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Survey at Arediou *Vouppes* (Lithosouros), A Late Bronze Age Agricultural Settlement on Cyprus: A Preliminary Analysis of the Material Culture Assemblages

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A Late Bronze Age settlement was identified at Arediou Vouppes, Cyprus, in 1993. This has been interpreted as an agricultural support village and, as such, forms a lynchpin in the development of political-economic models based on the island's settlement hierarchy. This paper examines the material culture assemblage recovered during intensive survey in 2004, in particular the ceramics and lithics, with a view to testing the interpretation of the site as a specialized production center, ultimately to develop a categorization of a rural community on the island during the Late Bronze Age.

INTRODUCTION

A Late Bronze Age site was located in a regional survey at Arediou *Vouppes* (hereafter *Vouppes*; grid reference 519015/3878700; fig. 1) by the Sydney Cyprus Survey Project (SCSP) (Given and Knapp 2003: 179–82, 268).¹ *Vouppes* is located at the interface between the sedimentary rocks of the Mesaoria plain and the pillow lavas of the northern foothills of the Troodos Mountains in an area with plentiful evidence for

metallurgical activity in antiquity. Nonetheless, there is very little evidence for Late Bronze Age settlement in the region (Knapp, Kassianidou, and Donnelly 2002; Given and Knapp 2003). *Vouppes* was interpreted as a possible agricultural village dating to the 13th century B.C.E. on the basis of the surface material recovered in the original survey—namely, pithos sherds and ground stone tools. More specifically, Knapp has argued that the site produced an agricultural surplus to support mining villages at sites such as Politiko *Phorades* (Knapp 2003: 572–73). Consequently, *Vouppes* is fundamental to the working of the various theoretical models posited for the socioeconomic and political organization of Cyprus during the Late Bronze Age (Keswani 1993; 1996; Knapp 1997). In these models, sites are categorized according to their size, location, and the presence or absence of certain key elements of material culture—including Cypro-Minoan inscriptions, impressed pithoi, and imported luxuries (Knapp 1997: 53, table 2). According to such a definition,

¹ The site was named from the 1923 cadastral map; however, *Vouppes* refers to the field systems in the bed of the Aloupos River valley running along the west of the site. The local name for the site is *Lithosouros*, meaning “mound of stones.” Although it would be preferable to refer to the local nomenclature, given the number of publications that already refer to Arediou *Vouppes* and material housed in the Cyprus Museum, Nicosia, under this name, we have decided to continue with the name given to the site by the SCSP.

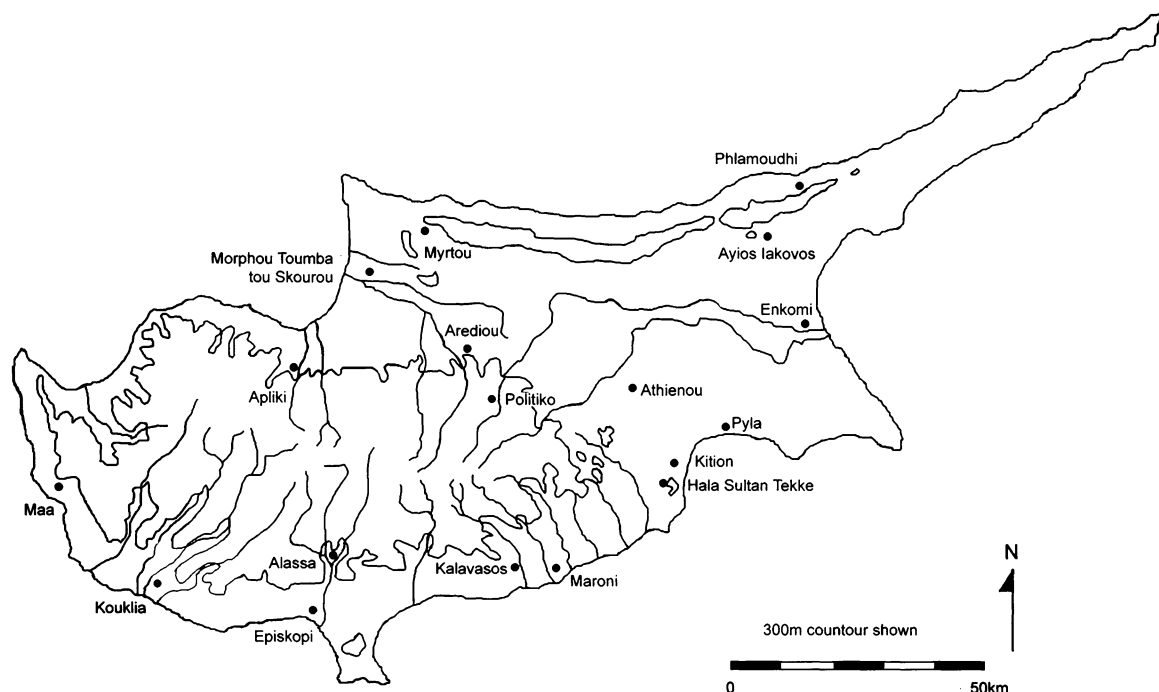


Fig. 1. Map of Cyprus showing location of Arediou *Voupes* and other sites mentioned in the text.

Voupes has been ranked with other smaller production sites of the hinterland (mining, pottery, agricultural). Nonetheless, in contrast to the urban centers, which have been extensively excavated, knowledge of rural settlements from the Cypriot interior is largely dependent on material recovered during regional surveys (Catling 1962; Given and Knapp 2003). Consequently, the nature of occupation and activities practiced at such sites remains obscure.

In 2004 a team from the University of Wales Lampeter carried out a survey of *Voupes*, with the aim of establishing the nature of occupation of a small inland settlement on Cyprus during the second millennium B.C.E. (Steel and Janes 2005). Specific objectives were to establish the size of the site (originally estimated as 2 ha), to define its chronological parameters, and to assess the nature of the settlement; should this be characterized as a small farming community, and is there any clear evidence for its role as a support village for other, more specialized production centers? Subsequent excavation at *Voupes* in 2005 and 2006 has revealed significant information in terms of architectural practices and material cultural remains (Steel and Thomas in press). Ultimately, it is anticipated that fieldwork at *Voupes* will allow us to build up a picture of household activities

within a small rural settlement during the later second millennium B.C.E. on Cyprus.

