assemblage in relation to other Chalcolithic chipped stone assemblages on the island, particularly with the nearby site of Kissonerga, is made where necessary in order to refine our understanding of Mylouthkia. Surface materials and a small number of finds from post-Chalcolithic deposits are documented in the tabulation of the entire assemblage and listed in the tool class count, but will not be dealt with in greater detail.

§ 18.1 The sample

The chipped stone assemblage from the site of Mylouthkia is moderate in size, totalling 10,560 artefacts, primarily of chert, and an additional 24 pieces of obsidian. The material dated to Period 1 (n=836) and the majority of the obsidian finds (n=22) have been discussed in § 2 above. Chalcolithic materials dated to Periods 2 and 3 total 9,180 artefacts plus a single piece of obsidian collected from a Period 2 context. A further 544 pieces and a single piece of obsidian were collected from the surface and post-Chalcolithic deposits. Table 1 documents the assemblage according to a number of elementary artefact categories. Materials belonging to only 'OK' and 'M' status contexts were used in the tabulation of the Period 2 and 3 samples, with chronologically secure and insecure materials listed separately. Tabulation of the total Chalcolithic sample has been provided for comparison, and the surface and post-Chalcolithic materials also noted. The paucity of strictly 'OK' context materials (e.g. pit cuts) required the consideration of materials assigned to the 'M' status (e.g. pit fills) category. The latter are considered to be chronologically representative by the excavator and do not, therefore, alter the discussion of the temporal relationships provided below. Potentially contaminated or disturbed materials are tabulated only within the total Chalcolithic sample provided in Table 18.1. All other tables represent materials from 'OK' and 'M' contexts only. This method of sample selection provides strictly comparable samples to those used in the analysis of the assemblage from Kissonerga (*LAP* II.1B, 249-52). Category and type definitions used in the present analysis, unless otherwise stated, follow the Kissonerga chipped stone report and need not be repeated here.

Table 18.1. Category counts and percentages

Category	*2*	*2?*	*3*	*3?*	*Total*	*Surface /late*
Cores + core frags.	135	12	50	2	199	18
%	2.54	2.62	1.52	1.46	2.17	3.31
Splintered pieces + frags.	25	2	23	1	51	6
%	0.47	0.48	0.70	0.67	0.56	1.10
Core Trimming Elements	171	10	71	6	258	19
%	3.22	3.23	2.16	2.16	2.81	3.49
Hammerstones	2	0	4	0	6	1
%	0.04	0.04	0.12	0.11	0.07	0.18
Flakes	665	44	418	36	1,163	86
%	12.53	12.64	12.71	12.71	12.67	15.81
Blades	140	7	46	3	196	11
%	2.64	2.62	1.40	1.37	2.14	2.02
Bladelets	43	3	46	4	96	3
%	0.81	0.82	1.40	1.40	1.05	0.55
Chips	332	9	304	19	664	11
%	6.26	6.08	9.24	9.05	7.23	2.02
Spalls	48	4	50	1	103	6
%	0.90	0.93	1.52	1.43	1.12	1.10
Blank frags. + chunks	2,912	147	1,784	190	5,033	169
%	54.87	54.54	54.22	55.28	54.83	31.07
Tools	623	47	330	15	1,015	180
%	11.74	11.95	10.03	9.66	11.06	33.09
Tool frags.	143	12	114	2	271	22
%	2.70	2.76	3.47	3.25	2.95	4.04
Tool Re-sharpenings	68	5	50	2	125	12
%	1.28	1.30	1.52	1.46	1.36	2.21
Sample totals	5,307	302	3,290	281	9,180	544

Note: Period 2 and 3 samples include 'ok' and 'm' status artefacts only. Percentages listed in the Period 2? and 3? columns represent total Period 2 (2 plus 2?) and 3 (3 plus 3?) samples.

As Table 18.1 indicates, the Period 2 sample (n=5,609 plus 1 piece of obsidian) is considerably larger than that of Period 3 (n=3,571). Unlike the Neolithic samples discussed in § 2, the Period 2 and 3 samples demonstrate a considerable degree of similarity. In general, differences in the preliminary categories of the total Period 2 and 3 samples vary little and are closely distributed about the total Chalcolithic sample percentages. All lithic categories are represented in both the Period 2 and 3 samples. Cores, core trimming elements and other core debris have low total proportions. Blanks are more numerous, and both samples are dominated by blank fragments and debris, demonstrating on-site core reduction during both periods. The proportions of the various blanks types vary slightly between the two periods, with smaller bladelet and spall blanks being more commonly produced in the later Period 3 sample and larger blades are more frequently found in the earlier Period 2 sample. Consideration of tool blank type suggests that these differences, though small, may represent a specific focus in the Period 3 reduction strategy (see below). The total proportion of tools belonging to each sample also differs, with Period 3 showing a lower total percentage of tools.

When expressed as a series of ratios, the Period 2 sample (excluding Period 2? materials) exhibits a moderate number of blanks (6.28:1) and tools (4.61:1) produced per core, while nearly half of the blanks produced (1.36:1) were subsequently used for tool production. Core reduction was relatively wasteful, with three in every four removals representing a blank failure as attested by the relationship between the amount of debris and complete blanks (3.43:1). The ratio of cores to core trimming elements (1:1.27) demonstrates a low level of core shaping and/or maintenance. The number of cortical to non-cortical blanks (1:2.35) corresponds to an interpretation of little core preparation, indicating an industry that was relatively expedient in terms of core reduction. Flakes dominated the focus of blank production over blades and bladelets (3.63:1); spalls represented a very low proportion in comparison to flakes, blades and bladelets (1:17.67). Chips are moderate in number and are somewhat more scarce in relation to blanks (1: 2.55), than to the total number of tools produced (1:1.88). In general, however, Period 2 tools appear to have been more carefully made or extensively retouched and show lower numbers of tool fragments (1:4.36) relative to tools being incorporated in the Mylouthkia Period 3 features. Similarly, little tool re-sharpening was practiced in terms of the number tools produced (1:9.16) (but see the discussion of tool re-utilisation below).

In relation to the EChal chipped stone sample from Kissonerga, Mylouthkia Period 2 sample ratios demonstrate a more intensive *chaîne opératoire* (*LAP* II.1B, 253-4). More blanks and tools were produced per core in the Mylouthkia assemblage, with a large number of the blanks subsequently utilised for tool production. Blank failures were similarly less prevalent in the Mylouthkia assemblage, reinforcing the perception of a more competent industry than that seen at Kissonerga. The ratios of core trimming elements to cores and cortical to non-cortical blanks, are broadly parallel between Period 2 at Mylouthkia and the EChal sample from Kissonerga, indicating technical similarities in terms of core preparation and maintenance. In spite of the greater core reduction productivity shown at Mylouthkia, the intensity of tool modification as illustrated in the ratio of chips to tools (though considerably lower than seen in the EChal Kissonerga sample) is higher than that of the subsequent MChal samples at both Mylouthkia and Kissonerga (see below). Spalls are much less prevalent in the Mylouthkia sample, possibly replaced by a higher proportion of bladelets, in comparison to EChal Kissonerga.

The relationship between the Mylouthkia and Kissonerga *chaînes opératoires* is clearly more contextual than chronological when the Period 3 sample from Mylouthkia is also considered. Sample ratios belonging to Mylouthkia Period 3 (excluding Period 3? materials) show a broadly consistent pattern of organisation with that of Period 2, providing a contrast with the temporally parallel Period 3A sample of the Kissonerga assemblage (see below). During Period 3 at Mylouthkia, blank and tool production per core (10.2:1) and (6.6:1) respectively illustrate greater core reduction intensity than that of Period 2. Somewhat fewer of the total number of blanks produced (1.55:1) were subsequently utilised in tool production, but this ratio is broadly parallel for both periods. The ratio of complete blanks to blank fragments (1:3.50) is also consistent. Slight changes in the core technology are apparent, however, in the higher ratio of core trimming elements to cores (1.42:1) and greater numbers of non-cortical to cortical blanks produced (3.29:1). Both of the latter like the ratios of blanks and tools per core suggest more intensive core utilisation facilitated by a greater degree of core maintenance. The Period 3 sample is more heavily flake based than the previous Period 2 sample (flakes-to-blades+bladelets = 4.54:1), while spalls are more significant relative to the flakes, blades and bladelets (10.2:1) than during Period 2. In contrast to the greater core reduction productivity suggested by the Period 3 sample, tool production as illustrated by the ratio of tools to chips (1.08:1) appears more moderate. Chips also represent a lower proportion in relation to the sample of blanks (1:1.68) than that seen in Period 2. Lower ratios of tools to tool fragments (2.89:1) and tools to tool re-sharpening pieces (6.6:1) suggest a more intensively utilised and re-tooled tool sample. Generally, while representing only slight shifts from the pattern of organisation shown in the Period 2 sample, the various characteristics of the Period 3 *chaîne opératoire* indicate higher productivity in raw material and tool utilisation during the MChal at Mylouthkia.

When considered in comparison with the temporally parallel Period 3A sample from Kissonerga, the Period 3 sample at Mylouthkia can be characterised as far less 'efficient' and more consistent with the EChal samples belonging to both sites (see *LAP* II.1B, 254). While such differences in technology are probably largely site specific, the consistency of the Mylouthkia Period 2 and 3 samples is echoed by the closeness of the radiocarbon dates and consistency of other finds, particularly ceramics. In particular, the higher numbers of blanks and tools produced per core suggest a more productive core technology in Period 3 Mylouthkia than in any of the Kissonerga samples, especially the extremely cost-effective blank production of Period 3A. Similarly, lower numbers of core trimming elements per core and blanks to blank fragments in the Period 3A sample at Kissonerga show less intensity (perhaps also complexity) of core reduction method than that shown by the Period 3 Mylouthkia sample. However, like the

EChal samples belonging to both sites, the Period 3 industry at Mylouthkia was more wasteful in terms of blank failures. The MChal sample from Mylouthkia shows a greater focus on flake production relative to other blank types and more non-cortical to cortical blanks like the Period 3A sample from Kissonerga. The intensity of tool modification as illustrated by the numbers of chips to tools and blanks was low at Mylouthkia Period 3, as was the case in the Period 3A sample from Kissonerga. Thus, while the Period 3 core technology at Mylouthkia compares better with EChal samples from both Kissonerga and Mylouthkia, the increasing flake production and lower degree of formal tool manufacture at MChal Kissonerga appear to be confirmed by the MChal Mylouthkia assemblage. It is possible, therefore, that these data reflect true chronological shifts in blank and formal tool production, at least within the Lemba Project cluster of sites.

Table 18.2. Relative blade, bladelet and flake proportions for blanks and tools

		Blades		*Bladelets*		*Flakes*	
		n	*%*	*n*	*%*	*n*	*%*
Blanks	Period 2	140	16.51	43	5.07	665	78.42
	Period 3	46	9.02	46	9.02	418	81.96
Tools	Period 2	119	28.27	2	0.48	300	71.26
	Period 3	67	29.65	4	1.77	155	68.58

Note: This table does not include Periods 2? and 3? material.

Table 18.2 shows more explicitly the slight increase during Period 3 in the numbers of flakes relative to blades and bladelets produced. When the unworked blanks are considered against the tools, however, the Period 3 sample demonstrates a slightly higher proportion of blades and bladelets than seen in the earlier Period 2 sample (see also below). More tools were indeterminate as to blank type in the Period 2 sample (34.75% relative to 29.82%), however, suggesting that the proportions of Period 2 blade and bladelet tool blanks may be under represented. Spalls were somewhat more commonly used for tool production during Period 3 (1.75% compared to 0.76%) as were chips (representing 2.05% of the tools relative to 0.30% for Period 2), while core were re-used in nearly equal proportions in each sample (representing 0.30% of the Period 2 tools and 0.29% of the Period 3 tool sample). The increased variety of tool blank types, especially the blade and bladelet examples, selected during the MChal at Mylouthkia, is considered in greater detail with the discussion of blank attributes below.

§ 18.2 Raw material utilisation

Table 18.3 illustrates broadly comparable practices of raw material utilisation between the two Chalcolithic periods at Mylouthkia, providing a contrast to the differences found in the earlier Period 1 samples. The decreased importance of very high quality translucent chert and the use of obsidian illustrate the major differences between the Chalcolithic and preceding Neolithic patterns of raw material exploitation. The single example of Period 2 obsidian represents a minute proportion of the total Period 2 sample. This artefact, however, was collected from a slope wash deposit and is best considered as derived (see below). The range of colours pertaining to each of the materials types used during Periods 2 and 3 are not different from those documented for the Neolithic sample and need not be repeated here. For specific Munsell colour designations, see the discussion of raw material utilisation above (see also *LAP* II.1B, 258-9 for comparable listings and discussion of raw material types).

A decrease in the utilisation of translucent chert during the Chalcolithic was met by an increased dependence on Lefkara and 'Moni' cherts. 'Moni' cherts represent from between 8-20% across the various artefact categories in relatively consistent proportions between Periods 2 and 3. The less frequent translucent cherts show a similarly consistent pattern between the two Chalcolithic periods, ranging from only 1.33-8.54%. Lefkara basal cherts clearly dominate both Chalcolithic samples at Mylouthkia, representing *c.* 36% of the total Period 2 sample and *c.* 42% of the subsequent Period 3 sample. Basal cherts were highly favoured for tool production (55% in Period 2 and 40 % during Period 3) and represent the great majority of the cores, core trimming elements and complete but unworked blanks. Utilisation of Lefkara translucent chert was more moderate than that of the basal variety, particularly in terms of core reduction and blank and tool production. The more brittle and often internally fractured nature of Lefkara translucent cherts probably accounts for the very high proportions of this material type in the debris category from each period. These peaks in the presence of Lefkara translucent chert have skewed the total period sample proportions diminishing the prominence of the basal type. Peaks in the proportions of tools produced on 'Moni' chert demonstrate a deliberate selection process not visible in terms of overall core reduction and blank production. During Period 2, 'Moni' chert represents the second most popular material selected for tool production, demonstrating the importance of this raw material type within the Cypriot Chalcolithic (see below). In Period 3 'Moni' is again frequently selected for tool production and stands equal to Lefkara translucent cherts behind the more commonly utilised basal Lefkara material type. Of the remaining chert types, the coarser Lefkara translucent type was used most frequently, representing a relatively large proportion of the Period 3 cores. Jasper, umber, chalcedony and a variety of coarse raw materials were exploited on a more ad hoc or chance find basis during each Period. Generally, only a limited proportion of materials utilised during the Chalcolithic at Mylouthkia can be described as being of poor or coarse quality (4.0% in Period 2 and 11.0% in Period 3).

Table 18.3. Raw material proportions for artefact category groups

Category	*T*	*Lb*	*Lt*	*Ltc*	*M*	*J*	*U*	*Ch*	*Ot*	*Obs*
Period 2										
Nuclei	12	81	40	9	25	0	0	2	1	0
%	7.06	47.65	23.53	5.29	14.71	--	--	1.18	0.59	--
Core Trim.	10	93	46	7	14	1	0	0	0	0
%	5.85	54.39	26.90	4.09	8.19	0.58	--	--	--	--
Blanks	92	565	341	43	157	3	1	4	22	0
%	7.49	46.01	27.77	3.50	12.79	0.24	0.08	0.33	1.79	--
Debris	227	696	1,432	64	338	7	3	9	136	0
%	7.80	23.90	49.18	2.20	11.61	0.24	0.10	0.31	4.67	--
Tools	46	456	118	43	156	2	1	2	0	1
%	5.58	55.27	14.30	5.21	18.91	0.24	0.12	0.24	--	0.12
Total sample	387	1,891	1,977	166	690	13	5	17	159	1
%	7.29	35.64	37.26	3.13	13.00	0.25	0.09	0.32	3.00	0.02
Period 3										
Nuclei	1	39	16	8	9	1	0	0	1	0
%	1.33	52.0	21.33	10.67	12.0	1.33	--	--	1.33	--
Core Trim.	5	43	14	1	8	0	0	0	0	0
%	7.04	60.56	19.72	1.41	11.27	--	--	--	--	--
Blanks	57	452	169	42	128	1	0	5	10	0
%	6.60	52.31	19.56	4.86	14.81	0.12	--	0.58	1.16	--
Debris	135	634	592	72	222	38	21	0	70	0
%	7.57	35.54	33.18	4.04	12.44	2.13	1.18	--	3.92	--
Tools	42	198	113	26	109	2	0	2	0	0
%	8.54	40.24	22.97	5.28	22.15	0.41	--	0.41	--	--
Total sample	240	1366	904	149	476	42	21	7	81	0
%	7.30	41.57	27.51	4.53	14.49	1.28	0.64	0.21	2.47	--

Note: ‘nuclei’ includes all complete and fragmentary cores and splintered pieces, ‘core trim.’ = core trimming elements, ‘blanks’ includes all flakes, blades and bladelets, ‘debris’ includes chips, spalls, blank fragments and chunks, ‘tools’ includes all tools, tool fragments and tool resharpenings. Raw material key: T=crypto-crystalline translucent chert, Lb=Lefkara basal chert, Lt=Lefkara translucent chert, Ltc=coarse Lefkara translucent chert, M=’Moni’ chert, J=Jasper, U=Silicified umber, Ch=Chalcedony, Ot=Other {coarse, irregular materials including most frequently mudstone as well as silicified sandstone and limestone}, Obs=Obsidian. This table does not include Periods 2? and 3? material.

The utilisation of the Lefkara basal chert was higher at Mylouthkia than in the Kissonerga or Ayios Savvas assemblages (McCartney 1996a, 245-6, Tables 6.3a-b; D’Annibale 1995, 40, Tables 1-5). The Kissonerga assemblage shows an even distribution of the major raw material types with translucent, ‘Moni’, Lefkara basal and Lefkara translucent (both fine and coarser) cherts each representing approximately one quarter of the assemblage (*c.* 22%, *c.* 25%, *c.* 28% and *c.* 25% respectively). ‘Moni’ cherts were used selectively in all three assemblages for the scraper tool class in particular (see below). The greater total proportion of Moni chert used in the Kissonerga assemblage, (25%) relative to either Mylouthkia (13-14%) or Ayios Savvas (*c.* 6-8%), suggests the possibility of greater access to (or at least greater interest in) this high quality raw material at the larger site of Kissonerga than smaller sites liked Mylouthkia or Ayias Savvas. The latter interpretation is supported by the similarly high proportion of high quality translucent chert in the Kissonerga assemblage (*c.* 22%). These differences suggest that some of the technological differences pertaining to greater ‘efficiency’ and/or ‘expediency’ in the Kissonerga core technology may be related to a conservative use of these high quality raw materials (see above). Higher numbers of expedient core types like the splintered pieces and cores-on-flakes in the Kissonerga assemblage demonstrate the very intensive utilisation of high quality raw materials and support this interpretation (*LAP* II.1B, 257-8; McCartney 1996a, 221-2; see also below). It is important to remember that all workable chert had to be carried to both Kissonerga and Mylouthkia, since unlike Ayios Savvas, raw materials were not immediately available at the sites (*LAP* II.1B, 259; D’Annibale 1995, 41, but see D’Annibale 1999, 52).

A number of other variables refine the picture of raw material exploitation at Mylouthkia. Only a small proportion of either the Period 2 or 3 samples at Mylouthkia showed signs of heating or burning (9% and 4% for the blanks and 9.70% and 9.86% for the tools respectively). Such signs of heating appeared to be excessive but were found predominantly with the Lefkara cherts (rarely with the high quality translucent and ‘Moni’ cherts). This suggests the possibility of intentional, perhaps experimental, utilisation of heat treatment for the more moderate quality Lefkara cherts, like that noted for the Kissonerga assemblage (*LAP* II.1B, 259). A final characteristic, namely the type of cortex, again demonstrates a broad similarity between the two Chalcolithic samples from Mylouthkia, both of which were dominated by tabular raw materials (55% and 41% respectively). Cortex characteristic of fresh or rolled nodular cherts are less characteristic of the Period 2 sample (31%) than during the following Period 3 where such materials were used as commonly as tabular examples (*c.* 41%). In contrast to the above, cortex exhibiting a smoothed water rolled surface was consistently less prevalent in both Period 2 (*c.* 14%) and Period 3 (*c.* 18%) at Mylouthkia. These values represent a shift in raw material sources favoured by Chalcolithic knappers, in contrast to those working during Period 1A at the site when secondary river sources were more heavily exploited. Instead, the predominantly tabular Lefkara cherts, which were collected from primary sources and had become more popular during Period 1B,were preferred during the Chalcolithic at Mylouthkia and Kissonerga (*LAP* II.1B, 259). At Kissonerga, the types of cortex present on sampled blanks shows the three types present in nearly equal proportions (tabular=31%, cobble=38% and river pebble=31%), though cortex remaining on cores shows lower proportions for tabular materials (*c.* 16%), river pebbles (26%) and predominantly fresh cobbles (58%) in use (McCartney 1996a, 247, Table 6.4).

§ 18.3 Technology

The definitions for all Period 2 and 3 core types (like those in § 2.) follow those used for the analysis of the Kissonerga assemblage, allowing for direct comparison between the two assemblages (*LAP* II.1B, 256-7). Total counts and percentages for the various core types belonging to each of Periods 2 and 3 are listed in Table 18.4 (see also *LAP* II.1B, 257, Table 21.3). The total distribution of core types, like the assemblage category indices, shows broadly similar patterns in the organisation of core reduction between the two Mylouthkia Chalcolithic periods. Flake cores heavily dominate the Period 2 sample (89.34%) while cores exhibiting blade, bladelet or spall scars (42.42%) were more significant in the subsequent Period 3 sample, a statistic which is in keeping with the greater number of blade, bladelet and spall blanks used for tool production. As in the Kissonerga assemblage, dominant core types at Mylouthkia were the mixed platform core and the splintered piece. Mixed platform cores representing both alternating and flat, perpendicular (or “normal-to”) approaches between the platform and core face are present in equal proportions in the EChal samples from both Mylouthkia and Kissonerga. This core type increases strongly in the Mylouthkia Period 3 sample but decreases in the Period 3A sample from Kissonerga (McCartney 1996a, 233-5). The use of splintered pieces as well as simple cores-on-flakes (flaked-flakes) is broadly parallel between Periods 2 and 3 but is significantly lower in both Mylouthkia samples than in the Kissonerga assemblage. In contrast, more systematically reduced core types (single platform, crossed platform and discoidal cores) occur more frequently in the Mylouthkia assemblage than in the Kissonerga samples. The differences between Mylouthkia and Kissonerga support the contention of more intensive raw material exploitation at the latter site (see above). Alternating platform cores increased

Table 18.4. Core type and percentages

Core Type	*Period 2*		*Period 2?*		*Period 3*		*Period 3?*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Alternating	12	10.0	0	9.84	1	3.23	0	3.03
Crossed	17	14.17	1	14.75	3	9.68	0	9.09
Discoidal	19	15.83	0	15.57	4	12.90	0	12.12
Mixed	28	23.33	0	22.95	9	29.03	0	27.27
On-Flake	14	11.67	0	11.48	2	6.45	0	6.06
Opposed	0	0.0	0	0.0	2	6.45	0	6.06
Single	9	7.50	0	7.38	4	12.90	1	15.15
Splintered	21	17.50	1	18.03	6	19.35	1	21.21
Total	120	100.0	2	100.0	31	99.00	2	99.99

Note: percentages given for the 2? and 3? columns represent total Period 2 (2+2?) and Period 3 (3+3?) proportions.

between Periods 2 and 3 at Mylouthkia a pattern paralleled between Periods 2 and 3A at Kissonerga. Similarly, opposed platform cores, while never significant in the core distribution, show a small increase in Period 3 at Mylouthkia like that shown for Period 3A at Kissonerga. The most interesting feature differentiating the core type distributions at Chalcolithic Mylouthkia and Kissonerga, therefore, is the higher proportion of more formal core types at Mylouthkia in contrast to the great majority of highly expedient and heavily exhausted cores found at Kissonerga. In general, the Mylouthkia *chaîne opératoire* appears to have been more formally organised, producing larger numbers of usable blanks while being less constrained with regard to raw material utilisation.

This last point is substantiated by differences in average core length (excluding Period 2? and 3? materials) which change only slightly at Mylouthkia (from 46.43 to 45.98 mm between Periods 2 and 3) in comparison to the much smaller average core size of 35.78 mm at Kissonerga (McCartney 1996a, 252, Table 6.9). The smaller average core size at Kissonerga compares well only with the diminutive splintered pieces at Mylouthkia (37.78 mm and 34.92 mm for Periods 2 and 3 respectively). Cores-on-flakes, single and alternating platform cores (54.38, 52.99 and 50.90 mm respectively) from Mylouthkia Period 2, and crossed platform cores (59.83 mm) from Mylouthkia Period 3 were considerably larger when discarded. During Period 2, crossed and mixed platform cores and discoidal cores are very close in average core size (43.26, 43.92 and 41.77 mm). Alternating platform cores, cores-on-flakes and opposed platform cores of Mylouthkia Period 3 are also relatively large (49.82, 49.48 and 48.59 mm), while mixed and single platform and discoidal cores have more modest average dimensions (45.47, 40.92 and 38.78 mm). These differences in average core sizes do not simply reflect variability in the extent of core reduction, as evidenced by the proportion of cores considered to be exhausted for each period at Mylouthkia (88.52% for Period 2 and 87.88% for Period 3). These percentages compare well with those of the Kissonerga assemblage (71.70%:

McCartney 1996a, 253, Table 6.10). Few of the Mylouthkia cores were judged to have been discarded on the basis of excessive stepping or platform failure (12 % or less) ; in contrast, *c.* 30% of the Kissonerga cores showed signs of these causes of core failure (McCartney 1996a, 253, Table 6.10). While the latter is partly accounted for by higher numbers of splintered pieces in the Kissonerga assemblage, the greater number of knapping errors and the generally smaller core discard size at Kissonerga suggest greater pressure on the knappers at Kissonerga to force cores and raw materials to their limits than exhibited in the Mylouthkia assemblage.

Table 18.5. Butt type and percentages for blank samples and tools from Periods 2 and 3

Butt Type	*Period 2*				*Period 3*			
	blanks		*tools*		*blanks*		*tools*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Plain	50	50.00	57	52.29	46	46.00	36	47.37
Point plain	6	6.00	9	8.26	9	9.0	8	10.53
Facetted	31	31.00	32	29.36	24	24.00	19	25.00
Cortex-facet	1	1.00	5	4.59	1	1.00	3	3.95
Cortex	4	4.00	4	3.67	11	11.00	0	0.00
Dihedral	4	4.00	2	1.83	5	5.00	2	2.63
Compression	4	4.00	0	0.00	4	4.00	8	10.52
Total	100	100.00	109	100.00	100	100.00	76	100.01

Note: samples excluding Periods 2? and 3? materials.

The distribution of butt types indicated by Table 18.5 shows a broadly similar pattern between Periods 2 and 3 at Mylouthkia. The majority of butts on blanks and tools are represented by the plain type followed by simply facetted examples, illustrating the parallel nature of the core reduction methods utilised during both Chalcolithic periods at Mylouthkia. The distribution of butt types represents both flakes and blade and bladelet blanks and is broadly similar to that shown for the Kissonerga assemblage although the Mylouthkia samples demonstrate more uniform use of the plain butt type than at Kissonerga, where they totalled only 39.95% of the assemblage (McCartney 1996a, 54; Table 6.11).

Other details of butt character provide further indications that the total Kissonerga sample lies in an intermediate position between Periods 2 and 3 at Mylouthkia. Impact crushing on the butt during Period 2 at Mylouthkia was 6.0%, while at Kissonerga it was 17.84% and at Mylouthkia Period 3, 23.0%. Ring cracks were lowest at Mylouthkia Period 3 (18.0%), in comparison to 29.65% at Kissonerga and 30.0% at Mylouthkia Period 2. Figures for lip and erraliure variables are uniformly higher in the Mylouthkia assemblage. Lip variables were present on 42.0% Mylouthkia Period 2 sample and 52.0 % in the Period 3 sample, compared to only 36.93% for Kissonerga. Errailures are represented in 52.0% of the Mylouthkia Period 2 sample and 45.0% of the Period 3 sample, but only 36.93% of the Kissonerga sample. These data suggest the more consistent use of soft hammer (antler or soft stone) percussion at Mylouthkia than at Kissonerga (see McCartney 1996a, Table 6.5). Diffuse bulbs also typically associated with soft hammer technique dominate Periods 2 and 3 at Mylouthkia. Such bulbs represent 64% of the flakes in Period 2, 60% in Period 3, 84% of the blades/bladelets in Period 2 and 76% diffuse/flat bulbs on blades and bladelets in Period 3. Only the flakes in both periods demonstrate higher values for the salient bulb type (28% and 30% respectively for Periods 2 and 3); these figures are compatible with the relatively high proportion of prominent bulbs in the total Kissonerga sample (29.40%) compared to 33.92% diffuse bulbs (McCartney 1996a, 249, Table 6.6). Preparation of the dorsal butt edge prior to blank removal appears to have been undertaken less frequently at Mylouthkia than at Kissonerga (Mylouthkia Period 2=20%, Period 3=17% and Kissonerga=53.52% for all blank samples) (McCartney 1996a, 261, Table 6.20). Exterior butt angles range between 87-89 degrees during Period 2 and 81-88 degrees during Period 3 respectively for all blank types. Higher average butt angles were associated in particular with blade and bladelet blanks, indicating greater control in the application of force where longer blanks were required. The greater proportions of blade and bladelet blanks used for tool production in both Mylouthkia samples agrees with the higher average exterior butt angle here than at Kissonerga (82.48 degrees), where only 13% of tools were made on blades and bladelets (McCartney 1996a, 256, Table 6.13, 262, Table 6.22).

Table 18.6a. Dorsal scar patterns, blanks versus tools

Dorsal pattern	*Period 2*				*Period 3*			
	Blanks		*Tools*		*Blanks*		*Tools*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Unidirectional	59	59.00	131	59.82	66	66.00	98	55.06
Bidirectional	9	9.00	28	12.79	12	12.00	20	11.24
Crossed	31	31.00	49	22.37	20	20.00	57	32.02
Radial	1	1.00	7	3.20	2	2.00	0	0.00
Cortex	0	0.00	4	1.83	0	0.00	3	1.69
Total	100	100	219	100.01	100	100	178	100.01

Table 18.6b. Dorsal scar patterns, blades versus flakes

Dorsal pattern	*Period 2*				*Period 3*			
	Blades		*Flakes*		*Blades*		*Flakes*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Unidirectional	51	71.83	68	58.12	44	60.27	55	58.51
Bidirectional	6	8.45	9	7.69	8	10.96	10	10.64
Crossed	14	19.72	36	30.77	20	27.40	27	28.73
Radial	0	0.00	2	1.71	0	0.00	2	2.13
Cortex	0	0.00	2	1.71	1	1.37	0	0.00
Total	71	100.0	117	100.0	73	100.0	94	100.01

Note: samples in both tables do not include Period 2? and 3? materials.

Dorsal scar patterns belonging to both Periods 2 and 3 at Mylouthkia are listed in Table 18.6a-b. Little difference can be seen either between the blanks and tools or between the blades/bladelets and flakes, suggesting a high degree of uniformity in the organisation of core reduction. The values shown in Table 18.6a-b also agree well with values assigned to the Kissonerga assemblage in which the unidirectional pattern was also dominant (49.50%) and followed by crossed (33.92%), bi-directional (12.31%), radial (3.77%) and fully cortical (0.50%) dorsal patterns.

Table 18.7. Average blank dimensions (cm)

	Period 2			*Period 3*		
	L	*W*	*T*	*L*	*W*	*T*
BLANKS						
Blades	5.61	2.49	0.78	5.46	2.13	0.75
Bladelets	2.84	1.03	0.32	2.74	1.07	0.41
Flakes	3.83	3.16	0.74	3.32	2.86	0.73
TOOLS (complete tool blanks only)						
Blades	6.47	2.77	1.09	5.06	2.49	0.87
Bladelets	-	-	-	3.87	1.20	0.74
Flakes	4.68	3.44	1.04	3.29	2.78	0.76
TOOLS (complete and incomplete tool blanks)						
Blades	5.46	2.69	0.96	4.01	2.25	0.79
Bladelets	-	-	-	2.72	1.04	0.47
Flakes	4.56	3.74	1.13	3.56	3.46	1.01

Note: Samples do not include Period 2? and 3? materials.

The average dimensions for blank samples and tools belonging to Periods 2 and 3 are presented in Table 18.7. The information in this table again demonstrates the consistency between the two Chalcolithic periods at Mylouthkia in terms of the average sizes of blanks produced. Differences are apparent, however, when the blanks selected for use as tools are considered, with tool blanks belonging to Period 2 being consistently larger than those of Period 3. Interestingly, the blanks and tools belonging to the flake-based Chalcolithic samples at Mylouthkia are longer on average than the lamellar Aceramic Neolithic samples of Period 1. Though longer, Chalcolithic blanks and tools are consistently broader and thicker, and generally more robust than their Aceramic counterparts. One significant exception to the above is represented by a 'cache' of four well made blades, that were recovered from a Period 3 context in B 200 (200.159). These four blades were struck from a pale red or pinky (5YR 8/2-3 to 5YR 7/3) basal Lefkara chert of moderate to fine quality. All of the blades appear to have been struck from the same core, though none of the blades could be refitted. They were struck from large plain butts (average breadth = 2.363 cm, butt thickness = 0.896 cm), using a relatively obtuse angle (79-86 degrees), and exhibit careful preparation of the dorsal butt edge with faceting as well as abrasion in two cases. The presence of a ventral edge lip and large but diffuse bulbs, as well as the lack of ring cracks or crushing on the butt suggest the use of a relatively soft hammer. All of the blades exhibited unidirectional dorsal scars showing previous blade removals. Their flat profiles and parallel sides terminate in pointed (feathered) distal ends. The average length of these blades demonstrates their uniqueness in the Mylouthkia assemblage (length = 11.58 cm, ranging between 10-12 cm, width = 3.50 cm and thickness = 1.22 cm). Only one other blade, belonging to the Period 2 sample, reaches a comparable length to the B 200 'cache' blades, measuring 10.56 cm long, but it exhibits a far greater width (5.39 cm) and thickness (1.09 cm) than any of the 'cache' blades. The latter blade too was produced from basal Lefkara chert (7.5YR 7/3-4), demonstrating the utility of this material type for producing long blanks. However, the butt architecture (facetted with no preparation or lip) suggests differences in the blade's manufacture as does the dorsal scar configuration (crossed). Other units in Period 3 contain basal chert artefacts of comparable material to those from the "cache," but they exhibit different characteristics of manufacture.

The blades from the Mylouthkia B 200 "cache" are clearly distinct from the majority of lamellar tools or blanks in the assemblage, and call to mind the "long blades" considered to represent a type fossil of the Erimi assemblage (Seton-Williams 1936, 51). One of the "caches" recovered from Area I at Lemba (LL 762) contained blades of "buff/pink" chert, forming part of a "tool kit" that contained blades, glossed pieces, scrapers and denticulates (*LAP* I, 94). From Area II "cache" LL 358, while representing a larger and more varied collection of flakes, blades and tools, contained blades that parallel the description of the Mylouthkia B 200 examples. Similarly, in "cache" LL 238, a collection of twenty blades and flakes, differs only in its use of Lefkara translucent rather than basal chert as at Mylouthkia. Betts, however, noted that the raw material dominating LL 238 was generally rare at Lemba, and that cores and reduction debris required to produce such cores were absent from the site (*LAP* I, 196, 276). At Kissonerga no "caches" of long blades were recovered, but blades were consistently used in the production of a number of tool types, and a "cache" of seven massive round and end scrapers was recovered from B 706 (*LAP* II.1B, 285). The long blades first identified by Seton-Williams for the Erimi assemblage, therefore, appear to be a type fossil of the Cypriot Chalcolithic especially common from the MChal onwards, as documented by the Lemba 'caches', Mylouthkia Period 3 and Erimi (*contra* D'Annibale 1999, 52). More generally, the use of blade and bladelet blanks appears to have reached a peak during Periods 3A and 3B at Kissonerga and are reported from the inland site of Ayias Savvas, also dated to the MChal (Älveby 1999, 29; *LAP* II.1B, 291, Table 21.38; D'Annibale 1993, 1995). This focus on blades in the Cypriot Chalcolithic may have begun in the EChal in light of technical differences which distinguish blade from flake production in the assemblage of Kalavasos Ayious and the blade cache LL 762 from Lemba Area I (*LAP* I, 94; Betts in press). However, the trend seems to have increased in the MChal, as attested by the utilisation of blades and bladelets in MChal tool assemblages generally, the presence of very long blade blanks, and the presence of the blade and tool caches noted above.

The presence of the long blades, often found in "caches," and the absence of cores or debris indicating on-site manufacture, suggest the possibility that specialised blade manufacture became more prominent during the MChal. The present discussion is not intended to cover the diverse terminology and debate associated with the concept of specialisation, but is undertaken simply to suggest the possibility of a more complex system of organisation for the production of chipped stone tools in the Cypriot Chalcolithic (for example, see Älveby 1999, Peltenburg *et al.* 2001b). The implications of such an interpretation of the Cypriot Chalcolithic are twofold: namely, the recognition of a distinct *chaîne opératoire* for the specialised production and distribution of long blades, and the timing of the occurrence of such blades at a number of primarily MChal sites in relation to the debate on the emergence of social complexity on the island (e.g. Peltenburg 1993, 1996; Knapp 1993; Manning 1993). The growth of more socially complex societies was partly dependent on the production of an agricultural surplus. The development of a formalised system used to supply the demand for efficient harvesting and cutting tools could provide the stimulus for the development of an "incipient specialisation" like that discussed above (§ 2). Importantly, this model of specialisation is demand-driven: if the demand decreases then the extra investment applied to the formal core technology can be reduced and adapted to a fluctuating pattern of opposing phases of intensification and conservatism said to characterise Cypriot prehistory (Peltenburg 1993). By the Philia stage, such specialisation appears to have become formalised at Marki where "sickle" blade blanks imported from workshops elsewhere in Cyprus dominate the assemblage (Smith 1996, 109).

In the Levant, the continuous evolution of glossed tool types in addition to other blade tools like "reaping knives" have permitted such periods of intensification to be demonstrated in the industry of chipped stone. As discussed in § 2, naviform core technology supplied an increased demand for efficient blade tools during the PPNB. During the later Early Bronze Age (EBA), Canaanean blades were systematically produced and distributed throughout the Levant to supply growing agricultural needs. The smaller backed and truncated "sickle" segments, typical of the end of the PPNB through the Chalcolithic in the Levant, are reflected in the backed and truncated glossed blade segments prevalent in Cypriot lithic assemblages from the Neolithic through the Bronze Ages (LAP II.1B, 268-270; Peltenburg *et al.* 2001b; § 2 with references; Smith 1996,106-107; Rosen 1982, 1997). Rosen (1982, 1989, 1997) has shown how backed and truncated segments gave way to the Canaanean blade during the EBA. Canaanean blades typically recovered as unretouched glossed tools or "knives" are standardised, broad prismatic blade segments, produced from single platform cores, exhibiting broad plain or facetted butts (see also McCartney 1996b). The latter were produced by specialists and distributed widely throughout the Levant. The Chalcolithic long blades of Cyprus, while obviously not Canaanean (*sensu strictu*) in origin, follow a pattern similar to that used to define specialisation in the EBA Levant. Firstly, the blades appear in assemblages without the corresponding cores used in their manufacture; secondly, they occur in caches. Only the actual workshop sites are missing from the list of criteria provided by Rosen to characterise Canaanean blades (1997, 107-108). It is suggested, therefore, that the Chalcolithic long blades of Cyprus represent a similar, if more restricted, example of specialisation, utilised in conjunction with other elements of social and economic intensification that characterise the M-LChal. Whether this system developed independently, or in response to influences from the mainland cannot be answered at present. It is interesting to note, however, that the EBA of the Levant is contemporaneous with much of the Cypriot Chalcolithic.

In summary, the core technologies belonging to Periods 2 and 3 at Mylouthkia are relatively consistent over time. Relatively high numbers of blanks per core successfully worked into tools suggest a that high degree of skill can be accorded to the Mylouthkia knappers in comparison to similar variables in the Kissonerga assemblage. High proportions for variables indicating the use of a soft hammer in blank production was shown by both Mylouthkia samples in contrast to the typically hard hammer percussion said to dominate flake-based industries like those at Kissonerga. Stricter control of near vertical flaking angles and a lower proportion of hinge terminations (25% in Mylouthkia Period 2, 24% in Mylouthkia Period 3 compared to 38.19% at Kissonerga), suggest the potentially greater skill connected to the Mylouthkia knappers than seen at Kissonerga. While "skill" may not be the most appropriate term of description (considering differences in response to raw material utilisation), the evidence provided by technical variables illustrates a core technology organised along more formalised lines at Mylouthkia. Significant specific patterns in the Chalcolithic *chaînes opératoires* are beginning to appear now that a number of assemblages have been published. Importantly, the occurrence of long blades represent both a type fossil of the Period (particularly from the MChal) and evidence of specialisation in the Cypriot chipped stone industry that mimics the production of Canaanean blades in the Levant. Production of such long blades appears to have been quite distinct from more typical "domestic" flake and blade production, representing a specialisation within the flake-dominated Chalcolithic industry. Flakes and irregular blades appear to have been produced from a variety of cores using both alternating and flat, perpendicular orientations, while long blades may have been more exclusively produced perpendicular to the core face from predominantly single platform cores, representing continuity with the preceding Neolithic industries. These patterns suggest three distinct *chaînes opératoires*, two largely "domestic," and a third representing specialised blade production of an as yet unidentified origin (though the preponderance of long blades at Erimi points to this site as one possible point of origin). Both direct percussion and bipolar-on-anvil techniques were used for the production of "domestic" flakes, blades, bladelets and spalls, with the more "expedient" bipolar-on-anvil production shown to be less important to the Mylouthkia knappers than to those of Kissonerga (*LAP* II.1B, 256-8; see also McCartney 1998b, 74-8 for a discussion of the bipolar-on-anvil technique). Additional aspects concerning raw material selection and tool type, discussed below, also show a more complex structure for the Cypriot Chalcolithic industry than previously allowed.

§ 18.4 Obsidian

Only two pieces of obsidian are discussed in the present section, KMyl 226 and1207. The second of these artefacts belongs to a Period 2 context and the first was collected from the surface; both are probably derived from the Aceramic occupations associated with the wells of Period 1. Because it is not considered that these artefacts are historically relevant to the present analysis of the Chalcolithic industry, they will not be discussed in detail. For additional information and interpretation concerning the Mylouthkia obsidian sample see § 2.5.

KMyl 226 - surface find: unworked blade fragment. Length - 2.50 cm, width - 2.50 cm, thickness - 2.00 cm.

KMyl 1207 - unit 300.257: narrow medial bladelet segment with unidirectional prismatic parallel dorsal scars, showing light utilisation wear (and possibly light gloss) on the left lateral edge. Length - 1.58 cm, width - 0.72 cm, thickness - 0.17 cm.

§ 18.5 The tools

Tool Classes

A total of 1015 tools belonging to the Chalcolithic period are considered in Table 18.8 with implements recovered from the surface listed for comparison. The Period 2 and 3 samples are notable for their similarity. Burins decrease only slightly and continue to represent the most dominant formal tool type during both periods. Only the ubiquitous utilised pieces are more frequent in both samples, rising in Period 3 to comprise one third of the tool sample. Other prominent tools are represented by the Notch class which increases slightly (10 to 11%), and the retouched pieces that show a decrease from 11% in Period 2 to 8% in Period 3. Denticulates and scrapers are the next most common tool classes, both of which decline in importance during Period 3 (8% to 6% and 9% to 6%, respectively). Backed pieces and truncations (c. 4%) are also similar in frequency between both periods. Glossed pieces, *pièces esquillées* and multiple tools never figure greatly in the tool distribution (all of which decrease very slightly), while perforators increase from Period 2 to Period 3 (2% to 4%). These proportions vary significantly with preliminary reporting based on an incomplete sample of the Mylouthkia assemblage made by Betts (1979, 100-102, 106), in which scrapers were said to dominate the assemblage, sickles to be common and burin rare. Similar differences between preliminary and final reporting of the Kissonerga assemblage (*LAP* II.1B, 252) demonstrate the significant effect differences in sample size and composition can have on interpretation.

The Mylouthkia tool sample compares well with other Chalcolithic sites which show the same major tool classes. The only shift in tool class proportions that appears to have chronological significance is the decline in the numbers of burins from the EChal to the LChal (*LAP* II.1B, 290; Betts in press). Beyond this decline in the numbers of burins, it is apparent that each site had

Table 18.8. Tool class counts and percentages

Class	*Period 2*		*Period 2?*		*Period 3*		*Period 3?*		*Superficial*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Backed	27	4.33	2	4.33	15	4.55	0	4.35	7	3.89
Burins	112	17.98	10	18.21	56	16.97	3	17.10	39	21.67
Denticulates	50	8.03	5	8.21	20	6.06	1	6.09	7	3.89
Glossed pieces	14	2.25	0	2.09	7	2.12	0	2.03	11	6.11
Multiple tool	7	1.12	0	1.04	2	0.61	0	0.58	1	0.56
Notches	68	10.91	2	10.45	38	11.52	2	11.59	16	8.89
Perforators	18	2.89	0	2.69	13	3.94	3	4.64	3	1.67
Pièce esquillée	10	1.61	1	1.64	3	0.91	1	1.16	0	-
Retouched	69	11.08	7	11.34	28	8.48	0	8.12	31	17.22
Scrapers	59	9.47	3	9.25	21	6.36	0	6.09	31	17.22
Truncations	29	4.65	2	4.63	16	4.85	0	4.64	6	3.33
Utilised	160	25.68	15	26.12	111	33.64	5	33.62	28	15.56
Total	623	100	47	100	330	100.01	15	100.01	180	100

Note: Percentages listed in the Period 2? and Period 3? columns represent total Period 2 (2+2?) and Period 3 (3+3?) proportions.

its own particular dominant tool types, which at Mylouthkia were focused on burins, as at Ayious, as well as notches and the ubiquitous retouched and utilised categories like Kissonerga.

Tool re-utilisation

A significant proportion of the tools belonging to the Period 2 and 3 samples were re-tooled or re-fashioned in such a way that the earlier tool class designation could still be distinguished (Table 18.9; see § 2 for a similar discussion). This type of tool rejuvenation or material conservation represents 12.09% of the Period 2 tools and 10.73% of the Period 3 tools. As with Period 1A, burins represent the most common tool class to be produced by re-utilising previously formed tools. The tool classes most commonly affected by this behaviour were the glossed pieces, scrapers and simply retouched flakes and blades, answering part of the problem addressed by Finlayson concerning the relative paucity of glossed tools on agricultural sites (*LAP* II.1B, 293-4). The 'initial' proportions of the tools classes are shown on the right of Table 18.9. They demonstrate the extent to which the certain tool classes proportions are obscured by later tool re-working, particularly by the manufacture of burins. The overall distribution of the Chalcolithic tool classes, unlike the Period 1 samples, was little changed by this economical behaviour. Such re-tooling does suggest that the role of burins within an assemblage need be carefully considered. If, as seems apparent in the Mylouthkia assemblage, the large number of burins in the assemblage represents the re-cycling of tool "blanks," then perhaps the burins should be considered as "cores" used for the production of a number of small bladelet and spall blanks. Use-wear analysis of burins from the Kissonerga assemblage confirms that the majority of the burins sampled were not utilised, indicating the possibility they represent cores for spalls rather than tools themselves (*LAP* II.1A, 204, Table 9.2; Finlayson and Betts 1990). Such flexibility exhibited between the tool, core and blank categories is similarly illustrated by the very occasional re-utilisation of a few "tools" as secondary cores (n=3 in Period 2 and n=1 in Period 3) and vice-versa.

Table 18.9. Number of tools re-using other tools as blanks and 'initial' class counts and proportions

Class	*Period 2 re-used*	*Period 3 re-used*	*Period 2 n*	*Period 2 %*	*Period 3 n*	*Period 3 %*
Backed	2	0	27	4.03	17	4.93
Burin	47	20	78	11.64	42	12.17
Denticulate	8	1	50	7.46	22	6.38
Glossed	0	0	26	3.88	11	3.19
Multi-tool	0	0	7	1.04	2	0.58
Notch	7	5	66	9.85	36	10.43
Perforator	2	1	16	2.39	15	4.35
Pièce esquillée	1	1	11	1.64	4	1.16
Retouched	3	1	96	14.33	34	9.86
Scraper	1	0	69	10.30	23	6.67
Truncation	0	2	33	4.93	15	4.35
Utilised	5	3	186	27.76	121	35.07
Core	5	3	5	0.75	3	0.87
Total	81	37	670	100	345	100.01

Note: This table includes total tool samples from Periods 2, 2?, 3 and 3? contexts listed in Table 18.8.

Table 18.10. Tool types: counts and relative percentages

Tool types	*Period 2 n*	*Period 2 %*	*Period 3 n*	*Period 3 %*
BACKED				
Alternating	2	6.90	2	13.33
Convex	1	3.45	3	20.0
Rectilinear	22	82.76	5	33.33
+truncation	2	7.41	5	33.33
BURIN				
On-break	48	39.34	27	45.76
Dihedral	3	2.46	3	5.08
Straight-tru	11	9.02	8	13.56
Concave-tru	36	29.51	9	15.25
Simple	10	8.20	5	11.86
Mixed	12	9.84	4	8.48
Nucleiform	2	1.64	0	-
DENTIC				
Alternating	18	32.73	4	19.05
Unifacial	31	56.36	14	66.67
Mixed	6	10.91	3	14.29
GLOSSED				
Unretouched	11	78.57	6	85.71
Backed	2	14.29	0	-
Backed+trunc	1	7.14	0	-
Truncated	-	-	1	14.29
MULTI-TOOL	7	100	2	100
NOTCH				
Single	40	57.14	24	60.0
Double	14	20.0	7	17.5
+Retouch	16	22.86	9	22.5
PERFOR.				
Borer	10	55.56	10	62.5
Drill	8	44.44	6	37.5
PIÈCE ESQ.	11	100	4	100
RETOUCH				
Alternating	26	34.21	5	17.86
Convex	22	28.95	10	35.71
Rectilinear	28	36.84	13	46.43
SCRAPERS				
End	41	66.13	14	66.67
End-side	7	11.29	4	19.05
Round	3	4.84	2	9.52
Side	11	17.74	1	4.76
TRUNCATIONS				
Alternating	2	6.45	0	-
Concave	8	25.81	3	18.75
Convex	1	3.23	0	-
Irregular	2	6.45	0	-
Straight	18	58.06	13	81.25
UTILISED				
Abrasion	2	1.14	3	2.59
General	143	81.71	90	77.59
Wedge	30	17.14	23	19.83

Note: This table includes Periods 2? and 3? materials.

Tool Types

The definitions of all types within each tool class have been defined in § 2 or follow definitions used in the analysis of the Kissonerga assemblage (McCartney in *LAP* II.1B). The following discussion focuses on indicating differences in the proportions of types between Periods 2 and 3 and discussing a limited number of attributes considered for each tool category, namely, retouch character, blank type, condition, dimensions and raw material type, with technical attributes already discussed above.

Backed pieces

The backed pieces belonging to Period 2 are heavily dominated by abrupt or semi abrupt, stepped or scalar retouch forming straight lateral edges, while the examples from Period 3 are more variable in edge configuration (Table 18.10).

Table 18.11. Average tool class dimensions

Tool class	*Period 2*			*Period 3*		
	L	*W*	*Th*	*L*	*W*	*Th*
Backed	5.05	3.82	1.24	3.86	2.99	0.77
Burin	4.47	3.29	1.07	4.32	2.91	1.11
Denticulate	4.60	3.87	1.36	3.88	2.73	0.83
Glossed	6.04	2.31	0.73	(1.85)	(2.06)	(0.54)
Notched	4.11	2.86	0.94	3.13	2.29	0.72
Perforator	4.19	1.52	0.82	4.03	3.25	1.29
Multi-tool	5.46	4.60	1.34	6.25	4.01	1.32
Pièce esquillée	3.98	1.99	0.98	4.12	1.78	0.70
Retouched	4.59	3.02	0.85	3.48	2.78	1.31
Scraper	5.64	4.63	1.34	5.44	4.53	1.22
Truncation	3.78	2.33	0.69	3.81	2.32	0.89
Utilised	4.61	3.55	1.22	4.33	2.92	0.93

Note. Total Periods 2, 2?, 3, 3? samples shown in Table 18.8 are included here and are based on complete tool examples only except in case of Period 3 glossed tools for which no complete implements exist.

Backing was made on left and right lateral edges in roughly equal proportions, indicating no preference. Retouch on the dorsal surface predominates in both Periods though inverse retouch was frequently utilised accounting for 34.48% (n=10) of Period 2 and 46.67% of (n=7) in Period 3. The backed pieces belonging to the Chalcolithic Periods 2 and 3, in contrast to those of Period 1, demonstrate the flake-based nature of the industry. Flake blanks dominate this tool class (44.44% n=12 in Period 2 and 46.67% n= 7 in Period 3), though a significant proportion of the examples were produced on blades (37.04% n= 10 in Period 2 and 20.0% n=3 in Period 3). The remainder were indeterminate to blank type. Less than one third (31.03%) of the Period 2 backed tools represent complete tools, while nearly two thirds of their Period 3 counterparts were judged to be complete, the remainder being either broken or fragmentary. Average dimensions of backed pieces belonging to both Periods are shown in Table 18.11. In spite of the more fragmentary nature of the Period 2 sample, the average length of the backed tools in Period 2 was considerable longer than that shown for Period 3. Raw material selection is illustrated in Table 18.12, with both periods demonstrating the basal Lefkara chert preference for production of backed tools.

Table 18.12. Raw material utilisation for each tool class

Tool class	*T*	*Lb*	*Lt*	*Ltc*	*M*	*Chal*	*Umb*	*J*
Period 2								
Backed	2	14	3	4	4	0	0	0
%	7.41	51.85	11.11	14.81	14.81	-	-	-
Burin	4	36	32	9	30	1	0	0
%	3.57	32.14	28.57	8.04	26.79	0.89	-	-
Denticulate	1	26	14	0	8	0	0	1
%	2.00	52.00	28.00	-	16.0	-	-	2.00
Glossed	1	5	5	0	3	0	0	0
%	7.14	35.71	35.71	-	21.43	-	-	-
Multi-tool	0	3	1	2	1	0	0	0
%	-	42.86	14.29	28.57	14.29	-	-	-
Notched	5	35	13	4	11	0	0	0
%	7.35	51.47	19.12	5.88	16.18	-	-	-
Perforator	1	6	6	2	3	0	0	0
%	5.55	33.33	33.33	11.11	16.67	-	-	-
Pièce esquillée	2	5	2	0	2	0	0	0
%	18.18	45.45	18.18	-	18.18	-	-	-
Retouched	2	46	12	2	7	0	0	0
%	2.90	66.67	17.39	2.90	10.14	-	-	-
Scraper	2	18	18	2	16	1	1	1
%	3.39	30.51	30.51	3.39	27.12	1.69	1.69	1.69
Truncation	1	15	9	2	2	0	0	0
%	3.45	51.72	31.03	6.90	6.90	-	-	-
Utilised	7	86	36	5	26	0	0	0
%	4.38	53.75	22.50	3.13	16.25	-	-	-
Period 3								
Backed	1	6	4	1	3	0	0	0
%	6.67	40.0	26.67	6.67	20.0	-	-	-
Burin	3	20	15	3	15	0	0	0
%	5.36	35.71	26.79	5.36	26.79	-	-	-
Denticulate	1	17	1	0	1	0	0	0
%	5.00	85.0	5.00	-	5.00	-	-	-
Glossed	1	4	1	0	1	0	0	0
%	14.29	57.14	14.29	-	14.29	-	-	-
Multi-tool	2	0	0	0	0	0	0	0
%	100.0	-	-	-	-	-	-	-
Notched	4	20	6	4	4	0	0	0
%	10.53	52.63	15.79	10.53	10.53	-	-	-
Perforator	1	6	5	0	1	0	0	0
%	7.69	46.15	38.46	-	7.69	-	-	-
Pièce esquillée	0	2	1	0	1	0	0	0
%	-	50.0	25.0	-	25.0	-	-	-
Retouched	3	6	8	2	8	0	0	1
%	10.71	21.43	28.57	7.14	28.57	-	-	3.57
Scraper	2	4	6	1	7	1	0	0
%	9.52	19.05	28.57	4.76	33.33	4.76	-	-
Truncation	2	9	5	0	0	0	0	0
%	12.5	56.25	31.25	-	-	-	-	-
Utilised	7	65	24	5	9	0	0	1
%	6.31	58.56	21.62	4.50	8.11	-	-	0.90

Raw material key: T=fine grained translucent chert, Lb=Lefkara basal chert, Lt=Lefkara translucent chert, Ltc=coarse Lefkara translucent chert, M='Moni' chert, J=Jasper, U=Silicified umber, Chal.= Chalcedony. This table does not include Periods 2? and 3? materials.

Burins

The burins belonging to Periods 2 and 3 at Mylouthkia are not only one of the dominant tool classes of the assemblage, but represent one of the most well executed tool categories. In contrast to the burins of Period 1, for which burins-on-break clearly dominated, burins were more varied in Periods 2 and 3 (Table 18.10). Burins-on-break represent a reduced majority but demonstrate an increase during Period 3. This type appears to increase in the later Period at the expense of truncation burins (from 38.52% straight and concave truncations burins in Period 2 to 28.81% during Period 3). A similar trend away from truncation burins towards more simple types was shown also across the Chalcolithic periods at Kissonerga (*LAP* II.1B, 262-4, Table 21.4).

Burin facets on Period 2 tools were equally struck from either the left or right lateral edge, though the large majority was located on medial or distal areas of the tool blank. The distribution of Period 3 burin facets represents a different picture. Though both lateral edges were again used equally, the majority of the facets were located on the medial portions of the edges, reflecting the increase in the numbers of burins-on-break belonging to the Period 3 sample. While the majority of the facets were struck parallel to the lateral edge, a number of facets cut into the ventral surface, producing broader, flatter spalls. Though the majority of burins in each period (72.95% in Period 2 n=89 and 62.71% n=37 in Period 3) represent complete tools, relatively few of these were identifiable to blank type. Only 35.25% of the Period 2 burins were identifiable to blank type of which 22.95% (n=28) represent flakes and 12.3% (n=15) were made on blades. Broadly equal proportions of flakes and blades (22.03% n=13 and 23.73% n=14 respectively) account for the 45.76% of burins identifiable to blank type from Period 3. Average burin dimensions for Periods 2 and 3 are shown in Table 18.11, illustrating approximately equal average burin sizes in both Periods. Raw material selection patterns (Table 18.12) were parallel during both Periods showing a small preference for basal Lefkara cherts, though Lefkara translucent and 'Moni' cherts equally represent close seconds to this basal chert preference.

Denticulates

Denticulates are relatively well represented in both Chalcolithic Period tool samples at Mylouthkia. Irregular abrupt or semi-abrupt, at times invasive, retouch characterises the denticulates belonging to each type. The types are defined only by a distinction between unifacial and bifacial retouch of which the former clearly predominates in both period samples. The distinction between alternating denticulates and retouched flakes or blades with alternating retouch is an arbitrary one, with the denticulates exhibiting a more clearly serrated edge. Retouch is again located roughly equally on both lateral edges, but distal and basal edges were also often modified by continuous serrated retouch extending around the tool edge. A majority of the denticulates identifiable to blank type for both Periods 2 and 3 at Mylouthkia were predominantly flakes (52.73% n=29 in Period 2 and 55.0% n=11 in Period 3); these were less heavily flake dominated than their Kissonerga counterparts (*LAP* II.1B, 266, Table 21.9). Somewhat less than half of the denticulates represent complete tools (45.45% n=25 and 47.62% n=27 respectively for Periods 2 and 3), the average dimensions of which are shown in Table 18.11. Again, the tools belonging to Period 2 are larger on average than those belonging to Period 3. In terms of raw material selection, denticulates demonstrate a stronger bias for the selection of basal Lefkara cherts, particularly in Period 3 where this material type dominates the denticulates more heavily than any other tool class (see Table 18.12).

Glossed pieces

Tools exhibiting gloss are not common in the Mylouthkia assemblage. The general paucity of these tools at both Mylouthkia and Kissonerga differs from the uniquely high proportion of glossed tools at Lemba. The Mylouthkia and Kissonerga assemblages, therefore, show a general consistency with other Chalcolithic sites from around the island in terms of this tool class, refuting the suggestion of a regional preference made earlier by Betts (in press). Where present, glossed pieces in all Chalcolithic assemblages are dominated by simple unretouched glossed blades or flakes (Table 18.10; *LAP* II.1B, 267, Table 21.12; *LAP* I, 277; Betts in press). The preference for such simple glossed tools is more exaggerated in the Mylouthkia assemblage than at Kissonerga, where retouched backs and truncations increase to about one third of the glossed tools in Periods 3B and 4. The trend towards the use of more backing and truncation retouch at Kissonerga appears to anticipate the shift that becomes dominant by the Philia period on the island, as is well illustrated at Marki-Alonia (Smith 1996, 107). Glossed pieces are distinguished only by the presence of gloss, suggested by use-wear analysis done on the Kissonerga assemblage to have resulted from wood-working as much as by the more generally assumed cutting of cereal crops (*LAP* II.1B, 293). Gloss is distributed roughly equally along both lateral edges during Period 3, but demonstrates a 2:1 bias for left lateral edges during the preceding Period 2. Gloss is always parallel to lateral edges in the Mylouthkia Chalcolithic assemblage, with no examples exhibiting gloss continuing onto basal or distal portions of the tool blank. Though most of the gloss is distributed bifacially about the tool edge, a few examples (n=2 in Period 2 and n=1 in Period 3) show gloss only on the dorsal surface. All of the glossed pieces belonging to the Period 3 sample represent broken tools, while the majority (85.71% n=12) from Period 2 are similarly fragmentary. As such, the definition of blank type preference is inhibited, with only one flake and one blade (14.29% each) representing complete tools in the Period 3 sample, while flakes (35.71% n=5 flakes and 21.43% n=3 blades) were dominant of those tool blanks identifiable to type in Period 2. These figures contradict the blade bias for glossed tools shown by the Kissonerga assemblage, again implying the more specialised nature of this tool class at Kissonerga than at

Mylouthkia. Since the Mylouthkia blank type data are obviously incomplete, this interpretation needs testing by larger and more complete samples of glossed tools. The average dimensions representing the glossed tools from Period 3 reflect the fragmentary nature of the sample. In contrast, the dimensions of complete pieces from Period 2 clearly represent the blade examples in the sample, being the longest tools (on average) in the Period 2 tool sample (Table 18.11). Glossed tools show little deliberate selection of raw material type during the Period 2 sample, being made predominantly on Lefkara cherts (Table 18.12). Period 3 glossed pieces again demonstrate the higher basal Lefkara chert preference shown by the majority of tool classes belonging to this period.

Multiple tools

Multiple tools represent a rare category of implements exhibiting readily distinguished features from two or more tool class groups. Retouch character and location conform to data provided within the other tool class descriptions. Blank types used vary, showing flakes utilised in equal proportion to blades. The majority of the multiple tools appear to represent complete implements, the average dimensions of which are shown in Table 18.11. With regard to raw material type, the Period 2 examples follow the familiar pattern predominated by Lefkara cherts. Period 3 examples, represented by a small sample of two, belong uniquely to the high quality translucent variety of chert (Table 18.12).

Notches

Notches were divided into three types the most popular of which were simple single notches made with abrupt stepped or scaled retouch, that tended to be somewhat more invasive during Period 2 than later. The majority of the notches in both Periods were single, with broadly equal proportions existing between the remaining two types in both Periods 2 and 3. During Period 2, notches were located on left lateral edges more often than on the right (*c.* 36% to *c.* 28%), and on the distal rather than basal end (*c.* 23% relative to *c.* 12%). In Period 3 the right lateral edge was preferred slightly (*c.* 34% to *c.* 28%), while distal ends were worked twice as often as basal ends. Inverse retouch was used for making 35.36% of notches in Period 2 and 17.78% in Period 3, with 11.11% of Period 3 notches showing bifacial retouch compared to only 2.44% in Period 2. Period 2 notches were made predominantly on flakes (n=46, 65.71%, 10% n=7 on blades with 24.29% n=17 being indeterminate). During Period 3 blank type was more diverse. It is dominated by flakes (45% n=18) but shows a somewhat higher proportion of notches on blades (15% n=6), a few chips (10% n=4) and a single example on a spall (2.5%). The remainder of the sample (n=11 or 27.5%) were indeterminate to blank type. A large proportion of notches in each period (47.14% in Period 2 and 50.0% in Period 3) were considered to be broken or fragmentary. Average dimensions of the complete tools can be seen in Table 18.11. Proportions of raw material types used for notched tools show the class to be dominated by Lefkara basal chert in both periods (Table 18.12).

Perforators

Perforators represent a relatively rare category in both Periods 2 and 3, being more frequent in the latter of the two periods. The two arbitrary types used in this analysis show an increase in the numbers of the larger borer type during Period 3, being opposite to a trend towards smaller (drill) perforators in later Chalcolithic Periods at nearby Kissonerga (*LAP* II.1B, 275-6). Most perforators exhibited short abrupt retouch distributed on one or both lateral edges on the distal end of the tool blank. A number of examples were effectively bifacial, showing retouch and wear on both faces, and including the dorsal arris as well as both lateral edges. Neither lateral edge was therefore preferred over the other, and either end of the blank was equally likely to provide the focus of the perforating tip. As at Kissonerga, a relatively significant proportion of the perforators in each of Periods 2 and 3 at Mylouthkia utilised blade or bladelet tool blanks (*LAP* II.1B, 275, Table 21.21). In Period 2 blades and bladelets were rare (5.56% each n=1), while they were more frequent in Period 3 (25% n=4 blades and 6.25% n=1 bladelet). Extra emphasis in using bladelet blanks was exhibited by the use of spalls (a specialised type of bladelet) for the production of drill bits (27.78% n=5 in period 2 and 25% n=4 in Period 3). Only a relatively small proportion of the perforators in each period were made on flakes (16.67% n=3 in Period 2 and 18.75% n=3 in Period 3); the remainder were indeterminate to blank type. Most of the perforators were considered complete in both periods, but more so in Period 2 (83.33% n=15) than in Period 3 (50.0% n=8). The average perforator dimensions are listed in Table 18.11, the generally large size of which attest to the majority 'borer' designation. The perforator class shows no real preference to raw material type in the Period 2 sample other than depending upon both Lefkara basal and Lefkara translucent cherts in equal proportions. During Period 3, the preference for Lefkara cherts increased, with the basal type being more frequently utilised.

Pièces Esquillées

A number of examples of splintered artefacts were included in the *pièce esquillée* category rather than as non-tool splintered pieces on the basis of their rectilinear morphology and regular distribution of utilisation scarring, suggesting a distinct tool type. These diminutive tools exhibited intensive regular bifacial splintering on both basal and distal ends rendering the blank type unidentifiable. Most *pièces esquillées*, however, can be considered as complete tools, the average dimensions of which are shown in Table 18.11. Table 18.12 illustrates the types of raw materials used in the production of these tools, showing this class like most others to be dominated by Lefkara basal chert. The greater use of higher quality cherts (18.18% for both translucent and Moni cherts in Period 2 and 25% for Moni cherts in Period 3) show a similar pattern of raw material selection for this tool type resembling that seen in the Period 1 sample.

Retouched Pieces

Retouched pieces belonging to Mylouthkia Periods 2 and 3 represent flakes and blades exhibiting different edge delineations and retouch characters noted here as different types (Table 18.10). The three types alternating, convex and rectilinear retouch exhibit about one third of the total number of retouched pieces in Period 2, while rectilinear retouch was more common than pieces with alternating or convex retouch in Period 3. For all types retouch was either abrupt or semi-abrupt, normal to stepped retouch, and invasive in some cases of coarser alternating retouch. Retouch was predominantly dorsal in Period 2 (53.95% n=41), a pattern that increased in Period 3 (67.86% n=19). Inverse retouch was not infrequent and the alternating type is, by definition, bifacial. Flake blanks dominate both period distributions (57.89% n=44 in Period 2 and 64.29% n=18 in Period 3). Blades were less frequently utilised (18.42% n=14 and 17.86% n=5 respectively), with a number of chips (1.32% n=1 and 10.75 n=3 respectively) rounding out the distribution of tools identifiable to blank type. Less than half of the Period 2 retouched pieces (48.68% n=37) were considered as complete tools in comparison to (67.86% n=19) of the Period 3 examples. The average dimensions for both Periods are shown in Table 18.11, with those of Period 3 again being the more diminutive. Raw material proportions shows a decided preference for Lefkara basal chert during Period 2 with an even split between both Lefkara types and Moni examples in Period 3 (Table 18.12).

Scrapers

Scrapers, predominantly end scrapers on flakes, have long be recognised as a type fossil for the Chalcolithic chipped stone industry in Cyprus (*LAP* II.1B, 281; Kingsnorth 1996, 49; *LAP* I, 278; Betts 1979,106; Hordynsky and Ritt 1978, 190; Seton-Williams 1936, 51). It is also interesting to note (mentioned briefly in the technology section above) that well made flake scrapers, sometimes quite large, were recovered in caches at Kissonerga and particularly Lemba. In addition, several sites including Kissonerga (48.19%), Lemba, Ayios Savvas (18%), Erimi and now Mylouthkia (27.12% in Period 2 and 33.33% in Period 3) show a preference for "Moni" chert (or black, grey or dark brown "flint") in the production of scrapers (Table 12, Älveby 1999, 31; *LAP* II.1B, 283, Table 21.30; D'Annibale 1995, 40; *LAP* I, 276; Seton-Williams 1936, 51). Consistency in form, retouch character, an often large size, type of preferred raw material, and the discovery of caches of such scrapers call to mind the tabular scraper phenomenon that characterises Chalcolithic and EBA assemblages in the Levant (Rosen 1997, 71-80; 1983). Indeed, Seton-Williams noted the presence of a large cortical "fan" scraper made on dark brown "flint" at Erimi and compared it to "Canaanean" scrapers of the Levant (Seton-Williams 1936, 52). The type of exchange organisation based on individual craftsmen and artefact fall-off with increasing distance from manufacturing sources envisaged for tabular scrapers in the Levant would appear to fit well with current evidence for Cypriot Chalcolithic flake scrapers made on Moni chert (Rosen 1997, 75; 1989, 109; *contra* D'Annibale 1999, 52). While we cannot claim any direct cultural parallel with the phenomenon of tabular scraper production in Chalcolithic and EBA Levant, there appears to be a parallel economic development in broadly contemporary Chalcolithic Cyprus. This kind of craft intensification (possibly specialised in terms of the long blades while representing more of a cottage industry in the sense of the scrapers) in the chipped stone industry of Chalcolithic Cyprus, as noted previously, is significant to interpretations of emerging social complexity on the island.

In detail, the Mylouthkia scrapers are primarily end scrapers, with side and end/side types in lesser proportions and round scrapers representing a relatively rare type. The retouch character on all types of scraper at Mylouthkia is semi-abrupt or more generally abrupt and often very regular or semi-parallel. Retouch distribution is defined within the types used and predominantly unifacial in all but two irregular examples belonging to Period 2. Period 2 also exhibits more inverse scraper retouch (11.29% n=7) compared to a single example (4.76%) belonging to Period 3. While heavily flake dominated in Period 2 (67.74% n=42), a limited number of Period 2 examples identifiable to blank type were made on blades (9.68% n=6). In the Period 3 sample all blanks identifiable to type represent flakes (80.95% n=17). The majority of scrapers in both Periods were considered broken or fragmentary (58.06% n=36 and 57.14% n=12 in Periods 2 and 3 respectively), with average dimensions of complete examples listed in Table 18.11. The generally large size of this tool class is illustrated by both the Period 2 and 3 scraper samples. Raw material selection and the Moni chert preference are illustrated in Table 18.12.

Truncations

Truncations in the Period 2 and 3 tool samples were formed by generally abrupt scalar retouch at either basal or distal end of the tool blank, occasionally both. Five types were distinguished, primarily on the basis of edge delineation, but also from the general character of the retouch (Table 18.10). Two types dominate in both periods, namely, straight or concave truncations. Retouch is principally dorsal in both Periods (53.95% n=23 and 67.86 n=19 respectively), though inverse

Table 18.13. Artefact proportions for context types

Category	*Build*	*Pit*	*General*	*Well*	*Surface*	*Other*
Period 2						
Cores	5	117	9	3	1	0
%	3.70	86.67	6.67	2.22	0.76	-
Hammerstone	0	2	0	0	0	0
%	-	100.00	-	-	-	-
Splintered	1	32	1	0	1	0
%	2.86	91.43	2.86	-	2.86	-
C.T.E	6	148	9	6	2	0
%	3.51	86.55	5.26	3.51	1.17	-
Blanks	63	1053	67	13	31	1
%	5.13	85.75	5.46	1.06	2.52	0.08
Debris	130	2441	170	13	138	20
%	4.46	83.83	5.84	0.45	4.74	0.69
Tools	20	561	18	12	4	0
%	3.25	91.22	2.93	1.95	0.65	-
Tool Frags.	4	182	18	3	4	0
%	1.90	86.26	8.53	1.42	1.90	-
Period 3						
Cores	39	1	9	0	1	0
%	78.00	2.00	18.00	-	2.00	-
Hammerstone	3	0	1	0	0	0
%	75.00	-	25.0	-	-	-
Splintered	19	1	3	0	2	0
%	76.0	4.0	12.0	-	8.0	-
C.T.E	49	1	17	0	4	0
%	69.01	1.41	23.94	-	5.63	-
Blanks	647	11	148	0	13	1
%	78.90	1.34	18.05	-	1.59	0.12
Debris	1383	36	324	0	38	3
%	77.52	2.02	18.16	-	2.13	0.17
Tools	243	3	73	0	9	0
%	74.09	0.91	22.26	-	2.74	-
Tool Frags.	117	0	41	0	5	0
%	71.78	-	25.15	-	3.07	-

Note: 'Cores' - includes cores and core fragments, 'Splintered' – includes splintered pieces and fragments, 'C.T.E' = Core Trimming Elements, 'Blanks' - included flakes, blades, bladelets, spalls and chips, 'Debris' - includes blank fragments and chunks, 'Tool Frags.' - includes tool fragments and resharpenings. This table does not include Periods 2? and 3? materials.

examples exist for *c*. 21-24% of the tools in both samples. Over half of the truncations in each of the Period 2 (54.84% n=17) and 3 (68.75% n=11) samples are considered to represent complete tools, the relatively small average dimensions of which are listed in Table 18.11. Truncations belonging to both Periods were made mainly on basal Lefkara chert with the translucent variety of Lefkara chert utilised for most of the remaining part of the sample (Table 18.12).

Utilised pieces

Utilised flakes and blades are dominant in the Mylouthkia assemblage as in nearly all Chalcolithic chipped stone assemblages in Cyprus. Three types were distinguished based on the character of the wear with simple angular edge nicking representing the most common type of utilised tool, wedges relatively less common, and examples exhibiting clear abrasion wear being relatively few. During Period 2 right lateral as well as distal edges appear to have been slightly preferred, while left laterals and distals were more commonly utilised in Period 3. Utilisation damage was predominantly bifacial in the samples belonging to both Periods. In terms of blank type, flakes dominate both samples (46.29% n=81 in Period 2 and 53.45% n=62 in Period 3), but blades represent a significant proportion of the tool blanks identifiable to type in each Period (25.14% n=44 and 26.72 n=31 respectively). Roughly half of each sample was considered to represent complete tools (50.29% n=88 in Period 2 and 55.17% n=64 in Period 3); their complete dimensions are shown in Table 18.11. Utilised pieces belonging to both Periods echo the Lefkara basal chert preference illustrated by a number of tool classes in the Mylouthkia assemblage (Table 18.12).

Table 18.14. Artefact proportions for selected contexts

	Period 2				*Period 3*					
Category	*Pit 300*	*Pit 16*	*Pit 1*	*Pit 5*	*B 152f*	*B 152*	*B 200f*	*B 200*	*B 330f*	*B330*
Cores	28	41	17	2	0	5	10	12	0	4
%	1.07	3.95	7.76	15.38	-	2.34	0.97	0.79	-	3.25
Hammerstones	2	0	0	0	0	0	0	2	0	1
%	0.08	-	-	-	-	-	-	0.13	-	0.81
C.T.E/core frgs	78	67	2	1	0	6	36	51	0	4
%	2.99	6.45	0.91	7.69	-	2.80	3.49	3.37	-	3.25
Blanks	492	334	47	0	0	57	246	416	1	30
%	18.88	32.18	21.46	-	-	26.64	23.86	27.50	50.0	24.39
Debris	1,738	338	93	3	0	122	594	837	0	53
%	66.69	32.56	42.47	23.08	-	57.01	57.61	55.32	-	43.09
Tools	239	243	57	5	0	22	133	176	1	30
%	9.17	23.41	26.03	38.46	-	10.28	12.90	11.63	50.0	24.39
Tool frgs/Resharpenings	29	15	3	2	0	2	12	19	0	1
%	1.11	1.45	1.37	15.38	-	0.93	1.16	1.26	-	0.81
Total	2,606	1,038	219	13	0	214	1,031	1,513	2	123

Note: 'Cores' – included all cores and splintered pieces, 'C.T.E./core frgs.' – includes all core trimming elements and core frags, 'Blanks' – includes all flakes, blades, bladelets, spalls and chips, based on complete feature samples; "f" designates artefacts recovered on building floors.

Context

The context types used in Table 18.13 are the same as those used to evaluate the Kissonerga assemblage (*LAP* II.1B, 249). Consideration of artefact categories by context type in Table 18.13 primarily illustrates the dominant context character of each period and the essentially equal distribution of each generalised artefact category across the different context types within each Period. Large pits dominate Period 2, and most of the artefacts from each category were thus recovered from such contexts. Similarly, Period 3 investigations were dominated by the excavation of buildings, particularly B 200, a fact reflected in the artefact distribution shown in Table 18.13.

Table 18.14 illustrates a more detailed consideration of the distribution of artefact categories for selected major features excavated from each period. Somewhat more meaningful information is provided by the category proportions shown in Table 18.14, namely a large proportion of discarded cores in each of the three large Period 2 pits 1, 5 and 16 compared to pit 300 or Period 3 buildings. This difference, along with relatively high proportions of core trimming elements and core fragments in two of the same large pits 5 and 16, suggest considerable core reduction activity or the caching of core materials in pits 5 and 16. The proportions of blanks are relatively equal between all of the features examined. Variation in the amounts of debris, however, shows an inverse relationship to that of the cores, suggesting that core reduction debris was disposed of in pit 300 and the Period 3 buildings, while cores were stored or disposed of selectively in the large pits 1, 5 and 16. It seems somewhat careless to have been working with such sharp materials within the Period 3 buildings although it is unlikely that large amounts of broken blanks and angular waste would have been selectively carried to individual structures for disposal. It is important to note that such waste was found in fills rather than on building floors in B 152 and B 330, indicating the secondary use of these buildings for the disposal of rubbish. The large numbers of tools found in pits 1, 5 and 16 also suggest the deliberate disposal of unwanted tools or tool caching along with the cores and a number of useful blanks (unworked to the naked eye). The proportions of tools found in B 152 and B 200 as well as in pit 300 are more consistent with the general proportions of tools belonging to each period and the assemblage as a whole. The latter do not, therefore, suggest any special deposition behaviour, but probably reflect the in situ position of working tool kits. In contrast, the fill of B 330 of Period 3 shows a far greater number of tools, a somewhat lower proportion of debris and more frequent cores, implying that B 330 was re-utilised as a large disposal or "caching" pit once it was no longer employed as a structure.

Table 18.15, like Table 18.14, shows that the majority of tools belonging to each tool class were found within the dominant context type belonging to Periods 2 and 3. As such, Period 2 tools from all tool classes were recovered predominantly from pits, while those from Period 3 were found in the buildings and, less frequently, in general occupation contexts. During Period 3, truncations and perforators were more commonly found in general occupation fills than in the Period 3 structures. It is worth noting that a similar pattern was also found during Period 3A at Kissonerga, where a number of perforators exhibiting traces of pigment were found in general contexts along with perforated pot discs (*LAP* II.1B, 276). Unfortunately, only one perforator in the Mylouthkia assemblage exhibited similar traces of red pigment, a borer from pit 300 (Period 2).

Table 18.15. Tool class by context type

Category	*Build*	*Pit*	*General*	*Well*	*Surface*	*Other*
Period 2						
Backed	1	24	0	0	1	1
%	3.70	88.89	-	-	3.70	3.70
Burin	3	100	8	0	0	1
%	2.68	89.29	7.14	-	-	0.89
Denticulate	2	47	1	0	0	0
%	4.00	94.0	2.00	-	-	-
Glossed	0	14	0	0	0	0
%	-	100.0	-	-	-	-
Multi-tool	1	6	0	0	0	0
%	14.29	85.71	-	-	-	-
Notch	4	61	2	0	1	0
%	5.88	89.71	2.94	-	1.47	-
Perforator	0	15	2	0	1	0
%	-	83.33	11.11	-	5.56	-
Pièce esq.	0	8	2	0	0	1
%	-	72.73	18.18	-	-	9.09
Retouched	2	65	2	0	0	0
%	2.90	94.20	2.90	-	-	-
Scraper	2	55	1	0	0	1
%	3.39	93.22	1.69	-	-	1.69
Truncation	1	26	2	0	0	0
%	3.45	89.66	6.90	-	-	-
Utilised	4	151	3	0	1	1
%	2.50	94.38	1.88	-	0.63	0.63
Period 3						
Backed	10	0	4	0	1	0
%	66.67	-	26.67	-	6.67	-
Burin	44	0	10	0	2	0
%	78.57	-	17.86	-	3.57	-
Denticulate	15	0	4	0	1	0
%	75.00	-	20.00	-	5.00	-
Glossed	5	0	2	0	0	0
%	71.43	-	28.57	-	-	-
Multi-tool	2	0	0	0	0	0
%	100.0	-	-	-	-	-
Notch	27	0	10	0	1	0
%	71.05	-	26.32	-	2.63	-
Perforator	8	0	5	0	0	0
%	61.54	-	38.46	-	-	-
Pièce esq.	1	1	1	0	0	0
%	33.33	33.33	33.33	-	-	-
Retouched	22	0	6	0	0	0
%	77.57	-	21.43	-	-	-
Scraper	17	0	3	0	1	0
%	80.95	-	14.29	-	4.76	-
Truncation	6	0	9	0	1	0
%	37.50	-	56.25	-	6.25	-
Utilised	93	0	16	0	2	0
%	83.78	-	14.41	-	1.80	-

Note: Only tools from Periods 2, and 3 shown in Table 18.8 are included.