Detailed analysis of the material remains recovered from the surface in the intensive survey provides us with an initial appraisal of the range of activities practiced at *Voupes*. It is anticipated that this will provide a model for reviewing other survey material elsewhere on the island. One of the aims of fieldwork has been a comprehensive assessment of material recovered from intensive survey, with a view to allowing a more refined correlation of survey and excavation data at *Voupes*. Ongoing comparison of this data with finds from sealed contexts will ultimately provide us with a means for integrating the plentiful regional survey data into more meaningful discussions of the Late Bronze Age economy and political organization of Cyprus.

The ceramic profile of Late Bronze Age Cyprus is well established, largely based on studies of mortuary assemblages and the coastal urban settlements. There is some evidence for regional differentiation in the earlier part of the Late Bronze Age, in the 16th century B.C.E. (Merrillees 1971); however, by the 13th century B.C.E., the main phase of occupation at *Voupes*, there is apparent ceramic standardization throughout the island, in particular for the tableware

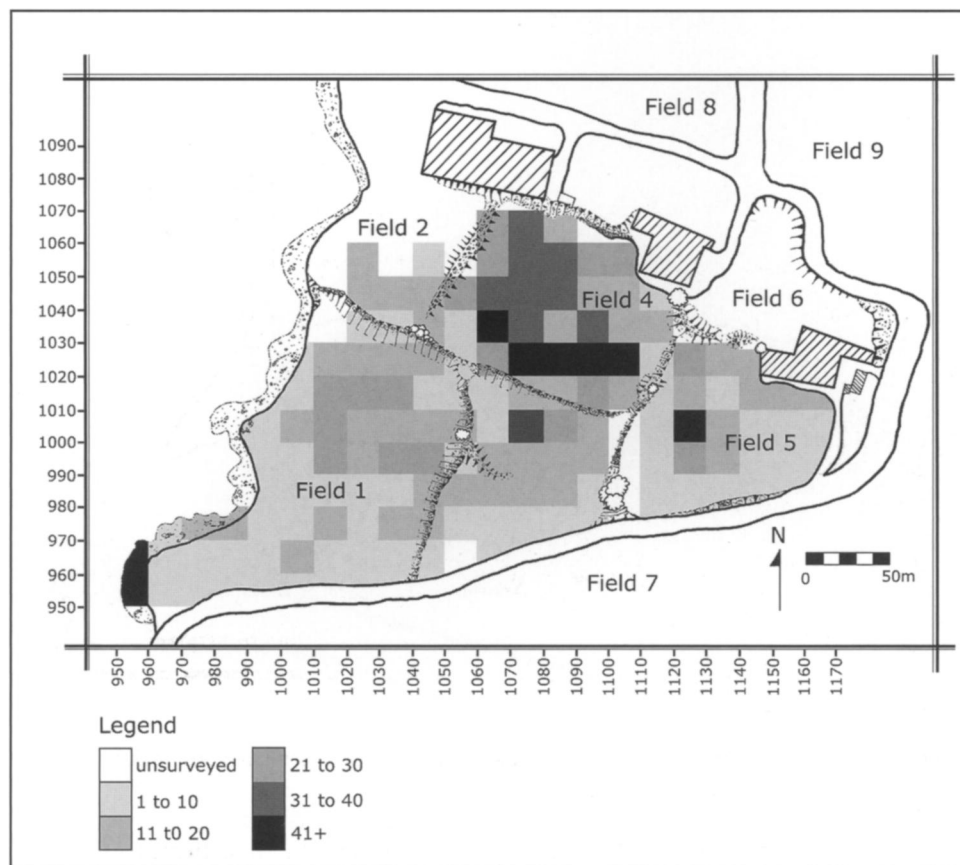


Fig. 2. Plan of survey area and plot of the distribution of pottery.

(White Slip). Alongside this there is increasing evidence for regional and temporal variation of the utilitarian wares (Plain ware, Monochrome, Cooking ware), although a more detailed data set is necessary to explore this. It is hoped that analyses of the pottery from *Vouppes* will help refine our knowledge of the use of ceramics within small rural communities; the range of shapes and wares will allow us to build up a picture of household and/or production activities, which ultimately will be compared with similar activities in urban contexts. A preliminary discussion of Cypriot Late Bronze Age household activities has been developed by Bolger (2003: 41–50), with specific reference to gender roles; however, for the most part this aspect of Late Bronze Age social organization has been ignored in the Cypriot archaeological literature.

Another goal of fieldwork at *Vouppes* is a detailed examination of the Late Bronze Age lithic industry on Cyprus, both chipped stone and ground stone. While the Cypriot Bronze Age ground stone tool

assemblage has been extensively studied at many sites, there has only been very limited discussion of the chipped stone industry and its role in the economic developments and household activities of Bronze Age Cyprus, both of which are still poorly understood (Smith 1996: 102). Instead, with the advent of metal tools, the lithic industry has tended to be ignored by archaeologists. Thus, the fieldwork at *Vouppes* provides a perfect opportunity for reconstructing the procurement of raw materials and the production and use of stone tools within the context of a small rural community on Cyprus.