Tool class proportions shown for the selected list of features demonstrate no apparent pattern between either the pit or building features, or across time. Utilised pieces clearly dominate the distribution of all features in Table 18.16, with burins and a variety of steeply retouched tools (i.e., notches, retouched, scrapers and denticulates) occupying a middle level, while glossed pieces, perforators, backed and truncated items represent a third level of priority in tool production. While the influence of small sample sizes is apparent in several of the individual features, namely pit 1, pit 5, B 152 and B 330, Table 18.16 represents *c.* 70% of the total tool sample belonging to Periods 2 and 3. Table 18.16 confirms the problem of associating function with tool morphology in the absence of use-wear analysis. It is interesting, however, to note that concentrations of antler beads, bead rough-outs and other pieces of worked antler and unworked antler tines were recovered from pit 1, pit 16 and B 200, particularly occupation deposit 211. This evidence for antler working craft was associated with relatively large numbers of sharp unretouched or backed edges suitable for cutting as well as burinated and blunted 'scraping' and notched edges, tools traditionally associated with antler working. Further evidence for the industrial nature of these features is shown by the high proportions of re-utilised tools, predominantly tools with burinated edges (B200 n=24, pit 16 n=31, and pit 1 n=6, with a single addition in the disturbed pit 109 of Period 2). While data from Table 18.14 suggest that general rubbish disposal probably occurred in pit 300 and the Period 3 structures, the idea that pits 1, 5, and 16 as well as B 330 represent more specialised storage/working facilities is supported by the contextual association of antler working debris and the high degree of chipped stone re-tooling. Thus, as was the case for the Period 1 data, the interpretation of assemblage function here is found not in the tool types alone, but in the combined evidence of tool type, evidence for re-tooling, and contextual associations.

Summary

The Mylouthkia Chalcolithic assemblage, like that of the earlier Cypro-PPNB samples belonging to Period 1, has demonstrated unique relationships between the industry of chipped stone and other crafts. We can begin to understand the chipped stone industry as a dynamic working technology employed for a variety of tasks in prehistoric industry and daily life. Many of the statements in the above report are preliminary, but it is readily apparent with the data provided by the Mylouthkia assemblage that the chipped stone industry of Chalcolithic Cyprus is far from being crude and undiagnostic. By focusing on the entire *chaîne opératoire* rather than tool types alone, we see a dynamic industry that exhibits a general "domestic" face as well as potentially "specialised" long blades and Moni chert scraper elements, and that uses specific core reduction methods and/or raw materials selectively. Unfortunately, most of our more fully documented Chalcolithic assemblages to date come from the Paphos

Table 18.16. Tool class proportions for selected features

	Period 2				*Period 3*					
Category	*Pit 300*	*Pit 16*	*Pit 1*	*Pit 5*	*B152f*	*B152*	*B200f*	*B200*	*B330f*	*B330*
Backed	3	11	3	0	0	1	4	5	0	0
%	1.82	4.93	7.5	-	-	4.76	4.17	3.65	-	-
Burin	26	31	5	3	0	3	15	23	0	6
%	15.76	13.90	12.50	60.00	-	14.29	15.63	16.79	-	27.27
Denticulate	11	21	6	0	0	2	6	9	0	0
%	6.67	9.42	15.00	-	-	9.52	6.25	6.57	-	-
Glossed	8	4	2	0	0	0	5	0	0	0
%	4.85	1.79	5.00	-	-	-	5.21	-	-	-
Multi-tool	1	2	1	0	0	1	1	1	0	0
%	0.61	0.90	2.50	-	-	4.76	1.04	0.73	-	-
Notch	22	24	1	0	0	4	9	16	0	3
%	13.33	10.76	2.50	-	-	19.05	9.38	11.68	-	13.64
Perforator	8	4	1	0	0	0	4	2	0	2
%	4.85	1.79	2.50	-	-	-	4.17	1.46	-	9.09
Pièce esq.	0	7	0	0	0	0	1	1	0	0
%	-	3.14	-	-	-	-	1.04	0.73	-	-
Retouched	13	29	2	1	0	2	8	16	0	1
%	7.88	13.00	5.00	20.00	-	9.52	8.33	11.68	-	4.55
Scraper	12	25	6	0	0	3	9	9	0	0
%	7.27	11.21	15.00	-	-	14.29	9.38	6.57	-	-
Truncation	7	10	3	0	0	1	1	5	0	0
%	4.24	4.48	7.50	-	-	4.76	1.04	3.65	-	-
Utilised	54	55	10	1	0	4	33	50	1	10
%	32.73	24.66	25.00	20.00	-	19.05	34.38	36.50	100.0	45.45
Total	165	223	40	5	0	21	96	137	1	22

Note: Based on tool counts in Table 8, including Periods 2, 2?, 3, 3? materials; "f" designates artefacts recovered on building floors.

region although descriptions of blades, scrapers and dark "flint" from Erimi provide a more easterly parallel. Future work, particularly in other areas of the island, is required in order to test the hypotheses provided in this report. It is increasingly apparent that the chipped stone industry was fully integrated in the developments leading to greater social complexity initiated during the Chalcolithic and accelerated in subsequent periods on the island.

Note

The communication to M. Smith (1996, 107) was made before final tool counts and phasing adjustments had been made on the Kissonerga assemblage. Backed and truncated glossed tools do occur prior to the LChal in the Kissonerga assemblage, but they are relatively rare, and unretouched examples heavily dominate the samples.

Chapter 19: Human Remains

by

Sherry C. Fox, Dorothy A. Lunt and Marie E. Watt

§ 19.1 The skeletal remains (S.C.F.)

At least eleven individuals were recovered from units dating to the EChal and MChal. Ten of these individuals were recovered from thirteen units dated to the EChal, and a single subadult was recovered from three units dating to the MChal. Determination of the minimum number of individuals is dependent upon duplication of the same skeletal elements and/or representation of individuals of different sexes or ages. Included among the human skeletal material, at least some of which is secondarily interred, are the remains of six possible adults and four subadults. Age estimations and sex determinations, summarised in Table 19.1, are based upon morphometric means. Of the two adults that could be aged, neither is likely to have reached twenty-five years of age at death. Only two of the possible six adults could be sexed, a male and a female. Due to their immature ages none of the subadults could be sexed. The majority of the remains are incomplete, with 3 individuals each represented by a single bone only (a subadult from fill 1.11 and possible adults from pits 108 and 109) and another individual represented merely by two bones (a possible adult from general deposit 131). Some individuals appear to be more complete, however (e.g. at least one of the adults from fill 1.05). The bones recovered with the greatest frequency from EChal Mylouthkia are right scapula (at least three individuals) and right and left femora (also minimally three individuals). It does not appear that specific human skeletal elements were selected for secondary burial here during the EChal. Most of the human remains are in a fair state of preservation. There is evidence for probable post-mortem burning of unknown nature of some of the human bone fragments. The burned bone fragments exhibit minimal exposure to fire (cf. Ubelaker 1989). Additionally, as discussed by Croft (§ 20), there appears to be evidence that a couple of human bones were worked. Not a single long bone was recovered intact, and thus no living stature estimations are made. The only anomalies noted are extrasutural bones of one individual of late adolescent age. No other anomalous or paleopathological conditions are identified.

§ 19.1.1 Period 2 (Early Chalcolithic)

Pit 1

Five units in pit 1 yielded at least four individuals, including an adult male, a 19-24 year old female (both from pit fill 1.05, labelled as “Individuals 1-2” below); and two subadults, one aged between 6-14 years and the other 15-17 years (both from pit fill 1.11, labelled as “Individuals 3-4” below). It is also possible that at least one more individual of possible adult age is represented in hearth 1.02.

Table 19.1. Sex and age of individuals from Periods 2 and 3

Feature	*Units*	*M*	*F*	*?*	*Ages*
Pit 1	1.02, 1.05, 1.11, 1.12, 1.16, 1.17	1	1	2	1. adult M; 2. 19-24 yrs F; 3. 6-14 yrs; 4. 15-17 yrs
Pit 16	16.04	-	-	1	14.5+ yrs
Pit 108	108.01	-	-	1	poss adult
Pit 109	109.0	-	-	1	poss adult
General 131	131	-	-	1	poss adult
B152	152.163, 152.182	-	-	1	20-24 yrs
B 200	200.211, 200.270, 200.305	-	-	1	6-8 yrs
Pit 300	300.256	-	-	1	subadult

M=male; F=female; ?=indeterminate sex; yrs=years

Pit 1, hearth 1.02

A single fragmentary bone is all that is represented among the remains from hearth 1.02. This bone, a portion of metacarpal shaft and base, possesses adult morphology, but little more can be stated about the individual from which it came.

Pit 1, fills 1.05, 1.17 (Individuals 1-2: KMyl 78)

The human skeletal material from fill 1.05 (human remains, Unit 1.17=KMyl 78) is located within four and possibly five bags. There are minimally two individuals represented among the remains. This determination is based upon duplication of a number of skeletal elements (see the skeletal inventory below). The remains are in a fair state of preservation. Several fragments exhibit evidence of scorching or slight burning and the identified fragments are recorded in the inventory. All of these bones were burned apparently after post-mortem fracturing of the bones.

The sex of one of the individuals is male (Individual 1) and the other is female (Individual 2). The sex of the female is based upon preauricular sulci found on the ilia as well as wide sciatic notches. The sex of the male is based upon overall robusticity and the diameter of a fragmentary femoral head (46.5 cm).

The female is a young adult as the iliac crests are fused (minimally nineteen years of age according to Angel *et al*. 1986), as are the preserved long bone epiphyses. Additionally, the morphology of a fragment of sternal rib end indicates a corresponding age of less than Phase 4 (İşçan, *et al*. 1985), and thus this female is likely to have been approximately 19-24 years of age at the time of her death. The age of the male can be determined no more precisely than “adult.”

Neither individual has intact or reconstructible long bones preserved and as such, no living stature estimates are attempted. No anomalous or paleopathological conditions are identified among the remains of either the male or female.

Inventory of identifiable skeletal remains

- fragment of lateral left clavicle
- charred C-2 fragment with odontoid process
- thoracic vertebra
- 3 thoracic vertebral bodies and one transverse process of a thoracic vertebra
- lumbar vertebra
- 1 possible lumbar vertebral body
- fragment of S-1 and 4 other sacral fragments
- 15 additional vertebral fragments
- 2 left rib fragment; 1 sternal end Phase M1 or F2
- 3 right rib fragments
- 4 rib head fragments
- 8 other rib body fragments
- fragments of 2 left scapulae
- fragments of 2 right scapulae
- paired right and left humeral shafts
- distal left humerus fragment
- humeral head fragment
- radial shaft fragment
- left radial shaft
- distal left radius
- head of left radius
- left ulnar shaft
- shaft and distal end of left ulna
- paired right and left female ilia with preauricular sulci, wide sciatic notches & fused crests
- acetabulum fragment of innominate (os coxa)
- fragments of paired right and left femora (46.5cm=maximum diameter of head-left)
- reconstructed shaft of right femur
- 3 fragments of distal femoral condyles; 1 of which is charred
- femoral head fragment
- paried right and left tibial shafts
- right? tibial shaft fragment
- proximal tibia fragment
- partially burned fragment of distal tibia
- fragment of distal left tibia
- proximal end and shaft of left fibula
- distal right fibula
- 2 fibular shaft fragments
- right calcaneus
- portions of 2 left calcanei
- tarsal navicular fragment

Pit 1, fill 11(Individual 3)

Two individuals are represented among the remains recovered from three bags and a box labelled "Feature 1.11," including minimally a subadult (Individual 3). This determination is based upon the presence of the partial remains of an adult and the left ilium of a subadult. The fragments are in a fair state of preservation and four of the identified fragments, all from the adult, exhibit evidence of slight burning probably sometime after post-mortem fracturing of the bones. The identifiable fragments are listed below in the skeletal inventory.

Due to the immature age of the child, sex determination was not attempted. The sex of the adult cannot be determined with any certainty, nor can the age of the adult be more precisely determined. The age of the subadult is likely that of a child approximately between the ages of 6-14 years based upon the development of the recovered fragment of ilium.

No complete long bones are preserved, and thus, reconstruction of living stature was not attempted. Skeletal anomalies and paleopathological lesions are not identified among these remains.

Inventory of identified skeletal remains:

- fragment of frontal previously glued to left parietal along with 2 more articulating frontal fragments
- 2 fragments of right parietal
- 26 additional cranial fragments, 1 of which is charred
- thoracic vertebra
- incomplete lumbar vertebra
- lumbar vertebral arch fragment
- vertebral arch fragment
- portion of S-1
- fragment of charred (after broken) ilium?
- immature left ilium with portion of the auricular surface
- left femur diaphysis
- fragment of charred (after broken) distal right femur
- posterior femoral shaft fragment
- partially charred vertebral body fragment
- left talus fragment

Pit 1, fills 1.11, 1.16 (Individual 4: KMyl 83)

Dental remains from pit 1.11 are identified by Lunt and Watt below. Among the identifiable remains from a box (human remains, Unit 1.16=KMyl 83) is one individual (Individual 4). This determination is based upon the lack of representation of individuals of different ages. It is possible, however, that Individuals 3 and 4 are actually a single subadult, but due to the apparent lack of union of the acetabulum of the recovered ilium fragment from Individual 3, Individual 3 is believed to be younger in age than Individual 4. A skeletal inventory is presented below.

Sex was not determined for this individual, who is represented almost entirely by cranial and dental fragments (there is one vertebral fragment identified for the postcrania). This individual is aged at approximately 15-17 years. In addition to dental development, the spheno-occipital synchondrosis is unfused. It usually fuses by 17 years in males (Angel *et al*. 1986). There is some variability at this site, however.

Living stature is not reconstructed for the late adolescent. The only identified skeletal anomalies are nine extrasutural bones located along the lambdoidal suture (five left lambdoid and four right lambdoid), as well as bilateral double parietal foramina. Skeletal paleopathological lesions are not found among the remains of the late adolescent.

Inventory of identified skeletal remains

- previously reconstructed fragments of right and left parietals and occipital squama (sutures unobliterated ectocranially or endocranially)
- right zygomatic
- frontosphenoid process of left zygomatic
- right temporal and fragment of right zygomatic process of temporal
- 3 articulating fragments of frontal (no metopism) and 2 fragments of orbital plate
- minimally 3 fragments of sphenoid
- basioccipital fragments, including lack of union of the spheno-occipital synchondrosis
- frontal process of right maxilla
- vertebral pedicle fragment

Pit 1, hearth 1.12

The remains of three charred bones, possibly all from a femur, were identified among the remains from hearth 1.12. Only one fragment is identified, that of a portion of femoral head and neck. The remains are in fair condition and exhibit scorching from slight exposure to fire. Additionally, there is evidence of post-mortem eburnation or polishing of the identified femoral neck fragment and another fragment also appears to be worked (see also § 17.4).

These remains are from a single individual adult, possibly from Individual 1 or 2 identified in pit fill 1.05. The sex of the individual is indeterminate. The age at death of this individual can be determined no more precisely than "adult." Living stature estimates were not attempted due to the lack of intact or reconstructible long bones. No anomalous or paleopathological conditions are identified among these remains.

Pit 16, fill 16.04

In addition to the maxillary left 2nd molar tooth of unusual morphology, identified by Lunt and Watt later in this chapter, postcranial human bones are identified as listed below in the skeletal inventory. The remains minimally represent a single individual based upon lack of duplication of skeletal elements and lack of representation of elements inconsistent from one another due to age or sex. The remains are incomplete, and the only bones identified are hand, foot, femoral and tibial fragments. The skeletal material is in a fair state of preservation.

The sex of the individual is indeterminate. In accordance with Lunt and Watt's dental age (see below), the skeletal age of this individual is minimally 14.5 years (Angel *et al*. 1986), based upon the union of the base of the 1st metatarsal. No other more precise ageing criteria are found for this individual. Living stature is not reconstructed due to the lack of intact long bones. Neither skeletal anomaly nor paleopathological lesion was identified for this individual.

Inventory of identifiable skeletal remains

- possible 5th metacarpal shaft fragment
- metacarpal shaft fragment
- proximal hand phalanx
- proximal or middle hand phalanx
- middle hand phalanx
- femoral greater trochanter fragment?
- previously reconstructed femoral shaft fragment-left?
- fragment of tibia shaft
- left 1st metatarsal
- base of possible right 1st metatarsal

[Ed. one phalanx and, originally, one radius actually belong to Pit 16, fill 7]

Pit 108, fill 108.01

A possible right humerus shaft is all that is recovered from this feature, representing the remains of a single individual, possibly of adult age.

Pit 109

The remains of a single fragment, that of a left femoral shaft are all that represent this possible adult from this feature.

General deposit 131

The well-preserved remains of a 2nd cervical vertebra (axis) were recovered along with the lateral half of a right clavicle. These remains are all that comprise minimally a single individual of probable adult age.

Building 152, general deposit 152.163

It should be noted that the remains from this feature may well belong to the same individual whose remains were recovered from B 152, fill 182. The only remains here are from a vertebral body fragment and a distal left humerus missing the lateral epicondyle post-mortem. A single individual is likely represented, possibly of adult age.

Building 152, fill 152.182

The remains of a probable 20-24 year old (although the age ranges from 16-33 years), including a sternal manubrium, a fragment of right scapula, a right 2nd metacarpal and two articulating fragments of left clavicle with Stage 3 union (Angel *et al*. 1986) are all that are recovered from this feature. It is possible that the remains from general B 152.163 belong with this individual. This single young adult is of indeterminate sex. Age is estimated from the morphology of the medial left clavicle. No long bones are recovered, the lengths of which could have been used for reconstructing living stature and no anomalous or paleopathological conditions are observed among the skeletal remains.

Pit 300, fill 300.256

Three fragments of immature parietal bone are all the human remains recovered from fill 300.256. These fragments appear to come from a subadult. There is no evidence of anomalous or paleopathological conditions among the remains of this individual.

§ 19.1.2 Period 3: Middle Chalcolithic

Building 200, occupation deposit 211 (=KMyl 1197)

Two deposits from B 200 (occupation deposit 200.211 and general deposit 270) likely contain the remains of a single subadult. Based upon archaeological context, this child was likely a fire victim, although the actual represented bones that exhibit burning are few and their exposure to fire was minimal. The skeleton is incomplete, although several bones, all in a fair state of preservation, are represented. There is no evidence of anomalous or paleopathological conditions.

Three bags contained within a small box are all of the remains that are minimally represented by this subadult. The remains are incomplete and fragmentary, with no long bones preserved in their entirety. In general, the condition of the remains is fair. There is evidence for burning in one unidentified charred bone fragment that is black in colour. This burning likely took place after the bone had broken based upon charring on the edges of the fragment, and with minimal exposure to fire. Another fragment has a bleached appearance, as it is weathered and white in colour. In addition to the teeth and fragments of mandible and right maxilla recorded by Lunt and Watt below, one tooth, a deciduous incisor, was recovered, as well as a fragment of mandibular condyle with a portion of the gonial angle preserved. An inventory of the identifiable skeletal remains is listed below. Due to the immature age of the individual, sex could not be determined by morphological examination. The skeletal age of the subadult is in near accordance with the dental age provided by Lunt and Watt (*LAP* II.1A) of a subadult approximately 7 years ± 9 months. This age was based, in part, on the lack of fusion of a fragment of occipital condyle to the basiocciput. Union normally takes place at this site between the ages of 5 and 7 years (Angel *et al*. 1986). Stature was not estimated for this subadult. No anomalous or paleopathological conditions were identified among the skeletal remains of this child.

Inventory of identified skeletal remains

- 35 cranial fragments, including fragments of:
- frontal with right orbit (no evidence of metopism)
- right and left petrous temporals
- left zygomatic
- right parietal
- occipital squama, occipital base, and lateral occipital or occipital condyle
- fragment of 1st cervical vertebra (C-1) as well as 3 vertebral arch fragments
- 5 ribs or fragments thereof
- fragment of femoral diaphsyis (shaft) with portion of distal? epiphyseal end
- portion of tibial diaphysis
- portion of humeral diaphysis
- portion of radial diaphysis
- portion of ulnar diaphysis
- distal hand phalanx
- metapodial fragment

Building 200, general deposit 200.270

Only approximately ten small cortical and cancellous bone fragments were recovered from this feature which may possibly be human. They could belong to the same subadult from 200.211.

Building 200, general deposit 305

The immature remains of a hand phalanx and 2 fragments of a possible right tibia were recovered from 200.305. The base of the hand phalanx is unfused. These remains likely come from the same individual as 200.211. There is no evidence of anomalous or paleopathological conditions.

§ 19.2 The dentitions (D.A.L. and M.E.W.)

§ 19.2.1 Period 2: Early Chalcolithic

Pit 1.05

The specimen consists of an isolated maxillary permanent left second molar, with an unusual supernumerary cusp attached at the mesiolingual corner of the crown, resulting in distal displacement of the normal lingual cusps. This is not any recognised variant of the fairly common cusp of Carabelli. A tiny additional root has been associated with the supernumerary cusp: it has been broken off post-mortem, but can be identified from the presence of a minute root canal. The buccal half of the tooth shows normal morphology.

Very slight attrition of the occlusal surface suggests that the owner of the tooth was an adolescent over 15 years, or a young adult.

There is no evidence of dental caries.

Pit 1, fill 1.11, human remains 1.16

Both halves of a maxilla are present, with the palate and alveolar processes virtually complete but the facial parts damaged. The halves are split down the midpalatal suture, which was not fully fused.

The maxillary dentition is almost complete, only the maxillary right first permanent incisor having been lost post-mortem, and the maxillary right second incisor damaged.

At the time of death, the maxillary permanent teeth have been in function up to and including the second permanent molars, whose root apices are virtually closed. The third molars were developing in their crypts in the alveolar bone. The stages of development of the second and third molars suggest an age of 15 years ± 9 months.

The dentition is in good condition with only a few very minor hypoplasia lines in the cervical region of some teeth. There is no evidence of dental caries or periodontal disease, and no trace of calculus.

Teeth present, erupted	7 6 5 4 3 2 / 1 2 3 4 5 6 7
Teeth present, unerupted	8 / 8

§ 19.2.2 Period 3: Middle Chalcolithic

Building 200, occupation deposit 200.211 (=KMyl 1197)

There are four fragments of a child's mandible, three of which fit together exactly; a small fragment of right maxilla; and five loose maxillary teeth. All the specimens appear to have formed part of a single dentition, consisting of 10 functional deciduous teeth, 3 erupted functional permanent teeth, and 9 permanent teeth developing in crypts. Two further permanent teeth would be expected in the intact alveolar bone but cannot be seen with the naked eye.

The stage of development of the dentition suggests an age of 7 years ± 9 months.

There is an early carious lesion on the occlusal surface of the mandibular left second deciduous molar. There is no evidence of calculus deposits or periodontal disease.

Teeth present, erupted	6 E D A / B
	6 E D C / 1 C D E
Teeth present, unerupted	5 3 2 /
	7 5 3 2 / 4 7

Chapter 20: The Animal Bones

by

Paul Croft

[*In this chapter, the term "final Period 2" refers to deposits from pit 300. See §14.9 and Table 24.1 for chronological treatments of Period 2.*]

Most archaeological features which have been investigated at Mylouthkia date to the Chalcolithic period and, accordingly, the great majority of animal remains from the site also date to this period. The smaller amount of faunal material which is attributable to the Cypro-PPNB is discussed in § 6 above.

Faunal remains from Mylouthkia were generally in sound condition, although fragmentary. As is normally the case on Cypriot prehistoric sites, the shafts of the larger longbones had generally been broken in antiquity, presumably to permit the extraction of marrow, and a considerable number of bones showed evidence of butchery, especially with a heavy chopper. A few bones appear to have been chewed by carnivores, and a significant minority of the material is burnt in varying degrees. The calcareous encrustation which affected much of the faunal material from the nearby sites of Kissonerga (*LAP* II.1A, 211) and Lemba-Lakkous (*LAP* I, 202) was less prevalent at Mylouthkia.

§ 20.1 Period 2 (Early Chalcolithic)

Animal bones recovered during the first (1976-1981) and second (1989 rescue excavations) phases of investigations are discussed here.

Sieving was not generally carried out during this initial phase of work at Mylouthkia, but the large number of small bone fragments present among the material attests a reasonable standard of recovery of larger mammalian remains. The disproportionately high incidence of the bones of fox and bird in fill 16.4 of pit 16 results from a substantial sample of this deposit having been wet sieved, and indicates that the bones of smaller creatures, on the other hand, are likely to be under-represented to a severe degree.

In addition to these Period 2 features, B 152 and pit 300, located and partially excavated in 1994-5, also proved to date to this period. In this instance, deposits were partially dry sieved through a 5 mm mesh at the discretion of the excavator.

Pit 1

This feature yielded just over a thousand identifiable bones of the larger animals as well as fragments of smaller creatures. Larger animal remains derived mainly from deer, with lesser quantities of caprine and pig remains (Table 20.1a). Smaller animals represented included dog, fox and cat. Scattered human remains were also present.

In addition to the bones listed in Table 20.1a, which unambiguously derive from pit 1 and which may be attributed to Period 2 with a high degree of confidence, there exists a body of material from superficial contexts (units 1.01, 1.02 and 1.08), amounting to some 250 identified pieces, which has been attributed to pit 1 with a degree of uncertainty, and which may therefore only tentatively be assigned to Period 2. Amongst this material, caprine remains include three confidently identified fragments each of sheep and of goat, and antler includes two shed and three unshed bases. In view of its questionable significance, this superficial material will not be further considered in the discussion which follows, but is listed in Table 20.1b for the sake of completeness.

Table 20.1a. Representation of various taxa in pit 1, based on counts of identifiable fragments

Unit	*1.05*		*1.11*		*1.13*		*Other***	*Total*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*n*	*%*
deer*	317	65.1	210	50.5	46	49.5	25	598	57.7
caprines	73	15.0	152	36.5	33	35.5	11	269	25.9
pig	91	18.7	50	12.0	13	14.0	4	158	15.2
dog	2	0.4	2	0.5	-	-	-	4	0.4
fox	2	0.4	2	0.5	1	1.1	1	6	0.6
cat	2	0.4	-	-	-	-	-	2	0.2
Total	487	100.0	416	100.0	93	100.1	41	1037	100.0
human	+		+		+		+	+	
rodent	+		+		-		-	+	
bird	-		+		-		-	+	
fish	+		+		+		-	+	
reptile	-		-		+		-	+	

* the count of deer bones includes antler bases but excludes numerous other pieces of antler.
** combined total for 1.03-04, 1.07, 1.09, 1.12 & 1.14-16.

Most of the animal remains from pit 1 come from major fills 1.05 and 1.11, and to a lesser extent from fill 1.13. As will be seen from Table 20.1a, the taxonomic composition of the bone assemblage from the main upper fill 1.05 differs notably from that of the assemblage from lower fills 1.11 and 1.13; in fill 1.05 caprines accounted for only 15% of identifiable fragments whereas in fills 1.11 and 1.13 their frequency was around 36%. The relative abundance of deer and pig remains was accordingly lower in these lower fills. The significance, if any, of this variability is obscure, but an explanation based on seasonality (*Preliminary* 3, 49) is one possibility amongst several.

Table 20.1b. Representation of various taxa superficial contexts above in pit 1, based on counts of identifiable fragments

	n	*%*
deer*	167	66.8
caprines	15	6.0
pig	65	26.0
fox	2	0.8
cat	1	0.4
Total	250	100.0
human	+	
rodent	+	
fish	+	

* the count of deer bones includes antler bases but excludes a few other pieces of antler.

Caprine remains from pit 1 were almost all of goat and included very few sheep. Of 269 fragments, 65 were confidently and 14 tentatively attributed to goat compared with 3 confident and 2 tentative attributions to sheep.

Pieces of antler were fairly abundant throughout the fills. Of twenty-three antler bases, eleven were shed and twelve unshed; additionally, seven pedicles displayed evidence of unshed antlers having been detached. Thus, the indications are that whilst antlers from the heads of culled deer probably constituted the main supply of this important industrial material, shed antlers were also collected and used.

Two pieces of bird bone from pit 1 (both from fill 1.11) were not identifiable to taxon. A medial-distal humerus compares in size, but certainly not in morphology, with quail (the only bird species present in nearby pit 16) or Scops owl and remains unidentified only for lack of a suitable comparative specimen. A fragment of femur shaft is of quail size and may or may not represent this species.

Microfaunal remains included a few fragments of a small rodent which, judging from the presence of an upper incisor with a subapical notch, is probably to be attributed to *Mus* sp. (Harrison and Bates 1991, 251). The only reptile bone was a humerus of a small lizard. Neither rodent nor reptile remains were burnt and so could conceivably be intrusive, although burnt items of these taxa occur in the nearby pit 16 (see below).

Carnivore chewing was evident on eight pieces of larger mammalian bone from pit 1. In several instances tooth marks suggest that the responsible carnivore was smaller than a dog, so cat or fox is implicated. A single example of gnawing by a very small creature, probably a mouse, was encountered on a shaft fragment of a caprine radius.

A light degree of aberrant bony growth is displayed on a caprine distal humerus and on a distal scapula and pelvic (acetabular) fragment of deer. Additionally, a whole fourth metatarsal of cat has a substantial pathological ridge running almost the full length of the plantar surface of the bone shaft, from the proximal articulation almost to the distal. Located on the shaft distally of this ridge, close to the articular end, are eight latero-medially aligned cut marks. It seems likely that these were made in the course of skinning the cat and, if so, the intention seems to have been that the pelt should retain the toes and claws.

Pit 16

This hollow yielded a fairly substantial quantity of faunal remains. However, since only one individual fill unit, 16.04, yielded a sufficient number of animal remains that it might separately be considered as a sub-assemblage, the pit 16 assemblage is best considered as an undivided whole. In Table 20.2, which indicates the frequency of the remains of the various taxa, the data for contexts other than fills 16.04 and 16.07 includes a substantial minority of bones from the surface of the feature. This material was included on the basis that, whilst it cannot be said certainly to derive from the feature, the excavator considered that it most probably did.

Table 20.2. Representation of various taxa in pit 16, based on counts of identifiable fragments

Unit	*16.04*		*16.07*		*Other***		*Total*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
deer*	165	49.4	50	45.4	139	61.8	354	52.9
caprines	11	3.3	9	8.2	14	6.2	34	5.1
pig	95	28.4	50	45.4	69	30.7	214	32.0
dog	7	2.1	1	0.9	1	0.4	9	1.3
fox	56	16.8	-	-	2	0.9	58	8.7
Total	334	100.0	110	99.9	225	100.0	669	100.0
human	+		+		-		+	
rodent	+		+		-		+	
bird	+		-		-		+	
fish	+		+		+		+	
reptile	-		+		-		+	
crab	+		+		-		+	

* the count of deer bones includes antler bases but excludes numerous other pieces of antler.
** combined total for 16.01-3, 16.05-6 and surface material.

Virtually the same range of animal taxa was represented as in pit 16 as in pit 1, and scattered human remains similarly occur. Deer remains are very nearly as abundant as in the pit 1 assemblage (53% compared with 58%) taken as a whole (Table 20.1a), whilst pig remains are much more abundant (32% compared with 15%) and caprine remains much less abundant (5% compared with 26%) in pit 16 than in pit 1.

No particular explanation for this faunal variability seems readily apparent. Radiocarbon dates suggest that there is no very great chronological difference between pits 1 and 16 which may, indeed, be precisely contemporary. The different composition of the two faunal samples could thus reflect spatial variability in more or less synchronous rubbish disposal behaviour. It is conceivable that different but contemporary groups within society, which perhaps enjoyed somewhat different diets, were responsible for the introduction of rubbish to the two hollows. Although artefacts from the two hollows clearly belong to the same tradition, disparities exist (*Preliminary* 2, 5) and could similarly be accounted for in this way. Alternatively, the radiocarbon dates, consistent as they are, do not rule out the possibility of a relatively small chronological difference between pits 1 and 16. A period of time representing, perhaps, several human generations would surely be sufficient to witness significant changes of emphasis within the animal economy. Thus, the problem of accounting for faunal (and artefactual) differences between pits 1 and 16 remains unresolved.

The thirty-four pieces of caprine bone from pit 16 included nine which could be confidently attributed to goat and two which were so attributed more tentatively. No sheep bones were identified, perhaps indicating a further contrast with pit 1.

Pieces of antler were quite common in pit 16, and amongst the twenty-six antler bases, thirteen were shed and thirteen unshed. Four pedicles showed signs of having been chopped through in order to remove the unshed antler from the head. The situation is thus similar to that described above for pit 1.

Bird remains in pit 16 consisted of a group of seven tarso-metastarsi and thirteen phalanges from fill 16.04. These derive from not less than four separate individuals of quail (*Coturnix coturnix*). Other small creatures include a mouse (probably *Mus* sp.) which is represented by some dozens of scattered bones, some of which are burnt. Also burnt (and therefore presumably non-intrusive) was the base of the skull of a lizard.

Carnivore remains were particularly abundant in pit 16 and, as for the bird remains mentioned above, this is probably due to the fact that a substantial sample of fill deposit 16.04 was wet-sieved. Fill 16.04 yielded only about half of the identifiable remains of the larger mammals, whereas seven out of the nine dog bones from pit 16 came from here, as did fifty-six out of the fifty-eight fox bones (Table 20.2). The only example of carnivore damage from pit 16 was a chewed distal humerus of deer.

Pit 24

Combining similar numbers of bones from fills 24.01 and 24.02, the small pit 24 assemblage consists mainly of deer, with lesser quantities of caprine and pig bone, and three fragments of a cat skull (Table 20.3). Overall, the relative abundance of identified fragments of the main animals in hollow 24 is closely similar to that in pit 1 (Table 20.1a), with a far higher frequency of caprine remains and a considerably lower frequency of pig remains than in pit 16 (Table 20.2).

Caprine remains from pit 24 include ten fragments which were confidently attributed to goat and three fragments which were less certainly of goat. No sheep remains were identified. Deer antler included three shed bases, two unshed bases and two hacked pedicles from which unshed antlers had clearly been removed.

Pits 108 and 109

These two large hollows intersect, pit 108 cutting 109, and both yielded small quantities of identifiable animal bone (Table 20.3). The pits were excavated during the rescue work of 1989, and no sieving was undertaken.

Pig remains are about equally abundant in the two pits, but caprine remains are relatively more abundant and deer remains less abundant in pit 109 than in 108. In both pits a single fragment of human bone was found.

Caprine remains from pit 108 included two which could be identified with confidence as goat, whilst pit 109 yielded seven pieces which were considered definitely to represent goat and one less confidently identified goat bone.

Amongst the antler from pit 108 shed and unshed bases were each represented by three examples. In pit 109 were four shed and six unshed antler bases, plus three pedicles bearing damage consistent with antler removal.

Building 152

The fill of B 152 (Units 111, 163 and 182, plus stone setting 187) yielded a small bone assemblage (Table 20.3), including a few scattered human remains. Larger animal remains were mainly of deer (thirty-five fragments) with some pig (seventeen fragments) and a little caprine (four fragments). Caprine remains include one fragment which could be attributed to genus, and this was a distal humerus of sheep. The only crab claw and one of a few rodent (?*Mus* sp.) remains were burnt, as were a few of the larger mammalian remains.

Table 20.3. Representation of various taxa in pits 24, 108 and 109, and Building 152, based on counts of identifiable fragments

	pit 24		*pit 108*		*pit 109*		*B 152*
	n	*%*	*n*	*%*	*n*	*%*	*n*
deer*	67	54.9	52	57.8	50	45.0	35
caprines	34	27.9	6	6.7	17	15.3	4
pig	18	14.7	31	34.4	41	36.9	17
dog	-	-	1	1.1	3	2.7	-
fox	-	-	-	-	-	-	-
cat	3	2.5	-	-	-	-	-
Total	122	100.0	90	100.0	111	99.9	56
human	-		+		+		+
rodent	-		-		-		+
crab	-		-		+		+

* the count of deer bones includes antler bases but excludes a few other pieces of antler.

Pit 300

After pits 1 and 16, pit 300 yielded the largest Period 2 bone assemblage. Even so, a total of only 251 identifiable fragments of larger animals came from the numerous fill deposits in pit 300, so the assemblage is best considered as an undifferentiated whole (Table 20.12). Fills of pit 300 comprise deposits which predate B 200 (of Period 3), which is cut into the upper part of the pit fills.

Deer remains (47%) predominated slightly over those of pig (41%), whilst caprine remains (8%) were present in far smaller numbers. Also present were very small numbers of bones of dog and fox. A single tooth represents a seal, on distributional grounds probably monk seal (*Monachus monachus*). The six caprine fragments which were confidently identified to genus included four goat and two sheep. Four antler bases are all shed. Five fragments of deer and pig bone showed signs of having been chewed, apparently by a dog.

Other faunal remains consist of a few pieces of fish bone, three crab claws (including one burnt) and a small rodent longbone.

Ceramic evidence (see §14.9) suggests that the fills of pit 300, in particular the upper fills which overlay floor 255, date to a later phase within Period 2. Since the pit 300 bone assemblage appears intermediate in its taxonomic composition between the samples from mainstream Period 2 and Period 3 (Table 20.12), it is considered separately from either of these periods. In the discussion which follows, therefore, the pit 300 bone assemblage is referred to as “final Period 2”.

Various other Period 2 contexts

Numerous other contexts which have been dated to Period 2 yielded small quantities of animal bone. These small faunal samples do not, however, merit individual discussion, and their composition is summarised in Table 20.4). Amongst this material are two pieces which were confidently identified as goat, and three antler bases which include two shed and one unshed specimens. The single bird bone, a pelvic fragment about the size of a large chicken, was not further identifiable.

Table 20.4. Representation of various taxa in other Period 2 contexts which yielded small bone samples, based on counts of identifiable fragments

Unit	*deer*	*pig*	*caprine*	*dog*	*fox*	*rodent*	*bird*	*fish*	*crab*	*human*
5	7	9	1	-	-	-	-	-	-	-
9	2	-	-	-	-	-	-	-	-	-
100	12	12	3	1	-	+	+	+	-	-
102	4	3	1	1	-	-	-	-	-	-
103	1	2	-	-	-	-	-	-	-	-
104	-	-	4	-	-	-	-	-	+	-
115	1	-	-	-	-	-	-	-	-	-
121	-	-	-	-	-	-	-	+	-	-
130	2	2	-	-	-	-	-	-	-	-
131	15	3	3	-	-	-	-	-	-	+
134	1	1	-	-	-	-	-	-	-	-
135	2	5	2	-	1	-	-	-	-	-
138	6	2	-	-	-	-	-	-	-	-
141	1	2	-	-	-	-	-	-	-	-
142	2	3	-	-	-	-	-	-	-	-
150	-	5	1	-	-	-	-	-	-	-
164	3	1	-	-	-	-	-	-	-	-
167	-	-	-	-	-	+	-	-	-	-
205	-	3	1	-	-	+	-	+	-	-
206	2	4	-	-	-	-	-	-	-	-
Total	61	57	16	2	1	-	-	-	-	-

An item which seems worthy of particular mention is a dog proximal femur from pit 100.03 which has been butchered. The bone, newly broken midshaft, has three proximodistally aligned knife marks on the cranial aspect of the junction between the neck and the head, and another one craniocaudally aligned on the proximal aspect of the neck. A series of knife marks thus located suggest not simply skinning of the dog but disarticulation of the hip joint, perhaps for consumption.

§ 20.2 Period 3 (Middle Chalcolithic)

Far fewer bones are attributable to Period 3 than to Period 2, and these derive from B 200 and B 330, exterior deposits contemporary with these buildings, and building decay deposits. Exterior deposits were largely dry sieved through a 5 mm mesh, and building fills were almost entirely sieved.

Building 200

Identified remains of the larger animals from the fills and floors within B 200 amounted to only just over 100 in number (Table 20.5). Additional animal bones were associated with the building, e.g. in the wall, in the foundation cut, and in upper building collapse layers, but these may be disregarded for the present purpose of examining the probable contents of the building.

It will be clear from Table 20.5 that pig remains are relatively commoner and deer remains relatively scarcer in B 200 than in other Period 3 contexts. This would be the case to an even greater extent if a couple of deer scapulae and an antler base, which may be present in B 200 as implements and industrial raw material, were to be excluded from consideration. A similar situation was noted at Lemba-Lakkous during the LChal, and a suggested explanation, possibly relevant for Mylouthkia also, revolved around the greater overall durability of deer than pig bone, and the greater potential for bone destruction of the external as against the internal environment (*LAP* I, 207-8). At Kissonerga, the greater abundance of pig remains and lesser abundance of deer remains in interior compared with exterior contexts is so marginal in degree (*LAP* II.1B, Table 22.13) as to be of doubtful significance.

Table 20.5. Representation of various taxa in Building 200 and other broadly contemporary (Period 3) deposits, based on counts of identifiable fragments

Taxa	*Building 200***		*General*	
	n	*%*	*n*	*%*
deer*	29	27.1	107	46.3
caprines	5	4.7	13	5.6
pig	70	65.4	104	45.0
dog	1	0.9	-	-
fox	2	1.9	6	2.6
cat	-	-	1	0.4
Total	107	100.0	231	99.9
human	+		+	
rodent	+		-	
fish	+		+	
crab	+		+	

* the count of deer bones includes antler bases but excludes a few other pieces of antler.

** includes material from fills and floors only of B 200.

In addition to the contrast in the relative frequency of pig and deer remains between B 200 and other Period 3 contexts, there is also a disparity in the representation of different bodily parts. Other contexts yielded comparable numbers of deer and pig phalanges (twenty-six compared with twenty-three) representing comparable proportions (11-12%) of identified remains of the two taxa, whereas B 200 yielded only one phalanx of deer compared with twenty-five of pig. The contrast provided by the relative scarcity of deer phalanges and, particularly, the abundance of pig phalanges in the building seems too pronounced to be simply due to chance, so real depositional variability may be inferred. Perhaps Chalcolithic cuisine entailed the more frequent cooking of pigs' trotters than deer feet, this cooking being undertaken within buildings (on the hearth?).

A few rodent bones from B 200 include two burnt fragments, suggesting that the building was, not surprisingly, rodent-infested. An upper incisor with a subapical notch suggests that the rodent concerned was a housemouse (*Mus* sp.) (Harrison and Bates 1991, 251).

General contexts of Period 3

Period 3 (MChal) contexts other than those within B 200 are, for the purposes of the present bone analysis, lumped together. These general contexts include the fabric and upper collapse layers of B 200, collapse material from B 330, and a series of broadly contemporary exterior deposits. Animal bones from these contexts are summarised in Table 20.5.

§ 20.3 The economic animals

Persian fallow deer (Dama mesopotamica)

The possibility has occasionally been suggested that the deer of prehistoric Cyprus were in some way domesticated animals (e.g. Zeuner 1958, 133; Davis 1994, 311). I have previously discussed this matter elsewhere (Croft 1988; 1991, 42-43) and still incline toward the opinion that they were free-living, hunted animals. Accordingly, the presumption that the deer were non-domesticated underlies what follows.

Data on epiphysial fusion for Mylouthkia deer are presented in Table 20.6. These data form the basis for an evaluation of deer mortality, since ageing information from dental eruption and wear is sufficiently sparse that it can add nothing. The fusion data are presented individually for Periods 2, final 2 and 3, and also a pooled post-Period 2 sample combining the latter two periods. The data are grouped to define four age stages. The infant stage represents the first year or so of life, juveniles are between about one and 2-2.5 years of age, and sub-adults become adults at 3-3.5 years old.

In Period 2, few deer died either as infants (9%) or as juveniles (6%); more died as sub-adults (16%), but the majority (69%) lived to adulthood. Unfortunately the fusion data for final Period 2 and Period 3 are rather scant for interpretation. Pooling this information to create a post-Period 2 sample still results in an unsatisfactorily small body of data, but its composition is suggestive of a pronounced contrast with the Period 2 pattern of deer mortality. In final Period 2/Period 3, culling of deer during infancy was apparently heavy (26%); few (7%) died as juveniles, and again many (21%) died as sub-adults, leaving only 46% to survive into adulthood. Thus, the contrast in mortality patterns suggests that deer came to be culled younger, with increased emphasis on the culling of infants and, to a lesser degree, of sub-adults. Survivorship into adulthood was greatly reduced.

Whilst this contrast was not replicated in its particulars at Kissonerga, deer mortality data for that site suggest a gradual change through time, also with a shift towards younger culling (*LAP* II.1A, 209). At both Mylouthkia and Kissonerga the reduction in the average age of death of deer might reflect a concern to improve the productive efficiency of hunting.

Fig. 20.1 shows a plot of length (LG) against breadth (BG) of the glenoid cavity of a sample of fused scapulae of southern English fallow deer (*Dama dama*) of known sex. Sexual size dimorphism is apparent, recorded values being greater for males than for females on both axes. In Fig. 20.2, the equivalent plot for the larger species of fallow deer (*Dama mesopotamica*) from Mylouthkia, a degree of separation between two groups of larger and smaller deer implies the presence of similar numbers of males and females. For the dimension LG females apparently have values of ≤36.0 mm, whilst males are ≥36.3 mm. Separation on the BG dimension is rather better, with females ≤31.6 mm and males ≥33.2 mm.

Table 20.6. Mortality of the deer from Chalcolithic deposits, based on epiphysial fusion

STAGE/ Element	*Final Period 2*			*Final Period 2*		*Period 3*		*Final Period 2/3*		
	F	*UF*	*%*	*F*	*UF*	*F*	*UF*	*F*	*UF*	*%*
INFANT										
dist. scapula	35	5		0	4	3	0	3	4	
dist. humerus	53	6		3	2	2	0	5	2	
prox. radius	36	1		3	0	6	0	9	0	
Total	124	12	9	6	6	11	0	17	6	26
JUVENILE										
dist. tibia	39	4		2	0	4	3	6	3	
dist. m/podial	33	9		6	3	6	3	12	6	
Total	72	13	15	8	3	10	6	18	9	33
SUBADULT										
prox. humerus	17	9		1	1	0	0	1	1	
prox. ulna	10	4		0	0	1	2	1	2	
dist. ulna	2	0		0	0	0	0	0	0	
dist. radius	18	13		0	1	0	1	0	2	
prox. femur	10	11		2	1	2	4	4	5	
dist. femur	26	5		2	0	1	0	3	0	
prox. tibia	21	8		1	2	0	0	1	2	
calcaneum	30	9		2	2	1	1	3	3	
Total	134	59	31	8	7	5	8	13	15	54
ADULT			100							100

Note: F=fused; UF=unfused.

Most of the scapulae represented in Fig. 20.2 date to Period 2 (EChal), and these apparently comprise nine males and ten females. (If other specimens, for which either LG or BG, but not both, was measurable, and are attributed on the basis of a single measurement, then Period 2 deer scapulae represent fourteen males and thirteen females). Balanced representation of the sexes implies that males and females had about the same chances of survival to a year of age, at least in Period 2.

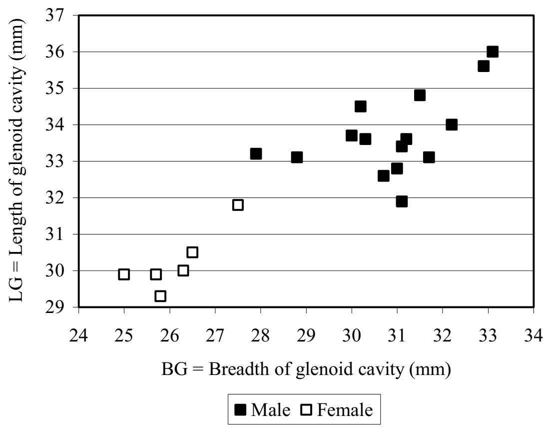

Fig. 20.1: Southern English Dama dama. Scapula LG x BG

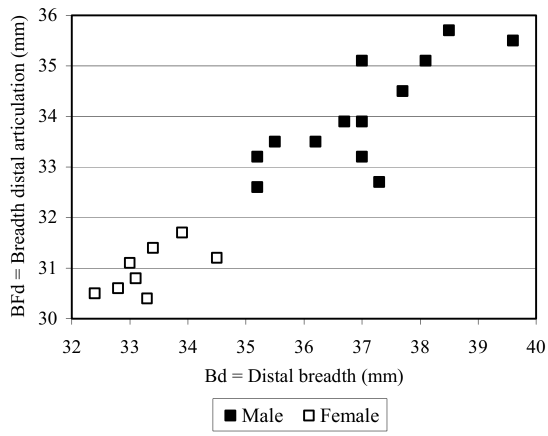

Fig.20.3: Southern English Dama dama. Radius BFd x Bd

Fig. 20.3 shows the breadth of the distal end (Bd) plotted against the breadth of the distal articular surface (BFd) for radii of southern English fallow deer of known sex. Sexual size dimorphism is clearly apparent, strongly suggesting that similar size dimorphism amongst Mylouthkia deer distal radii is sexual in origin. Fig. 20.4 shows two well-separated groups of fused distal radii from Mylouthkia. Period 2 radii include six males and eight females, probably reflecting greater female survivorship into adulthood. One unfused specimen is uninterpretable (possibly having been incorrectly measured), but three unfused specimens are all larger than mature female specimens and therefore reflect, conversely, the concentration on males in the pre-adult cull.

Pig

Presented in Table 20.7 are epiphysial fusion data for Mylouthkia pigs. According to the data for Period 2, 30% of pigs died as infants of less than a year old, 16% died as juveniles (*c.* 1 to 2-2.5 years old) and 15% as sub-adults. Thus, only 39% of pigs reached adulthood, that is greater than 3-3.5 years of age.

Epiphysial fusion data for the pigs of final Period 2 and of Period 3 are too sparse to indicate similarly detailed patterns of mortality, but these sets of data may be combined to yield such a pattern. Post-Period 2 pig mortality at Mylouthkia apparently involved the death of 27% as infants, 13% as juveniles, 18% as subadults and 42% as adults. It is stressed, however, that the far smaller number of specimens from which this pattern was generated mean that it must be viewed as less reliable than the Period 2 pattern. Even so, taken at face value the two patterns are rather similar, but suggestive of a shift towards the culling of pigs at slightly greater ages.

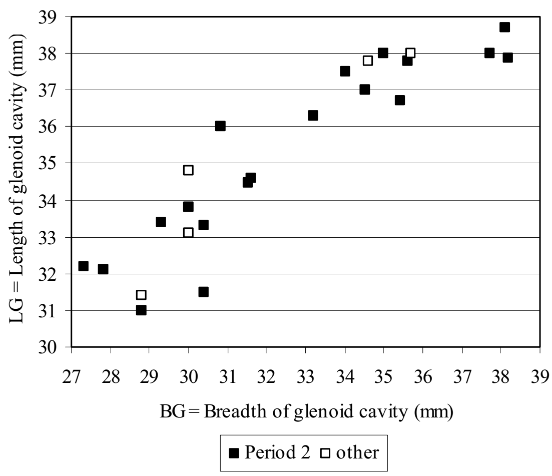

Fig. 20.2: Mylouthkia Dama mesopotamica. Scapula LG x BG

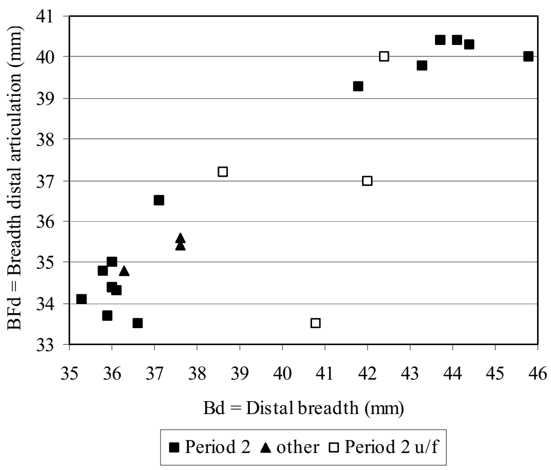

Fig.20.4: Mylouthkia Dama Mesopotamia. Scapula BFd x Bd

Table 20.7. Mortality of the pigs from Chalcolithic deposits, based on epiphysial fusion

STAGE/ Element	*Period 2* F	*Period 2* UF	*Period 2* %	*Final Period 2* F	*Final Period 2* UF	*Period 3* F	*Period 3* UF	*Final Period 2/3* F	*Final Period 2/3* UF	*Final Period 2/3* %
INFANT										
dist. scapula	9	10		1	2	2	0	3	2	
dist. humerus	20	5		1	1	1	2	2	3	
prox. radius	15	3		0	0	3	0	3	0	
phalanx 2	3	2		3	0	5	1	8	1	
TOTAL	47	20	30	5	3	11	3	16	6	27
JUVENILE										
dist. tibia	7	3		1	0	4	2	5	2	
dist. fibula	0	0		0	1	1	1	1	2	
calcaneum	2	5		0	0	0	2	0	2	
dist. m/podial	17	21		5	2	6	5	11	7	
phalanx 1	12	4		1	2	9	3	10	5	
TOTAL	38	33	46	7	5	20	13	27	18	40
SUBADULT										
prox. humerus	3	3		0	1	0	0	0	1	
prox. ulna	2	3		0	0	0	1	0	1	
dist. ulna	1	0		0	0	0	0	0	0	
dist. radius	3	3		0	1	2	0	2	1	
prox. femur	1	3		1	1	1	1	2	2	
dist. femur	3	7		0	1	0	1	0	2	
prox. tibia	5	9		0	0	1	0	1	0	
TOTAL	18	28	61	1	4	4	3	5	7	58
ADULT			100							100

Note: F=fused; UF=unfused.

Given the fragility of immature bones and the fact that very many of the pigs clearly died before attaining skeletal maturity, it is very likely that pigs are considerably under-represented in the Mylouthkia bone assemblage by comparison with the ruminants, which less frequently died at young ages. The younger the age class of pigs considered, the greater the degree to which fusion data will tend to under-represent mortality. Very young pigs will therefore be especially under-represented. Teeth, being generally more durable than bones, particularly immature bones, should provide a more reliable basis for assessing mortality presuming that they are sufficiently abundant in the assemblage.

Mandibular dental fragments do indeed hint at a significantly different story regarding pig mortality from that based upon epiphysial fusion. In Period 2, the fourth deciduous premolar had not been replaced by the permanent tooth in only two out of thirteen instances, whereas for post-Period 2 contexts the figure for non-replacement was five out of seven. A far higher incidence of death prior to sixteen months of age (Silver 1969, Table G) would therefore seem to be indicated in the later period, calling into doubt the picture presented by the available epiphysial fusion data.

For a detailed consideration of the eruption and wear of molar teeth mandibular data alone are rather sparse, so it is desirable to include data for maxillary teeth also, in the manner of Rolett and Chiu (1994, Table 8). Tables 20.8 and 20.9 present eruption and wear data for pig molars from Mylouthkia for Periods 2 and post-2 (aggregated final 2 and 3). It is clear from these data that a large proportion of pigs died before 10-14 months and that the great majority died before wear on the third molar was sufficient to expose any dentine (stage b of Grant 1975), i.e. before 18-26 months (ages according to Rolett and Chiu 1994). The sample for the later period, although rather small to be relied upon, hints at a greater proportion of pigs having been culled at less than 10-14 months of age than previously, in Period 2.

Table 20.8. Pig molars of Period 2

Estimated age (months)	*M1 a*	*M1 b*	*M1 c*	*M1 d*	*M1 f*	*M1 h*	*M2 germ*	*M2 a*	*M2 b*	*M2 c*	*M2 g*	*M3 germ*	*M3 a*	*M3 b*	*M3 c*	*Total*
<5-8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
>5-8 <10-14	1	2	5	-	-	-	1	7	-	-	-	-	-	-	-	16
>10-14<18-26	-	-	-	-	1	1	-	-	2	2	-	5	6	-		17
>18-26	-	-	-	1	-	-	-	-	-	-	1	-	-	2	3	7

Note: ages follow Rolett & Chiu (1994); stages are those of Grant (1975).

Table 20.9. Pig molars of final Period 2/Period 3

Estimated age months		*M1 germ*	*M1 b*	*M1 c*	*M2 germ*	*M2 a*	*M2 b*	*M2 c*	*M3 germ*	*M3 c*	*Total*
<5-8	-	3	-	-	-	-	-	-	-	-	3
>5-8	<10-14	-	2	1	3	2	-	-	-	-	8
>10-14	<18-26	-	-	-	-	-	1	-	2	-	3
>18-26	-	-	-	-	-	-	-	-	-	1	1

Note: ages follow Rolett and Chiu (1994); stages are those of Grant (1975).

Lower third molars probably erupted at around two years of age and upper third molars a few months later (Matschke 1967). Thus, the fact that eleven Period 2 third molars and the single later specimen which displayed wear were all in the first three wear stages (a-c of Grant 1975) (Tables 20.8-9) implies that only a very small proportion of Mylouthkia pigs survived much beyond perhaps 2.5-3 years of age. Again, the probably more reliable dental evidence strongly suggests that the epiphysial fusion evidence (Table 20.7) is somewhat misleading.

In summary, even though epiphysial fusion evidence for Mylouthkia pigs suggests that many pigs died young, it most likely under-represents the incidence of death at young ages. Limited evidence from dental eruption and wear is insufficient to permit the construction of alternative, independent mortality patterns, but does indicate that the epiphysial evidence is strongly biased in favour of older animals. Dental evidence, unlike the epiphysial evidence, suggests a pronounced change through time in the culling pattern for pigs. Eruption and wear data for molar teeth indicate that deaths between 5-8 and 18-26 months of age come to be concentrated very distinctly at the lower end of the age range. Increased concentration on the slaughter of younger pigs, which have a higher growth rate than older ones, could well represent an attempt to increase the total output of pork.

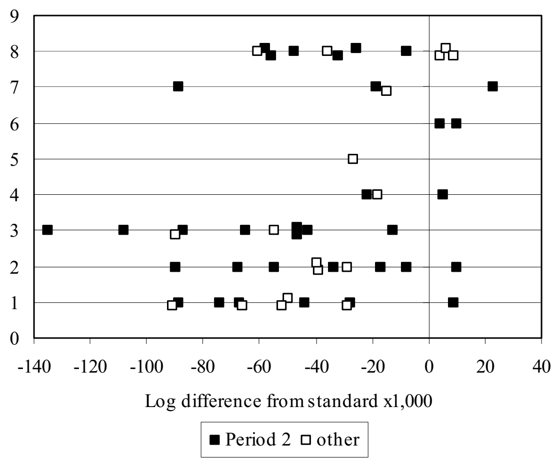

Fig. 20.5: Mylouthkia pigs dispersion diagram

Note: Dimensions and standard values (mm):

1 distal scapula (GLP=42.8)	5 proximal femur (Bp=65.5)
2 distal humerus (Bd=48.8)	6 distal femur (Bd=51.3)
3 proximal radius (Bp=36.2)	7 proximal tibia (Bp=57.9)
4 distal radius (Bd=40.3)	8 distal tibia (Bd=34.1).

Standard is European wild boar male H 12 271 in the Museum of Zoology, University of Cambridge.

Fig. 20.5 is a dispersion diagram displaying a number of fused pig bones from Mylouthkia. Closed symbols represent specimens from Period 2 contexts, open symbols represent specimens from other contexts. The numbers on the Y-axis represent particular measurements taken on various elements (see Note to figure). For each specimen, the value represented on the X-axis is the difference (x1000) between the logarithm of the recorded measurement and that of the same measurement taken on a standard pig skeleton. In this case the standard employed was a European wild boar male, represented by the vertical line at zero on the X-axis. Most fused pig bones from Mylouthkia were smaller than the standard (values less than zero), and only a few were larger. A clear gap in the scatter of points between -8 and +4 seems likely to separate males from females amongst the Mylouthkia pigs and if this is indeed so, the implication is that the great majority of those pigs that lived long enough to be represented by fused bones were females, slaughter at young ages being applied particularly to males. A similar diagram constructed for the far larger sample of pig bones from nearby Kissonerga displayed a similar pattern. Here a discontinuity occurred at about the same place in the scatter of points (between -5 and -9) and males seem to be even more heavily outnumbered by females (*LAP* II.1B, Fig. 113).

To conclude this discussion of the Mylouthkia pigs, the distinct possibility may be mentioned that some of them might represent hunted, feral animals rather than domestic stock. However, as with the caprines, hunted individuals would most likely be morphologically indistinguishable from their domestic conspecifics, so the problem of identifying them seems unapproachable.

Caprines

Amongst 376 caprine bones from Period 2 contexts, 114 were more or less confidently identified as goat and 6 as sheep. This suggests that goats outnumbered sheep by about 19:1 during the EChal. Only thirty-eight caprine bones were attributable to Periods final 2 and 3, and these included eight which were identified as goat and three as sheep. An increase in the proportion of sheep amongst the Mylouthkia caprines therefore seems more than likely after Period 2, but the small size of the post-Period 2 sample means that it would be unwise to attempt to define this increase quantitatively. Overall, Chalcolithic caprine remains (including unstratified items which are almost certainly of Chalcolithic date) include 137 attributions to goat and 12 to sheep. If the eight horncore fragments which are all of goat are excluded from consideration since they are more durable than sheep horncores then it would seem that sheep at Chalcolithic Mylouthkia accounted for only 8% of the caprines. Similarly low levels of representation of sheep were also observed at the nearby Chalcolithic settlements of Kissonerga (*LAP* II.1A, 209) and Lemba-Lakkous (*LAP* I, 296). All of the Mylouthkia goat horncores are of the untwisted "scimitar" variety which characterises the goats of Cyprus prior to the Bronze Age (Croft 1996, 218).

Epiphysial fusion data, presented in Table 20.10, should relate essentially to the goats of Mylouthkia. The table includes items which were attributed to goat or to unspecified caprine, but excludes a small amount of material which was identified as sheep. Given that sheep are comparatively rare at Mylouthkia only a minimal amount of sheep remains, if any at all, is likely to be included amongst the unspecified caprine, so the figures should reflect the mortality specifically of goats. The figures quoted for the whole assemblage include material which, although unstratified, is almost certainly of Chalcolithic date.

It will be clear from Table 20.10 that most of the goat remains date to Period 2 and that other periods are so poorly represented that they cannot be considered individually. In Period 2, 7% of goats died as infants of less than a year of age, 14% as juveniles between a year and 1.5-2.5 years of age, and 14% as subadults of 1.5-2.5 to 2.5-3.5 years old. Thus 65% of goats appear to have survived into adulthood.

Data for eruption and wear of mandibular teeth are sparse but suggest that, as with the pigs, fusion data for Mylouthkia caprines probably underrepresent those animals which died young. A literal interpretation of the presence of six specimens of dp3 compared with only three specimens of P4 from Period 2 suggests that two-thirds of caprines had died before the age of two years, which probably equates with late in the juvenile stage in fusion terms. This differs radically from the fusion-based estimate of 21% dead by the end of the juvenile stage, which is therefore lower by a factor of 3. This difference seems conspicuously great to be simply a product of preservational bias, so alternative explanations are worth considering.

Table 20.10. Mortality of the goats from Chalcolithic deposits, based on epiphysial fusion.

STAGE/ Element	*whole assemblage*			*Period 2*			*Final Period 2/3*	
	F	*UF*	*%*	*F*	*UF*	*%*	*F*	*UF*
INFANT								
dist. scapula	13	2		12	2		1	0
dist. humerus	25	3		22	2		2	0
prox. radius	15	0		15	0		1	0
TOTAL	53	5	9	49	4	7	4	0
JUVENILE								
dist. tibia	19	5		16	5		1	1
dist. m/podial	10	1		6	1		1	0
TOTAL	29	6	17	22	6	21	2	1
SUBADULT								
prox. humerus	3	2		3	2		0	0
prox. ulna	4	4		4	4		0	0
dist. ulna	1	1		1	1		0	0
dist. radius	13	0		11	0		1	0
prox. femur	3	5		2	5		0	1
dist. femur	8	7		8	4		0	0
prox. tibia	5	3		4	3		1	0
calcaneum	7	4		7	3		0	0
TOTAL	44	26	37	40	22	35	2	1
ADULT			100			100		

Note: F=fused; UF=unfused.

One possibility is that the apparent under-representation of young goats by the epiphysial fusion data is, in fact, an over-representation of young individuals in the dental data. Dental fragments of older goats might have tended to be selectively excluded from the assemblage. In other words, the population of goats represented by the dental fragments is a subset of that represented by the fusion data. A scenario which would account for this would be that the goats were hunted rather than herded animals which, when killed at a distance from the home base, would have been butchered at the kill site and their least valuable bodily parts (including mandibles) disposed of there. Kids, being lighter, might have tended more often to be brought back to base as whole carcasses.

A modification to this scenario would be that domestic goats were kept, often culled young, and disposed of on the site. At the same time, morphologically identical, feral goats were hunted. Hunting concentrated on adult males, which were butchered where killed, and their mandibles were seldom brought back to base.

Table 20.11. Relative frequency of phalanges to other post-cranial fragments of the main animals from Chalcolithic deposits.

	Period 2	*whole assemblage*
Deer	1:24	1:18
Pig	1:12	1:9
Goat	1:18	1:18

Note: calculations are based on adjusted counts of identified postcranial fragments. Adjustment is intended to compensate for differences in element frequency between the skeletons of pigs and ruminants. The method of adjustment is outlined in the text.

A partial test of these suggestions involves an examination of the frequency of another relatively low-value bodily part, the foot. Deer are presumed to have been hunted and pigs are here presumed to have been mainly, at least, herded domesticates. It might thus be expected that foot bones of pig should be relatively commoner in the Mylouthkia bone assemblage than those of deer, which would often have been disposed of at the kill site following butchery in the field. Comparison of the frequency of phalanges (excluding accessory phalanges of pig which are lacking in ruminants) amongst identified postcranial fragments of the two animals reveals that this is indeed the case (Table 20.11). In Period 2, phalanges of pig appear relatively twice as abundant as those of deer occurring, with respect to other postcranial fragments, in the ratio 1:12 compared with 1:24 for deer. The ratio for caprines, at 1:18, is intermediate between that of the (presumably) at least mainly herded pigs and the hunted deer.

If all Chalcolithic material from the site (including unstratified material which almost certainly dates to the period) is considered, the ratios of phalanges to other postcranial fragments are pig 1:9 compared with 1:18 for both deer and caprines. This strongly suggests that the disposal pattern for caprine remains is similar to that for deer and unlike that for pigs, and thus that the caprines included at least a substantial proportion of hunted individuals.

Fig. 20.6 displays a plot of breadth against medial height of trochlea for fused goat distal humeri from Kissonerga and Mylouthkia. (In fact the figure includes a minority of items which could not be attributed to genus, but are presumed to be of goat rather than the much rarer sheep). Two clusters of points clearly exist, and these must represent males and females. The scatter of points for the large Kissonerga sample suggests that males and females survived beyond about a year (at which age the distal humerus fuses) in balanced proportions. The much smaller sample for Kissonerga Period 2 includes eight males and five females, and so presumably reflects a broadly similar situation. Balanced representation of the sexes at a year of age accords with the observation that infant culling of caprines at Mylouthkia was quite light (see above).

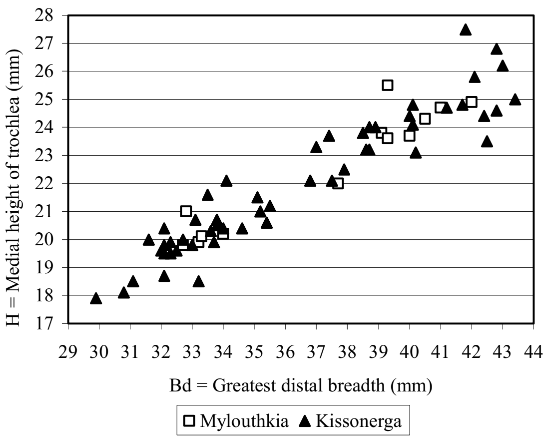

Fig. 20.6: Mylouthkia and Kissonerga goat Humerus H x Bd

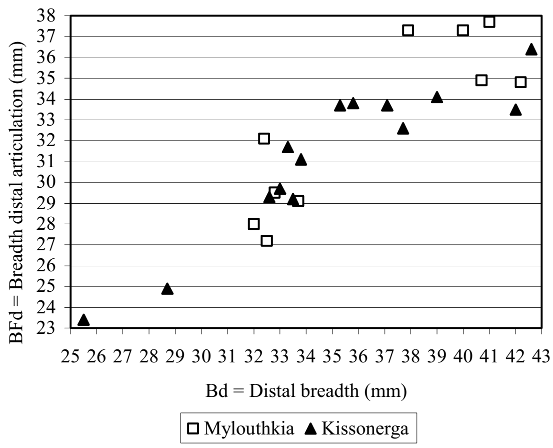

Fig. 20.7: Mylouthkia and Kissonerga goat. Radius BFd x Bd

Unfortunately, measurable fused examples of later fusing elements are not very common at Mylouthkia, so the sex ratio amongst the Mylouthkia goats at more advanced ages is difficult to ascertain with confidence. However, ten fused distal radii from Period 2 probably represent goats of greater than about 3 years old (Silver 1969, Table A) and are represented in Fig. 20.7, a plot of distal breadth against breadth of distal articulation. Also shown in Fig. 20.7 are goat distal radii from Kissonerga. These distal radii fall into two size groups, and indicate balanced representation of males and females at both sites.

Since the great majority of male goats would have been surplus to breeding requirements, the apparent survival to adulthood of as many males as females might seem to represent an inefficient approach to goat exploitation for meat. (Milk production is not believed to have been a major objective of caprine exploitation in Chalcolithic Cyprus and such a sex ratio amongst adults would, anyway, be grossly inappropriate if milk production had been the objective). However, interpretation of the survivorship data becomes immeasurably more complicated if it relates not to a single population of goats, but to two different populations which were exploited in different ways. It has been suggested above that separate populations of domestic and feral goats were exploited by two different strategies: herding and hunting. What might at first sight appear to represent an inefficient pattern of exploitation might therefore represent an amalgam of two efficient patterns. Most herded males might have been slaughtered before maturity since they were not required for breeding, whilst hunting of feral goats might have focused particularly on mature males so as not to impair the reproductive potential of the free-living population. Also, factors other than productive efficiency may have operated in the way in which goats were exploited at EChal Mylouthkia and M-LChal Kissonerga (*LAP* II.1A, 211).

Other larger mammals

The remains of small carnivores occurred sporadically throughout the site, and by far the commonest carnivore was the fox. Dog remains were not uncommon at Chalcolithic Mylouthkia, whilst cat remains occurred only quite rarely. A cat metapodial bearing cut marks from pit 1 (fill 1.05) attests skinning to remove the pelt, whilst a butchered proximal femur from pit 100 (fill 100.03) indicates disarticulation of the hip joint of a dog, suggesting that dog meat may have constituted an ingredient of Chalcolithic cuisine.

A single seal tooth, probably of monk seal (*Monachus monachus*), from pit 300 (surface 218) is insufficient to imply exploitation of this marine mammal, as was the single tooth from LChal Kissonerga (*LAP* II.1A, 212).

Birds

It is probable that bird remains, which tend to be small and fragile, are underrepresented amongst the bone recovered from Mylouthkia to an enormous degree. It may be suspected that the 97% of preserved bird remains which were estimated to have been overlooked at Kissonerga (*LAP* II.1A, 212) is not unusual unless wet sieving is very extensively pursued, and a figure at about this level may thus be envisaged for Mylouthkia. Quail (*Coturnix coturnix*) was the only species of bird to be identified from Chalcolithic Mylouthkia. This small game bird accounted for the great majority of the bird bone (twenty out of twenty-three pieces), but since all the quail bone came from a single large wet sieved sample (from fill 16.04), not too much should be read into the predominance of this species amongst the avian bones. Quail was represented amongst at least a dozen bird species at Kissonerga (*LAP* II.1A, 212) and is still moderately common in the vicinity to this day.

§ 20.4 Discussion and conclusions

Comparison of the relative frequencies of the main animals represented in Periods 2 and 3 (EChal and MChal) reveals considerable differences (Table 20.12) which might well reflect change through time in the animal economy of the human community which resided at Mylouthkia. The impression, based on raw counts of identified fragments, is that deer declined somewhat and caprines declined considerably in significance, whilst the importance of pig increased greatly. The intermediate taxonomic composition of the faunal sample from pit 300, representing final Period 2, conforms to this pattern. These overall conclusions find confirmation, in general terms, in the proportions by weight of the remains of the main economic animals (Table 20.13).

Table 20.12. Identified fragments of animal bone from Period 2 (Early Chalcolithic) and Period 3 (Middle Chalcolithic) contexts

	*Period 2**		*Final Period 2***		*Period 3****	
	n=	*%*	*n=*	*%*	*n=*	*%*
deer	1,217	54.8	117	47.4	136	40.2
pig	536	24.1	99	40.1	174	51.5
caprines	380	17.1	20	8.1	18	5.3
fox	65	2.9	5	2.0	8	2.4
dog	19	0.9	5	2.0	1	0.3
cat	5	0.2	-	-	1	0.3
seal	-	-	1	0.4	-	-
total	2,222	100.0	247	100.0	338	100.0

* data taken from Tables 20.1-4.
** material from pit 300.
*** data taken from Table 20.5.

In order more reliably to assess differences between the animal bone assemblages for Periods 2 and 3 at Mylouthkia it is first necessary to address certain biases inherent in the data based on raw counts. Chiefly because pigs have more bones than ruminants, and because their heads tend to fragment into a larger number of identifiable pieces, a simple comparison of numbers of identified fragments of their skeletons cannot be expected directly to reflect the relative abundance of the different animals. Such a comparison would tend to result in an inflated impression of the relative abundance of pigs. Thus, to improve the reliability of an assessment of relative abundance, certain adjustments to the fragments counts need to be made to facilitate an unbiased comparison. The adjustments which are considered prudent, explained in more detail elsewhere (*LAP* II.1B, 311), are:

1) The exclusion from consideration of all cranial material.

2) The exclusion from consideration of pig metapodia ii and v, and all accessory phalanges which pertain to these digits.

3) The halving of the numbers of pig metapodia iii and iv (with the result that adjusted counts of pig bones often are not whole numbers, but may include halves).

4) The exclusion from consideration of pig fibulae.

Table 20.13. Weights (g) of identified and unidentified animal bone and percentages (%) for the three main taxa (excluding antler and horncore)

	Period 2		*Final Period 2/3*	
Taxa	*n=*	*%*	*n=*	*%*
dama	13,042	60.8	4,130	58.5
antler	10,798		800	
pig	4,671	21.8	2,571	36.4
caprine	3,741	17.4	364	5.1
horncore	2,786			
dog	127		10	
fox	21		26	
cat	2		1	
seal	-		1	
total identified	35,188	65.5	7,903	53.8
total unidentified	18,556	34.5	6,792	46.2

Presented in Table 20.14 are both raw counts of identified fragments of the main animals for Periods 2, final 2 and 3, and counts which have been adjusted in the manner described above. It will be noted that the two ways of counting result in sets of figures which differ to a considerable degree. The adjusted figures should provide a better indication of the relative abundance of the different animals in the various periods and confirm the impression, gained from the raw counts, of a great increase in the abundance of pig at the expense of deer and, particularly, caprines.

Osteological evidence from Neolithic Tenta (Croft 1991, 74) and Chalcolithic Kissonerga (*LAP* II.1A, 211) has been interpreted to suggest that the exploitation of caprines for milk was of little or no importance in Cyprus during Early Prehistoric (*sensu* Stanley Price 1979, xi) times. Evidence dating to the Early-Middle Bronze Age transition from Marki-Alonia suggests that this situation persisted even as late as the beginning of the second millennium BC (Croft 1996, 219). Thus, the Mylouthkia caprines may be presumed to have been exploited at least mainly, if not exclusively, for meat. Taken at face value, goat mortality suggests (whether milk or meat was the desired product) that the goats were exploited in a manner which was far from efficient. Indeed, it is possible that other, social, factors overrode any tendency towards energetic efficiency. However, limited evidence suggests that more than a single population of goats, and the mortality pattern represents an amalgam of 2 patterns, one for herded domestic goats and the other for hunted feral goats.

For the purpose of estimating the relative importance of the different animals as providers of meat, assumptions have to be made regarding differences in meat-yield between the various animals, and the following ratio is used here: caprine 1.0 : pig 3.0 : deer 3.4 (*LAP* II.1B, 314 and references). Application of these figures to the adjusted counts of identified bone fragments (Table 20.14) leads to the following conclusions: in Period 2 deer provided an estimated 75% of meat, pig 17% and caprines 8%. In final Period 2 the contribution of deer had dropped to 64% and that of caprines to 3%, whilst the contribution of pig to meat supply had risen sharply to an estimated 33%. In Period 3 these apparent trends continued, with deer providing an estimated 56% of meat, pig 42% and caprines only 2%.

Table 20.14. Raw and adjusted counts of identified bone fragments and relative contributions to meat supply of the main animals from Periods 2 and 3 at Mylouthkia, and from Kissonerga (KM) Period 3 (incorporating 3A and 3B)* and Period 4**

	Deer		*Pig*		*Caprine*		*Total*	
	n=	*%*	*n=*	*%*	*n=*	*%*	*n=*	*%*
KMyl. Period 2								
raw count	1217	57.1	536	25.1	380	17.8	2133	100.0
adjusted	843	61.6	218.5	16.0	307	22.4	1368.5	100.0
contrib.***		74.9		17.1		8.0		100.0
KMyl. Final Period 2								
raw count	117	49.6	99	41.9	20	8.5	236	100.0
adjusted	107	57.6	62.5	33.9	16	8.5	185.5	100.0
contrib.		64.1		33.0		2.8		99.9
KMyl. Period 3								
raw count	136	41.5	174	53.0	18	5.5	328	100.0
adjusted	125	50.6	105	42.5	17	6.9	247	100.0
contrib.		56.1		41.6		2.2		99.9
KM Period 3A								
raw count	191	52.0	107	29.2	69	18.8	367	100.0
adjusted	148	59.9	43	17.4	56	22.7	247	100.0
contrib.		73.1		18.7		8.1		99.9
KM Period 3B								
raw count	323	37.5	412	47.8	127	14.7	862	100.0
adjusted	281	47.6	208.5	35.3	101	17.1	590.5	100.0
contrib.		56.8		37.2		6.0		100.0
KM Period 3								
raw count	568	42.1	564	41.8	217	16.1	1349	100.0
adjusted	468	51.3	273	29.9	172	18.8	913	100.0
contrib.		61.6		31.7		6.7		100.0
KM Period 4								
raw count	385	31.8	602	49.7	224	18.5	1211	100.0
adjusted	319	35.7	375.5	42.1	198	22.2	892.5	100.0
contrib.		45.0		46.8		8.2		100.0

* Material from contexts of high (OK) and standard (M) integrity only, contexts which were contaminated (C) or disturbed (D) are excluded.
** Material from contexts of high (OK) integrity only.
*** Estimated relative contribution to overall meat supply. Figures represent a proportion of the sum of the adjusted counts multiplied by the following factors: deer 3.4; pig 3.0; caprines 1.0 (see text).

Ceramically, Period 2 at Mylouthkia compares with Period 2 at Kissonerga, whilst Period 3 compares with Kissonerga Period 3A, and in view of the proximity of the two sites (only a few hundred metres apart), synchroneity of these comparable ceramic horizons seems overwhelmingly likely (see Fig. 24.1). How, then, does the faunal evidence compare?

Presented in Table 20.14, in addition to data for Mylouthkia Periods 2, final Period 2 and Period 3, are the equivalent figures for Kissonerga Periods 3A, 3B, for Period 3 as an undivided whole, and for Period 4. Figures are not quoted for Kissonerga Period 2 since it possessed too little animal bone. Comparison of the Mylouthkia Period 3 assemblage with the presumably contemporary Kissonerga Period 3A assemblage reveals considerable divergences. This is particularly the case if estimated contributions to meat supply are considered. In fact, the taxonomic composition of the Mylouthkia Period 3 assemblage compares much more closely with the (presumably somewhat later) Kissonerga Period 3B assemblage. Furthermore, the Mylouthkia Period 2 assemblage compares well with that from Kissonerga Period 3A. Intriguingly, therefore, these observations suggest that the animal economy of Mylouthkia was consistently "one step ahead" of that from Kissonerga.

The close proximity of the two sites means that the exploitation territories potentially accessible from them are very closely similar. Such minor territorial differences as existed would almost certainly have been insufficient to account for the differences in emphasis in their animal economies. Since Mylouthkia and Kissonerga seem to have been occupied contemporaneously, however, it is possible that the two communities would have partitioned the landscape to some degree as a means of reducing competition for resources and avoiding friction. Thus, economic differences may reflect political rather than environmental constraints on the utilisation of the local landscape.

The scenario wherein human population growth engendered economic intensification throughout the Chalcolithic period in the Ktima Lowlands has been outlined elsewhere (Croft 1988; 1991; *LAP* II.1A, 214). The gradually declining capacity of deer hunting to sustain an increasingly large number of people inevitably resulted in a diminution of the relative contribution of deer to subsistence. Greater reliance on the herding of domestic animals, particularly pigs, was the reluctant response of human communities under pressure.

Returning to the particular cases of Kissonerga and Mylouthkia, it would appear that the former was somewhat more successful than the latter in resisting this pressure. This might perhaps simply reflect differences in community size; perhaps Kissonerga had a smaller population which might have supported itself to a greater extent by hunting. Alternatively, it may be that the existence of partly or wholly exclusive "village territories" whose boundaries were politically defined resulted in differential access to deer by the two communities. Under such circumstances, the marginally inland location of Kissonerga, as opposed to the coastal location of Mylouthkia, might have favoured the greater dependence on hunted deer for a longer time. It is emphasised, however, that even in Period 3 (the early part of the MChal) at Mylouthkia, deer were still the predominant economic animal, contributing an estimated 56% of the total meat supply (Table 20.14).

On the other side of the coin, heavy reliance on pigs emerged earlier at Mylouthkia than at Kissonerga. In Period 2, the estimated contribution of pigs to meat supply was 17%, rising to 33% in final Period 2 and 41% in Period 3. A broadly comparable level of dependence on pig (estimated 37% of meat supply) was not reached at Kissonerga until Period 3B, perhaps several centuries later than Mylouthkia Period 3. The trend towards an increasingly pig-dependent animal economy clearly continued into Period 4 (LChal) at Kissonerga, at which time pig may even have marginally exceeded deer as a provider of meat, contributing almost half of the total (Table 20.14).

Caprines, mainly goats, were abundant in Period 2 at Mylouthkia, sharply reduced in final Period 2, and further reduced in Period 3 (Tables 20.12 and 14). This fall-off occurred in parallel with that of deer, and it is tempting to explain it in the same terms, viz. a reduction in the capability of hunting to provide for the subsistence needs of a growing human population. It is certainly quite possible that the goats, or at least a proportion of them, were feral animals which were hunted rather than herded. At Kissonerga a fall in the relative abundance of caprines (also mainly goats) occurred between Periods 3A (early MChal) and 3B (late MChal), but in Period 4 (LChal) this trend is reversed (Table 20.14). Perhaps here the decline in the relative yield from caprine hunting was counterbalanced in the long term by increasing the productivity of caprine herding.

Acknowledgement

Thanks are due to Mrs. N. Chapman for permission to use metrical data (upon which Figs. 20.1 and 20.3 are largely based) derived from deer bones in the collection of her late husband.

Chapter 21: The Charred Plant Remains in Three of the Pits

by

Sue Colledge

[*In this chapter, samples from pit 16 (general) and pit 16.0 refer to samples taken from undefined pit 16 contexts*]

At the time of their excavation in the 1970s, the Mylouthkia pits were recorded as "hollows" composed almost entirely of loose ashy fills containing bone, shell and pottery (*Preliminary* 1, 24). In this volume we present more detailed accounts of the pits and their contents, including descriptions of deposits which, in some instances, indicate discrete phases of activity (§ 12). Layers showing obvious signs of having been burnt were sampled in three of the pits, 1, 16 and 28, in order to determine whether any identifiable charred plant material was preserved. Simple bucket flotation was used to separate the plant remains from the ashy sediments. A total of 2,450 litres were sampled and processed from four contexts in pit 16 (volumes were not recorded for a fifth context), and a single sample of 10 litres was taken from pit 28. Unfortunately, no records were kept for the volumes of samples collected from three contexts in pit 1.

The aim of the archaeobotanical analyses is to elucidate the nature and function of the pits (*Preliminary* 1, 25).

§ 21.1 Provenance of the samples

For pit 1, Thomas describes features which, he suggests (§ 12.1), "reflect a palimpsest of activity on the site in which five phases of human occupation can be detected". Samples for archaeobotanical analyses were taken from the third, fourth and final phases of occupation. During the third phase it is recorded that there were accumulations of dense bands of compacted silicates and the authors interpret these as being the result of the deposition of large amounts of organic material. The sample from fill 1.11 represents a layer of loose, crumbly brown soil containing ash and *havara* which separates two bands of silicates in this phase. Two features tentatively identified as hearths or fire pits are described in phase 4. The sample from fill 1.05 is contemporary with these and was taken from patches of loose, dark charcoal flecked soil in a layer that bordered the pit and which contained concentrations of bone, antler and pottery. A sample was taken from burnt lenses in hearth 1.02, dating to the final phase of occupation. The contents of the hearth included bone, pebbles and ash.

Thomas describes five phases of activity in pit 16 (§ 12.1). Archaeobotanical samples were taken from the second, third and fourth phases. The sample from fill 16.07 represents the earliest phase (phase 2), and was taken from a deposit lying on the floor of the pit, which is described as "a complex layer of ash, reddish brown soil and *havara* lenses containing fine patches of black material and bands of silicates". Many heat-cracked stones were found throughout this layer. Prolific finds are recorded in the sediments comprising the third phase of activity in pit 16. The sample from fill 16.04 was taken from a lower sub-unit of the substantial deposits in this phase. Heat-cracked stones were also found in this lower layer, together with bone, antler and pottery, and it was described as being heavily flecked with charcoal. Most importantly, it was noted at the time of excavation that at the base of the layer there were "considerable amounts of silicates and decayed organic material which appear as thin layers of randomly arranged fragments of plant stalks, leaves, seeds and charcoal." Samples from pit 16 (general), and fills 01 and 03 were taken from different layers in the fourth phase. Thomas describes these layers as being similar in composition and comprising "fine, ashy soils with heavy concentrations of charcoal, stone artefacts, flint, antler, bones and pottery".

The deposits in pit 28 were not dissimilar to those of pits 1 and 16. Thomas records lenses of ash with concentrations of heat-cracked stones and silicates, together with pottery and bone. Truncation of this feature and other disturbances precluded the possibility of identifying any distinct phases of occupation. The sample from fill 28.01 was taken from a burnt lens in this pit.

Table 21.1. List of taxa found in pits 1, 16 and 28

Pit		*16*	*16*	*16*	*16*	*1*	*1*	*1*	*1*	*28*
Unit		*16.0*	*16.01*	*16.03*	*16.04*	*16.07*	*1.02*	*1.05*	*1.11*	*28.01*
Volume of sediment floated (litres)		*n/r*	*70*	*400*	*1320*	*660*	*n/r*	*n/r*	*n/r*	*10*
CEREALS										
Hordeum sativum	grains	10	12	41	290	117	-	17	2	2
Hordeum sativum	rachis internodes	7	1	-	217	11	-	1	-	-
Triticum cf. *monococcum/dicoccum*	grains	-	-	-	6	2	-	2	-	-
Triticum dicoccum	grains	11	12	165	471	171	1	11	-	1
Triticum cf. *dicoccum*	grains	8	19	130	205	90	-	17	1	1
Triticum spp. (glume wheat)	spikelet forks	8	4	12	155	27	-	-	-	-

	terminal spk forks	-	-	1	6	1	-	-	-	-
	glume bases	14	6	12	227	28	-	-	-	-
Triticum spp. (free threshing	grains	-	-	-	6	8	-	1	-	-
Triticum spp. wheat)	rachis internodes	-	-	-	12	1	-	1	-	-
	jointed rachis	-	-	-	3	-	-	-	-	-
Secale cereale	grains	-	1	8	19	2	-	-	-	-
Avena spp.	grains	1	-	2	17	11	-	1	-	2
Cereals - indeterminate	grains	32	26	278	580	266	-	-	-	1
Culm nodes		3	-	-	8	-	-	-	-	-
PULSES										
Cicer arietinum		1	-	6	5	3	-	-	-	-
Lens sp.		48	157	457	1425	681	1	33	-	26
cf. *Pisum* sp.		-	-	-	4	-	-	-	-	-
Vicia cf. *ervilia*		-	-	3	-	-	-	-	-	-
cf. *Vicia/Lathyrus* spp.		1	2	7	49	21	-	6	-	-
cf. *Lathyrus* spp.		-	-	2	14	8	-	1	-	-
FRUITS, OIL PLANTS										
Ficus carica	nutlets	89	1	20	492	120	-	-	-	-
	pulp	x	x	x	x	x	-	-	-	-
Vitis vinifera	pips	1	1	1	7	-	-	1	-	-
	pulp	x	-	-	x	-	-	-	-	-
Pistacia spp.	small, thin shell	10	3	19	90	28	-	3	-	1
	larger, thicker shell	-	1	3	13	2	-	-	1	-
Linum sp.		-	-	-	14	6	-	-	-	-
Olea europaea		1	1	3	4	2	1	-	-	1
WILD OR WEED TAXA										
cf. *Bromus* sp.		1	-	-	4	2	-	-	-	-
Hordeum spontaneum		-	-	-	15	-	-	-	-	-
Lolium spp.		12	9	12	336	80	1	16	-	-
cf. *Panicum/Setaria* spp.		1	-	-	1	-	-	-	-	-
Phalaris sp.		-	-	-	1	1	-	-	-	-
Stipa spp.		5	-	3	8	6	-	-	-	-
Gramineae	Type 1	6	-	-	1	3	-	-	-	-
	Type 2	3	-	-	-	2	-	-	-	-
	Type 3	-	-	-	2	1	-	-	-	-
	Type 4	-	-	-	-	2	-	-	-	-
	Type 5	2	-	-	4	1	-	-	-	-
Gramineae - unidentified taxa		xx	x	x	xxx	xx	-	x	-	x
Amaranthus sp.		-	-	-	3	-	-	-	-	-
Arnebia decumbens	charred	-	-	-	1	-	-	-	-	-
Buglossoides arvensis	charred	3	16	15	99	10	-	-	-	-
Buglossoides tenuiflora	charred	-	-	-	1	-	-	-	-	-
Capparis sp.		2	-	-	9	12	-	-	-	-
Caryophyllaceae spp.		5	-	-	7	12	-	-	-	-
cf. *Suaeda* sp.		-	-	-	1	-	-	-	-	-
Compositae	'*Carthamus*' type	-	-	-	1	-	-	-	-	-
	'*Centaurea*' type	1	-	-	-	-	-	-	-	-
Neslia sp.		-	-	-	9	1	-	-	-	-
Fumaria sp.		-	-	2	12	1	-	-	-	-
Leguminosae - small seeded	Type a	4	-	-	29	4	-	-	-	-
	Type b	-	2	-	20	2	-	-	-	-
	Type c	-	-	-	3	-	-	-	-	-
	'*Scorpiurus*': Type d	-	-	-	4	-	-	-	-	-
	'*Scorpiurus*': Type e	1	-	1	22	1	-	-	-	-
	Type f	-	-	-	1	2	-	-	-	-
	'*Trifolium*': Type g	-	-	-	1	1	-	-	-	-
Liliaceae spp.		5	1	4	27	12	-	-	-	-
Malva cf. *nicaeensis*		-	-	-	1	-	-	-	-	-
Malva sp.		1	-	-	12	14	-	-	-	-
Adonis sp.		-	-	-	2	-	-	-	-	-
Galium spp.		-	1	6	87	16	-	2	-	-
cf. *Sherardia* sp.		-	-	-	1	-	-	-	-	-
cf. *Valerianella* sp.		-	-	-	5	-	-	-	-	-
Bifora testiculata		-	-	-	3	1	-	-	-	-
Indeterminate types	Type i	-	-	-	7	15	-	-	-	-
	Type ii	-	-	-	9	1	-	-	-	-
	Type iii	1	-	-	10	2	-	-	-	-
Unidentified taxa		x	x	xx	xx	xx	-	x	-	-
Flowers		1	-	-	-	1	-	-	-	-
Buds		-	-	-	1	-	-	2	-	-

Note: x = few present, xx = many present, xxx = very large numbers present, n/r = not recorded

§ 21.2 The plant remains

Samples taken from the pits comprised ash, wood charcoal and charred grains/seeds, chaff, fruits and nutshell (etc.). Overall preservation was very good and it was possible to identify a majority of the remains. Grains/seeds of food plants, including cereals and pulses, dominated the assemblages. Table 21.1 presents a list of taxa found in the three pits. In a majority of cases the numbers recorded in the table refer to an amalgamation of whole and fragmentary specimens, where "whole grain/seed equivalents" have been calculated from fragments and added to the total numbers of whole items. For example, for the cereals, the highest numbers either of apical or embryo end fragments per sample have been added to the total numbers of whole grains.

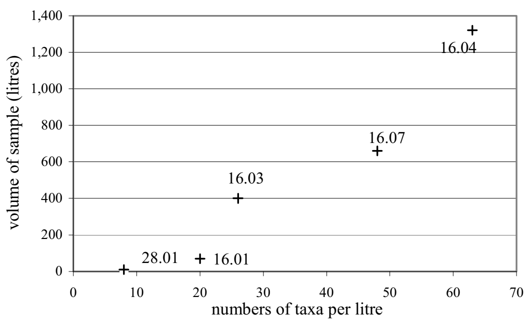

Fig. 21.1: The relationship between numbers of taxa and sample size

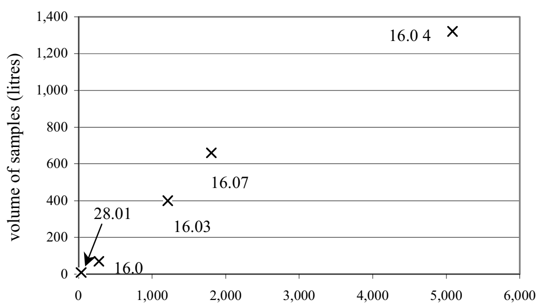

Fig. 21.2: The relationship between numbers of identifiable charred items and sample size

Figs. 21.1 and 21.2 are scattergrams plots showing the relationship between numbers of taxa and sample size, and numbers of identified charred remains and sample size. These illustrate clearly that there is both greater representation of taxa and higher numbers of remains in the larger samples, i.e. numbers of taxa and charred items are directly proportional to the volume of sediments sampled. The sample from fill 16.04, from which 1,320 litres of sediment were floated, produced the greatest range of taxa and the highest numbers of remains.

Densities of charred remains in the ashy layers for pits 16 and 28 are given in Table 21.2 (measured in terms of the number of identifiable items per litre). The variation in densities of charred plant material between the different layers was small. There was no apparent correlation between density and depth of burial for the samples taken from pit 16[1]. The mean density of charred remains in the four layers in pit 16 was 3.39 items per litre and the overall mean for pits 16 and 28 was 3.41.

Table 21.2. Densities of charred plant remains from pits 16 and 28

Unit	*16.01*	*16.03*	*16.04*	*16.07*	*28.01*
Density	3.94	3.03	3.85	2.74	3.50

§ 21.3 Cereals

The grains and chaff of glume wheats dominated the cereal component of the assemblages (Table 21.1 and Fig. 21.3). In overall morphology the grains were similar to those of *Triticum dicoccum* (emmer wheat). Three samples contained small numbers of grains which were morphologically indistinct and these have been assigned to the category *Triticum* cf. *monococcum/ dicoccum* (i.e. they shared characteristics of both einkorn and emmer grains). The glume wheat chaff (spikelet forks and glume bases) was assumed to have derived from emmer wheat. Examination of the diagnostic features on a small proportion of the chaff items confirmed this identification. The ratios of glume wheat grains to chaff[2] are recorded in Table 21.3.

Table 21.3. Ratios of glume wheat grains to chaff and barley grains to rachis internodes from pits 1 and 16

Unit	*16.0*	*16.01*	*16.03*	*16.04*	*16.07*	*1.05*
Glume wheat grains:spkt fks	1:0.8	1:0.2	1:0.06	1:0.4	1:0.2	only grains
Barley grains:rachis	1:0.7	1:0.08	only grains	1:0.7	1:0.09	1:0.06

The ratio of grains to spikelet forks for a typical *Triticum dicoccum* spikelet is 1:0.5 (i.e. there are two grains per spikelet). However, there may be as many as three grains or as few as one per spikelet, and so the expected ratio of grains to spikelet forks for unprocessed crops would fall within the range of 1:0.3 to 1:1. The composition of the wheat grains and chaff in the sample from fill 16.03 falls well outside these limits, i.e. there were far higher numbers of grains. This sample

[1] The author has noted that there is often significant correlation between depth of burial of a deposit and the density of charred remains preserved within it (Colledge 2001a, 98, 100).

[2] The numbers of grains are compared with the numbers of spikelet forks. For this calculation the numbers of glume bases were halved and added to the total number of spikelet forks.

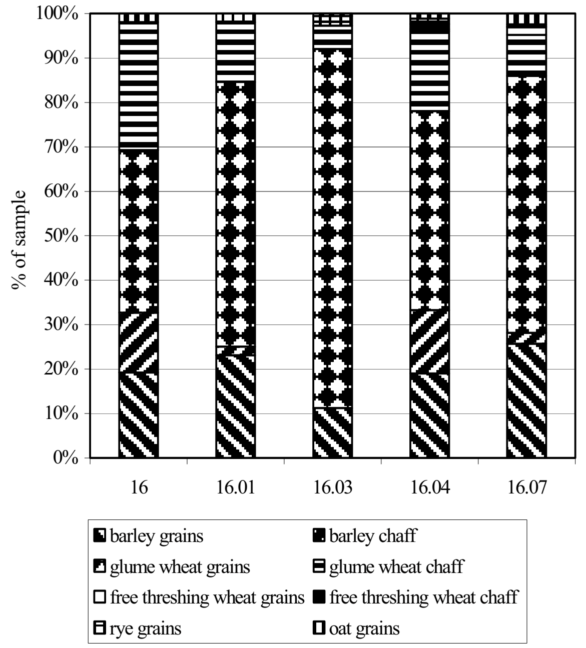

Fig. 21.3: Proportions of cereal taxa from pits 1 and 16

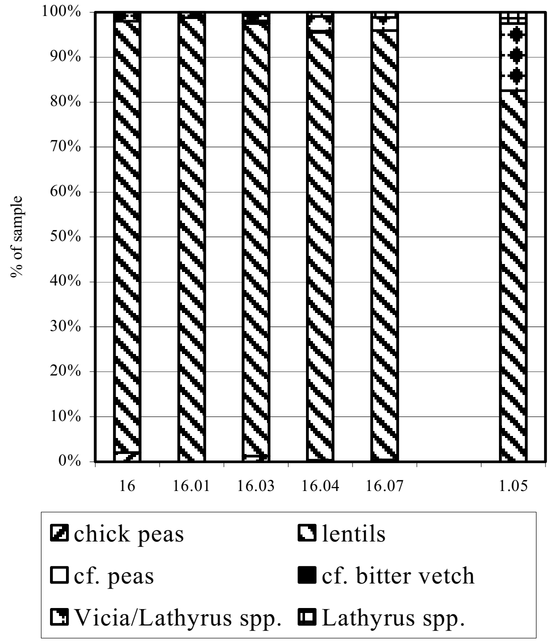

Fig. 21.4: Proportions of pulses from pits 1 and 16

may represent a partially processed crop, where some of the chaff had been removed in processing. Cleaned grain without chaff (i.e. processed crop) is present in the sample from fill 1.05. For the samples from pit 16 (general) and fill 16.04, the ratios of grains to chaff are within the range expected for unprocessed glume wheat. It should be assumed that unprocessed crops are also present in fill 16.01 and fill 16.07 for which the ratios are just outside the specified limits.

Hulled barley (*Hordeum sativum*) grains and chaff were present in high numbers in most of the contexts (Table 21.1 and Fig. 21.3). "Twisted" or asymmetric grains (i.e. grains which had formed in the lateral florets of the spikelet) as well as "straight" or symmetric grains (i.e. grains which had formed in the median floret of the spikelet) were identified in the assemblages. It can be assumed, therefore, that some grains derived from 6-row barley[3]. The presence of 2-row barley cannot be discounted and, for this exercise, it was assumed that there were mixtures of both 2-row and 6-row forms in the Mylouthkia samples. For 2-row and 6-row barley, the expected ratios of grains to rachis internodes for unprocessed crops would be 1:1 and 1:0.3 respectively, and for mixtures of the two the ratios would fall between these values. Table 21.3 gives the ratios of grains to rachis internodes for six of the contexts. For samples from fills 16.01, 16.07 and 1.05, the ratios fall well outside the range for unprocessed crops, and the high numbers of barley grains would indicate that these contexts contain partially cleaned crops. Cleaned grain without chaff (i.e. processed crop) is present in the sample from fill 16.03. The samples from pit 16 (general) and fill 16.04 apparently contain unprocessed barley.

Of note is the apparent occurrence of processed or partially processed wheat and barley crops in the same contexts, fills 16.03 and 1.05. Unprocessed crops of both cereals are also present in the same levels in pit 16, fill 16.04 and undefined fills. The coincidence of cleaned and semi-cleaned crops in the same deposits in the pits could be informative about the disposal processes that resulted in the accumulation of the charred food plant remains. However, the similarity in the composition of the grains and chaff for wheat and barley is perhaps more likely to have been caused by taphonomic effects rather than as a consequence of processing the crops. By carrying out modern experimental work, Boardman and Jones (1990, 10) found that the chaff of free-threshing cereals (i.e. in this instance barley) tends to be under-represented (as opposed to glume wheat chaff, which survives relatively well), and they comment, "It would, therefore, be unwise to treat these two types of cereal together when calculating the relative proportions of chaff and grain". On this basis, little emphasis is placed on the compositional similarities of the glume wheats and barley in the samples.

Free threshing wheat grains and rachis internode fragments were identified in pits 1 and 16. Rye grains (*Secale cereale*) were identified in four of the contexts in pit 16. Oats (*Avena* spp.) were found in small numbers in all three features.

Glume wheats and hulled barley have been identified as early as the Aceramic Neolithic on Cyprus. Einkorn and emmer wheat, together with hulled barley,

[3] Asymmetric grains fill the lateral spikelets of 6-row barley and symmetric grains derive from the median spikelets of both 2-row and 6-row forms.

were found in Cypro-PPNB levels at Mylouthkia (Peltenburg *et al.* 2000, 2001a). These cereals were also recorded at Tenta (Hansen 1978), Khirokitia (Hansen 1989, 1994; Waines and Stanley Price 1977) and Cape Andreas-Kastros (van Zeist 1981). There is a tantalising reference to a single free threshing wheat grain from the East trench at Khirokitia (Hansen 1994), but more reliable identifications of *c*. 50 grains come from the much later LNeo site of Ayios Epiktitos-Vrysi (Kyllo 1982). Rye was also found at Vrysi, and Kyllo (1982) comments that at this time it may have been grown as a separate crop rather than just occurring as a weed of other cereals. In the *Flora of Cyprus* Meikle records several species of wild oats, many of which are commonly found growing as weeds alongside cereal crops (Meikle 1985, 1758-64). It was not possible to determine whether the Mylouthkia grains represented domestic or wild species.

§ 21.4 Pulses

Lentils far outnumbered the other pulses in the samples from the pits (Table 21.1 and Fig. 21.4)[4]. On the basis of the large numbers, it was assumed that these were deliberately gathered and were therefore more likely to represent the harvests of domestic crops (i.e. from the species *Lens culinaris*). Chick pea (*Cicer arietinum*) and bitter vetch (*Vicia ervilia*) were found in small numbers and only from contexts in pit 16. Kyllo (1982) identified a total of 19 chickpeas from Vrysi, but there are no records from earlier sites on the island and bitter vetch is reported as being present in trench E contexts at Khirokitia (Hansen 1994). The wild or domestic status was not specified (or was uncertain) for the peas identified at Khirokitia, Tenta and Cape Andreas (Hansen 1994; Waines and Stanley Price 1977; Hansen 2001; van Zeist 1981). At Vrysi, however, Kyllo (1982) distinguished *Pisum elatius* (the wild pea) and *Pisum sativum* (the domestic pea) on the basis of the smooth and rough testas of the pulses. He identified a total of 98 domestic peas from the site. It is possible that the specimens identified in the sample from fill 16.04 also represent the cultivated crop. Meikle notes that the wild species, *Pisum sativum* ssp. *elatius* var *pumilio*, is probably indigenous on the island and that it commonly occurs as a weed in cultivated fields (Meikle 1977, 581). The presence of wild peas in the Mylouthkia samples cannot, therefore, be discounted. Unlike the other pulses identified at Mylouthkia, the peas (also the smaller grain legumes, *Vicia/Lathyrus* spp.) may not have been collected deliberately for food, but rather they may have been introduced into the pits as contaminants of the harvests.

§ 21.5 Fruits and oil plants

Fruits were represented in the Mylouthkia samples by fig (*Ficus carica*) nutlets and grape (*Vitis vinifera*) pips. Fragments of the charred fruit pulp (with embedded nutlets and pips) of both species were also found in the samples. It is unusual that the soft pulp survives charring, and its presence is an indication perhaps that the fruits were not exposed to the full intensity of the heat from the fires.

Olive (*Olea europaea*) fruits and flax (*Linum* sp.) seeds would have provided sources of oil for domestic use. The olive tree grows on hillsides in garigue and maquis (Meikle 1985, 1095), and its fruits would have been easily accessible at Mylouthkia. Several species of wild flax are recorded in the *Flora of Cyprus* (Meikle 1977, 317-24), and their habitats are described as open stony or rocky ground, similar to the surroundings at Mylouthkia. On the basis of the seed morphology it is difficult to distinguish between wild and domestic flax. Van Zeist (1981, 98) expressed a degree of uncertainty in his identifications of the flax seeds found at Cape Andreas; he states, “The dimensions are such that the large-sized seeds of the pale flax as well as the small-sized specimens of domestic flax come into consideration.” It was not possible to determine the status of the specimens in samples from fills 16.04 and 16.07, and it was equally likely that the cultivated and wild species were present in the ashy layers of the pits.

Identification of the species of *Pistacia* in the samples was problematic because of the lack of distinguishing features on the charred nutlets. The Mylouthkia specimens fell into two groups based on the thickness of the shell and size of the nutlets (see Table 21.1). The sizes were consistent with the fruits of three species common in Cyprus: *P. lentiscus, P. terebinthus* and *P. atlantica*, but no further distinction could be made. The trees and shrubs of the genus all produce resin (Townsend and Guest 1980, 494), and it is likely that this resource would have been exploited at Mylouthkia. The presence of *Pistacia* fruits in the samples, however, need not necessarily imply that there was deliberate use of any part of the trees. The three species would have grown on the rocky slopes adjacent to the site (Meikle 1977, 366-9), and the inclusion of the nutlets in the deposits of pits may have been as a result of accidental incorporation from the surrounding areas.

§ 21.6 Wild or weed taxa

It was possible to identify only a few of the wild taxa to the species level. The following, for which species names have been assigned (including instances where only tentative species names have been given), are commonly found growing in cultivated fields: *Bifora testiculata* (Meikle 1977, 718), *Buglossoides arvensis/tenuiflora* (Meikle 1985, 1147-9), *Malva nicaeensis* (Meikle 1977, 310) and *Hordeum spontaneum* (Meikle 1985, 1834). Many of the genera represented in the Mylouthkia samples are dominated by species that are also weeds of fields, for example, *Lolium* (Meikle 1985, 1734-8), *Phalaris* (Meikle 1985, 1770-3), *Amaranthus* (Meikle 1985, 1365-70), *Neslia* (Meikle 1977, 132-3), *Fumaria* (Meikle 1977, 88-93)

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[4] Dr Ann Butler (Institute of Archaeology, UCL) provided invaluable advice on the identification of all the pulses.

and *Adonis* (Meikle 1977, 41-3). It would seem likely, therefore, that many of the wild taxa may have been growing alongside the cereal and pulse crops and that their seeds were thus introduced into the pits as contaminants of the harvest.

Caper bushes (*Capparis* sp.) would have been common on the rocky slopes at Mylouthkia (Meikle 1977, 173). Guest lists the varied uses of the plant. He states that the buds, young branch shoots and fruits are eaten, that oil is extracted from the seeds and that the roots are noted for their medicinal properties (Townsend and Guest 1980, 140-1). It is possible that these resources were exploited at Mylouthkia but, as with several other wild taxa which would have grown locally, the presence of the seeds of caper in the samples does not necessarily indicate that any part of the plants were deliberately collected for use.

The presence of the remains of two flower heads in the samples is perhaps surprising. Since these parts of the plant are very fragile and are unlikely to survive in recognisable form once exposed to fire, it is rare to find charred specimens. Their presence may be an indication that the fires were slow burning and not so intense as to cause the plant remains to become distorted and thus unrecognisable. On the Mylouthkia flowers it was possible to see parts of the petals and stamens.

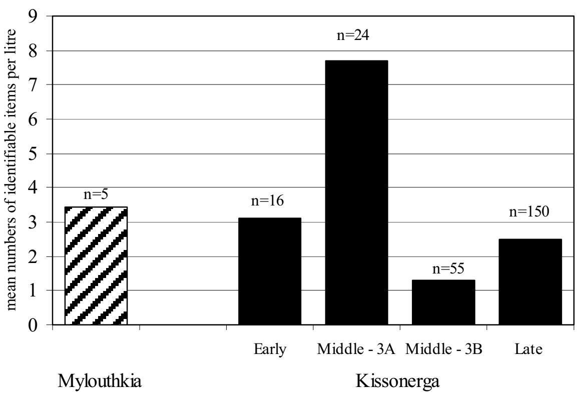

Fig.21.5: Mean number of identifiable items per litre from Mylouthkia and Kissonerga n=number of samples

§ 21.7 Shedding light on the contents of the Mylouthkia pits

Fig. 21.5 presents the mean numbers of identifiable items per unit volume in the Mylouthkia samples with those of the four periods at the neighbouring site of Kissonerga. The mean value for Mylouthkia is higher than that for three of the periods[5]. By comparison, therefore the numbers of identifiable remains in the pits are relatively high. It has been noted that contexts such as middens and rubbish tips commonly have higher densities of charred plant material than features incorporated within the "living spaces" of sites (Colledge 2001b). No comparison was possible with other contexts at Mylouthkia, but it is reasonable to suggest on the basis of the concentrations of charred remains in the pits (together with other artefactual evidence) that they represented areas where domestic waste was disposed of.

It has been noted at several sites that midden deposits often contain extremely well preserved plant remains (Colledge 2001b), and the charred assemblages at Mylouthkia are consistent with these findings. It is thought that once debris has been disposed of in areas away from habitation it is subjected to relatively little disturbance (by trampling, etc.) and, as a result, charred plant materials survive with minimal fragmentation and abrasion. In comparison with the remains from deposits within "living spaces," which are often poorly preserved and highly fragmented, those found in middens are usually in an excellent condition. Preservation of the plant materials recovered from the Mylouthkia samples was very good. The outer cell layers of the seed coats had survived on many of the taxa, and this enabled identifications to be made in a majority of cases. The fact that the fragile flower heads recovered from pit 16 had survived in recognisable form also confirms there was minimal post-depositional disturbance in and around the pits.

It seems, therefore, that harvested cereals, pulses, fruits and other plant foods that had somehow come into contact with fire and become burnt, were discarded in the Mylouthkia pits. Along with these were taxa whose presence was more likely to be the consequence of fortuitous events, resulting in burning and subsequent inclusion in the ashy deposits. A possible explanation for the high proportions of cereals and pulses in the samples is that they represent the burnt debris from storage contexts (located elsewhere on the site) that had been destroyed by fire. Stored products that had become infested or spoiled by damp may have been deliberately burned and disposed of. The cereal grains and pulses showed no signs of sprouting or any visible insect burrows, so deliberate destruction of storage facilities is discounted. Accidental burning is a more likely explanation for the high concentrations of harvested products in the pits. The varied nature of the assemblages in the samples suggests that they represented a mixture of several episodes of burning and discard. The disposal in the pits of "rakings" from small-scale domestic hearths and ovens would perhaps explain the presence of the weed seeds and chaff (and also the bone, pottery, fire cracked stones, etc. that were found in the ashy layers). These by-products from cereal processing may have been used as fuel, or merely thrown onto the fires as waste. The charred remnants of the hearths and ovens would have been cleaned out regularly and disposed of away from the living spaces. The compositions of the assemblages in the layers of the pits are comparable. It is possible that regularly undertaken activities (e.g. various episodes of disposal

[5] Period 3A at Kissonerga, which had the highest concentration of charred remains, comprised many pit contexts.

of debris from a range of domestic contexts) led to the accumulation of charred plant remains with similar and distinct compositions.

Bands of silicates, comprising considerable thicknesses of articulated phytoliths, were noted within the deposits of the pits. Phytoliths are formed in the cells of certain plants (e.g. grasses, cereals, etc.); they are composed of silica and are thus resistant to decay. Commonly, other parts of the plant decompose whereas the phytoliths persist and accumulate in occupation deposits. The layers of silicates at Mylouthkia may have represented the vestiges of decayed cereal straw and chaff, the by-products of cereal processing, which were disposed of in the pits. Equally likely is that the straw (etc.) was deliberately placed over layers of rubbish to "sterilise" the contents of the pits and render them less offensive.

Chapter 22: The Mollusca

by

Janet Ridout-Sharpe

The nature and processing of the molluscan samples are discussed in § 9. Of the 298 samples received from Mylouthkia, 242 (81.2%) came from fifty-six separate features within the Early and Middle Chalcolithic settlements (Periods 2 and 3). Twenty-eight of these features (fifteen pits, one building, nine general deposits, two surfaces and one channel) represented EChal deposits and twenty-eight (two buildings, seventeen general deposits, eight surfaces and one posthole) represented MChal deposits; some of these features contained more than one context. Whereas the EChal contexts were predominantly extramural pits, these were absent in the MChal.

Table 22.1. The Mollusca from Periods 2 and 3

Species	*No.*(1)
MARINE SHELLS: GASTROPODA	
Patella caerulea (possibly including a few *Patella aspera*)	137
Patella lusitanica (= *Patella rustica*)	33
Monodonta turbinata	118
Monodonta articulata	13
Gibbula divaricata	14
Gibbula richardi	2
Gibbula adansoni	7
Gibbula varia	4
Gibbula sp.	1
Bolma rugosa	3
Potamididae	2
Cerithium vulgatum	3
Bittium reticulatum	14
Erosiaria spurca	4
Phalium undulatum	1
Tonna galea	4
Charonia variegata	10
Bolinus brandaris	1
Trunculariopsis trunculus	8
Muricopsis cristatus	1
Thais haemastoma	5
Columbella rustica	17
Euthria cornea	1
Pisania maculosa	2
Cantharus d'orbignyi	2
Mitra cornicula	1
Conus mediterraneus	8
MARINE SHELLS: BIVALVIA	
Glycymeris glycymeris	14
Glycymeris violascens	2
Cardita trapezia	2
Cerastoderma edule	2
Parvicardium papillosum	3
Parvicardium exiguum	1
SCAPHOPODA	
Dentalium sp.	1
ESTUARINE AND FRESHWATER SHELLS	
*Truncatella subcylindric*a	4
?*Hydrobia* sp.	1
Pirenella conica	19
Melanopsis praemorsa	21
Melanoides tuberculata	1
Ovatella myosotis	10
Lymnaea truncatula	6
LAND SNAILS	
?*Orcula* sp.	157
?*Lauria* sp.	12
Chondrula tridens	191
Oxychilus sp.	19
Vitrea sp.	14
Cecilioides acicula }	
Cecilioides petitianus }	2,535
Cecilioides tumulorum }	
Helicella obvia	530
Cernuella virgata }	
Candidula ?*cyparissias* } = other Helicellinae	8,085
?*Xerophila cretica* }	
Cochlicella acuta	1
Monacha syriaca	1,345
Theba pisana	11
Eobania vermiculata	11
Helix sp. (cf. *Helix pachya* = *Helix pomatia stenarochila*)	163
Levantina sp.	3

(1) Estimated minimum number of individuals (MNI).

The Chalcolithic contexts at Mylouthkia yielded fifty-nine species (twenty-seven marine gastropods, six marine bivalves, one tusk shell, four brackish or estuarine species, three freshwater species and eighteen species of land snails) which are listed in Table 22.1. The marine shell fauna is much richer in terms of species (thirty-four versus thirteen) but less rich in terms of individual shells (441 versus 2,435) compared with the marine fauna from the Cypro-PPNB (see Table 9.1). The range of land snail species is similar (eighteen versus sixteen) as is the number of individual snails (13,077 versus 17,715): this reflects the large number of shells recovered by flotation from both Chalcolithic and Cypro-PPNB contexts. Any bias introduced by flotation will therefore be similar for both time periods.

§ 22.1 The marine shells

Condition

The predominance of 'fresh'-collected food species (*Patella* spp. and *Monodonta* spp.), although still obvious, is less extreme in the marine assemblage from the Chalcolithic: this could imply that limpets and topshells had become less important as a food source during this period, or simply that the shells were discarded elsewhere and have not been recovered. Although the number of measurable *Patella caerulea* was smaller in the Chalcolithic samples, there is some evidence to suggest that the average size of the limpets was somewhat larger during this period and therefore that the pressure on the population had been reduced as fewer limpets were being collected for food (Table 22.2). Only 37.3% of the Chalcolithic shells were less than half the maximum size for this species, compared with 67.9% of the Cypro-PPNB shells.

Table 22.2. Limpet *(Patella caerulea*) size in the Cypro-PPNB and Chalcolithic

Size range (mm)	*Cypro-PPNB*		*Chalcolithic*	
	No.	*%*	*No.*	*%*
11.0-15.9	19	3.3	2	3.9
16.0-20.9	190	33.3	6	11.8
21.0-25.9	178	31.3	11	21.6
26.0-30.9	120	21.1	12	23.5
31.0-35.9	43	7.6	10	19.6
36.0-40.9	13	2.3	3	5.9
41.0-45.9	5	0.9	4	7.8
>46.0	1	0.2	3	5.9
Total	569	100.0	51	100.0

Topshells appear to have become relatively more important during the Chalcolithic: during the preceding period they constituted only 2.2% of the food species (limpets and topshells together) whereas in the Chalcolithic topshells formed 43.5% of the food species. Again it is assumed that the smaller *Gibbula* spp. were collected with the topshells and then discarded intact because of their small size. The larger number of *Gibbula* species and individual shells represented could be a function of the greater number of *Monodonta* collected, as is the appearance of a second *Monodonta* species, *Monodonta articulata*, which is less common in nature than *Monodonta turbinata*.

The giant tun shell *Tonna galea*, which is too fragile to survive as a beach specimen, was probably eaten: a single shell could represent a substantial meal. The 'fresh' whelk-like shells (*Bolinus brandaris*, *Truncülariopsis trunculus* and *Thais haemastoma*) and ceriths (*Cerithium vulgatum*) could have been eaten but appear to have been of little importance. Some of the small 'fresh' shells could have been gathered, along with *Gibbula* spp., with the topshells, but the relatively large number of juveniles of the small needle shell *Bittium reticulatum*, together with Potamididae which share the same inshore habitat, could have been introduced to the site on seaweed perhaps used for mixing with mud for construction purposes. The 'fresh' intact *Phalium undulatum* may represent a fine beach-collected example of this attractive shell.

It is possible that some special significance was accorded to the large trumpet or triton shell, *Charonia variegata*. This species has been found in ritual contexts in archaeological sites throughout the eastern Mediterranean from the Chalcolithic onwards (Reese 1990; *LAP* II.2, 75-76) and its absence in the preceding Cypro-PPNB at Mylouthkia may be significant. Twelve examples were recovered, ten from the Chalcolithic period and two possibly (but not necessarily) later from topsoil and an undated hearth within a Period 2 pit. There is no contextual evidence for these shells being accorded special status at this site (see below), but the relative frequency of this species, which is relatively infrequent in nature, suggests that it was specially prized. All except one of the shells were considered to be in good or 'fresh' condition, which is itself remarkable as this long-lived shell frequently supports growths of other organisms and is particularly prone to damage by the shell-boring sponge *Cliona celata*.

None of the shells was complete but a large specimen from pit 16 was used together with photographs of complete shells to estimate the original size of six of the others on biometric criteria. Tornaritis (1987) states that this species reaches a maximum size of 300 mm. The shell from pit 16 was estimated to have reached 295 mm. The apex of this shell was missing but imperforate (it had not been used as a trumpet) and part of the body whorl was also missing. The surface was slightly sponge-pitted and carried some worm tubes (*Spirorbis pagenstecheri*). The condition and estimated original size of the other six 'measurable' *Charonia* shells were: spire and body whorl fragment, tip of spire missing but imperforate, some sponge-pitting but otherwise good condition (180 mm); perforate spire with a 16.0 mm hole which was possibly made deliberately to form a trumpet although there was no evidence of tool marks or wear, in excellent condition with no sponge-pitting (195 mm); the base of a spire in excellent condition with no sponge-pitting (210 mm); part of the body whorl including the columella, toothed columellar lip and siphonal canal, some sponge-pitting but otherwise good condition (230 mm); a spire base in excellent condition but with numerous worm tubes (270 mm); and a body whorl fragment of a large shell with the base of the columellar lip, in excellent condition with no sponge-pitting (275 mm). The remaining shells were too fragmentary for their original size to be estimated.

The worn condition of *Bolma rugosa*, the cowries and cone shells (*Erosaria spurca* and *Conus mediterraneus*), *Muricopsis cristatus*, *Euthria cornea* and *Mitra cornicula*, and some *Cerithium vulgatum*, *Truncülariopsis trunculus*, *Thais haemastoma*, *Columbella rustica*, *Pisania maculosa* and *Cantharus d'orbignyi* suggests that these shells were picked up off the beach. 'Fresh' examples of the last six species could also have been recent beach specimens: although some of these species are edible, the small number of shells and the fact that they were collected regardless of condition would seem to preclude their primary use as food. It is possible that they were collected simply out of interest although some, like the shells with the slit-like aperture (*Columbella rustica*, cowries and cones), may have had some function as charms. In terms of overall shell number, these three species comprise over half (52.7%) of the 'beach' shells.

Most of the marine bivalves occurred as occasional 'fresh' specimens which could have been eaten, collected from the beach or gathered with seaweed. The only species to occur in relatively large numbers were the edible dog cockles, *Glycymeris* spp. Some of these shells were 'fresh' and others 'worn': some may have been collected as food and others for use as scoops, although none of the shells showed evidence of wear. At Kissonerga, *Glycymeris* appeared to have functioned as a 'charm' shell (*LAP* II.1A, 227) and this could have been the case at Kissonerga Mylouthkia. The single tusk shell (*Dentalium* sp.) was a very worn beach specimen.

Contextual analysis

The marine shells from the Chalcolithic settlement are analysed according to context in Table 22.3. This shows that nearly all the shells from the EChal were found in pits, whereas intramural or building contexts produced more of the shells in the MChal. However, the range of shells within these contexts gives no indication of their nature: food and non-food species, fresh and worn shells occurred together.

The shells recovered from the fifteen individual EChal pits which yielded molluscan remains are listed in Table 22.4. Only pit 1 contained a fairly large number (142) of marine shells, followed by pit 16 with forty-one shells and pit 144 with fourteen; the other pits contained ten marine shells or less. Those pits which contained relatively large numbers of marine shells also included relatively large numbers of land and brackish/freshwater species (321, thirty-four and eleven from pits 1, 16 and 144, respectively). Whereas marine shells could have been deliberately introduced into the pits for various purposes, this is unlikely to have been the case with non-marine shells, and since the numbers of marine and non-marine shells are in approximate proportion to one another, it is concluded that all the shells entered

Table 22.3. The number of Mollusca according to Chalcolithic (Periods 2 and 3) contexts

A) Early Chalcolithic (Period 2)

Species	*Extramural*					*Intramural*				
	Pits	*Surfaces*	*Fill*	*General*	*Other*	*Pits*	*Surfaces*	*Fill*	*General*	*Other*
MARINE SHELLS										
Patella spp.	97	2	-	5	-	-	-	2	5	3
Monodonta spp.	68	2	-	7	-	-	-	3	2	1
Gibbula spp.	7	2	-	1	-	-	-	1	1	-
Bolma rugosa	3	-	-	-	-	-	-	-	-	-
Potamididae	2	-	-	-	-	-	-	-	-	-
Cerithium vulgatum	1	-	-	-	-	-	-	-	-	-
Bittium reticulatum	12	1	-	-	-	-	-	-	-	-
Erosiaria spurca	1	-	-	1	-	-	-	-	-	-
Phalium undulatum	1	-	-	-	-	-	-	-	-	-
Tonna galea	4	-	-	-	-	-	-	-	-	-
Charonia variegata	10	-	-	-	-	-	-	-	-	-
Bolinus brandaris	1	-	-	-	-	-	-	-	-	-
Truncularioposis trunculus	3	-	-	-	-	-	-	-	-	-
Thais haemastoma	5	-	-	-	-	-	-	-	-	-
Columbella rustica	6	-	-	-	-	-	-	-	-	-
Pisania maculosa	1	-	-	-	-	-	-	-	-	-
Conus mediterraneus	2	-	-	-	-	-	-	-	-	-
Glycymeris spp.	7	-	-	2	-	-	-	-	-	-
Cardita trapezia	-	-	-	2	-	-	-	-	-	-
Cerastoderma edule	1	-	-	-	-	-	-	-	-	-
Parvicardium spp.	2	-	-	-	-	-	-	-	-	-
ESTUARINE AND FRESHWATER SHELLS										
Truncatella subcylindrica	3	-	-	-	-	-	-	1	-	-
Pirenella conica	7	1	-	-	-	-	-	-	-	-
Ovatella myosotis	2	-	-	1	-	-	-	2	4	-
Melanopsis praemorsa	7	-	-	1	-	-	-	1	1	-
Melanoides tuberculata	1	-	-	-	-	-	-	-	-	-
LAND SNAILS										
?Orcula sp.	136	-	-	3	1	-	-	2	3	-
?Lauria sp.	3	-	-	-	-	-	-	-	-	-
Chondrula tridens	54	-	-	19	1	-	-	28	1	-
Oxychilus sp.	1	-	-	-	-	-	-	-	-	-
Vitrea sp.	3	-	-	1	-	-	-	-	-	-
Cecilioides spp.	933	-	-	175	9	-	-	225	46	-
Helicella obvia	33	-	-	4	1	-	-	4	2	1
Other Helicellinae	4,194	-	-	1,022	97	-	-	954	369	5
Monacha syriaca	248	-	-	30	-	-	-	93	51	34
Theba pisana	-	8	-	-	-	-	-	-	-	-
Eobania vermiculata	11	-	-	-	-	-	-	-	-	-
Helix sp.	33	-	-	17	2	-	-	21	8	11
?Levantina sp.	3	-	-	-	-	-	-	-	-	-

B) Middle Chalcolithic (Period 3)

Species	Extramural					Intramural				
	Pits	Sur.	Fill	General	Other	Pits	Surfaces	Fill	General	Other
MARINE SHELLS										
Patella spp.	-	3	-	13	1	5	12	16	4	-
Monodonta spp.	-	14	-	15	1	-	8	4	6	-
Gibbula spp.	-	2	-	3	-	3	3	2	1	2
Cerithium vulgatum	-	-	-	1	-	-	1	-	-	-
Bittium reticulatum	-	-	-	-	-	-	-	1	-	-
Erosaria spurca	-	-	-	-	-	1	-	-	1	-
Truncularіopsis trunculus	-	1	-	2	-	1	-	-	1	-
Muricopsis cristatus	-	-	-	-	-	-	-	1	-	-
Columbella rustica	-	1	-	-	-	6	1	2	1	-
Euthria cornea	-	-	-	-	-	1	-	-	-	-
Pisania maculosa	-	-	-	-	-	1	-	-	-	-
Cantharus d'orbignyi	-	-	-	1	-	-	1	-	-	-
Mitra cornicula	-	-	-	-	-	1	-	-	-	-
Conus mediterraneus	-	-	-	-	-	3	2	1	-	-
Glycymeris spp.	-	1	1	2	-	-	1	2	-	-
Cerastoderma edule	-	-	-	-	-	-	1	-	-	-
Parvicardium spp.	-	-	-	-	-	-	-	1	-	-
Dentalium sp.	-	-	-	1	-	-	-	-	-	-
ESTUARINE AND FRESHWATER SHELLS										
Hydrobia sp.	-	-	-	-	-	-	-	1	-	-
Pirenella conica	-	-	-	-	-	-	3	8	-	-
Ovatella myosotis	-	-	-	1	-	-	-	-	-	-
Melanopsis praemorsa	-	3	-	3	-	-	-	4	1	-
Lymnaea truncatula	-	-	-	-	-	-	-	6	-	-
LAND SNAILS										
?*Orcula* sp.	-	-	-	-	-	-	-	12	-	-
?*Lauria* sp.	-	-	-	-	-	-	-	9	-	-
Chondrula tridens	-	-	-	3	-	1	4	64	16	-
Oxychilus sp.	-	-	-	-	-	-	-	17	1	-
Vitrea sp.	-	-	-	-	-	-	-	7	3	-
Cecilioides spp.	-	-	-	11	-	-	4	943	189	-
Helicella obvia	-	4	-	13	-	-	56	401	9	2
Other Helicellinae	-	3	-	55	-	1	5	1,270	110	-
Cochlicella acuta	-	-	-	-	-	-	-	1	-	-
Monacha syriaca	-	109	-	644	-	-	25	97	13	1
Theba pisana	-	-	-	-	-	-	1	2	-	-
Helix sp.	-	4	-	20	-	-	6	35	6	-

the pits independently of human activity. Those pits which contained the most shells could have been simply larger and/or open for longer periods to have accumulated relatively more shells from the general site detritus. The shells provide no evidence for pit use or associated human activities.

The distribution of *Charonia variegata* within these pits is of particular interest: four of ten occur in various contexts within pit 1 together with food debris (limpets and topshells, *Tonna galea* and possibly *Helix* sp.), species possibly introduced with vegetation for building purposes (such as *Bittium reticulatum* and *Pirenella conica*) or with drinking water (*Melanopsis praemorsa*), 'charm' shells (*Columbella rustica* and *Conus mediterraneus*) and numerous land snails. Two of the *Charonia* occurred with a similar range of species in pit 16, and three occurred with limpets and topshells in pit 24. In each case a range of human activities is represented, rather than one specific activity. There is no contextual evidence that *Charonia* was accorded 'ritual' status.

§ 22.2 Estuarine and freshwater shells

The exploitation of a brackish water ecosystem, perhaps for vegetation for construction purposes, is suggested by the presence of three mudflat snails (*Truncatella subcylindrica*, *Hydrobia* sp. and *Ovatella myosotis*) and the aquatic *Pirenella conica*. However, very few of these snails were recovered although in nature they tend to occur at high population densities, suggesting that they do not represent an important resource.

The freshwater snails *Melanopsis praemorsa* and *Melanoides tuberculata* share the same type of well-oxygenated permanent freshwater environment, whereas a temporary source and/or riverside vegetation is indicated by *Lymnaea truncatula*. The presence of six juvenile *Lymnaea truncatula* may indicate the exploitation of rushes for roofing purposes.

Table 22.4. The numbers of Mollusca recovered from Early Chalcolithic (Period 2) pits (including 160, a Period 3 fill from B 200)

	EChal pit no.														
Species	*1*	*15*	*16*	*24*	*28*	*108*	*109*	*119*	*136*	*144*	*147*	*156*	*160*	*161*	*166*
MARINE SHELLS															
Patella	64	-	16	2	1	-	2	2	2	5	-	1	-	-	3
Monodonta	43	-	9	2	-	-	-	1	5	4	-	-	-	1	4
Gibbula	-	-	4	-	-	-	-	-	-	3	-	-	-	-	-
Bolma	1	-	1	-	-	-	-	-	1	-	-	-	-	-	-
Potamididae	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cerithium	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bittium	11	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Erosaria	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Phalium	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Tonna	3	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Charonia	4	-	2	3	-	-	1	-	-	-	-	-	-	-	-
Bolinus	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Truncularioposis	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Thais	3	-	-	1	-	-	1	-	-	-	-	-	-	-	-
Columbella	1	-	3	-	-	-	-	-	-	2	-	-	-	-	-
Pisania	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Conus	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Glycymeris	3	-	2	-	1	1	-	-	-	-	-	-	-	-	-
Cerastoderma	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parvicardium	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
ESTUARINE AND FRESHWATER SHELLS															
Truncatella	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Pirenella	5	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Ovatella	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Melanopsis	3	-	3	-	-	-	-	-	-	1	-	-	-	-	-
Melanoides	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
LAND SNAILS															
?*Orcula*	132	-	-	-	-	-	-	1	-	1	-	-	-	-	2
?*Lauria*	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chondrula	48	-	-	-	-	-	-	3	-	1	1	-	-	-	1
Oxychilus	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vitrea	1	-	-	-	-	-	-	-	1	1	-	-	-	-	-
Helicella	16	-	14	-	-	-	-	-	-	1	-	-	1	-	1
Monacha	221	-	8	-	-	-	-	2	3	4	2	-	-	-	8
Eobania	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-
Helix	20	-	4	2	-	1	1	-	-	2	1	-	-	-	2
?*Levantina*	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-

Table 22.5. Relative frequency of land snails according to period

Species	*Cypro-PPNB Period 1*		*Chalcolithic Period 2-3*		*EChal Period 2*		*MChal Period 3*	
	No.	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
?*Orcula* sp.	11	0.06	157	1.20	145	1.63	12	0.29
?*Lauria* sp.	3	0.01	12	0.09	3	0.03	9	0.22
Chondrula tridens	246	1.39	191	1.46	103	1.16	88	2.11
Oxychilus sp.	3	0.01	19	0.15	1	0.01	18	0.43
Vitrea sp.	9	0.04	14	0.11	4	0.05	10	0.24
Cecilioides spp.	3,583	20.22	2,535	19.41	1,388	15.62	1,147	27.47
All Helicellinae	11,630	65.64	8,615	65.95	6,686	75.25	1,929	46.19
Monacha syriaca	1,843	10.39	1,345	10.30	456	5.13	889	21.28
Theba pisana	34	0.18	11	0.08	8	0.09	3	0.07
Helix sp.	366	2.07	163	1.25	92	1.03	71	1.70
Total	17,728	100.00	13,062	100.00	8,886	100.00	4,176	100.00

§ 22.3 Land snails

All sixteen land snail species represented in the Cypro-PPNB were also present in the Chalcolithic, with the addition of a single fragmentary *Cochlicella acuta* from flotation samples, and a large land snail *Levantina* sp.

The contextual analysis of land snails (Table 22.3) shows that most of these shells, together with the marine shells, came from pits during the EChal. Building fill was also well represented by non-marine species in both Chalcolithic periods but there were virtually none in MChal intramural pits, unlike the marine shells. Although these pits may therefore have been relatively inaccessible to land snails, the contextual distribution of the non-marine species cannot be related to human activities. The presence of relatively large numbers of tiny juveniles in some contexts, especially extramural pits and building fill, shows that these provided favourable breeding sites for the snails.

It is possible that *Helix* sp. continued to be eaten during this period as burnt examples were found together with limpets and topshells in several contexts. Interestingly, considering that *Eobania vermiculata* may be a more recent introduction to Cyprus (see § 9), all eleven shells of this species attributed to the Chalcolithic were found together in an unexcavated pit or 'ashy hollow' (pit 15) immediately below the topsoil which was only tentatively assigned to Period 2. It therefore appears that *Eobania* should not be considered part of the Chalcolithic non-marine assemblage. *Levantina* sp. was represented by three shells in EChal pit 16 where it occurred with a whole range of food and other molluscan species. Reese (1978) comments on the rarity of *Levantina* from archaeological sites in the eastern Mediterranean, including Cyprus.

Land snails can be sensitive environmental indicators and any chronological changes in the relative frequency of different species can suggest concomitant environmental change. The relative proportions of the different species in the Cypro-PPNB and Chalcolithic periods were remarkably consistent (Table 22.5). This was particularly so with regard to the main indicator species: the Helicellinae, which typify dry open areas with little cover were represented by 65.64 and 65.95%; and *Monacha syriaca*, which prefers rather more cover, was represented by 10.39 and 10.30% in the Cypro-PPNB and Chalcolithic periods, respectively. Other species which were present in relatively large numbers also showed this consistency: *Chondrula tridens* (dry grassland) and *Cecilioides* spp. were represented by 1.39 and 1.46% and 20.22 and 19.41%, respectively. The snail evidence therefore suggests that there was no overall environmental change between the Cypro-PPNB and Chalcolithic periods.

However, when the EChal and MChal periods are considered separately, the relative proportion of dry grassland species (Helicellinae) shows a decline from 75.25 to 46.19% and the proportion of *Monacha syriaca* shows an increase from 5.13 to 21.28% between the two periods, respectively. This change might indicate the onset of slightly wetter conditions during the MChal or perhaps a change in emphasis from pastoral to arable farming.

This suggestion may be supported by the higher frequency of *Ceciliodes* spp. in the MChal compared with the EChal (27.47% versus 15.62%). This could reflect an increase in the extent of environmental disturbance or cultivation: Evans (1972) states that *Cecilioides acicula* is common in areas which have been cultivated but is often absent from undisturbed ground.

§ 22.4 Summary and conclusions

Table 22.6 lists all the Mollusca recorded from Mylouthkia according to chronological period and also includes shells which could not be assigned to context or period. This list shows a total of sixty-four species (twenty-seven marine gastropods, nine marine bivalves, one tusk shell, four estuarine or brackish water species, four freshwater species and nineteen species of land snails).

Table 22.6. The Mollusca from Mylouthkia according to period

Species	*Period 1 No.*	*Period 2 No.*	*Period 3 No.*	*Unknown No.*	*Total (1)*
MARINE SHELLS: GASTROPODA					
Patella caerulea	1,998	94	43	28	2,163
Patella lusitanica	357	22	11	2	392
Monodonta turbinata	53	77	41	18	189
Monodonta articulata	-	6	7	3	16
Gibbula divaricata	2	8	6	-	16
Gibbula richardi	-	-	2	-	2
Gibbula adansoni	-	2	5	-	7
Gibbula varia	2	2	2	-	6
Gibbula sp.	-	-	1	-	1
Bolma rugosa	3	3	-	-	6
Potamididae	-	2	-	-	2
Cerithium vulgatum	-	1	2	1	4
Bittium reticulatum	-	13	1	30	44
Erosaria spurca	2	2	2	-	6
Phalium undulatum	-	1	-	-	1
Tonna galea	-	4	-	1	5
Charonia variegata	-	10	-	2	12
Bolinus brandaris	-	1	-	-	1
Truncularioptsis trunculus	1	3	5	3	12
Muricopsis cristatus	-	-	1	1	2
Thais haemastoma	-	5	-	1	6
Columbella rustica	6	6	11	1	24
Euthria cornea	-	-	1	-	1
Pisania maculosa	1	1	1	1	4
Cantharus d'orbignyi	-	-	2	-	2
Mitra cornicula	-	-	1	-	1
Conus mediterraneus	-	2	6	-	8
MARINE SHELLS: BIVALVIA					
Glycymeris glycymeris	9	8	6	1	24
Glycymeris violascens	1	1	1	1	4
Cardita trapezia	-	2	-	-	2
Cerastoderma edule	-	1	1	-	2
Acanthocardia aculeata	1	-	-	-	1
Parvicardium papillosum	-	2	-	1	3
Parvicardium exiguum	-	-	1	-	1
Callista chione	1	-	-	2	3
Thracia distorta	-	-	-	1	1

SCAPHOPODA					
Dentalium sp.	-	-	1	-	1
unidentified marine shells	2	6	1	1	10
ESTUARINE AND FRESHWATER SHELLS					
Valvata cristata	2	-	-	-	2
Truncatella subcylindrica	-	4	-	-	4
Hydrobia sp.	1	-	1	-	2
Pirenella conica	17	8	11	5	41
Melanopsis praemorsa	13	10	11	1	35
Melanoides tuberculata	-	1	-	-	1
Ovatella myosotis	1	9	1	-	11
Lymnaea truncatula	2	-	6	-	8
LAND SNAILS					
?*Orcula* sp.	11	145	12	24	192
?*Lauria* sp.	3	3	9	-	15
Chondrula tridens	246	103	88	11	448
Oxychilus sp.	3	1	18	-	22
Vitrea sp.	9	4	10	1	24
Cecilioides acicula }					
Cecilioides petitianus }	3,583	1,388	1,147	228	6,346
Cecilioides tumulorum }					
Helicella obvia	130	45	485	2	662
Cernuella virgata }					
Candidula ?*cyparissias* }	11,586	6,641	1,444	694	20,365
?*Xerophila cretica* }					
Cochlicella acuta	-	-	1	-	1
Monacha syriaca	1,843	456	889	80	3,268
Monacha schotti	-	-	-	4	4
Theba pisana	34	8	3	-	45
Eobania vermiculata	1	11	-	4	16
Helix sp.	366	92	71	21	550
Levantina sp.	-	3	-	-	3

(1) Estimated minimum number of individuals (MNI).

The marine species are numerically dominated by limpets, which may have formed an over-exploited food resource during the Cypro-PPNB but became less important thereafter. Some of the marine species may have had a symbolic or ritual function, such as the trumpet shell *Charonia variegata* and the 'love charms' comprising *Columbella rustica*, cowries and cones. It was not possible to assess the role of the marine species from contextual analysis and, apart from a possible midden (well 116) deposit in the Cypro-PPNB, it was not possible to infer human activities from the molluscan content of the different contexts.

Brackish and freshwater species indicate a range of different aquatic environments, including a permanent water source and a lagoon or estuary in the vicinity. The land snail evidence points to no major environmental change from the Aceramic to the Chalcolithic but may indicate a shift in emphasis towards arable farming during the Middle Chalcolithic.

Chapter 23: Fish Remains

by

Ruby Cerón-Carrasco

Period 2 at Mylouthkia yielded more fish remains than Period 1, and a larger variety of species has been identified. Table 23.1 gives a description of all the fish bone fragments recovered in catalogue form while Table 23.2 gives the NISP (number of identified species) per fragment count.

§ 23.1 Notes on species identified

Dicentrarchus labrax (Bass E, Lavraki GR), Serranidae family, are found mainly on rocky shores; during summer they migrate inshore where they may be found in estuaries and even far up rivers. A very territorial species, it occupies well-defined feeding territories. In the Mediterranean it spawns in January to March. It may grow up to 100 cm (Lythgoe *et al.* 1971).

This group of fishes was well regarded by the Greeks and Romans who considered them highly intelligent and astute for they could easily escape from capture. They can be caught by using lines with hook, by netting and by harpooning (Bauchot and Pras 1993).

Family Sparidae, are mostly found in the warmer seas of the world and are very common in the Mediterranean, especially near the coasts. Most species form groups or loose shoals (Lythgoe *et al.* 1971). They can be caught using nets, harpoons, or simple lines with hooks (Bauchot and Pras 1993).

Diplodus sargus (white bream E, Sargós GR), Sparidae family, is common near rocky coasts, especially where fallen rocks form a slope containing many holes suitable for refuge. It is found throughout the year but especially common in spring and summer. It is usually found between about 2 and 20 m. It often forms shoals. In early summer it enters brackish water, but it returns to the sea in autumn. It grows up to 45 cm (Lythgoe *et al.* 1971).).

Diplodus annularis (Annular bream E, Spàros GR), Sparidae family, is the most common sea bream of rocky coasts. It is usually found in small groups, sometimes with other species, searching with the tide over rocks for small crustaceans and molluscs. In this species, the exploratory behaviour typical of sea breams is highly developed. Breeding season occurs during April to August. It grows up to 12 cm (Luther and Fiedler 1976).

Sardina pilchardus (Sardine/Pilchard E, Sardèlla GR), family Clupeidae, are found near the coast in late spring and summer but in the autumn they disappear and probably over-winter in deeper waters. They occur in very large shoals, which may enter brackish waters. It grows up to 16 cm (Lythgoe *et al.* 1971).

Trachurus trachurus (Horse mackerel E, Scumpri GR), family Carangidae, are a common fish found swimming in shoals, usually in open water. They are fast swimmers. They may be caught by netting or line with hooks (Bauchot and Pras 1993). During the summer months they are common near the coasts but during the winter they migrate offshore to deeper waters. It may grow up to 40 cm (Lythgoe *et al.* 1971).

Table 23.1. Fish remains from Chalcolithic (Period 2) contexts

Context	*Element*	*Number*	*Taxa*	*Size*	*Texture*	*Erosion*	*Condition*	*Comments*
1.02	cerath	1	Scombridae family	Juvenile?	4	4	8	
	fin rays	3	Indeterminate	Unknown	4	4	8	fragments <10 cm/burnt-black
1.05	den/l	1	cf. *Diplodus annularis*	Juvenile	3	4	7	proximal
	spines	4	Indeterminate	Unknown	4	5	9	fragments <5 cm
	fragments	7	Indeterminate	Unknown	4	5	9	<5 cm
1.11	cver	1	Serranidae family	Maturing?	3	4	7	
	quad	1	Serranidae family	Maturing?	3	4	7	proximal
	fragment	1	Indeterminate	Unknown	4	5	9	<5 cm
1.13	art	1	cf. *Diplodus annularis*	Juvenile?	4	4	8	proximal
	spine	1	Indeterminate	Unknown	4	5	9	fragment <5 cm/burnt-black
	fragments	3	Indeterminate	Unknown	4	5	9	<5 cm
16.07	pcver	1	Serranidae family	Mature	3	4	7	
	cver	1	*Dicentrarchus labrax*	Mature	4	4	8	burnt-white/fragment
	pcver	1	*Sardina pilchardus*	Maturing	4	4	8	
	pcver	3	cf. *Muraena helena*	Maturing	4	4	8	
	fin rays	16	Indeterminate	Unknown	4	5	9	fragments <10 cm
	fin rays	1	Indeterminate	Unknown	4	5	9	fragments <10 cm/burnt-white
100.04	cver	1	*Micromesistius poutassou*	Mature	4	4	8	
	cver	1	cf. *Diplodus sargus*	Juvenile?	4	4	8	fragment
120.121	fragment	1	Indeterminate	-	4	5	9	< 5 cm
205	spine	1	Indeterminate	-	4	5	9	< 5cm, burnt-white

Key to element identification: cver - caudal vertebrae; pcver - precaudal vertebrae; den - dentary; art - articular; quad - quadrate; bran - branchiostegals; cerath - ceratohyal: Side: l - left; r - right

The Scombridae family, mackerels, are strong active swimmers that undertake long migrations. These live in large shoals near the surface where they feed on smaller fishes.

Muraena helena (Moray E, Smirena GR), family Muraenidae, occur from near the surface to deep water. They are normally found deep in cracks and crevices in rocks, they also seem to particularly favour old amphorae as home (Lythgoe *et al.* 1971, Bauchot and Pras 1993). They are caught more frequently during winter when they approach the coast to breed and may be caught by line and hook, as well as by harpooning (Bauchot and Pras 1993).

Micromesistius poutassou (Blue whiting E, Scarmòs GR), family Gadidae, inhabits moderate to greater depths of over 400 m, feeding chiefly on crustaceans (Luther and Fiedler 1976). It may grow up to 35 cm in the Mediterranean (Lythgoe *et al.* 1971). It can be caught on line (Bauchot and Pras 1993).

§ 23.2 General discussion of the Chalcolithic fish remains

There are at least three different types of marine fishing employed during the Chalcolithic period at Mylouthkia. One was carried out along rocky shores either from rocks or boats using line and hook as well as possible harpooning which would have resulted in the catch of Serranidae, bass, white bream, annular bream and horse mackerel. This method would also have been employed for the capture of moray eel. Moderate offshore fishing was employed for blue whiting on boats using line and hook and a more specialised open water fishing method using nets for catching shoal species like the sardine, and lines for catching Scombridae.

As at Cape Andreas and Kissonerga, seasonal and specialised fishing appear to have been practised at Mylouthkia throughout the periods represented, although this is more obvious during the Chalcolithic settlement. While only small quantities of fish remains from Mylouthkia have survived the harsh taphonomic processes, they are an important asset in helping us understand the economy and modes of exploitation of their natural resources by the prehistoric societies of Cypriot coastal settlements. Only by adopting careful sampling procedures and careful examination of all icthyo-archaeological remains can we expand on our understanding of not only the environment but also of the ways in which prehistoric societies in this region made use of their natural resources.

Table 23.2. Summary of species from Chalcolithic (Periods 2 and 3) contexts represented by fragment count (NISP)

Species	*NISP*
Scombridae family	1
Serranidae family	3
Dicentrarchus labrax	1
cf. *Diplodus sargus*	1
cf. *Diplodus annularis*	2
Sardina pilchardus	1
cf. *Muraena helena*	3
Micromesistius poutassou	1
Indeterminate	57
Total	50

Chapter 24: Post-Colonisation Settlement Patterns: the Late Neolithic-Chalcolithic Transition

by

Edgar Peltenburg

In the aftermath of the colonisation of Cyprus (§ 11), settlement collapse on the island occurred at the end of the Khirokitian and again at the end of the LNeo. Prevailing interpretive models range from island abandonment to "cultural involution" (cf. Cherry 1990, 157). The hypothesis proposed here is that the dynamics of demographic expansion resulted in the establishment of new settlement patterns, ones that initially involved recourse to timber structures and that consequently lead to less archaeological visibility in the major lacunae mentioned in the Introduction. I examine the hypothesis in relation to settlement collapse in the earlier part of the 4th millennium BC. For the first collapse, one that treats the Neolithic megasite phenomenon, see Peltenburg forthcoming.

Architecturally, the most striking difference between the LNeo and the Chalcolithic is the ubiquitous shift from sub-rectilinear to circular buildings. The latter are often equated with societies engaged in hunting (e.g. Bar-Yosef 2001, 25), a more mobile existence and a socially egalitarian organisation (e.g. Flannery 1972). Yet, there is ample evidence that the inhabitants of Chalcolithic roundhouses were permanently settled farmers engaged in fluctuating levels of social complexity, ones that contradict the 'throwback' postulate.

Dikaios (1962, 197-9) argued for a continuous sequence of developments from the LNeo to the Chalcolithic. Subsequently, calibration of radiocarbon dates opened a gap of some 600 years between the last LNeo and first Chalcolithic dates (Watkins 1973, 53-4; Peltenburg 1982b, 51). Erimi material that could undoubtedly be attributed to that time floated uneasily within the half millennium gap. Causes for possible generalised site abandonments *c.* 4000 cal BC (see Table 11.3 for the LNeo sites) and for demographic dislocations after the LNeo remain unresolved (e.g. Knapp *et al.* 1994, 409-411). The most often repeated interpretation is Dikaios' (1961) inference of an earthquake prior to the abandonment of LNeo Sotira. His argument still needs supporting evidence. For Held (1992, 122), the quake triggered "squatter settlement and architectural retrenchment". Despite this acknowledged upheaval, he could propose "a nearly seamless transition in the archaeological record" (Held 1992, 122). While it is at least generally agreed from essential continuities between the two periods that transformation was indigenous, it is equally clear that much remains to be learnt about developmental trajectories at this time.

Virtually no new data appeared to help evaluate the significant changes until the early 1970s when a Late Phase was discovered at the LNeo site of Vrysi. In it, upstanding architecture typical of the LNeo disappeared, material was mainly recovered from a large depression and there were marked shifts in pottery manufacture (Peltenburg 1982a). However, it was only with the later publication of the Mylouthkia and Ayious preliminary reports that the ceramic break was recognised as distinctive of the Chalcolithic (*Preliminary* 2, 1-4). The new kind of pottery was confined to Area V E of the depression at Vrysi, and according to initial assessments of radiocarbon dates from that location, Chalcolithic traits probably appeared about the end of the first quarter of the 4th millennium cal BC (Peltenburg and Spanou 1999, 17-19; but see below). As in the case of a large pit/depression assemblage at Tenta (Todd 1987, 25), the evidence for change was largely confined to ceramics. In effect, little had altered since Dikaios had outlined a relative sequence for this period.

In the late 1970s research on the Chalcolithic started at Mylouthkia (1976-81) and rescue work took place at Ayious (1978-80: Todd and Croft in press). Radiocarbon dates from these key sites demonstrated that they belonged to the EChal transition. Preliminary reports provided important details about the nature of the archaeology of the period, ones that allowed the assignment of other sites like Chalcolithic Maa to the EChal (Bolger 1988b; Thomas 1988). The site of Ayious retains many negative features, primarily different types of pits and a tunnel. Pottery analysis suggests it has two ceramically defined EChal phases. Mylouthkia 2 and 3 are roughly contemporary with and continue later than Ayious. It has other kinds of pits and an evolution from flimsy structural remains to solid stone architecture. Current work there (pp. xxxi-xxxii) is yielding formal burials and stretches of substantial linear ditches and walls, that is, large-scale communal works that contrast with the meagre remains furnished by earlier excavations. Considered together, the two sites are beginning to provide secure and varied evidence on the nature of the transition from the LNeo to the Chalcolithic.

§ 24.1 Dating Periods 2 and 3 to the mid-4th millennium

Relative chronology (Table 24.1)

Chalcolithic Mylouthkia consists primarily of some 40 discrete archaeological entities in an area *c.* 200 x 250 m (Figs. 26, 27). All were cut down from old ground surfaces that are now lost to heavy erosion. Only a few pits are in stratigraphic relationship, but as there are no major ceramic differences between them, they are ascribed to the same phase of the site. Pit sequences include pit 16 which may have cut pit 30, ditch 103 which cut pits 100 and 102, and pit 108 which slighted 109. Mylouthkia has, however, yielded one critical sequence. This is in Plot 58 where the large pit 300 is partly overlain by B 330 which in turn was truncated by B 200 (Figs. 28, 42). The existence of an intervening fragmentary building, B 290, is debated (see § 13.2, 3), but as it has so little associated material, it may be set aside for the purposes of most relative dating issues.

The significance of the 300-200 sequence is that it demonstrates unequivocally the succession of stone-based structures over a pit with fill formation and contents belonging to Period 2. The emergence of solid architecture is probably an island-wide phenomenon at this time. It is evident at Kissonerga 2-3A (*LAP* II.1A, 240-4), the Ayios Epiktitos-Kelali/Mezarlik sequence (Dikaios 1936, 73-4) and Erimi (Dikaios 1936, 23), though not at Ayious and Kalavasos A and B. Mylouthkia is important in this context since the transition is closely dated by radiocarbon chronology and it has prolific cultural material to help evaluate the broader significance of the change.

Chief within this material is the pottery. Its development allows relative dating of the discrete contexts and its inter-regional features allow cross-dating between sites. Bolger's multivariate analysis (§ 14.10) forms the basis of the relative chronology of Mylouthkia, and she concludes that it is precisely with the installation of B 200 over earlier activities that a major ceramic break occurred in what is otherwise a fairly homogenous site assemblage. Her observations emphasise what was pointed out in the Project's Kissonerga volume, namely the abrupt nature of ceramic changes that punctuate Cypriot prehistory (*LAP* II.1A, 11-12). The methodology required to assess pace of change necessitates rejection of sherdage wherever possible, since it is subject to pervasive re-deposition. Considering only the whole vessels in B 200, we see a complete cessation of GB pottery which had been dominant in the preceding pits, and its replacement by RM. In addition, an entirely new fabric, F, is used for vessel production. While GB may have stopped earlier, fabric and shape analyses show that a major transformation was completed by the time inhabitants built B 200. In other words, it is not the appearance of RM that signals the onset of Mylouthkia Period 2, but a combination of factors in an evolutionary sequence.

The beginning of the local sequence is readily characterised by assemblages in the Plot 58/76 pits, the end by B 200. There is probably an intervening group of contexts that cannot be sub-divided, in part because of the worn nature of the sherdage and possibly because there were functional variations between pit assemblages. Radiocarbon dates to be assessed below indicate a short time span for shifting traditions in this sequence. Major ceramic change, therefore, corresponds with significant architectural developments and together these define the differences between Mylouthkia Periods 2 and 3.

Table 24.1. Relative chronology of Chalcolithic pits and structures. [] refers to structures inside pits

Period	*Site Period*	*Pits*	*Post-frame structures*	*Stone-based buildings*
MChal	3			200, 330 (?)
EChal	late 2	100-102, 104, 108-9, 110 (part), 300	[102], 152	
EChal	early 2	1, 2, 4, 5, 8, 9, 16, 18-20, 24, 28	[1]	

On the basis of these considerations, it is possible to allocate 12 pits to the earliest part of Period 2, all in Plot 58/76, and some 8 pits to the end of that period. There are none from Period 3 (Table 24.1). The earliest structural evidence comes from wooden structures in pit 1, followed by evidence for another semi-subterranean post-frame structure in pit 102 and, about the same time, an above ground post-frame structure, B 152 at the north of the site. These timbered structures are succeeded by buildings with stone foundations in Period 3. The tentative attribution of stone B 330 to Period 3 is made on the basis of the appearance of fabric F with the structure, but the sample is not large. Support for this attribution is forthcoming from the very late Period 2 ceramic profile in underlying pit 300. It should be stressed that the neat diachronic divisions in Table 24.1 where timber structures are replaced by stone-based ones is undoubtedly an over-simplification, one due to the relatively small scale of excavated exposures at Mylouthkia and the severely eroded nature of the site. The trend is probably correct, but it should be noted that timber structures continue to be used for various purposes throughout the Chalcolithic (e.g. B 19 at Lemba, Mortuary Enclosure 375 at Kissonerga: *LAP* I, 107; IIA, 47, and perhaps the structure at Ayios Epiktitos-Kelali: Dikaios 1936, 74).

Absolute chronology: Period 2 (Table 24.2, Fig. 24.1)

Mylouthkia has the most coherent set of ^{14}C dates from the Cypriot EChal. Most were considered in *LAP* II.1A, 16 where it was stated that "the combined calibrated calendar probability range for the six EChal determinations from Mylouthkia (BM-1473, 1474, 1475, 1476, 1539, 1540) at 1σ is 3,630-3,560 BC (P=0.19), 3,540-3,500 BC (P=0.19), and 3,460-3,380 BC (P=0.62) (Ramsey 1995)". They suggest a *floruit* of perhaps a century or two around the middle of the 4th millennium cal BC for Mylouthkia 2. The dates, which are not subject to British Museum revisions (cf. Todd and Croft in press), mainly come from charcoals recovered from pits 1 and 16 in Plots 58 and 76. They cluster so tightly that it is not possible to differentiate the pits or their fills chronologically. The remaining date, OxA-7464, is an AMS date run by the Oxford laboratory and is slightly earlier. It comes from one of the pits to the south, in Plot 78A, and was run to check if there might be a chronological disjuncture between northern and southern pit concentrations (Fig. 27). There is a pronounced overlap at 2-sigma, but at one it suggests that the southern concentration, or at least pit 108, could be slightly earlier than pits to the north. This contrasts with the ceramic analysis which dates plot 78A features marginally later (§ 14.10). More quality ^{14}C dates might contribute to a resolution of this issue. Given the severely eroded nature of the plot 78A pits, the well known unreliability of only one date and the cogency of the ceramic arguments, it is suggested that we adopt the 2-sigma overlap, and that the material there is slightly later than that to the north, or functionally distinct and contemporary. The EChal at Mylouthkia, therefore, belongs to a short period in the middle of the 4th millennium cal BC.

Table 24.2. Periods 2 and 3 radiocarbon date list

Context	*Code*	*Sample Material*	*Years BP*	*delta 13C*	*Cal BC from OxCal 1 sigma*	*2 sigma*
Period 2						
Pit 108.2	OxA-7464	R415 charcoal	4885±45	-23.6%	3,705-3,640	3,780-3,530
Pit 1.13	BM-1475	charcoal	4815±60	-25.4%	3,660-3,520	3,710-3,370
Pit 16.1	BM-1539	charcoal	4790±80	-23.1%	3,660-3,380	3,710-3,360
Pit 1.2	BM-1473	charcoal	4765±55	-24.3%	3,640-3,380	3,650-3,370
Pit 16.4	BM-1540	charcoal	4740±50	-23.6%	3,640-3,380	3,640-3,370
Pit 1.11	BM-1474	charcoal	4665±50	-24.2%	3,520-3,360	3,630-3,350
Pit 16 face	BM-1476	charcoal	4650±50	-21.2%	3,520-3,360	3,630-3,340
Period 3						
B200.151	OxA-7463	C525 *Pistacia*	4710±50	-24.0%	3,630-3,370	3,640-3,360
B200.211	OxA-7462	C529 *Pistacia*	4650±50	-22.1%	3,520-3,360	3,630-3,340

Atmospheric data from Stuiver *et al.* 1998; OxCal v3.5, Ramsey 2000

There are five other sites with ^{14}C dates that are relevant for the transition (Fig. 24.1). A sixth site, Tenta, has ceramics of this period but its single date is much too high for the transition considered here. The excavators can offer no cogent reason for its early date (Todd and Croft in press).

The site of Vrysi on the north coast (Fig. 25) is one of the few sites in Cyprus that extends from the LNeo into the EChal transition. It is, therefore, highly significant even though regionalism and community alliances mean that it would be dangerous to extrapolate too much from it in considering evolution in the distant south and west coastlands. Documented changes in late ceramics at Vrysi correspond with major alterations in settlement configuration. Prior to the changes, LNeo subterranean habitations located inside an extensive hollow and defensive ditch were of stone. These disappear when EChal pottery, other objects and ecofacts accumulated in an enormous depression near the centre of the headland. In Peltenburg and Spanou 1999 the transition was placed at the end of the first quarter of the 4th millennium cal BC on the erroneous application of British Museum unrevised dates. Unfortunately, this overlooked the fact that three dates of the Vrysi series (BM-1906-8) were revised upwards. One of these, BM-1906, is critical since it is from a level that marks the transition to the EChal. It was 5030±80, but the revised date, BM-1906R, is 5360±120 BP (Bowman *et al*. 1990). Another date, from Area VD.1, is from a LNeo level, but is hardly any earlier (Fig. 24.1). Vrysi radiocarbon chronology, therefore, only provides a *terminus post quem* for the start of the EChal, although the unbroken stratigraphy and continuous evolution of pottery suggests that the EChal followed soon after the latest date, probably *c.* 3,900-4,000 cal BC.

In the south, the latest date from LNeo Sotira and the one from Kalavasos B (Fig. 24.1) are later than the terminal Neolithic Vrysi dates, so they open up the possibility that the Neolithic continued later in the south and that the end of the LNeo was not a synchronous phenomenon. It should be stated that Dikaios (1962, 198) considered the Kalavasos B date to indicate the start of the Erimi culture, rather than to belong to the LNeo as argued here. According to the associated pottery, however, it should be late in the LNeo (Peltenburg 1978, 68), and so, together with Sotira, it suggests that the LNeo may have carried on to *c.* 3800 cal BC in the south. Clearly, more dates from Kalavasos B, which is probably a mixed component (see its LChal bowl, Dikaios 1962, Pl. 43.6) of a much more extensive use of the eastern lip of the Vasilikos Valley in prehistoric times, are desirable.

The nearby site of Kissonerga 2 has yielded three dates associated with pottery that is closely equated with Mylouthkia 2 ceramics (*LAP* II.1A, 16). Only the date from pit 1132 is contemporary. That from pit 1149 may indicate an earlier start for the EChal at Kissonerga, but this would need corroboration. Both it and the date from pit 1659 are regarded as coming from samples derived from LNeo occupation at the site. Because of that preceding occupation, we cannot rule out the possibility of continuous occupation from the LNeo at Kissonerga, but these dates do not clearly establish the start of the EChal.

Last is Kalavasos-Ayious, a pit site in the Vasilikos Valley (Fig. 25) which bears the closest similarities to Mylouthkia 2. Its largest pits have activity surfaces and they contained fragments of structural materials. Postholes were also found, but they did not make coherent plans. Four of its British Museum revised dates are relevant here (Todd and Croft in press). Three dates belong to the largely ceramically defined earlier phase. Two of these are earlier, one probably later than the Mylouthkia set. They suggest that Ayious could be

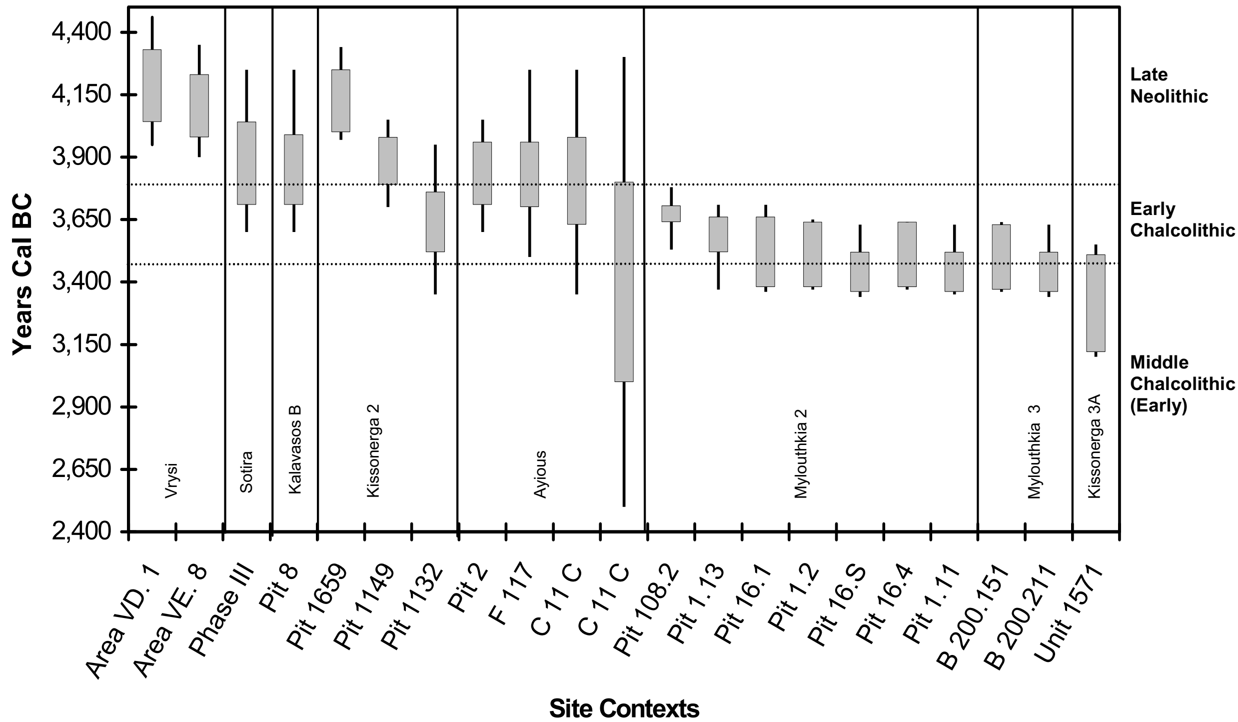

Fig. 24.1: Radiocarbon dates of selected sites of the Late Neolithic-Middle Chalcolithic periods. Vrysi, Sotira and Kalsvasos B dates are terminal Neolithic. Mylouthkia 3 and Kissonerga 3A the start of the Middle Chalcolithic. The remainder belong to the Early Chalcolithic period

contemporary, although the authors of the report are inclined to a somewhat earlier date for Ayious. While that remains a distinct possibility, Ayious dates have such large standard deviations that the calibrated 2-sigma ranges allow for considerable overlap with Mylouthkia 2. We need more precise dates to establish the exact chronological relationship between the phases of these two EChal sites.