SURVEY METHODOLOGY

A systematic surface survey was undertaken to map the frequency of cultural remains and to investigate the chronological and typological distribution of the surface scatter. The survey area (fig. 2) comprised seven fields covering around 2 ha, currently used for cultivation and farm buildings. The 1923

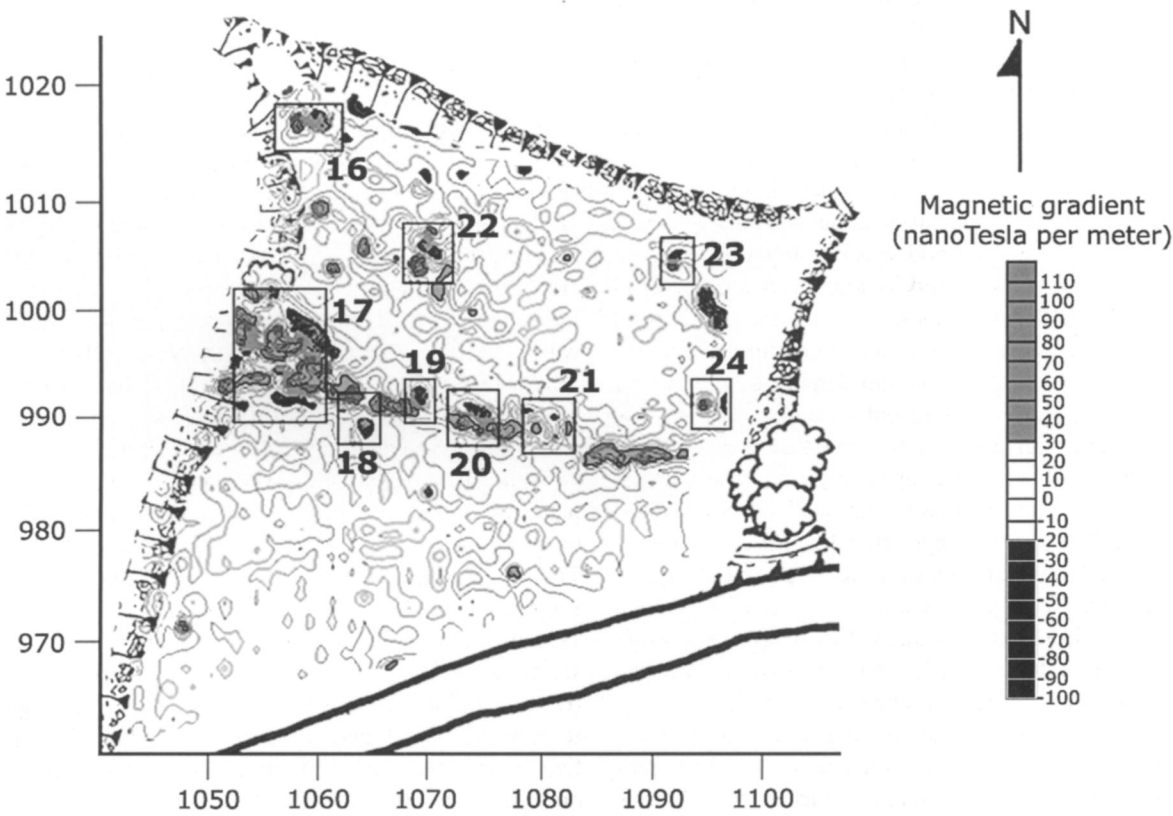


Fig. 3. Geophysical survey in Field 3 (2004).

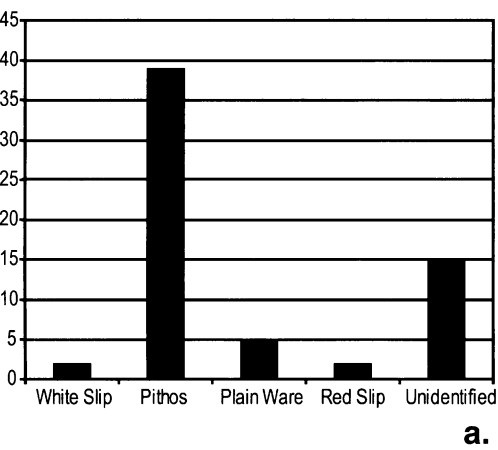


Fig. 4a. Breakdown of wares collected in 1070/1000 in surface survey.

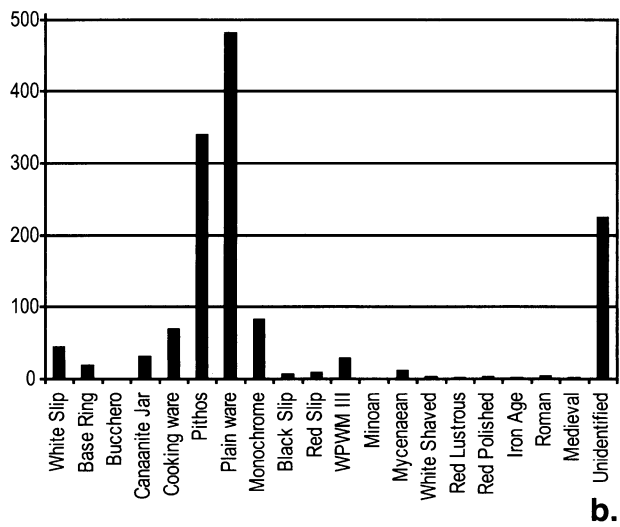


Fig. 4b. Breakdown of excavated wares from 1070/1005 and 1073.5/1000 (2005).

cadastral map shows other field boundaries that have subsequently been lost; these, however, were clearly picked up during the geophysics survey (Steel and Janes 2005: 239–40). A 10 × 10 m grid was laid out over Fields 1–5, and an arbitrary point (1000/1000) was set up as the point of origin. The site was field-walked within the 10-m squares, picking up as much anthropogenic material as possible within a 7-minute time period. This method was employed in order to avoid sample bias caused by fluctuations in material density. Each square was surveyed twice by different members of the team in order to counteract individual bias. The distribution and density of the survey material has been plotted onto the grid (fig. 2). The field boundaries, which also served as terrace retaining walls, were walked separately, and ground stone tools located among these stone walls were recorded in situ. The material recovered from the surface included large quantities of Late Cypriot pottery, as well as the occasional Roman, Medieval, and Ottoman sherd. Significant quantities of chipped stone and ground stone were likewise recovered from the surface. There were also occasional small finds.