The Sotira, Kalavasos B, Kissonerga 2 and Ayious dates provide a continuous ^{14}C chronology for the transition from the LNeo to the EChal. Accordingly, the beginning of the Chalcolithic may be placed *c.* 3900-3700 cal BC. There is a tendency for the Mylouthkia 2 dates to fall a little later, *c.* 3600 cal BC, and, as we shall see next, to overlap with the MChal. In short, radiocarbon dates provide a rough chronological framework for transitional settlement in Cyprus, even if the characteristics of that settlement remain elusive.

Absolute chronology: Period 3 (Table 24.2, Fig. 24.1)

Two AMS dates from short-lived *Pistacia* nuts were obtained from B 200 which was founded in the top fills of EChal pit 300 (Fig. 42). On the basis of ceramic parallels at Kissonerga, the building is attributed to the beginning of the MChal, contemporary with Kissonerga 3A (§14.10). The samples come from the burnt occupation and abandonment deposits on the last floor of the building. They indicate a date range a little over a century either side of the mid-4th millennium cal BC and hence they cannot be separated from Period 2 dates. Radiocarbon chronology, therefore, supports other arguments for continuous occupation between the two periods.

Three other sites have chronometric data of the MChal: Kissonerga 3, Lemba 1 and Erimi. Lemba 1 and Erimi can make little contribution in this instance because the three Lemba dates cover such a lengthy period (*LAP* I, 16-17) and the Erimi assays come from a late stage of the MChal. Evolution within the MChal was clearly articulated at Kissonerga where an intra-site shift in settlement was documented. This resulted in the division of that period into earlier (3A) and later (3B) phases, with important differences in material culture (*LAP* II.1A, 241-9). For various reasons, only a single secure determination was recovered from the Period 3A settlement (Fig. 24.1). The date from unit 1571, below the latest recovered structure of Period 3A, places a succession of structures there in the middle of the 4th millennium BC, or a little later (*LAP* II.1A, 16-17). It is, therefore, contemporary with or perhaps somewhat later than the Period 3 dates from Mylouthkia.

In general, the convergence between two dating frameworks, multivariate ceramic seriation and radiocarbon dating, supports the essential integrity of the chronology of the earlier phases of the Chalcolithic as shown in Fig. 24.1. Mylouthkia Periods 2 and 3, therefore, comprise an uninterrupted occupation of the site of perhaps no more than a couple of centuries around the middle of the 4th millennium cal BC.

§ 24.2 Above and below: the Period 2 post-frame structures

Mylouthkia and other EChal sites are generally truncated, without surviving upstanding architecture. Extensive erosion was recorded at nearby Kissonerga where it was active in EChal times and is thought to be the result of human impact on the landscape (*LAP* II.1A, 25, 241; II.1B, 354-6). Erosion is also evident at Ayious where, it is argued, the postulated deterioration of vegetation cover and high proportion of deer, account for the nature of the settlement (Todd and Croft in press). In spite of unpromising conditions at Mylouthkia, it was felt crucial to contextualise its EChal pits within a suspected settlement. From the earlier recovery of postholes and daub (KMyl 227) in pit 1, daub in pit 16 (KMyl 214-5) and well 110.02 (KMyl 1935) and probable oven fragments (KMyl 268) in pit 16, we postulated that a Period 2 settlement consisted of ephemeral structures. Accordingly, it was decided to explore the flatter area of Plot 58 for traces of the old ground surface. Trial excavations in phase 3 of our investigations showed that the plot was also eroded, but since erosion was much less severe than elsewhere, we recovered an above ground post-frame structure, B 152 (Fig. 28).

Fragile remains of this 6 m diam roofed surface building consisted primarily of postholes, low plaster basins and hearth (Fig. 38). As described in § 13.1, much of the evidence was washed away in heavy rain before it could be properly planned, but a ring of many postholes proved the existence of a much refurbished circular post-frame structure here. Its basins are of a type that become more articulated in later Chalcolithic periods (cf *LAP* II.1A, Pl. 17.1,2), especially in Lemba B7 where they are associated with querns and rubbers (*LAP* I, Pl. 19.3). The same association is evident in B 152 which yielded 6 querns, an exceptional number for a building, indicating that it may have served at times as a special facility for more than a nuclear family. Comestibles were probably sorted in the basin and collected from spillage when grinding on the querns. The basins occupy a disproportionate amount of floor space in the Cypriot structures and, given their readily made materials, might have been seasonally installed fixtures. On the other hand, if these were permanent installations, then structures like B 152 were mainly indoor workplaces with little space reserved for sleeping and reception. In sum, B 152 and EChal structures at Kissonerga (*LAP* II.1A, 23-25) are significant for demonstrating that EChal pit sites had above ground architecture that was at times used for specials tasks. B 152 provides clear support for Todd's conclusion that Ayious, and we should add Maa, Kalavasos A and B, Chalcolithic Vrysi, ceramic Shillourokambos and perhaps Dhali-Agridhi, consisted primarily of light post-frame structures (Todd and Croft in press).

This reconstruction contrasts with Dikaios' (1962, 106-112, 133-140) interpretation of Kalavasos A and B as sites mainly comprised of pit-houses or half-sunk dwellings. Pits there contained hearths, traces of burning, postholes and successive fill levels or floors with numerous objects. According to Dikaios, above ground post houses appeared later. There has been little serious debate about the possible existence of pit-houses in LNeo and Chalcolithic Cyprus. Clarke (2001) seems to accept the existence of pit-houses, but views them as less permanent than surface buildings. The question then becomes: who resided in them or used them? Were they the same people as the inhabitants of surface structures or, as Bailey (2000) argues for a similar situation in SE Europe, were there distinct groups, the more unstable pit hut communities organised not so much on place as marriage relations, and the more anchored populations living in permanent surface settlements? Analogous Chalcolithic underground complexes in the southern Levant were regarded as architectural adaptations to a hot environment, but it may be more likely that they were used for storage and defence by the same people that lived in open-air villages, as at Shiqmim (Levy 1995). Much, therefore, hinges on the nature of the interpretations we give to pit evidence of this period. They should take into account immediately earlier evidence for subterranean residential traditions since we have indisputable evidence for a settlement entirely below ground at LNeo Vrysi and intra-mural tunnels at Philia-Drakos A (Peltenburg 1982a, 1982b, 43).

Two Mylouthkia pits are relevant for this issue: 1 and 102. The latter has five peripheral postholes and a trampled surface, so it was a semi-subterranean shelter, but without hearth or other equipment that typically occurs in surface structures and that provides information about use. Pit 1, on the other hand, was exceptionally rich, with a complicated life-cycle that includes more explicit evidence for habitation.

The Pit 1 sequence of structures and human remains (Pl. 3.3-5, Figs. 31-2)

As described in § 12.1, this *c.* 7 m. diameter pit contained seventeen units which can be divided into five phases of fill accumulation. Table 24.3 highlights the principal distinct features of these fills and shows repeated insertions of posts and post-frame structures inside the pit. There were no stone walls.

Table 24.3. The occurrence of structures and probable burials in pit 1

Phase	*Interpretation*	*Features*
5	**STRUCTURE?**	hearth, pit; eroded
	INFILL	cloddy daub-like material
4	HUMAN "BURIALS"	1 male, 1 female, adults with pot
	STRUCTURE	postholes, hearths, surface, pot boilers
	INFILL	daub-like material
3	**STRUCTURE**	postholes, extension, organics
	HUMAN "BURIALS"	2 sub-adults, organics, ash
2	**STRUCTURE**	surface, postholes, ashy deposits
1	FOUNDATION	cut with ledge

In phase 1/2, three postholes at the base of the pit testify to sturdy timbers that would have supported a cover over a dished surface at least 1.9 m below ground. No evidence was found for an entry, there were no recorded installations on the clay-lined base, and the *c*. 40 cm thick ash over it contained few artefacts. It is unknown if the ashy deposit was a result of activities inside the structure, percolated in during its occupancy or arrived after the building had been abandoned. As in almost all pit 1 fill components, water has affected deposits.

Crania and other body parts of a 14-16 and a 15-17 year old were found in silicate-rich lenses over the ash (Pl. 3.5). The disturbed remains may have been contemporary with the abandonment of the phase 1/2 shelter, or, as is thought more likely, linked more closely to the insertion of a second structure in phase 3. The pit was extended to accommodate this new structure which may have been compartmented, with one part defined by some five posts around a 4 m diameter depression. It was under this featureless area that the "burials" had been placed. There was no sign of a made surface. Unlike the phase 1/2 predecessor, the roofed space was sealed by comminuted structural material, perhaps the eroded daub of the building. Some 50 objects were found mixed in with the structural material and ash, in addition to 50 chipped stone and nearly 4,000 sherds (Table 24.4). Water action may be responsible for such mixture, and so it is no longer possible to distinguish artefacts that may have formed part of the equipment used inside the building from later depositions.

A third structure was erected on top of the collapsed material in phase 4. It seems to have consisted of a peripheral set of posts, only a few holes of which survive, with some internal supports for a roof over an oval space measuring *c*. 5 x 6.5 m. On the floor were two hearths and, along its edges, banks of pot-boilers. Considerable quantities of nearly 30 classes of objects were associated with this occupation and what may be structural collapse (Table 24.4). Before the collapse, many parts of one male and one female adult were inserted over the bank of pot-boilers, together with the pit's only nearly intact pot, probably a flask. Position and associations suggest we may be dealing with disturbed burials that were inserted upon the abandonment of the structure.

Lastly, in phase 5, the earlier collapse was flattened to provide the first level surface inside the pit. A hearth and small pit in the surface together with over 50 objects in the ashy accumulation on the surface attest to repeated activities here. In light of the preceding history of pit use, postholes may once have existed along the eroded lip of the pit, some 50 cm above the phase 5 surface. If so, the plan of the structure would have been a *c*. 7 m diameter circle, rather like B 152 and the Kalavasos B Type II structure (Dikaios 1962, Fig. 63). It would now have protruded well above the old ground surface, as in the reconstructions of pit dwellings at Abu Hureyra 1 (Moore *et al*. 2000, 120, Fig. 5.19).

Pit 1 provides unequivocal evidence for subterranean structures possibly related to burials, but are these pit-houses? As Chapman (2000b, 86-7) observes, three principal arguments have bolstered the case for the existence of prehistoric pit-houses: structural features, density of finds, and ethnographic and experimental analogies. He doubts their existence in early SE Europe, but pit-houses continue to appear in the literature (e.g. Pappa and Besios 1999, 112-6). Mylouthkia pit 1 has surfaces with hearths, postholes and pits, so the question remains if these were houses or temporary shelters, perhaps for special tasks. The hearths are different from the standard platform types that occur in above-ground LNeo and Chalcolithic structures, there is an absence of built features typical of those buildings, and most surfaces are sloped/concave, unlike floors of upstanding architecture, so on this basis the pit structures differ from normative houses.

It is most unfortunate that we cannot be certain if all/some of the enormous quantities of artefacts belonged to the four superimposed structures. Many could have washed in and been deliberately inserted between the life of the buildings. Deposition mixtures like this could account for the large variety of object classes, more than are normally found inside surface buildings. Admittedly, Table 24.4 shows that B 200.II had a greater number and similar classes of objects, but it is quite exceptional even within traditions of leaving objects in abandoned buildings (Peltenburg in press). Pit 1 phase 4 and B 200 each has 23 classes of objects. If reserved for special tasks, we might expect to recover distinctive tools, but the pit 1 objects are all the same as occur in surface structures. For example, chipped stone most likely used for antler-working and antler debitage occurs here and in B 200 (§ 18 and Table 24.4). Phase 4 peripheral banks of pot boilers must have come from sizeable fireplaces, basins or earth ovens. There is no evidence for such facilities in pit 1, so after being dumped here they were pushed aside, or perhaps they are the residues of subterranean sweat baths (cf. *LAP* II.2, 10). The relative scarcity of querns and rubbers also suggests that the structures in pit 1 were not for food preparation.

Given the dished, poor quality floor make-ups and the paucity of installations on them, these structures did not see prolonged use of the kind attested in most surface buildings in LNeo and MChal times. They are unlikely, therefore, to have been pit-houses, if by that one means permanently occupied equivalents to normative surface buildings. However, use of the term 'house' comes with so much ethnocentric cultural baggage that it is best avoided in initial assessments of excavated spaces. These activity foci are remnants of social practices, some of which, according to the evidence of Kalavasos A, and probably Kalavasos B.VIII, were concurrent with upstanding stone buildings in the LNeo, so they are not exclusively EChal. They may, for example, have been used as temporary shelters on a seasonal basis by co-residents or by different groups on the island, perhaps more mobile and who concentrated on hunting and gathering (cf. Croft 1991, 69). Clearly, the huts do not have the solidity and regularity of European ethnographic examples. Experiments also show the high maintenance regime required to sustain permanent occupation in the more irregular prehistoric pits. Chapman's (2000b, 87) conclusion that such pits were occasionally used for short-term tasks that might merit a roof and heating may be applicable here. However, the repetition of structures in pit 1, together with probable burials, indicates a closer relationship to behaviours associated with above ground buildings rather than the more *ad hoc* arrangements typical of the SE European prehistoric usage.

The repeated inclusion of disarticulated human remains in the sequence, when contextualised in terms of the life-cycle of prehistoric Cypriot buildings, may mean that we are dealing with spaces conceived of in the same manner as residences and properties. Buildings seem to have been abandoned upon the death of certain inhabitants, a practice now vividly attested by B 200 (below and Peltenburg in press). In pit 1, at least two bodies were deposited between the structures of phases 2 and 3, either as part of abandonment rituals for the former, or foundations for the latter, possibly both. There is less ambiguity in the prolific phase 4 deposits when parts of an adult male and an adult female were deposited in the hut before structural material accumulated over the use episode. The ruinous building then became a mortuary facility, as in the case of slightly later B 200 (see § 24.4).

Reading this patterned occurrence as deliberate activity related, as in house abandonment behaviour, to concepts of ownership and ancestors, is not without its problems. To put it differently, are they "house" interments or so-called "trash" burials? Before addressing the issue, it must be stressed that these are very partial remains. Like the many ditch bodies at Makriyalos in northern Greece, they are badly disarticulated and could have been washed in, primary and then disturbed by natural and cultural agencies, or possibly secondary after being exposed elsewhere (cf. Triantaphyllou 1999). When excavated they had the appearance of being washed or thrown into the pit rather than placed. If thrown, they may be regarded as "trash" burials incorporated with the many broken objects and ecofacts shown in Pl. 3.5. "Trash" burials are sometimes thought to reflect a lower status for the interred (e.g. Rollefson *et al*. 1992, 461-3), although others see disposal in ditches containing varied materials as testimony to public events that helped to integrate and organise kinship groups (Triantaphyllou 1999). Chapman (2000b, 73) infers a range of different persons from the presence of sherds which were deposited as part of the mortuary rite. And yet, the conditions surrounding these remains may largely have resulted from post-depositional water action that displaced material and washed in adjacent sherdage. In addition, cat or fox marks on animal bones (but not human) in the pit means that they were exposed to carnivore disturbance before or after insertion (§ 20.2). And to judge from the worked human bone in hearth 1.02, humans also removed and used bones of the dead (§ 17.4, 19.1).[1]

There are two observations to highlight in conclusion. First, there is an absence of burials (though not human bones) from pits without structures. Second, whatever the functions of the structures in pit 1, abandonment behaviour was akin to practices in some surface buildings. To that extent, pit 1 structures should be regarded as equivalents to surface 'houses'.

§ 24.3 The Period 2 artefact-rich pits

At least parts of the EChal settlement were honeycombed with pits of varied shapes. Morrison is inclined to interpret them as gullies that were silting up when there were settlements nearby (see Introduction). As we have seen, this is not the case in pit 1, but it may be so elsewhere. He observes that the undercut sides of some pits may be the result of water action (e.g. pits 2B, 4), and that they may all be natural in origin. His one exception was pit 16 in which ponding affected its profile while cultural material accumulated inside.

We have documented ledges (cf. Dikaios' benches at Kalavasos), scoops and postholes in pits which indicate that, if they had not been deliberately cut, natural depressions were modified. One of the difficulties with evaluating the gullying hypothesis is that we do not have large exposures. However, there are enough excavated examples (pits 1, 16, 24, 28, 101, 108-9) to suggest that there were isolated hollows for which there is little obvious natural cause. Many may have been quarries to obtain *havara* which is useful as a building material.

It is this mixture of natural and man-made features, and the continuing interaction between an active erosion regime and the conduct of human activities inside and near pits, that seems to characterise the preserved sub-surface archaeology of EChal Mylouthkia. Two conclusions may be offered. First, there seems little to be gained from a typological classification of truncated and irregular pits that were subject to such a dynamic environment, especially when so few have been excavated. Second, the accretion of colluvial and alluvial sediments interspersed and mixed with settlement material inside the pits demonstrates the existence of significant erosion in this area during the mid-4th millennium cal BC. Erosion transported cultural material and filled the pits during Period 2, and not later, since there were no Period 3 ceramics in the pits. The exception, of course, is in Plot 78A where pits 105-7 are much later. To judge from internal silting and the re-positioning of the door in B 200 (§ 13.1), erosion

[1] The recent discovery of an EChal ditch burial with skull removed is also relevant here. See p. xxxi.

continued to cause problems during Period 3.

In attempting to account for the abundance of objects, ecofacts and other materials in the Mylouthkia pits, we have already called attention to the diversity of possibilities within pit 1: *in situ* activities, episodic dumping and erosion. While it has proved difficult to unravel intentional from inadvertent causes in fill accretions, the sheer number and often unabraded condition of objects suggest that the majority was intentionally deposited. Fifteen of the Mylouthkia pits were wholly or partly excavated (excluding well/pit 110). They yielded a total of 1056 recorded objects or an average of some 70 per pit (see Table 24.4 and Appendix D). The prolific nature of these pits may be gauged by comparison with the comparable site of Ayious where 80 pits and surface deposits produced 405 objects, or some 5 per pit (South 1985).

Adam Jackson's concise intra-site analysis of the classes and condition of ground stone tools leads him to conclude that they were dumped in pits and that discard was sorted before deposition (§ 16.3). Assessment of structural components in pit 1, above, demonstrates that other activities also need to be taken into account in that pit, and perhaps in pit 102, but his conclusion is attractive for the remaining pits. One factor that may modify it is taphonomy. Pit fill formation processes constantly include sedimentary accretion. The worn condition of much material recovered from the heavily truncated pits in Plot 78A strongly suggests natural transportation downhill, and yet even here, in pit 102, there were post structures. In addition, these contexts yielded some large and unabraded items indicative of dumping. Amongst these we need to note large sherdage since the pottery was more robust in Plot 78A. In other words, intra-site variation also needs to be considered. Very few re-fits were possible, and although a more systematic effort might have disclosed further examples, virtually all objects except expedient stone tools were in a fragmentary condition at the point of insertion. Some of the items, therefore, should be regarded as primary or

Table 24.4. Occurrence of objects in pits 1 and 16, and Buildings 152 and 200

Object class	*PIT 1* Phase 1/2	*PIT 1* Phase 3	*PIT 1* Phase 4	*PIT 1* Phase 5	*PIT 16* Phase 1	*PIT 16* Phase 2	*PIT 16* Phase 3	*PIT 16* Phase 4	*B 152*	*B 200* I	*B 200* II
adze	-	-	1	-	-	6	3	7	-	1	11
antler debitage	-	5	3	3	-	1	4	1	-	-	1
anvil	-	-	2	-	-	-	-	2	-	-	1
axe	-	1	1	7	-	11	23	10	-	2	29
axe-shaped grinder	-	1	-	-	-	-	2	1	1	-	3
bead	-	2	1	2	-	3	6	1	1	5	19
bowl (stone frag)	-	9	10	6	-	9	16	10	-	5	4
"burial"	-	1	2	-	-	-	-	-	-	-	1
chipped stone	29	50	83	57	-	19	614	404	214	426	1,053
chisel	-	1	1	-	-	-	2	6	-	-	2
conical stone	-	-	-	-	-	-	7	-	-	-	2
cupped stone	-	2	3	-	-	2	3	1	1	-	-
daub	-	-	-	1	-	-	2	-	-	-	-
figurine	1	1	8	2	1	-	6	3	-	-	-
flaked tool	-	-	-	1	1	3	3	6	-	5	1
grooved stone	-	-	1	-	-	-	-	-	-	1	-
haft	-	-	1	2	-	2	2	-	-	-	-
hammerstone/grinder	-	1	2	2	1	20	29	10	2	7	17
jar stopper	-	1	-	-	-	-	-	-	-	-	2
lid	-	-	-	-	-	-	-	-	-	-	17
misc. object	-	6	5	5	1	9	23	11	2	5	15
needle	-	-	2	2	1	6	5	5	-	-	11
pebble	-	-	-	1	-	-	-	-	-	-	-
pendant	-	-	1	-	-	1	1	4	-	1	2
perforated stone	1	-	3	1	-	-	1	1	-	-	1
pestle	-	1	1	-	-	3	7	5	-	-	4
pick	-	-	1	-	-	-	-	-	-	-	-
point	-	1	3	4	1	1	3	2	-	1	6
pottery disc	1	9	6	8	-	2	4	3	-	-	-
pounder	-	1	2	-	-	1	9	7	2	5	5
quern	-	-	2	1	-	-	1	4	6	1	5
rubber	-	-	1	-	-	-	4	3	-	3	6
rubbing stone	-	1	-	-	-	-	6	6	-	2	4
sherds	135	3,781	7,563	4,839	1,29	1,620	4,496	2,799	640	907	3,750
vessel (pottery)	-	-	5	-	-	-	-	1	3	2	19
worked antler	-	5	6	3	-	1	1	-	-	-	1
Total (ex chipped stone and sherds)	3	49	74	51	6	82	173	108	18	46	189

secondary refuse.

Given that a proportion of the large number of broken, incomplete objects was intentionally deposited in these pits, we need to ask the admittedly simplistic and perhaps misleading question, did these past actions involve ritual rather than merely site maintenance. Chapman (2000a,b) has recently made a case for the former in European prehistory. He calls attention to the prevalence of broken, incomplete items found in non-funerary pits, and argues that this was a result of deliberate acts used in relations of enchainment (cf. M. Mauss' well-known *Essai sur le don*). Implicit in the hypothesis is the challenge that these incomplete artefacts are not 'rubbish' but are still part of the fabric of social relations in which they were made, circulated, consumed and deposited. In Cyprus, an undisputed Chalcolithic instance of this practice exists at Kissonerga where some 50 objects were carefully placed in a pit (*LAP* II.2). It is clear that the objects there were deliberately fragmented and their decoration concealed. However, the objects were exceptional and no evidence for careful insertions like these was found in the Mylouthkia pit assemblages. Chapman's structured deposits of intentionally broken objects are qualitatively and quantitatively different from most other assemblages, but as shown in Table 24.4, the contents of the richest Mylouthkia pits correspond with that from B 200. Another characteristic of structured depositions, namely sealing single-phase deposits of broken artefacts at the end of the life-cycle of pits, also does not occur at Mylouthkia.

It is evident from the complex fill uses of pit 1 that each pit needs to be assessed in terms of its own history. From this it would seem that the others we have investigated are largely refuse-rich accumulations with little obvious sign of ritual. Few are exclusively middens in the sense of loci "for recurrent refuse disposal over some time…(where) refuse dumpers had a perception of function" (Needham and Spence 1997, 84). Some pits may have served as midden locations that were also receptacles of natural inwash. Pit 16, on the other hand, has greater claim to have been the locus for a midden.

Pit 16: a household midden?

Gordon Thomas provides details of this complex, disturbed entity which was so rich in cultural materials (§ 12.1; Table 24.4). In addition, Morrison (p. xxxv) states that its sides may have been undercut, so producing overhangs like some of the Kalavasos pits. These have largely collapsed, with the result that there are *havara* blocks inside its fill. There was no evidence for floors, hearths or postholes as in pit 1. The angles of deposits are consistent with downwash and re-cuts, so formation and use were concurrent mechanisms. There are nonetheless characteristics of the aggregation that indicate recurrent directed activities rather than exclusively random or natural processes.

First is the inter-phasal condition of the charred seeds. Sue Colledge remarks on their excellent state of preservation, even to the extent that flower heads have survived (§ 21.7). Thus, they were not trampled as might happen on a working surface, they were not broken up by natural transportation into the pit and they did not suffer post-depositional disturbance. These features are consistent with midden conditions in which the accumulation was not an economic resource exploited, and hence disturbed, for such things as manuring, but one serving the needs of site maintenance.

Second is the recurrence of dense black ash throughout the fill episodes. Since there were no traces of *in situ* burning, this is not a firepit. The macroscopically homogenous black ash must have been deliberately dumped here and not subsequently re-worked by water action. Associated palaeobotanical evidence, which is consistent with sweepings from small-scale domestic hearths and ovens (§ 21.7), supports the suggestion that at least some of the ash matrix was derived from household cleanings. It may also have been related to more special activities. Many stone items, especially the fine cutting implements, were unusually shattered, as if they had been exposed to heat. B 200 was burnt, but comparison of the largely intact tools from it and equivalents in pit 16 demonstrate that something rather exceptional happened to the latter (Pls. 14.1,2 and 16.15). Moreover, blades of the heat-shattered and unabraded axes, adzes and chisels are in near mint condition. Many short bevels suggest specialised tasks, but it is not known why so many implements are fractured across their thicker sections. While their presence may also help to account for the large amounts of black ash, the important point for determining the nature of pit fill is that the accumulation here is indicative of intentional and selective deposition.

Third, pit 16 is noteworthy for the density of silicates. These adhere to all hard objects, particularly their lower surfaces where the plants would have been protected from exposure. Clearly, considerable quantities of organic material including stalks and leaves were consistently put into the pit. Whether the source was the decayed by-products of cereal processing or other activities is not known. The homogeneity of this inclusion indicates deliberate rather than natural transport.

Fourth, a greenish-yellow discoloration uniquely affected most artefacts except chipped stone, but it was not found on the surrounding soils, ash, *havara* or bone. The mainly pale moss green coating thinly covers objects in all levels of the fill. Most of the sherds are affected, and in some cases the verdigris is found beneath the slip and into the core where it may alter to black. We submitted a pounder from fill 16.04 and pottery from 16.03 with typical surface traces of silicates and yellow-green tint to the Macaulay Institute for Soil Research for analysis. Dr. D. C. Bain reported that neither SEM nor X-Ray Diffraction was helpful in identifying the green material. He suggested that the verdigris may be organic, and this would be consistent with similarly affected artefacts from drains and wells at other sites where urine and excreta are the likely causes. As in the case of silicates, the persistent occurrence of this effect, seldom recorded in the other pits, is understood as a result of targeted waste disposal.

Lastly, apart from the larger examples, all stones seemed to have been used, even though few were readily classifiable into types. This is partly evident in the enhanced number of miscellaneous objects from pit 16 in Table 24.4. Thus, there was a much higher proportion of expedient tool discard in the assemblage than elsewhere, another pointer to deliberate and selected deposition.

These features indicate that pit 16 was used as an organic-rich midden which incorporated elements from food production and material derived from craft activities. Jackson (§ 16.3) has noted the correspondences between ground stone artefact classes here and in B 200, and their contrasting complete/fragmentary states. It is possible that these represent complementary inventories, that is an intact building assemblage and the waste products generated by one or more of such units. Of course pit 16 and B 200 are not contemporary, but there are enough continuities at this time to propose that we may be one step closer to a representative 'household' assemblage in terms of what was being used and what was selected for discard. For example, there are the ingredients of a pot-making system here since clay, grit and red ochre occurred in B 200, the debris from red ochre containers, and broken crushing and mixing equipment for working the ochre in pit 16 (§ 17.5). Basket Impressed pottery is unique to pit 16 and although it is not possible to relate the ware to production, it too suggests waste from special activities (§ 14.3). Another possible indicator of complementarity is the enhanced quantities of chipped stone and the high number of re-utilised tools in pit and building (§ 18.5).

Ideographic material has a similar pattern of fragmentation as the ground stone. The antler beads in the pit are defective, whereas those from the building are fire-damaged but mostly complete (see Pl. 15. 2,3). There is evidence that they were being made in the building (§ 17.3,4) and so, as in the case of the red ochre, pit occurrences could be regarded as manufacture debris from a building. In contrast, there were many dentalia beads in the building, but none in the pit. As mentioned in § 17.3, this may be because dentalia necklaces had not yet become popular in the EChal. Lastly, there were no figurines in the building, but 10 broken examples from the pit. None is clearly a waster, so presumably when their use – life was finished, they were broken and discarded in extra-mural contexts. Since there were no re-fits, breakage entailed the separation of pieces for disposal. And this seems to be the case for most of the 369 objects and all the pottery from the pit. It may well be that deposition in what is here classed as a midden affected by the occasional limited ingress of water included objects that were intentionally broken (the axes and figurines are good cases) and that the accumulation in pit 16 acquired symbolic significance.

§ 24.4 Period 3 stone-based architecture: Building 200

In the most important stratigraphic sequence at Mylouthkia, Period 2 pit 300 is succeeded by at least two superimposed above ground structures (Pls. 4. 3-5, 5; Figs. 39-42). Only the last one is well known because of full excavation and destruction deposits which incorporated hundreds of objects, prolific faunal and floral data, and the remains of a child. Like the first stone-based building in this sequence, B 200 is circular in plan. The origins of the circular stone building plan, therefore, lay in the post-frame traditions of the EChal, as exemplified by B 152 and structures at Kissonerga 2 (*LAP* II.1A, 23-5).

There are signs that these sequential above ground structures represent early essays into stone masonry. For example, the walls of B 330 and 200 contain significant quantities of mud, as if builders were still more attuned to post-frame concepts than to the benefits of drystone masonry. The walls are cruder and less evolved than the Kissonerga Period 3A buildings, so they may be a little earlier, a suggestion hinted at by ^{14}C dates (Fig. 24.1), or contemporary and less assured. In either case, we now have two settlements in western Cyprus in which we can document an evolution from timber to stone about the mid-4th millennium cal BC. Dikaios found a similar sequence at Erimi and although we have dates only from the late stone building phase, the evidence is consistent with our western evolution. Possible causes for the repeated evolution of timber to stone building media are discussed below, in § 24.5. Here, the discussion focuses on burnt B 200.

In §13.2,3, we have two different scenarios for the interpretation of B 200 and adjacent features. The discourse highlights the subjectivity which often attends interpretations of archaeological entities and sections in general, and the compressed and detailed stratigraphy of abandoned prehistoric building residues in particular. Many of the problems stem from taphonomy and site formation processes. In the following evaluation, it is assumed from the amounts of ash and the heavily burnt nature of the remains that the building was finally destroyed in a fire. Within the ashy deposits were burnt timbers, plain daub (S426, 429), fire blackened daub with reed impressions 3-5 mm in diameter (S427-8) found just south of plinth 221, and elsewhere (S430-1, 436), daub with leaf impressions (S434), impressed render (S449) and burnt impressed clay (S437-8). Unfortunately, no pieces were large enough to be informative about the shape of the upper wall or roof, but their survival, together with the burnt status of so many objects, also points to the building having been burnt.

To judge from the two occupations and the number of refurbishments, this was a long-lived structure. Unlike the situation in EChal B 152, the two occupations yielded substantial numbers of varied objects (Table 24.4). If these buildings are representative, architectural innovation was accompanied by several changes in behaviour. At Kissonerga, the same transition was marked by a notable expansion in the typology of artefacts (*LAP* II.1A, 243). This is seen to a limited extent at Mylouthkia, especially in ceramics (§14.10). Thus, in spite of the paucity of upstanding structural evidence at Mylouthkia, the observed changes generally correspond to those at Kissonerga. Paucity, however, is compensated for by the remarkable conditions preserved by the destruction of B 200.

The burnt level, 211, contained a 6-8 year old recumbent amidst some 200 objects with conventionally classifiable attributes (i.e., in Table 24.4), 1000 chipped stones, a minimum of 30 pottery vessels, 23 of which are shown together with the impression of an organic vessel in Fig. 24.2, in addition to identifiable charcoal (Table 8.2), charred seeds, faunal remains including debitage from antler working (Fig. 24.3b), and the burnt daub mentioned above. There were many more objects that showed little sign of use or physical alteration, like the mainly flat diabase and chalcedony fist-sized pebbles shown on Fig. 24.2. Finds were concentrated in a *c.* 25 cm depth of destruction debris, with a heap of ash around the central fireplace. These materials have been studied in the preceding sections. Here there are two issues germane to understanding the timber-to-stone evolution: reasons for the abandonment of so much usable material, and the organisation of internal space.

Death and abandonment

During the LNeo and Chalcolithic of Cyprus, buildings were typically not cleaned out upon abandonment, nor were they scavenged subsequently. Functional items were left in buildings during and after desertion, demonstrating that abandonment behaviour was culturally mediated and not exclusively subject to western economising notions in which serviceable or valuable items were curated. Elsewhere, I have suggested that such behaviour might be related to the death of an important occupant or household head and that it symbolised the end of the household cycle (Peltenburg in press). Normally, the Chalcolithic deceased were buried beside or in the fill of the building and her/his objects were largely retained in what then became a memorial. Abandonment events, in other words, were part of the funerary rites and, as Hodder (1994, 82) states in respect of European analogies, "material associated with the houses was respected as symbolically charged. Leaving the artefacts in the house during and after its destruction 'closed off' the past in order to allow renewal and continuity."

There are many cross-cultural instances of ritual house abandonment upon the death of the inhabitant. For example, in New Guinea some houses were destroyed at the death of the owner (Seligman 1910, 461-2). Such termination rituals frequently involve the burning of the houses of the deceased (Chapman 1999; Walker and Lucero 2000) and their interment inside (Montgomery 1993). In recent times in Cyprus, the death of a husband or son was identified with the collapse of a house: "We have lost the pillar of our house. O fou! and when the pillar of the house falls, the beams will fall too" (Cassia 1985, 178). The child in B 200, however, is unlikely to have been the owner or ranking inhabitant of the structure, nor does he/she appear to have received formal burial. The badly preserved remains were aligned NNE - SSW, lying with the head *c.* 40 cm from large quern KMyl 1292, ribs, long bones, pelvis and more long bones south toward the central hearth. The skull lay a metre from the plinth (221) and a similar distance from the hearth. Its mandible was found east of the bulk of the cranium, suggestive of post-depositional movement. Sherdage was recovered from within the cranium.

The body arrived in its recovered position after *c.* 10 cm of ash had accumulated above the slightly dished floor level. Presumably it came to rest here some time after the start of the destruction episode. Pelvis and leg bones were much more burnt than the skull. To judge from this varied degree of burning, the epicentre of the fire was at the hearth. The only potential grave goods/body ornament occurred some 40 cm to the west of the child. As shown in Fig. 24.3b, however, these antler beads were associated with antler-working debitage, and hence they are better interpreted as evidence for bead-making. Thus, it seems more likely that the child was a victim of building destruction rather than having been interred here before structure ignition. In this case, the floor assemblage is less likely to have been enriched by mortuary rites.

If correct, the fact remains that co-residents or others did not attempt to retrieve either the body for burial or the many usable contents of the building for re-cycling. This intentional funerary behaviour is all the more striking when one recalls that in the preceding, EChal period of the settlement's history, bodies were also deposited in association with buildings. In at least one instance they occurred at end of use of a shelter in pit 1, and in another either before or after a shelter, but in any case in the same position as those buildings (Table 24.3). Human remains in B 152 are also suggestive (§ 19.1.1). Thus, at Mylouthkia there existed a custom of body disposal in the location of buildings and at least twice upon the abandonment of a structure. The situation in B 200, therefore, may be explicable in the general context of house and human life cycles, in which abandonment and death are related. In this case, the destruction of the building included the death of a probable inhabitant, and so abandonment of the entire suite may have been viewed as consistent with earlier practices in post-frame structures.

According to our record of prehistoric activities at Mylouthkia, there was no later occupation at the site. The violent destruction, therefore, marks the end of many generations of habitation at the site. Whether this final episode was entirely a deliberate act is a moot

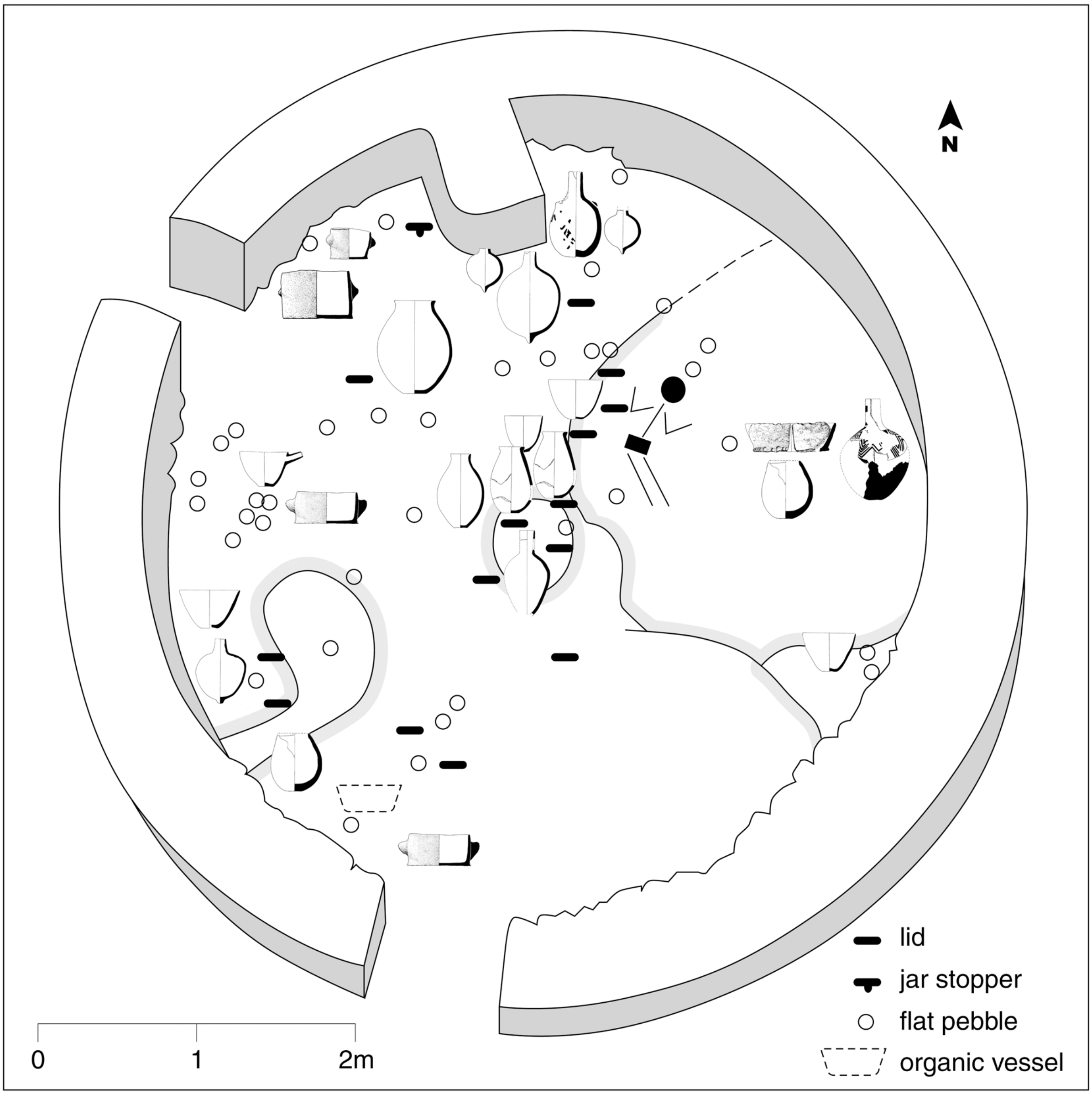

Fig. 24.2: Reconstructed distribution of pottery vessels, stone lids and used pebbles in Building 200, occupation II

point, but any discussion of this possibility should note the location of the deceased, exactly in the same position as Grave 503 in Kissonerga B 2 (*LAP* II.1A, 253, Figs. 32, 52), and whether essentially earthen structures could end in accidental conflagration, a proposition that was questioned when we considered the similar case of the Pithos House at Kissonerga (*LAP* II.1A, 253).

To sum up, B 200, occupation II is an informative instance of an undisturbed burnt building in which a fire victim was trapped together with a systemic inventory. It is not certain if the destruction and death were accidental or intentional, but the burial of so many usable artefacts upon the death of a building and one of its probable inhabitants accords with practices that are inferred for the LNeo and continued throughout the Chalcolithic.

What remains striking is the sheer abundance of objects, one that might seem more fitting for part of a community than a single house or family. Its internal area of 19.6 m^2 is sufficient for a nuclear family but an unlikely residence for many more. So, it is important to assess the social role of B 200. In the absence of contemporary structures, one way to proceed is to examine the distribution of objects in the destruction level.

Spatial organisation

The internal arrangement of preserved fixtures, with an alcove/bin in the west, a plinth in the north, a central hearth and an initial doorway (189) to the south constitutes an essentially open plan with virtually no partition of activities (Figs. 40, 41). For Kent (1990) and others, this is an indicator of groups with little socio-

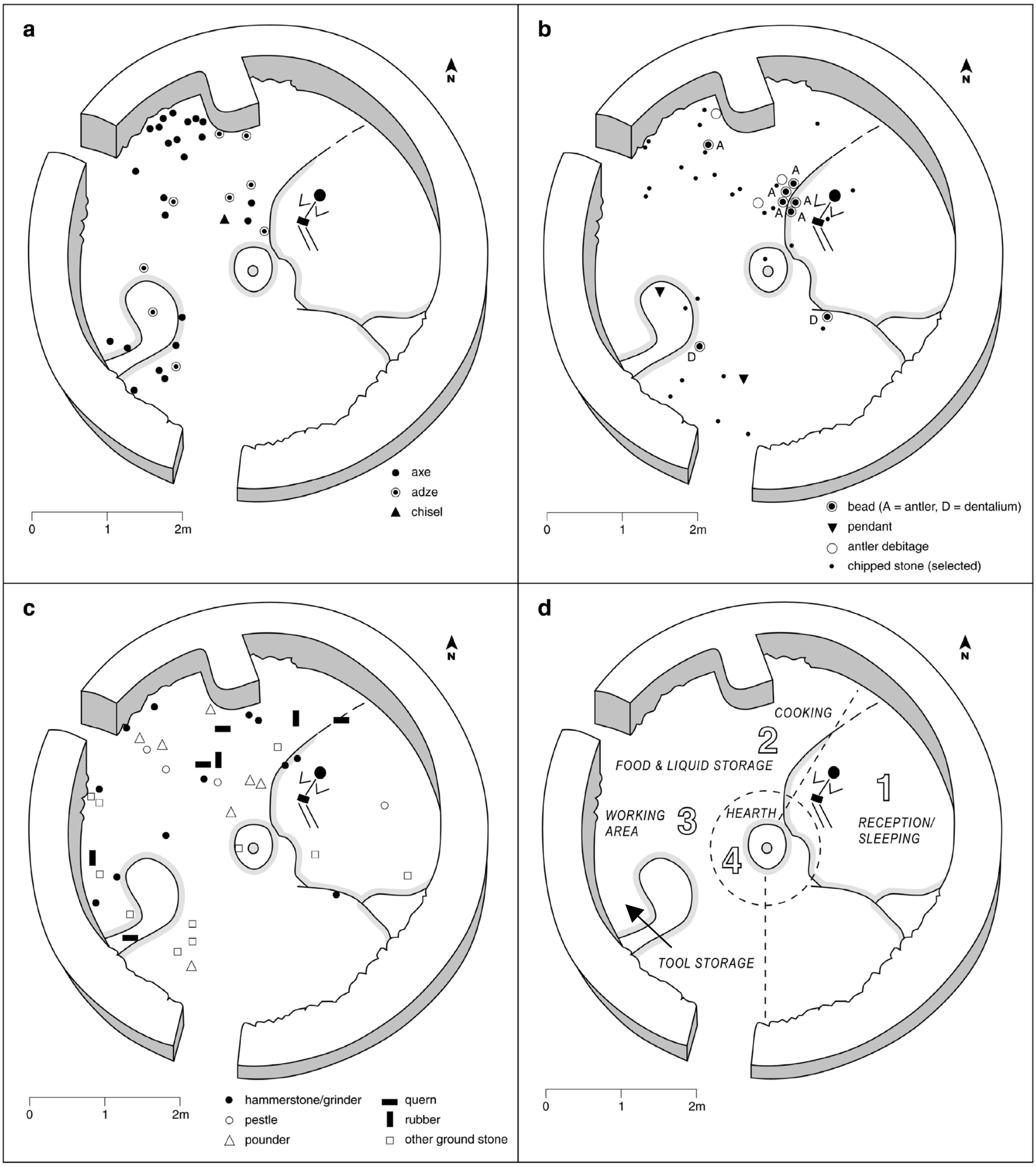

Fig. 24.3a: Distribution of cutting tools in Building 200, occupation II
Fig. 24.3b: Distribution of beads, pendants, antler debitage and larger chipped stone in Building 200, occupation II
Fig. 24.3c: Distribution of ground stone abrasion and polishing tools in Building 200, occupation II
Fig. 24.3d: Activity segments in conventional Chalcolithic buildings applied to Building 200

political stratification or economic specialisation, less rigid division of labour and less emphasis on perceived differences between sexes. Such societies are usually held to be nomadic. On the other hand, the distribution of artefacts suggests that inferences from fixtures alone is deceptive and that segmentation of space and functions did exist at this time. The problem, of course, is the meaning of the distribution of these goods.

Archaeologists usually encounter residuals from house-keeping, that is from ritual activities and routine maintenance functions, in excavated buildings. As a consequence, object distributions usually represent a distortion of room use (Cameron and Tomka 1993). Suddenly destroyed structures, on the contrary, can provide a floor with a high degree of contextual integrity suitable for the analysis of social divisions of labour and other use patterns. There is a consensus that such a floor has “greater numbers of finished items and by-products and contains artefacts in their primary discard locations", and that that there would be evidence of maintenance in progress and an abundance of items that would normally be curated (Brooks 1993). B 200 meets these criteria and so constitutes a plausible case for the correlation of abundant items with intended area of use.

There are so many mainly utilitarian, portable objects strewn about the floor of B 200.II, that the quantity might argue for requirements beyond that of a small family. Table 24.4 lists the categories of nearly 200 classified objects. To these one should add over 1000 utilised and other chipped stone, the larger pieces shown on Fig. 24.3b, debitage from antler-working and dozens of flat pebbles that may have been used as lids, stands and handy tools for polishing and other tasks that did not perceptibly alter their shape. They were mainly of smooth, sometimes polished hard diabase that would have been collected from the shoreline or river beds. They were widely distributed (Fig. 24.2) away from the cutting tools in the NW and the eastern open area (Fig. 24.3a).

Abraded, utilitarian vessels, a broad kit of hard working tools, and paucity of ideographic items indicate possessions of a household or communal storeroom in which many items were stored, probably for use elsewhere. For example, the 40 axes and adzes are too many to have been used inside at any one time. There are repeated types and sizes within the categories so they include duplicates and do not belong to a gradated set used for slightly different purposes. Many were kept beside entrance 212 (Fig. 24.3a) where they could readily be taken for use elsewhere and redeposited on task completion. Few antler hafts were found and as they were used tools, they could also have been in store ready for re-hafting or they were hafted into now disappeared wooden handles.

Application of a standardised Chalcolithic floor use template (Fig. 24.3d) indicates that the distribution of artefacts was not haphazard but was mainly the result of patterned activities that were largely governed by the social constructs of the habitus (Bourdieu 1977). The template was developed to account for repeated architectural and artefactual spatial divisions in the circular buildings at Kissonerga, ones that represent an idealised model of the organisation of habitus to which Chalcolithic people subscribed (*LAP* II.1A, 237-40). It consists of a quartile spatial division of interiors: segment 1, to the right of the door, 2 opposite the entrance, 3 to the left of the entrance and 4, the area of the central platform. Segment 1 was marked off from the remainder of the interior by radiating floor ridges or walls, and by a fixture- and artefact-free, carefully paved floor. Segment 2 tended to have settings for large jars and occasional ovens, 3 contained miscellaneous items, principally of stone, and 4 was the central platform hearth. We propose that segment 1 was a reception /sleeping area, an arrangement that closely recalls the bench-and-hearth organisation of earlier LNeo houses (cf. Peltenburg 1982a, 97, Fig. 9). Some cooking and especially the storage of food and liquids, were conducted in segment 2 at the back of the room, opposite the doorway. We concluded that tools were stored and non-food preparation tasks were carried out in segment 3 and that the hearth area was a multi-functional zone associated with heat and perhaps light.

This normative house template is superimposed onto B 200 in Fig. 24.3d. There is good correspondence for segments 1, 3 and 4. The existence of the segment 1 sleeping/reception area is corroborated by the paucity of artefacts (Figs. 24. 2, 3a-c), so this open space was segregated in spite of the fact that there are no built dividers. In § 13.3 the scarcity of finds is attributed to water coming in through the entry, but such an influx would have affected floor space equally to the west of the door where there is a concentration of artefacts. Apparently, the inhabitants lived in a conventional spatial arrangement, but it was not structurally articulated with ridges or walls as later. In this sense, B 200 is intermediate between LNeo and later Chalcolithic plans. Another retention of past arrangements is the segment 3 curved bank that created an alcove/bin for tools, and in this case vessels too, against the wall (cf. Peltenburg 1982a, Figs. 30, 35). Whether the entrances were diachronic or synchronic, the tradition of having a special, uncluttered area on the east was maintained. It is probably no coincidence that the body of the 7-year old was found inside this sleeping/reception segment, as was the most ornate pot in the building assemblage, the painted flask of Fig. 52.1.

The reasonably tight fit between the B 200 artefact distributions and the later Chalcolithic segmented house template indicates that the distribution is essentially valid for floor use. If one inspects Figs 24.2 and 24.3a-c it will be seen that the use of space diverges from later normative allocations in two important respects: cooking and storage in segment 2.

There was little to indicate cooking facilities in segment 2, and so one might assume meals were cooked outside. A probable oven lining was found in earlier pit 16 (KMyl 268) and many pot-boilers occurred in pits 1 and 16, but, with the exception of pit 1, phase 4, they could have been refuse from buildings rather than *in situ*. If from inside buildings, then we would expect fire pits or earth ovens as at Kissonerga and Lemba (*LAP* II.2, 6-11 and Fig. 13 bottom). B 200. II lacks such installations, hence we may assume that much cooking took place out-of-doors and that it was a more public activity. Instead, the concentration of pestles, pounders and a pair of heavy rubbers and querns at the back of the room (Fig. 24.3c) suggests that food preparation took place there. The plinth jutting from the back wall in this segment could have conveniently supported a grain grinding installation. Its position and raised character are duplicated by a stone platform inside the Kissonerga building model (cf. *LAP* II.2, Frontispiece). On the other hand, only flasks for liquids were found at the base of the plinth (Fig. 24.2) which in occupation I held a basin, so it may have been used as a stand for mixing and processing liquids.

The second divergence is scarcity of storage pots. These were common in segment 2 in later times. Although the general distribution of vessels bears a striking resemblance to that found in the Kissonerga Pithos House (cf. *LAP* II.1A, 39, Fig. 3.7), with clusters behind the door, around the hearth and at the back of the room, only one or two relatively small store pots occurred here (Fig. 24.2). So, while this may document the beginning of later storage practices, the issue remains of where the inhabitants stored foodstuffs from a high productivity centre. At Kissonerga, storage also began inside buildings now (*LAP* II.1A, 111, 243), and so while the trends are roughly the same, Mylouthkia is somewhat earlier, functionally different or economically divergent. We have not found store pits at the site, but bulk storage in pits, as attested at Kissonerga (*LAP* II.1A, 24-5), probably co-existed with B 200. We equated these capacious pits with communal storage at Kissonerga, and the inception of stone-based structures with the introduction of autonomous household storage that restricted sharing with the broader community. The pattern seems to be different at Mylouthkia where the older communal system continued after the inception of stone-based buildings.

The systemic inventory trapped in the destruction of B 200 provides a vivid insight into uses of a mid-4th millennium cal BC Cypriot structure. In spite of the absence of built internal divisions, the artefact distribution pattern reveals discrete separation of space. Partitions may have existed as curtains or, given the many reported stake holes (§13.1) as flimsy low rails, like those in Melanesian huts which divided internal space according to male/female roles (Seligman 1910, 461). This was clearly a multi-functional, highly utilitarian structure with such a large concentration of objects that it may represent more than a single house assemblage. Internal space conforms to later ordinary houses, so it was not a public warehouse or craft centre.

Building 200 as part of the wider community

It is most unfortunate we do not have synchronous evidence for other activities or buildings in Mylouthkia Period 3. Buildings were not autonomous socio-economic entities but part of the fabric of practices of the residential group and the larger community. Were more settlement evidence available, we might test the possibility that the emerging tradition of using stone for accommodation was because society now began to require an overtly signalled room that was the focus for sub-groups or households. B 200 has a sufficiently varied inventory to indicate that it served a social group of mixed age and sex. Such a solid building provided for increased inter-generational longevity and so it may have symbolised the success and seniority of more prestigious groups within a community. Thus, material correlates for basic domestic units could have consisted of a major structure, ancillary buildings, dumping grounds and other bounded spaces. Within this aggregation, the stone-based structures served a larger membership than regularly lived inside, and they were the settings for only some activities, especially the storage (and control?) of implements, processing of comestibles and receptions. As we have seen from the shelters in pit 1 and from B 152, special purpose structures, or spaces, quite different from B 200 already existed in the EChal.

In this interpretation, B 200 might be analogous to the traditional *makrinari*, a single room used for virtually all rural household functions, but one that was part of a habitat in which much of life was conducted out-of-doors (Aurenche *et al.* 1993). In developed forms, one or two more rooms were added, often at angles to form a courtyard which is a centre of activity and is used for sleeping, laundering and cooking, as well as for important, and sometimes more public, occasions. Thus, domestic, social and private life was originally conducted in a single room without partitions. It also contained shelter for animals and storage, and as Christodoulou (1959, 69) states in general of simple rural dwellings, it should "house the implements…be also the workshop and the laboratory and the factory".

The *makrinari*, however, was a nuclear family residence, and we have mentioned above that there are more objects on the floor than seems warranted for such a group. In evaluating other burnt structures with mass object deposits, attention is frequently called to ritual and communal activity. The obvious parallel in Cyprus is the LChal Pithos House at Kissonerga. Together with a baby, some 280 objects were taken out of circulation upon its abandonment. In that case, it was argued that probable intentional destruction was a response to aggrandising behaviour within egalitarian society (*LAP* II.1A, 255). At Arpachiyah, recent re-examination of the Burnt House with a concentration of extremely fine objects suggests a ritual destruction (Campbell 2000). In SE Europe, Chapman (2000a, 224) has considered several examples and he argues that in instances where destruction included a high frequency of objects, the assemblage is far in excess of what would be kept in a single house. It comprises "a collection of objects from several different houses, deposited in the burnt-house-to-be at the death of an important village leader." In Balkan prehistory, therefore, communal activity is suggested for similar instances of house destructions, and rich house deposits are regarded as "a summary statement of all the important social relationships on which the reproduction of the community depended" (Chapman 2000a, 225).

Analysis of the spatial organisation of the B 200 objects above indicates a standard pattern for an ordinary house. There is no special arrangement of goods that might reflect a formal rite with assemblage enrichment. In addition, the child does not seem to have received formal burial, separate from the burning of the structure. Nonetheless, it might still be thought that the inventory is too large for a single house. Clearly, this is a difficult matter to resolve since we need to know much more about the socio-economic role of stone structures at this juncture of Cypriot prehistory, and the usage of buildings in general. We noted above that B 200 may have had a prestigious role, and that the existence of functionally distinct buildings in Period 2 suggests a residential pattern with multiple, separate 'rooms'. Thus, the stone building might have been the main 'room' in a group of more ephemeral (?) rooms for an extended household. The high number of objects in B 200, therefore, need not represent communal deposition practice, so much as the ordinary possessions of a sizeable sub-group. The exceptional density of axes (29), for example, can be paralleled at other stone buildings like the Kissonerga Pithos House (30) and Erimi Hut IXA with a minimum of 11 axes (*LAP* II.1A, 253; Dikaios 1936, 81, Pl. IV.2).

Two factors should be borne in mind in evaluating abundant artefact accumulation in this context. First, the building was of some antiquity, with minor and major refurbishments. The relative paucity of objects in occupation I (Table 24.4) suggests that items were curated for occupation II. In other words, the accumulation in the burnt deposit could represent the output of serviceable products of two or more generations of sedentary agro-pastoralists. Still, if artefact abundance did not necessarily include 'offerings' from the larger community, it remains the case that such a treasure trove was not looted or scavenged. Public acknowledgement and respect for the burial of such an impressive quantity of objects represents the mechanism of establishing continuity and re-integrating society upon the joint death of an individual and a significant building within the community.

Second is no more than a reminder of Christodoulou's statement quoted above, namely that traditional Mediterranean rural farmsteads typically contain many artefacts, especially *pithoi*. Archaeologists normally recover depleted inventories, so perhaps because of the unusual circumstances described above, B 200 represents a more "typical" household assemblage, one that may be salutary for archaeological studies of Mediterranean settlements in general.

§ 24.5 Aspects of post-colonisation settlement patterns

The settlement record of Neolithic-Chalcolithic Cyprus is noted for the alteration of periods of florescence and gaps (see Introduction). In this section, I return to the evolution of structure types at Mylouthkia 2 and 3 in order to explore long term settlement dynamics in which apparent settlement system collapses have been followed by markedly less archaeological visibility.

From stone to timber

The causes for what has been called 'retrenchment' in the EChal transition, that is the return to circular buildings and alleged settlement contraction, are variously attributed to earthquake and environmental deterioration. Both claims lack persuasive supporting evidence.

Cyprus lies in one of the most seismic regions of the East Mediterranean, and as Stanley Price (1979,73-7) pointed out, recorded earthquakes caused only localised damage. Those affected tended to re-occupy their old homes, at least initially. Earthquakes did not lead to the desertion of whole regions, and so by analogy we can justifiably assume that ancient earthquakes are unlikely to have instigated island-wide dislocation and the adoption of post-frame buildings.

Environmental deterioration as a causative trigger for change at this time is difficult to substantiate. Erosion is well-attested at Mylouthkia and other sites during the EChal, but it has yet to be shown if climate change and deterioration generated the observed transformations in human behaviours. It would have taken a substantial climatic change to have been so disruptive, yet there is no palaeoclimatic data to support major change *c.* 4000 cal BC (cf. Weiss and Bradley 2001). In any case, Mylouthkia confirms that many settlements in the earlier 4th millennium cal BC comprised post-frame buildings, rather than the continuation of sturdier stone structures which might be expected in more hostile conditions.

Ever since Dikaios' work at Kalavasos A and B, attention has been focused on pits and possible pit-houses as a response to natural changes or external influences. Yet the recurrence of postholes and structural mud elements suggest that these often enigmatic entities are but ancillary features of settlements comprised of post-frame buildings. They should not be singled out as the major diagnostic of the transition, nor are they evidence for environmental change. Although we cannot rule out that persistent nightmare of Mediterranean island communities, drought, as a stimulus for concerted (see below) LNeo settlement relocations, many recurring features in the Chalcolithic suggest cultural continuity. The periodisation line between LNeo and Chalcolithic is no more than a handy ordering device that should not obscure the likelihood of continuous change and variability. On the whole, recourse to natural events or processes as causes for the transformations in the earlier 4th millennium cal BC has not been very helpful. Rather than address the changes in terms of catastrophism, we might more profitably evaluate the transformations in socio-economic terms, specifically with respect to LNeo population growth and settlement expansion.

Mylouthkia 2 was founded on a new site, with no trace of preceding LNeo occupation. This seems to be a feature of the EChal. Ayious, Erimi, Maa and Shillourokambos[2] are other excavated examples. The phenomenon of founding new sites, however, already

[2] The ceramic period of Shillourokambos is usually referred to Sotira, that is the LNeo (Guilaine *et al*. 1995, 22, Fig. 7). Prof. Jean Guilaine kindly showed us pottery from these pits, and at least some could be classified as EChal.

existed in the LNeo. For example, Kissonerga was re-occupied after the Khirokitian in the LNeo, although we only have ceramics of the time (*LAP* IIA, 104-107). Kalavasos A is also a new foundation in the LNeo, with pits and post-frame structures. In other words, it is not the EChal that is uniquely correlated with settlements of timber buildings, but newly and recently established settlements. This can be seen in settlement evolution at Cypro-PPNB Shillourokambos (Guilaine and Briois 2001) and in the initial occupation of LNeo Vrysi where timber components occur to a degree not seen later in the settlement's history. Ayios Epiktitos-Kelali (Dikaios 1936, 74) also seems to be a new foundation with post-frame structures. The transition, therefore, may have been a period in which many new settlements were created.

Population growth leading to such expansion is evident from community evolution at several LNeo sites. Sotira increased in size and density before fission in its last phases (Dikaios 1961), Vrysi expanded into and beyond the ditch that together with a wall had enclosed its Early Phase (Peltenburg 1982a, 108). A similar extension may have occurred at Philia-Drakos A (Peltenburg 1982b, 43), and Paralimni-Nissia also seems to have expanded beyond its perimeter wall (Flourentzos 1997). This alternative scenario postulates that the shift to timber and then back to stone was not peculiar to the EChal, but was a practical solution to the creation of new settlements in wooded environments and often to their eventual consolidation in stone. As shown in Fig. 24.4, one result of this model is that archaeological traces may vary inversely with the rate of population expansion, and that one of these instances occurred in the Neolithic-Chalcolithic transition.

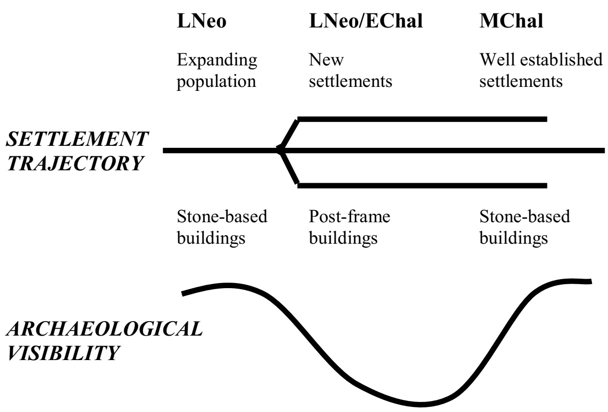

Fig. 24.4: Settlement model for the Late Neolithic - Middle Chalcolithic periods

Three highly interactive consequences followed from the installation of new settlements in wooded landscapes. First, woodland clearance for settlement and agriculture resulted in a glut of timber suitable for the construction of buildings. Of course, we do not have adequate information on the vegetational history of the island, but the use of timber for B 152 and structures in pits 1 and 102, and the proliferation of axes and adzes at Mylouthkia are quite consistent with this process. The concentration of querns in B 152, rich palaeobotanical data for flourishing EChal agriculture and molluscan evidence for the growth of arable farming all attest to the intense use of the landscape and hence to significant human impact on a fragile environment. In Mediterranean regions, extensive clearance of gentle slopes, such as was likely at Mylouthkia, removes the anchors of soil stability. Without countermeasures, major arboreal depletion typically leads to sheet erosion (Van Andel, Runnels and Pope 1986, 108-113).

The second consequence, therefore, is likely to be erosion of the kind clearly documented at Kissonerga and Mylouthkia. As shown by the sediments inside and around B 200, erosion did not stop after the EChal and so it was responsible for frequently removing traces of the flimsy post-frame structures that originally belonged to the very agents who over-exploited the area around their settlements. Archaeologists are thus left with a much-depleted above-ground record of periods of population dispersal.

The third, sequential result also concerned the landscape in the vicinity of buildings. Inhabitants of settlements newly carved out of the landscape had a number of options to deal with ensuing problems of erosion. One of these was to utilise the stones cleared from fields for building purposes, thus erecting more solid barriers to ground water action. Settlers would have recollected this structural medium, or seen it elsewhere, so the change was not such a radical departure from established traditions. The variably constructed stone and mud wall of B 200 seems like a tentative essay that could well be an attempt to reactivate older traditions. Underlying B 330 wall is not as well known. So, while the medium was not an innovation, the rigidly circular plans of the Chalcolithic stone buildings do break away from LNeo traditions.

Previous EChal above and below ground timber buildings at Mylouthkia have circular or curvilinear plans. They take their shape from the pits and depressions in which they were constructed. For example, B 152 is not entirely above ground but dug into a very shallow curvilinear hollow. The major planning innovation in the transition, therefore, occurred in timber, not in the stone buildings which simply crystallised the existing form.

Post-frame structures require considerable amounts of mud, *havara* or daub for their walls, materials that were mostly quarried from the ground. It is likely that many of the Mylouthkia pits were dug as quarries for such building purposes. The close relationship between earth extraction and building is most clearly exhibited in pit 1 with its sequence of timber structures below, and finally above, ground. It may well be that in new settlements the repeated association of curvilinear quarry pits and buildings led to a more general practice of constructing circular buildings, even above ground. A functionalist interpretation like this, however, is very probably only part of the story. More architectural evidence than these meagre Period 2 remains is needed.

From timber to stone

Viewed diachronically, the MChal creation of heavy, and hence more isolated, bound and impregnable, stone-based buildings, was part of a development towards more rigidly defined and bounded social spaces, stability and permanence. It symbolised the growing ascendancy of the domestic mode of production over communal, sharing modes, a change that at Kissonerga rapidly led to tension, competition and increasing socio-economic differentiation within society (cf. *LAP* II.1A, 241-9). Initially, stone buildings may have been reserved for the main room of households, but, as is clear from the compound at Lemba 3 (*LAP* I, 327-88, Fig. 6.6), other rooms were also constructed with stone foundations later in the Chalcolithic.

The emergence of this long-lasting tradition of circular buildings in the E/MChal constitutes a new and definitive materialisation of an ideology of the house. The internal spatial divisions, on the other hand, continue and develop the pattern set in LNeo times, and while they gradually become fixed by the insertion of structural dividers, there is essential continuity with the earlier organisation. We have also argued, rather more speculatively, that the circularity was a result of building practices in *landnam* phases when much quarrying had to be carried out to install the first structures of a group of people. Hence, development of the typical stone Chalcolithic building incorporated innovation in the overall plan and continuity in the structuring principles of internal space. It is these principles that provide most potential for elucidating what was a profoundly influential setting for the formation of social practices.

There is broad consensus that house form reflexively structures social relations which through the routines of daily practices establish uncontested reality (Bourdieu 1977). As Peter Wilson (1988, 153) generalises:

"People coming into the society, whether as strangers or particularly as children, have in their built surroundings a diagram of how the system works – their place in the household, their place in the village, their place in the territory…..in architecture and settlement plans a person's and a people's visual and material diagram of themselves is presented most systematically and, perhaps, most invariantly"

Spatial arrangements, therefore, have been a fruitful focus of many archaeological studies, with increasing emphasis placed on symbolism, cosmology and homologies (e.g. Parker Pearson and Richards 1994). The most prominent recurrent features of the Chalcolithic house include the placing of entrances to the south or south-east, the platform hearth at the centre and open segment 1 on the east (Fig. 24.3d). All of these are clearly visible in B 200. Segment 1, almost devoid of artefacts, and often associated with burials, contrasts with the cluttered work and storage areas on the west, so creating a set of oppositions or complementarities in the disposition of space and presumably those who used them. This consistent dualistic structure may have been linked to the classification of men and women. B 200, and its successors elsewhere, also had another duality with the southern doorway an opening to the fierce Mediterranean light of the outside world and opposite it at the dark rear of the building, food preparation and more storage. The fact that these spaces were increasingly formalised and were occasionally modified indicates a cultural ideal that was sufficiently flexible, for example, to allow for the negotiation of power in society (cf. Kissonerga Per 3B: *LAP* II.1A, 244-9)

To return to the transformation from rectilinear to circular, does the evidence from Mylouthkia sustain arguments, expressed at the start of this chapter, that the circular format reflects corporate rather than individualising societies, and usually nomadic or at least more mobile groups? For the first proposal, one needs the longer timespan afforded by a site like Kissonerga to evaluate the changing roles, ones in which both systems are evident to some extent (*LAP* II.1A, 240-55). With respect to the degree of sedentism, Bolger and Ridout-Sharpe refer to signs of more permanency in Period 3 (§14.12, 22.3). One indicator of degree of mobility might be the proportion of hunted/managed deer in the faunal assemblage. Within an overall pattern of deer predominance, pig increases notably. Croft concludes that this was due to economic intensification and growth of population (§ 20.4). Faunal patterns, therefore, indicate a marginal change of emphasis. Another sign is amount of agriculture. Colledge (§ 21) demonstrates that it was already flourishing in Period 2, an observation supported by the numbers of querns and rubbers then (Table 24.4). Indeed, there is little change in the numerous categories of implements and other objects between Periods 2 and 3 (Table 24.4). This tool kit and the palaeobotanical data indicate that the infrastructure for sedentary life already existed in Period 2, hence we need to define more closely what we mean by the growth of greater permanency in this context.

It seems likely that the traces of circular post-frame structures are typical of the consolidation phase of a newly settled peoples, rather than evidence of semi-permanent or seasonal occupation. In other words, these were less sedentary settlers only to the extent that they were recently arrived farmers and deer managers who were in the process of adapting to their new surroundings. Viewed in this way, Mylouthkia 2 suggests a process of settlement expansion in the first half of the 4th millennium cal BC, and not a general period of semi-permanent villages.

There is marginal change in the economy in Period 3, but there certainly are signs in the ceramics of increase in the formal aspects of commensality, more varied processing of comestibles and nascent intra-mural storage (§ 14.12). This is matched in the ideographic arena, since dentalia for body ornament become popular in Period 3 (Table 17.1). The appearance of stone buildings, therefore, coincides with greater attention to social concerns, ones that no doubt contributed to the creation of those buildings. Thus, major evolutionary trends in successful new settlements concerned the elaboration of social practices and the intensification of subsistence regimes to cope with expanding communities.[3]

The contention that settlement shift and demographic expansion account for the third lacuna in the archaeological record of Cypriot prehistory leaves us with the problem of the sudden disappearance of settlements with LNeo-type stone buildings in the EChal. Why did such settlements not continue to exist? Unless examples await discovery, it could be argued that the island-wide disappearance of the LNeo settlement tradition must imply something more than increased population. But does it? If that were the case, we would be driven back to assuming a static social system and must resort to external stimuli for the causes of change. We have seen that there is little supporting evidence for externally driven causes of change. On the other hand, it is clear from a comparison of Vrysi and Sotira/Kalavasos B dates (Fig. 24.1) that the demise of LNeo communities may have happened at different times and that the two settlement types of stone and timber co-existed. In other words, it was not a single event like an earthquake that caused the observed changes, but more an on-going process amongst dynamic socio-economic systems. An hypothesis worth testing in future is that the growth trend in LNeo settlements led to fission, with younger groups budding off to form new communities. The latter would have struck marriage alliances with other groups of the same generation and so gradually there arose networks of settlements comprised of the new types of timber buildings. These may have become the preferred habitats before other considerations, such as anti-erosion works in expanding communities, intervened, and there was a return to stone-based buildings.

In such times of settlement flux there were probably multiple evolutionary trajectories. Fissioned groups may also have opted for an emphasis on different survival strategies. In this context, it is worth noting that the people of Mylouthkia 2 obtained 75% of their meat from deer (§ 20.4). Cypriot prehistoric societies in general were remarkably deer-oriented, a disposition amply attested to in the faunal record (Croft 1991). It is symbolised by the use of so many antler beads at Mylouthkia (Pl. 15.1-3) and by the inclusion of antlers in burials at Karavas, where one body was laid on top of antlers, and Erimi (Dikaios 1936, 11, 74). In pointing to to the possibility that some groups may have opted for more mobile existences linked to deer exploitation, it becomes possible to envisage the heterogeneity of coeval lifeways in prehistoric Cyprus.

[3] The recent discovery of massive ditches and walls at Mylouthkia support arguments for a permanent EChal settlement of some 9 ha if they also enclosed excavated and surveyed features in Plot 58. Such communal enterprises would probably have required regulatory authorities. So, even as this report is being concluded, reappraisal of Mylouthkia 2 is warranted. See p. xxxiii.

§ 24.6 Conclusions

We have seen that Mylouthkia has yielded evidence for unexpected occupation during two of the major lacunae of Cypriot prehistory. Hitherto, the record of early developments on the island largely consisted of material gleaned from the excavation of well-constructed, built environments. This archaeological focus on what might be termed ‘conventional’ sites has resulted in a rather static prehistory comprised of type-sites of fixed durations and discrete periods with intervening lacunae. Since there were no known sites in those gaps, consideration was given to island abandonment. But these arguments were based on results from researches on what was perceived to be important, and while somewhat over-simplified, importance was usually judged to consist of sites with recoverable architectural remains. Concentration on such research agendas was also favoured by funding bodies and permit-granting authorities. As a result, little attention was paid to different kinds of surface traces that might attest to alternative lifestyles. Mylouthkia provided those unconventional surface signals, and LAP discoveries there alert us to the existence of much more varied and dynamic prehistoric settlement patterns than previous researches allowed. The post-colonisation lacunae in Cypriot prehistory, therefore, are more the result of fieldwork bias than past reality. It follows from this that the investigation of eroded sites without obvious signs of buildings or deep stratigraphy should receive priority both to rescue them from oblivion and to help redress the balance of our defective record of prehistoric human activities on the island.

In general terms, settlement shift, with accompanying timber structures or timber-to-stone building cycles, as in Fig. 24.4, may serve as a model of settlement dynamics on the island, where unstable egalitarian society frequently led to community fission. The model has implications for our understanding of major gaps in the temporal archaeological record when whole settlement systems in Cyprus may have been affected. One instance where it might be applied is to the second lacuna between the Khirokitian and the LNeo mentioned in the Introduction (Peltenburg forthcoming). In the absence of diagnostic ceramics, postulated sites of that period will be even less visible than in the EChal.

With respect to the EChal, Mylouthkia 2-3 demonstrates that it was a formative era that set the trajectory for development in later times. It is suggested that the early 4th millennium cal BC was marked by settlement expansion that generated greater use of timber before the re-appearance of stone architecture. Due to erosion associated with arboreal clearance, these new establishments are characterised by poor archaeological visibility and perhaps survival.

Some of the innovations evident in the EChal include remarkable settlement expansion in the west, the emergence of cruciform figurines and distinctive pendants, the increased demand for picrolite from distant sources, the enduring circular building form and, at least by the start of the MChal, its formalised segmented internal organisation, and the association of burials with buildings. All of these material expressions are both the outcome and the medium of social practices. The figurines concern an inter-regional ideology; the raw material picrolite, exchange and alliances (cf. Peltenburg 1991); the physical ordering of the built environment, an arena through which social relations were produced, re-reproduced, contested and modified; and the shift of burials from extra-mural locales to close association with sequences of buildings, a transformation of more corporate social structures to greater focus on the house, ancestors, lineages and ownership. They merit more consideration than space permits here.

As far as the Lemba cluster of settlements in the SW of the island is concerned, the ^{14}C dates, pottery seriation and the destruction of B 200 imply that Mylouthkia was abandoned at about the same time that fine buildings start to be constructed at nearby Kissonerga 3A (*LAP* II.1A, 241-4). If the two sites were not already used by the same people, it may well be that the exceptional subsequent developments in Kissonerga 3B were in part due to the amalgamation of two groups of people when the inhabitants abandoned Mylouthkia and moved to Kissonerga.

Appendix A: Unit log and site phasing

Unit numbers comprise discrete major features. Sub-unit numbers are entities that belong to larger features. They are briefly described under the relevant unit number. Alternative relationships are given for many units below B 200. For discussions, see § 13 and 24. Many features occurred in terrace faces. Even though unexcavated, scraping yielded information on feature typologies and fills; limited sherdage allowed provisional dating. Page references for many sub-units are given in the major unit (e.g. for 109.01-08, see 109.0).

Status refers to the stratigraphic integrity of units. The system employed here is the same as that in *LAP* II.1A, 7-8.

OK

In situ deposits, e.g. material on the floor of a building, intact walls, pits.

M (Mixed)

Like OK deposits, these are safely stratified entities, but the material does not appear to be *in situ*, e.g. upper fills of buildings, most constituents of pits (but not, for example, hearths or surfaces therein), wells and ditches. The majority of Mylouthkia units have M ratings.

D (Disturbed)

Ill-defined features, often affected by animal or root action or erosion. Many of these are likely to be prehistoric, but material from these units is normally not included in chronological or contextual analyses.

C (Contaminated)

C refers to recent disturbance (mostly confined to the plough zone, or to units contaminated or suspected of being contaminated by later material). Unlike Kissonerga, 'later' at Mylouthkia can and often does mean post-Chalcolithic.