As a strategy for identifying areas for excavation, the combination of surface survey and geophysics has proved particularly successful. There is a clear correlation between the high density of pottery in specific grid squares with significant subsurface anomalies identified in the geophysics survey (fig. 3). This is perhaps best illustrated by the excavation of Building 1 (Steel and Thomas in press); this lies directly under anomaly 22 and likewise was signaled by the high density of pottery in 1070/1000. In the survey, some 63 sherds were collected in this grid square, weighing 6.336 kg. A breakdown of the pottery collected in survey is shown in fig. 4a; pithoi were predominant, closely followed by Plain ware, and the only fine ware collected was White Slip. In 2005 two trenches were opened to further explore this survey data (1070/1005 and 1073.5/1000 (see Steel and Thomas in press). Some 1375 sherds were collected in all deposits, weighing some 45.64 kg (fig. 4b). Overall the distribution of pottery reflects that noted for the survey material; nonetheless, a greater range of wares was identified during excavation, in particular the smaller fine ware sherds which were possibly less visible in survey. Pithoi, Plain ware, and White Slip are well represented, but in excavation Plain ware, rather than pithos, was predominant. Analysis of pottery from continued excavation in this area is ongoing.

LATE BRONZE AGE POTTERY

Large quantities of pottery were recovered from all survey areas: 2385 sherds in total, of which 1743 (73%) can be identified as Late Cypriot (see table 1). Eleven sherds (0.5%) were identified as Iron Age (Plain ware, White Painted, and pithos), 36 sherds (1.5%) were identified as Roman, 33 sherds (1%) as Medieval-Ottoman (fig. 5), 23 sherds (ca. 1%) as modern (post-Ottoman), and 539 sherds (23%) were unidentified. This report will focus on the Late Cypriot wares; the later material is found in statistically insignificant quantities and is interpreted as background noise representing sporadic later activity at the site rather than evidence of sustained occupation.

Analysis of the pottery focused on distribution patterns (presence/absence of ware types and chronological and morphological frequency distributions). This allowed the identification of concentrations of Late Cypriot pottery, which thereby allowed us to establish the extent of the site. The pottery was sorted according to date, ware, form, and component (rim, base, handle, spout, or body sherd). Although Roman, Medieval, and Ottoman pottery were identified among the survey assemblage, in these cases only the quantity, shape, and type of vessel represented were recorded (rather than the full component analysis), as the primary focus of research was the Late Cypriot material. Study of the Late Cypriot pottery was more detailed. The range of wares in use in Late Bronze Age Cyprus is well established, and the pottery could be sorted into utilitarian forms and tableware. Within these broad categories, the breakdown of component types should enable an interpretation of the range of activities practiced at *Vouppes* and, in particular, spatial variation throughout the 2 ha surveyed. For example, the proportions of utilitarian and tableware, open and closed vessels, and large and small vessels serve to differentiate activity areas.

Distribution of Ceramics

Results of the SCSP survey suggest that the densest pottery scatter was located in Field 1. The results of the 2004 intensive survey contradict this finding, probably the result of the very different survey methodology. The distribution of Late Cypriot wares is informative (fig. 6). The greatest concentration of pottery was found in Field 4 (n = 813; 34%), suggesting this was the main area of the Late Cypriot

TABLE 1. Pottery Recovered in *Vouppes* during Survey (2004)

<i>Date</i>	<i>Ware</i>	<i>No.</i>	<i>No.</i>	<i>No.</i>	<i>No.</i>	<i>No.</i>	<i>No.</i>	<i>No.</i>	<i>Total</i>
		<i>Field 1</i>	<i>Field 2</i>	<i>Field 3</i>	<i>Field 4</i>	<i>Field 5</i>	<i>Field 6</i>	<i>Field 7</i>	<i>All fields</i>
Chal	Coarse ware	0	0	0	1	1	0	0	2
MBA	Red Polished	3	0	2	5	20	1	1	32
MBA	White Painted	3	0	0	4	0	1	0	8
MBA	Pithos	0	0	1	0	0	0	0	1
LBA	White Slip I	1	0	1	1	1	1	0	5
LBA	White Slip II	28	1	14	10	49	2	1	105
LBA	Base Ring	2	0	0	1	8	0	1	12
LBA	Mono A	0	0	0	0	0	1	0	1
LBA	Mono C	16	2	11	5	10	0	0	44
LBA	Coarse Mono	7	5	0	1	0	0	0	13
LBA	Plain ware (early)	0	0	0	0	0	2	0	2
LBA	Plain ware (LCIIC)	38	8	21	67	22	6	1	163
LBA	Plain ware (wm)	2	1	1	4	0	0	0	8
LBA	Pithos	255	45	129	488	187	50	16	1170
LBA	Pithos (early)	0	0	0	1	0	1	0	2
LBA	Cooking ware	17	0	4	1	6	2	0	30
LBA	Black Slip (hm)	6	0	9	7	7	1	1	31
LBA	Black Slip (wm)	1	2	0	3	2	1	0	9
LBA	Red Slip (hm)	4	2	9	1	10	0	0	26
LBA	Red Slip (wm)	2	1	3	2	1	1	0	10
LBA	White Shaved	1	0	0	2	0	0	0	3
LBA	Egyptian	1	0	0	3	1	0	1	6
LBA	Canaanite jar	3	0	8	3	3	0	0	17
LBA	Mycenaean import	2	0	3	4	9	0	0	18
LBA	WPWM III	4	0	0	4	5	0	0	13
LBA	Minoan?	0	0	3	3	5	0	1	12
Iron Age	Plain ware	1	4	0	2	1	0	0	8
Iron Age	White Painted	0	0	0	0	1	0	0	1
Iron Age	Pithos	0	1	0	0	1	0	0	2
Roman	Red Slip	0	1	1	2	1	1	0	6
Roman	Eastern Sigillata A	0	0	0	0	1	0	0	1
Roman	Self slip	6	3	1	5	8	0	1	24
Roman	Amphora	1	0	0	0	2	0	0	3
Roman	Cooking ware	1	0	1	0	0	0	0	2
Medieval	Sgraffito	0	0	0	0	1	0	2	3
Medieval	Debased sgraffito	0	0	0	0	1	0	0	1
Medieval	?	14	0	3	11	0	0	1	29
Modern	?	5	2	1	15	0	0	0	23
?	Unidentified	182	16	69	157	86	11	18	539
TOTAL		606	94	295	813	450	82	45	2385

Note: wm = wheelmade; hm = handmade.

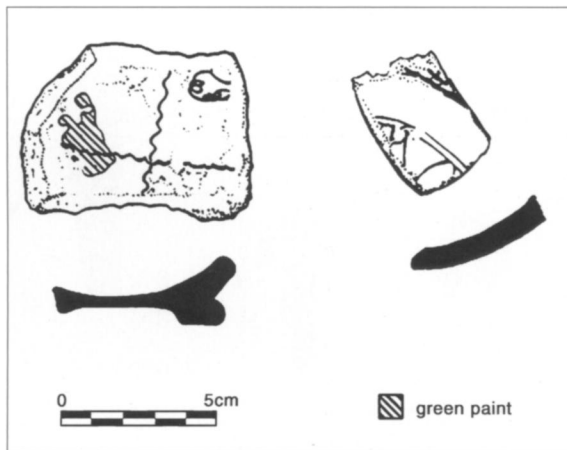


Fig. 5. Sgraffito ware.

settlement. The apparent concentration of pottery in Field 1 ($n = 606$; 25%) was skewed by a dense scatter of fine wares in the area of the cliff edge, possibly associated with in situ Late Bronze Age soils (Given and Knapp 2003: 179). Visibility in this area was particularly good; moreover, the abraded nature of the sherds suggests that their presence here was the result of erosion activity. Significant concentrations of sherds were collected in Fields 5 ($n = 450$; 19%) and 3 ($n = 295$; 12%), the latter being the smallest field surveyed. The limited quantities of sherds recovered from Field 2 were probably due to poor surface visibility—at least half of the field was covered by straw bales, thereby restricting the area available for surface survey. Even so, some 94 sherds (4%) were collected in this field. Eighty-two sherds (3.5%) were collected in Field 6; despite the large area of Field 7, only 45 sherds (2%) were collected, implying that the field lay beyond the southern limits of the ancient settlement.

Wares

The following categorization of ceramics at *Vouppes* follows the definition of wares at Kalavassos *Ayios Dhimitrios* (Russell 1989; Keswani 1989a). The range of wares identified in the 2004 survey was more varied than suggested in original reports of the site, which comprised a limited range of utilitarian wares, predominantly pithos, but also Plain ware and a single fragment of Black Slip Wheelmade ware (Knapp et al. 1994: 337; Given and Knapp 2003: 181). In contrast, within the 2004 survey the full range of Late Cypriot wares in use in the 13th

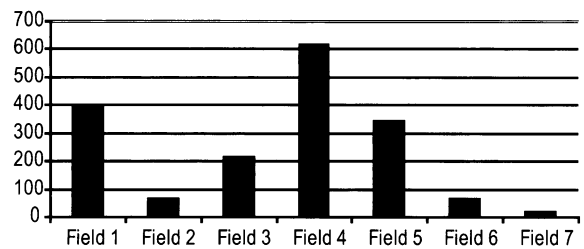


Fig. 6. Graph showing distribution of Late Cypriot pottery at *Vouppes* by field.

century B.C.E. was represented, and significantly, there was a variety of imported pottery from Mycenaean Greece, Minoan Crete, the Levant, and Egypt. The bulk of the pottery recovered during the surface survey comprised nondiagnostic body sherds, which were sorted into open and closed sherds. Occasional diagnostic rim, handle, and base sherds have been identified, facilitating a more detailed analysis of the forms represented at the site. The Late Cypriot assemblage is specialized, and the range of forms is largely dependent on the type of ware. The assemblage at *Vouppes* was limited to a few basic forms, which conform to the Late Cypriot ceramic repertoire identified elsewhere on the island. For the most part, they can be broken down into a variety of jugs and bowls, supplemented by various basins and two-handled jars in the utilitarian wares.

The Late Cypriot wares identified at *Vouppes* comprised a combination of utilitarian wares and tableware. By far the most common type recovered across the site was the pithos ($n = 1170$; 49%) (figs. 7, 8), suggesting that storage of agricultural produce was a primary concern of the inhabitants. Such a concentration of pithoi might be interpreted as a material indicator of a specialized production center involved in large-scale production, storage, and possibly processing of agricultural produce, such as has been suggested for Analiondas *Palioklichia* (Webb and Frankel 1994: 16). They argue that the predominance of pithos sherds at this site is atypical of ceramic distribution at Late Cypriot sites; moreover, the apparent absence of other Late Cypriot wares (Webb and Frankel 1994: 14, 16) is indicative of a site set aside for a limited range of specialized economic activities, which did not include a domestic function. Another possible agricultural village has been identified at Phlamoudhi *Sapilou*, again by the predominance of grinders and pithos, albeit in this instance accompanied by the typical Late Cypriot

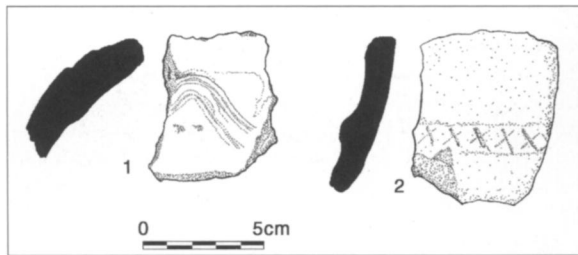


Fig. 7. Pithos sherds: (1) wavy line decoration, (2) "pie-crust" decoration.

tableware (Base Ring and White Slip) (Catling 1976: 31).

Some pithos fragments recovered from *Vouppes* were in the usual Late Cypriot fabric described at Kalavassos, usually buff with small angular inclusions of black, red, and white stone (Keswani 1989a: 12–13; see also discussion of pithoi in Kling 2007a: 132–35). Variant fabric types were also identified, possibly belonging to earlier stages of manufacture, or perhaps illustrative of regional variation in Cypriot pithos production, at least in terms of procurement and processing of raw materials. This aspect of Late Cypriot pottery production and changing household activities is an ongoing focus of study at the site, and makes use of excavated material from sealed contexts. There were also occasional sherds of Plain White Handmade storage jars (pithoi) more typical of MC III–LC I and paralleled by finds from Kalopsidha, Episkopi *Phaneromeni*, Nitovikla, Myrtou *Pigadhes*, and more recently at Maroni *Tsaroukas* (see discussion in Pilides 1996: 108–9; 2000: 2; Manning, Sewell, and Herscher 2002: 136; Manning, Crewe, and Sewell 2006: 475, 476–77). One pithos, decorated with a row of incised chevrons, was collected in Field 6. Occasional pieces have also been identified in excavation. This decorative scheme appears to be more typical of pithoi from the northwest of Cyprus, and parallels are known from Myrtou *Pigadhes* and Morphou *Toumba tou Skourou* (Catling 1957: 56; Pilides 2000: 16, fig. 6.2).