Unit	*Description/Relations/page reference*	*Status*	*Period*
0	modern topsoil		mod
1.0	pit; large irregular, circular, below modern surface; pp 107, 108, 124, 143-145, 184, 193,199, 201, 225, 226, 239, 242, 251	OK	2
1.01	fill; topsoil, below modern surface	D	?late
1.02	hearth; stone setting, ash, below 1.01	D	2?
1.03	pit; ash, charcoal, shell, bone, burnt stones, below 1.02	OK	2
1.04	fill; clay, heat-cracked stones, below 1.02	OK	2
1.05	fill; charcoal, stones, human bones, below 1.02 and 1.04	M	2
1.06	pit; small, cut into 1.02	M	2
1.07	hearth; ash, charcoal, bone, stones; near and below 1.02	OK	2
1.08	surface; orange-brown silt, plough-scarred; cut by erosion	D	?
1.09	fill; brown silt, postholes: part of 1.05?	OK	2
1.10	gully; pebbles: below 1.08, on natural	M/OK	2
1.11	fill; dark-brown clayey silt, organics: below 1.05	M	2
1.12	hearth; silt, stones, pebbles, ash: cut into 1.02	M	2
1.13	fill; basal, brown ashy silt: below 1.11	M	2
1.14	hearth; shallow pit, ash lens, stones: within 1.05	OK	2
1.15	fill; brown silt, stones: below 1.11, as 1.13	M	2
1.16	fill with human bone: within 1.11	M	2
1.17	fill with human bone: within 1.05, in NW corner	M	2
2A.0	pit; partly excavated, below ploughsoil and brown loam; p. 108	D	2
2A.01	superficial: ploughsoil over 2A.2	D	mod
2A.02	superficial: ploughsoil under 2A.1	D	mod?
2A.03	fill in pit 2A	M	2
2B.0	pit, partly excavated, beside pit 2A; pp 108, 141, 201	D	2
2B.01	superficial: ploughsoil over pit	C	2?
2B.02	superficial: ploughsoil over 2B.03	D	mod
2B.03	fill; ash and stones, below 2B.02	M	2
2B.04	fill; pebbles, below 2B.03	M	2
3	pit; terrace-scraped, stones near base, below *havara* lens (floor?); p. 108	OK	2?
4	pit; terrace-scraped, bell-shaped ash at base, below modern surface; pp 108, 141	OK	2
5	pit; terrace-scraped, with wall stones (of structure?); below modern surface; pp 108, 217-219	OK	2
6	pit; terrace-scraped, with ashy fill, below *havara* lens; p. 109	OK	?
7	structural material; unexcavated, below modern surface; p. 109	OK	5
8	pit; partly excavated, below *havara* floor? with hearth; p. 109	OK	2
9	pit; terrace-scraped, upper fill stones, lower ashy, below modern surface; pp 109, 141	OK	2?
10	wash; unexcavated, stones - modern surface; p. 109	?	?
11	wash; surface-scraped, with quern - modern surface; p. 109	?	?
12	cancelled: no archaeological reality		
13	pit; square, unexcavated, below modern surface; p. 109	OK	?
14	pits; unexcavated, below modern surface; p. 109	?	?
15	pit; terrace-scraped, ashy hollow, below modern surface; pp 110, 141	OK	2?
16.0	pit; top recently quarried; original 16.07, secondary 16.01-4, below modern surface; pp 110, 143-145, 184, 192, 193, 199, 200, 201, 217-219, 226, 227, 239, 241-243, 251	OK	2
16.01	fill; grey ashy silt, compacted mud, partly contemporary 16.02-4	M	2
16.02	fill; stones, *havara*, partly below 16.01	M	2
16.03	fill; 2 lenses, ash, charcoal, heat-cracked stones, above 16.04, part of 16.02?	M	2

Unit	*Description/Relations/page reference*	*Status*	*Period*
16.04	fill; separated by black ash lens, ochre, *havara*, below 16.03, above 16.07, as 16.03	M	2
16.05	pit; small, between 2 lenses of 16.04	OK	2
16.06	fill; basal, original truncated pit, stones, below 16.07, as 16.04	M	2
16.07	fill; of secondary pit, ash, heat-cracked stones, below 16.04	M	2
16.08	fill; loose brown soil and large stones; layers of light grey ash. Below modern surface, west of 16.0. Previously 30.0.	D	?
17	pit; surface-scraped, shallow, ashy fill, below modern surface; p. 111	?	?
18	pit; surface-scraped, below modern surface; pp 111, 141	?	2
19	pit; surface-scraped, below modern surface; pp 111, 141	?	2
20	pit; surface-scraped, below modern surface; pp 111, 141	?	2
21-23	cancelled: no archaeological reality		
24.0	pit, initially subsumes pit 28; below modern surface; pp 111, 201, 227, 251	OK	2
24.01	fill; ash, *havara*, heat-cracked stones, below modern surface	M	2
24.02	fill; in east and south, heat-cracked stones, below 24.01	M	2
24.03	fill; in west, below 24.02	M	2
25	surface scatter; ashy silt, stones, large sherds - surface; p. 111	M	2?
26	surface scatter; possibly wash-surface; p. 111	M	2?
27	sherd concentration, adjacent to pit 16; p. 111	D	?
28.0	pit; N side of pit 24 - modern surface; pp 111, 193, 241, 251	OK	2
28.01	fill; heat-cracked stones in two hollows below modern surface	M	2
29	pit; stones, compacted mud, 2 m below pgs; p. 111	OK	?
30	see 16.08; pp 111, 141		
31A-B	see 14; pp 109, 111		
32	pit; unexcavated; p. 111		?
33	pit; unexcavated; p. 111		?
34	pit; unexcavated; p. 111		?
54-56	cadastral plot		
57	cadastral plot		
57D	cadastral plot		
58	cadastral plot. Equates with new plot number 496		
58B	cadastral plot		
59	cadastral plot. Equates with new plot number 471, locality Tremitharka		
74	cadastral plot. Equates with new plot number 472, locality Tremitharka		
75	cadastral plot. Equates with new plot number 473		
76	cadastral plot		
77	cadastral plot		
77B	cadastral plot		
77D	cadastral plot		
78A	cadastral plot. Equates with new plot number 505		
79	cadastral plot. Equates with new plot number 474		
80	cadastral plot. Equates with new plot number 475		
81	cadastral plot. Equates with new plot number 480, locality Tremitharka		
89	cadastral plot		

Unit	*Description/Relations/page reference*	*Status*	*Period*
100.0	pit; shallow cut by ditch 103, possibly cuts pits 101 and 102; pp 74, 75, 112, 145, 146	D	2
100.01	fill; grey-brown clayey silt, charcoal, *havara*, stones, in east	M	2
100.02	fill; horizontal lenses, clay, ash, *havara*, below 100.01	M	2
100.03	fill; pale-grey clayey silt, charcoal, stones, *havara*, below 'peaty' lens under 100.02	M	2
100.04	fill; primary, *havara*, wash, flat-trodden sherds, below 100.03	M	2
101.0	pit; circular, truncated, below modern surface, adjacent to pit 100; p. 112	D	2
101.01	fill; as 100.03, below modern surface	M	2
102.0	pit; eroded, with post emplacements and pick marks, cuts pit 100?, cut by ditch 103; pp 112, 124, 145, 146	D	2
102.01	fill; grey clay, *havara*, flat-trodden sherds, below modern surface	M	2
103.0	ditch; shallow, flat bottom, post emplacements on ledge; cuts pit 100 and prob. pit 102; pp 113, 145, 146	D	2?
103.01	fill; white marl, grit, gravel, stones, eroded from pit 100? below modern surface	M	2?
103.02	fill; basal, water-laid lenses below 103.01	M	2?
104.0	pit; small, barrel shaped, flat bottomed, pick marks as pit 102, at modern surface; pp 113, 145, 146, 193	OK	2
104.01	fill; marl, burnt daub, ash, below modern surface	M	2
104.02	fill; yellow-brown silt, *havara*, stones, below 104.01	M	2
105.0	ditch, at modern surface; pp 113, 145, 146	C	late?
105.01	fill; sand, silt, gravels, stones, below modern surface	M	late?
105.02	fill; basal, sandy silts in gullies and solution holes, below 105.01	?	late?
105.03	fill; solution hole, within 105.02	?	late?
105.04	fill; silt from solution hole, within 105.02	M	late?
106A	cadastral plot. Equates with new plot number 506, locality Skourotos		
106B	cadastral plot.		
106.0	ditch; shallow, part of ditch 105; pp 113, 145, 146	?	late?
106.01	fill; sandy silt, stones, below modern surface	?	late?
107.0	ditch, eroded; pp 114, 145, 146, 201	D	late?
107.01	fill, below modern surface	M	late?
107.02	fill; as 107.01, below modern surface	M	late?
107.03	fill; as 107.01, below modern surface	M	late?
108.0	pit; irregular, large, at surface; pp 74, 75, 114, 145, 146, 185, 193, 199, 201, 227, 251	OK	2
108.01	fill; clayey silt, ash, *havara*, stones, below modern surface	M	2
108.02	fill; as 108.01, lower part of 108.01	M	2
108.03	fill; in NE, as 108.01, contamination from pit 109, below modern surface	D	2
108.04	fill; uncontaminated, below modern surface	M	2
109.0	pit; large, broad, shallow, cut by pit 108, at surface; pp 114, 145, 146, 185, 199, 201, 227, 251	D	2
109.01	fill; grey-brown clayey silt, pebbles, stones; as 109.06, below modern surface	M	2
109.02	fill; redeposited *havara*, as 109.07, below 109.01	D	2?
109.03	fill; as 109.01, as 109.08, decayed building material, below 109.02	M	2
109.04	fill; in central hollow, clayey silt, below 109.03	M	2
109.05	fill; in east margin of hollow, below 109.03	M	2

Unit	*Description/Relations/page reference*	*Status*	*Period*
109.06	fill; E of main section = 109.01, below modern surface	M	2?
109.07	fill; as 109.02 - redeposited *havara*; between 109.06 and 109.07; equivalent to 109.02	M	2?
109.08	general; regarded as equivalent to 109.03; below 109.07	M	2
110.0	well; 5 m deep shaft, channel at base, cut by pit 109, at surface; pp 3, 39, 55, 56, 114, 145,146, 186	OK	1A/B
110.01	fill; redeposited silts, charcoal, *havara*, stones, below modern surface	M	1+2
110.02	fill; as 110.01 and below 110.01	M	1+2
110.03	fill; in E, brown clayey silt, below 110.02	M	1+2
110.04	pit; orange-brown to grey sandy silt, stones, part of 110.03	OK	1+2
110.05	fill; *havara*, patch in top of 110.06	M	1A/B
110.06	fill; basal, below 110.03	M	1A/B
110.07	alcove; western, basal, silts, *havara*, below and within 110.06	M	1A/B
110.08	alcove; eastern, basal, silts, *havara*, below and within 110.06	M	1A/B
111	see 152.111		
112	see 139.112		
113	general; white-brown silt, stones, cobbles, below modern surface, as 195 above 117, 151, 201; ? Post-B 200 collapse deposits; pp 123, 130	M	3
114	see 116.114		
115	see 119.115		
116.0	well; pp 11, 28, 39, 41, 42, 50, 51, 60-62, 67, 68, 73, 75, 83, 84, 88-91	OK	1A
116.114	fill; brown silt, stones, gravels, below moderns urface, above 123; pp 5, 13, 19, 90	M	1A
116.123	fill; grey-brown silt, stones and gravels, below 114; pp 5, 13, 83, 84, 90	M	1A
116.124	fill; medium brown silt and stones, below 123, above 191; pp 5, 43, 83, 84, 90	M	1A
116.191	fill; brown silt, stones, cobbles, pebbles, below 124, above 192 and bedrock shelf; pp 5, 43, 90	OK	1A
116.192	fill; green brown clayey silt, below 191, above bedrock; pp 5, 90	M	1A
117	see 200.117; p. 130		
118	see 119.118		
119.0	pit, cuts 131, cut by posthole 120 and channel 139; p. 251	OK	2?
119.115	fill; grey ashy silt, below 112 and surface, above 118	M	2?
119.118	fill; grey-brown ashy silt, below 115, above posthole 120	M	2?
120.0	posthole, below 118, filled by 121, cuts 131, cut from pit 119 bottom,	OK	3
120.121	fill; grey ashy, below 118	M	2
121	see 120.121		
122	see 152.122		
123-4	see 116.123-4		
125	see 143.125		
126	see 200.126		
127	see 144.127		
128	see 145.128		
129	see 152.129		
130	general; sand, silt, clay, stones, below modern surface	M	2
131	general; grey-brown ash, silt wash, below modern surface, 112, 115 and 118; cut by 132, 119 and 132	M	2
132	?surface; white ?plaster, below modern surface, above 131	OK?	2

Unit	*Description/Relations/page reference*	*Status*	*Period*
133.0	well, below modern surface; pp 11, 27, 28, 39-42, 51-55, 60-62, 67, 68, 73, 75, 83-85, 88, 91-93	OK	1B
133.260	fill; grey silt, stones, cobbles, pebbles, below modern surface, above 264; pp 7, 43, 46, 91	M	1B
133.264	fill; grey-brown silt, stones, cobbles, pebbles, grit, below 260, above 278; pp 7, 44, 83, 84, 91	M	1B
133.278	fill; brown clayey silt, *havara*, below 264, above 279; pp 7, 91	M	1B
133.279	fill; brown clay, *havara*, below 278, above 282; pp 7, 91	M	1B
133.282	fill; brown-red-grey ashy silt, charcoal, shell, grit, sand, below 279, above 329, adjacent to 331; pp 7, 91	M	1B
133.329	fill; brown-red-grey clayey silt, below 282, adjacent to 331; pp 7, 45, 91	M	1B
133.331	fill; white-brown-grey clayey silt, *havara*, adjacent to 282, 329 and 332; pp 7, 45, 91	M	1B
133.332	fill; grey clayey silt, stones, cobbles, below 329, above 333; pp 7, 45, 91	M	1B
133.333	fill; grey clayey silt, stones, cobbles, below 332; pp 7, 91	M	1B
133.334	fill; white-brown-red clayey silt, *havara*, below 331, adjacent to 332; p. 7	M	1B
134	general; silt wash, silt, below modern surface, above 135	M	2
135	see 136.135		
136.0	pit: large hollow, below 134; pp 117, 251	OK	2?
136.135	fill; grey ashy silt, below 134 and 138	M	2
137	general; pale brown silt, gravels, below 11, above 140; pp 123, 130	M	3?
138	general; mixed, pebbles; below, above 135	M	2
139.0	channel; shallow groove, ?plough mark, below modern surface, cuts pit 119 and 131	OK	late?
139.112	fill; brown clayey silt, below modern surface, above 115	M	2?
140	general; grey ashy silt, gravels, below 137, above 146; pp 123, 130	M	3
141	see 147.141		
142	general; grey ashy silt, grit and pebbles, below modern surface, above surface 148, adjacent to 126	M	2
143.0	pit; sub-rectangular, cut from 130	OK	2?
143.125	fill; grey-brown ashy silt, below surface, above natural	M	?
144.0	pit; shallow, flat bottomed, below 130; p. 251	OK	2
144.127	fill; grey ash, below modern surface, adjacent to 128	M	2?
145.0	pit; steep, straight sided, flat bottomed, below 130	OK	2
145.128	fill; grey ash, stones, below modern surface, adjacent to 127, 111	M	2?
146	surface; white-grey plaster and ash, below 140, above 164 and 178; pp 120, 123, 130	OK	3?
147.0	pit; irregular, shallow, above natural, below 135; p. 251	OK	2
147.141	fill; grey ashy silt and sand, below 135, above natural	M	2
147.01	circular posthole; 16 x 8 cm., 5 cm. deep, cut into natural; below 135	OK	2
147.02	circular posthole; 11 x 8 cm., 10 cm. deep, cut into natural; below 135	OK	2
147.05	posthole; 15 cm. across; 9 cm. deep, cut into natural; below 135	OK	2
147.06	posthole; 15 x 22 cm., 13 cm. deep, cut into natural; below 135	OK	2

Unit	*Description/Relations/page reference*	*Status*	*Period*
148	surface; white plaster, below 142; p. 123	OK	3
149	see 166.149		
150	see 166.150; p. 193		
151	see 200.151		
152.0	building in hollow, below modern surface, above pit 161; pp 117, 123, 132, 148, 150, 160, 193, 217-219, 227	OK	2
152.111	fill; yellow-grey ashy silt, stones, above 122, equates to 163	M	2
152.122	stone setting; brown compacted mud, below 111, contemporary with 182	OK	2
152.129	misc.; floor ridge, brown compacted mud, below modern surface, adjacent to 111, 154	M	2
152.153	fill; brown clayey silt, above pit 161	M	2
152.154	stone setting; reddish clayey silt, below modern surface, above pit 161	OK	2
152.163	general; ash, wash, plaster, heat-cracked stones, same as 111 and 182	M	2
152.165	basin; plaster, below 111 and 163, above 162	OK	2
152.182	fill; ash, silt, clay, stones, within 111	M	2
152.183	hearth; brown clay matrix; part of 185, below 182, above 162	M	2
152.184	general; yellow grey ash, plaster, silt, within 183. Note: triple numbered, see 184	OK	2
152.185	pit contemporary with 183	M	2
152.186	stone setting; socketed stone, below 111 and 182, above 162	OK	2
152.187	stone setting, below 111 and 183 and above pit 161	OK	2
152.188	floor; plastered, white-brown clay, adjacent to 165	OK	2
153-4	see 152.153-4		
155	see 200.155		
156.0	pit; steep sided, flat bottomed, below 138, filled by 157, above 149 and 150; p. 251	OK	2?
156.157	fill; stones, cobbles, below 138, above 149 and 150, part of pit 156	M	2
157	see 156.157		
158.0	pit; steep sided, flat bottomed, below 138 above 149 and 150	OK	2
158.174	fill; brown silt, gravels, below 138 above 149 and 150	M	2
159	see 200.159		
160	see 200.160; p. 251		
161.0	pit; large, shallow, partially excavated, below 130 and B 152, above natural; p. 251	OK	2
161.162	flooded during excavation, below B 152	M	2
162	see 161.162		
163	see 152.163		
164	general; grey ash, below 117, surface 146 and modern surface, above surface 177, as 178; p. 123	M	2-3
165	see 152.165		
166.0	pit; irregular, shallow, part of pit 136, adjacent to pit 147; pp 117, 251	OK	2
166.149	fill; yellow-grey ash and clay, stratigraphically mixed, below 150, above and part of 166; p. 117	M	2-3
166.150	fill; grey ashy silt, stones, below 138, above 149	M	2
166.171	fill; black-brown silt, gravels, below 149, adjacent to 158. ? part of pit 300; p. 117	M	2
167	general; yellow-brown, mixed, stones, below 138, adjacent to 149	M	2
168-70	see 200.168-70		
171	see 166.171. ? part of pit 300		
172-3	see 200.172-3		
174	see 158.174		
175-6	see 200.175-6		
177	surface; white plaster, silt, below 164 and 178, above 179 and 181; ? part of pit 300, abutting 200.126 (double numbered); pp 115, 128, 130	M	3
178	general; grey ash, below surface 146, above surface 177, as 164; pp 123, 130	M	2-3
179	fill; yellow-grey ashy silt, below surface 177, similar to 181; p. 123	M	3?
180	see 200.180		
181	see 300.181		
182-3	see 152.182-3		
184	see 152.184. Also recorded as part of B 200 and pit 300; triple-numbered		
185-8	see 152.185-8		
189-90	see 200.189-90		
191-2	see 116.191-2		
193	fill; grey-brown ash, plaster, silt, below 184 and B 200, cut by 184 and 194	M	2 or 3
194	see 200.194		
195	general; white-brown silt, stones, cobbles, below modern surface, as 113, ?post B 200 collapse deposits; p. 123	OK	3
196-7	see 300.196-7		
198	see 200.198; as 200.117		
199	see 330.199		
200.0	building below 113, 195, 202; cuts B 330, founded in fill of pit 300; pp 74, 75, 116, 119-123, 125-131, 150-156, 160, 186, 192, 193, 197-199, 209, 217-219, 228, 229	OK	3
200.117	general; grey-brown silt, below 113, above 137, adjacent to 126; exterior to B 200; p. 123	M	3
200.126	wall; rubble core, *havara* mortar, below modern surface; pp 115, 118, 119, 120, 128, 132	OK	3
200.151	fill; white silt wash, pebbles, below 113, adjacent to 126, equates with 159; pp 120, 130	M	3
200.155	fill; grey-brown plaster, ash, stones, silt, below 151; pp 120, 130	M	3
200.159	fill; white silt wash, below 113, as 151; pp 120, 130	M	3
200.160	fill; heap, below 151, as 159 and upper 172; p. 123	M	3
200.168	potspread, within 159 and 172, on floor 173 - KMyl 438, 439; p. 120	OK	3
200.169	potspread, within 159 and 172, on floor 173 - KMyl 441; p. 120	OK	3
200.170	fill; grey-brown, ash, plaster, silt, as 159; pp 123, 130	M	3
200.172	fill; yellow-brown ash, silt wash, below 159, above floor 173; pp 120, 130	M	3
200.173	floor; white clay, plaster, below 155 and 172	OK	3
200.175	posthole above 172, contemporary with 173; p. 120	M	3
200.176	fill; grey-brown ashy silt, within 175, below 172, cuts 175, contemporary with 173	OK	3
200.180	potspread within 159 and 172, on floor 173 - KMyl 440; p. 120	OK	3
200.189	entrance; to S., blocked, below 113, above surface 146; pp 119, 120, 128, 130	OK	3
200.190	misc.; exterior plaster area on wall 126; p. 120	OK	3
200.194	foundation trench, filled by 184	M	3?
200.198	general, continuation of 113 sloping up to exterior face of wall 126 of B 200; p. 123	M	3

Unit	Description/Relations/page reference	Status	Period
200.202	fill; white silt wash, below 195, above 211. Equates with 151 and part of 159; ? post-B 200 collapse deposits ; p. 130	M	3
200.211	occupation deposit; ash, plaster, compacted mud, etc., below 202, above 276, 280, 284; pp 120, 123, 130	M	3
200.212	entrance; adjacent to 284; pp 120, 130	OK	3
200.214	foundation trench below surface 148, cuts 203, 206, 210; p. 119	OK	3
200.215	fill; ash, plaster, silt, grit, within 214	M	3
200.221	stone setting; plinth; stones, plaster, below 202; p. 120	OK	3
200.222	potspread within 211 - KMyl 1927, 1014	OK	3
200.223	potspread within 211 - KMyl 2015	OK	3
200.224	potspread within 202 - KMyl 1926	OK	3
200.225	potspread within 211 - KMyl 1920, 1921	OK	3
200.227	potspread within 211 - KMyl 2016, 2017, 2018	OK	3
200.228	potspread within 211 - KMyl 2019, 2020	OK	3
200.229	potspread within 211	OK	3
200.230	potspread within 211 - KMyl 1918	OK	3
200.231	potspread within 211 - KMyl 1918	OK	3
200.232	potspread within 151 - KMyl 1988	OK	3
200.233	potspread within 151 - KMyl 1917, 1928, 2021	OK	3
200.234	potspread within 211 - KMyl 1919	OK	3
200.236	potspread within 211 - KMyl 1929	OK	3
200.238	potspread within 211 - KMyl 1930	OK	3
200.239	misc: lump of clay	OK	3
200.240	misc.; organic vessel, grey ashy silt, grit, within 151	OK	3
200.241	potspread within 151	OK	3
200.242	misc: lump of clay	OK	3
200.243	potspread within 211 - KMyl 1923	OK	3
200.244	potspread within 211 - KMyl 1922	OK	3
200.246	potspread within 211	OK	3
200.247	potspread within 211	OK	3
200.248	potspread within 151	OK	3
200.250	fill; white, brown, plaster, silt, below 151, above 251 and 254	M	3
200.251	fill; ash, silt wash, clay, below 250, adjacent to 254, above floor 252	M	3
200.252	floor; white plaster, below 251	OK	3
200.254	fill; compacted mud, ash, plaster, clay, below 151 and 250, adjacent to 251	M	3
200.262	potspread within 211	OK	3
200.263	potspread within 211	OK	3
200.265	potspread within 211 - KMyl 1925	OK	3
200.266	potspread within 211 - KMyl 1924, 2024	OK	3
200.267	potspread within 211	OK	3
200.268	potspread within 211	OK	3
200.269	stone setting: ground stone, pottery, below and within 211, above floor 276	OK	3
200.270	general; black-grey ashy silt, below 211, above 271	M	3
200.271	hearth; yellow clay, below 270, contemp. with floor 283, adjacent to floors 280 and 276	OK	3
200.272	posthole; circular, straight sided, below 211	OK	3
200.273	fill; grey-brown silt, sand, shell, bone, within posthole 272	M	3
200.274	pit below 211, filled by 316, equates with 315; ? part of pit 300	M	3
200.275	misc.; interior wall render, white-brown plaster, on wall 126	OK	3
200.276	floor; grey-white silt, grit, major floor of B 200, below 211, above floor 283. Adjacent to and contemporary with floor 280	OK	3
200.280	floor; grey ash, plaster, below 211, above floor 173, adjacent to and contemporary with hearth 271 and floor 276	OK	3
200.281	posthole below 211 and 172, contemporary with floor 276	OK	3
200.283	floor; white plaster, multiple layers, below floor 276; pp 118, 120, 128, 130	OK	3
200.284	floor; white plaster, within entrance 212, below 211, equates with floor 276	OK	3
200.285	misc.; artefact spread, within floor 276, below 176, on floor 283	M	3
200.286	stone setting; mortar emplacement, white plaster, stones, below wall 277, adjacent to 293, contemporary with floor 283, within pit 292	OK	3
200.287	potspread; *in situ* cut down storage jar, KMyl 2022, below 211, contemporary with floor 283 and pit 299	OK	3
200.288	upper fill of 287	M	3
200.289	lower fill of 287	M	3
200.291	misc.; disturbance, grey-brown ashy silt, roots, below floor 276, adjacent to floor 283	D	3
200.292	pit, below floor 276, contemporary with floor 283 and stone setting 286	OK	3
200.293	fill; white-brown silt, plaster, within pit 292	M	3
200.294	misc.; plaster bank, below stone setting 221, contemporary with pit 299, potspread 287 and upper floor 283	OK	3
200.295	potspread, below floor 276, contemporary with floor 283 - KMyl 2023	OK	3
200.296	posthole, below 211, contemporary with floor 276	OK	3
200.297	posthole, contemporary with floor 276?	OK	3
200.298	posthole, below floor 276, contemporary with floor 283?	OK	3
200.299	pit; circular, steep sided, flat bottomed, for potspread 287, below stone setting 221 and 294, contemporary with floor 283	OK	3
200.301	posthole, contemporary with floor 283, below floor 276	OK	3
200.302	posthole, contemporary with floor 283, below floor 276	OK	3
200.303	pit below floor 276, contemporary with floor 283	OK	3
200.304	fill; grey ashy silt, within pit 299, below stone setting 221, potspread 287, 294, contemporary with 283	M	3
200.305	general; grey ashy silt, stones, cobbles, roots, below floor 283, above surface 313; ? part of B 290	M	3
200.306	fill; grey-brown silt, stones, cobbles, gravels, grit, within pit 307	M	3
200.307	pit, below floor 283, cuts 305	OK	3
200.310	pit; small, circular, steep sided, below 176, contemporary with floor 283, cuts surface 313	OK	3
200.311	fill; grey-brown ashy silt, stones, cobbles, within pit 310	M	3
200.312	fill; brown silt, stones, cobbles, within pit 310, below 311	M	3
200.315	pit; circular, steepsided, flat bottomed, below floor 276, filled by 316, cuts surface 317. Equates with pit 274; ? part of pit 300	OK	3
200.316	fill; grey-brown silt, within pit 315, below floor 276; ? part of pit 300	M	3
200.320	posthole; circular, pointed bottom, filled by 321, contemporary with and cut from floor 276	OK	3
200.321	fill; brown silt, within posthole 320, contemporary with floor 276	M	3

Unit	*Description/Relations/page reference*	*Status*	*Period*
201	general; brown silt, plaster, stones, pebbles, below 113 and 117, above surface 204	M	3
202	see 200.202		
203	general; pale brown silt, below surface 148, above 206; p. 123	M	3
204	surface; pale grey-brown silt, plaster, pebbles, gravels, grit, below 201, above surface 205, as 137; p. 123	M	2
205	surface; pale brown-grey plaster, silt, pebbles, below surface 204, above surface 146; p. 123	M	2
206	general; pale orange-brown silt, below 203 above 210; p. 123	M	2
207	general; grey-brown silt, below 137 and surfaces 204, 208, adjacent to surface 205 and 140; p. 123	M	3
208	surface; white plaster, silt, below 207, above surfaces 146 and 209; p. 123	OK	3
209	surface; grey-white plaster, ash, below surfaces 205 and 208, as surface 146; p. 123	OK	3
210	general; pale orange-brown silt, below 206 above 213, adjacent to 199; ?part of B 330; pp 123, 201	M	3
211-2	see 200.211-2		
213	general; grey ash, below 210; ? part of B 330; p. 123	M	3
214-5	see 200.214-5		
216-20	see 300.216-20		
221-5	see 200.221-5		
226	see 300.226		
227-34	see 200.227-34		
235	see 300.235		
236	see 200.236		
237	see 300.237		
238-44	see 200.238-44		
245	see 300.245		
246-8	see 200.246-8		
249	see 300.249		
250-2	see 200.250-2		
253	see 300.253		
254	see 200.254		
255-9	see 300.255-9		
260	see 133.260		
261	see 300.261		
262-3	see 200.262-3		
264	see 133.264		
265-76	see 200.265-76		
277	wall; postholes, root action, below wall 126, cuts surfaces 196, 309 and 317; ? part of B 290 or pit 300. See § 13.3 for alternative description.	D	3
278-9	see 133.278-9		
280-1	see 200.280-1		
282	see 133.282		
283-9	see 200.283-9		
290	building; timber. See § 13.3 for alternate description; pp 118, 119, 128, 131, 132	?	3
291-9	see 200.291-9		
300.0	pit, contains B 200 and other fills; pp 114, 115, 156, 157, 193, 217-219	OK	2
300.181	fill; yellow-grey ashy silt, below surface 177 and wall 126; pp 115, 128	M	2
300.196	surface; yellow grey silt, below 181, above surface 197, as 184; ? part of B 290; pp 128, 132	M	2
300.197	surface; brown ash, plaster, silt, below surface 196, above surface 218	M	2
300.216	general; grey ashy silt, below modern surface, above 217	M	2
300.217	fill/surface; white plaster, below 216, above surface 219	OK	2
300.218	surface; yellow-brown silt, below surface 197,above surface 235 and 237	M	2
300.219	surface; white plaster, below 217, above 220	M	2
300.220	general; grey-brown ashy silt, stones, pebbles, below surface 219, above 226	OK	2
300.226	general; orange-brown silt, below 220	OK	2
300.235	surface; yellow-brown plaster, silt, below surface 218, above 237	OK	2
300.237	general; grey-brown ashy silt, below surfaces 218 and 235, above 245	OK	2
300.245	general; pale grey-brown ashy silt, grit, below 237, above surface 249	M	2
300.249	surface; white yellow-brown plaster, silt, below 245 above 253	OK	2
300.253	general; orange-brown silt, cobbles, below surface 249, above 255	M	2
300.255	general/surface; white plaster, stones, cobbles, roots, below 253, above 256	OK	2
300.256	general; brown silt, stones, pebbles, grit, below 255, above 257	M	2
300.257	fill; white-brown silt, cobbles, below 256, above 258	M	2
300.258	general; white-brown *havara*, charcoal, shell, bone, roots, below 257, above natural	M	2
300.259	general; mixed fills, below surface 218, above 255	M	2?
300.261	general; white-brown, *havara*, silt, roots, below 257	M	2
301-7	see 200.301-7		
308	see 330.308		
309	surface; grey silt, below 308, equates with surfaces 196 and 317; ? part of B 290; pp 118, 119, 128, 132	OK	3
310-2	see 200.310-2		
313	surface; grey-brown silt, below 305 and surface 317; pp 118, 132	M	3
313.314	basin; orange-white plaster, below 305; ? part of surface 209	M	3
314	see 313.314		
315-6	see 200.315-6		
317	surface; grey-brown silt, laminated, under wall 126 of B 200. Equates with surfaces 196 and 309; ? part of pit 300 and B 290; pp 115, 118, 119, 120, 128, 132	OK	3
318.0	posthole; circular, round bottomed, below floor 283 of B 200, filled by 319, cuts surface 209; ?part of B 290	OK	3
318.319	fill; of posthole 318, white plaster, compacted mud	M	3
319	see 318.319		
320-1	see 200.320-1		
322	general; grey ashy silt, below modern surface, above 324, contemporary with wall 323; ? part of B 330	M	3
323	see 330.323		
324	general; beige silt, ? below 322, above 328; ? part of 330	M	3
325-8	see 330.325-8		
329	see 133.329		
330.0	building; predates B 200, below modern surface; pp 119, 146, 151, 160, 217-219	OK	3
330.199	general; brown plaster, compacted mud; below modern surface, same as 308 and 325, ? as 210; pp 119, 123	M	3
330.308	general; brown silt, *havara*, below wall, 126 above 181 and surface 309, equates with 199 and 325	M	3

Unit	*Description/Relations/page reference*	*Status*	*Period*
330.323	wall below modern surface	OK	3
330.325	fill; grey-brown silt, *havara*, below modern surface, above floor 326, equates with 199 and 308	M	3
330.326	floor; white plaster, below 325	OK	3
330.327	entrance below modern surface	OK	3
330.328	surface; brown silt, plaster, below 324, contemporary with wall 323	OK	3
331-4	see 133.331-4		
335-6	see 337.335-6		
337.0	pit; circular, filled by 335 and 336; pp 7, 8, 27	OK	1B
337.335	fill; grey-brown ashy silt, stones, cobbles, below modern surface, above 336	M	1B
337.336	fill; brown silt, stones, cobbles, below 335	M	1B
338.0	pit; deep, sub-circular, flat bottomed, partially excavated, includes 352-6; pp 8, 27, 41, 55, 60-62, 68, 75	OK	1B
338.352	fill; red-brown silt, cobbles, pebbles, below gully 351 and modern surface, above 352	M	1B
338.353	fill; yellow-white *havara*, below 352, above 354	M	1B
338.354	fill; grey-brown ashy silt, below 353, above 355	M	1B
338.355	fill; brown clayey silt, cobbles, below 354, above 356	M	1B
338.356	fill; basal, yellow-white *havara*, laminated, below 355, above natural	M	1B
339	see 340.339		
340.0	pit with fills and building; unit number usually refers to building; pp 8, 27, 60-62, 68, 90	OK	1B
340.339	floor; yellow-white plaster, below 342, above pit 345 and 346	OK	1B
340.341	fill; brown silt, roots, below modern surface, above 342	M	1B
340.342	fill; brown silt, roots, below 341	M	1B
340.343	hearth, below 341, adjacent to 342	OK	1B
340.344	fill; grey-brown ashy silt, plaster, stones, cobbles, within hearth 343	M	1B
340.345	pit, below floor 339	OK	1B
340.346	misc. floor makeup; red-brown silt, below floor 339, above natural	M	1B
340.347	fill; of pit 345, red-brown silt, below floor 339 and modern surface	M	1B
340.348	fill; grey-brown silt, cobbles, pebbles, below modern surface, and floor 339, cut by pit 345, above natural	M	1B
340.349	surface; grey-white silt, compacted mud, pebbles, gravels, below 348, above natural	OK	1B
341-9	see 340.341-9		
350	see 351.350		
351.0	gully; number of complex erosional features, above 352; p. 9	C	late
351.350	fill; grey ashy silt, cobbles, pebbles, gravels, grit, below modern surface	C	late
352-6	see 338.352-6		

Appendix B: List of Registered Finds (abbreviated)

The minus (-) sign in front of a dimension indicates the fragmentary axis of an incomplete object. Objects without a (-) sign are complete unless otherwise stated. Rim and base diameters of pottery vessels are reconstructed measurements. Measurements are in cms. KMyl 308-349 not used. For object descriptions, types, materials and previous publications, see List of Registered Finds at
http://www.arcl.ed.ac.uk/arch/publications/cyprus/mylouthkia/ and
http://ads.ahds.ac.uk/catalogue/resources.html?mylouthkia.

KMyl	*Class. Material, Dimensions, Feature, Pl., Fig.*
1	axe. stone. L 12.8. W 5.7. Th 3.7. Unit **0**. Fig. 64.2.
2	adze. stone. L 7.2. W 5.4. Th 1.2. plot **78**. Fig. 64.10.
3	pestle. stone. L 18. W 8.8. Th 5.5. plot **78**.
4	bowl. stone. L 15. W 11. Th 3. Unit **0**.
5	axe. stone. L 8. W 4.2. Th 3.2. pit **1.**0.
6	bead. antler. L 3.5. hearth **1.**02.
7	misc. object. stone. L 2. Th 1.1. hearth **1.**02.
8	misc. object. stone. L -6.9. W -3.3. Th 1. hearth **1.**02.
9	figurine. pottery. hearth **1.**02. Pl. 13.9, Fig. 62.2.
10	misc. sherd. pottery. L 5.8. W 5.1. Th 3.8. Unit **0**.
11	worked antler. L 2.2. Th 1.1. hearth **1.**02.
12	bowl. stone. L -7.2. W 10.7. Th 2.2. hearth **1.**02.
13	axe. stone. L 8. W 5.5. Th 3.3. hearth **1.**02.
14	pottery disc. L 4.7. W -3. Th 1.1. hearth **1.**02.
15	axe. stone. L -2.9. W 3.3. Th 1.2. hearth **1.**02.
16	figurine. pottery. hearth **1.**02. Fig. 63.3.
17	bowl. stone. L -15.2. W -12.5. Th 1.9. hearth **1.**02. Fig. 69.4.
18	grooved stone. L 5.7. pit **1.**03.
19	worked antler. L 3.1. fill **1.**04.
20	point. bone. L -2.6. W 1. Th 0.6. hearth **1.**02.
21	pottery disc. Th 1.3. hearth **1.**02.
22	pottery disc. L 4.7. W -3.3. Th 1. hearth **1.**02.
23	bowl. stone. L 9.8. W 8.6. Th 3. fill **1.**05.
24	anvil. pebble. L 12.2. W 11.8. Th 4.3. fill **1.**05. Fig. 67.7.
25	chisel. stone. L 3.5. W 3.2. Th 1.4. fill **1.**05.
26	pottery disc. Th 0.9. fill **2B.**03.
27	hammerstone. L 9. W 7.7. Th 4.2. fill **2B.**04. Fig. 65.3.
28	bowl. stone. L -9.2. W -4.1. Th 3. fill **2B.**03.
29	cupped stone. L 10.7. W 9.1. Th 5.6. fill **1.**05.
30	anvil. pebble. L 11.5. W 10.3. Th 5.4. fill **1.**05.
31	pottery disc. L -4.3. W -3.4. Th 1.2. fill **2B.**04.
32	bowl. stone. L -17.7. W -15.9. Th 3.4. fill **2B.**04.
33	cupped stone. L 13.8. W 9.7. Th 5.5. Unit **0**.
34	needle. bone. L 3.5. W 0.3. Th 0.2. fill **1.**05. Pl. 16.5, Fig. 71.6.
35	bead. antler. L 3.1. fill **1.**05.
36	chisel. stone. L 5. W 2.1. Th 1.7. plot **76**.
37	chisel. stone. L 4.1. W 2.2. Th 1.4. plot **77**B.
38	flaked tool. pebble. L 7. W 4.3. Th 1.4. plot **77**B.
39	cupped stone. L 7.1. W 6.5. Th 3.6. plot **77**B.
40	misc. object. stone. L -2.6. fill **1.**05. Pl. 16.10.
41	misc. object. stone. L 12. W 7.1. Th 3.9. fill **1.**05.
42	hammerstone/grinder. L 10.7. W 8.9. Th 4. fill **1.**01.
43	worked antler. L 6. plot **76**.
44	pendant? picrolite. L 1.9. fill **1.**05. Fig. 71.18.
45	flaked tool. pebble. L 11.4. W 5.9. Th 1.8. fill **1.**01.
46	bead. antler. L 5.5. fill **1.**01.
47	figurine. stone. plot **76**. Pl. 13.1, Fig. 61.1.
48	pottery disc. L 4.9. W -2.7. Th 1.1. fill **1.**05.
49	bowl. stone. L -7.5. W -7. Th 1.5. fill **1.**05.
50	worked antler. L 9.1. hearth **1.**02.
51	pendant?. stone. L 3.7. W 1.6. Th 1.2. pit **16.**0. Fig. 70.10.
52	figurine. picrolite. fill **1.**05. Pl. 13.6, Fig. 61.5.
53	bowl. stone. L -11.8. W -10.8. Th 2.7. Unit **0**.
54	pottery disc. L 5.2. W -3.2. Th 1.3. fill **1.**11.
55	point. bone. L 6. W 1.1. Th 0.4. fill **1.**11.
56	jar stopper. pottery. Diam 5.1. Ht -3.7. fill **1.**11. Fig. 54.4.

KMyl	*Class. Material. Dimensions. Feature. Pl., Fig.*
57	axe. stone. L 12.8. W 5.7. Th 3.7. fill **1.**11. Fig. 64.3.
58	figurine. pottery. fill **1.**05. Pl. 13.13, Fig. 63.7.
59	figurine. pottery. fill **1.**05. Fig. 63.4.
60	pottery disc. L 5.2. W 4.2. Th 1. fill **1.**05. Fig. 71.15.
61	pottery disc. L 6.2. W -3.2. Th 0.7. fill **1.**11.
62	chisel. stone. L -2.3. W 1.1. Th 1. fill **1.**11.
63	perforated stone. L 7.8. fill **1.**05.
64	pottery disc. L 4.6. W -2.9. Th 1.2. fill **1.**11.
65	pottery disc. L -4.6. W 2.6. Th 1. fill **1.**01.
66	misc. object. stone. L -3.5. fill **1.**11. Pl. 16.10.
67	bowl. stone. L 5.3. W 2.9. Th 1.4. fill **1.**11. Fig. 69.2.
68	flaked tool. pebble. L 9.9. W 7.3. Th 2.1. plot **58**B. Fig. 64.20.
69	flaked tool. pebble. L 8.9. W 5.6. Th 2.6. plot **57**D.
70	hammerstone. L 7. W -5.1. Th 4.9. plot **57**D.
71	figurine. pottery. fill **1.**05. Fig. 62.3.
72	figurine. pottery. fill **1.**05. Fig. 62.5.
73	cupped stone. L 10.3. Th 4.9. fill **1.**05. Fig. 67.2.
74	figurine. pottery. fill **1.**05. Fig. 63.5.
75	bowl. stone. L -7.2. W -6.4. Th 1.9. fill **1.**05.
76	pottery disc. L -4.9. W -3.1. Th 0.9. fill **1.**11.
77	bowl. stone. L 16.5. W 10. Th 3.2. plot **77**.
78	human bones. fill **1.**05.
79	figurine. pottery. fill **1.**05.
80	bowl. stone. L -9.1. W -8.6. Th 1.9. fill **1.**11.
81	bowl. stone. L -11.8. W -9.2. Th 1.5. fill **1.**11.
82	bead. antler. L -3.1. fill **1.**11.
83	human bones. fill **1.**16. Pl. 3.5.
84	unworked bone. L 23.7. W 3.4. Th 1.9. fill **1.**11.
85	figurine. pottery. fill **1.**13. Pl. 13.10, Fig. 62.6.
86	misc. sherd. L -9.8. W -8.6. Th 1.2. fill **1.**05. Fig. 55.7.
87	platter. pottery. Diam 22. Base diam 5.8. Ht 8.5. fill **1.**05. Pl. 9.1, Fig. 48.1.
88	misc. object. pottery. L 5.8. W 5.2. Th 1.4. fill **1.**05.
89	figurine. pottery. pit **16.**0. Fig. 63.6.
90	bowl. stone. L 12.5. Th 2.4. Unit **0**. Fig. 69.6.
91	adze. stone. L 4.8. W 3.3. Th 1.5. Unit **0**.
92	hook. metal. L 1.3. W 0.5. Th 0.15. pit **8**. Pl. 16.8, Fig. 71.12.
93	cupped stone. L 10. W 6.3. Th 2.9. Unit **0**. Fig. 67.3.
94	adze. stone. L -4.4. W 4.2. Th 1.4. pit **24.**0.
95	bowl. stone. L 10.8. W 10.1. Th 7. pit **16.**0.
96	fossil. stone. L 1.7. pit **16.**0. Fig. 71.14.
97	coin. metal. pit **24.**0.
98	figurine. stone. Unit **0**. Fig. 61.2.
99	chisel. stone. L 2.8. W 2.6. Th 0.9. Unit **0**. Fig. 64.18.
100	figurine?. pottery. fill **24.**01. Fig. 63.9.
101	bowl. stone. L 14. Ht 4. surface scatter **25**. Pl. 14.6, Fig. 69.9.
102	hammerstone/grinder. L -9. W 7.9. Th 3.7. surface scatter **25**.
103	bowl. stone. L -4.8. W 4.7. Th -1.1. plot **77**.
104	axe. stone. L 7.4. W -3.9. Th 1.6. plot **77**.
105	pendant. picrolite. L -1.2. fill **16.**01. Fig. 70.4.
106	figurine. stone. fill **16.**01. Frontispiece 3, 13.7, Fig. 61.6.
107	hammerstone/grinder. L 8.3. W 8.8. Th 3.6. fill **24.**01.
108	pounder. pebble. L 15. W 7.6. Th 4. fill **16.**01.
109	figurine. pottery. fill **24.**01. Fig. 63.8.

KMyl	*Class. Material. Dimensions. Feature. Pl., Fig.*
110	haft antler. L -8.9. W 3.3. Th 0.5. fill **24.**01.
111	hammerstone/grinder. L 14.8. W 9.7. Th 4.6. fill **16.**01.
112	bowl. stone. L -10.7. W -11. Th 4.2. fill **24.**02.
113	flaked tool. stone. L 5.5. W 3.5. Th 1. plot **76**.
114	chisel. stone. L 3. W 1.3. Th 1.1. fill **16.**01.
115	axe. stone. L -6.8. W 6.1. Th 3.7. fill **16.**01.
116	axe. stone. L 8.3. W -6.2. Th 2.8. fill **16.**01.
117	cupped stone. L -13.5. W 12.4. Th 6.7. fill **16.**01.
118	pendant?. stone. L 6.9. W 5.1. Th 1.2. fill **28.**01. Pl. 15.4, Fig. 70.13.
119	bead. antler. L -3.2. fill **28.**01. Pl. 15.1, Fig. 70.17.
120	figurine. pottery. fill **28.**01. Fig. 62.4.
121	chisel. stone. L 4.4. W 2.5. Th 1.4. fill **16.**01.
122	bowl. stone. L -13.9. W -11.3. Th 1.9. fill **16.**01.
123	adze. stone. L -5.6. W -4.9. Th 1.9. fill **16.**01.
124	saucer. pottery. Diam 8.5. Ht 2.5. fill **16.**01. Pl. 10.5, Fig. 54.6.
125	misc. object. stone. L 11.8. W 3.3. pit **16.**0.
126	adze. stone. L -4.5. W 6.2. Th 1.9. fill **16.**02.
127	rubbing stone. L 8.4. W 6.3. Th 3. fill **16.**01. Fig. 66.3.
128	hammerstone/grinder. L 7.4. W -6.3. Th 2.8. fill **16.**01.
129	adze. stone. L -5. W 7. Th 1.5. fill **16.**01.
130	hemibowl. pottery. Diam 5. Ht 2.2. fill **24.**01. Pl. 9.2, Fig. 54.5.
131	pottery disc. L -3.8. W -2.4. Th 1.2. fill **16.**01.
132	pottery disc. L -3.5. W 3.1. Th 1.2. fill **16.**01.
133	needle. bone. L -2.8. fill **16.**01.
134	needle. bone. L -8.9. fill **16.**01. Pl. 16.6, Fig. 71.7.
135	bead. antler. L -3.5. fill **16.**01. Pl. 15.1, Fig. 70.19.
136	needle. bone. L -2.2. fill **16.**03.
137	needle. bone. L -4.7. fill **16.**03.
138	adze. stone. L -5.3. W -3.7. Th 1. fill **16.**03.
139	needle. bone. L 7.1. W 0.3. Th 0.2. fill **24.**02. Fig. 71.4.
140	tube. bone. L 2.9. fill **16.**01. Pl. 15.1, Fig. 71.11.
141	rubbing stone. L -9. W -8.6. Th 2.1. fill **16.**01.
142	rubbing stone. L 8.3. W 4.7. Th 3. fill **16.**01.
143	axe. stone. L -5.4. W -6.6. Th 1.2. fill **16.**03.
144	hammerstone. L 9.8. W 5.8. Th 4.2. fill **16.**03. Fig. 65.4.
145	chisel. stone. L 4.2. W 2.2. Th 1. fill **16.**03.
146	pounder. stone. L 11.8. W 6.7. Th 3.6. fill **16.**03.
147	axe-shaped grinder. stone. L -9.1. W 6.4. Th 3.4. fill **16.**03.
148	chisel. stone. L 3.6. W 1.7. Th 0.6. pit **16.**0.
149	zoomorph?. pottery. pit **16.**0. Pl. 13.15, Fig. 63.10.
150	pounder. stone. L 15.1. W 5.3. Th 4.6. pit **16.**0. Fig. 65.10.
151	bowl. stone. L -4.5. W 4.3. Th 1.1. fill **1.**05.
152	figurine. stone. hearth **1.**02.
153	unworked bone. L 5.7. W 1.3. Th 0.3. hearth **1.**02.
154	bead. antler. L -2.8. Th 1. Unit **0**. Pl. 15.1, Fig. 70.15.
155	figurine. pottery. fill **16.**03. Fig. 63.11.
156	axe. stone. L -6.6. W -5.3. Th 1.3. pit **16.**0.
157	adze. stone. L 6.1. W 4.7. Th 1.1. pit **16.**0. Fig. 64.9.
158	hammerstone/grinder. stone. L 9.2. W 7.9. Th 4.1. fill **16.**03.
159	flaked tool. stone. L 8.5. W 5.4. Th 1.8. fill **16.**03.
160	misc. object. pottery. L -5.9. W -3.6. Th -3.7. fill **1.**11. Pl. 10.9, Fig. 55.9.
161	adze. stone. L -6.8. W 5.4. Th 2.1. fill **16.**03.
162	pestle. stone. L 12. W 4.9. Th 4.7. fill **16.**03.
163	needle. bone. L -3.2. W 0.2. Th 0.1. fill **16.**03.
164	pounder. stone. L 9.9. W 3.6. Th 3.2. fill **16.**03.
165	figurine. stone. fill **16.**04. Pl. 13.2.
166	figurine. pottery. fill **16.**04. Fig. 63.12.
167	chisel. stone. L -4.4. W 1.5. Th 1.1. fill **16.**04.
168	axe. stone. L -7.1. W 4.6. Th 3.2. fill **16.**04.
169	axe. stone. L -6. W 6.7. Th 2.4. fill **16.**04.
170	figurine. pottery. fill **1.**11. Pl. 13.16.
171	figurine. pottery. pit **1.**03. Fig. 62.7.
172	figurine?. stone. Unit **0**.
173	hammerstone. Th 3.4. fill **16.**04.
174	figurine. pottery. fill **16.**04.
175	perforated stone. L -7.4. W -3.7. Th 2. fill **16.**04.
176	conical stone. Th 10.6. fill **16.**04. Pl. 14.5, Fig. 67.6.
177	bowl. stone. L -11. W -6. Th 2.1. fill **16.**04.
178	bowl. stone. L -8.9. W -7. Th 2.1. fill **16.**04.
179	bowl. stone. L -8.3. W -7.1. Th 2.7. fill **16.**04.
180	axe-shaped grinder. stone. L 12.1. W 7.6. Th 4.2. fill **16.**04.
181	adze. stone. L 6.5. W 5.4. Th 1.2. fill **16.**01.
182	misc. object. stone. L -6.1. W 5.8. Th 2.5. fill **16.**04.
183	rubber. stone. L -12.1. W 7.6. Th 4.2. fill **16.**04.
184	polisher. stone. L -6. W -6.4. Th -3. fill **16.**04.
185	bowl. stone. L -9.3. W -4.8. Th 3.3. pit **16.**0.
186	fine abrader. stone. L 6. W 1.8. Th 0.7. fill **16.**04.
187	conical stone. L -8.3. W -5.9. Th -4.2. fill **16.**04.
188	figurine. pottery. fill **16.**04.
189	figurine. pottery. fill **16.**04. Pl. 13.17.
190	figurine. pottery. fill **16.**04. Pl. 13.18.
191	rubbing stone. L 15.4. W 13.4. Th 4. fill **16.**04. Fig. 66.2.
192.01	pottery disc. L 4.4. W -2.2. Th 0.9. fill **24.**01.
192.02	pottery disc. L -5.5. W -2.8. Th 1.1. fill **24.**01.
192.03	pottery disc. L -4.5. W -5.1. Th 1.1. fill **24.**01.
192.04	pottery disc. L -4.5. W -3.2. Th 1.1. fill **24.**01.
193	pottery disc. L -3.3. W -3.2. Th 1.8. fill **24.**02.
194	bowl. stone. L -14.6. W -11.4. Th 4.1. fill **16.**04.
195	rubber. stone. L -10.4. W -12.3. Th -8.2. fill **16.**04.
196	hammerstone/grinder. L 15.5. W 8.7. Th 5.2. fill **16.**04.
197	axe-shaped grinder. stone. L 9.5. W 5.7. Th 2.3. fill **16.**04. Fig. 65.1.
198	cupped stone. L 11.7. W 9.4. Th 9.6. fill **16.**04.
199	bowl. stone. Th 2.5. fill **16.**04. Frontispiece 7, Fig. 71.16.
200	conical stone. L -8.5. W 6.8. Th 6.3. fill **16.**04. Pl. 14.5.
201	point. bone. L 9.1. W 0.5. Th 0.3. fill **16.**04. Pl. 16.4, Fig. 71.9.
202	hammerstone/grinder. L 7.1. W 7. Th 4.8. fill **16.**04.
203	conical stone. L 7.9. W 5.4. Th 4. fill **16.**04.
204	hammerstone/grinder. L 10.4. W 8.9. Th 4.4. fill **16.**04. Fig. 65.7.
205	pounder. stone. L 6.3. W 6.1. Th 5.9. fill **16.**04.
206	bowl. stone. L 25. W 13.8. Th 2.6. fill **16.**04.
207	chisel. stone. L 6.6. W 1.4. Th 0.9. fill **16.**04.
208	haft. antler. L -4.8. W 2.8. Th 2.3. fill **16.**04.
209	pendant. stone. L -3.5. W 1.3. Th 1. plot **76**. Pl. 15.7, Fig. 70.3.
210.01	pottery disc. L 6.8. W 6.5. Th 1.3. fill **16.**04.
210.02	pottery disc. L -5.4. W -4.6. Th 1.7. fill **16.**04.
211	bowl. stone. L -4. W 5.7. Th 1.2. fill **16.**04.
212	adze. stone. L 8.1. W 5.6. Th 1.2. fill **16.**04.
213	adze. stone. L 3.3. W 3. Th 0.7. fill **16.**04.
214	daub. L 9.4. W 7.2. Th 5.1. fill **16.**04.
215	daub. L 8.5. W 8.5. Th 6.2. fill **16.**04.
216	hammerstone/grinder. L 11.1. W 10.3. Th 4.3. fill **16.**04.
217	hammerstone. L 8.7. W 5.5. Th 5.4. fill **16.**04. Frontispiece 5.
218	conical stone. L 13.5. W 10.3. Th 11.5. fill **16.**04. Pl. 14.5.
219	bowl. stone. L 10.2. W 7.1. Th 2.5. fill **16.**04. Fig. 69.1.
220	pendant?. stone. L 6.1. W 3. Th 0.7. fill **16.**04. Fig. 70.14.
221.01	bead. antler. L 4.7. fill **16.**04. Pl. 15.2.
221.02	bead. antler. L -5. fill **16.**04. Pl. 15.2.
221.03	bead. antler. L 4.9. fill **16.**04. Pl. 15.2.
221.04	bead. antler. L -3.9. fill **16.**04. Pl. 15.2.
222	flaked tool. stone. L 7.6. W 4.3. Th 1.2. fill **16.**04. Fig. 64.21.
223	misc. object. pottery. L -9. W -5.2. Th 1.2. fill **16.**01.
224.01	rectangular vessel. pottery. L -4.7. W -3.3. Ht -2.9. fill **1.**05. Pl. 10.8, Fig. 48.5.
224.02	rectangular vessel. pottery. L -6.7. W -3.1. Ht -3.1. fill **1.**05. Pl. 10.8, Fig. 48.6.
225.01	rectangular vessel. pottery. L -6.9. W -3.8. Th -6.1. fill **28.**01. Pl. 10.7, Fig. 52.4.
225.02	rectangular vessel. pottery. L -5.4. W -3.5. Ht -3.8. fill **28.**01. Pl. 10.7, Fig. 52.5.
226	unworked blade. obsidian. L -2.5. W -2.5. Th -2. Unit **0**.
227	daub. L 6.2. W 5.1. Th 3.8. hearth **1.**12.
228	pottery disc. L 4.4. W -2.7. Th 1.1. fill **16.**04.
229	misc. object. pottery. L -4.3. W -4.2. Th 3.3. fill **16.**04.
230	adze. stone. L 6.4. W 4.3. Th 1.2. fill **16.**04.
231	axe. stone. L -8. W -6.5. Th 3.3. fill **16.**04.
232	figurine. pottery. fill **16.**06. Fig. 63.13.
233	bead. antler. L 5.5. fill **16.**04.

KMyl	*Class. Material. Dimensions. Feature. Pl., Fig.*
234	conical stone. L 11.2. W 6.8. Th 8.4. fill **16.**04. Pl. 14.5.
235	misc. object. stone. L 4.8. W 4.6. Th 2.9. fill **16.**04.
236	pottery disc. L 5.8. W 5.3. Th 1. fill **16.**04.
237	hammerstone/grinder. L -10.1. W -6.3. Th 7.7. fill **16.**04.
238	conical stone. L 14.3. W 12.3. Th 10.2. fill **16.**04. Pl. 14.5.
239	needle. bone. L -3.6. W 0.4. Th 0.3. fill **16.**06.
240	pendant. picrolite. L 2.2. W 1.3. Th 0.9. pit **16.**0. Pl. 15.8, Fig. 70.6.
241	figurine. pottery. fill **16.**04.
242	bead. antler. L -4.1. fill **16.**07.
243	haft antler. L 6.6. W 3.2. Th 2. fill **16.**07.
244	cupped stone. L 12.4. W 11.5. Th 7.8. plot **77**.
245	bowl. stone. L 30. Th 3.3. fill **16.**07.
246	bead. antler. L 4.9. fill **16.**07.
247	needle. bone. L -3.5. fill **16.**07.
248	adze. stone. L 3.3. W 3.4. Th 1. fill **16.**07.
249	adze. stone. L -3.2. W -1.4. Th -0.7. fill **16.**07.
250	chisel. stone. L 5.6. W 2.4. Th 2. fill **16.**08.
251	pendant. picrolite. L 3.4. W 1. Th 0.9. fill **16.**08. Pl. 15.10, Fig. 70.9.
252	pottery disc. L -6.8. W -5.8. Th 1.5. fill **16.**07.
253	bead. antler. L -4.1. fill **16.**07.
254	haft antler. L 5. W 2.2. Th 1.8. fill **16.**07.
255	worked antler. L 10.2. W 3.7. Th 2.3. fill **16.**08. Pl. 16.7.
256	needle. bone. L -3.3. W 3. fill **16.**07.
257	misc. sherd. L -4.6. W -2.8. Th -2.5. fill **16.**06.
258	bowl. stone. L -7.9. W -6.3. Th 2. fill **16.**04.
259	pendant. clay. L 2.9. W 2. Th 1.2. fill **16.**08.
260	axe. stone. L 11.3. W 7.5. Th 3.3. fill **16.**08.
261	bowl. stone. L -14.7. W -13.7. Th 4.5. plot **77**.
262	pestle. stone. L 12.5. W -7.2. Th -5.6. fill **16.**08.
263	hammerstone. L -8.3. W 5.4. Th 4.5. fill **16.**08.
264	pendant. stone. L -8.6. W 8.9. Th 0.7. fill **16.**07. Fig. 70.12.
265	pottery disc. L 6.1. W -6. Th 1.2. fill **16.**07.
266	spindle whorl. stone. L 2.5. W 2.4. Th 2.1. fill **16.**07. Pl. 16.11, Fig. 68.4.
267	adze. stone. L -6.2. W 6.1. Th 1.5. fill **16.**07.
268	clay object. L 23.7. W 18.5. Th 9.4. fill **16.**07.
269	worked antler. L 11.3. W 3.5. Th 2.1. fill **16.**07.
270	bead. antler. L 3.7. fill **1.**11.
271.01	misc. object. metal. L 0.7. W 0.5. Th 0.3. pit **29**. Pl. 16.9, Fig. 71.17.
271.02	polisher. stone. L 4.2. W2.7. Th1.1. pit **16.**0.
272	polisher. stone. L 6.7. W 2.1. Th 1.2. potspread **200.**180.
273	pounder. stone. L 7.6. W 3.2. Th 1.7. pit **5**.
274.01	needle. bone. L -2.3. W 0.4. Th 0.3. pit **1.**0.
274.02	needle. bone. L -1.4. W 0.2. Th 0.1. pit **1.**0.
275	bead. antler. L -2.5. W 1.3. Th -0.6. fill **16.**04.
276.01	point. bone. L -3.2. W 0.9. Th 0.8. fill **16.**04.
276.02	point. bone. L -1.6. W 0.5. Th 0.4. fill **16.**04.
276.03	needle. bone. L -3.4. W 0.3. Th 0.1. fill **16.**04.
276.04	needle. bone. L -1.4. fill **16.**04.
276.05	needle. bone. L -2.9. fill **16.**04.
277.01	needle. bone. L -2.4. W 0.2. Th 0.2. fill **16.**04.
277.02	needle. bone. L -1.4. fill **16.**04.
278	point. fine point. bone. L -4. W 0.7. Th 0.4. fill **16.**06.
279	needle. bone. L -1.5. fill **16.**07.
280	point. fine point. bone. L 3.4. W 0.5. Th 0.3. fill **1.**05.
281	bowl. stone. L -8.7. W -6.7. Th 1.7. plot **58**.
282	bowl. stone. L -7. W -3.8. Th 1.5. plot **58**.
283	grooved stone. L 10.7. W 7.3. Th 6.1. plot **58**.
284	pounder. stone. L 8.7. W 6.1. Th 5.1. pit **5**.
285	rubbing stone. L 9.8. W 6.3. Th 3.4. pit **5**.
286	pounder. stone. L 10.1. W 6.1. Th 4. pit **5**.
287	hammerstone. Type 1. Oval plan and section. Bifacially used as hammer. stone. L 7.6. W 6. Th 5.7. pit **5**.
288	bowl. stone. L 27. W 15.6. Th 5.9. pit **16.**0. Fig. 68.7.
289	spatula. bone. L 15.1. W 1. Th 0.4. pit **16.**0. Fig. 71.10.
290	pottery disc. Th 1.2. pit **16.**0.
291	misc. object. pottery. L -10.5. W 11.2. Th 1.8. Unit **0**.
292	rubbing stone. L -14. W 8.1. Th 3.8. pit **16.**0.
293	rubbing stone. L 10.9. W 9.3. Th 4.1. pit **16.**0.
294	hammerstone/grinder. L -10. W 7.7. Th 3.1. plot **58**.
295	bowl. stone. L -11.7. W -10.9. Th 3.6. plot **58**.
296	bowl. stone. L -8.7. W -4. Th 2. plot **58**.
297	bowl. stone. L -10.2. W -10. Th 2.5. pit **110.**04. Pl. 14.4, Fig. 69.8.
298	jar stopper. stone. L -8. W 7.9. Th 5.5. fill **100.**04.
299	fine abrader. stone. L -10.7. W 4.3. Th 1.1. fill **106.**01.
300	grooved stone. L 14.7. W 10.9. Th 7.9. fill **108.**02.
301	figurine. stone. fill **107.**01/02. Pl. 13.3.
302	figurine. stone. fill **109.**02. Pl. 13.4.
303	bowl. stone with red ochre. L 8.1. W 7.3. Th 1.1. fill **109.**03.
304	figurine. pottery. fill **100.**03.
305	pendant. picrolite. L 5.3. W 1.3. Th 0.6. fill **105.**01. Pl. 15.9, Fig. 70.11.
306	bowl. stone. L 34.3. W 14.2. Th 14. fill **107.**01.
307	figurine. pottery. fill **109.**03. Pl. 13.14.
308-349	Not used.
350	adze. stone. L 5.9. W 5.4. Th 1.4. Unit **0**.
351	axe. stone. L 9.8. W 4.2. Th 3.3. Unit **0**.
352	polisher. stone. L 4.9. W 2.5. Th 1.8. Unit **0**.
353	bead. antler. L 2.9. W 1.6. Th 1.5. general **113**.
354	axe. stone. L 4.8. W 2.7. Th 1.8. Unit **0**.
355	flaked tool. stone. L 10.8. W 6.7. Th 2.4. Unit **0**.
356	point. bone. pit **1.**0.
357	misc. object. pottery. L 6.5. W -4.3. Th 1.8. fill **105.**01.
358	bowl. stone. fill **116.**123.
359	hammerstone/grinder. fill **116.**123.
360	polisher. stone. L 2.8. W 2.8. Th 1.9. well **116.**0.
361	cancelled.
362	cancelled.
363	flaked tool. stone. L 8. W 6.4. Th 1.7. Unit **0**.
364	hammerstone/grinder. L 9.3. W 7.8. Th 4.8. Unit **0**.
365	cupped stone. L 14.5. W 9.5. Th 5.6. fill **116.**114.
366	cupped stone. L 7.6. W 6.8. Th 3.8. fill **116.**124.
367	pounder. stone. L 10. W 9.2. Th 7.9. fill **116.**124.
368	bowl. stone. fill **116.**124. Pl. 8.2, Fig. 47.3.
369	anvil. stone. L -12.6. W -10.4. Th -3.9. fill **116.**124.
370	cupped stone. L 13.2. W 12.6. Th 6. fill **116.**124.
371	pounder. stone. L 17.2. W 7.7. Th 7.2. fill **116.**124.
372	flaked tool. stone. L 12.6. W 10.6. Th 3.4. fill **116.**124.
373	pounder. stone. L -10. W -5.4. Th 3.5. fill **116.**124.
374	bowl. stone. L 39.3. W 33.8. Th 6.9. fill **116.**124.
375	bowl. stone. L -13. W -11.3. Th 3.5. general **134**.
376	hammerstone/grinder. L -10. W -5.3. Th 3.5. fill**152.**111.
377	bead. shell. L -1.1. general **137**.
378	worked shell. L -1.9. W -0.7. Th 0.2. fill **116.**124.
379	needle. bone. general **200.**117.
380	needle. bone. L -2.1. general **200.**117.
381	adze. stone. L 9.1. W 4.4. Th 0.9. Unit **0**.
382	chisel. stone. L 3.4. W 1.1. Th 0.8. general **200.**117. Fig. 64.15.
383	bowl. stone. L -7.5. W -7.8. Th 1.7. fill **116.**124.
384	pounder. stone. L 5.7. W 5.6. Th 5.2. fill **136.**135.
385	adze. stone. L 5.3. W 5.3. Th 1.3. Unit **0**.
386	hammerstone. L 9.8. W 8.7. Th 5.3. well **116.**0.
387	bowl. stone. L -6.8. W -4.9. Th 1.9. fill **133.**260.
388	bowl. stone. L -12.5. W -8.4. Th 2.5. fill **133.**260.
389	worked pig tusk. bone. L 10. W 1.3. Th 0.6. fill **100.**02.
390	point. bone. L 12.3. W 1.6. Th 1.5. fill **100.**03. Fig. 71.1.
391	pounder. stone. L 16.1. W 6.7. Th 3.7. fill **116.**124.
392	pounder. stone. L 7. W 6. Th 5.7. fill **147.**141.
393	hammerstone/grinder. L 10.7. W 8.2. Th 4.3. general **138**.
394	hammerstone/grinder. L 10.1. W 8.5. Th 3.7. general **138**.
395	hammerstone. L 12.6. W 10.6. Th 5.7. general **137**.
396	spatula. bone. L 12.1. W 2.1. Th 0.7. general **200.**117.
397	pounder. stone. L 6. W 5.6. Th 5.6. stone setting **152.**122. Fig. 65.8.
398	quern. stone. L -44. W 22.4. Th 3.6. stone setting **152.**122.
399	chisel. stone. L 7.4. W 1.3. Th 1.2. fill **200.**155. Pl. 14.3, Fig. 64.14.
400	bead. shell. L -1.1. fill **200.**202.
401	bowl. stone. L -5.9. W -4.3. Th 2. fill **133.**279.
402	rubbing stone. L -8.1. W 5.2. Th 1.7. Unit **0**.
403	pounder. stone. L 14.7. W 7.4. Th 7. general **113**.
404	adze. stone. L -5.5. W -1.9. Th -1.1. fill **200.**151.

KMyl	*Class. Material. Dimensions. Feature. Pl., Fig.*
405	misc. object. stone. L -13.3. W -6.1. Th -5.4. stone setting **152.**122.
406	bowl. stone. L -8.4. W -6. Th 2.5. fill **133.**279.
407	hammerstone. L 11.5. W 10. Th 4.8. fill **152.**111.
408	axe. stone. L 10. W 6.5. Th 3.1. general **152.**163. Fig. 64.5.
409	hammerstone. L 7.9. W 7.2. Th 6.1. fill **116.**124.
410	bead. shell. L -1.6. fill **200.**155.
411	lid. pottery. Diam 10. Ht -2.9. fill **107.**01/02. Fig. 48.8.
412	figurine/?zoomorph. pottery. pit **100.**0. Fig. 62.8.
413	bowl. stone. L -12.6. W -7. Th 2.3. Unit **0**.
414	hammerstone. L 13. W 7.7. Th 3.3. Unit **0**.
415	pounder. stone. L 15.3. W 7.4. Th 4.1. Unit **0**.
416	pounder. stone. L 20.9. W 12.4. Th 10.1. fill **166.**150.
417	pounder. stone. L 20.3. W 12.8. Th 7.6. fill **166.**150.
418	rubbing stone. L 10.7. W 9.4. Th 4. fill **200.**159.
419	rubber. stone. L -13.2. W 13.4. Th 4.7. fill **200.**159.
420	burnisher?. pottery. L 4.3. W 3.7. Th 1. general **167**. Fig. 55.3.
421	pottery disc. L 4.2. W 3.7. Th 0.8. fill **1.**11.
422	flaked tool. stone. L 6.1. W 5.2. Th 1.8. surface **177**.
423	hammerstone. L 8.3. W 7.1. Th 4.8. fill **116.**124.
424	pestle. stone. L -4.7. W 8.5. Th 8.2. fill **200.**155.
425	hammerstone. L 4.9. W 3.9. Th 2.1. fill **200.**155.
426	pestle. stone. L 21.6. W -5.8. Th 7.2. potspread **200.**168.
427	bowl. stone. L -12.5. W 23.2. Th 6.6. fill **116.**124.
428	misc. object. stone. L -23.4. W -35.4. Th 6.1. fill **116.**124.
429	anvil. stone. L 22.5. W 24.1. Th 8.1. fill **156.**157.
430	cupped stone. L 14.4. W 9.4. Th 4.7. fill **152.**182.
431	quern. stone. L -14.6. W -14. Th 2.7. fill **152.**182.
432	quern. stone. L -11.2. W -7.8. Th 8.2. fill **152.**182.
433	misc. object. stone. L -18.6. W -7.7. Th 2.2. fill **152.**182.
434	quern. stone. L -25.4. W 18. Th 7.6. fill **152.**182.
435	bowl. stone. L -12. W -9.1. Th 4.5. fill **133.**278.
436	tray. pottery. Diam 51. Base diam 43.5. Ht 11. hearth **152.**183. Pl. 9.3, Fig. 53.5.
437	flask. pottery. Ht -9.6. hearth **152.**183. Fig. 48.3.
438	deep tray. pottery. Diam 22. Base diam 19. Ht 12.6. potspread **200.**168. Fig. 48.11.
439	bottle. pottery. Diam 4. Base diam 8. Ht 28.8. potspread **200.**168. Fig. 52.1.
440	closed vessel. pottery. potspread **200.**180.
441	holemouth. pottery. potspread **200.**169.
442	hemibowl. pottery. Diam 12. Base diam12. Ht 4.2. fill **100.**02. Fig. 48.2.
443	tray. pottery. Diam 18. Base diam18. Ht 9.4. fill **100.**02. Fig. 48.10.
444	tray. pottery. Diam 24. Base diam 30. Ht 14.2. fill **104.**01. Fig. 50.2.
445	tray. pottery. Diam 42. Base diam 32. Ht 13.2. fill **108.**02. Fig. 48.12.
446	tray. pottery. Ht 8.8. general **131**. Fig. 53.2.
447	holemouth. pottery. Diam 14. Base diam 6.3. Ht 19.3. fill **152.**153. Pl. 9.4, Fig. 52.8.
448	hemibowl. pottery. Diam 14. Base diam 10. Ht 6.1. fill **110.**01.
449	bead. antler. L -3.3. W 1.3. Th 1.2. B **152.**0. Fig. 70.18.
450	pounder. stone. L 19.7. W 9.6. Th 3.1. B **152.**0.
451	quern. stone. L 29.7. W 16.2. Th 4.9. B **152.**0. Fig. 67.1.
452	quern. stone. L -32.8. W -20.9. Th 3.7. stone setting **152.**154.
453	mortar. stone. L 58. W 42. Th 17.5. fill **106.**01.
454	bead. shell. L -1.9. fill **200.**202.
455	bead. shell. L -1.2. fill **200.**202.
456	bead. shell: dentalium. L -2.3. fill **200.**202.
457	flask. pottery. Ht -8.6. occupation deposit **200.**211. Pl. 9.6, Fig. 54.9.
458	polisher. stone. L 7.4. W 2.4. Th 1.5. occupation deposit **200.**211.
459	adze. stone. L 11.3. W 5.2. Th 2.7. occupation deposit **200.**211. Pl. 14.3.
460	axe. stone. L 11.7. W 6.7. Th 3.1. occupation deposit **200.**211.
461	axe. stone. L -11.7. W -7.1. Th 3.1. occupation deposit **200.**211.
462	axe. stone. L -12.9. W 6.1. Th 3.7. occupation deposit **200.**211.
463	axe. stone. L 13.3. W 7.3. Th 3.6. occupation deposit **200.**211.
464	axe. stone. L 9.1. W 6.6. Th 3.3. occupation deposit **200.**211.
465	adze. stone. L 6.8. W 4.3. Th 1.1. occupation deposit **200.**211.
466	adze. stone. L 5.7. W 4.4. Th 1.1. occupation deposit **200.**211.
467	chisel. stone. L 5.7. W 2.5. Th 1. occupation deposit **200.**211. Pl. 14.3.
468	semi-perforated cone. stone. Th 5.1. occupation deposit **200.**211. Fig. 68.5.
469	jar stopper. stone. L 6.4. occupation deposit **200.**211. Fig. 69.11.
470	adze. stone. L 6.3. W 4.2. Th 1.1. occupation deposit **200.**211. Fig. 64.13.
471	axe. stone. L 9.1. W 6. Th 2.6. occupation deposit **200.**211.
472	pestle. stone. L 32.4. W 8.3. Th 7.6. occupation deposit **200.**211. Pl. 14.2.
473	lid. pottery. Diam 9.7. Ht -3.7. occupation deposit **200.**211. Fig. 48.7.
474	axe. stone. L 10. W 5.7. Th 3.1. occupation deposit **200.**211. Pl. 14.1.
475	axe. stone. L 10.1. W 6.4. Th 2.8. occupation deposit **200.**211.
476	lid. stone. W 11.5. Th 2.7. occupation deposit **200.**211.
477	adze. stone. L 5.9. W 5.6. Th 1.4. occupation deposit **200.**211. Fig. 64.11.
478	bead. shell. L -2.6. occupation deposit **200.**211.
479	pounder. stone. L -15. W -5.1. Th -7.1. occupation deposit **200.**211.
480	lid. stone. Th 2.9. fill **200.**151.
481	axe. stone. L 12.3. W 6.8. Th 4. fill **200.**151.
482	rubbing stone. L 12.3. W 10.6. Th 4. fill **200.**151.
483	point. bone. L -9.5. W 0.9. Th 0.4. fill **200.**151.
484	point. bone. L -7.4. W 1.5. Th 0.5. fill **200.**151.
485	bead. shell. L -1.6. occupation deposit **200.**211.
486	lid. stone. L 13.1. W 11.2. Th 2.2. occupation deposit **200.**211.
487	pestle. stone. L 29.8. occupation deposit **200.**211. Pl. 14.2, Fig. 66.1.
488	axe. stone. L 17.2. W 7.4. Th 4.3. occupation deposit **200.**211. Pl. 14.1, Fig. 64.4.
489	axe. stone. L 12. W 7. Th 2.7. occupation deposit **200.**211.
490	axe. stone. L 12.3. W 5.6. Th 3.9. occupation deposit **200.**211. Pl. 14.1.
491	jar stopper. stone. L 8.3. occupation deposit **200.**211.
492	axe. stone. L 6.9. W 3.2. Th 2.4. occupation deposit **200.**211.
493	bowl. stone. L -7.7. W -5. Th -1.7. pit **110.**04.
494	lid. stone. Th 2.9. occupation deposit **200.**211.
495	hammerstone/grinder. L 11.1. W 9.3. Th 4.4. occupation deposit **200.**211.
496	pounder. stone. L 18.6. W -7.2. Th -6.9. occupation deposit **200.**211.
497	pounder. stone. L -24.2. W -5.8. Th -8.4. occupation deposit **200.**211.
498	fine abrader. stone. L 3.9. W 1.1. Th 0.7. occupation deposit **200.**211.
499	axe. stone. L 12.5. W 5.4. Th 2.6. fill **200.**151. Pl. 14.3, Fig. 64.7.
500	lid. stone. Th 1.1. occupation deposit **200.**211.
501	lid. stone. Th 2.5. occupation deposit **200.**211. Fig. 69.10.
502	flaked tool. stone. L 16.3. W 8.2. Th 3.1. occupation deposit **200.**211.
503	lid. stone. L 13.3. W 11.7. Th 1.9. occupation deposit **200.**211.
504	axe. stone. L 13. W 6.2. Th 3.7. occupation deposit **200.**211.
505	lid. stone. L 11.1. W 9.5. Th 2.8. occupation deposit **200.**211. Pl. 14.3.

KMyl	*Class. Material. Dimensions. Feature. Pl., Fig.*
506	adze. stone. L 5.8. W 4.3. Th 0.8. occupation deposit **200.**211.
507	axe. stone. L 15.4. W 7.2. Th 4.1. occupation deposit **200.**211. Pl. 14.1.
508	axe. stone. L 12.1. W -6.5. Th 4.3. occupation deposit **200.**211.
509	point. bone. L -2.4. occupation deposit **200.**211.
510	hammerstone/grinder. L 11.1. W 9.6. Th 5.2. occupation deposit **200.**211.
511	hammerstone.L 11.8. W 10.2. Th 3.8. occupation deposit **200.**211.
512	lid. stone. W 10.8. Th 2.1. occupation deposit **200.**211.
513	hammerstone. L 11.7. W 9.5. Th 3.6. occupation deposit **200.**211.
514	bead. shell. L -1.5. occupation deposit **200.**211.
515	axe. stone. L 10.6. W 5.2. Th 2.3. fill **200.**151.
516	axe. stone. L 13. W 6.3. Th 3.5. fill **200.**151. Pl. 14.1.
517	axe. stone. L 11.9. W 6.3. Th 3.8. fill **200.**151.
518	fine abrader (joins KMyl 535). stone. L 14.4. W 4.3. Th 1. fill **200.**151. Fig. 66.5.
519	point. bone. L -2.7. W 0.9. Th 0.6. fill **200.**151.
520	lid. stone. Th 3.1. fill **200.**151.
521	conical stone. Th 7.8. fill **200.**151.
522	hammerstone/grinder. L 10.8. W 9.2. Th 5.1. occupation deposit **200.**211.
523	lid. stone. Th 1.3. fill **200.**151.
524	adze. stone. L 6. W 4.2. Th 1.5. occupation deposit **200.**211. Pl. 14.3, Fig. 64.12.
525	hammerstone. L 7.7. W 6.7. Th 4.4. occupation deposit **200.**211.
526	axe-shaped grinder. stone. L 18.3. W 8.1. Th 4.4. occupation deposit **200.**211. Fig. 65.2.
527	adze. stone. L 5.2. W 4.2. Th 1.2. occupation deposit **200.**211. Pl. 14.3.
528	bead. antler. L 2.8. occupation deposit **200.**211.
529	adze. stone. L -8.1. W 6.2. Th 1.9. occupation deposit **200.**211.
530	axe. stone. L 10.7. W 6.3. Th 2.2. fill **200.**151.
531	pendant. stone. L -5.1. fill **200.**151. Pl. 15.5, Fig. 70.7.
532	lid. stone. Th 3.3. fill **200.**151.
533	lid. stone. Th 2.9. fill **200.**151.
534	misc. object. stone. L -5.5. W 3.2. Th 1.8. fill **200.**151. Pl. 16.13.
535	fine abrader (joins KMyl 518). stone. fill **200.**151. Fig. 66.5.
536	polisher. stone. L 5.4. W 4.6. Th 1.2. fill **200.**151. Fig. 66.4.
537	bead. shell. L -3.5. fill **200.**151.
538	axe. stone. L 9.4. W 4.7. Th 2. fill **200.**151. Fig. 64.1.
539	pounder. stone. L 17.3. W 7.5. Th 3.1. fill **200.**151.
540	point. bone. L -14.7. W 1. Th 0.6. fill **200.**151. Pl. 16.2, Fig. 71.2.
541	axe. stone. L 12.1. W 6.8. Th 3.1. fill **200.**151. Pl. 14.1.
542	axe. stone. L 7.9. W 5.7. Th 2.7. fill **200.**151.
543	adze. stone. L 5.1. W 4.3. Th 1. fill **200.**151.
544	bead. antler. L -2. fill **200.**151.
545	needle. bone. L -3. pit **300.**254.
546	axe-shaped grinder. stone. L 10.7. W 6.9. Th 2.9. fill **200.**254.
547	hammerstone/grinder. L 11.4. W 10.2. Th 5.9. fill **200.**254.
548	bead. antler. L 4.6. fill **200.**254.
549	pendant. picrolite. L 4.4. W 3.5. Th 0.8. plot **89**. Pl. 15.12, Fig. 70.1.
550	adze. stone. L 5.1. W 4.1. Th 1.3. plot **89**. Pl. 14.3, Fig. 64.8.
551	flaked tool. stone. L -4.5. W -5.8. Th 1.7. plot **89**.
552	axe-shaped grinder. stone. L -4.5. W -5.7. Th 1.7. plot **89**.
553	adze. stone. L 8.2. W 5.3. Th 2.7. plot **89**.
554	axe-shaped grinder. stone. L 9. W 5.5. Th 2.2. plot **89**.
555	chisel. stone. L 11. W 6.9. Th 3.4. plot **89**.
556	axe. stone. L -3.2. W 2.4. Th 0.6. plot **89**.
557	axe. stone. L -5.3. W 6. Th -2.7. plot **89**.
558	bowl. stone. L 11. W 6.4. Th 3.1. plot **89**.
559	axe. stone. L -8.5. W -6.9. Th 1.4. plot **89**.
560	axe. stone. L -7.5. W 6.8. Th 2.8. plot **89**.
561	bowl. stone. L -3.8. W -6. Th -3.3. plot **89**.
562	pendant?. stone. L -7.8. W -6.6. Th 1.2. plot **89**.
563	chisel. stone. plot **89**. Pl. 14.3.
564	anvil. stone. L 21.8. W 18.1. Th 8. pit **100.**0.
565	bowl. stone. L -12.1. W -8.8. Th 3.2. pit **100.**0.
566	hammerstone. L -4.4. W -7. Th 3.2. pit **100.**0.
567	pestle. stone. L 12. W 9.2. Th 6.9. pit **100.**0. Fig. 65.12.
568	flaked tool. stone. L -6.1. W -5.1. Th -2.2. fill **100.**01.
569	cupped stone. L -8. W -4.2. Th 5.5. fill **100.**01.
570	pebble grinder. stone. L 8.3. W 5.9. Th 2.2. fill **100.**01.
571	pounder. stone. L 14.2. W 9.6. Th 6.2. fill **100.**02.
572	misc. object. pottery. L -7.2. Th 3.2. fill **100.**02. Fig. 55.8.
573	quern. stone. L -18.8. W -20.2. Th 5.9. fill **100.**03.
574	cupped stone. L -16.7. W -8.5. Th 4.3. fill **100.**03.
575	bowl. stone. L -6.7. W -6.1. Th 2.2. fill **133.**264.
576	pounder. stone. L 11.6. W 6. Th 3.3. fill **100.**03.
577	rubbing stone. L 8.2. W 6.9. Th 3.2. fill **100.**03.
578	rubber. stone. L -15.6. W 12.2. Th 3.4. fill **100.**03.
579	bowl. stone. L -14.2. W -8.9. Th -3.5. fill **100.**03.
580	adze. stone. L -4.8. W -3.8. Th 1.1. fill **100.**03.
581	jar stopper. stone. L 9.2. W 5.6. Th 4.7. fill **100.**03.
582	rubbing stone. Th 3.8. fill **100.**03.
583	pounder. stone. L 5.6. W 5.1. Th 3.9. fill **100.**03.
584	figurine roughout. stone. fill **100.**03.
585	bowl. stone. L -9.7. W -9.6. Th 3.2. fill **100.**03.
586	pebble grinder. stone. L -6.1. W -7. Th 2.3. fill **101.**01.
587	pounder. stone. L -7.5. W 8.1. Th -4.4. pit **102.**0.
588	flaked tool. stone. L 10.9. W 5.7. Th 1.9. pit **102.**0.
589	hammerstone/grinder. L 10.6. W 11. Th 4.5. pit **102.**0.
590	bowl. stone. L -6.2. W -6.5. Th 1.5. fill **102.**01.
591	rubbing stone. L 9.1. W 6.8. Th 3.2. fill **102.**01.
592	anvil. stone. L 15.2. W 12.4. Th 5.6. ditch **103.**0.
593	axe. stone. L -7.3. W 7.4. Th 2.7. fill **103.**02.
594	bead. shell. L -3.3. fill **104.**01.
595	pounder. stone. L 14.9. W 7.8. Th 3.6. fill **104.**01.
596	bowl. stone. L -7.4. W -5. Th 2.1. general **324**.
597	pounder. stone. L -11.8. W -5.6. Th 3.1. fill **104.**02.
598	axe. stone. L -7.8. W -4.4. Th -3.8. fill **105.**01.
599	axe. stone. L -4. W 3.5. Th 2. fill **105.**01.
600	cancelled.
601	polisher. stone. L -5. W 6.1. Th -1.5. fill **105.**01.
602	axe. stone. L -7.9. W -4.8. Th -2.6. fill **105.**01.
603	flaked tool. stone. L 8.5. W 5.5. Th 2.7. fill **105.**01.
604	axe-shaped grinder. stone. L 14.5. W 7.5. Th 3.1. fill **105.**01.
605	axe. stone. L -5.8. W 6.5. Th -4.7. fill **105.**01.
606	pebble grinder. stone. L -7.4. W 3.6. Th 1.7. fill **105.**01.
607	flaked tool. stone. L 12.9. W 6.1. Th 2. fill **105.**01.
608	misc. object. stone. L 4.5. W 2.7. Th 1.7. fill **105.**01.
609	pounder. stone. L -8.4. W 8.1. Th 4.1. fill **105.**01.
610	flaked tool. stone. L 8.6. W 6. Th 2.3. fill **105.**01.
611	pounder. stone. L 9.9. W 4.3. Th 1.6. fill **105.**01.
612	axe. stone. L -3.7. W 6.2. Th -3.4. fill **105.**01.
613	pebble grinder. stone. L 10.8. W 5.3. Th 2.3. fill **105.**01.
614	misc. object. stone. L -6.1. W -6.5. Th -3.5. fill **105.**01.
615	axe. stone. L -6.8. W 7.4. Th 3.4. fill **105.**01.
616	flaked tool. stone. L 10.8. W 7. Th 3.2. fill **105.**01.
617	flaked tool. stone. L -8.1. W 7.5. Th -2.9. fill **105.**01.
618	axe. stone. L -9.4. W 4.6. Th 3.5. fill **105.**01.
619	flaked tool. stone. L -7.3. W 5.1. Th 1.4. fill **105.**01.
620	flaked tool. stone. L -5.8. W 4.5. Th 1.4. fill **105.**01.
621	pebble grinder. stone. L -4. W -5. Th -2.3. fill **105.**01.
622	axe. stone. L -6.5. W -6. Th -2.6. fill **105.**01.
623	misc. object. stone. L -8. W -6.9. Th 3.8. fill **105.**01.
624	axe. stone. L 6.8. W 5.3. Th 3.6. fill **105.**01.
625	fine abrader. stone. L -6.4. W -3.6. Th 1. fill **105.**01.
626	quern. stone. L -17.1. W -11.9. Th 7.5. fill **105.**01.
627	anvil. stone. L -14.2. W -11. Th 6.6. fill **105.**01.
628	rubber. stone. L -16.6. W 13.6. Th 7.6. fill **105.**01.
629	rubber. stone. L -14.9. W -16.6. Th 7.5. fill **105.**01.
630	anvil. stone. L -20.1. W 19.4. Th 8.5. fill **105.**01.
631	rubbing stone. L 14.4. W 8.5. Th 3.8. fill **105.**01.
632	bowl. stone. L -3.9. W -3.7. Th 1.5. fill **105.**01.