The pithos assemblage was largely composed of body sherds. These were categorized according to wall thickness: less than 2.5 cm, more than 2.5 cm, and more than 4 cm thick. The smaller sherds represent a variety of household pithoi of varying size, whereas the thick-walled sherds (more than 4 cm thick) represent the mega-pithoi characteristic of the centralized storage facilities at primary storage centers such as Kalavassos *Ayios Dhimitrios* (Keswani's

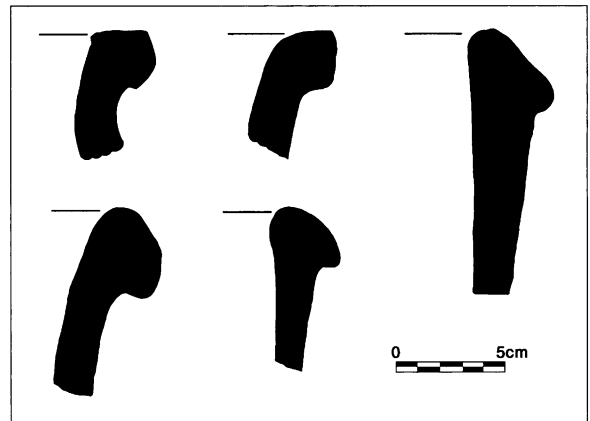


Fig. 8. Representative pithos rims from *Vouppes*.

Type III, 1989a: 16–17). The vast majority of the pithoi recovered at *Vouppes* were thin-walled, for the most part measuring less than 2.5 cm ($n = 1087$; 93%). The mega-pithoi were found in minuscule quantities ($n = 3$; < 1%), and were spatially restricted to Fields 4 and 5. Occasional diagnostic rim sherds were collected (fig. 8); 37 belong to short-necked pithoi (22 with a wide rim and 15 with a narrow rim; Keswani's Type IA and B, 1989a: 14–15), while 11 were identified as tall-necked pithoi (Keswani's Type II, 1989a: 15–16). The surface material therefore implies that the pithoi used at *Vouppes* were largely associated with small-scale storage, possibly within the household. It has been suggested that variability in pithos size might illustrate a number of social factors, such as differences in the length of storage periods, the number of individuals being served by a particular pithos, and the quantity of produce available (Keswani 1989a: 13–14; Webb and Frankel 1994: 12). The variety in pithos forms presumably relates to storage of different types of agricultural produce: probably cereals and other solid foodstuffs in the wide-necked pithoi—which could easily be scooped—and liquids such as olive oil in the tall, narrow-necked pithoi. The mega-pithoi were associated with centralized storage, and their limited occurrence at *Vouppes* might indicate the settlement's inclusion in intersite exchange or taxation. It is interesting to note that local informants have told us that several large pithoi were uncovered apparently lined up in a row, during the excavation of foundations of the agricultural buildings immediately to the north of the main survey area. This may represent some form of centralized storage, possibly analogous to Room 1

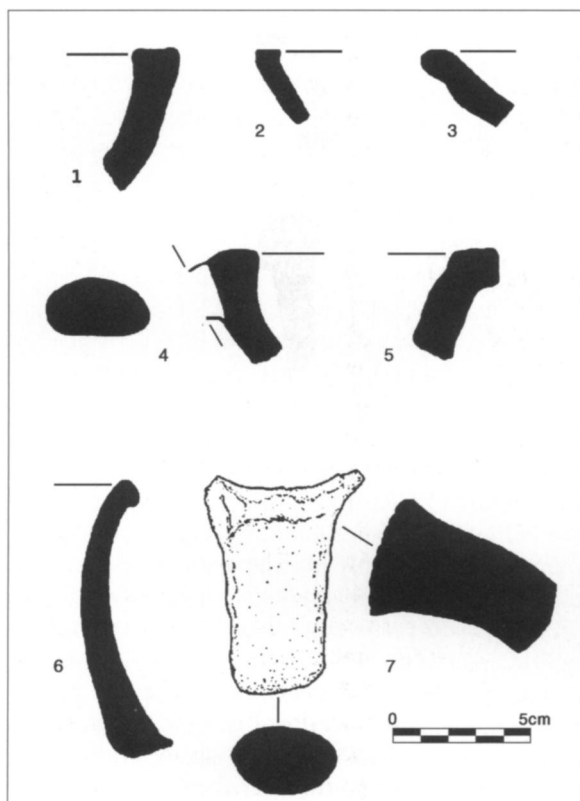


Fig. 9. Plain ware sherds: (1–5) bowls and basins; (6) jug rim, and (7) jug handle.

in Building A at Apliki *Karamallos* (du Plat Taylor 1952: 136, fig. 3, pl. 25a, b; du Plat Taylor and Kling 2007: 10).

Other utilitarian wares identified at *Vouppes* were probably associated with the preparation, storage, and serving of foodstuffs. Some of the larger forms, such as the basins, might have alternative uses, as within large-scale processing of foodstuffs, and possibly within “industrial” facilities. In this respect it is worth noting the assemblage of utilitarian wares, including a restorable Plain ware basin, found in a workroom in Building 1 in 2006 (Steel 2007: 94). The range of wares encompassed Plain ware (Keswani 1989a: 19–21), the Black and Red Slip wares, various types of Monochrome ware (Russell 1991; Pilides 1992), and Cooking ware.