KMyl	*Class. Material. Dimensions. Feature. Pl., Fig.*
633	pounder. stone. L 10.7. W 8.6. Th 5.1. fill **105.**01.
634	bowl. stone. L -8.9. W -6.8. Th 2.7. fill **105.**01.
635	cupped stone. L -10.4. W -10. Th 5.7. fill **105.**01.
636	hammerstone. L 13. W 8.8. Th 3.6. fill **105.**01.
637	rubber. stone. L -9.5. W -11.2. Th 3.4. fill **105.**01.
638	pounder. stone. L 11.5. W 8.3. Th 6.3. fill **105.**01.
639	hammerstone. 12.9. Th 11.1. fill **105.**01.
640	hammerstone/grinder. L 13.2. W 11.6. Th 4.3. fill **105.**01.
641	bowl. stone. L -15.2. W -10. Th 3.7. fill **105.**01.
642	pounder. stone. L 7.5. W 6.7. Th 6.7. fill **105.**01.
643	hammerstone. L 7.8. W 6.2. Th 3.1. fill **105.**01.
644	bowl. stone. L -12.2. W -10.7. Th 2.9. fill **105.**01.
645	cupped stone. L 12.7. W 11. Th 5.4. fill **105.**01.
646	rubber. stone. L -9.9. W -7.6. Th 3. fill **105.**01.
647	bowl. stone. L -7.6. W -7.8. Th 2.7. fill **105.**01.
648	lid. stone. L 10.4. W 8.9. Th 3. fill **105.**01.
649	hammerstone. L 12.5. W 8.1. Th 5.2. fill **105.**01.
650	bowl. stone. L -2.3. W -2.1. Th -1.2. floor **200.**283.
651	axe. stone. L -5.5. W 5.8. Th 2.7. fill **105.**02.
652	misc. object. stone. L -7.5. W -4.2. Th -2.7. fill **105.**02.
653	hammerstone. L 7.6. W 6.1. Th 2.4. fill **105.**02.
654	pounder. stone. L 8.4. W 5.5. Th 2.5. fill **105.**02.
655	adze. stone. L -7.1. W -4.5. Th 1.8. fill **105.**02.
656	axe. stone. L 8.5. W 4.4. Th 2.4. fill **105.**02.
657	pestle. stone. L -10.9. fill **105.**02.
658	axe-shaped grinder. stone. L -6.6. W 6.4. Th 3.3. fill **105.**02.
659	misc. object. stone. L -1.3. W -1.1. Th 1. fill **105.**01.
660	pestle. stone. L -15.7. W 7.2. Th -6.1. fill **105.**01.
661	perforated sherd. L -3.9. W -2.6. Th 0.4. fill **105.**02.
662	pebble grinder. stone. L 5.1. W 2.1. Th 1.4. fill **106.**01. Fig. 66.6.
663	polisher. stone. L 5.2. W 4.9. Th 1.1. fill **106.**01.
664	axe. stone. L 5.5. W 4.1. Th 2.7. fill **106.**01.
665	adze. stone. L -5.4. W 4.7. Th 1.2. fill **106.**01.
666	bowl. stone. L -12.1. W -5.4. Th 3.1. fill **106.**01.
667	axe. stone. L 7.5. W 4.1. Th 1.7. fill **106.**01.
668	hammerstone. L 9.7. W 9.1. Th 4. fill **106.**01.
669	hammerstone. L 10.7. W 9.9. Th 3.7. fill **106.**01.
670	rubbing stone. L 11.4. W 9. Th 4.2. fill **106.**01.
671	quern. stone. L -30.1. W -16.3. Th 8.7. fill **106.**01.
672	quern. stone. L -30.9. W -13.2. Th 6. fill **107.**01.
673	axe-shaped grinder. stone. L 10. W 7.2. Th 3.4. fill **107.**01.
674	axe. stone. L -5.3. W -4.8. Th 1.7. fill **107.**01.
675	hammerstone. L -7.6. W -5.9. Th 3.4. fill **107.**01.
676	bowl. stone. L -8.2. W -6.7. Th 1.2. fill **107.**01.
677	hammerstone/grinder. L 12.5. W 10.8. Th 3.6. fill **107.**01. Fig. 65.6.
678	misc. object. stone. L -4.7. W -5.5. Th 2.3. fill **107.**01.
679	cupped stone. L 11.3. W 9.7. Th 6.2. fill **107.**01.
680	pottery disc. L -5.3. W -3.5. Th 1.2. fill **107.**01.
681	cupped stone. L 8.5. W 6.9. Th 5.6. fill **107.**01. Fig. 67.5.
682	bowl. stone. L -13.2. W -7.5. Th 2.1. fill **107.**01.
683	perforated stone. L 9.7. W 8. Th 4. fill **107.**01.
684	flaked tool. stone. L 11.2. W 6.9. Th 1.8. fill **107.**01.
685	perforated sherd. L -7.5. W -4.5. Th 1.4. fill **107.**01.
686	misc. object. stone. L -5. W 3.1. Th 1.1. fill **107.**01.
687	lid. stone. L 10.2. W 8.9. Th 2.9. fill **107.**01.
688	pebble grinder. L 9.3. W 4.5. Th 3.1. fill **107.**01.
689	bowl. stone. L -7. W -5.6. Th 1.8. fill **107.**01.
690	axe. stone. L -4.1. W -4.5. Th 2.3. fill **107.**01.
691	bowl. stone. L -5.1. W -5. Th 1.4. fill **133.**279.
692	pebble grinder. L -5. W -5.5. Th 2.4. fill **107.**01.
693	bowl. stone. L -5.6. W -3.5. Th 1.8. fill **107.**01.
694	axe. stone. L -9.3. W 5.3. Th -2.4. fill **107.**01.
695	axe-shaped grinder. stone. L 8.8. W -6.6. Th 2.3. fill **107.**01.
696	pounder. stone. L -9.3. W -6.7. Th 2.4. fill **107.**01.
697	axe-shaped grinder. stone. L 7.2. W 7. Th 3.3. fill **107.**01.
698	pebble grinder. L -7.3. W -4. Th 2.1. fill **107.**01.
699	pounder. stone. L -11. W 7.4. Th 3.7. fill **107.**01.
700	bowl. stone. L -5.3. W -2.5. Th 1.1. fill **107.**01/02.
701	hammerstone. L -12.8. W 7.3. Th -4.7. fill **107.**01/02.
702	hammerstone/grinder. L 13.9. W 11.7. Th 4.1. fill **107.**01/02.
703	cupped stone. L 13.6. W 11.4. Th 5.6. fill **107.**01/02.
704	hammerstone. L 6.5. W 4.2. Th 3. fill **107.**01/02.
705	hammerstone/grinder. L -9.8. W -5.5. Th 4.8. fill **107.**01/02.
706	axe. stone. L -6.1. W -5.5. Th 1.8. fill **107.**01/02.
707	axe. stone. L 4.6. W 4.5. Th 1.6. fill **107.**01/02.
708	bowl. stone. L -6.9. W -3.5. Th 2.3. fill **133.**279.
709	axe. stone. L 5.3. W 3.6. Th 2.3. fill **107.**02. Fig. 64.6.
710	bowl. stone. L -8.5. W -6. Th 1.2. fill **107.**02.
711	bowl. stone. L -7.4. W -4.8. Th 1.3. fill **107.**02.
712	axe. stone. L -8.4. W 5.1. Th -3.7. fill **108.**01.
713	pebble grinder. L -5.5. W -4.9. Th 2.7. fill **108.**01.
714	flaked tool. stone. L -7.3. W -3.5. Th -1.5. fill **108.**01.
715	axe. stone. L -5.6. W 7. Th -2.8. fill **108.**01.
716	misc. object. stone. L -7.6. W -7. Th -4.8. fill **108.**01.
717	misc. object. stone. L -4.4. W -4.9. Th 1.5. fill **108.**01.
718	pounder. stone. L 8.8. W 4.1. Th 1.8. fill **108.**01.
719	axe-shaped grinder. stone. L -5.9. W -6.3. Th -3.4. fill **108.**01.
720	axe. stone. L 7. W 4. Th 1.8. fill **108.**01.
721	hammerstone. L -8. W 7.7. Th 4.2. fill **108.**01.
722	axe. stone. L 7.4. W 5.7. Th 4.3. fill **108.**01.
723	pestle. stone. L -7.5. W -8.8. Th 6.9. fill **108.**01.
724	pebble grinder. L -7. W 3. Th 1.5. fill **108.**01.
725	axe. stone. L -5. W -3.3. Th -1.5. fill **108.**01.
726	cancelled.
727	hammerstone. L 11.5. W 9.6. Th 7.8. pit **110.**04.
728	misc. object. stone. L -4.2. W -4.6. Th -3.1. fill **108.**01.
729	misc. object. stone. L -9.2. W -7. Th 4.5. fill **108.**01.
730	axe. stone. L -7.2. W 8.6. Th 4. fill **108.**01.
731	flaked tool. stone. L -7.8. W -5.4. Th -2.1. fill **108.**01.
732	pounder. stone. L -8.3. W 7.9. Th 7.3. fill **108.**01.
733	misc. object. stone. L -5.1. W -8.2. Th 4.4. fill **108.**01.
734	pounder. stone. L 13.3. W 6.6. Th 5.2. fill **108.**01.
735	pounder. stone. L 13.8. W 6.8. Th 5. fill **108.**01.
736	axe. stone. L -7. W 6.7. Th 3.3. fill **108.**01.
737	cancelled.
738	misc. object. stone. L 4.7. W 5.1. Th 5. fill **108.**01.
739	misc. object. stone. L -6.7. W 7.5. Th 2. fill **108.**01.
740	flaked tool. stone. L -6.7. W 7.1. Th 2. fill **108.**01.
741	axe-shaped grinder. stone. L -4. W 5.9. Th -3.6. fill **108.**01.
742	axe. stone. L -5.2. W -4.1. Th -2.7. fill **108.**01.
743	bowl. stone. L -11. W -6.8. Th 2.9. fill **133.**279.
744	cancelled.
745	flaked tool. stone. L 6.8. W 4.8. Th 1.1. fill **108.**01. Fig. 64.19.
746	axe-shaped grinder. stone. L -6.3. W 6.2. Th -3.8. fill **108.**01.
747	axe. stone. L 6.3. W 4.6. Th 1.2. fill **108.**01.
748	cancelled.
749	pebble grinder. stone. L -6.5. W 6. Th 2. fill **107.**01.
750	hammerstone. L -9.6. W -8.4. Th 3.2. fill **133.**264.
751	bowl. stone. L -8.2. W -7.3. Th 1.4. fill **108.**01.
752	pottery disc. Th 1.1. fill **108.**01.
753	bowl. stone. L -8.8. W -7.3. Th 1.9. fill **133.**264.
754	pottery disc. L 5. W 4.5. Th 0.9. fill **108.**01.
755	pottery disc. Th 1.1. fill **108.**01.
756	pottery disc. L -4.2. W -3. Th 1.1. fill **108.**01.
757	jar stopper. stone. L -7.8. W -4.5. Th 3.7. fill **108.**01.
758	misc. object. pottery. L -5.4. W -2.8. Th 1.5. fill **108.**01.
759	rubber. stone. L 11.8. W 9.6. Th 4.3. fill **108.**01.
760	pounder. stone. L 9.1. W 6.2. Th 2. fill **108.**01.
761	cupped stone. L -8.1. W 8.7. Th 3.8. fill **108.**01.
762	hammerstone. L 9.5. W 6.4. Th 2. fill **108.**01.
763	bowl. stone. L 15.6. W 13.6. Th 3.9. fill **108.**01.
764	bowl. stone. L -11.9. W -11.7. Th 3.9. fill **108.**01.
765	hammerstone/grinder. L 10.8. W 10. Th 3.8. fill **108.**01.
766	cupped stone. L -4.4. W -3.6. Th 1. fill **108.**01.
767	bowl. stone. L -7.5. W -5.5. Th 2. fill **108.**01.
768	bowl. stone. L -8.2. W -6.2. Th 1.5. fill **133.**264.
769	bowl. stone. L -11.1. W -8.7. Th 2.9. fill **108.**01.
770	bowl. stone. L -4.8. W -4. Th 1.3. fill **108.**01.

KMyl	*Class. Material. Dimensions. Feature. Pl., Fig.*
771	bowl. stone. L -12.1. W -10.3. Th 3. fill **108.**01.
772	conical stone. L 13.9. W -9.9. Th 9.5. fill **108.**01.
773	anvil. stone. L -15.6. W 11.8. Th 7. fill **108.**01.
774	conical stone. Th 7.7. fill **108.**01.
775	misc. sherd. L 7.6. W 7.6. Th 1.6. fill **108.**02. Fig. 55.1.
776	flaked tool. stone. L 10.6. W 7.7. Th 2.1. fill **108.**02.
777	pounder. stone. L -3.7. W -5.5. Th 4.7. fill **108.**02.
778	axe. stone. L -6. W -6.1. Th -4.2. fill **108.**02.
779	misc. object. stone. L -4.9. W -6. Th 3.3. fill **108.**02.
780	misc. object. stone. L -7.1. W -5.2. Th 2.2. fill **108.**02.
781	misc. object. stone. L -10. W -3.1. Th 3.9. fill **108.**02.
782	misc. object. stone. L -8.1. W -5.5. Th 3.7. fill **108.**02.
783	axe-shaped grinder. stone. L -4.8. W 5.8. Th -3.9. fill **108.**02.
784	misc. object. stone. L -5.2. W -5.5. Th 3. fill **108.**02.
785	pottery disc. L -3.5. W -2.4. Th 0.9. fill **108.**03.
786	flaked tool. stone. L -5.3. W 3.3. Th 1.6. fill **108.**02.
787	polisher. stone. L 7.5. W 5.2. Th 1.2. fill **108.**02.
788	hammerstone. L -8.5. W -7.1. Th -2.5. fill **108.**02.
789	flaked tool. stone. L 6.3. W 4.3. Th 1. fill **108.**02.
790	flaked tool. stone. L -5.9. W -4.5. Th 1.7. fill **108.**02.
791	hammerstone/grinder. L 9.7. W 7.6. Th 3.8. fill **108.**02.
792	adze. stone. L 5.6. W 4.1. Th 1.2. fill **108.**02. Pl. 14.3.
793	hammerstone/grinder. L 10.9. W 8.5. Th 3.8. fill **108.**02. Fig. 65.9.
794	bowl. stone. L -10.6. W -8.6. Th 2.6. fill **108.**03.
795	figurine?. pottery. fill **108.**02.
796	hammerstone. L 10.5. W 9.5. Th 7.2. fill **108.**02.
797	misc. object. stone. L -11.7. W -10.7. Th 1.8. fill **108.**02.
798	bowl. stone. L -13.4. W -7.9. Th 5. fill **108.**02.
799	hammerstone. L 6.6. W 5.9. Th 5.4. fill **108.**02.
800	pounder. stone. L 7.1. W 6.4. Th 5.3. fill **108.**02.
801	hammerstone/grinder. L 10.6. W 6.6. Th 5.8. fill **108.**02. Fig. 65.5.
802	flaked tool. stone. L -6.7. W 7.5. Th 3.2. fill **108.**02.
803	hammerstone. L -3.1. W 5.9. Th 3.6. fill **108.**02.
804	hammerstone. L 8.8. W 6.7. Th 5.8. fill **108.**02.
805	bowl. stone. L -10.4. W -9.2. Th 4.2. fill **108.**02.
806	hammerstone. L 10.4. W -7.6. Th 5.3. fill **108.**02.
807	hammerstone. L 7.1. W 6.3. Th 4. fill **108.**02.
808	hammerstone. L -7.4. W -4.9. Th 2.8. fill **108.**02.
809	hammerstone. L 12.6. W 10.4. Th 3.3. fill **108.**02.
810	pounder. stone. L 8.1. W 6.5. Th 3. fill **108.**02.
811	fine abrader. stone. L -5.8. W -4.6. Th 1.3. fill **108.**02.
812	bowl. stone. L -6.1. W -3.4. Th 2.4. fill **108.**02. Fig. 69.7.
813	rubber. stone. L -16.2. W 11. Th 5.3. fill **108.**02.
814	chisel. stone. L 3.6. W 1.2. Th 1.2. pit **109.**0. Pl. 14.3, Fig. 64.17.
815	axe. stone. L -6.2. W 7.1. Th 2. pit **109.**0.
816	axe. stone. L -7.7. W 7.5. Th 3.2. pit **109.**0.
817	bowl. stone. L -4.7. W -2.7. Th 1.1. fill **133.**279.
818	cupped stone. L 7.9. W 6.2. Th 4.7. pit **109.**0.
819	axe-shaped grinder. stone. L 10. W 5.3. Th 4.5. pit **109.**0.
820	pebble grinder. L -14.2. W -8.7. Th 3.2. pit **109.**0.
821	bowl. stone. L -11. W -8.3. Th 5.2. pit **109.**0.
822	adze. stone. L 16.9. W -8.2. Th 3.2. pit **109.**0. Pl. 14.3.
823	chisel. stone. L -6. W 3.5. Th 1.1. pit **109.**0. Fig. 64.16.
824	bowl. stone. pit **109.**0.
825	hammerstone. L 7.2. W -4.5. Th 3.6. pit **109.**0.
826	hammerstone. L 8.7. W 7.7. Th 4.2. pit **109.**0.
827	hammerstone/grinder. L 10.9. W 9.5. Th 4.4. pit **109.**0.
828	pounder. stone. L 10.4. W -4.4. Th 3.7. pit **109.**0.
829	cupped stone. L 13.7. W 10.4. Th 8.4. pit **109.**0.
830	cupped stone. L -9.9. W 9.4. Th 6.4. pit **109.**0.
831	conical stone. L 11.7. W 11.4. Th -5.5. pit **109.**0.
832	bowl. stone. L -9.2. W -5.5. Th 2.1. fill **109.**01.
833	hammerstone/grinder. L 8.8. W 5.7. Th 5.6. fill **109.**01.
834	hammerstone. L -8.3. W 6.5. Th 4.2. fill **109.**01.
835	bowl. stone. L -6.8. W -4.4. Th 1.8. fill **109.**01.
836	bowl. stone. L -8.7. W -3.3. Th 3. fill **109.**01.
837	pounder. stone. L -7.5. W 4.4. Th 3.4. fill **109.**01.
838	pebble grinder. stone. L 9.6. W 6.3. Th 2.4. fill **109.**01.
839	hammerstone/grinder. L 8.4. W 8. Th 4. fill **109.**01.
840	hammerstone/grinder. L -6.6. W 7.5. Th 3.3. fill **109.**01.
841	hammerstone/grinder. L -9.3. W -4.9. Th 3.8. fill **109.**01.
842	bowl. stone. L -14.4. W -13.1. Th 2.6. fill **109.**01.
843	bowl. stone. L -15.9. W -10. Th 1.8. fill **109.**01.
844	cupped stone. L 12.7. W 9.2. Th 4.7. fill **109.**01.
845	anvil. stone. L 14.4. W 12.9. Th 4.2. fill **109.**01.
846	hammerstone. L 14.7. W 9.5. Th 4.9. fill **109.**01.
847	hammerstone/grinder. L 14.7. W 12.1. Th 3.7. fill **109.**01.
848	bowl. stone. L -14.2. W -7.9. Th 3.1. fill **109.**01.
849	bowl. stone. L -3.8. W -3.2. Th 1.1. fill **133.**279.
850	bowl. stone. L -7.7. W 12.4. Th 2.7. fill **109.**02. Fig. 68.6.
851	cupped stone. L 10.4. W 9.1. Th 5.4. fill **109.**02. Pl. 14.7.
852	pebble grinder. L -9.3. W 6. Th 2. fill **109.**02.
853	bowl. stone. L -9. W -7.3. Th 1. fill **109.**02. Fig. 69.5.
854	pottery disc. L -5.4. W -3.4. Th 1.2. fill **109.**02.
855	rubber. stone. L -13.2. W 6.5. Th 5. fill **109.**02.
856	cupped stone. L -9.4. W -8.7. Th 8.1. fill **109.**02.
857	hammerstone. L 11.7. W 6.6. Th 2.8. fill **109.**02.
858	hammerstone/grinder. L 10.7. W 9.8. Th 4.4. fill **109.**02.
859	hammerstone. L 7.3. W 6.3. Th 2.2. fill **109.**02.
860	bowl. stone. L -11.2. W -10. Th 3.8. fill **109.**02.
861	cupped stone. L -10.7. W 13.9. Th 4.8. fill **109.**02.
862	figurine?. pottery. fill **109.**04.
863	bowl. stone. L 21.4. W 18.3. Th 6.8. fill **109.**04. Fig. 68.8.
864	bowl. stone. L -14.4. W -8.4. Th 3.9. fill **109.**04.
865	bowl. stone. L -8.9. W -8.3. Th 2.6. fill **109.**04.
866	bowl. stone. L -10.6. W -6. Th 2.1. fill **109.**04.
867	flaked tool. stone. L -9.2. W 9.2. Th 2.4. fill **109.**04.
868	axe-shaped grinder. stone. L -10.1. W 4.2. Th 2.6. fill **109.**04.
869	adze. stone. L -4.4. W 4.8. Th 0.7. fill **109.**04.
870	bowl. stone. L -13. W -11. Th 2.3. fill **133.**279.
871	pestle. stone. L -11.1. W 8.7. Th 0.7. fill **109.**04.
872	bowl. stone. L -17.1. W -7.7. Th 3.2. fill **109.**04.
873	rubber. stone. L -12.9. W -14.3. Th 1.8. fill **109.**04.
874	pounder. stone. L 8.1. W 6.2. Th 5.9. fill **109.**04.
875	hammerstone. L 9.2. W 8.1. Th 5. fill **109.**04.
876	hammerstone. L -9.6. W -5.8. Th 5.8. fill **109.**04.
877	hammerstone. L -10.9. W 9. Th 4.1. fill **109.**04.
878	bowl. stone. L -5.5. W -3.3. Th 1.1. fill **109.**04.
879	bowl. stone. L -8.3. W -6.7. Th 3.2. fill **109.**04.
880	bowl. stone. L -8.8. W -8.5. Th 1.9. fill **109.**04.
881	pebble grinder. L -3. W -3.9. Th 1.5. fill **109.**04.
882	anvil. stone. L -18.9. W 16.1. Th 5. fill **109.**04/05.
883	rubber. stone. L -12. W -7.5. Th 2.8. fill **109.**06.
884	bowl. stone. L -9.2. W -5.5. Th 2. fill **109.**06.
885	bowl. stone. L -13. W -8. Th 4.1. fill **109.**06.
886	perforated stone. L -14.2. W -6.3. Th 8. fill **109.**06.
887	perforated stone. L -8.5. W -11.2. Th 4.1. fill **109.**06.
888	pounder. stone. L -8.2. W 5.3. Th 4.6. fill **109.**06.
889	misc. object. stone. L -4.8. W -5. Th 3.9. fill **109.**06.
890	hammerstone. L 7.5. W 7. Th 3.3. fill **109.**06.
891	figurine. stone. fill **109.**06.
892	pottery disc. Th 1.1. fill **109.**07.
893	perforated stone. L 12.3. W 8.9. Th 3.7. fill **109.**07. Fig. 68.3
894	hammerstone. L 18.6. W 11.1. Th 6.4. fill **109.**07.
895	anvil. stone. L 20.7. W 9.8. Th 7. fill **109.**07.
896	pottery disc. L -5.2. W -4.2. Th 0.9. fill **109.**07.
897	hammerstone. L 10.3. W 6.5. Th 2. general **109.**08.
898	cupped stone. L -10.2. W -10.9. Th 4.6. general **109.**08.
899	axe. stone. L -5.9. W -4. Th 2.5. general **109.**08.
900	cupped stone. L -9.9. W -8.1. Th 4.3. general **109.**08.
901	pebble grinder. L -7.3. W 3.2. Th 1.9. general **109.**08.
902	rubbing stone. L -7.7. W -8.5. Th 2.7. general **109.**08.
903	pounder. stone. L -8.4. W -6.7. Th 4.3. general **109.**08.
904	bowl. stone. L -18.3. W -8.6. Th 4.9. general **109.**08.
905	flaked tool. stone. L 6.9. W 4.6. Th 1.4. general **109.**08.
906	bowl. stone. L -8.1. W -7.6. Th 2.7. fill **109.**03.
907	bowl. stone. L -7.7. W -4.5. Th 1. fill **109.**03.
908	bowl. stone. L -5.5. W -4.2. Th 0.9. fill **109.**03.
909	bowl. stone. L -9.4. W -8.8. Th 2.3. fill **133.**279.
910	pottery disc. L 4.2. W 4.1. Th 1. fill **109.**03.
911	bowl. stone. L -10.3. W -10. Th 4.1. fill **109.**03.
912	cupped stone. L 10.7. W 8.8. Th 4.5. fill **109.**03. Pl. 14.7.

KMyl	*Class. Material. Dimensions. Feature. Pl., Fig.*
913	pounder. stone. L 13. W 5.7. Th 5.1. fill **109.**03. Fig. 65.11.
914	cupped stone. L 13.3. W 11.9. Th 6.1. fill **109.**03. Fig. 67.4.
915	hammerstone. L 9. W -6.1. Th 2.5. fill **109.**03.
916	pebble grinder. L -10. W -7.2. Th 3.5. fill **109.**03.
917	bowl. stone. L -10.2. W -6.8. Th 4. fill **109.**03.
918	misc. object. stone. L -10.1. W -8.9. Th 2.1. fill **109.**03.
919	pounder. stone. L -9.5. W 5.7. Th 4.8. fill **109.**03.
920	axe-shaped grinder. stone. L -5.5. W 6. Th -3.8. fill **109.**03.
921	pounder. stone. L -10.3. fill **109.**03.
922	bowl. stone. L -9.8. W -10.2. Th 3.2. fill **109.**03.
923	hammerstone/grinder. L 9.9. W 9.2. Th 3.9. fill **109.**03.
924	bowl. stone. L -8.9. W -7.9. Th 3.3. fill **109.**03.
925	jar stopper. stone. L -3.3. fill **109.**03.
926	hammerstone. L 9.9. W 7.8. Th 5.1. fill **109.**03.
927	pounder. stone. L 13.8. W 9.2. Th 3.4. fill **109.**03.
928	hammerstone. L -10.2. W -9.2. Th 4.3. fill **109.**03.
929	hammerstone. L 11.8. W 10. Th 5.4. fill **109.**03.
930	hammerstone. L 9.1. W 7.4. Th 6.9. fill **109.**03.
931	hammerstone. L 12.2. W 10. Th 5.3. fill **109.**03.
932	anvil. stone. L 20.8. W 11.3. Th 7.3. fill **109.**03.
933	pounder. stone. L 19.8. W 8.2. Th 7.4. fill **109.**03.
934	bowl. stone. L -11.1. W 9.7. Th 5.6. well **110.**0.
935	hammerstone. L 11.6. W 8.9. Th 5.7. well **110.**0.
936	pounder. stone. L 13.8. W 6.1. Th 4.1. well **110.**0.
937	bowl. stone. L -15.2. W -14. Th 2. fill **110.**01.
938	rubber. stone. L -12.3. W -11.8. Th 5. fill **110.**01.
939	hammerstone. L 10.6. W 7. Th 5.1. fill **110.**01.
940	bowl. stone. L -12.2. W -6.8. Th 4.5. fill **110.**01.
941	hammerstone. L 10.6. W 9.2. Th 6.9. fill **110.**01.
942	pounder. stone. L 11.6. W 5. Th 8.9. fill **110.**01.
943	hammerstone. L 11.7. W 11.3. Th 17.6. fill **110.**01.
944	rubbing stone. L 12.2. W 8.2. Th 2.6. fill **110.**01.
945	pebble grinder. L 9.7. W 7.1. Th 2.5. fill **110.**01.
946	lid. stone. Th 2. fill **110.**01.
947	flaked tool. stone. L -4. W -4.5. Th -1.7. fill **110.**01.
948	flaked tool. stone. L -10.9. W 8.5. Th 3.1. fill **110.**01.
949	pounder. stone. L 13.2. W 6.6. Th 3.4. fill **110.**01.
950	hammerstone. L 6.5. W 4.8. Th 4.4. fill **110.**01.
951	bowl. stone. L -7.6. W -6.7. Th 2.1. fill **110.**01.
952	pounder. stone. L 6.6. W 6. Th 5.5. fill **110.**01.
953	pounder. stone. L 11.4. W 6.9. Th 4.6. fill **110.**01.
954	conical stone. Th 10.4. fill **110.**01. Fig. 67.8.
955	pounder. stone. L 16.7. W 8.1. Th 5.4. fill **110.**01.
956	rubbing stone. L 10.7. W 7.3. Th 3. fill **110.**02.
957	pebble grinder. L -4.3. W 5.5. Th 2.5. fill **110.**02.
958	hammerstone. L 9.9. W 8.6. Th 6.2. fill **110.**02.
959	hammerstone. L -12. W 10.8. Th 4.2. fill **110.**02.
960	pounder. stone. L -23.8. W 8.7. Th 3.4. fill **110.**02.
961	hammerstone. L 7.5. W 7. Th 5.4. fill **110.**02.
962	pounder. stone. L 10.5. W 7.5. Th 5.9. fill **110.**02.
963	cancelled.
964	pounder. stone. L 17.1. W 8.5. Th 5.8. fill **110.**02.
965	bowl. stone. L -13.6. W -8.7. Th 2.9. fill **110.**03. Fig. 69.3.
966	rubber. stone. L -22.7. W 14.2. Th 3.6. fill **110.**03.
967	bowl. stone. L -10.6. W -5.4. Th 3.1. fill **110.**03.
968	hammerstone. L -10.8. W -7.6. Th 5.8. fill **110.**03.
969	misc. object. stone. L -5.3. W -5.9. Th 3.5. fill **110.**03.
970	bowl. stone. L -8.5. W -6.7. Th 2. fill **110.**03.
971	pounder. stone. L -9.9. W -6.3. Th 5.7. fill **110.**03.
972	pounder. stone. L 14.5. W 9.2. Th 3. fill **110.**03.
973	hammerstone. L 11.7. W 10.2. Th 5.3. fill **110.**03.
974	misc. object. stone. L -11.6. W -9.2. Th 1. fill **110.**03.
975	bowl. stone. L -7.3. W -5.9. Th 2.1. fill **133.**279.
976	pebble grinder. stone. L -9.4. W 6.8. Th 2.2. fill **110.**03.
977	rubbing stone. L -9.2. W -6.6. Th 4.3. fill **110.**03.
978	axe. stone. L 8.3. W 5.9. Th 3.9. fill **110.**03.
979	bowl. stone. L -9.9. W -5.8. Th 2.1. fill **110.**03.
980	bowl. stone. L -9.4. W -8.9. Th 4.2. fill **110.**03.
981	rubbing stone. L 15.4. W 12.4. Th 4.1. fill **110.**03.
982	pounder. stone. L -11.6. W 10.9. Th 6.5. fill **110.**03.
983	pounder. stone. L 8.8. W 7.5. Th 6. fill **110.**03.
984	rubber. stone. L -15.1. W -10.5. Th 3.1. fill **110.**03.
985	anvil. stone. L 13. W 12.7. Th 2.5. fill **110.**03.
986	axe. stone. L -7.3. W -5.4. Th 3. fill **110.**03.
987	flaked tool. stone. L 7.8. W 2.3. Th 1.3. fill **110.**03.
988	bowl. stone. L -3.1. W -3. Th 1.4. general **200.**305.
989	rubbing stone. L 12.5. W 7.9. Th 3.2. pit **110.**04.
990	pebble grinder. L 7.6. W 2.1. Th 1.5. pit **110.**04.
991	flaked tool. stone. L -5.9. W -6.4. Th -2.6. pit **110.**04.
992	bowl. stone. L -9.7. W -8.2. Th 2.4. pit **110.**04.
993	jar stopper. stone. L -6. pit **110.**04.
994	anvil. stone. L 23.7. W 9.7. Th 8.5. pit **110.**04.
995	pounder. stone. L 8.7. W 6.8. Th 4.1. pit **110.**04.
996	hammerstone. L 14.6. W 10.2. Th 5.7. pit **110.**04.
997	pestle. stone. L 13.1. W 7.9. Th 6.8. pit **110.**04.
998	misc. object. stone. L -6.5. W 8.3. Th 7.6. fill **116.**124.
999	bowl. stone. L -2.8. W -2.7. Th -2.1. well **116.**0.
1000	bowl. stone. L -8. W -7.3. Th 2.9. fill **116.**124.
1001	hammerstone. L 10.1. W 6.6. Th 5.2. fill **116.**124.
1002	bowl. stone. L -10.4. W -8.7. Th 2.6. fill **116.**124. Fig. 46.11.
1003	bowl. stone. L -7.8. W -6.5. Th 1. fill **133.**282.
1004	hammerstone. L 10.9. W 8.8. Th 7. fill **116.**124.
1005	hammerstone. L 10.6. W 6.4. Th 4.5. fill **116.**124.
1006	misc. object. stone. L -13.7. W 4.2. Th 5.5. fill **116.**124.
1007	bowl. stone. L -10.5. W -4.3. Th 5.1. fill **116.**124.
1008	hammerstone/grinder. L -4.7. W -5.9. Th -3.7. fill **116.**124.
1009	pounder. stone. L -5.2. W -6.2. Th -3.4. fill **116.**124.
1010	hammerstone. L 12.1. W 10. Th 8.5. fill **116.**124.
1011	hammerstone. L 13.7. W 13. Th 6.4. fill **116.**124.
1012	bowl. stone. L -4.5. W -3.9. Th -1.7. fill **116.**124.
1013	hammerstone. L 9.4. W 6.5. Th 5.4. fill **116.**124.
1014	bowl. stone. L -6.1. W -4.8. Th 1.5. general **200.**305.
1015	misc. object. stone. L -5.9. W -6.2. Th 1.4. fill **116.**124.
1016	hammerstone. L -5.7. W -4.8. Th 6.9. fill **116.**124.
1017	pounder. stone. L 13.2. W 11.2. Th 7.9. fill **116.**124.
1018	hammerstone. L 9.2. W 4.7. Th 4.2. fill **116.**124.
1019	rubbing stone. L 7.4. W 4.4. Th 3.1. fill **116.**124.
1020	hammerstone. L 11.3. W 7.9. Th 6.5. fill **116.**124.
1021	misc. object. stone. L -14.8. W -10.2. Th 4.6. fill **116.**124.
1022	pounder. stone. L 18.2. W 10.2. Th 9.8. fill **116.**124.
1023	cupped stone. L 22.9. W 12.8. Th 11.7. fill **116.**124.
1024	hammerstone. L 12. W 8.2. Th 5.8. fill **116.**124.
1025	bowl. stone. L -11.9. W 10.8. Th 4.7. fill **116.**124.
1026	pounder. stone. L 7.9. W 7.2. Th 4.7. fill **116.**124.
1027	hammerstone. L 10.2. W 9. Th 6.3. fill **116.**124.
1028	anvil. stone. L 15. W 14.2. Th 7. fill **116.**124. Fig. 46.6.
1029	anvil. stone. L 22.2. W 17. Th 6.8. fill **116.**191.
1030	hammerstone. L 10.3. W 8.1. Th 5.4. fill **116.**191.
1031	bowl. stone. L -21. W -15.7. Th 6. fill **116.**124.
1032	misc. object. stone. L -17.4. W -12.3. Th -5.7. fill **116.**124.
1033	hammerstone. L 15.5. W 10.3. Th 6.9. fill **116.**124.
1034	bowl. stone. L -17.9. W -9.1. Th -7. fill **116.**124.
1035	hammerstone. L 9.3. W 7. Th 4.5. fill **116.**124.
1036	misc. object. stone. L 21.3. W 20.1. Th 4.4. fill **116.**124.
1037	cupped stone. L 18.2. W 14.8. Th 10.2. fill **116.**124.
1038	cupped stone. L 14.4. W 10.6. Th 8.3. fill **116.**124.
1039	hammerstone. L 8.6. W 5.7. Th 5.4. fill **116.**124.
1040	misc. object. stone. Th 1.8. fill **116.**124.
1041	pounder. stone. L 6.3. W 6.1. Th 4.7. fill **116.**124.
1042	bowl. stone. L -10. W -9.4. Th -5.6. well **116.**0.
1043	hammerstone. L 11.5. W 10.7. Th 5.5. fill **116.**191.
1044	hammerstone. L -6.9. W 6.2. Th 5.1. fill **116.**191.
1045	hammerstone. L 12.4. W 11.4. Th 7. fill **116.**124.
1046	anvil. stone. L 17.3. W 11.2. Th 6.7. fill **116.**124.
1047	cupped stone. L 15.1. W 12. Th 6.4. fill **116.**191.
1048	hammerstone/grinder. L 8.3. W 8. Th 6.5. fill **116.**191.
1049	pounder. stone. L 7.7. W 7.4. Th 5.2. fill **116.**191.
1050	misc. object. stone. L -6. W -2.9. Th -2.4. fill **116.**124.
1051	pounder. stone. L 7.4. W 5.9. Th 5.7. fill **116.**191.
1052	hammerstone. L 7.2. W 7.3. Th 4.6. fill **116.**191.
1053	misc. object. L -12.7. W -10.1. Th 5.6. fill **116.**191.
1054	hammerstone. L 11.2. W 8. Th 4.3. fill **116.**191.
1055	cupped stone. L 8.2. W 7.3. Th 6.1. fill **116.**191.

KMyl	*Class. Material. Dimensions. Feature. Pl., Fig.*
1056	bowl. stone. L -12.2. W -10.4. Th -2.3. fill **116.**191.
1057	misc. object. stone. L -6.1. W -4. Th -2.5. fill **116.**191.
1058	bowl. stone. L -8.5. W -6.6. Th -3.6. fill **116.**191.
1059	bowl. stone. L -17.5. W -18.3. Th 4.6. fill **116.**124.
1060	rubbing stone. L -11.3. W 6.6. Th 4. fill **116.**124. Fig. 46.5.
1061	pounder. stone. L 7.9. W -6.4. Th 5.7. fill **116.**124.
1062	hammerstone. L 8.4. W 7.8. Th 7.7. fill **116.**124.
1063	hammerstone. L 13.7. W 11.5. Th 5.4. fill **116.**124.
1064	hammerstone. L 10.9. W 8.5. Th 4. fill **116.**124.
1065	anvil. stone. L 35.6. W 22.7. Th 14.4. fill **116.**124.
1066	bowl. stone. L -27.5. W -12.8. Th 9.6. fill **116.**124.
1067	bowl. stone. L -48.4. W -30.2. Th 10.1. fill **116.**124.
1068	anvil. stone. L 28.9. W 22.2. Th 13. fill **116.**124.
1069	bowl. stone. L -19.4. W -8.8. Th 3. fill **116.**124.
1070	bowl. stone. L -7.5. W -6.1. Th 4.2. fill **116.**124.
1071	bowl. stone. L -16.8. W -6.4. Th 3.7. fill **116.**124.
1072	pounder. stone. L 10.5. W 8.6. Th 6.6. fill **116.**124.
1073	cupped stone. L -14.1. W 14.3. Th 10.2. fill **116.**124.
1074	bowl. stone. L 12.6. W 10.6. Th 6.3. fill **116.**124.
1075	misc. object. stone. L -24.9. W -22.3. Th -11.8. fill **116.**124.
1076	misc. object. stone. L -10.3. W -10.2. Th -3.2. fill **116.**124.
1077	hammerstone. L 10.1. W 8.7. Th 5.8. fill **116.**124.
1078	hammerstone. L 10. W 6.3. Th 2.4. fill **116.**124.
1079	pounder. stone. L -6.9. W 6.7. Th 3.2. fill **116.**124.
1080	hammerstone. L 8. W 7.1. Th 5.6. well **116.**0.
1081	hammerstone. L 8.2. W 7.5. Th 5.1. well **116.**0.
1082	bowl. stone. L -17.7. W -11.3. Th 5.9. well **116.**0.
1083	bowl. stone. L -12.1. W -8.5. Th 5.5. well **116.**0.
1084	hammerstone. L 6.5. W 5.4. Th 4.2. well **116.**0.
1085	cancelled.
1086	pounder. stone. L 9.2. W 8.3. Th 3.4. fill **116.**124.
1087	pounder. stone. L 10.2. W 6.1. Th 4.5. fill **116.**124.
1088	hammerstone/grinder. L 8.2. W 6.1. Th 4.2. fill **116.**191. Fig. 46.3.
1089	pounder. stone. L 10.8. W 6.4. Th 3.8. fill **116.**191.
1090	pounder. stone. L -13. W 8.7. Th 3.7. fill **116.**191.
1091	bladelet. stone. L 2.1. W 0.4. Th 0.2. well **116.**0.
1092	hammerstone. L 6. W 5.9. Th 3.7. fill **116.**192.
1093	cancelled.
1094	axe. stone. L 9.3. W 6.3. Th 2.2. Unit **0**.
1095	hammerstone. L 6.8. W 6.1. Th 3.2. fill **116.**191.
1096	axe. stone. L 6.6. W 6.2. Th 3.2. fill **116.**191.
1097	cupped stone. L 10.2. W 9.4. Th 4.5. fill **116.**191.
1098	hammerstone/grooved stone/pounder. L 7.4. W 5.9. Th 4.2. fill **116.**191. Pl. 7.2, Fig. 46.2.
1099	pounder. stone. L 7.7. W 7.5. Th 6.9. fill **116.**124. Fig. 46.4.
1100	rubbing stone. L 9.3. W 4.1. Th 2.4. fill **116.**124.
1101	pounder. stone. L -7.5. W -5.5. Th 2.3. fill **116.**124.
1102	pounder. stone. L 15.1. W 11.2. Th 7.6. fill **116.**124.
1103	grooved stone. L 6.6. W 5.5. Th 4.1. fill **116.**191. Pl. 7.1, Fig. 46.8.
1104	hammerstone/grinder. L 9.4. W 8.7. Th 3.9. general **201**.
1105	bowl. stone. L -20. W -12. Th 5.5. fill **133.**279.
1106	axe-shaped grinder. stone. L 10. W 7.2. Th 2.8. general **201**.
1107	axe-shaped grinder. stone. L 10.7. W 6.5. Th 2.8. general **201**.
1108	misc. object. stone. L -4.3. W -5.8. Th 3.2. Unit **0**.
1109	bowl. stone. L -7.7. W -5.9. Th 1.3. general **300.**220.
1110	hammerstone. L 8.6. W 7.6. Th 5.7. general **213**.
1111	figurine/?zoomorph. stone. general **210**. Pl. 13.5, Fig. 61.4.
1112	flaked tool. stone. L 5.3. W 3. Th 1.1. well **110.**0.
1113	bowl. stone. L -10.9. W -6.5. Th 1.1. general **201**.
1114	bowl. stone. L -3.4. W -2. Th 1.1. fill **133.**282.
1115	hammerstone. L -6.1. W -7.4. Th 3.4. general **300.**256.
1116	bowl. stone. L -9.5. W -8.4. Th 3. fill **133.**279.
1117	cupped stone. L 7.5. W 6. Th 3. general **300.**256.
1118	misc. object. stone. L -11.6. W -12.1. Th 1.9. general **300.**256.
1119	bowl. stone. L 7.1. W 6.7. Th 5.5. general **210**.
1120	bowl. stone. L -8.4. W -5.7. Th -2.8. fill **200.**215.
1121	bowl. stone. L -5. W -4.3. Th 0.7. Unit **0**.
1122	cupped stone. L 9.6. W 8.8. Th 4.5. general **201**.
1123	fine abrader. stone. L -5.5. W 2.7. Th 0.6. surface **300.**218.
1124	cupped stone. L 21.4. W 12.5. Th 7.3. general **213**.
1125	pebble grinder. L -4.9. W -4.7. Th -2. Unit **0**.
1126	rubbing stone. L 9.3. W 5.9. Th 3.1. general/surface **300.**255.
1127	misc. object. stone. L -6.5. W -6.1. Th -3.7. surface **300.**218.
1128	axe. stone. L -4.5. W 5.7. Th -2.5. Unit **0**.
1129	axe. stone. L -2.6. W -5.7. Th -2.1. Unit **0**.
1130	bowl. stone. L -8.5. W -6.4. Th 2.1. general **300.**256.
1131	axe. stone. L -5. W -4.9. Th -1.8. general **300.**256.
1132	rubbing stone. L 6.9. W 5. Th 3.7. general **300.**256.
1133	bowl. stone. L 10.1. W 6.8. Th 4.6. general **300.**256.
1134	hammerstone. L -7.2. W 7.3. Th 1.9. general **300.**256.
1135	pounder. stone. L 8.9. W 4.9. Th 2.5. general **300.**256.
1136	bowl. stone. L -6.3. W -4.4. Th 1.7. general **300.**256.
1137	hammerstone. L 7.5. W 6.4. Th 2.4. fill **300.**257.
1138	bowl. stone. L -11. W -5.2. Th 1.4. fill **133.**279.
1139	bowl. stone. L -5.6. W -4.8. Th 1.8. fill **300.**257.
1140	hammerstone. L 11.3. W 9.9. Th 9.5. fill **300.**257.
1141	figurine. stone. fill **300.**257. Fig. 61.3.
1142	hammerstone. L 7. W 6.6. Th 4.4. fill **300.**257.
1143	hammerstone. L -4.1. W -6.2. Th 3.1. fill **300.**257.
1144	rubbing stone. L 8.8. W 4.6. Th 3. fill **300.**257.
1145	hammerstone. L 9. W 6.9. Th 3.5. fill **300.**257.
1146	cupped stone. L 16.2. W 13.7. Th 5.2. general **201**.
1147	bowl. stone. L -12.5. W -8.7. Th 4.4. general **201**.
1148	anvil. stone. L 14.5. W 11.2. Th 2.2. general **201**.
1149	bowl. stone. L -7.4. W -6. Th -1.7. Unit **0**.
1150	axe-shaped grinder. stone. L 12.8. W 7.5. Th 4.6. Unit **0**.
1151	misc. sherd. L -6.4. W -3.6. Unit **0**.
1152	hammerstone/grinder. L 10.8. W 9.7. Th 4. general/surface **300.**255.
1153	bowl. stone. L -9.2. W -6. Th -1.4. general/surface **300.**255.
1154	bowl. stone. L -3.2. W -3.2. Th 1.5. general/surface **300.**255.
1155	axe-shaped grinder. stone. L 10.4. W -5.5. Th 3. general/surface **300.**255.
1156	adze. stone. L -3.8. W -4.2. Th 1. general/surface **300.**255.
1157	bowl. stone. L -7.3. W -4.4. Th 2.7. fill **133.**279.
1158	bowl. stone. L -12.1. W -8.4. Th 4.3. general/surface **300.**255.
1159	hammerstone. L 13.5. W 11.4. Th 7.5. general/surface **300.**255.
1160	rubbing stone. L -4.7. W -4. Th -2.1. general/surface **300.**255.
1161	chisel. stone. L -5.3. occupation deposit **200.**211.
1162	bowl. stone. fill **102.**01.
1163	hammerstone. L 12.3. W 7.7. Th 7.2. fill **109.**03.
1164	hammerstone. L 8. W 7.7. Th 4.1. fill **109.**03.
1165	axe. stone. L -3.7. W -5.5. Th 1.6. fill **107.**01/02.
1166	rubbing stone. L -7.3. W 5.9. Th 2.6. fill **107.**01/02.
1167	hammerstone. L 11.1. W 9.8. Th 6.7. fill **107.**0
1168	bowl. stone. L -2.9. W -1.3. Th 0.6. fill **133.**264.
1169	misc. object. stone. L -16.4. W -8.2. Th 0.9. general **300.**237. Pl. 16.12.
1170	pendant. stone. L -1.5. W 1.7. Th 0.4. fill **116.**191. Fig. 70.5.
1171	bowl. stone. L -5.6. W -5.1. Th 0.9. fill **116.**124. Pl. 7.7, Fig. 47.5.
1172	bowl. stone. L -5.1. W -3.6. Th 0.9. fill **116.**124. Pl. 7.6.
1173	axe. stone. L 7.8. W 3.9. Th 1.4. fill **116.**191. Fig. 46.1.
1174	bowl. stone. L -4.5. W -3.4. Th 1. fill **108.**01.
1175	incised stone. L 7.8. W -3.7. Th 1.1. fill **116.**124. Pl. 16.14.
1176	bowl. stone. L -11.9. W -8. Th 3.1. fill **133.**282.
1177	pounder. stone. L 5.4. W 5.2. Th 4.7. occupation deposit **200.**211.
1178	hammerstone/grinder. L 9.4. W 8.5. Th 6.7. fill **200.**159.
1179	chisel. stone. L -4.7. W 2.1. Th 1.7. fill **200.**202.

KMyl	Class. Material. Dimensions. Feature. Pl., Fig.
1180	pinch pot. pottery. Diam 4.1. Ht 8.6. occupation deposit **200.**211. Fig. 54.2.
1181	human bones. fill **133.**260. Pl. 2.2, 3, 4.
1182	axe. stone. L 8.6. W 4.9. Th 2.4. occupation deposit **200.**211.
1183	needle. bone. L -2.6. W 0.3. Th 0.3. occupation deposit **200.**211.
1184	bead. shell. L -0.8. occupation deposit **200.**211.
1185	conical stone. L 11.9. W 10.9. Th 9.8. occupation deposit **200.**211. Fig. 68.1.
1186	hammerstone. L 8.3. W 6.6. Th 3.8. occupation deposit **200.**211.
1187	pendant. picrolite. L 6.7. W 3.1. Th 0.6. occupation deposit **200.**211. Pl. 15.11, Fig. 70.2.
1188	rubber. stone. L 43.2. W 15.4. Th 7.9. occupation deposit **200.**211.
1189	quern. stone. L 57. W 34.5. Th 7.3. occupation deposit **200.**211. Fig. 66.8.
1190	quern. stone. L 55.9. W 36.6. Th 3.4. occupation deposit **200.**211. Pl. 14.8.
1191	rubber. stone. L -46.4. W 16.6. Th 7.1. occupation deposit **200.**211.
1192	pivot stone. L 24.5. W 21.8. Th 13.6. occupation deposit **200.**211. Pl. 4.5, Fig. 68.2.
1193	point. bone. L -7.3. W 1.3. Th 0.5. occupation deposit **200.**211.
1194	bead. antler. L 3.4. occupation deposit **200.**211. Pl. 15.3.
1195	bead. antler. L 3.1. occupation deposit **200.**211. Pl. 15.3.
1196	bead. shell. L -1.2. general **200.**270.
1197	human bones. occupation deposit **200.**211.
1198	axe-shaped grinder. stone. L 10.9. W 5.9. Th 4.4. occupation deposit **200.**211.
1199	bead. shell. L -0.6. fill **166.**150.
1200	point. bone. L -2.6. W -0.7. Th 0.5. general **300.**256.
1201	bead. shell. L -2.9. general **300.**256.
1202	coin. metal. L 1.7. W 1.6. Th 0.2. Unit **0**.
1203	figurine. stone. surface **300.**218. Fig. 61.7.
1204	pottery disc. L 5.1. W 4.3. Th 1. general **210**.
1205	adze. stone. L -2.9. W 4. Th 0.6. surface **300.**219.
1206	point. bone. L -4. W 1. Th 0.7. general **113**.
1207	medial bladelet segment. stone. L -1.6. W -0.7. Th -0.2. fill **300.**257.
1208	point. bone. L -3.9. general **210**.
1209	bowl. stone. L -11. W -8.5. Th 3.4. fill **133.**282.
1210	misc. object. fired clay. L 3.9. W 3.4. Th -1.6. surface **300.**249. Fig. 55.4.
1211	spatula. bone. L -4.4. W 1.5. Th 0.6. Unit **0**.
1212	point. bone. L -8. W 1.6. Th 0.4. Unit **0**.
1213	spatula. bone. L -2.2. W -0.8. Th 0.4. surface **300.**249.
1214	bead. stone. L 1.2. surface **300.**249. Fig. 70.16.
1215	figurine. pottery. general **330.**199. Pl. 13.11, Fig. 62.9.
1216	misc. object. pottery. L -7.8. W -6.1. Th 4.1. Unit **0**. Fig. 55.2.
1217	utilised blade. stone. L -3.5. W -1. Th -0.3. fill **116.**124.
1218	pebble. stone. L 5.3. W 2.7. Th 2. pit **1.**0.
1219	point. bone. L 5.6. W 1.2. Th 0.4. fill **116.**124. Pl. 8.5, Fig. 71.3.
1220	flake. stone. L -1.5. W -1.2. Th -0.2. fill **116.**124.
1221	splintered/utilised blade. stone. L -1.6. W -1.2. Th -0.3. fill **116.**192.
1222	blade fragment. stone. L 1.2. W 1. Th 0.3. well **116.**0.
1223	splintered chip. stone. L 0.8. W 0.5. Th 0.1. fill **116.**192.
1224	splintered blade. stone. L 2. W 0.5. Th 0.2. fill **116.**124.
1225	splintered bladelet. stone. L 1.5. W 0.7. Th 0.2. fill **116.**124.
1226	splintered bladelet. stone. L 2.1. W 1. Th 0.3. fill **116.**124.
1227	chip. stone. L -0.7. W -0.4. Th -0.1. fill **116.**124.
1228	bead. shell. L 2.7. fill **116.**124. Pl. 8.7.
1229	bladelet segment. stone. L 1.1. W 0.6. Th 0.2. fill **116.**124.
1230	bead. shell. L 2.3. W 1.9. Th 1.1. fill **116.**124. Pl. 8.7.
1231	pounder. stone. L 5.2. W 5.1. Th 4.9. surface **209**.
1232	chisel. stone. L -3.4. W -1.6. Th 1.1. general **140**. Pl. 14.3.
1233	hammerstone. L -9.6. W -10.9. Th 3.6. general **200.**117.

KMyl	Class. Material. Dimensions. Feature. Pl., Fig.
1234	rubber. stone. L -8.5. W -8.8. Th 3.5. general **137**.
1235	flaked tool. stone. L -5. W -4.8. Th 2.1. general **137**.
1236	needle. bone. L -2.2. general **140**.
1237	bowl. stone. L -14. W -10. Th 2.4. fill **133.**282. Fig. 47.1.
1238	bowl. stone. L -8. W -5.2. Th 1.5. fill **133.**282.
1239	bowl. stone. L -6.9. W -6.8. Th 1.9. fill **133.**282.
1240	pottery disc. L -3.5. W -2.7. Th 1. fill **1.**05.
1241	pottery disc. L -3.9. W -2.8. Th 0.9.
1242	pottery disc. L -4.3. W -2.7. Th 1.
1243	pottery disc. fill **1.**11.
1244	pottery disc. L -4.2. W -2.7. Th 1.1. fill **1.**11.
1245	pottery disc. L -5.6. W -5. Th 1. hearth **1.**02.
1246	pottery disc. L -4. W -3.8. Th 0.9. hearth **1.**02.
1247	pottery disc. L -4.9. W -3.7. Th 1.5. hearth **1.**02.
1248	chisel. stone. L -3.2. W -1.3. Th 1.2. surface **300.**197.
1249	misc. object. stone. L -4.4. W -3.6. Th 1.4. surface **300.**197.
1250	pottery disc. L 5.7. W -2.8. Th 1.3. surface **300.**218.
1251	chisel. stone. L -2.3. W -1.2. Th -1. surface **300.**218.
1252	hammerstone. L 10. W 8.2. Th 3.9. fill **133.**260.
1253	bowl. stone. L -6.2. W -5.6. Th 1.8. general **300.**259.
1254	bowl. stone. L -6.9. W -5.2. Th 1.8. fill **133.**264.
1255	rubber. stone. L -7.1. W 12.7. Th 4. general **300.**256.
1256	pounder. stone. L 13.5. W 6. Th 5.1. general **300.**256.
1257	hammerstone. L 6.7. W 5.4. Th 5. general **300.**256.
1258	rubbing stone. L 9.4. W 7.3. Th 4.5. general **300.**256.
1259	fine abrader. stone. L -4. W -3.9. Th 0.9. general **300.**256.
1260	lid. stone. L 11.5. W 11.1. Th 2.5. fill **200.**202.
1261	axe. stone. L -5.2. W -7. Th -3.5. general **113**.
1262	rubbing stone. L -8.1. W 7.5. Th 3.4. Unit **0**.
1263	pebble grinder. L 7.3. W 2.9. Th 1.4. Unit **0**.
1264	flaked tool. stone. L -3.9. W -4.9. Th 2.1. fill **200.**202.
1265	cancelled.
1266	bowl. stone. L -5.3. W -4.6. Th 1.9. general **195**.
1267	quern. stone. L -16.3. W -11.4. Th -12.8. general **195**.
1268	misc. object. stone. L 18.7. W 12.5. Th 3.2. occupation deposit **200.**211.
1269	chisel. stone. L -2.8. W 1.2. Th 0.8. fill **100.**02. Pl. 14.3.
1270	figurine. pottery. fill **300.**257. Pl.13.12, Fig. 63.1.
1271	figurine?. pottery. fill **109.**03. Fig. 63.2.
1272	pestle. stone. L -17.1. occupation deposit **200.**211.
1273	conical stone. L 16.4. W 15.8. Th 13.6. potspread **200.**233.
1274	hammerstone/grinder. L 12.9. W 11. Th 6.1. potspread **200.**233.
1275	lid. stone. L 13. W 11.8. Th 4.1. potspread **200.**233.
1276	hammerstone/grinder. L 10.7. W -8. Th 5.1. potspread **200.**233.
1277	axe. stone. L -3.4. W 5.8. Th -3.3. occupation deposit **200.**211.
1278	axe. stone. L -6. W 6.6. Th 3.2. occupation deposit **200.**211.
1279	pounder. stone. L 11.6. W 5.3. Th 2.7. general **200.**270.
1280	quern. stone. L 34.5. W 21.2. Th 4.6. occupation deposit **200.**211.
1281	axe. stone. L 10.4. W 5. Th 3.4. occupation deposit **200.**211.
1282	bead. antler. L -3.6. occupation deposit **200.**211. Pl. 15.3.
1283	bead. antler. L 3.9. occupation deposit **200.**211. Pl. 15.3, Fig. 70.20.
1284	bead. antler. L 3.6. occupation deposit **200.**211. Pl. 15.3.
1285	pounder. stone. L 6.3. W 5.8. Th 5.5. general **200.**270.
1286	worked shell?. L 2.8. W 2.5. Th 0.8. occupation deposit **200.**211.
1287	misc. object. stone. L -5.7. W -5.5. Th 2.8. occupation deposit **200.**211.
1288	bead. antler. L -2.7. occupation deposit **200.**211. Pl. 15.3, Fig. 70.21.
1289	bowl. stone. L -7.1. W -6.7. Th 3.7. fill **133.**264.
1290	hammerstone/grinder. L 14.2. W 11.3. Th 3.8. floor **200.**276.
1291	adze. stone. L -4.6. W 4.9. Th 2.3. general **200.**270.
1292	quern. stone. L 73.3. W 38.2. Th 4.1. occupation deposit **200.**211.
1293	rubber. stone. L -25.7. W 12.8. Th 2.4. occupation deposit **200.**211. Pl. 14.8, Fig. 66.7.

KMyl	*Class. Material. Dimensions. Feature. Pl., Fig.*
1294	needle. bone. L -1.7. fill **200.**172.
1295	hammerstone/grinder. L 10.7. W 10.1. Th 5.1. wall **200.**126.
1296	needle. bone. L -2.2. W 0.2. Th 0.2. occupation deposit **200.**211.
1297	axe-shaped grinder. stone. L 21.4. W 7.2. Th 4.2. occupation deposit **200.**211.
1298	rubber. stone. L -17.1. W -13.5. Th 4.2. hearth **200.**271.
1299	bowl. stone. L -7.1. W -6.8. Th 1.3. hearth **200.**271.
1300	axe. stone. L 8.6. W 4.5. Th 2.4. wall **200.**126.
1301.01	bowl. stone. L -3.7. W -3.1. Th -1.4. fill **133.**260.
1301.02	bowl. stone. L -9.9. W -6.3. Th 2.3. fill **133.**260.
1301.03	bowl. stone. L -7.3. W -5.6. Th 1.2. fill **133.**260.
1301.04	bowl. stone. L -4.1. W 3.3. Th 1. fill **133.**264.
1301.05	bowl. stone. L -4.4. W -2.8. Th 1.1. fill **133.**260.
1301.06	bowl. stone. L -7.1. W -6.3. Th 1.1. fill **133.**260.
1301.07	bowl. stone. L -4.8. W -5. Th 1.5. fill **133.**260.
1301.08	bowl. stone. L -7.3. W -3.6. Th 1.7. fill **133.**260.
1301.09	bowl. stone. L -2.7. W -2.1. Th 1. fill **133.**264.
1301.10	bowl. stone. L -6.5. W -4.7. Th 1.3. fill **133.**260.
1301.11	bowl. stone. L -4. W -3.7. Th 1.4. fill **133.**264.
1301.12	bowl. stone. L -7.9. W -5.5. Th 1.3. fill **133.**260.
1301.13	bowl. stone. L -3.5. W -3. Th -1.3. fill **133.**260.
1301.14	bowl. stone. L -7. W 2.7. Th 1.7. fill **133.**260.
1301.15	bowl. stone. L -3.8. W -3.4. Th -2.3. fill **133.**264.
1301.16	bowl. stone. L -2.2. W -2. Th -1.2. fill **133.**264.
1301.17	bowl. stone. L -5.3. W -3.5. Th 1.1. fill **133.**264.
1301.18	bowl. stone. L -4. W -3. Th 1.4. fill **133.**264.
1301.19	bowl. stone. L -5.2. W -5. Th 1.9. fill **133.**260.
1301.20	bowl. stone. L -5.7. W -4.8. Th -1.4. fill **133.**264.
1301.21	bowl. stone. L -7.8. W -4.3. Th 1.8. fill **133.**264.
1301.22	bowl. stone. L -6.1. W -6.1. Th 1.8. fill **133.**264.
1301.23	bowl. stone. L -3.8. W -1.7. Th 1.1. fill **133.**264.
1301.24	bowl. stone. L -6.9. W -5.6. Th 3.9. fill **133.**260.
1301.25	bowl. stone. L -8.5. W -4.7. Th 2.5. fill **133.**260.
1301.26	bowl. stone. L -8.3. W -5.6. Th 1.6. fill **133.**260.
1301.27	bowl. stone. L -8.7. W -6.1. Th 3.3. fill **133.**260.
1301.28	bowl. stone. L -9.4. W -8.4. Th 2. fill **133.**264.
1301.29	bowl. stone. L -12.8. W -9.3. Th 1.9. fill **133.**264.
1301.30	bowl. stone. L -9.1. W -8. Th 1.8. fill **133.**264.
1301.31	bowl. stone. L -15. W -8.8. Th 3.6. fill **133.**264.
1301.32	bowl. stone. L -4.4. W -2.8. Th 1.6. fill **133.**264.
1301.33	bowl. stone. L -7.3. W -6.5. Th 2.1. fill **133.**264.
1301.34	bowl. stone. L -7.5. W -5.8. Th 2.2. fill **133.**264.
1301.35	bowl. stone. L -13.7. W -11.7. Th 4.5. fill **133.**264.
1302	hammerstone. L 7.4. W 5.8. Th 3.5. fill **133.**264.
1303	rubbing stone. L 8.2. W 6.2. Th 4.3. fill **133.**264.
1304	hammerstone. L 5.7. W 5.3. Th 1.7. fill **133.**260.
1305	bowl. stone. L -12.2. W -10.8. Th 1.8. fill **133.**264. Pl. 7.5.
1306	hammerstone. L 19.3. W 11.8. Th 8. fill **133.**264.
1307.01	bowl. stone. L -4.7. W -3.9. Th 1.3. fill **133.**264.
1307.02	bowl. stone. L -9. W -8.1. Th 2.8. fill **133.**264.
1307.03	bowl. stone. L -27. W -22.7. Th 5.6. fill **133.**260.
1307.04	bowl. stone. L -8.7. W -6. Th 3. fill **133.**260.
1307.05	bowl. stone. L -8.7. W -7.2. Th 2. fill **133.**260.
1307.06	bowl. stone. L -10.2. W -5.3. Th 2.1. fill **133.**260.
1307.07	bowl. stone. L -7.8. W -7. Th 2.2. fill **133.**260.
1307.08	bowl. stone. L -7.9. W -6.4. Th 3.9. fill **133.**260.
1307.09	bowl. stone. L -6.7. W -5.8. Th 1.7. fill **133.**264.
1307.10	bowl. stone. L -6.7. W -6.1. Th 2.4. fill **133.**264.
1307.11	bowl. stone. L -7.9. W -7. Th 3.1. fill **133.**260.
1307.12	bowl. stone. L -5.1. W -4.2. Th 1.4. fill **133.**260.
1307.13	bowl. stone. L -12.5. W -9.2. Th 2.9. fill **133.**260.
1307.14	bowl. stone. L -6.7. W -5.2. Th 1.8. fill **133.**260.
1307.15	bowl. stone. L -8.1. W -8.1. Th 2.1. fill **133.**260.
1307.16	bowl. stone. L -11.4. W -9.7. Th 2.8. fill **133.**260.
1307.17	bowl. stone. L -9.8. W -8. Th 2.3. fill **133.**260.
1307.18	cupped stone. L -9.8. W -9.4. Th 2.7. fill **133.**260.
1307.19	bowl. stone. L -8.3. W -7.4. Th 2.8. fill **133.**264.
1307.20	bowl. stone. L -6.2. W -4.5. Th 1.7. fill **133.**264.
1307.21	bowl. stone. L -11. W -10.4. Th 3.8. fill **133.**264.
1307.22	bowl. stone. L -14.3. W -11.3. Th 4.3. fill **133.**264.
1307.23	bowl. stone. L -10.2. W -6.2. Th 3.4. fill **133.**260.
1307.24	bowl. stone. L -13.5. W -6.6. Th 2.8. fill **133.**264.
1307.25	bowl. stone. L -7.8. W -7. Th 2.1. fill **133.**264.
1308	rubbing stone. L 6.7. W 4.8. Th 3.3. fill **133.**264.
1309	hammerstone. L 7.5. W 4.9. Th 3.2. fill **133.**264.
1310	hammerstone. L 7.2. W 4.9. Th 3.8. fill **133.**260.
1311	hammerstone. L 7.8. W 5.7. Th 3.1. fill **133.**260.
1312	hammerstone. L 8.8. W 7.9. Th 3.9. fill **116.**0.
1313	hammerstone. L 6. W 5. Th 4.1. fill **133.**260.
1314	hammerstone. L 7.4. W 6.3. Th 4.4. fill **133.**260.
1315	hammerstone. L 10.4. W 7.8. Th 5.3. fill **133.**260.
1316	polisher. stone. L 4.4. W 2.9. Th 0.9. fill **133.**260.
1317	hammerstone. L 8.2. W 5.6. Th 3.7. fill **133.**260.
1318	hammerstone/grinder. L 8.9. W 7.8. Th 3.5. fill **133.**260.
1319	hammerstone. L 8.6. W 7.8. Th 4.8. fill **133.**260.
1320.01	bowl. stone. L -14.6. W -11.2. Th 2.7. fill **133.**260.
1320.02	bowl. stone. L -4.6. W -4.2. Th 1.2. fill **133.**260.
1320.03	bowl. stone. L -8.4. W -5.5. Th 1.9. fill **133.**260.
1321	hammerstone. L 9.3. W 6. Th 5.1. fill **133.**260.
1322	hammerstone. L 7. W 6.5. Th 3.3. fill **133.**260.
1323	cupped stone. L 6.4. W 6. Th 2.6. fill **133.**264. Pl. 6.6.
1324	hammerstone. L 4.5. W 4.1. Th 3. fill **133.**264.
1325	pounder. stone. L 10.5. W 5.8. Th 3.4. fill **133.**264.
1326	hammerstone. L 9.5. W 6.3. Th 4.6. fill **133.**264.
1327	hammerstone. L -5.9. W 7.7. Th 2.5. fill **133.**264.
1328	hammerstone. L 8.5. W -6.7. Th 3.2. fill **133.**264.
1329	hammerstone. L 7.8. W 5.1. Th 3.1. fill **133.**264.
1330	pounder. stone. L 6.5. W -3.2. Th 3.8. fill **133.**264.
1331	pounder. stone. L 11. W 4.8. Th 3.4. fill **133.**264.
1332	bowl. stone. L -5.5. W -3.8. Th 1.5. fill **133.**264.
1333	point. b+one. L -2. W -0.6. Th 0.4. fill **133.**260.
1334	hammerstone. L 6.4. W 5.6. Th 3.9. fill **133.**264.
1335	perforated stone. L 5. W 4.2. Th 1.5. occupation deposit **200.**211.
1336.01	hammerstone. L 5.7. W 5.3. Th 4. fill **133.**264.
1336.02	hammerstone. L 8. W 7.7. Th 3.6. fill **133.**264.
1336.03	hammerstone. L 7.7. W 7.3. Th 5.1. fill **133.**264.
1336.04	hammerstone. L 9. W 6. Th 4.4. fill **133.**264.
1336.05	hammerstone. L 11. W -6.1. Th 5.2. fill **133.**264.
1336.06	hammerstone. L 8.7. W 6.8. Th 5.7. fill **133.**264.
1336.07	hammerstone. L 10.9. W 8.1. Th 2.9. fill **133.**264.
1336.08	hammerstone. L 11.1. W 9.3. Th 7.5. fill **133.**264.
1336.09	hammerstone. L 8.2. W 5.3. Th 4.1. fill **133.**264.
1336.10	hammerstone. L 10.8. W 8.7. Th 5.9. fill **133.**278.
1336.11	hammerstone. L 8. W 7.2. Th 6. fill **133.**278.
1336.12	hammerstone. L 10. W 6.9. Th 5.3. fill **133.**278.
1336.13	hammerstone. L 11.2. W 9.8. Th 6.4. fill **133.**278.
1336.14	hammerstone. L 10.5. W 8.1. Th 5.4. fill **133.**278.
1336.15	hammerstone. L 8.3. W 7.4. Th 6.2. fill **133.**278.
1336.16	hammerstone. L 11. W 9.4. Th 5.9. fill **133.**279.
1336.17	hammerstone. L 11.1. W 9. Th 3.7. fill **133.**278.
1336.18	hammerstone. L 9.2. W 7.8. Th 2.5. fill **133.**278.
1336.19	hammerstone. L 8. W 5.1. Th 4.5. fill **133.**279.
1336.20	hammerstone. L 10.8. W 7.6. Th 3.5. fill **133.**278.
1336.21	hammerstone. L 8. W 6.5. Th 5.4. fill **133.**279.
1336.22	hammerstone. L 7.7. W 6.3. Th 4.9. fill **133.**282.
1336.23	hammerstone. L 10.7. W 7.5. Th 3.1. fill **133.**282.
1336.24	hammerstone. L 11.8. W 8.1. Th 6.2. fill **133.**282.
1336.25	hammerstone. L 10.5. W 7.2. Th 3.4. fill **133.**282.
1336.26	anvil. stone. L 16.7. W 14.4. Th 5.6. fill **133.**282.
1336.27	hammerstone. L 7.4. W 4. Th 3.5. fill **133.**282.
1336.28	hammerstone. L 9.1. W 7.4. Th 5.7. fill **133.**282.
1336.29	hammerstone. L 10.2. W 8.2. Th 3.2. well **133.**0.
1337	pounder. stone. L 6.3. W 5.7. Th 4.5. fill **133.**264.
1338	hammerstone. L 9.2. W 7.4. Th 6. fill **133.**264.
1339.01	bowl. stone. L -9.9. W -9. Th 2.3. fill **133.**278.
1339.02	bowl. stone. L -7.7. W -4.1. Th 2. fill **133.**278.
1339.03	bowl. stone. L -10.4. W -7.1. Th 2.1. fill **133.**278.
1339.04	bowl. stone. L -10. W -8.3. Th 2.2. fill **133.**278.
1339.05	bowl. stone. L -6.7. W -7. Th 2.4. fill **133.**278.
1339.06	bowl. stone. L -8.6. W -8.3. Th 2.8. fill **133.**278.
1339.07	bowl. stone. L -6.3. W -5.9. Th 1.2. fill **133.**278.
1339.08	bowl. stone. L -9.2. W -7.4. Th 3.3. fill **133.**278.
1339.09	bowl. stone. L -8.4. W -3.7. Th 1.3. fill **133.**278.
1339.10	bowl. stone. L -6.8. W -4.9. Th 1.8. fill **133.**278.

KMyl	Class. Material. Dimensions. Feature. Pl., Fig.
1339.11	bowl. stone. L -5.9. W -5.9. Th 1.7. fill **133.**278.
1339.12	bowl. stone. L -8.8. W -5.7. Th 2.6. fill **133.**278.
1339.13	bowl. stone. L -6.8. W -6.2. Th 2.5. fill **133.**278.
1339.14	bowl. stone. L -15.2. W -10.5. Th 4.4. fill **133.**278.
1339.15	bowl. stone. L -8.7. W -6. Th 2.9. fill **133.**278.
1339.16	bowl. stone. L -4.3. W -3.4. Th 1.7. fill **133.**278.
1339.17	bowl. stone. L -10.4. W -6.4. Th 2.4. fill **133.**278.
1339.18	bowl. stone. L -5. W -4.1. Th 1.3. fill **133.**278.
1339.19	bowl. stone. L -5.9. W -3.7. Th 1.8. fill **133.**278.
1340	bead. shell. L -0.9. artefact spread. **200.**285.
1341	rubbing stone. L 14.9. W 9.4. Th 4. stone setting **200.**221.
1342	flaked tool. stone. L 8.5. W 5.2. Th 1.5. artefact spread. **200.**285.
1343	cancelled.
1344	flaked tool. stone. L -4.1. W -6.4. Th 3.1. artefact spread. **200.**285.
1345	axe. stone. L 4.5. W 3.4. Th 2.6. artefact spread. **200.**285.
1346	spatula. bone. L 10.4. W 1.4. Th 0.8. artefact spread. **200.**285. Pl. 16.3, Fig. 71.8.
1347	pebble grinder. stone. L 7.6. W 4.4. Th 1.4. artefact spread. **200.**285.
1348	rubbing stone. L 8.7. W 7.2. Th 4.2. artefact spread. **200.**285.
1349	mortar. stone. L 47. W 31. Th 17.5. stone setting **200.**286.
1350	flaked tool. stone. L 6.9. W 5.8. Th 1.4. stone setting **200.**288.
1351	hammerstone. L 12.3. W 9.9. Th 3.7. stone setting **200.**288.
1352	bowl. stone. L 6.5. W 5.9. Th 3.7. stone setting **200.**289.
1353	bead. antler. L 4.5. occupation deposit **200.**211. Pl. 15.3, Fig. 70.22.
1354	hammerstone. L 12.6. W 8.2. Th 4.5. stone setting **200.**286.
1355	hammerstone. L 7.8. W 5.6. Th 3.9. stone setting **200.**286.
1356	grooved stone. L -10. W -8.7. Th -4.2. stone setting **200.**286.
1357	hammerstone. L 7.8. W -6.7. Th 3.9. stone setting **200.**286.
1358	hammerstone. L 16.7. W 7.6. Th 5. potspread **200.**295.
1359	pounder. stone. L 13.1. W 5.4. Th 4. potspread **200.**295.
1360	axe. stone. L 12. W 6.1. Th 3.6. floor **200.**283.
1361	cupped stone. L 12.4. W 9.4. Th 5. fill **133.**278.
1362	hammerstone. L 7. W 6.2. Th 2.5. fill **133.**278.
1363	pounder. stone. L 7.4. W 6.4. Th 5.5. fill **133.**278.
1364	perforated disc. stone. L. 7.9. Th 1.1. fill **133.**278. Pl. 8.4a,b
1365	misc. object. stone. L 8.6. W 7.8. Th 1.9. fill **133.**278.
1366	bowl. stone. L -8.4. W -7.4. Th 1.6. fill **133.**279.
1367	hammerstone. L 8.6. W 6.8. Th 2. fill **133.**279.
1368	pounder. stone. L 10.9. W 9.4. Th 4.2. fill **133.**279.
1369	pounder. stone. L 8.8. W 6.9. Th 6.1. fill **133.**278.
1370	bowl. stone. L -9.3. W -8.9. Th 2.6. fill **133.**278.
1371	hammerstone/grinder. L 9.8. W 9.4. Th 2.2. fill **133.**278.
1372	hammerstone. L -6.5. W 9.8. Th 2.8. fill **133.**278.
1373	grooved stone. L -11.5. W -7.2. Th 4.1. fill **133.**278.
1374	misc. object. stone. L -14.7. W 20.1. Th 10.2. fill **133.**282.
1375	bowl. stone. L 4.2. W 3.6. Th 1.4. general/surface **300.**255.
1376	bowl. stone. L -2.7. W -2. Th 1. fill **133.**282.
1377	hammerstone/grinder. L 15.3. W 9.4. Th 5.4. fill **133.**282.
1378	bowl. stone. L -8.6. W -6.3. Th 3. fill **133.**282.
1379	lid. stone. W 12. Th 4.9. occupation deposit **200.**211.
1380	quern. stone. L -31.2. W 18.3. Th 5.6. misc **200.**294.
1381	flaked tool. stone. L -6.7. W 4.2. Th 2.1. floor **200.**283.
1382	misc. object. stone. L -15.1. W -13.9. Th 2.3. floor **200.**283.
1383	flaked tool. stone. L 4.3. W 2.5. Th 1.3. floor **200.**283.
1384	bowl. stone. floor **200.**283.
1385	hammerstone. L 9.3. W 7.1. Th 4.6. wall **200.**126.
1386	rubber. stone. L -10.2. W -12.9. Th 2.5. artefact spread. **200.**285.
1387	pounder. stone. L 7.9. W 7.2. Th 3.3. general **200.**305.
1388	pounder. stone. L 6. W 5.2. Th 5. general **200.**305.
1389	pounder. stone. L 5.3. W 5.2. Th 4.7. general **200.**305.
1390	pounder. stone. L -3.1. W -4.2. Th -2.8. general **200.**305.
1391	bowl. stone. L -14.2. W -11. Th 2.4. basin. **313.**314.
1392	hammerstone/grinder. L 9.9. W 7. Th 5. general **200.**305.
1393	worked shell?. L 5.6. W 5.3. Th 1.6. general **200.**305.
1394	bowl. stone. L -5.2. W -5.4. Th 1.4. fill **133.**279.
1395	pounder. stone. L 6.3. W 5.3. Th 5.3. artefact spread. **200.**285.
1396	bowl. stone. L 5.4. W 5. Th 4. general **200.**305.
1397	rubbing stone. L 9.3. W 6.8. Th 5.2. artefact spread. **200.**285.
1398	hammerstone. L 5.7. W 4.6. Th 3.6. artefact spread. **200.**285.
1399	daub. L 11.2. W 7.1. Th 4. general **200.**305.
1400	polisher. stone. L 8.2. W 2.2. Th 1.1. general **200.**305.
1401	hammerstone. L 7. W 6. Th 3.9. fill **200.**306.
1402	pounder. stone. L 11.8. W 12.1. Th 9. fill **200.**306.
1403	pounder. stone. L 7.8. W -6.3. Th 6.3. fill **200.**311.
1404	hammerstone/grinder. L 6.9. W 6.5. Th 5.2. general **200.**305.
1405	hammerstone. L 8.2. W 7.8. Th 2.5. fill **200.**312.
1406	grooved stone. L -3.3. W 4.4. Th 3.7. fill **200.**311.
1407	lid. stone. L 11.3. W 10.5. Th 1.6. occupation deposit **200.**211.
1408	chisel. stone. L -3. W 1.2. Th 1.1. general **200.**305.
1409	rubbing stone. L -5.2. W 4.8. Th 3. general **200.**305.
1410	misc. object. stone. L -7.3. W -5.6. Th 0.6. general **200.**305.
1411	bead. shell. L -1.2. artefact spread. **200.**285.
1412	bead. shell. L -1.8. artefact spread. **200.**285.
1413	pounder. stone. L 6.2. W 5.4. Th 4.8. artefact spread. **200.**285.
1414	hammerstone. L 9.5. W 5.8. Th 3.5. misc **200.**275.
1415	hammerstone. L 10.5. W 5.5. Th 4.8. misc **200.**275.
1416	hammerstone. L 8. W 6.2. Th 4. misc **200.**275.
1417	pendant. picrolite. L -1.8. W 0.8. Th -0.4. floor **200.**173. Pl. 15.6, Fig. 70.8.
1418	hammerstone. L -12.3. W 8.1. Th 6. wall **200.**126.
1419	flaked tool. stone. L 7.8. W 5.3. Th 1.8. wall **200.**126.
1420	hammerstone. L 11.4. W 10.4. Th 4.9. wall **200.**126.
1421	rubber. stone. L 36.4. W 13.6. Th 3.8. fill **200.**316.
1422	pestle. stone. L 18.4. W 7.8. Th 7.3. posthole. **200.**321. Fig. 65.13.
1423	figurine/?zoomorph. picrolite. Unit **0**. Pl. 13.8, Fig. 62.1.
1424	bowl. stone. L -6.6. W -6.6. Th -2.6. general **200.**305.
1425	axe-shaped grinder. stone. L 11.5. W 5.5. Th 4.3. general **200.**305.
1426	pounder. stone. L -10.3. W 5.9. Th 6.1. general **200.**305.
1427	bowl. stone. L -7.3. W 5.9. Th 6.1. well **133.**0.
1428	bowl. stone. L -9.5. W -6.8. Th 2.3. fill **133.**282.
1429	bowl. stone. L -6.5. W -4.3. Th 2.5. fill **133.**282.
1430	bowl. stone. L -6.7. W -4.5. Th 2.8. fill **133.**282.
1431	bowl. stone. L -13.5. W 15.7. Th 3. fill **133.**282.
1432	cupped stone. L -7.6. W 7. Th 2.5. fill **330.**325.
1433	bowl. stone. L -17.1. W -17.3. Th -3. fill **133.**282.
1434	bowl. stone. L -9.1. W -6.7. Th 2.4. fill **133.**282.
1435	bowl. stone. L -6.2. W -8.5. Th 1.9. fill **133.**282.
1436	bowl. stone. L -4.8. W -2.8. Th 1.7. fill **133.**282.
1437	bowl. stone. L -10.1. W -8.5. Th 2.6. fill **133.**282.
1438	bowl. stone. L -3.9. W -4.2. Th 1.4. fill **133.**282.
1439	bowl. stone. L -3.7. W -3.1. Th 1.5. fill **133.**282.
1440	bowl. stone. L -4.1. W -2.4. Th 1.6. fill **133.**282.
1441	bowl. stone. L -4.3. W -4.1. Th 1.6. fill **133.**282.
1442	bowl. stone. L -2.3. W -1.4. Th 0.7. fill **133.**282.
1443	bowl. stone. L -3.4. W -2.9. Th 2.3. fill **133.**282.
1444	bowl. stone. L -7.8. W 6.1. Th 2.8. fill **133.**282.
1445	bowl. stone. L -9.8. W -8. Th 2.4. fill **133.**282.
1446	hammerstone. L 9.1. W 7.2. Th 6.4. fill **133.**331.
1447	bowl. stone. L -2.8. W -2.4. Th 1.3. fill **133.**264.
1448	hammerstone. L 11.4. W 6.3. Th 5.3. fill **133.**331.
1449	hammerstone. L 7.9. W 7.4. Th 3.8. fill **133.**331.
1450	anvil. stone. L 19.25. W 13.8. Th 7. fill **133.**282.
1451	bowl. stone. L -10.9. W -9.9. Th 2.6. fill **133.**282.
1452	bowl. stone. L -5.3. W -4.5. Th 1.7. fill **133.**282.
1453	bowl. stone. L -7.4. W -3.5. Th 2.4. fill **133.**331.
1454	bowl. stone. L -6.1. W -4.7. Th 2.1. fill **133.**282.
1455	bowl. stone. L -5.6. W -4.7. Th 2.1. fill **133.**282.
1456	bowl. stone. L -4.7. W -4.1. Th 1. fill **133.**282.
1457	bowl. stone. L -11.1. W -7.3. Th 2.7. fill **133.**282.

KMyl	*Class. Material. Dimensions. Feature. Pl., Fig.*
1458	pounder. stone. L -6.8. W -6.1. Th -1.9. fill **133.**282.
1459	hammerstone. L 9.6. W 7. Th 5.3. fill **133.**282.
1460	bowl. stone. L -5.4. W -4.6. Th -1. fill **133.**282.
1461	bowl. stone. L -6.7. W -4.8. Th 1.9. fill **133.**282.
1462	bowl. stone. L -8.7. W -8.2. Th 2.2. fill **133.**282.
1463	pounder. stone. L -8.1. W -6.6. Th -4. fill **133.**282.
1464	bowl. stone. L -6.8. W -5.4. Th 1.5. fill **133.**282.
1465	bowl. stone. L -7.1. W -4.8. Th 1.7. fill **133.**282.
1466	rubbing stone. L -10. W -12.2. Th 4.2. fill **200.**202.
1467	pestle. stone. L -3.8. W -3. Th -0.9. fill **200.**202.
1468	pounder. stone. L 6.2. W 5.5. Th 4.6. wall **200.**126.
1469	bowl. stone. L -5. W -6.1. Th -2.8. wall **200.**126.
1470	bowl. stone. L -8.2. W -3.4. Th -2.2. wall **200.**126.
1471	adze. stone. L -3.4. W 5.8. Th 1.5. wall **200.**126.
1472	quern. stone. L -16.2. W -14.1. Th -4.4. occupation deposit **200.**211.
1473	bowl. stone. L -6.8. W -4.2. Th 2. occupation deposit **200.**211.
1474	hammerstone. -4.3. W -6.4. Th -4.2. occupation deposit **200.**211.
1475	hammerstone/grinder. L -9.7. W -3.9. Th -5.3. fill **200.**202.
1476	misc. object. stone. L 5.5. W 5.5. Th 4.2. fill **200.**202.
1477	hammerstone. L 7.1. W 4.5. Th 4.3. fill **200.**202.
1478	bowl. stone. L -7. W -4.2. Th -1.9. fill **200.**202.
1479	hammerstone/grinder. L 10.2. W 8.7. Th 4.4. wall **200.**126.
1480	rubber. stone. L -8. W -6.2. Th 3.9. floor **200.**283.
1481	bowl. stone. L -4.4. W -1.7. Th -0.9. floor **200.**283.
1482	bowl. stone. L -15.3. W -14.5. Th -7.1. fill **200.**159/170.
1483	rubber. stone. L -18.2. W -11.6. Th -5. fill **200.**159/170.
1484	anvil. stone. L 15.2. W -8.1. Th 3.3. fill **200.**159/170.
1485	axe. stone. L -5.3. W -6.1. Th -1.8. fill **200.**159/170.
1486	rubbing stone. L -8.1. W -10.3. Th -2.8. fill **200.**159/170.
1487	bowl. stone. fill **200.**159/170.
1488	hammerstone. L 12.7. W 7.7. Th 5.6. fill **200.**159/170.
1489	hammerstone. L 12.8. W 9.5. Th 6.5. fill **133.**282.
1490	pounder. stone. L 6.3. W 5.9. Th 4.5. general **195**.
1491	bowl. stone. L -33.1. W -9.5. Th -14.2. general **195**.
1492	pounder. stone. L -6.1. W -5.2. Th -3.5. fill **133.**282.
1493	hammerstone. L 13.4. W 8.9. Th 6.5. fill **133.**282.
1494	hammerstone. L 9.6. W 8.3. Th 6. fill **133.**282.
1495	bowl. stone. L -7.1. W -4.2. Th 2.6. fill **133.**282.
1496	bowl. stone. L -11.3. W -7.7. Th 2.8. fill **133.**282.
1497	misc. object. stone. L 16.7. W -13.7. Th -6.1. fill **133.**282.
1498	bowl. stone. L -12.8. W -7.2. Th 2.4. fill **133.**282.
1499	pounder. stone. L 6.2. W 6.2. Th 5.4. fill **133.**282.
1500	bowl. stone. L -7.2. W -9.9. Th 3.3. fill **133.**282.
1501	bowl. stone. L -7. W -5.1. Th 1.9. fill **133.**282.
1502	hammerstone. L 8.3. W 6.1. Th 4. fill **133.**282.
1503	hammerstone. L 10.2. W 7.9. Th 4.5. fill **133.**282.
1504	hammerstone. L 10.9. W 9.6. Th 5.2. fill **133.**282.
1505	macehead. stone. L 7.1. W 6.8. Th 5.1. fill **133.**282. Pl. 7.4, Fig. 46.9.
1506	bowl. stone. L -5.5. W -4.3. Th 1.5. fill **133.**282.
1507	bowl. stone. L -8.4. W -4.9. Th 1.5. fill **133.**331.
1508	bowl. stone. L -4.8. W -3. Th 1.3. fill **133.**331.
1509	bowl. stone. L -10.4. W -6.7. Th -2.8. fill **133.**331.
1510	hammerstone. L 7.7. W 5.6. Th 3.8. fill **133.**331.
1511	bowl. stone. L -8.2. W -12.4. Th 3.2. fill **133.**282.
1512	bowl. stone. L -9.8. W -7.8. Th 2.4. fill **133.**282.
1513	bowl. stone. L -7.9. W -7.8. Th 2.4. fill **133.**282.
1514	hammerstone. L 9.5. W 7.4. Th 2.2. fill **133.**282.
1515	hammerstone. L 13.5. W 8.5. Th 5.7. fill **133.**282.
1516	bowl. stone. L -19.3. W -7.7. Th 2.8. fill **133.**282.
1517	bowl. tone. L -7.4. W -5.6. Th 1.7. fill **133.**282.
1518	hammerstone. L 10.4. W 7.6. Th 3. fill **133.**282.
1519	hammerstone. L 7.2. W 5.9. Th 4.6. fill **133.**282.
1520	bowl. stone. L -15.5. W -10.8. Th 3. fill **133.**329.
1521	bowl. stone. L -9.8. W -14.8. Th 2.7. fill **133.**329. Fig. 47.4.
1522	bowl. stone. L -8.1. W -10.9. Th 2.5. fill **133.**329.
1523	bowl. stone. L -7.2. W -14.3. Th 2.3. fill **133.**329.
1524	bowl. stone. L -5.3. W -2.4. Th -1.3. fill **133.**329.
1525	bowl. stone. L -8.6. W -5.5. Th -3.6. fill **133.**329.
1526	bowl. stone. L -4.8. W -3.8. Th -2.9. fill **133.**329.
1527	bowl. stone. L -3.3. W -5.5. Th -1.4. fill **133.**329.
1528	bowl. stone. L -9.3. W -7. Th -2.8. fill **133.**329.
1529	bowl. stone. L -4. W -3.2. Th 1.6. fill **133.**329.
1530	bowl. stone. L -7.9. W -6.2. Th 2.3. fill **133.**282.
1531	bowl. stone. L -5.5. W -7.4. Th 2.3. fill **133.**282.
1532	grooved stone. L 8.2. W 5.6. Th 2.6. fill **133.**282. Fig. 46.7.
1533	misc. object. stone. L -9.1. W -7.5. Th 2.9. fill **133.**282.
1534	bowl. stone. L -12.3. W -8.6. Th 1.8. fill **340.**342.
1535	bowl. stone. L -10.2. W -6.3. Th 1.6. fill **340.**342.
1536	bowl. stone. L -5.1. W -4.5. Th 1.7. fill **133.**329.
1537	bowl. stone. L -14.5. W -11.1. Th 2.1. fill **133.**329.
1538	bowl. stone. L -6.4. W -4.9. Th 1.8. floor **340.**339.
1539	cupped stone. L 13.5. W 9.1. Th 4.5. Unit **0**.
1540	bowl. stone. L -13.9. W -12.4. Th -2.7. fill **133.**329.
1541	bowl. stone. L -14.2. W -11.6. Th 2.6. fill **133.**329.
1542	bowl. stone. L -8.1. W -6.9. Th 3. fill **133.**329.
1543	bowl. stone. L -10.2. W -7.2. Th 1.9. fill **133.**329.
1544	bowl. stone. L -10.7. W -6.4. Th 2. fill **133.**282.
1545	bowl. stone. L 5.6. W -9.5. Th 1.8. fill **133.**282.
1546	bowl. stone. L -5.4. W -4.3. Th 1.7. fill **133.**282.
1547	bowl. stone. L -7.3. W -6.7. Th 1.8. fill **133.**282.
1548	bowl. stone. L -6.9. W -8.1. Th 2.3. fill **133.**331.
1549	polisher. stone. L -8.1. W -4.5. Th 2. fill **133.**282.
1550	hammerstone. L 8.4. W 6.5. Th 5.6. fill **133.**282.
1551	hammerstone. L 18. W 12.2. Th 8.3. fill **133.**332.
1552	hammerstone. L 7.4. W 5.9. Th 5.8. fill **133.**332.
1553	misc. object. stone. L -3.2. W 6. Th 3.4. fill **133.**332.
1554	bowl. stone. L -6. W -5.3. Th 2.9. fill **133.**331.
1555	bowl. stone. L -5.5. W -4.2. Th 1.3. fill **133.**331.
1556	bowl. stone. L -6.5. W -3.6. Th 1.2. fill **133.**331.
1557	hammerstone. L -4.6. W 6.4. Th 4.9. fill **133.**331.
1558	hammerstone. L 7.9. W 6.4. Th 2.7. fill **133.**331.
1559	hammerstone. L 11.7. W 7.5. Th 6.7. fill **133.**331.
1560	hammerstone. L 10.4. W 8.2. Th 7.1. fill **133.**331.
1561	hammerstone. L 11.7. W 6.4. Th 5.8. fill **133.**331.
1562	hammerstone. L 7. W 5.7. Th 2.7. fill **133.**331.
1563	bowl. stone. L -15.7. W -8.7. Th 3.5. fill **133.**282.
1564	misc. object. stone. L -10.7. W -8.6. Th 4.3. fill **133.**282.
1565	bowl. stone. L -9.5. W -8. Th 2.5. fill **133.**282.
1566	bowl. stone. L -5.2. W -3. Th 2.7. fill **133.**282.
1567	hammerstone. L 6.6. W 6.4. Th 3.5. fill **133.**282.
1568	hammerstone. L 13.6. W 9.9. Th 6.2. fill **133.**282.
1569	anvil. stone. L -25.7. W 14.9. Th 4.8. fill **133.**282.
1570	anvil. stone. L 21.4. W 11. Th 7.6. fill **133.**282.
1571	bowl. stone. L -20.5. W -17.9. Th 4. fill **133.**282.
1572	hammerstone. L 7.2. W 5.2. Th 4. fill **133.**282.
1573	cupped stone. L -16.9. W -13. Th 3.5. fill **133.**282.
1574	hammerstone. L -9.2. W 9.2. Th 4.7. fill **133.**282.
1575	bowl. stone. L -11.7. W -8.3. Th 3.9. fill **133.**282. Fig. 46.13.
1576	bowl. stone. L -4.7. W -3.8. Th 1.8. fill **133.**282.
1577	bowl. stone. L -7.7. W -6.6. Th 2. fill **133.**282.
1578	bowl. stone. L -15.8. W -10.5. Th 6.5. fill **133.**282.
1579	bowl. stone. L -3.4. W -2. Th 1.1. fill **133.**282.
1580	bowl. stone. L -6.2. W -4.1. Th 1.7. fill **133.**282.
1581	bowl. stone. L -5.2. W -2.5. Th 2. fill **133.**282.
1582	bowl. stone. L -5.8. W -3.5. Th 1. fill **133.**282.
1583	bowl. stone. L -8.5. W -11.4. Th 3.5. fill **133.**282.
1584	bowl. stone. L -12.3. W -8.4. Th 2.4. fill **133.**282.
1585	hammerstone. L 10. W 6. Th 5.6. fill **133.**282.
1586	hammerstone. L 12.7. W 9.5. Th 7.1. fill **133.**282.
1587	bowl. stone. L -9. W -7.2. Th 4.6. fill **133.**282.
1588	bowl. stone. L -2.4. W -4.7. Th 1.1. fill **133.**282.
1589	bowl. stone. L -7.8. W -6.5. Th 1.8. fill **133.**282.
1590	bowl. stone. L -7. W -10.4. Th 2.7. fill **133.**282.
1591	hammerstone. L -7. W 6.2. Th 3.8. fill **133.**282.
1592	bowl. stone. L -3.8. W -3.3. Th 1. fill **133.**282.
1593	hammerstone. L 12.8. W 10.9. Th 4.3. fill **133.**279.
1594	hammerstone. L 14.1. W 9.5. Th 6.4. fill **133.**282.
1595	hammerstone/grinder. L 9.3. W 8. Th 4.1. fill **133.**282.
1596	bowl. stone. L -8.9. W -8. Th 2.4. fill **133.**282.
1597	hammerstone. L 10.6. W 7.1. Th 6.6. fill **133.**279.
1598	bowl. stone. L -7.5. W -6.3. Th 2.5. fill **133.**279.

KMyl	*Class. Material. Dimensions. Feature. Pl., Fig.*
1599	hammerstone. L 7.2. W 6.7. Th 4.2. fill **133.**282.
1600	hammerstone. L 10.9. W 7.5. Th 5.8. fill **133.**282.
1601	bowl. stone. L 12.9. W 11.1. Th 4.6. fill **133.**282.
1602	bowl. stone. L -5.6. W -5.5. Th 1.6. fill **133.**282.
1603	bowl. stone. L -2.8. W -2.2. Th 0.8. fill **133.**282.
1604	bowl. stone. L -9.4. W -5.9. Th 2. fill **133.**282.
1605	bowl. stone. L -12.5. W -11.2. Th 4.5. fill **133.**282.
1606	hammerstone. L 9.1. W 8.3. Th 4.8. fill **133.**282.
1607	hammerstone. L 5.9. W 5.8. Th 2.6. fill **133.**282.
1608	bowl. stone. L -5. W -4.3. Th 1.6. fill **133.**282.
1609	bowl. stone. L -12.2. W -10.3. Th 2.8. fill **133.**282.
1610	bowl. stone. L -4.9. W -4.7. Th 1.8. fill **133.**282.
1611	hammerstone. L 12.9. W 8.9. Th 6.7. fill **133.**282.
1612	hammerstone. L 11.7. W 10.7. Th 4.1. fill **133.**282.
1613	bowl. stone. L -24.4. W 17.7. Th 2.1. fill **133.**282. Fig. 46.10.
1614	bowl. stone. L -24.1. W 25.1. Th 5.9. fill **133.**282.
1615	bowl. stone. L -5.8. W -5.9. Th 1.6. fill **338.**354.
1616	bowl. stone. L -3.8. W -4. Th 1.4. fill **338.**354.
1617	bowl. stone. L -9.3. W -6.7. Th 1.7. fill **338.**354.
1618	hammerstone. L 8.5. W 5.8. Th 4.9. fill **338.**354.
1619	hammerstone. L 13.1. W 8.8. Th 7.4. fill **338.**354.
1620	pounder. stone. L 15. W 7.9. Th 6.5. fill **338.**354.
1621	pounder. stone. L 7.7. W 7.6. Th 4.5. fill **338.**354.
1622	bowl. stone. L -8.5. W -7.7. Th 3.3. fill **340.**347.
1623	bowl. stone. L -8.8. W -8.1. Th 1.8. fill **340.**347.
1624	bowl. stone. L -4.6. W -3.2. Th 1.3. fill **340.**347.
1625	bowl. stone. L -8.6. W -5.8. Th 1.8. fill **340.**347.
1626	bowl. stone. L -6.2. W -5.9. Th 2.3. fill **340.**347.
1627	bowl. stone. L -5.9. W -10.1. Th 2.8. fill **340.**347.
1628	bowl. stone. L -8.8. W -5.6. Th 4.1. fill **340.**347.
1629	grooved stone. L -9.9. W 4.7. Th 4.5. fill **340.**347.
1630	hammerstone. L 9.6. W 7.6. Th 4.1. fill **340.**347.
1631	bowl. stone. L -6.3. W -4.3. Th 1.6. fill **338.**355.
1632	bowl. stone. L -5.2. W -5.1. Th 2.5. fill **338.**355.
1633	bowl. stone. L -5. W -3.3. Th 1.5. fill **338.**355.
1634	bowl. stone. L -5.6. W -4.7. Th 1.1. fill **338.**355.
1635	bowl. stone. L -6.2. W -3.7. Th 1.4. fill **338.**355.
1636	bowl. stone. L -6.7. W -3.7. Th 1.6. fill **338.**355.
1637	bowl. stone. L -8.5. W -6.7. Th 1.6. fill **338.**355.
1638	bowl. stone. L -3.8. W -6.4. Th 1.4. fill **338.**355.
1639	bowl. stone. L -6.9. W -13.6. Th 4.2. fill **338.**355.
1640	bowl. stone. L -10.9. W -10.7. Th 3.3. fill **338.**355.
1641	bowl. stone. L -12.3. W -11.4. Th 3. fill **338.**355.
1642	bowl. stone. L -9.8. W -9. Th 4.5. fill **338.**355.
1643	bowl. stone. L -8.1. W -11.3. Th 1.1. fill **338.**355.
1644	bowl. stone. L -9.4. W -8.6. Th 3.1. fill **338.**355.
1645	bowl. stone. L -10.5. W -7.8. Th 2.5. fill **338.**355.
1646	bowl. stone. L -13.6. W 9.7. Th 6.2. fill **338.**355.
1647	bowl. stone. L -7.3. W -4.3. Th 1.2. fill **338.**355.
1648	bowl. stone. L -9.3. W -7.1. Th 2.2. fill **338.**355. Pl. 8.3a,b.
1649	bowl. stone. L -11.2. W -7.8. Th 2.6. fill **338.**355.
1650	bowl. stone. L -8.7. W -7.3. Th 2.2. fill **338.**355.
1651	hammerstone. L 9.8. W 7.6. Th 5.9. fill **338.**355.
1652	hammerstone. L 8.1. W 7.5. Th 4.7. fill **338.**355.
1653	bowl. stone. L -7.7. W -7. Th 1.3. fill **338.**354.
1654	bowl. stone. L -5.6. W -3.7. Th 2.2. fill **338.**354.
1655	hammerstone. L 10.9. W 8.2. Th 3.5. fill **338.**354.
1656	hammerstone. L 9.7. W 8.5. Th 5.3. fill **338.**354.
1657	hammerstone. L 10.4. W 8. Th 6.4. fill **338.**354.
1658	hammerstone. L 5.5. W 5.5. Th 4.1. fill **338.**354.
1659	bowl. stone. L -7.3. W -7.2. Th 1.7. fill **338.**354.
1660	hammerstone. L 9.7. W 7.5. Th 6.2. fill **338.**354.
1661	hammerstone. L 10.8. W 8.11. Th 3.8. fill **338.**354.
1662	hammerstone. L 11.4. W 7.3. Th 3.8. fill **338.**354.
1663	hammerstone. L 8.6. W 7.5. Th 6.2. fill **338.**354.
1664	bowl. stone. L -11. W -7.2. Th 1.6. fill **338.**354.
1665	axe. stone. L -6.4. W 5.1. Th 3.3. fill **133.**282.
1666	hammerstone. L 7.2. W 6.7. Th 4.8. fill **133.**282.
1667	bowl. stone. L -9.3. W -9.6. Th 4.3. fill **133.**282.
1668	hammerstone/grinder. L 9.2. W 8.2. Th 5.3. fill **330.**325.
1669	hammerstone. L 8.1. W 7.6. Th 4.2. fill **133.**282.
1670	misc. object. stone. L 9.4. W 7.4. Th 3.6. fill **133.**282.
1671	hammerstone. L 15.7. W 10.4. Th 6.6. fill **133.**282.
1672	hammerstone. L 10.5. W 9.1. Th 3.5. general **200.**305.
1673	hammerstone. L 9.5. W 7.4. Th 5.4. general **200.**305.
1674	hammerstone. L -7.5. W 7. Th 2.9. general **200.**305.
1675	pounder. stone. L 6.2. W 5.9. Th 5.4. general **200.**305.
1676	hammerstone. L 7.5. W 5.9. Th 4.1. general **200.**305.
1677	bowl. stone. L -5.2. W -4.1. Th 2.1. fill **200.**316.
1678	cupped stone. L 14.5. W 11.7. Th 7.9. fill **200.**316.
1679	pounder. stone. L -6.9. W 1.8. Th 1.5. general **322**.
1680	bowl. stone. L -5.6. W -2.7. Th 1.9. fill **133.**282.
1681	bowl. stone. L -6. W -4.1. Th 2. fill **133.**282.
1682	bowl. stone. L -9.1. W -5.1. Th 1.9. fill **133.**282.
1683	bowl. stone. L -5.5. W -5.3. Th 1.8. fill **133.**282.
1684	bowl. stone. L -9. W 10.2. Th 1.7. fill **133.**282.
1685	bowl. stone. L -5.2. W -3.6. Th 1.5. fill **133.**282.
1686	bowl. stone. L -7.2. W -4.4. Th 1.4. fill **133.**282.
1687	bowl. stone. L -6.6. W 6.7. Th 1.7. fill **133.**282.
1688	hammerstone. L 11.4. W 7.8. Th 5.1. fill **133.**282.
1689	hammerstone. L 15.5. W 9.1. Th 5.2. fill **133.**282.
1690	pounder. stone. L 8.6. W 7.2. Th 3.7. fill **133.**282.
1691	grooved stone. L 7.4. W 4. Th 2.5. fill **133.**282. Pl. 6.6.
1692	bowl. stone. L -7.7. W -5.1. Th 2. fill **133.**282.
1693	hammerstone. L 10.8. W 7.6. Th 4.9. general **200.**305.
1694	hammerstone. L -13.2. W -7.1. Th 5.5. general **200.**305.
1695	hammerstone. L 8.6. W 6.9. Th 6. general **200.**305.
1696	hammerstone. L 11.9. W 8.5. Th 5.6. general **200.**305.
1697	lid. stone. L 11.6. W 9.8. Th 3.6. general **200.**305.
1698	bowl. stone. L -8.9. W -7.1. Th 1.8. fill **337.**335.
1699	bowl. stone. L -9.4. W -7.6. Th 2.9. fill **337.**335.
1700	bowl. stone. L -10.3. W -6.8. Th 2.5. fill **337.**335.
1701	pounder. stone. L 6.8. W 5.5. Th 2. fill **337.**335.
1702	hammerstone. L 9.2. W 7.5. Th 6.6. fill **337.**335.
1703	hammerstone. L 8.8. W 8.2. Th 5. fill **337.**335.
1704	bowl. stone. L 11.8. W 7.2. Th -5.2. fill **337.**335.
1705	bowl. stone. L -3.5. W -1.5. Th -1.7. fill **337.**335.
1706	pounder. stone. L 13.9. W 5.7. Th 4.7. fill **337.**335.
1707	hammerstone. L 9.3. W 8. Th 5.7. fill **337.**335.
1708	bowl. stone. L -9.3. W -6.6. Th 1.7. fill **340.**347.
1709	bowl. stone. L -8.5. W -7.4. Th 1.3. fill **340.**347.
1710	bowl. stone. L -2.8. W -2.4. Th 1.1. fill **340.**347.
1711	bowl. stone. L -13.9. W -12.2. Th 1.3. fill **337.**336. Fig. 46.12.
1712	bowl. stone. L -8.7. W -8.1. Th 2.3. fill **337.**336.
1713	hammerstone. L 7.5. W 6.4. Th 6.2. fill **337.**336.
1714	hammerstone. L 15.5. W 10.3. Th 4.4. fill **337.**336.
1715	bowl. stone. L -6. W -4.8. Th 1.7. fill **338.**354.
1716	bowl. stone. L -7. W -6.7. Th 1.4. fill **338.**354.
1717	bowl. stone. L -10.5. W -5.5. Th 1.5. fill **338.**354.
1718	bowl. stone. L -2.8. W -2.5. Th 1.1. fill **338.**354.
1719	pounder. stone. L 6.1. W 5.7. Th 5.6. fill **338.**354.
1720	pounder. stone. L 8.6. W 8.6. Th 4.9. fill **338.**354.
1721	rubbing stone/grinder. L 9.8. W 5.8. Th 3.3. fill **338.**354.
1722	bowl. stone. L 10.3. W 5.7. Th 1.8. fill **338.**354.
1723	bowl. stone. L 6. W 4.2. Th 1.1. general **200.**305.
1724	hammerstone. L -5.6. W 9.2. Th 5.2. fill **338.**354.
1725	hammerstone. L 12.5. W 11.6. Th 7.3. fill **338.**354.
1726	bowl. stone. L 10.4. W 7.1. Th 1.1. fill **338.**354.
1727	bowl. stone. L -8.2. W -7.3. Th 2.4. fill **337.**335.
1728	bowl. stone. L -7.1. W -4. Th 1.5. fill **337.**335.
1729	hammerstone. L 6.4. W 5.8. Th 5.6. fill **337.**335.
1730	hammerstone. L 6.5. W 5.8. Th 2.8. fill **337.**335.
1731	hammerstone. L 10.3. W 7.2. Th 5.4. fill **337.**335.
1732	bowl. stone. L 4.3. W 3.6. Th 1.1. fill **338.**352.
1733	bowl. stone. L 2.9. W 2.3. Th 1.1. fill **338.**352.
1734	bowl. stone. L -10.2. W -10.1. Th 1.9. fill **338.**352.
1735	hammerstone. L 13.8. W 9.3. Th 5.5. fill **338.**352.
1736	bowl. stone. L -9.1. W -7.3. Th 2.7. fill **337.**336.
1737	bowl. stone. L -5.7. W -4.1. Th 2.2. fill **337.**336.
1738	bowl. stone. L -6.6. W -5.3. Th 3.3. fill **337.**336.
1739	bowl. stone. L -9.4. W -6.7. Th 2.5. fill **337.**336.
1740	pounder. stone. L 7. W 6.6. Th 3.7. fill **337.**336.
1741	pounder. stone. L 6.5. W 6. Th 3.2. fill **337.**336.
1742	pounder. stone. L 5.9. W 5.2. Th 5.1. fill **337.**336.
1743	hammerstone. L 7.2. W 6.3. Th 4.3. fill **337.**336.
1744	hammerstone. L 6. W 4.6. Th 4.5. fill **337.**336.

KMyI	*Class. Material. Dimensions. Feature. Pl., Fig.*
1745	bowl. stone. L -6.4. W -4.1. Th 1.5. fill **338.**353.
1746	bowl. stone. L -11.9. W -8. Th 1.5. fill **340.**348.
1747	bowl. stone. L -6.6. W -5.4. Th 1.5. fill **340.**348.
1748	bowl. stone. L -8.5. W -8.1. Th 2.3. fill **340.**348.
1749	bowl. stone. L -7.5. W -4.6. Th 1.7. fill **340.**348.
1750	grooved stone. L 9.9. W 7.5. Th 2.2. fill **340.**348. Pl. 7.3.
1751	bowl. stone. L -6.1. W -7.4. Th 3. fill **338.**352.
1752	bowl. stone. L -10.9. W -7.3. Th 1.8. fill **338.**352.
1753	bowl. stone. L -6.9. W -5.5. Th 1.9. fill **338.**352.
1754	bowl. stone. L -7.6. W -7.2. Th 2.9. fill **338.**352.
1755	pounder. stone. L 8. W 7.3. Th 3.3. fill **338.**352.
1756	axe. stone. L -5.7. W -5.8. Th -2.8. fill **338.**352.
1757	bowl. stone. L -10. W -6.5. Th 0.8. fill **338.**352.
1758	bowl. stone. L -5.3. W -3.2. Th 1.5. fill **338.**352.
1759	bowl. stone. L -8. W -3.7. Th 1.8. fill **338.**352.
1760	bowl. stone. L -7.9. W -8.1. Th 2.1. fill **338.**352.
1761	grooved stone. L -7.7. W 8.3. Th 3.9. fill **338.**352.
1762	hammerstone. L 6.5. W 3.7. Th 3.5. pit **340.**0.
1763	bowl. stone. L -5.3. W -4.7. Th 1.3. fill **340.**344.
1764	hammerstone. L 9.2. W 5.7. Th 5.2. gully. **351.**350.
1765	bowl. stone. L -13.2. W 12.3. Th 3.8. fill **133.**333.
1766	bowl. stone. L -13.5. W -10.4. Th 5.1. fill **133.**333.
1767	bowl. stone. L -8. W -6. Th -2.8. fill **133.**333.
1768	bowl. stone. L -6.4. W -5.1. Th 2.5. fill **133.**333.
1769	bowl. stone. L -5.6. W -4.9. Th 2.2. fill **133.**333.
1770	hammerstone. L 11.6. W 8.9. Th 6.7. fill **133.**333.
1771	bowl. stone. L -8.1. W -7.1. Th 1.4. fill **133.**282.
1772	bowl. stone. L -3.7. W -3.3. Th 1.2. fill **133.**329.
1773	bowl. stone. L -5.7. W -6. Th 1.6. fill **133.**329.
1774	hammerstone. L 7.8. W 6.9. Th 6.4. fill **133.**329.
1775	hammerstone. L 12.9. W 11.1. Th 7.2. fill **133.**329.
1776	hammerstone. L 19. W 9.4. Th 5.8. fill **133.**329.
1777	hammerstone. L 14.1. W 10.9. Th 8.8. fill **133.**334.
1778	bowl. stone. L -5.3. W -4.8. Th 1.2. fill **133.**282.
1779	bowl. stone. L -7.6. W -5.4. Th 1.5. fill **133.**282.
1780	bowl. stone. L -22.2. W -14.5. Th 4.3. fill **133.**282.
1781	hammerstone. L 9.9. W -8.2. Th 5.6. fill **133.**282.
1782	anvil. stone. L 11.3. W 9.6. Th 6.1. fill **133.**282.
1783	hammerstone. L -9.3. W -7.4. Th 3.4. fill **133.**279.
1784	hammerstone. L 7.2. W 7.2. Th 7. fill **133.**279.
1785	hammerstone. L 11.9. W 9.6. Th 4.8. fill **133.**282.
1786	bowl. stone. L -3.1. W -2.8. Th 0.9. fill **133.**329.
1787	bowl. stone. L -10.5. W -7.5. Th 2. fill **133.**329.
1788	bowl. stone. L -11.1. W -8. Th 2. fill **133.**279.
1789	bowl. stone. L -6.9. W -6. Th 1.3. fill **133.**279.
1790	hammerstone. L 6.1. W 5.2. Th 4. fill **133.**279.
1791	hammerstone.L 11.1. W 9.1. Th 5.3. fill **133.**279.
1792	bowl. L -4.2. W -3. Th -1.8. fill **133.**282.
1793	bowl. stone. L -6.8. W -6.4. Th 2.9. fill **133.**282.
1794	bowl. stone. L -12.3. W -10.8. Th -4.3. fill **133.**282.
1795	bowl. stone. L -14.3. W -9.5. Th 1.6. fill **133.**282.
1796	hammerstone. L 12.2. W -9.1. Th 5.7. fill **133.**282.
1797	misc. object. stone. L -4.2. W -2.9. Th 2.3. fill **133.**329.
1798	bowl. stone. L -6. W -5.9. Th 1.2. fill **133.**279.
1799	bowl. stone. L -15.4. W -8.8. Th 3.2. fill **133.**282.
1800	bowl. stone. L -7. W -5.3. Th 1.3. fill **133.**282.
1801	bowl. stone. L -4.2. W -3.8. Th 1.8. fill **133.**282.
1802	bowl. stone. L -8. W -6.8. Th -3.1. fill **133.**282.
1803	bowl. stone. L -4.1. W -3.1. Th 1.5. fill **133.**264.
1804	bowl. stone. L -2.6. W -1.9. Th 1. fill **133.**282.
1805	bowl. stone. L -5.3. W -3.8. Th 0.8. fill **338.**355.
1806	bowl. stone. L -8.1. W -5.8. Th 1.3. fill **338.**355.
1807	bowl. stone. L -7.9. W -5.3. Th 1.4. fill **338.**355.
1808	bowl. stone. L -4.2. W -4.7. Th 1.2. fill **133.**264.
1809	hammerstone. L 9.4. W 6.1. Th 2.7. fill **338.**355.
1810	pounder. stone. L 10.5. W 7.4. Th 5. fill **338.**355.
1811	hammerstone. L 11.2. W 7.3. Th 4.2. fill **338.**355.
1812	hammerstone. L 11.4. W 7.5. Th 3.1. fill **338.**355.
1813	bowl. stone. L -10.9. W -8.1. Th 3.7. fill **338.**355.
1814	pounder. stone. L 7.6. W 7.3. Th 6.3. fill **338.**355.
1815	hammerstone. L 11.5. W 7.8. Th 4.2. fill **338.**355.
1816	hammerstone. L -7.7. W 7.5. Th 3.9. fill **338.**355.
1817	hammerstone. L 8.4. W 6.5. Th 6. fill **338.**355.
1818	hammerstone. L 10.5. W 8.4. Th 4.6. fill **338.**355.
1819	hammerstone. L -10.2. W 8.5. Th 5.6. fill **338.**355.
1820	bowl. stone. L -9.2. W 7.3. Th 2.8. fill **338.**355.
1821	bowl. stone. L -5.4. W -2.4. Th 2.5. fill **338.**355.
1822	bowl. stone. L -8.8. W -5.1. Th 2.4. fill **338.**355.
1823	bowl. stone. L -7. W -8.8. Th 1.2. fill **338.**355.
1824	grooved stone. L -9.1. W -7.3. Th 3.2. fill **338.**355. Pl. 6.6.
1825	misc. object. stone. L 7.8. W 5.4. Th 2.5. fill **338.**355.
1826	hammerstone. L 8.2. W 6.9. Th 5.5. fill **338.**355.
1827	hammerstone. L 10.7. W 6.8. Th 6.2. fill **338.**355.
1828	hammerstone. L 8.2. W 7.6. Th 4.3. fill **338.**355.
1829	hammerstone. L 10.7. W 10. Th 7.9. fill **338.**355.
1830	hammerstone. L 8.9. W 7.9. Th 5.2. fill **338.**355.
1831	hammerstone. L 8. W 6.7. Th 4.8. fill **338.**355.
1832	hammerstone. L 12.1. W 10.8. Th 4.4. fill **338.**355.
1833	hammerstone. L 12. W -7.6. Th 5.9. fill **338.**355.
1834	hammerstone. L 10.9. W 9.9. Th 5.5. fill **338.**355.
1835	hammerstone. L 7.3. W 6.8. Th 6.6. fill **338.**355.
1836	hammerstone. L 8.2. W 6.3. Th 4.9. fill **338.**355.
1837	hammerstone. L 9.8. W 7. Th 6.5. fill **338.**355.
1838	hammerstone. L 7.5. W -6.1. Th 4.3. fill **338.**355.
1839	hammerstone. L 10.5. W 6.2. Th 3.6. fill **338.**355.
1840	hammerstone. L 11.3. W 9.2. Th 5.6. fill **338.**355.
1841	bowl. stone. L -32.4. W 21.1. Th 1.4. fill **133.**329. Pl. 8.1, Fig. 47.2.
1842	bowl. stone.
1843	bowl. stone. L -16.8. W -1.7. Th 1.5. fill **133.**331.
1844	bowl. stone. L -8.7. W -4.3. Th 2.2. fill **133.**331.
1845	bowl. stone. L 16.2. W 9.5. Th 4.6. fill **133.**331.
1846	bowl. stone. L -8.4. W -7.5. Th 1.9. fill **133.**331.
1847	bowl. stone. L -7.8. W -5.1. Th 1.2. fill **133.**331.
1848	bowl. stone. L -11.2. W -6.6. Th 2.9. fill **133.**331.
1849	bowl. stone. L -10.9. W -4.8. Th 2.8. fill **133.**331.
1850	bowl. stone. L -6. W -4.3. Th 1.7. fill **133.**331.
1851	bowl. stone. L -7.5. W -6.4. Th 2.1. fill **133.**331.
1852	bowl. stone. L -6.3. W -5.9. Th 1.2. fill **133.**331.
1853	bowl. stone. L -3.9. W -2.2. Th 1.2. fill **133.**264.
1854	hammerstone. L 11.1. W 8.7. Th 4.8. fill **133.**331.
1855	hammerstone. L -9.1. W 6.5. Th 4.5. fill **133.**331.
1856	hammerstone. L 7.3. W 5.5. Th 2.4. fill **133.**331.
1857	bowl. stone. L -19.8. W -16.6. Th 2.8. fill **133.**332.
1858	anvil. stone. L 22.3. W 17. Th 10.6. fill **133.**332.
1859	hammerstone. L 10.3. W 9. Th 4.5. fill **338.**355.
1860	hammerstone. L 7.6. W 7.5. Th 3.9. fill **338.**352.
1861	bowl. stone. L -6.8. W -2.9. Th 2.3. fill **338.**352.
1862	bowl. stone. L -7. W -4.1. Th 1.8. fill **338.**352.
1863	hammerstone. L 6.7. W 5.7. Th 3.8. fill **338.**352.
1864	hammerstone. L 11.8. W 9.1. Th 4.3. fill **340.**347.
1865	pounder. stone. L 11.3. W 9.8. Th 7.2. fill **340.**347.
1866	hammerstone. L -10.5. W -7.3. Th 5.2. fill **340.**347.
1867	hammerstone. L 10. W 7.5. Th 5.7. fill **340.**347.
1868	bowl. stone. L 14.1. W -11. Th 3.4. fill **133.**264.
1869	hammerstone. L 9.6. W 9.1. Th 3. fill **338.**356.
1870	hammerstone. L 6.8. W 6. Th 4.4. fill **340.**347.
1871	bowl. stone. L -9.1. W -7.1. Th 2.6. fill **133.**264.
1872	hammerstone. L -6.5. W -7.4. Th 6. fill **340.**347.
1873	hammerstone. L 7.8. W 6.1. Th 6. fill **340.**347.
1874	hammerstone. L 10.2. W 7.4. Th 7. fill **340.**347.
1875	hammerstone. L 6. W 5. Th 4.8. fill **340.**347.
1876	hammerstone. L -8.6. W -7.4. Th -4.7. fill **340.**347.
1877	bowl. stone. L -4. W -3.3. Th 1.2. fill **133.**331.
1878	misc. object. stone. L 8.2. W 7. Th 3.2. fill **133.**331.
1879	bowl. stone. L -15.5. W -10.7. Th 3.8. fill **133.**331.
1880	anvil. stone. L -14.3. W 16.5. Th 6.5. fill **133.**331.
1881	pounder. stone. L 17.5. W 7.5. Th 7.6. fill **133.**331.
1882	pounder. stone. L 7.5. W -6.4. Th 3.9. fill **133.**331.
1883	bowl. stone. L -7.2. W -4.7. Th 1.7. fill **133.**331.
1884	bowl. stone. L -6.2. W -6.1. Th -2. fill **133.**331.
1885	bowl. stone. L -10.2. W -10.2. Th 2.5. fill **133.**331.
1886	hammerstone. L 8.9. W 6.9. Th 4.7. fill **133.**331.
1887	anvil. stone. L -14.1. W -12.3. Th 9.5. fill **133.**331.
1888	bowl. stone. L -10.8. W -8.6. Th 1.5. fill **340.**348.
1889	bowl. stone. L -5.6. W -4. Th 1.5. fill **340.**348.
1890	bowl. stone. L -8.4. W -8. Th -2.6. fill **340.**348.
1891	hammerstone. L 11.8. W -8.4. Th 5.6. fill **340.**348.

KMyl	*Class. Material. Dimensions. Feature. Pl., Fig.*
1892	hammerstone. L 8. W 6.5. Th 3.4. fill **340.**348.
1893	hammerstone. L 10.3. W 4.5. Th 5.4. fill **340.**348.
1894	hammerstone. L 7. W 6.8. Th 6.4. fill **340.**348.
1895	bowl. stone. L -3.8. W -3.3. Th 1.2. fill **133.**331.
1896	bowl. stone. L -5.1. W -4.1. Th 1.3. fill **133.**331.
1897	bowl. stone. L -7. W -5.5. Th 1.3. fill **133.**331.
1898	bowl. stone. L -5.5. W -4.7. Th 1.2. fill **133.**331.
1899	bowl. stone. L -4.5. W -4.1. Th -1.3. fill **133.**331.
1900	bowl. stone. L -6. W -4.3. Th 1.9. fill **133.**331.
1901	haft antler. L -6.7. W -2.9. Th 1. fill **1.**05.
1902	spatula. bone. L -3.2. W 0.9. Th 0.5. general **207**.
1903	shatter fragment. stone. L 0.5. W 0.2. Th 0.2. fill **116.**124.
1904	chip. stone. L 0.7. W 0.5. Th 0.1. fill **116.**124.
1905	spall. stone. L 0.9. W 0.2. Th 0.1. fill **116.**124.
1906	spall. stone. L 1.3. W 0.1. Th 0.2. fill **116.**124.
1907	chip. stone. L 0.5. W 0.3. Th 0.1. fill **116.**124.
1908	blade fragment. stone. L 1.5. W 0.6. Th 0.2. well **116.**0.
1909	bead. antler. L -3.7. fill **108.**02.
1910	needle. bone. L -3.3. W 0.2. Th 0.2. fill **108.**02.
1911	point. bone. L -3.5. W 0.5. Th 0.3. fill **105.**03.
1912	point. bone. L -1.5. W 1. Th 0.4. fill **133.**331.
1913	point. bone. L -5.5. W 2.2. Th 1.2. fill **100.**02.
1914	point. bone. L -7.3. W 1.7. Th 1.3. fill **100.**02. Pl. 16.1, Fig. 71.5.
1915	worked antler. L -8.5. W 1.6. Th 1. fill **1.**05.
1916	misc. object. pottery. L 12.8. fill **300.**257. Fig. 55.5.
1917	deep bowl. pottery. Diam 18. Base diam 7. Ht 10.8. potspread **200.**233. Fig. 52.6.
1918	bottle. pottery. Base diam 4. Ht 16.8. potspread **200.**230/1. Pl. 10.6, Fig. 54.7.
1919	holemouth. pottery. Diam 9. Base diam 4.2. Ht 16.2. potspread **200.**234. Pl. 9.5, Fig. 50.1.
1920	deep tray. pottery. Diam 19. Base diam 22. Ht 13.1. potspread **200.**225. Pl. 10.4, Fig. 50.4.
1921	deep tray. pottery. Diam 22.8. Base diam 23.2. Ht 17.2. potspread **200.**225. Pl. 10.3, Fig. 50.6.
1922	deep bowl. pottery. Diam 20. Ht -18. potspread **200.**244. Fig. 49.4.
1923	deep bowl. pottery. Diam 21. Base diam 6. Ht 14.3. potspread **200.**243. Fig. 49.6.
1924	spouted bowl. pottery. Diam 17.8. Base diam 5.7. Ht 12.3. potspread **200.**266. Pl. 10.1, Fig. 49.3.
1925	deep bowl. pottery. Diam 31. Base diam 7.7. Ht 21. potspread **200.**265. Fig. 49.8.
1926	deep tray. pottery.Diam 35. Base diam 38.5. Ht 17.5. potspread **200.**224. Pl. 10.2, Fig. 50.7.
1927	flask. pottery. Ht 44. potspread **200.**222. Pl. 9.7, Fig. 50.5.
1928	flask. pottery. Diam 5.4. Ht 38. potspread **200.**233. Pl. 9.8, Fig. 54.11.
1929	deep tray. pottery. Ht 13.3. potspread **200.**236. Fig. 48.9.
1930	closed vessel. pottery. Ht -25. potspread **200.**238. Fig. 51.1.
1931	jar stopper. pottery. Diam 4.2. Ht -1.8. fill **300.**257. Fig. 54.8.
1932	misc. object. pottery. L -5.3. W -2.9. Th 2. surface **300.**218.
1933	tray. pottery. Diam 26. Base diam 26. Ht 8.2. Unit **0**. Fig. 49.5.
1934	misc. object. pottery. Th 3.8. general **324**. Fig. 55.6.
1935	daub?. W 3.1. Th 1.5. fill **110.**02.
1936	bead. shell. L -1.1. fill **105.**01.
1937	bead. shell. L -1.6. fill **200.**151.
1938	quern. stone. L -33. W -25.5. Th 4.7. fill **107.**01.
1939	quern. stone. L -33. W 31. Th 5. fill **107.**01.
1940	quern. stone. L -28. W -28.7. Th 3.9. fill **107.**01/02.
1941	quern. stone. L -27. W -23.3. Th 9.7. fill **107.**01/02.
1942	misc. object. pottery. L 4.8. W 3.1. Th -3.1. wall **200.**126.
1943	needle. bone. L -1.9. general **200.**305.
1944	chisel. stone. L -2.8. W 1.3. Th 0.9. wall **200.**126.
1945	axe. stone. L -2.8. W 2.9. Th 1.2. fill **133.**329.
1946	needle. bone. L -1.2. floor **200.**276.
1947	splintered blade. stone. L 2. W 1.1. Th 0.3. fill **133.**282.
1948	bead. shell. L -1.4. floor **200.**276.
1949	bead. shell. L -0.8. floor **200.**276.
1950	pendant. shell. L 1.2. W 1.2. Th 0.4. general **200.**305.
1951	splintered chip. stone. L 0.7. W 0.6. Th 0.2. well **116.**0.
1952	spall fragment. stone. L 0.9. W 0.3. Th 0.3. well **116.**0.
1953	chip. stone. L 0.6. W 0.5. Th 0.2. well **116.**0.
1954	bowl. stone. L -4. W -1.5. Th 0.8. fill **338.**352.
1955	bead. shell. L 1. fill **340.**344.
1956	perforated sherd. L -3.5. W -3.1. Th 1.3. general **213**. Fig. 52.2.
1957	bead. shell. L -1.2. fill **300.**254.
1958	needle. bone. L -2.3. fill **200.**151.
1959	misc. object. stone. L -1.9. W -2.4. Th 0.4. fill **116.**124.
1960	needle. bone. L -0.7. fill **200.**151.
1961	needle. bone. L -0.5. fill **200.**151.
1962	needle. bone. L -0.8. surface **205**.
1963	needle. bone. L 0.1. surface **205**.
1964	point. bone. L 2. W 0.6. Th 0.4. surface **205**.
1965	needle. bone. L -1.5. W 0.3. Th 0.2. **127/128**.
1966	point. bone. L -0.9. W 0.4. Th 0.3. **127/128**.
1967	needle. bone. L -1. fill **179**.
1968	needle. bone. L -0.7. W 0.2. Th 0.1. fill **179**.
1969	perforated sherd. L -4.3. W -3.1. Th 1. wall **200.**126. Fig. 52.3.
1970	misc. sherd. L -3.9. W 3.7. Th 1.5. general **201**.
1971	needle. bone. L -0.8. fill **200.**172.
1972	needle. bone. L -0.6. W 0.2. Th 0.1. fill **200.**172.
1973	needle. bone. L -2.4. fill **1.**05.
1974	needle. bone. L -1.2. W 0.3. Th 0.2. fill **200.**172.
1975	needle. bone. L -1.4. W 0.3. Th 0.2. fill **200.**172.
1976	point. bone. L -3.1. W 0.6. Th 0.5. fill **136.**135.
1977	hammerstone. L 11. W 10.5. Th 3.8. fill **200.**151.
1978	pebble grinder. L 9.5. W 4.5. Th 1.7. occupation deposit **200.**211.
1979	adze. stone. L -5.2. W 3.1. Th 1.3. fill **16.**07.
1980	pebble grinder. L 6.3. W 5.3. Th 1.3. occupation deposit **200.**211.
1981	hammerstone. L -6.7. W -5.7. Th 4.9. stone setting **200.**289.
1982	utilised bladelet. stone. L -1.8. W -0.6. Th 0.3. well **116.**0.
1983	lid. stone. L 12.5. W -9.1. Th 0.8. potspread **200.**263.
1984	bead. shell. L -1.8. occupation deposit **200.**211.
1985	misc. sherd. L -2.1. W -1.7. Th 0.2. Unit **0**.
1986	misc. object. plaster?. L -4. W 2.2. Th 1.7. floor **200.**283.
1987	tray. pottery. Diam 24. Base diam 23. Ht 8. general/ surface **300.**255. Fig. 49.1.
1988	closed vessel. pottery:. Ht -5. potspread **200.**232. Fig. 54.1.
1989.01	worked bone. L -3.4. W -1.5. Th -0.5. fill **1.**05.
1989.02	worked bone. L -3.2. W -1.3. Th -0.4. fill **1.**05.
1990	worked antler. L 15.8. W 2.5. Th -2.1. fill **1.**11.
1991	point. bone. L -5.9. W -1.4. Th -0.8. pit **16.**0.
1992	worked pig tusk. L 3.7. W 0.9. Th 0.3. fill **16.**03.
1993	worked bone. L -3.9. W 0.6. Th 0.3. fill **16.**04.
1994	spatula. bone. L -2.8. W 0.9. Th 0.6. fill **16.**07.
1995	needle. bone. L -4. fill **16.**07.
1996	worked antler. L -12.1. fill **1.**05.
1997	pick. antler. L 43. fill **1.**05.
1998	point. antler. L -5.2. W -1.7. Th 0.8. hearth **1.**02.
1999	haft. antler. L -3.1. fill **1.**01.
2000	haft. antler. L -4.3. fill **1.**01.
2001	point. bone. L -7.4. W 1. Th 0.8. fill **24.**02.
2002	spatula. bone. L -10.3. W -1.8. Th -0.9. fill **16.**04.
2003	point. bone. L -4.7. W -11.7. Th -0.6. pit **16.**0.
2004	haft. antler. L -14.2. W -6.9. fill **16.**04.
2005	point. bone. L -3.1. W -1.4. Th 4.5. fill **16.**07.
2006	point. bone. L -2.8. W -1.2. Th 8.7. fill **1.**05.
2007	point. bone. L -4. W 0.7. Th 0.5. fill **1.**04.
2008	needle. bone. L -1.3. W -0.2. Th -0.1. fill **16.**07.
2009	needle. bone. L -1.2. W 0.3. Th 0.1. fill **16.**07.
2010	worked antler. L -3.4. W -1.8. Th -0.7. fill **1.**05.
2011	worked antler. L -3.6. W -1.6. Th -0.9. pit **5**.
2012	worked antler. L 4.3. fill **1.**11.
2013	worked antler. L -7.1. W -2.4. Th -2.1. fill **1.**11.
2014	flask. pottery. Ht -16.5. potspread **200.**222. Fig. 54.10.
2015	storage jar. pottery. Diam 24. Base diam 14. Ht 55. potspread **200.**223. Fig. 51.3.
2016	storage jar. pottery. Diam 12. Base diam 8. Ht 44. potspread **200.**227. Fig. 51.4.

KMyl	Class. Material. Dimensions. Feature. Pl., Fig.
2017	storage jar. pottery. Diam 14. Base diam 10. Ht 39. potspread **200.**227. Fig. 51.5.
2018	holemouth. pottery. Diam 12. potspread **200.**227. Fig. 50.3.
2019	closed vessel. pottery. potspread **200.**228.
2020	flask. pottery. Diam 6. Ht -23. potspread **200.**228. Fig. 52.7.
2021	closed vessel. pottery. Ht -8.6. potspread **200.**233. Fig. 51.2.
2022	closed vessel. pottery. Diam -63.4. Base diam 5.8. Ht -39.4. potspread **200.**287. Pl. 5.1, 2, Fig. 51.6.
2023	deep bowl. pottery. Diam 41. Base diam 4.4. Ht 31.4. potspread **200**.295. Fig. 49.7.
2024	closed vessel. pottery. Base diam 8. potspread **200**.266. Fig. 49.2.
2025	flaked tool. stone. L 9.2. W 6.1. Th 1.5. Unit **0**.
2026	pebble grinder. L 8.9. W 5. Th 2.8. fill **200**.172.
2027	misc. object. stone. L -1.2. W -0.8. Th -0.8. fill **133**.264.
2028	misc. object. stone. L -4.3. W -3. Th -1. pit **16**.0.
2029	zoomorph?. pottery. L -6.3. W 3.2. Th 2.9. general **213**.

Appendix C: List of Catalogued Finds

During the 1970s excavations, it was not thought necessary to retain very poorly preserved examples of well known types of objects, particularly from surface collections and the fragmentary pieces from pits. Following the practice at Lemba (*LAP* I, 3), these objects were all drawn, recorded and redeposited at the site of Mylouthkia. During post-excavation analysis, it was also decided to include here worked bone and antler items recovered from the faunal assemblage, certain chipped stone from B 200 (all normally kept in a Flint register and deposited together with Registered Finds in the Archaeological Museum, Paphos) and partially restored pottery vessels (see Cat. 238 - 400). The minus (-) sign in front of a dimension indicates the fragmentary axis of an incomplete object. Objects without a (-) sign are complete. In the case of pottery vessels, the L column refers to diam, W/Th column to base diam and Th column to Ht. Measurements are in cms. Illustrated items: Cat. 320 (Pl. 8.6, Fig. 71.13), 399 (Fig. 54.3), 400 (Fig. 53.4), 401 (Fig. 53.3), 402 (Fig. 53.1), 403 (Fig. 48.4).

Cat.	*Class, Pl., Fig.*	*Type*	*Material*	*L*	*W/Th*	*Ht*	*Unit*
1	misc. object		stone				1.02
2	misc. object		stone	-9.4	-7.6	3.4	1.02
3	quern		stone	-19.8	-10.6	1.8	1.02
4	bowl		stone				1.02
5	bowl	1	stone	-10.6	-7.2	7.2	1.02
6	bowl	1	stone	-7.3	-3	4.6	1.02
7	cancelled						
8	bowl		stone				1.09
9	pestle		stone	-11.2	-9	8.8	1.05
10	axe		stone	-6.4	-6.2	2.1	1.05
11	hammerstone	1	stone	8.2	6.7	4.4	1.05
12	rubber	1	stone	-10.6		9	1.05
13	now KMyl 30						
14	bowl		stone				1.05
15	quern	1	stone	-16.1	7.8	2.6	1.05
16	axe		stone	-7.1	5.6	3.9	1.01
17	now KMyl 42						
18	bowl		stone				1.01
19	bowl		stone				1.05
20	axe		stone	7.7	-3.8	1.7	1.02
21	hammerstone	1	stone				1.02
22	axe		stone				1.02
23	axe		stone	-5.7	-3.8	1.5	1.02
24	axe		stone	-10.1	-6	1.2	1.11
25	misc. object		stone				1.11
26	bowl		stone				1.11
27	now KMyl 53						
28	pounder	2	stone	12.2	5.2	2.1	1.11
29	axe		stone	-4.7	6.5	1.5	9
30	rubbing stone	1	stone	12.1	3.6	2.1	1.11
31	hammerstone	1	stone				1.11
32	bowl		stone				1.11
33	misc. object		stone				1.11
34	bowl	4.1	stone	-9.8		-5.6	9
35	bowl		stone	-8.7		-6.1	1.11
36	axe		stone	10.9	4.9	3.1	0
37	pounder	2	stone	14.3	3.4		0
38	pestle		stone	-17.2	6.7		0
39	bowl		stone				0
40	axe		stone	-10.4	-7.2		18
41	rubber	1	stone	-12.6	4.2		0
42	axe		stone	8.6	5.2		0
43	perforated stone	1	stone	-10.2	-3.2		16
44	axe		stone	-9	-4.7		0
45	pestle		stone	10.1	5.8		0
46	axe		stone	9.4	5.8		0
47	misc. object		stone	1.6	0.9		1.02
48	perforated stone	1	stone	7.8	4.1		1.05
49	pottery disc		pottery	-4	3.3		1.13
50	pottery disc		pottery	5.3	-2.6	1	1.11
51	pottery disc		pottery	-3.7	-2.8		1.11
52	misc. object		stone	-4.7	-1.9		1.11
53	axe		stone	8.2	4	2.2	0
54	flaked tool		stone				0
55	flaked tool	2	stone	7.9	5.6		0
56	flaked tool	2	stone	-7.8	5.6	1	0
57	misc. object		stone	-3.5	1.9		0
58	misc. object		stone	-3.8	-3		0
59	pottery disc		pottery	6	-3.2	1.3	0
60	pounder	2	stone	10.2	3.7		0
61	grooved stone		stone	-6.1	3.2		0
62	pottery disc		pottery	4.8	-2.9	1.1	1.05
63	bowl		stone			-5.6	1.05
64	hammerstone	1	stone	-5.2	7	3.2	1.05
65	cupped stone	1	stone	-8.8	12.2	5.6	1.05
66	quern		stone	-9.8		2.2	1.05
67	pottery disc		pottery	3.9	-2.7	0.7	1.05
68	bowl		stone	-8.1	-7	-4.1	1.05
69	pounder	2	stone	11	2.9		1.05
70	pottery disc		pottery	5.8	-3.2	1.2	1.05
71	pounder	2	stone	-7.2	2.8		1.05
72	adze		stone	-4.5	-5.5	-1.4	1.05
73	misc. object		stone	-3.7	-1.9		1.05
74	misc. object		stone	5.2	4.4		0
75	perforated stone	1	stone	-6.7	3.4		1.05
76	bowl		stone	-5.8		-2.9	1.11
77	cupped stone	1	stone	-10.3	-6.2		1.11
78	pestle		stone	-6.9	4		1.11
79	bowl	1	stone	-9	8.8		1.05
80	cupped stone	1	stone	16.4	15		1.11
81	bowl		stone			-8.2	1.11
82	perforated stone	1	stone	-3.1	-2.6		1.15
83	pottery disc		pottery	8	-4.1		0
84	misc. object		stone	-5.3	3.6		1.11
85	bowl		stone	-6.6		2.6	1.11
86	axe		stone	-6.2	-7.8	-3.9	0
87	hammerstone	1	stone				0
88	misc. object		stone	-4.8	-3.9	0.9	16
89	flaked tool	2	stone	-7.2	6.2	2.4	16
90	pestle		stone	-5.8	5.5	3.9	16
91	misc. object		stone	-5.6	-4	0.6	16
92	hammerstone	1	stone	11	10.4	2.8	24
93	axe		stone	8	3.9	-1.2	16
94	flaked tool	1	stone	-7.1	6.2		16
95	misc. object		stone	-6.2	-6.4		16
96	hammerstone/	1	stone	8	5.8	3	24
97	bowl		stone	-12.5	-9.6	6.2	0
98	hammerstone	1	stone	8	7.1	5.5	24.01
99	hammerstone/ grinder	1	stone				24.01
100	misc. object		stone	-7.4	-5.4	5.2	16
101	quern	1	stone	-13	-16	2.8	16
102	quern	1	stone				24.01
103	hammerstone	1	stone				24.01
104	misc. object		stone				24.01
105	hammerstone/ grinder	1	stone				24.01
106	pestle		stone	-8.2	5.9	5.7	24.01
107	hammerstone	1	stone	-8.2	-6.8	-4.8	24.01
108	hammerstone/ grinder	1	stone	-8.6	7.1	3.6	24.02
109	cupped stone		stone	16.5	14	10	24.02

Cat.	Class	Type	Material	L	W/Th	Ht	Unit
110	polisher	1	stone	7.5	6.5		24.02
111	bowl	4.1	stone	-6.6		-7	16.01
112	chisel		stone	-5.3	-3	2.7	16.01
113	rubbing stone	1	stone	-7.8	6.4	3.1	16.01
114	flaked stone	1	stone	-7.4	6.6	6	16.02
115	hammerstone/ grinder	2	stone	-10.6	-6.2	3.4	16.01
116	hammerstone	1	stone	7	6.2	3.6	16.01
117	quern	1	stone	-19.2	9.2	-4.1	16.01
118	hammerstone	1	stone				28.01
119	hammerstone	1	stone	10	7.5	4	28.01
120	misc. object		stone				28.01
121	quern	1	stone	-14.2		-3.6	28.01
122	pounder	1	stone	6.7	6.1	6.1	16
123	hammerstone/ grinder		stone				28.01
124	misc. object		stone				28.01
125	hammerstone	1	stone	8.5	8.5	8.5	28.01
126	polisher	1	stone	4.1	2.6	0.9	16
127	axe		stone	-2.4	-4.8	1.2	16
128	flaked tool	2	stone	-6.8	4.1	1.7	16
129	axe	2	stone	-6	7.6	2.8	16
130	hammerstone/ grinder	1	stone	14	6.8	7.3	16
131	pestle		stone	13	7.6	2.6	16
132	rubber	1	stone	-20.8	10.1	5	16
133	pounder	2	stone	12.2	6	4.9	16
134	hammerstone/ grinder	1	stone	-7.2	7.6	5	16.02
135	cupped stone	1	stone	13.2	10.5	4.8	24.01
136	misc. object		stone	-5.8	5.9	1.8	16.02
137	chisel	3	stone	-5.7	2.6	1.1	16.02
138	bowl		stone	-9.1	9.8	-4.2	24.02
139	misc. object		stone				24.02
140	quern	1	stone	-20.2	-15.8	6.8	16.02
141	quern	1	stone	-24.5	15.1	4.8	16.02
142	bowl	1	stone	14.2	14.2	8.2	16.02
143	misc. object		stone				24.02
144	hammerstone	1	stone				24.02
145	hammerstone	1	stone				24.02
146	hammerstone	1	stone	6.1	4.7	4	24.02
147	rubber	1	stone	11.2		2.4	16.03
148	rubber	1	stone	-10.1	11.3	3	16.03
149	axe		stone	-8	4.9	2.1	16.03
150	axe		stone	-7.4	4.7	2.9	16.03
151	flaked tool	2	stone	10	6.2	3	16
152	pounder	2	stone	13.6	4.8	3.8	16
153	pestle		stone	-9.6	5.9	5.2	16
154	axe		stone	-2.9	-3.1	-2.9	16.03
155	bowl		stone	-8.8		5.4	16
156	bowl		stone	-8.9		-5.2	16
157	hammerstone	1	stone	-14.6	16.2	7.8	16
158	bowl		stone	-13.6	-7.4	5.4	16
159	hammerstone	1	stone	7.5	6.3	3.6	16.03
160	now KMyl 227						
161	misc. object		stone	8.3	4.6	-1	16.03
162	pestle		stone	-6.4	4.2	3.6	16.03
163	pestle		stone				16.04
164	hammerstone/		stone				16.04
165	bowl	3	stone			5.8	16.04
166	misc. object		stone	-4.9	2	2.1	16.04
167	misc. object		stone	-6.2	-5.3	3.1	16.04
168	axe	2	stone	-6	5.9	3.6	16.04
169	hammerstone	1	stone	-6.4	6.1	2.5	16.04
170	axe	2	stone	-8.1	5.5	4.1	16.04
171	misc. object		stone				16.04
172	hammerstone/ grinder		stone	12		5	16.04
173	pounder	2	stone	-9.5	5.2	3.8	16.04
174	misc. object		stone	-9.8	-8.2	4.2	16.04
175	rubbing stone	1	stone	-4.2	6.8	2.5	16.04
176	pestle		stone	12	6.2	6.2	16.04
177	axe		stone	-5.8	-7	-3.8	16.04
178	axe		stone	-4	-5.2	-3.2	16.04
179	axe		stone	-5.6	-3.6	-1.9	16.04
180	misc. object		stone				16.04
181	misc. object		stone	-4	-4.1	1.1	16.04
182	axe		stone	-4.8	-5.2	3.8	16.04
183	axe		stone	-3.6	-3.9	-1.5	16.04
184	axe	2	stone	-6.6	5.8	-3.6	16.04
185	axe	2	stone	-9.4	6.1	4.6	16.04
186	pounder	2	stone	10.7	5	3	16.04
187	hammerstone	1	stone	15	11.1	3.7	16.04
188	bowl		stone			-7.8	16.04
189	cupped stone	1	stone	12.2	10.3	5.1	16.04
190	bowl	3	stone	-12		7.6	16.03
191	hammerstone	1	stone	10.4	6.2	2.5	16.04
192	axe		stone	-6.9	-4.4	-3.2	16.04
193	hammerstone	1	stone	9.1	6.8	3	16.04
194	pestle		stone	-3	8.9	8	16.04
195	misc. object		stone	-7.2	4.2	2	16.04
196	pounder	2	stone	10.1	3.4	2.5	16.04
197	bowl		stone	-12.1		-5.4	16.04
198	bowl		stone				16.04
199	hammerstone	1	stone	12.8	12.7	2.8	16.04
200	hammerstone/ grinder	2	stone	13.8	-10	5.2	16.04
201	axe		stone				16.04
202	axe		stone				16.04
203	axe		stone				16.04
204	axe		stone	-7	-6.4	1.8	16.04
205	flaked tool	1	stone	-6.2	6.6	2	16.04
206	rubber		stone	14.8		3.8	16.04
207	misc. object		stone	-7.4	7.4	2.3	16.04
208	axe		stone	-7.2	-3	1.5	16.04
209	hammerstone	1	stone	7.1	6.4	3.6	16.04
210	pestle		stone	-7.5	5.8	4.7	16.04
211	hammerstone	1	stone	7.4	6.2	4.4	16.04
212	pestle		stone	-7.2	7.4	7	16.04
213	misc. object		stone	-6	5.2	4.1	16.04
214	axe		stone	-5.9	5.6	3.2	16.04
215	misc. object		stone				16.04
216	misc. object		stone	-8.1	-9.9	1.8	16.04
217	cancelled						
218	misc. object		stone				16.04
219	pounder	1	stone	6	5.8	5.2	16.04
220	misc. object		stone	-5.2	-6.7	3	16.04
221	axe		stone	7.6	5.9	1.4	16.04
222	now KMyl 222						
223	misc. object		stone	-5.1	6.2	1.4	16.04
224	quern	1	stone				16.04
225	misc. object		stone				16.04
226	misc. object		stone				16.04
227	pounder	2	stone	-11.1	6.1	4.4	16.04
228	axe		stone	-4.6	-5.2	1.2	16.04
229	axe	2	stone	-4.5	3.9	1.7	16.04
230	flaked tool	2	stone	7.1	4	1.5	16.04
231	hammerstone	1	stone	9.9	8.5	3.1	16.04
232	polisher	1	stone	5.4	3.6	3	16.04
233	cupped stone	1	stone	-10.4	11	4.8	16.04
234	pestle		stone	11.9	6.7	4.7	16.04
235	not used						
236	not used						
237	not used						
238.01	now KMyl 1989.01						
238.02	now KMyl 1989.02						
239	antler debitage		antler	3.4			1.05
239	antler debitage		antler	5.3			1.05
240	antler debitage		antler	5.3			1.11
241.01	antler debitage		antler	10.3	5.7		1.11
241.02	antler debitage		antler	5.8	3.9		1.11
242.01	worked antler tine		antler	6.1			1.11
242.02	antler debitage		antler	3.2			1.11
242.03	now KMyl 2012						
242.04	worked antler tine		antler	3.5			1.11
242.05	now KMyl 2013						
243	now KMyl 1990						
244	worked antler tine		antler	5.2			24.01

Cat.	*Class*	*Type*	*Material*	*L*	*W/Th*	*Ht*	*Unit*
245	now KMyl 1991						
246	antler debitage		antler	14.7			16.02
247	worked bone		bone	6.5			16.03
248	now KMyl 1992						
249.01	antler debitage		antler	5.1			16.04
249.02	antler debitage		antler	5.2			16.04
249.03	antler debitage		antler	4.8			16.04
250	now KMyl 1993						
251	antler debitage		antler	17.9			16.04
252	now KMyl 1994						
253	now KMyl 1995						
254	unworked bone		bone	1.9	0.5		16.07
255	unworked bone		bone	5.2	2.3		1.02
256	now KMyl 1996						
257	now KMyl 1997						
258.01	antler debitage		antler	13.6	5.7		1.02
258.02	now KMyl 1998						
258.03	antler debitage		antler	5.7	1.6		1.02
259.04	now KMyl 1999						
259.05	now KMyl 2000						
260	antler debitage		antler	10.1	3.3		1.02
261	antler debitage		antler	5.1			1.05
262	antler debitage		antler	4.4	3.8		1.11
263	antler debitage		antler	2.5			16.07
264	antler debitage		antler	3.7	1.4		109
265	worked antler tine		antler	5.4	2		108.01
266	worked antler tine		antler	4.8	3.9		101.01
267	worked antler		antler	10.7	2.4		102.01
268	antler debitage		antler	3.9	2.9		100.01
269	worked antler tine		antler	7.8	1.4		100.03
270	worked antler tine		antler	4.6	1.3		100.04
271	haft		antler	-3.7	-1.8		100.04
272	spatula		bone	-4.3	-2.1		100.01
273	antler debitage		antler	2.4	1.1		152.111
274	antler debitage		antler	4.1	1.1		152.163
275	antler debitage		antler	1.6	1.1		152.163
276	antler debitage		antler	3.4	1.3		131
277	antler debitage		antler	3.4	0.9		131
278	large/small robust point		bone	-1.7	0.8		131
279	antler debitage		antler	1.7	0.8		138
280	bead	7	antler	-2.4	1.1		200.155
281	worked antler tine		antler	8.2	2.1		200.117
282	bead	10	antler	-4.1	1.3		137
283	large/small robust point		bone	-3.3	1.1		0
284	large/small robust point		bone	-2.3	1		140
285	bead	11	antler	-2.4	-1.2		200.173
286	large/small robust point		bone	-1.9	6.4		300.197
287	antler debitage		antler	2	0.9		204
288	worked antler tine		antler	-4.3	1.8		204
289	bead	11	antler	-3.3	1.4		204
290	spatula		bone	-7.6	1.3		206
291	needle		bone	-1.2	0.2		210
292	needle		bone	2.1	0.2		210
293	needle		bone	1.6	0.3		210
294	worked bone		bone	5.6	1.6		210
295	worked antler tine		antler	4.6	1.3		200.211
296	bead	11	antler	-3.5	1.4		200.211
297	crude point		bone	-7.7	1.4		213
298	large point		bone	-8.1	1.5		300.218
299	fine point		bone	-2.8	-0.6		300.218
300	needle		bone	-1	0.2		200.254
301	needle		bone	-0.7	0.2		200.254
302	needle		bone	-0.6	0.2		200.254
303	needle		bone	-0.5	0.1		200.254
304	large/small robust point		bone	-2.6	0.9		300.253
305	worked antler		antler	7.9	3.4		300.255
306	worked antler tine		antler	6.2	2.7		300.255
307	fine point		bone	3.9	0.6		300.255
308	antler debitage		antler	3.5	1.1		300.256
309	antler debitage		antler	4.6	3.7		300.257
310	antler debitage		antler	2.9	1.9		300.257
311	antler debitage		antler	5.4	4.6		330.261
312	large point		bone	7.6	1.3		200.271
313	antler debitage		antler	9.9	3.8		200.276
314	antler debitage		antler	2.2	0.9		200.305
315	miniature point		bone	3.3	0.4		200.306
316	large/small robust point		bone	-1.7	1		330.308
317	antler debitage		antler	3	1.4		200.312
318	worked bone		bone	1.7	1		338.352
319	needle		bone	-1.1	1.4		116.124
320	hook, Pl. 8.6, Fig. 71.13		pig tusk	1.3	-1.2		116.192
321	tool resharpening		stone				200.151
322	perforator		stone	4.2	0.3		200.151
323	tool resharpening		stone				200.151
324	denticulate		stone	6.1	0.2		200.151
325	retouched		stone	4.5	0.2		200.151
326	scraper		stone	5.1	0.8		200.151
327	hammerstone		stone				200.151
328	utilised		stone	4.2	0.2		200.151
329	utilised		stone		0.3		200.151
330	utilised		stone	7.3	0.2		200.151
331	flake		stone				200.151
332	misc. tool		stone				200.151
333	platform rejuvenation		stone				200.151
334	blank fragment		stone				200.151
335	blank fragment		stone				200.151
336	blank fragment		stone				200.151
337	notch		stone	4	0.2		200.151
338	utilised		stone	1.9	0.1		200.151
339	utilised		stone		0.2		200.151
340	blank fragment		stone				200.151
341	blank fragment		stone				200.151
342	core tablet		stone				200.151
343	multiple tool		stone	5.2	0.9		200.151
344	utilised		stone	4.1	0.1		200.151
345	notch		stone	3.7	1.3		200.151
346	flake		stone				200.151
347	blank fragment		stone				200.151
348	utilised		stone				200.151
349	blade		stone				200.159
350	blade		stone				200.159
351	blade		stone				200.159
352	blade		stone				200.159
353	burin		stone	6.2	0.7		200.172
354	scraper		stone	6	1.1		200.172
355	scraper		stone	4.6	1.4		200.202
356	utisised		stone		0.2		200.211
357	utilised		stone	6.9	0.1		200.211
358	multiple tool		stone	5.8	0.6		200.211
359	utilised		stone	9.2	0.3		200.211
360	retouched		stone	5	1		200.211
361	utilised		stone	3.8	0.1		200.211
362	utilised		stone	6.8	0.1		200.211
363	perforator		stone	5.4	0.5		200.211
364	scraper		stone	6.3	1.1		200.211
365	utilised		stone		0.5		200.211
366	burin		stone	5.9	0.5		200.211
367	core		stone				200.211
368	flake		stone				200.211
369	blank fragment		stone				200.211
370	blank fragment		stone				200.211
371	perforator		stone	3.8	0.3		200.211
372	retouched		stone		1		200.211
373	scraper		stone	5.7	0.5		200.211
374	blade		stone				200.211
375	utilised		stone	5.3	0.2		200.211
376	platform rejuvenation		stone				200.211
377	blank fragment		stone				200.211
378	flake		stone				200.211

Cat.	Class	Type	Material	L	W/Th	Ht	Unit
379	platform rejuvenation		stone				200.211
380	utilised		stone		0.2		200.211
381	misc. tool		stone				200.211
382	utilised		stone	4.6	0.1		200.211
383	burin		stone	5.4	0.7		200.211
384	utilised		stone	7.2	0.1		200.211
385	utilised		stone	9.5	0.3		200.211
386	blank fragment		stone				200.211
387	burin		stone	6.2	0.4		200.211
388	utilised		stone	1.9	0.1		200.211
389	blank fragment		stone				200.211
390	multiple tool		stone	7.3	1		200.211
391	multiple tool		stone	4	0.1		200.211
392	flake		stone				200.211
393	notch		stone	4	0.7		200.211
394	blank fragment		stone				200.211
395	utilised		stone	4	0.1		200.285
396	flake		stone				200.285
397	chip		stone				200.211
398	chunk		stone				200.211
399	deep bowl, Fig. 54.3		pottery	9	6.3	6.6	24
400	tray, Fig. 53.4		pottery	44	44	9.9	1.05
401	deep tray, Fig. 53.3		pottery	21.2	30.5	18	76
402	tray, Fig. 53.1		pottery	26.7	22.4	8.6	76
403	platter, Fig.48.4		pottery	11.5		10.2	16.04
404	closed vessel		pottery				1.05
405	hammerstone		stone				16..04
406	hammerstone		stone				16.04
407	pebble grinder		stone				16.04
408	anvil		stone				16.04
409	hammerstone		stone				16.04
410	hammerstone		stone				16.04
411	rubbing stone		stone				16.04
412	misc.		stone				16.04
413	misc.		stone				16.0
414	misc.		stone				16.04
415	bowl		stone				16.04
416	cupped stone		stone				16.04
417	rubber		stone				16.04
418	hammerstone		stone				16.04
419	hammerstone/ grinder		stone				16.04
420	pounder		stone				16.04
421	pounder		stone				16.04
422	hammerstone		stone				16.04
423	bowl		stone				16.04
424	hammerstone/ grinder		stone				16.04
425	flaked tool		stone				16.04
426	anvil		stone				16.04
427	bowl		stone				16.04
428	rubbingstone		stone				16.04
429	rubbingstone		stone				16.04
430	hammerstone		stone				16.04
431	hammerstone/ grinder		stone				16.04
432	rubbingstone		stone				16.04
433	rubbingstone		stone				16.04
434	axe		stone				16.04
435	pestle		stone				16.04
436	pounder		stone				16.04
437	hammerstone		stone				16.06
438	flaked tool		stone				16.06
439	hammerstone/ grinder		stone				16.07
440	hammerstone		stone				16.07
441	hammerstone		stone				16.07
442	bowl		stone				16.07
443	pestle		stone				16.07
444	hammerstone		stone				16.07
445	cupped stone		stone				16.07
446	hammerstone		stone				16.07
447	pestle		stone				16.07
448	hammerstone		stone				16.07
449	hammerstone		stone				16.07
450	hammerstone		stone				16.07
451	hammerstone/ grinder		stone				16.07
452	bowl		stone				16.07
453	bowl		stone				16.07
454	axe		stone				16.07
455	axe		stone				16.07
456	bowl		stone				16.07
457	pounder		stone				16.07
458	axe		stone				16.07
459	axe		stone				16.07
460	cupped stone		stone				16.07
461	axe		stone				16.07
462	bowl		stone				16.07
463	adze		stone				16.07
464	flaked tool		stone				16.07
465	misc.		stone				16.07
466	misc.		stone				16.07
467	hammerstone		stone				16.07
468	hammerstone		stone				16.07
469	hammerstone		stone				16.07
470	bowl		stone				77
471	hammerstone/ grinder		stone				16.07
472	hammerstone		stone				16.07
473	hammerstone		stone				16.07
474	hammerstone/ grinder		stone				16.07
475	axe		stone				16.07
476	axe		stone				16.07
477	bowl		stone				77
478	axe		stone				16.07
479	axe		stone				16.07
480	pestle		stone				16.07
481	hammerstone		stone				16.07
482	axe		stone				16.07
483	hammerstone/ grinder		stone				16.07
484	hammerstone/ grinder		stone				16.07
485	flaked tool		stone				16.07
486	axe		stone				16.07
487	adze		stone				16.07
488	misc.		stone				16.07
489	flaked tool		stone				16.07
490	bowl		stone				16.07
491	stopper		stone				16.07
492	misc.		stone				16.07
493	hammerstone		stone				16.07
494	bowl		stone				16.07
495	bowl		stone				16.07
496	misc.		stone				16.07

Appendix D: List of Finds According to Context

Registered small finds have no prefix, Catalogue small finds are prefixed as usual with Cat. As most objects are fragmentary, this descriptor has been omitted. Number(s) or letters following object refer to Type.

KMyl/Cat.	*Object*
Unit 0 (Surface finds)	
1	stone axe, 2.
4	stone bowl, 1.
10	misc. pottery sherd, GB-d.
33	cupped stone, 2.
53	stone bowl.
90	stone bowl, 5.2.
91	stone adze, 2.2.
93	cupped stone, 1.
98	stone figurine.
99	stone chisel, 3.
154	antler bead, 7.
172	stone figurine?
226	unworked obsidian blade.
291	misc. pottery object.
350	stone adze.
351	stone axe.
352	stone polisher, 1.
354	stone axe, 1.
355	flaked stone tool, 1.
363	flaked stone tool, 2.
364	hammerstone/grinder, 1.
381	stone adze, 1.2.
385	stone adze.
402	rubbing stone, 1.
413	stone bowl, 2.
414	hammerstone, 1.
415	stone pounder, 2.
1094	stone axe, 6.
1108	misc. object.
1121	stone bowl.
1125	pebble grinder, 1.
1128	stone axe, 2.
1129	stone axe, 2.
1149	stone bowl.
1150	stone axe-shaped grinder, 2.
1151	misc. pottery sherd, medieval.
1202	bronze coin.
1211	bone spatula.
1212	bone point.
1216	misc. pottery object.
1262	rubbing stone, 1.
1263	pebble grinder, 1.
1423	picrolite figurine.
1539	cupped stone, 1.
1933	pottery tray.
1985	misc. pottery sherd, iron age?.
2025	flaked stone tool, 2.
Cat. 36	stone axe.
Cat. 37	stone pounder, 2.
Cat. 38	stone pestle.
Cat. 39	stone bowl.
Cat. 41	stone rubber, 1.
Cat. 42	stone axe.
Cat. 44	stone axe.
Cat. 45	stone pestle.
Cat. 46	stone axe.
Cat. 53	stone axe.
Cat. 54	flaked stone tool.
Cat. 55	flaked stone tool, 2.
Cat. 56	flaked stone tool, 2.
Cat. 57	misc. stone object.
Cat. 58	misc. stone object.
Cat. 59	pottery disc.
Cat. 60	stone pounder, 2.