The characteristic Late Cypriot Plain ware, also termed Plain White ware (Catling 1957: 48–53), is predominantly handmade and has a hard, gritty, buff to pinkish fabric (Keswani 1989a: 18; Kling 2007a: 130). Eight sherds of Plain wheelmade ware were also recovered. Plain ware vessels (fig. 9) represented

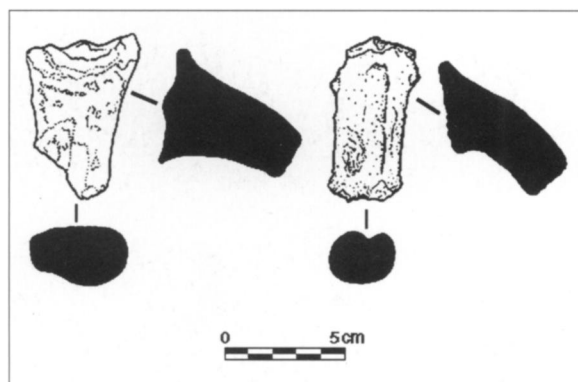


Fig. 10. Black and Red Slip handles.

at the site include basins and large bowls, identified by their characteristic rims, either hooked, flat, or folded over (Keswani 1989a: 18–19, fig. 20; Kling 2007a: 130–31). These vessels were presumably used in the preparation of foodstuffs. Other Plain ware forms represented in the *Vouppes* assemblage were associated with the serving and consumption of liquids—namely, kraters, a large numbers of jugs, and several shallow bowls (see shapes in Kling 2007a: 130–32). No rim fragments were recovered to determine whether there was a preference for round-mouthed or pinched rim/trefoil jugs. The occasional Plain wheelmade ware sherds belonged to shallow bowls. These tend to be rare in Late Cypriot settlement contexts, and at Kalavassos they are usually found in tombs (Keswani 1989a: 19).

Black and Red Slip were found in small quantities, both handmade and wheelmade varieties. These two wares are closely related, but Black Slip tends to have a paler buff or greenish fabric, while Red Slip usually has a more pinkish buff fabric. Both wares are soft-fired (point 1 on a Moh test; the surface can be scratched with a fingernail). The slip is washy and matte. Both wares (fig. 10) typically were used for large, round-mouthed jugs. These jugs belong to an earlier technological tradition; the handles are attached by being thrust through the body at shoulder level and secured on the interior by a “dowel” of clay. In contrast, Plain ware jug handles are attached onto the exterior surface of the jug, the join being smoothed over. This represents an important technological advance in the Late Cypriot period (Catling 1957: 53). The occasional occurrence of Black and Red Slip among the survey assemblage is suggestive of some LC I activity at *Vouppes* (Manning, Crewe, and Sewell 2006: 481). Further confirmation of early

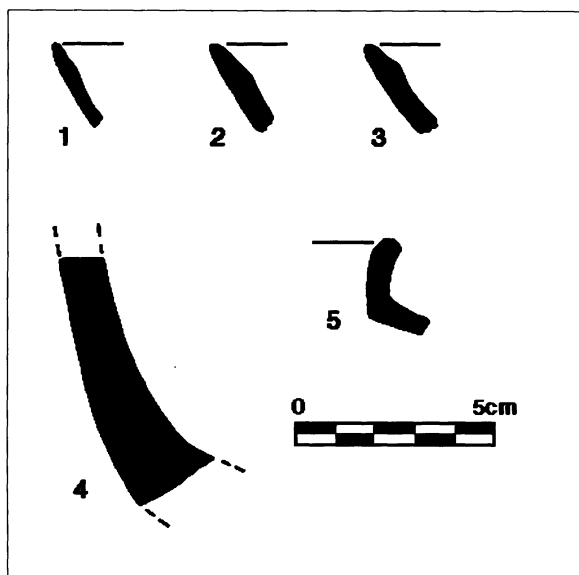


Fig. 11. Monochrome and Cooking ware sherds: (1) Monochrome A carinated bowl rim; (2–3) Monochrome B carinated bowl rims; (4) Cooking ware shallow pan base; (5) Cooking ware collar-necked jar.

activity at *Vouppes* is the discovery of a small chamber tomb in Field 5, excavated in 2006. Although the tomb had been looted in antiquity, a few grave goods escaped the notice of the tomb robbers, including a near complete Black Slip Wheelmade jug and a hook-tanged dagger (Steel and Thomas in press). Both finds demonstrate significant LC I activity at the site and also place *Vouppes* culturally and economically with a group of wealthy MC III–LC I tombs from the copper-producing zone of central Cyprus between Politiko, Ayia Paraskevi, and Dhali (Keswani 1989b: fig. 6.1; 2004: 143), which were furnished with bronze weaponry and other status goods.

The terminology surrounding the so-called Monochrome ware has come under some scrutiny (Russell 1989: 5; 1991; Pilides 1992), as it has been applied indiscriminately to a number of quite distinct fabrics of varying date, on the basis of their non-decorated appearance and generally red-brown fabric and surface. In fact, several undecorated wares, each with a distinctive fabric and surface treatment of a dull brown-gray slip, were being used on the island during the Late Bronze Age. Despite differences in fabric and in the range of shapes, these wares have all been lumped together as Monochrome ware. Certain distinctions between these wares are temporal, whereas others appear to reflect regional traditions

of pottery manufacture during the 14th and 13th centuries B.C.E. Most of the Monochrome recovered from the surface at *Vouppes* (fig. 11) conforms to the LC IIC fabric type identified at Apliki, Kalavassos, and other sites (Russell 1989: 5; see also discussion in Kling 2007a: 111–12). The walls of the vessels tend to be only a few millimeters thick and have a characteristic gritty, brick-red to brown fabric. The surface is smoothed rather than burnished, to seal the vessel, and is frequently mottled, being fired any shade from a deep yellow, to red, brown, or black.