KMyl/Cat.	*Object*
Cat. 61	grooved stone.
Cat. 74	misc. stone object.
Cat. 83	pottery disc.
Cat. 86	stone axe.
Cat. 87	hammerstone, 1.
Cat. 97	stone bowl.
Cat. 283	large/small robust bone point.
Pit 1.0	
5	stone axe, 3.2.
274.01	bone needle.
274.02	bone needle.
356	bone point.
1218	picrolite pebble.
Pit fill 1.01	
42	hammerstone/grinder, 1.
45	flaked stone tool, 2.
46	antler bead, 7.
65	pottery disc, 4.
1999	antler haft.
2000	antler haft.
Cat. 16	stone axe.
Cat. 18	stone bowl.
Hearth 1.02	
6	antler bead, 7.
7	misc. stone object.
8	misc. stone object.
9	pottery figurine.
11	worked antler.
12	stone bowl, 1.
13	stone axe, 3.2.
14	pottery disc, 4.
15	stone axe, 2.
16	pottery figurine
17	stone bowl, 4.3.
20	bone point.
21	pottery disc, 3.
22	pottery disc, 4.
50	worked antler.
152	stone figurine.
153	unworked bone.
1245	pottery disc, 2/4.
1246	pottery disc, 4.
1247	pottery disc, 4.
1998	antler point.
Cat. 1	misc. stone object.
Cat. 2	misc. stone object.
Cat. 3	stone quern.
Cat. 4	stone bowl.
Cat. 5	stone bowl, 1.
Cat. 6	stone bowl, 1.
Cat. 20	stone axe.
Cat. 21	hammerstone, 1.
Cat. 22	stone axe.
Cat. 23	stone axe.
Cat. 47	misc. stone object.
Cat. 255	unworked bone.
Cat. 258	antler debitage.
Cat. 258	antler debitage.
Cat. 260	antler debitage.
Pit 1.03	
18	grooved stone, 1.
171	pottery figurine

KMyl/Cat.	*Object*
Pit fill 1.04	
19	worked antler.
2007	bone point.
Pit fill 1.05	
23	stone bowl, 3.
24	stone anvil, 1.
25	stone chisel, 3.
29	cupped stone, 1.
30	stone anvil, 1.
34	bone needle.
35	antler bead, 7.
40	misc. stone object.
41	misc. stone object.
44	picrolite pendant?
48	pottery disc, 4.
49	stone bowl, 2.
52	picrolite figurine.
58	pottery figurine
59	pottery figurine
60	pottery disc, 4.
63	perforated stone, 1.
71	pottery figurine
72	pottery figurine
73	cupped stone, 1.
74	pottery figurine
75	stone bowl, 4.1.
78	human bones.
79	pottery figurine
86	misc. pottery sherd.
87	pottery platter.
88	misc. pottery object.
151	stone bowl.
224.01	rectangular pottery vessel.
224.02	rectangular pottery vessel.
280	bone point.
1240	pottery disc, 4.
1901	antler haft.
1915	worked antler.
1973	bone needle.
1989.01	worked bone.
1989.02	worked bone.
1996	worked antler.
1997	antler pick.
2006	bone point.
2010	worked antler.
Cat. 9	stone pestle.
Cat. 10	stone axe.
Cat. 11	hammerstone, 1.
Cat. 12	stone rubber, 1.
Cat. 14	stone bowl.
Cat. 15	stone quern, 1.
Cat. 19	stone bowl.
Cat. 48	perforated stone, 1.
Cat. 62	pottery disc.
Cat. 63	stone bowl.
Cat. 64	hammerstone, 1.
Cat. 65	cupped stone, 1.
Cat. 66	stone quern.
Cat. 67	pottery disc.
Cat. 68	stone bowl.
Cat. 69	stone pounder, 2.
Cat. 70	pottery disc.
Cat. 71	stone pounder, 2.
Cat. 72	stone adze.

KMyl/Cat.	Object
Cat. 73	misc. stone object.
Cat. 75	perforated stone, 1.
Cat. 79	stone bowl, 1.
Cat. 239	antler debitage.
Cat. 239	antler debitage.
Cat. 261	antler debitage.
Cat. 400	pottery tray.
Cat. 404	pottery flask?
Pit fill 1.09	
Cat. 8	stone bowl.
Pit fill 1.11	
54	pottery disc, 3.
55	bone point.
56	pottery jar stopper.
57	stone axe, 2.
61	pottery disc, 4.
62	stone chisel, 2.2.
64	pottery disc, 3.
66	misc. stone object.
67	stone bowl, 3.
76	pottery disc, ?.
80	stone bowl, 3.
81	stone bowl.
82	antler bead, 7.
84	unworked bone.
160	misc. pottery object.
170	pottery figurine
270	antler bead, 7.
421	pottery disc, 4.
1243	pottery disc, 3.
1244	pottery disc, 4.
1990	worked antler.
2012	worked antler.
2013	worked antler.
Cat. 24	stone axe.
Cat. 25	misc. stone object.
Cat. 26	stone bowl.
Cat. 28	stone pounder, 2.
Cat. 30	rubbing stone, 1.
Cat. 31	hammerstone, 1.
Cat. 32	stone bowl.
Cat. 33	misc. stone object.
Cat. 35	stone bowl.
Cat. 50	pottery disc.
Cat. 51	pottery disc.
Cat. 52	misc. stone object.
Cat. 76	stone bowl.
Cat. 77	cupped stone, 1.
Cat. 78	stone pestle.
Cat. 80	cupped stone, 1.
Cat. 81	stone bowl.
Cat. 84	misc. stone object.
Cat. 85	stone bowl.
Cat. 240	antler debitage.
Cat. 241	antler debitage.
Cat. 241	antler debitage.
Cat. 242	worked antler tine.
Cat. 242	antler debitage.
Cat. 242	worked antler tine.
Cat. 262	antler debitage.
Hearth 1.12	
227	daub.
Pit fill 1.13	
85	pottery figurine
Cat. 49	pottery disc.
Pit fill 1.15	
Cat. 82	perforated stone, 1.
Pit fill 1.16	
83	human bones.

KMyl/Cat.	Object
Pit fill 2B.03	
26	pottery disc, 4.
28	stone bowl.
Pit fill 2B.04	
27	hammerstone, 1.
31	pottery disc, 3.
32	stone bowl, 1.
Pit 5	
273	stone pounder, 2.
284	stone pounder, 1.
285	rubbing stone, 1.
286	stone pounder, 2.
287	hammerstone, 1.
2011	worked antler.
Pit 8	
92	copper hook.
Pit 9	
Cat. 29	stone axe.
Cat. 34	stone bowl, 4.1.
Pit 16.0	
51	stone pendant?.
89	pottery figurine
95	stone bowl.
96	fossil stone pendant, 2.2.
125	misc. stone object.
148	stone chisel, 2.2.
149	pottery zoomorph.
150	stone pounder, 2.
156	stone axe.
157	stone adze, 3.
185	stone bowl.
240	picrolite pendant, 2.15.
271.02	stone polisher, 1.
288	stone bowl, 1.
289	bone spatula.
290	pottery disc, 3.
292	rubbing stone, 1.
293	rubbing stone, 1.
1991	bone point.
2003	bone point.
2028	misc. stone object.
Cat. 43	perforated stone, 1.
Cat. 88	misc. stone object.
Cat. 89	flaked stone tool, 2.
Cat. 90	stone pestle.
Cat. 91	misc. stone object.
Cat. 93	stone axe. Stone.
Cat. 94	flaked stone tool, 1.
Cat. 95	misc. stone object.
Cat. 100	misc. stone object.
Cat. 101	stone quern, 1.
Cat. 122	stone pounder, 1.
Cat. 126	stone polisher, 1.
Cat. 127	stone axe.
Cat. 128	flaked stone tool, 2.
Cat. 129	stone axe, 2.
Cat. 130	hammerstone/grinder, 1.
Cat. 131	stone pestle.
Cat. 132	stone rubber, 1.
Cat. 133	stone pounder, 2.
Cat. 151	flaked stone tool, 2.
Cat. 152	stone pounder, 2.
Cat. 153	stone pestle.
Cat. 155	stone bowl.
Cat. 156	stone bowl.
Cat. 157	hammerstone, 1.
Cat. 158	stone bowl.
Cat. 413	misc. stone object

KMyl/Cat.	Object
Pit fill 16.01	
105	picrolite pendant, 2.15?
106	stone figurine.
108	stone pounder, 2.
111	hammerstone/grinder, 1.
114	stone chisel.
115	stone axe, 3.2.
116	stone axe, 3.2.
117	cupped stone, 2
121	stone chisel, 2.2.
122	stone bowl.
123	stone adze, 1.1.
124	pottery saucer.
127	rubbing stone, 1.
128	hammerstone/grinder, 1.
129	stone adze, 2.1.
131	pottery disc, 4.
132	pottery disc, 3.
133	bone needle.
134	bone needle.
135	antler bead, 11.
140	bone tube.
141	rubbing stone, 1.
142	rubbing stone, 1.
181	stone adze, 3.
223	misc. pottery object.
Cat. 111	stone bowl, 4.1.
Cat. 112	stone chisel.
Cat. 113	rubbing stone, 1.
Cat. 115	hammerstone/grinder, 2.
Cat. 116	hammerstone, 1.
Cat. 117	stone quern, 1.
Pit fill 16.02	
126	stone adze.
136	bone needle.
137	bone needle.
138	stone adze, 1.2.
143	stone axe.
144	hammerstone, 1.
145	stone chisel.
146	stone pounder, 2.
147	stone axe-shaped grinder, 1.
155	pottery figurine
158	hammerstone/grinder, 2.
159	flaked stone tool, 2.
161	stone adze, 4.
162	pestle, 1.
163	bone needle.
164	stone pounder, 2.
1992	worked pig tusk.
Cat. 114	flaked stone, 1.
Cat. 134	hammerstone/grinder, 1.
Cat. 136	misc. stone object.
Cat. 137	stone chisel, 3.
Cat. 140	quern, 1.
Cat. 141	quern, 1.
Cat. 142	stone bowl, 1.
Cat. 246	antler debitage.
Pit fill 16.03	
Cat. 147	stone rubber, 1.
Cat. 148	stone rubber, 1.
Cat. 149	stone axe.
Cat. 150	stone axe.
Cat. 154	stone axe.
Cat. 159	hammerstone, 1.
Cat. 161	misc. stone object.
Cat. 162	stone pestle.
Cat. 190	stone bowl, 3.
Cat. 247	worked bone.

KMyl/Cat.	Object
Pit fill 16.04	
165	stone figurine.
166	pottery figurine
167	stone chisel, 1.2.
168	stone axe, 2.
169	stone axe.
173	hammerstone, 1.
174	pottery figurine
175	perforated stone, 1.
176	conical stone, 1.
177	stone bowl.
178	stone bowl.
179	stone bowl, 1.
180	stone axe-shaped grinder, 1.
182	misc. stone object.
183	stone rubber, 1.
184	stone polisher, 1.
186	fine stone abrader, 1.
187	conical stone, 1.
188	pottery figurine
189	pottery figurine
190	pottery figurine
191	rubbing stone, 1.
194	stone bowl, 4.1.
195	stone rubber, 1.
196	hammerstone/grinder.
197	stone axe-shaped grinder, 1.
198	cupped stone, 1.
199	stone bowl, 1.
200	conical stone, 1.
201	bone point.
202	hammerstone/grinder, 2.
203	conical stone, 1.
204	hammerstone/grinder, 2.
205	stone pounder, 1.
206	stone bowl, 1.
207	stone chisel.
208	antler haft.
210.01	pottery disc, 4.
210.02	pottery disc, 4.
211	stone bowl, 1.
212	stone adze, 1.2.
213	stone adze, 1.1.
214	daub.
215	daub?
216	hammerstone/grinder, 2.
217	hammerstone, 1.
218	conical stone, 1.
219	stone bowl, 7.
220	stone pendant?, 2.?.
221.01	antler bead, 11.
221.02	antler bead, 11.
221.03	antler bead, 11.
221.04	antler bead, 11.
222	flaked stone tool, 1.
228	pottery disc, 4.
229	misc. pottery object.
230	stone adze, 2.2.
231	stone axe, 3.2.
233	antler bead, 11.
234	conical stone, 1.
235	misc. fossil stone object.
236	pottery disc, 3.
237	hammerstone/grinder, 1.
238	conical stone, 1.
241	pottery figurine
258	stone bowl.
275	antler bead, 11.
276.01	bone point.
276.02	bone point.
276.03	bone needle.
276.04	bone needle.
276.05	bone needle.
277.01	bone needle.
277.02	bone needle.
1993	worked bone.
2002	bone spatula.
2004	antler haft.
Cat. 163	stone pestle.
Cat. 164	hammerstone/grinder.
Cat. 165	stone bowl, 3.
Cat. 166	misc. stone object.
Cat. 167	misc. stone object.
Cat. 168	stone axe, 2.
Cat. 169	hammerstone, 1.
Cat. 170	stone axe, 2.
Cat. 171	misc. stone object.
Cat. 172	hammerstone/grinder.
Cat. 173	stone pounder, 2.
Cat. 174	misc. stone object.
Cat. 175	rubbing stone, 1.
Cat. 176	stone pestle.
Cat. 177	stone axe.
Cat. 178	stone axe.
Cat. 179	stone axe.
Cat. 180	misc. stone object.
Cat. 181	misc. stone object.
Cat. 182	stone axe.
Cat. 183	stone axe.
Cat. 184	stone axe, 2.
Cat. 185	stone axe, 2.
Cat. 186	stone pounder, 2.
Cat. 187	hammerstone, 1.
Cat. 188	stone bowl.
Cat. 189	cupped stone, 1.
Cat. 191	hammerstone, 1.
Cat. 192	stone axe. Stone.
Cat. 193	hammerstone, 1.
Cat. 194	stone pestle.
Cat. 195	misc. stone object.
Cat. 196	stone pounder, 2.
Cat. 197	stone bowl.
Cat. 198	stone bowl.
Cat. 199	hammerstone, 1.
Cat. 200	hammerstone/grinder, 2.
Cat. 201	stone axe.
Cat. 202	stone axe.
Cat. 203	stone axe.
Cat. 204	stone axe.
Cat. 205	flaked stone tool, 1.
Cat. 206	stone rubber.
Cat. 207	misc. stone object.
Cat. 208	stone axe.
Cat. 209	hammerstone, 1.
Cat. 210	stone pestle.
Cat. 211	hammerstone, 1.
Cat. 212	stone pestle.
Cat. 213	misc. stone object.
Cat. 214	stone axe.
Cat. 215	misc. stone object.
Cat. 216	misc. stone object.
Cat. 218	misc. stone object.
Cat. 219	stone pounder, 1.
Cat. 220	misc. stone object.
Cat. 221	stone axe.
Cat. 223	misc. stone object.
Cat. 224	stone quern, 1.
Cat. 225	misc. stone object.
Cat. 226	misc. stone object.
Cat. 227	stone pounder, 2.
Cat. 228	stone axe.
Cat. 229	stone axe, 2.
Cat. 230	flaked stone tool, 2.
Cat. 231	hammerstone, 1.
Cat. 232	stone polisher, 1.
Cat. 233	cupped stone, 1.
Cat. 234	stone pestle.
Cat. 249	antler debitage.
Cat. 249	antler debitage.
Cat. 249	antler debitage.
Cat. 251	antler debitage.
Cat. 403	vessel. pottery.
Cat. 405	hammerstone.
Cat. 406	hammerstone.
Cat. 407	pebble grinder.
Cat. 408	stone anvil.
Cat. 409	hammerstone.
Cat. 410	hammerstone.
Cat. 411	rubbingstone.
Cat. 412	misc. stone object.
Cat. 414	misc. stone object.
Cat. 415	stone bowl.
Cat. 416	cupped stone.
Cat. 417	stone rubber.
Cat. 418	hammerstone.
Cat. 419	hammerstone/grinder.
Cat. 420	stone pounder.
Cat. 421	stone pounder.
Cat. 422	hammerstone.
Cat. 423	stone bowl.
Cat. 424	hammerstone/grinder.
Cat. 425	flaked stone tool.
Cat. 426	stone anvil.
Cat. 427	stone bowl.
Cat. 428	rubbingstone.
Cat. 429	rubbingstone.
Cat. 430	hammerstone.
Cat. 431	hammerstone/grinder.
Cat. 432	rubbingstone.
Cat. 433	hammerstone.
Cat. 434	stone axe.
Cat. 435	stone pestle.
Cat. 436	stone pounder.
Pit fill 16.06	
232	pottery figurine
239	bone needle.
257	misc. sherd.
278	bone point.
Cat. 437	hammerstone.
Cat. 438	flaked stone tool.
Pit fill 16.07	
242	antler bead, 11.
243	antler haft.
245	stone bowl, 5.
246	antler bead, 11.
247	bone needle.
248	stone adze, 1.1.
249	stone adze, 1.1.
252	pottery disc, 4.
253	antler bead, 11.
254	antler haft.
256	bone needle.
264	stone pendant, 2.3?.
265	pottery disc, 4.
266	spindle whorl, 1.
267	stone adze, 2.
268	clay object.
269	worked antler.
279	bone needle.
1979	stone adze, 1.
1994	bone spatula.
1995	bone needle.
2005	bone point.
2008	bone needle.
2009	bone needle.
Cat. 254	unworked bone
Cat. 263	antler debitage.
Cat. 439	hammerstone/grinder.
Cat. 440	hammerstone.
Cat. 441	hammerstone/grinder.
Cat. 442	stone bowl.

KMyl/Cat.	Object
Cat. 443	stone pestle.
Cat. 444	hammerstone.
Cat. 445	cupped stone.
Cat. 446	hammerstone.
Cat. 447	stone pestle.
Cat. 448	hammerstone.
Cat. 449	hammerstone.
Cat. 450	hammerstone.
Cat. 451	hammerstone/grinder.
Cat. 452	stone bowl.
Cat. 453	stone bowl.
Cat. 454	stone axe.
Cat. 455	stone axe.
Cat. 456	stone bowl.
Cat. 457	stone pounder.
Cat. 458	stone axe.
Cat. 459	stone axe.
Cat. 460	cupped stone.
Cat. 461	stone axe.
Cat. 462	stone bowl.
Cat. 463	stone adze.
Cat. 464	flaked stone tool.
Cat. 465	misc. stone object
Cat. 466	misc. stone object
Cat. 467	hammerstone.
Cat. 468	hammerstone.
Cat. 469	hammerstone.
Cat. 471	hammerstone/grinder.
Cat. 472	hammerstone.
Cat. 473	hammerstone.
Cat. 474	hammerstone/grinder.
Cat. 475	stone axe.
Cat. 476	stone axe.
Cat. 478	stone axe.
Cat. 479	stone axe.
Cat. 480	stone pestle.
Cat. 481	hammerstone.
Cat. 482	stone axe.
Cat. 483	hammerstone/grinder.
Cat. 484	hammerstone/grinder.
Cat. 485	flaked stone tool.
Cat. 486	stone axe.
Cat. 487	stone adze.
Cat. 488	misc. stone object
Cat. 489	flaked stone tool.
Cat. 490	stone bowl.
Cat. 491	stone stopper.
Cat. 492	misc. stone object
Cat. 493	hammerstone.
Cat. 494	stone bowl.
Cat. 495	stone bowl.
Cat. 496	misc. stone object
Pit fill 16.08	
250	stone chisel, 2.
251	picrolite pendant, 2.18.
255	worked antler.
259	clay pendant, ?
260	stone axe, 2.
262	stone pestle, 2.
263	hammerstone, 1.
Pit 18	
Cat. 40	stone axe.
Pit 24.0	
94	stone adze.
97	copper coin.
Cat. 92	hammerstone, 1.
Cat. 96	hammerstone/grinder, 1.
Cat. 399	deep pottery bowl.

KMyl/Cat.	Object
Pit fill 24.01	
100	pottery figurine?
107	hammerstone/grinder, 1.
109	pottery figurine
110	antler haft.
130	pottery hemibowl.
192.01	pottery disc, 4.
192.02	pottery disc, 2.
192.03	pottery disc, 4.
192.04	pottery disc, 2/4.
Cat. 98	hammerstone, 1.
Cat. 99	hammerstone/grinder, 1.
Cat. 102	stone quern, 1.
Cat. 103	hammerstone, 1.
Cat. 104	misc. stone object.
Cat. 105	hammerstone/grinder, 1.
Cat. 106	stone pestle.
Cat. 107	hammerstone, 1.
Cat. 135	cupped stone, 1.
Cat. 244	worked antler tine.
Pit fill 24.02	
112	stone bowl.
139	bone needle.
193	pottery disc, 4.
2001	bone point.
Cat. 108	hammerstone/grinder, 1.
Cat. 109	cupped stone.
Cat. 110	stone polisher, 1.
Cat. 138	stone bowl.
Cat. 139	misc. stone object.
Cat. 143	misc. stone object.
Cat. 144	hammerstone, 1.
Cat. 145	hammerstone, 1.
Cat. 146	hammerstone, 1.
Surface scatter 25	
101	stone bowl, 4.1.
102	hammerstone/grinder, 2.
Pit fill 28.01	
118	stone pendant?, 2.?.
119	antler bead, 10.
120	pottery figurine
225.01	rectangular pottery vessel.
225.02	rectangular pottery vessel.
Cat. 118	hammerstone, 1.
Cat. 119	hammerstone, 1.
Cat. 120	misc. stone object.
Cat. 121	stone quern, 1.
Cat. 123	hammerstone/grinder.
Cat. 124	misc. stone object.
Cat. 125	hammerstone, 1.
Pit 29	
271.01	misc. copper object.
Cadastral plot 57d	
69	flaked stone tool, 1.
70	hammerstone, 1.
Cadastral plot 58	
281	stone bowl.
282	stone bowl.
283	grooved stone, 1.
294	hammerstone/grinder, 1.
295	stone bowl, 1.
296	stone bowl, 6.
Cadastral plot 58b	
68	flaked stone tool, 1.

KMyl/Cat.	Object
Cadastral plot 76	
36	stone chisel, 1.1.
43	worked antler.
47	stone figurine.
113	flaked stone tool, 1.
209	stone pendant, 2.5?.
Cat. 401	deep pottery tray.
Cat. 402	pottery tray.
Cadastral plot 77	
77	stone bowl, 4.1.
103	stone bowl, 5.
104	stone axe, 3.2.
244	cupped stone, 2.
261	stone bowl, 1.
Cat. 470	stone bowl.
Cat. 477	stone bowl.
Cadastral plot 77b	
37	stone chisel, 2.2.
38	flaked stone tool, 1.
39	cupped stone, 2.
Cadastral plot 78	
2	stone adze, 2.1.
3	pestle, 2.
Cadastral plot 89	
549	picrolite pendant, 2.2.
550	stone adze, 1.
551	flaked stone tool, 2.
552	stone axe-shaped grinder, 2.
553	stone adze.
554	stone axe-shaped grinder, 2.
555	stone chisel, 3.
556	stone axe, 1.
557	stone axe, 2.
558	stone bowl, 3.
559	stone axe, 3.
560	stone axe, 2.
561	stone bowl.
562	stone pendant?, ?.
563	stone chisel, 2.2.
Pit 100.0	
412	pottery figurine
564	stone anvil, 1.
565	stone bowl, 2.
566	hammerstone, 1.
567	pestle, 1.
Pit fill 100.01	
568	flaked stone tool, 1.
569	cupped stone, 1.
570	pebble grinder, 1.
Cat. 268	antler debitage.
Cat. 272	bone spatula.
Pit fill 100.02	
389	worked pig tusk.
442	pottery hemibowl.
443	pottery tray.
571	stone pounder, 2.
572	misc. pottery object.
1269	stone chisel.
1913	bone point.
1914	bone point.
Pit fill 100.03	
304	pottery figurine
390	bone point.
573	stone quern, 2.
574	cupped stone, 1.

KMyl/Cat.	Object
576	stone pounder, 2.
577	rubbing stone, 1.
578	stone rubber, 1.
579	stone bowl, 1.
580	stone adze.
581	stone jar stopper, 1.
582	rubbing stone, 2.
583	stone pounder, 1.
584	stone figurine roughout.
585	stone bowl, 1.
Cat. 269	worked antler tine.

Pit fill 100.04

298	stone jar stopper, 1.
Cat. 270	worked antler tine.
Cat. 271	antler haft.

Pit fill 101.01

586	pebble grinder, 1.
Cat. 266	worked antler tine.

Pit 102.0

587	stone pounder, 2.
588	flaked stone tool, 2.
589	hammerstone/grinder, 2.

Pit fill 102.01

590	stone bowl, 1.
591	rubbing stone, 1.
1162	stone bowl.
Cat. 267	worked antler.

Ditch 103.0

592	stone anvil, 1.

Ditch fill 103.02

593	stone axe, 3.

Pit fill 104.01

444	pottery tray.
594	dentalium shell bead, 8.
595	stone pounder, 2.

Pit fill 104.02

597	stone pounder, 2.

Ditch fill 105.01

305	picrolite pendant, 2.1.
357	misc. pottery object.
598	stone axe.
599	stone axe, 2.
601	stone polisher, 1.
602	stone axe, 3.
603	flaked stone tool, 2.
604	stone axe-shaped grinder, 1.
605	stone axe, 2.
606	pebble grinder, 1.
607	flaked stone tool, 2.
608	misc. stone object.
609	stone pounder, 1.
610	flaked stone tool, 1.
611	stone pounder, 2.
612	stone axe.
613	pebble grinder, 1.
614	misc. stone object.
615	stone axe.
616	flaked stone tool, 2.
617	flaked stone tool, 2.
618	stone axe, 3.
619	flaked stone tool, 2.
620	flaked stone tool, 1.
621	pebble grinder, 1.
622	stone axe.
623	misc. stone object.
624	stone axe, 3.
625	fine stone abrader, 1.
626	stone quern, 2.
627	stone anvil, 1.
628	stone rubber, 1.
629	stone rubber, 1.
630	stone anvil, 1.
631	rubbing stone, 1.
632	stone bowl, 2.
633	stone pounder, 1.
634	stone bowl.
635	cupped stone, 2.
636	hammerstone, 1.
637	stone rubber, 1.
638	stone pounder, 1.
639	hammerstone, 1.
640	hammerstone/grinder, 1.
641	stone bowl, 3.
642	stone pounder, 1.
643	hammerstone, 1.
644	stone bowl, 1.
645	cupped stone, 2.
646	stone rubber, 1.
647	stone bowl, 1.
648	stone lid, 1.
649	hammerstone, 1.
659	misc. stone object.
660	stone pestle.
1936	dentalium shell bead, 8.

Ditch fill 105.02

651	stone axe.
652	misc. stone object.
653	hammerstone, 1.
654	stone pounder, 2.
655	stone adze, 2.2.
656	stone axe, 1.
657	stone pestle, 1.
658	stone axe-shaped grinder, 1.
661	perforated pottery sherd.

Ditch fill 105.03

1911	bone point.

Ditch fill 106.01

299	fine stone abrader, 1.
453	stone mortar, 1.
662	stone pounder, 1.
663	stone polisher, 1.
664	stone axe, 2.
665	stone adze.
666	stone bowl, 1.
667	stone axe, 2.
668	hammerstone, 1.
669	hammerstone, 1.
670	rubbing stone, 1.
671	stone quern.

Ditch 107.0

1167	hammerstone.

Ditch fill 107.01

306	stone bowl, 1.
672	stone quern.
673	stone axe-shaped grinder, 2.
674	stone axe.
675	hammerstone, 1.
676	stone bowl.
677	hammerstone/grinder, 1.
678	misc. stone object.
679	cupped stone, 1.
680	pottery disc, 4.
681	cupped stone, 1.
682	stone bowl.
683	perforated stone, 1.
684	flaked stone tool, 1.
685	perforated sherd.
686	misc. stone object.
687	stone lid, 1.
688	pebble grinder, 1.
689	stone bowl, 4.1.
690	stone axe.
692	pebble grinder, 1.
693	stone bowl, 1.
694	stone axe, 3.
695	stone axe-shaped grinder, 2.
696	stone pounder, 2.
697	stone axe-shaped grinder, 2.
698	pebble grinder, 1.
699	stone pounder, 2.
749	pebble grinder, 1.
1938	stone quern.
1939	stone quern.

Ditch fill 107.01/.02

301	stone figurine.
411	pottery lid.
700	stone bowl.
701	hammerstone, 1.
702	hammerstone/grinder, 2.
703	cupped stone, 2.
704	hammerstone, 1.
705	hammerstone/grinder, 2.
706	stone axe, 1.
707	stone axe.
1165	stone axe.
1166	rubbing stone, 1.
1940	stone quern.
1941	stone quern.

Ditch fill 107.02

709	stone axe, 4.
710	stone bowl.
711	stone bowl.

Pit fill 108.01

712	stone axe, 2.
713	pebble grinder, 1.
714	flaked stone tool, 1.
715	stone axe, 3.
716	misc. stone object.
717	misc. stone object.
718	stone pounder, 2.
719	stone axe-shaped grinder, 1.
720	stone axe, 2.
721	hammerstone, 1.
722	stone axe, 3.
723	stone pestle.
724	pebble grinder, 1.
725	stone axe.
728	misc. stone object.
729	misc. stone object.
730	stone axe.
731	flaked stone tool, 2.
732	stone pounder, 2.
733	misc. stone object.
734	stone pounder, 2.
735	stone pounder, 2.
736	stone axe, 3.
738	misc. stone object.
739	misc. stone object.
740	flaked stone tool, 2.
741	stone axe-shaped grinder, 1.
742	stone axe.
745	flaked stone tool, 1.
746	stone axe-shaped grinder, 1.
747	stone axe, 3.
751	stone bowl, 4.3.
752	pottery disc, 2.
754	pottery disc, 2.
755	pottery disc, 1.
756	pottery disc, 2.
757	stone jar stopper, 1.

KMyl/Cat.	*Object*
758	misc. pottery object.
759	stone rubber, 1.
760	stone pounder, 2.
761	cupped stone, 1.
762	hammerstone, 1.
763	stone bowl, 1.
764	stone bowl, 2.
765	hammerstone/grinder, 1.
766	cupped stone, 1.
767	stone bowl, 1.
769	stone bowl, 4.1.
770	stone bowl.
771	stone bowl.
772	conical stone, 1.
773	stone anvil, 1.
774	conical stone, 1.
1174	stone bowl.
Cat. 265	worked antler tine.

Pit fill 108.02

300	grooved stone, 1.
445	pottery tray.
775	misc. pottery sherd.
776	flaked stone tool, 1.
777	stone pounder, 2.
778	stone axe, 2.1.
779	misc. stone object.
780	misc. stone object.
781	misc. stone object.
782	misc. stone object.
783	stone axe-shaped grinder, 1.
784	misc. stone object.
786	flaked stone tool, 1.
787	stone polisher, 1.
788	hammerstone, 1.
789	flaked stone tool, 1.
790	flaked stone tool, 1.
791	hammerstone/grinder, 1.
792	stone adze, 2.1.
793	hammerstone/grinder, 2.
795	pottery figurine?.
796	hammerstone, 1.
797	misc. stone object.
798	stone bowl, 1.
799	hammerstone, 1.
800	stone pounder, 1.
801	hammerstone/grinder, 1.
802	flaked stone tool, 2.
803	hammerstone, 1.
804	hammerstone, 1.
805	stone bowl, 2.
806	hammerstone, 1.
807	hammerstone, 1.
808	hammerstone, 1.
809	hammerstone, 1.
810	stone pounder, 1.
811	fine stone abrader, 1.
812	stone bowl, 6.
813	stone rubber, 1.
1909	antler bead, 11.
1910	bone needle.

Pit fill 108.03

785	pottery disc, 4.
794	stone bowl, 2.

Pit 109.0

814	stone chisel, 2.2.
815	stone axe, 3.
816	stone axe, 2.
818	cupped stone, 2.
819	stone axe-shaped grinder, 2.
820	pebble grinder, 1.
821	stone bowl, 3.
822	stone adze, 5.

KMyl/Cat.	*Object*
823	stone chisel, 2.1.
824	stone bowl, 1.
825	hammerstone, 1.
826	hammerstone, 1.
827	hammerstone/grinder, 2.
828	stone pounder, 2.
829	cupped stone, 2.
830	cupped stone, 2.
831	conical stone, 2.
Cat. 264	antler debitage.

Pit fill 109.01

832	stone bowl.
833	hammerstone/grinder, 2.
834	hammerstone, 1.
835	stone bowl.
836	stone bowl, 1.
837	stone pounder, 2.
838	pebble grinder, 1.
839	hammerstone/grinder, 1.
840	hammerstone/grinder, 1.
841	hammerstone/grinder, 1.
842	stone bowl.
843	stone bowl.
844	cupped stone, 1.
845	stone anvil, 1.
846	hammerstone, 1.
847	hammerstone/grinder, 1.
848	stone bowl.

Pit fill 109.02

302	stone figurine.
850	stone bowl, 1.
851	cupped stone, 1.
852	pebble grinder, 1.
853	stone bowl, 4.4.
854	pottery disc, 2.
855	stone rubber, 1.
856	cupped stone, 1.
857	hammerstone, 1.
858	hammerstone/grinder, 1.
859	hammerstone, 1.
860	stone bowl, 2.
861	cupped stone, 1.

Pit fill 109.03

303	stone bowl, 3.1.
307	pottery figurine.
906	stone bowl, 4.1.
907	stone bowl.
908	stone bowl, 4.2.
910	pottery disc, 1.
911	stone bowl.
912	cupped stone, 1.
913	stone pounder, 2.
914	cupped stone, 1.
915	hammerstone, 1.
916	pebble grinder, 1.
917	stone bowl.
918	misc. stone object.
919	stone pounder, 2.
920	stone axe-shaped grinder, 1.
921	stone pounder, 2.
922	stone bowl, 2.
923	hammerstone/grinder, 1.
924	stone bowl, 1.
925	stone jar stopper, 1.
926	hammerstone, 1.
927	stone pounder, 2.
928	hammerstone, 2.
929	hammerstone, 1.
930	hammerstone, 1.
931	hammerstone, 1.
932	stone anvil, 1.
933	stone pounder, 2.

KMyl/Cat.	*Object*
1163	hammerstone, 1.
1164	hammerstone, 1.
1271	pottery figurine?

Pit fill 109.04

862	pottery figurine?
863	stone bowl, 1.
864	stone bowl, 1.
865	stone bowl, 2.
866	stone bowl, 2.
867	flaked stone tool, 2.
868	stone axe-shaped grinder, 1.
869	stone adze.
871	stone pestle, 1.
872	stone bowl, 4.1.
873	stone rubber, 1.
874	stone pounder, 2.
875	hammerstone, 1.
876	hammerstone, 1.
877	hammerstone, 1.
878	stone bowl, 4.1.
879	stone bowl.
880	stone bowl.
881	pebble grinder, 1.

Pit fill 109.04/05

882	stone anvil, 1.

Pit fill 109.06

883	stone rubber, 1.
884	stone bowl, 2.
885	stone bowl.
886	perforated stone, 1.
887	perforated stone, 1.
888	stone pounder, 2.
889	misc. stone object.
890	hammerstone, 1.
891	stone figurine.

Pit fill 109.07

892	pottery disc, 4.
893	perforated stone, 1.
894	hammerstone, 1.
895	stone anvil, 1.
896	pottery disc, 2.

Pit general 109.08

897	hammerstone, 1.
898	cupped stone, 1.
899	stone axe, 3.
900	cupped stone, 1.
901	pebble grinder, 1.
902	rubbing stone, 1.
903	stone pounder, 2.
904	stone bowl, 1.
905	flaked stone tool, 2.

Well 110.0

934	stone bowl.
935	hammerstone, 1.
936	stone pounder, 2.
1112	flaked stone tool, 1.

Well fill 110.01

448	pottery hemibowl.
937	stone bowl.
938	stone rubber, 1.
939	hammerstone, 1.
940	stone bowl, 2.
941	hammerstone, 1.
942	stone pounder, 2.
943	hammerstone, 1.
944	rubbing stone, 1.
945	pebble grinder, 1.
946	stone lid, 1.
947	flaked stone tool, 2.

KMyl/Cat.	*Object*
948	flaked stone tool, 2.
949	stone pounder, 2.
950	hammerstone, 1.
951	stone bowl.
952	stone pounder, 1.
953	stone pounder, 2.
954	conical stone, 2.
955	stone pounder, 2.

Well fill 110.02

956	rubbing stone, 1.
957	pebble grinder, 1.
958	hammerstone, 1.
959	hammerstone, 1.
960	stone pounder, 2.
961	hammerstone, 1.
962	stone pounder, 2.
964	stone pounder, 2.
1935	daub?

Well fill 110.03

965	stone bowl, 4.1.
966	stone rubber, 1.
967	stone bowl, 1.
968	hammerstone, 1.
969	misc. stone object.
970	stone bowl.
971	stone pounder, 2.
972	stone pounder, 2.
973	hammerstone, 1.
974	misc. stone object.
976	pebble grinder, 1.
977	rubbing stone, 1.
978	stone axe, 3.
979	stone bowl, 1.
980	stone bowl, 1.
981	rubbing stone, 1.
982	stone pounder, 2.
983	stone pounder, 2.
984	stone rubber, 1.
985	stone anvil, 1.
986	stone axe, 1.
987	flaked stone tool, 1.

Well fill 110.04

297	stone bowl.
493	stone bowl.
727	hammerstone, 1.
989	rubbing stone, 1.
990	pebble grinder, 1.
991	flaked stone tool, 2.
992	stone bowl, 1.
993	stone jar stopper, 1.
994	stone anvil, 1.
995	stone pounder, 1.
996	hammerstone, 1.
997	stone pestle, 1.

General 113

353	antler bead, 7.
403	stone pounder, 2.
1206	bone point.
1261	stone axe, 2.

Well 116.0

360	stone polisher, 1.
386	hammerstone, 1.
999	stone bowl.
1042	stone bowl.
1080	hammerstone, 1.
1081	hammerstone, 1.
1082	stone bowl.
1083	stone bowl, 1.
1084	hammerstone, 1.
1091	obsidian bladelet, 3.

KMyl/Cat.	*Object*
1222	obsidian blade fragment.
1312	hammerstone, 1.
1908	obsidian blade fragment.
1951	obsidian splintered chip.
1952	obsidian spall fragment.
1953	obsidian chip.
1982	obsidian utilised bladelet.

Well fill 116.114

365	cupped stone, 1.

Well fill 116.123

358	stone bowl.
359	hammerstone/grinder, 1.

Well fill 116.124

366	cupped stone, 1.
367	stone pounder, 2.
368	stone bowl, 5.
369	stone anvil, 1.
370	cupped stone, 1.
371	stone pounder, 2.
372	flaked stone tool, 1.
373	stone pounder, 2.
374	stone bowl, 1.
378	worked shell.
383	stone bowl, 1.
391	stone pounder, 2.
409	hammerstone, 1.
423	hammerstone, 1.
427	stone bowl, 1.
428	misc. stone object.
998	misc. stone object.
1000	stone bowl, 3.
1001	hammerstone, 1.
1002	stone bowl, 3.
1004	hammerstone, 1.
1005	hammerstone, 1.
1006	misc. stone object.
1007	stone bowl.
1008	hammerstone/grinder, 1.
1009	stone pounder, 1.
1010	hammerstone, 1.
1011	hammerstone, 1.
1012	stone bowl.
1013	hammerstone, 1.
1015	misc. stone object.
1016	hammerstone, 1.
1017	stone pounder, 2.
1018	hammerstone, 1.
1019	rubbing stone, 1.
1020	hammerstone, 1.
1021	misc. stone object.
1022	stone pounder, 2.
1023	cupped stone, 1.
1024	hammerstone, 1.
1025	stone bowl, 1.
1026	stone pounder, 1.
1027	hammerstone, 1.
1028	stone anvil, 1.
1031	stone bowl, 1.
1032	misc. stone object.
1033	hammerstone, 1.
1034	stone bowl, 1.
1035	hammerstone, 1.
1036	misc. stone object.
1037	cupped stone, 1.
1038	cupped stone, 1.
1039	hammerstone, 1.
1040	misc. stone object.
1041	stone pounder, 1.
1045	hammerstone, 1.
1046	stone anvil, 1.
1050	misc. stone object.

KMyl/Cat.	*Object*
1059	stone bowl, 2.
1060	rubbing stone, 2.
1061	stone pounder, 1.
1062	hammerstone, 1.
1063	hammerstone, 1.
1064	hammerstone, 1.
1065	stone anvil, 1.
1066	stone bowl, 1.
1067	stone bowl, 1.
1068	stone anvil, 1.
1069	stone bowl, 3.
1070	stone bowl, 1.
1071	stone bowl, 3.
1072	stone pounder, 2.
1073	cupped stone, 1.
1074	stone bowl, 3.
1075	misc. stone object.
1076	misc. stone object.
1077	hammerstone, 1.
1078	hammerstone, 1.
1079	stone pounder, 2.
1086	stone pounder, 2.
1087	stone pounder, 2.
1099	stone pounder, 1.
1100	rubbing stone, 1?.
1101	stone pounder, 2.
1102	stone pounder, 2.
1171	stone bowl, 4.1.
1172	stone bowl, 4.1.
1175	incised stone.
1217	obsidian utilised blade.
1219	bone point.
1220	stone flake.
1224	obsidian splintered blade.
1225	obsidian splintered bladelet.
1226	obsidian splintered bladelet.
1227	obsidian chip
1228	cowrie shell bead.
1229	obsidian bladelet segment.
1230	cowrie shell bead.
1903	obsidian shatter fragment.
1904	obsidian chip.
1905	obsidian spall.
1906	obsidian spall.
1907	obsidian chip.
1959	misc. stone object.
Cat. 319	bone needle.

Well fill 116.191

1029	stone anvil, 1.
1030	hammerstone, 1.
1043	hammerstone, 1.
1044	hammerstone, 1.
1047	cupped stone, 1.
1048	hammerstone/grinder, 1.
1049	stone pounder, 1.
1051	stone pounder, 1.
1052	hammerstone, 1.
1053	misc. stone object?.
1054	hammerstone, 1.
1055	cupped stone, 1.
1056	stone bowl, 2.
1057	misc. stone object.
1058	stone bowl, 1.
1088	hammerstone/grinder, 2.
1089	stone pounder, 1.
1090	stone pounder, 2.
1095	hammerstone, 1.
1096	stone axe, 1.
1097	cupped stone, 1.
1098	hammerstone, 1.
1103	grooved stone, 2.
1170	stone pendant, 2.5?.
1173	stone axe, 1.

KMyl/Cat.	Object

Well fill 116.192

1092	hammerstone, 1.
1221	obsidian splintered/utilised blade.
1223	obsidian splintered chip.
Cat. 320	pig tusk hook.

General 131

446	pottery tray, CW.
Cat. 276	antler debitage.
Cat. 277	antler debitage.
Cat. 278	large/small robust bone point.

Well 133.0

1336.29	hammerstone, 1.
1427	stone bowl.

Well fill 133.260

387	stone bowl.
388	stone bowl, 1.
1181	human bones.
1252	hammerstone, 1.
1301.01	stone bowl.
1301.02	stone bowl.
1301.03	stone bowl, 1.
1301.05	stone bowl.
1301.06	stone bowl.
1301.07	stone bowl.
1301.08	stone bowl.
1301.10	stone bowl.
1301.12	stone bowl.
1301.13	stone bowl.
1301.14	stone bowl.
1301.19	stone bowl.
1301.24	stone bowl.
1301.25	stone bowl.
1301.26	stone bowl, 3.
1301.27	stone bowl.
1304	hammerstone, 1.
1307.03	stone bowl, 4.1.
1307.04	stone bowl, 1.
1307.05	stone bowl, 2.
1307.06	stone bowl.
1307.07	stone bowl.
1307.08	stone bowl.
1307.11	stone bowl, 4.1.
1307.12	stone bowl.
1307.13	stone bowl.
1307.14	stone bowl, 2.
1307.15	stone bowl, 4.1.
1307.16	stone bowl.
1307.17	stone bowl.
1307.18	cupped stone, 1.
1307.23	stone bowl, 2.
1310	hammerstone, 1.
1311	hammerstone, 1.
1313	hammerstone, 1.
1314	hammerstone, 1.
1315	hammerstone, 1.
1316	stone polisher, 1.
1317	hammerstone, 1.
1318	hammerstone/grinder, 2.
1319	hammerstone, 1.
1320.01	stone bowl, 4.1.
1320.02	stone bowl.
1320.03	stone bowl, 3.
1321	hammerstone, 1.
1322	hammerstone, 1.
1333	bone point.

Well fill 133.264

575	stone bowl.
750	hammerstone, 1.
753	stone bowl.
768	stone bowl.
1168	stone bowl.
1254	stone bowl.
1289	stone bowl.
1301.04	stone bowl.
1301.09	stone bowl.
1301.11	stone bowl.
1301.15	stone bowl.
1301.16	stone bowl.
1301.17	stone bowl.
1301.18	stone bowl.
1301.20	stone bowl.
1301.21	stone bowl, 1.
1301.22	stone bowl.
1301.23	stone bowl.
1301.28	stone bowl, 3.
1301.29	stone bowl, 4.1.
1301.30	stone bowl.
1301.31	stone bowl.
1301.32	stone bowl.
1301.33	stone bowl.
1301.34	stone bowl, 4.1.
1301.35	stone bowl.
1302	hammerstone, 1.
1303	rubbing stone, 1.
1305	stone bowl.
1306	hammerstone, 1.
1307.01	stone bowl.
1307.02	stone bowl, 1.
1307.09	stone bowl.
1307.10	stone bowl.
1307.19	stone bowl.
1307.20	stone bowl.
1307.21	stone bowl, 1.
1307.22	stone bowl, 1.
1307.24	stone bowl, 1.
1307.25	stone bowl, 3.
1308	rubbing stone, 1.
1309	hammerstone, 1.
1323	cupped stone, 1.
1324	hammerstone, 1.
1325	stone pounder, 2.
1326	hammerstone, 1.
1327	hammerstone, 1.
1328	hammerstone, 1.
1329	hammerstone, 1.
1330	stone pounder, 1.
1331	stone pounder, 2.
1332	stone bowl.
1334	hammerstone, 1.
1336.01	hammerstone, 1.
1336.02	hammerstone, 1.
1336.03	hammerstone, 1.
1336.04	hammerstone, 1.
1336.05	hammerstone, 1.
1336.06	hammerstone, 1.
1336.07	hammerstone, 1.
1336.08	hammerstone, 1.
1336.09	hammerstone, 1.
1337	stone pounder, 1.
1338	hammerstone, 2.
1447	stone bowl.
1803	stone bowl.
1808	stone bowl.
1853	stone bowl.
1868	stone bowl, 1.
1871	stone bowl.
2027	misc. stone object.

Well fill 133.278

435	stone bowl.
1336.10	hammerstone, 1.
1336.11	hammerstone, 1.
1336.12	hammerstone, 1.
1336.13	hammerstone, 1.
1336.14	hammerstone, 1.
1336.15	hammerstone, 1.
1336.17	hammerstone, 1.
1336.18	hammerstone, 1.
1336.20	hammerstone, 1.
1339.01	stone bowl, 2.
1339.02	stone bowl, 3.
1339.03	stone bowl.
1339.04	stone bowl, 3.
1339.05	stone bowl.
1339.06	stone bowl, 4.1.
1339.07	stone bowl, 4.1.
1339.08	stone bowl.
1339.09	stone bowl.
1339.10	stone bowl, 4.1.
1339.11	stone bowl.
1339.12	stone bowl.
1339.13	stone bowl, 3.
1339.14	stone bowl, 2.
1339.15	stone bowl, 3.
1339.16	stone bowl, 3.
1339.17	stone bowl.
1339.18	stone bowl.
1339.19	stone bowl.
1361	cupped stone, 1.
1362	hammerstone, 1.
1363	stone pounder, 1.
1364	perforated stone disc.
1365	misc. stone object.
1369	stone pounder, 1.
1370	stone bowl, 4.1.
1371	hammerstone/grinder, 1.
1372	hammerstone, 1.
1373	grooved stone, 1.

Well fill 133.279

401	stone bowl, 3.
406	stone bowl.
691	stone bowl.
708	stone bowl.
743	stone bowl, 4.1.
817	stone bowl.
849	stone bowl.
870	stone bowl, 1.
909	stone bowl, 3.
975	stone bowl.
1105	stone bowl, 1.
1116	stone bowl, 1.
1138	stone bowl.
1157	stone bowl.
1336.16	hammerstone, 1.
1336.19	hammerstone, 1.
1336.21	hammerstone, 1.
1366	stone bowl, 3.
1367	hammerstone, 1.
1368	stone pounder, 2.
1394	stone bowl, 4.2.
1593	hammerstone, 1.
1597	hammerstone, 1.
1598	stone bowl.
1783	hammerstone, 1.
1784	hammerstone, 1.
1788	stone bowl.
1789	stone bowl.
1790	hammerstone, 1.
1791	hammerstone, 1?.
1798	stone bowl.

KMyl/Cat.	Object
Well fill 133.282	
1003	stone bowl.
1114	stone bowl, 4.1.
1176	stone bowl, 4.1.
1209	stone bowl, 4.
1237	stone bowl, 4.1.
1238	stone bowl.
1239	stone bowl, 3.
1336.22	hammerstone, 1.
1336.23	hammerstone, 1.
1336.24	hammerstone, 1.
1336.25	hammerstone, 1.
1336.26	stone anvil, 1.
1336.27	hammerstone, 1.
1336.28	hammerstone, 1.
1374	misc. stone object.
1376	stone bowl, 4.1.
1377	hammerstone/grinder, 1.
1378	stone bowl, 3.
1428	stone bowl, 4.1.
1429	stone bowl.
1430	stone bowl.
1431	stone bowl, 2.
1433	stone bowl.
1434	stone bowl.
1435	stone bowl.
1436	stone bowl.
1437	stone bowl.
1438	stone bowl.
1439	stone bowl.
1440	stone bowl.
1441	stone bowl.
1442	stone bowl.
1443	stone bowl.
1444	stone bowl, 1.
1445	stone bowl.
1450	stone anvil, 1.
1451	stone bowl.
1452	stone bowl.
1454	stone bowl.
1455	stone bowl.
1456	stone bowl.
1457	stone bowl.
1458	stone pounder, 1.
1459	hammerstone, 1.
1460	stone bowl.
1461	stone bowl.
1462	stone bowl, 3.
1463	stone pounder, 1.
1464	stone bowl, 2.
1465	stone bowl.
1489	hammerstone, 1.
1492	stone pounder, 1.
1493	hammerstone, 1.
1494	hammerstone, 1.
1495	stone bowl.
1496	stone bowl.
1497	misc. stone object.
1498	stone bowl.
1499	stone pounder, 1.
1500	stone bowl, 2.
1501	stone bowl, 1.
1502	hammerstone, 1.
1503	hammerstone, 1.
1504	hammerstone, 1.
1505	stone macehead, 1.
1506	stone bowl.
1511	stone bowl, 1.
1512	stone bowl.
1513	stone bowl, 1.
1514	hammerstone, 1.
1515	hammerstone, 1.
1516	stone bowl, 4.1.
1517	stone bowl, 4.1.
1518	hammerstone, 1.
1519	hammerstone, 1.
1530	stone bowl.
1531	stone bowl, 4.1.
1532	grooved stone, 1.
1533	misc. stone object.
1544	stone bowl.
1545	stone bowl, 1.
1546	stone bowl, 3.
1547	stone bowl.
1549	stone polisher, 1.
1550	hammerstone, 1.
1563	stone bowl.
1564	misc. stone object.
1565	stone bowl, 4.1.
1566	stone bowl.
1567	hammerstone, 1.
1568	hammerstone, 1.
1569	stone anvil, 1.
1570	stone anvil, 1.
1571	stone bowl, 3.
1572	hammerstone, 1.
1573	cupped stone, 2.
1574	hammerstone, 1.
1575	stone bowl, 3.
1576	stone bowl.
1577	stone bowl.
1578	stone bowl, 1.
1579	stone bowl, 3.
1580	stone bowl, 3.
1581	stone bowl.
1582	stone bowl.
1583	stone bowl, 1.
1584	stone bowl.
1585	hammerstone, 1.
1586	hammerstone, 1.
1587	stone bowl.
1588	stone bowl.
1589	stone bowl, 4.1.
1590	stone bowl, 1.
1591	hammerstone, 1.
1592	stone bowl.
1594	hammerstone, 1.
1595	hammerstone/grinder, 2.
1596	stone bowl, 1.
1599	hammerstone, 1.
1600	hammerstone, 1.
1601	stone bowl, 1.
1602	stone bowl.
1603	stone bowl.
1604	stone bowl.
1605	stone bowl.
1606	hammerstone, 1.
1607	hammerstone, 1.
1608	stone bowl.
1609	stone bowl, 3.
1610	stone bowl.
1611	hammerstone, 1.
1612	hammerstone, 1.
1613	stone bowl, 1.
1614	stone bowl, 1.
1665	stone axe, 2.
1666	hammerstone, 1.
1667	stone bowl.
1669	hammerstone, 1.
1670	misc. stone object.
1671	hammerstone, 1.
1680	stone bowl.
1681	stone bowl.
1682	stone bowl.
1683	stone bowl.
1684	stone bowl, 4.1.
1685	stone bowl.
1686	stone bowl, 4.1.
1687	stone bowl, 3.
1688	hammerstone, 1.
1689	hammerstone, 1.
1690	stone pounder, 2.
1691	grooved stone, 1.
1692	stone bowl.
1771	stone bowl, 4.1.
1778	stone bowl.
1779	stone bowl.
1780	stone bowl.
1781	hammerstone, 1.
1782	stone anvil, 1.
1785	hammerstone, 1.
1792	stone bowl.
1793	stone bowl.
1794	stone bowl.
1795	stone bowl, 4.1.
1796	hammerstone, 1.
1799	stone bowl, 1.
1800	stone bowl.
1801	stone bowl.
1802	stone bowl.
1804	stone bowl.
1947	splintered obsidian blade.
Well fill 133.329	
1520	stone bowl, 4.1.
1521	stone bowl, 4.2.
1522	stone bowl, 3.
1523	stone bowl, 4.2.
1524	stone bowl.
1525	stone bowl, 4.2.
1526	stone bowl, 4.2.
1527	stone bowl.
1528	stone bowl.
1529	stone bowl.
1536	stone bowl.
1537	stone bowl, 1.
1540	stone bowl, 4.1.
1541	stone bowl, 4.1.
1542	stone bowl.
1543	stone bowl.
1772	stone bowl.
1773	stone bowl, 3.
1774	hammerstone, 1.
1775	hammerstone, 1.
1776	hammerstone, 1.
1786	stone bowl.
1787	stone bowl.
1797	misc. stone object.
1841	stone bowl, 4.2.
1945	stone axe, 4.
Well fill 133.331	
1446	hammerstone, 1.
1448	hammerstone, 1.
1449	hammerstone, 1.
1453	stone bowl, 3.
1507	stone bowl, 3.
1508	stone bowl.
1509	stone bowl.
1510	hammerstone, 1.
1548	stone bowl.
1554	stone bowl, 4.2.
1555	stone bowl, 4.2.
1556	stone bowl, 4.1.
1557	hammerstone, 1.
1558	hammerstone, 1.
1559	hammerstone, 1.
1560	hammerstone, 1.
1561	hammerstone, 1.
1562	hammerstone, 1.
1842	stone bowl, 2.
1843	stone bowl, 3.
1844	stone bowl, 3.

KMyl/Cat.	Object
1845	stone bowl, 3.
1846	stone bowl.
1847	stone bowl, 3.
1848	stone bowl.
1849	stone bowl, 4.1.
1850	stone bowl.
1851	stone bowl.
1852	stone bowl, 1.
1854	hammerstone, 1.
1855	hammerstone, 1.
1856	hammerstone, 1.
1877	stone bowl.
1878	misc. stone object.
1879	stone bowl.
1880	stone anvil, 1.
1881	stone pounder, 2.
1882	stone pounder, 1.
1883	stone bowl, 1.
1884	stone bowl.
1885	stone bowl, 4.1.
1886	hammerstone, 1.
1887	stone anvil, 1.
1895	stone bowl.
1896	stone bowl.
1897	stone bowl, 3.
1898	stone bowl.
1899	stone bowl.
1900	stone bowl.
1912	bone point.
Well fill 133.332	
1551	hammerstone, 1.
1552	hammerstone, 1.
1553	misc. stone object.
1857	stone bowl, 1.
1858	stone anvil, 1.
Well fill 133.333	
1765	stone bowl, 4.1.
1766	stone bowl.
1767	stone bowl.
1768	stone bowl.
1769	stone bowl, 3.
1770	hammerstone, 1.
Well fill 133.334	
1777	hammerstone, 1.
General 134	
375	stone bowl.
Pit fill 136.135	
384	stone pounder, 1.
1976	bone point.
General 137	
377	dentalium shell bead, 8.
395	hammerstone, 1.
1234	stone rubber, 1.
1235	flaked stone tool, 2.
Cat. 282	antler bead, 10.
General 138	
393	hammerstone/grinder, 2.
394	hammerstone/grinder, 1.
Cat. 279	antler debitage.
General 140	
1232	stone chisel.
1236	bone needle.
Cat. 284	large/small robust bone point.
Pit 147.141	
392	stone pounder, 1.

KMyl/Cat.	Object
Pit fills 144.127/145.128	
1965	bone needle.
1966	bone point.
Building 152.0	
449	antler bead, 10.
450	stone pounder, 2.
451	stone quern, 2.
Building fill 152.111	
376	hammerstone/grinder, 2.
407	hammerstone, 1.
Cat. 273	antler debitage.
Stone setting 152.122	
397	stone pounder, 1.
398	stone quern.
405	misc. stone object.
Building 152.153	
447	pottery holemouth.
Stone setting 152.154	
452	stone quern.
Building general 152.163	
408	axe, 1.
Cat. 274	antler debitage.
Cat. 275	antler debitage.
Building fill 152.182	
430	cupped stone, 1.
431	stone quern.
432	stone quern.
433	misc. stone object.
434	stone quern, 2.
Hearth 152.183	
436	pottery tray.
437	pottery flask.
Pit fill 156.157	
429	stone anvil, 1.
Pit fill 166.150	
416	stone pounder, 2.
417	stone pounder, 2.
1199	dentalium shell bead, 8.
General 167	
420	pottery burnisher?.
Surface 177	
422	flaked stone tool, 1.
Fill 179	
1967	bone needle.
1968	bone needle.
General 195	
1266	stone bowl, 1.
1267	stone quern.
1490	stone pounder, 1.
1491	stone bowl, 1.
Building general 200.117	
379	bone needle.
380	bone needle.
382	stone chisel, 3.
396	bone spatula.
1233	hammerstone, 1.
Cat. 281	worked antler tine.
Wall 200.126	
1295	hammerstone/grinder, 2.
1300	stone axe, 1.
1385	hammerstone, 1.
1418	hammerstone, 3.

KMyl/Cat.	Object
1419	flaked stone tool, 2.
1420	hammerstone, 1.
1468	stone pounder, 1.
1469	stone bowl, 1.
1470	stone bowl.
1471	stone adze.
1479	hammerstone/grinder, 2.
1942	misc. pottery object.
1944	stone chisel, 2.
1969	perforated pottery sherd.
Building fill 200.151	
404	stone adze, 1.1.
480	stone lid, 1.
481	stone axe, 2.
482	rubbing stone, 1.
483	bone point.
484	bone point.
499	stone axe, 5.
515	stone axe, 3.2.
516	stone axe, 2.
517	stone axe, 2.
518	fine stone abrader, 1.
519	bone point.
520	stone lid, 1.
521	conical stone, 2.
523	stone lid, 1.
530	stone axe, 2.
531	stone pendant, 2.15?.
532	stone lid, 1.
533	stone lid, 1.
534	misc. picrolite? object.
535	fine stone abrader, 1.
536	stone polisher, 1.
537	dentalium shell bead, 8.
538	stone axe, 1.
539	stone pounder, 2.
540	bone point.
541	stone axe, 2.
542	stone axe, 3.2.
543	stone adze, 2.2.
544	antler bead, 11.
1937	dentalium shell bead, 8.
1958	bone needle.
1960	bone needle.
1961	bone needle.
1977	hammerstone, 1.
Cat. 321	chipped stone tool resharpening.
Cat. 322	chipped stone perforator.
Cat. 323	chipped stone tool resharpening.
Cat. 324	denticulate chipped stone.
Cat. 325	retouched chipped stone.
Cat. 326	chipped stone scraper.
Cat. 327	hammerstone.
Cat. 328	utilised chipped stone.
Cat. 329	utilised chipped stone.
Cat. 330	utilised chipped stone.
Cat. 331	chipped stone flake.
Cat. 332	misc. stone tool.
Cat. 333	platform rejuvenation chipped stone.
Cat. 334	stone blank.
Cat. 335	stone blank.
Cat. 336	stone blank.
Cat. 337	chipped stone notch.
Cat. 338	utilised chipped stone.
Cat. 339	utilised chipped stone.
Cat. 340	stone blank.
Cat. 341	stone blank.
Cat. 342	stone core tablet.

KMyl/Cat.	Object
Cat. 343	multiple chipped stone tool.
Cat. 344	utilised chipped stone.
Cat. 345	chipped stone notch.
Cat. 346	chipped stone flake.
Cat. 347	stone blank.
Cat. 348	utilised chipped stone.
Building fill 200.155	
399	stone chisel, 1.1.
410	dentalium shell bead, 8.
424	stone pestle.
425	hammerstone, 1.
Cat. 280	antler bead, 7.
Building fill 200.159	
418	rubbing stone, 1.
419	stone rubber, 1.
1178	hammerstone/grinder, 1.
Cat. 349	chipped stone blade.
Cat. 350	chipped stone blade.
Cat. 351	chipped stone blade.
Cat. 352	chipped stone blade.
Building fills 200.159/170	
1482	stone bowl, 1.
1483	stone rubber, 1.
1484	stone anvil, 1.
1485	stone axe.
1486	rubbing stone, 1.
1487	stone bowl.
1488	hammerstone, 1.
Potspread 200.168	
426	stone pestle, 3.
438	deep pottery tray.
439	pottery bottle.
Potspread 200.169	
441	pottery holemouth.
Building fill 200.172	
1294	bone needle.
1971	bone needle.
1972	bone needle.
1974	bone needle.
1975	bone needle.
2026	pebble grinder, 1.
Cat. 353	chipped stone burin.
Cat. 354	chipped stone scraper.
Floor 200.173	
1417	picrolite pendant, 2.15.
Cat. 285	antler bead, 11.
Potspread 200.180	
272	stone polisher, 1.
440	closed pottery vessel.
Building fill 200.202	
400	dentalium shell bead, 8.
454	dentalium shell bead, 8.
455	dentalium shell bead, 8.
456	dentalium shell bead, 8.
1179	stone chisel, 1.1.
1260	stone lid, 1.
1264	flaked stone tool, 1.
1466	rubbing stone, 1.
1467	stone pestle.
1475	hammerstone/grinder, 1.
1476	misc. stone object.
1477	hammerstone, 1.
1478	stone bowl.
Cat. 355	stone scraper.

KMyl/Cat.	Object
Occupation deposit 200.211	
457	pottery flask.
458	stone polisher, 1.
459	stone adze, 5.
460	stone axe, 3.2.
461	stone axe, 3.2.
462	stone axe, 2.
463	stone axe, 2.
464	stone axe, 2.
465	stone adze, 1.2.
466	stone adze, 1.2.
467	stone chisel, 2.2.
468	semi-perforated stone cone, 1.
469	stone jar stopper, 1.
470	stone adze, 4.
471	stone axe, 3.2.
472	stone pestle, 3.
473	pottery lid.
474	stone axe, 3.2.
475	stone axe, 3.2.
476	stone lid, 1.
477	stone adze, 2.2.
478	dentalium shell bead, 8.
479	stone pounder, 2.
485	dentalium shell bead, 8.
486	stone lid, 1.
487	stone pestle, 3.
488	stone axe, 3.1.
489	stone axe, 2.
490	stone axe, 2.
491	stone jar stopper, 1.
492	stone axe, 2.
494	stone lid, 1.
495	hammerstone/grinder, 2.
496	stone pounder, 2.
497	stone pounder, 2.
498	fine stone abrader, 1.
500	stone lid, 1.
501	stone lid, 1.
502	flaked stone tool, 1.
503	stone lid, 1.
504	stone axe, 3.2.
505	stone lid, 1.
506	stone adze, 2.1.
507	stone axe, 3.2.
508	stone axe, 3.2.
509	bone point.
510	hammerstone/grinder, 2.
511	hammerstone, 1.
512	stone lid, 1.
513	hammerstone, 1.
514	dentalium shell bead, 8.
522	hammerstone/grinder, 2.
524	stone adze, 3.
525	hammerstone, 1.
526	stone axe-shaped grinder, 2.
527	stone adze, 2.2.
528	bead, 11.
529	stone adze.
1161	stone chisel.
1177	stone pounder, 1.
1180	pinch pot.
1182	stone axe, 1.
1183	bone needle.
1184	dentalium shell bead, 8.
1185	conical stone, 3.
1186	hammerstone, 1.
1187	picrolite pendant, 2.2.
1188	stone rubber, 1.
1189	stone quern.
1190	stone quern.
1191	stone rubber, 1.
1192	pivot stone, 1.
1193	bone point.

KMyl/Cat.	Object
1194	antler bead, 11.
1195	antler bead, 11.
1197	human bones.
1198	stone axe-shaped grinder, 2.
1268	misc. stone object.
1272	stone pestle, 2.
1277	stone axe, 2.
1278	stone axe, 2.
1280	stone quern.
1281	stone axe, 1.
1282	antler bead, 11.
1283	antler bead, 11.
1284	antler bead, 11.
1286	worked shell?.
1287	misc. stone object.
1288	antler bead, 11.
1292	stone quern.
1293	stone rubber, 2.
1296	bone needle.
1297	stone axe-shaped grinder, 2.
1335	perforated stone, 1.
1353	antler bead, 11.
1379	stone lid, 1.
1407	stone lid, 1.
1472	stone quern.
1473	stone bowl.
1474	hammerstone, 1.
1978	pebble grinder, 1.
1980	pebble grinder, 1.
1984	dentalium shell bead, 8.
Cat. 295	worked antler tine.
Cat. 296	antler bead, 11.
Cat. 356	utilised chipped stone.
Cat. 357	utilised chipped stone.
Cat. 358	multiple chipped stone tool.
Cat. 359	utilised chipped stone.
Cat. 360	retouched chipped stone.
Cat. 361	utilised chipped stone.
Cat. 362	utilised chipped stone.
Cat. 363	chipped stone perforator.
Cat. 364	chipped stone scraper.
Cat. 365	utilised chipped stone.
Cat. 366	chipped stone burin.
Cat. 367	chipped stone core.
Cat. 368	chipped stone flake.
Cat. 369	stone blank.
Cat. 370	stone blank.
Cat. 371	chipped stone perforator.
Cat. 372	retouched chipped stone.
Cat. 373	chipped stone scraper.
Cat. 374	chipped stone blade.
Cat. 375	utilised chipped stone.
Cat. 376	platform rejuvenation.
Cat. 377	stone blank.
Cat. 378	chipped stone flake.
Cat. 379	chipped stone platform rejuvenation.
Cat. 380	utilised chipped stone.
Cat. 381	misc. stone tool.
Cat. 382	utilised chipped stone.
Cat. 383	chipped stone burin.
Cat. 384	utilised chipped stone.
Cat. 385	utilised chipped stone.
Cat. 386	blank stone.
Cat. 387	chipped stone burin.
Cat. 388	utilised chipped stone.
Cat. 389	stone blank.
Cat. 390	multiple chipped stone tool.
Cat. 391	multiple chipped stone tool.
Cat. 392	chipped stone flake.
Cat. 393	chipped stone notch.
Cat. 394	stone blank.
Cat. 397	stone chip.
Cat. 398	stone chunk.

KMyl/Cat.	Object
Building fill 200.215	
1120	stone bowl.
Stone setting 200.221	
1341	rubbing stone, 1.
Potspread 200.222	
1927	pottery flask.
2014	pottery flask.
Potspread 200.223	
2015	pottery storage jar.
Potspread 200.224	
1926	deep pottery tray.
Potspread 200.225	
1920	deep pottery tray.
1921	deep pottery tray.
Potspread 200.227	
2016	pottery storage jar.
2017	pottery storage jar.
2018	pottery holemouth.
Potspread 200.228	
2019	closed pottery vessel.
2020	pottery flask.
Potspread 200.230/1	
1918	pottery bottle.
Potspread 200.232	
1988	closed pottery vessel.
Potspread 200.233	
1273	conical stone, 3.
1274	hammerstone/grinder, 1.
1275	stone lid, 1.
1276	hammerstone/grinder, 1.
1917	deep pottery bowl.
1928	pottery flask.
2021	closed pottery vessel.
Potspread 200.234	
1919	pottery holemouth.
Potspread 200.236	
1929	deep pottery tray.
Potspread 200.238	
1930	closed pottery vessel.
Potspread 200.243	
1923	deep pottery bowl.
Potspread 200.244	
1922	deep bowl.
Building fill 200.254	
545	bone needle.
546	stone axe-shaped grinder, 2.
547	hammerstone/grinder, 1.
548	antler bead, 11.
1957	dentalium shell bead, 8.
Cat. 300	bone needle.
Cat. 301	bone needle.
Cat. 302	bone needle.
Cat. 303	bone needle.
Potspread 200.263	
1983	stone lid, 1.
Potspread 200.265	
1925	deep pottery bowl.
Potspread 200.266	
1924	spouted pottery bowl.
2024	closed pottery vessel.

KMyl/Cat.	Object
Building general 200.270	
1196	dentalium shell bead, 8.
1279	stone pounder, 2.
1285	stone pounder, 1.
1291	stone adze.
Hearth 200.271	
1298	stone rubber, 1.
1299	stone bowl.
Cat. 312	large bone point.
Building misc. 200.275	
1414	hammerstone, 1.
1415	hammerstone, 1.
1416	hammerstone, 1.
Floor 200.276	
1290	hammerstone/grinder, 1.
1946	bone needle.
1948	dentalium shell bead, 8.
1949	dentalium shell bead, 8.
Cat. 313	antler debitage.
Floor 200.283	
650	stone bowl.
1360	stone axe, 2.
1381	flaked stone tool, 2.
1382	misc. stone object.
1383	flaked stone tool, 2.
1384	stone bowl.
1480	stone rubber, 1.
1481	stone bowl.
1986	misc. white object?
Artefact spread 200.285	
1340	dentalium shell bead, 8.
1342	flaked stone tool, 2.
1344	flaked stone tool, 2.
1345	stone axe.
1346	bone spatula.
1347	pebble grinder, 1.
1348	rubbing stone, 1.
1386	stone rubber, 1.
1395	stone pounder, 1.
1397	rubbing stone, 1.
1398	hammerstone, 1.
1411	dentalium shell bead, 8.
1412	dentalium shell bead, 8.
1413	stone pounder, 1.
Cat. 395	utilised chipped stone.
Cat. 396	chipped stone flake.
Stone setting 200.286	
1349	stone mortar, 1.
1354	hammerstone, 3.
1355	hammerstone, 1.
1356	grooved stone, 1.
1357	hammerstone, 2.
Potspread 200.287	
2022	closed vessel.
Potspread 200.288	
1350	flaked stone tool, 1.
1351	hammerstone, 3.
Potspread 200.289	
1352	stone bowl.
1981	hammerstone, 1.
Building 200.294	
1380	stone quern, 2.
Potspread 200.295	
1358	hammerstone, 3.
1359	stone pounder, 2.
2023	deep pottery bowl.

KMyl/Cat.	Object
Building general 200.305	
988	stone bowl, 1.
1014	stone bowl, 3.
1387	stone pounder, 1.
1388	stone pounder, 1.
1389	stone pounder, 1.
1390	stone pounder, 1.
1392	hammerstone/grinder, 1.
1393	worked shell?.
1396	stone bowl.
1399	daub.
1400	stone polisher, 1.
1404	hammerstone/grinder, 1.
1408	stone chisel.
1409	rubbing stone, 1.
1410	misc. stone object.
1424	stone bowl.
1425	stone axe-shaped grinder, 1.
1426	stone pounder, 2.
1672	hammerstone, 2.
1673	hammerstone, 1.
1674	hammerstone, 1.
1675	stone pounder, 1.
1676	hammerstone, 1.
1693	hammerstone, 1.
1694	hammerstone, 1.
1695	hammerstone, 1.
1696	hammerstone, 1.
1697	stone lid, 1.
1723	stone bowl.
1943	bone needle.
1950	shell pendant, ?
Cat. 314	antler debitage.
Building fill 200.306	
1401	hammerstone, 1.
1402	stone pounder, 2.
Cat. 315	miniature bone point.
Pit fill 200.311	
1403	stone pounder, 1.
1406	grooved stone, 1.
Pit fill 200.312	
1405	hammerstone, 2.
Cat. 317	antler debitage.
Pit fill 200.316	
1421	stone rubber, 1.
1677	stone bowl, 1.
1678	cupped stone, 1.
Posthole fill 200.321	
1422	stone pestle, 2.
General 201	
1104	hammerstone/grinder, 1.
1106	stone axe-shaped grinder, 2.
1107	stone axe-shaped grinder, 1.
1113	stone bowl, 3.
1122	cupped stone, 1.
1146	cupped stone, 1.
1147	stone bowl, 1?.
1148	stone anvil, 1.
1970	misc. sherd.
Surface 204	
Cat. 287	antler debitage.
Cat. 288	worked antler tine.
Cat. 289	antler bead, 11.
Surface 205	
1962	bone needle.
1963	bone needle.
1964	bone point.

KMyl/Cat.	*Object*
General 206	
Cat. 290	bone spatula.
General 207	
1902	bone spatula.
Surface 209	
1231	stone pounder, 1.
General 210	
1111	stone figurine.
1119	stone bowl?.
1204	pottery disc, 4.
1208	bone point.
Cat. 291	bone needle.
Cat. 292	bone needle.
Cat. 293	bone needle.
Cat. 294	worked bone.
General 213	
1110	hammerstone, 1.
1124	cupped stone, 1.
1956	perforated sherd.
2029	pottery zoomorph?.
Cat. 297	crude bone point.
Surface 300.197	
1248	stone chisel.
1249	misc. stone object.
Cat. 286	large/small robust bone point.
Surface 300.218	
1123	fine stone abrader, 1.
1127	misc. stone object.
1203	stone figurine.
1250	pottery disc, 4.
1251	stone chisel.
1932	misc. pottery object.
Cat. 298	large bone point.
Cat. 299	fine bone point.
Surface 300.219	
1205	stone adze, 1.
Pit general 300.220	
1109	stone bowl, 1.
Pit general 300.237	
1169	misc. stone object.
Surface 300.249	
1210	misc. pottery object.
1213	bone spatula.
1214	stone bead, 7?.
Pit general 300.253	
Cat. 304	large/small robust bone point.
Pit general/surface 300.255	
1126	rubbing stone, 1.
1152	hammerstone/grinder, 1.
1153	stone bowl.
1154	stone bowl.
1155	stone axe-shaped grinder, 1.
1156	stone adze.
1158	stone bowl, 1.
1159	hammerstone, 1.
1160	rubbing stone, 1.
1375	stone bowl.
1987	pottery tray.
Cat. 305	worked antler.
Cat. 306	worked antler tine.
Cat. 307	fine bone point.
Pit general 300.256	
1115	hammerstone, 1.
1117	cupped stone, 1.
1118	misc. stone object.
1130	stone bowl.
1131	stone axe.
1132	rubbing stone, 1.
1133	stone bowl, 1.
1134	hammerstone, 1.
1135	stone pounder, 2.
1136	stone bowl.
1200	bone point.
1201	dentalium shell bead, 8.
1255	stone rubber, 1.
1256	stone pounder, 2.
1257	hammerstone, 1.
1258	rubbing stone, 1.
1259	fine stone abrader, 1.
Cat. 308	antler debitage.
Pit fill 300.257	
1137	hammerstone, 1.
1139	stone bowl.
1140	hammerstone, 1.
1141	stone figurine.
1142	hammerstone, 1.
1143	hammerstone, 1.
1144	rubbing stone, 1.
1145	hammerstone, 1.
1207	medial bladelet segment.
1270	pottery figurine
1916	misc. pottery object.
1931	pottery jar stopper.
Cat. 309	antler debitage.
Cat. 310	antler debitage.
Pit general 300.259	
1253	stone bowl.
Pit general 300.261	
Cat. 311	antler debitage.
Basin 313.314	
1391	stone bowl, 4.1.
General 322	
1679	stone pounder, 2.
General 324	
596	stone bowl.
1934	misc. pottery object.
Building general 330.199	
1215	pottery figurine
Building general 330.308	
Cat. 316	large/small robust bone point.
Building fill 330.325	
1432	cupped stone, 1.
1668	hammerstone/grinder, 1.
Pit fill 337.335	
1698	stone bowl.
1699	stone bowl.
1700	stone bowl, 3.
1701	stone pounder, 2.
1702	hammerstone, 1.
1703	hammerstone, 1.
1704	stone bowl, 1.
1705	stone bowl.
1706	stone pounder, 2.
1707	hammerstone, 1.
1727	stone bowl, 2.
1728	stone bowl.
1729	hammerstone, 1.
1730	hammerstone, 1.
1731	hammerstone, 1.
Pit fill 337.336	
1711	stone bowl, 3.
1712	stone bowl, 2.
1713	hammerstone, 1.
1714	hammerstone, 1.
1736	stone bowl, 2.
1737	stone bowl.
1738	stone bowl.
1739	stone bowl.
1740	stone pounder, 1.
1741	stone pounder, 1.
1742	stone pounder, 1.
1743	hammerstone, 1.
1744	hammerstone, 1.
Pit fill 338.352	
1732	stone bowl.
1733	stone bowl.
1734	stone bowl, 4.1.
1735	hammerstone, 1.
1751	stone bowl.
1752	stone bowl.
1753	stone bowl, 2.
1754	stone bowl, 3.
1755	stone pounder, 1.
1756	stone axe, 3.
1757	stone bowl, 3.
1758	stone bowl.
1759	stone bowl, 3.
1760	stone bowl.
1761	grooved stone, 1.
1860	hammerstone, 1.
1861	stone bowl.
1862	stone bowl.
1863	hammerstone, 1.
1954	stone bowl.
Pit fill 338.353	
1745	stone bowl, 1.
Pit fill 338.354	
1615	stone bowl, 3.
1616	stone bowl.
1617	stone bowl, 3.
1618	hammerstone, 1.
1619	hammerstone, 1.
1620	stone pounder, 2.
1621	stone pounder, 1.
1653	stone bowl, 4.1.
1654	stone bowl.
1655	hammerstone, 1.
1656	hammerstone, 1.
1657	hammerstone, 1.
1658	hammerstone, 1.
1659	stone bowl, 4.1.
1660	hammerstone, 1.
1661	hammerstone, 1.
1662	hammerstone, 1.
1663	hammerstone, 1.
1664	stone bowl, 2.
1715	stone bowl, 2.
1716	stone bowl, 1.
1717	stone bowl, 4.1.
1718	stone bowl, 1.
1719	stone pounder, 1.
1720	stone pounder, 1?.
1721	rubbing stone/grinder, 2.
1722	stone bowl.
1724	hammerstone, 1.
1725	hammerstone, 1.
1726	stone bowl.
1631	stone bowl.
1632	stone bowl.
1633	stone bowl.
1634	stone bowl.
1635	stone bowl.
1636	stone bowl.
1637	stone bowl.
1638	stone bowl.

KMyl/Cat.	Object
1639	stone bowl, 1.
1640	stone bowl.
1641	stone bowl.
1642	stone bowl.
1643	stone bowl.
1644	stone bowl, 2.
1645	stone bowl, 2.
1646	stone bowl, 1.
1647	stone bowl.
1648	stone bowl, 1.
1649	stone bowl.
1650	stone bowl, 2.
1651	hammerstone, 1.
1652	hammerstone, 1.
1805	stone bowl, 3.
1806	stone bowl, 3.
1807	stone bowl, 2.
1809	hammerstone, 1.
1810	stone pounder, 2.
1811	hammerstone, 1.
1812	hammerstone, 1.
1813	stone bowl, 2.
1814	stone pounder, 1.
1815	hammerstone, 1.
1816	hammerstone, 1.
1817	hammerstone, 1.
1818	hammerstone, 1.
1819	hammerstone, 1.
1820	stone bowl.
1821	stone bowl.
1822	stone bowl, 4.1.
1823	stone bowl, 3.
1824	grooved stone, 1.
1825	misc. stone object.
1826	hammerstone, 1.
1827	hammerstone, 1.
1828	hammerstone, 1.
1829	hammerstone, 1.
1830	hammerstone, 1.
1831	hammerstone, 1.
1832	hammerstone, 1.
1833	hammerstone, 1.
1834	hammerstone, 1.
1835	hammerstone, 1.
1836	hammerstone, 1.
1837	hammerstone, 1.
1838	hammerstone, 1.
1839	hammerstone, 1.
1840	hammerstone, 1.
1859	hammerstone, 1.
Pit fill 338.352	
Cat. 318	worked bone.
Pit fill 338.356	
1869	hammerstone, 1.
Pit 340.0	
1762	hammerstone, 1.
Floor 340.339	
1538	stone bowl, 3.
Pit fill 340.342	
1534	stone bowl, 3.
1535	stone bowl.
Pit fill 340.344	
1763	stone bowl.
1955	dentalium shell bead, 8.
Pit fill 340.347	
1622	stone bowl.
1623	stone bowl.
1624	stone bowl.
1625	stone bowl.
1626	stone bowl, 2.
1627	stone bowl, 1.
1628	stone bowl.
1629	grooved stone, 1
1630	hammerstone, 1.
1708	stone bowl, 2.
1709	stone bowl.
1710	stone bowl.
1864	hammerstone, 1.
1865	stone pounder, 2.
1866	hammerstone, 1.
1867	hammerstone, 1.
1870	hammerstone, 1.
1872	hammerstone, 1.
1873	hammerstone, 1.
1874	hammerstone, 1.
1875	hammerstone, 1.
1876	hammerstone, 1.
Pit fill	
1746	stone bowl, 4.1.
1747	stone bowl.
1748	stone bowl.
1749	stone bowl, 3.
1750	grooved stone, 1.
1888	stone bowl.
1889	stone bowl.
1890	stone bowl, 3.
1891	hammerstone, 1.
1892	hammerstone, 1.
1893	hammerstone, 1.
1894	hammerstone, 1.
Gully fill 351.350	
1764	hammerstone, 1.
Unattributed	
1241	pottery disc, 2.
1242	pottery disc, 4.