Small quantities of an early form of Monochrome, used between LC IA and LC IIA, have been identified at *Vouppes* in Field 6 (fig. 11.1). This appears to correspond to the Monochrome ware initially defined by Sjöqvist (1940: 30; Åström 1972: 90–111), i.e., Russell's Monochrome A (Russell 1991: 135). This ware tends to be used for fine-walled vessels, typically bowls, and is reasonably well levigated, compact, and well fired. The fabric tends to be buff to brown, and the surface of the vessel is covered with a matte brownish or red slip. The presence of this ware is of particular interest, as it substantiates other evidence cited above for the initial Late Bronze Age occupation of *Vouppes* in the 16th century B.C.E.

Occasional sherds of Russell's Monochrome B (Russell 1991: 136), related to the Fused Temper ware identified at Kourion *Bamboula* (Benson 1972: 76–77), have also been recognized at *Vouppes*. This ware has a hard-fired, bluish gray fabric, and the surface is covered with a matte dark brown to gray slip. The only diagnostics belonged to carinated bowls (fig. 11.2–3). The typical LC IIC Monochrome form identified at *Vouppes* was the jug (Russell 1989: 5). Other shapes were rare in the *Vouppes* survey assemblage and comprised a few plain rims belonging to hemispherical bowls (Russell 1989: 5, fig. 8). This range of forms suggests that the primary use of the Monochrome ware was in the serving and consumption of liquids. The small quantities of Monochrome pottery identified on the surface at *Vouppes* could indicate that White Slip was the preferred tableware, possibly in conjunction with the use of Plain ware jugs.

Only small quantities of Late Cypriot Cooking ware (categorized as "Coarse Ware" at Apliki; Kling 2007a: 125–29) were picked up during the surface survey, in contrast to the prevalence of this ware in LC IIC settlement contexts. This ware is characterized by its brown fabric with plentiful grit inclusions. The vessels are handmade, tend to be uniformly fired,

and the exterior surface is frequently smoothed. The surface might be fire-blackened or even burnt black throughout, depending on the intensity of the heat source used in cooking (Russell 1989: 6). There can be a certain degree of overlap between the Coarse Monochrome fabric and that of the finer examples of Cooking ware. Despite the limited quantities of this ware in the survey assemblage, it comprised the typical range of forms (Russell 1989: 6). Most common were the two-handled globular pots, identified by their plain rims and their vertical handles attached from rim to shoulder, and two-handled collar-necked jars (fig. 11.5) with plain rim and horizontal loop handles attached at the shoulder. An earlier variant of the collar-necked jar (LC IIA–B) has a flat rim decorated with shallow nicks, one example of which was identified at *Vouppes*. These globular pots and jars were probably used in the preparation and cooking of foodstuffs. Another typical Late Cypriot shape identified at *Vouppes* was the shallow pan (fig. 11.4), characterized by a thick plain rim and a loop handle formed by piercing the pan wall. The function of this form is unclear; it tends not to have a blackened surface and therefore was not used as a cooking pot.

The main tableware identified at *Vouppes* was White Slip ware. This was largely White Slip II (LC II date), but tiny quantities of White Slip I, used in the 16th century B.C.E., were also recovered (table 1; fig. 12.1–5). The White Slip II ware is largely standardized in terms of fabric type (hard-fired, gritty, fired brick red, brick red with a gray core, or blue-gray), surface treatment, and decorative schema (see discussion in Popham 1972; Russell 1989); and the sample from *Vouppes* conforms to the typology developed elsewhere on the island. Only two forms were represented in the survey pottery (fig. 12). The most common shape was the hemispherical bowl, for the most part represented by body sherds, although a handful of rim sherds were also identified. This suggests that White Slip was primarily used in the serving/consumption of food within the settlement; given the deep form of the hemispherical bowl and the very hard, nonporous slip, this was probably a liquid. A single example of a krater was identified (fig. 12.4); however, it appears likely that this form had largely fallen out of use by the main period of occupation at *Vouppes*, during the 13th century B.C.E.

The other archetypal Late Cypriot tableware is Base Ring. This hard-fired, thin-walled ceramic tends to have a well-levigated gray fabric, although earlier variants frequently have a greenish sandy fabric. The

surface treatment varies; the surface tends to be covered by a slip, which can be either highly burnished and reddish in color, a metallic slip, or a mottled matte slip. Occasionally Base Ring vases might have linear white-painted decoration. Very little Base Ring was collected in the surface survey (table 1). A single piece of the Red Burnished variety (see Vaughan 1991) was identified, along with one piece of painted Base Ring. In the main, however, the Base Ring conformed to the typical mottled variety of LC IIC, Vaughan's Base Ring Matte Slip ware (see Russell 1989; Vaughan 1991: 124). Although few diagnostics were collected, the range of thin-walled sherds from closed vessels suggests that the predominant Base Ring form was the small juglet; this was confirmed by the presence of occasional out-turned juglet rims. The content of these juglets is still uncertain, although clearly it was a commodity available in limited quantities (unguents, condiments, opium).

There were small quantities of local imitation Mycenaean pottery—the White Painted Wheel-made III (WPWM III) ware (Russell 1989: 8–9; Kling 1991; 2007a: 151). In terms of its fabric and surface finish, the WPWM III ware is technologically quite distinct from its Mycenaean progenitor; this has a hard-fired, well-levigated fabric and is decorated with lustrous orange, red, brown, or black paint. The surface is not polished or burnished, but rather the properties of the clay and the paint result in a lustrous finish. In contrast, the WPWM III ware is characterized by a pale buff, soft-fired fabric and matte paint, varying from a reddish orange to dark brown. It became popular in the 13th century, primarily for drinking sets which were used equally in settlement and funerary contexts. The shape most commonly represented in the *Vouppes* sample is the krater, essentially a large open form used for mixing wine. The repertoire is supplemented by shallow bowls from the excavated deposits.

One of the more significant results of the detailed survey strategy is the identification of a range of imported wares from surrounding regions of the east and central Mediterranean, in contrast to the initial reports of the site. Small quantities of Mycenaean sherds were found throughout the site (fig. 13); most diagnostic sherds belong to kraters, and a rim sherd of an LH IIIB shallow bowl (FS 292) was also identified (fig. 13.2). These forms are specifically associated with serving and consumption of liquids (wine?) and might indicate the adoption of new dining fashions, as has been suggested elsewhere on

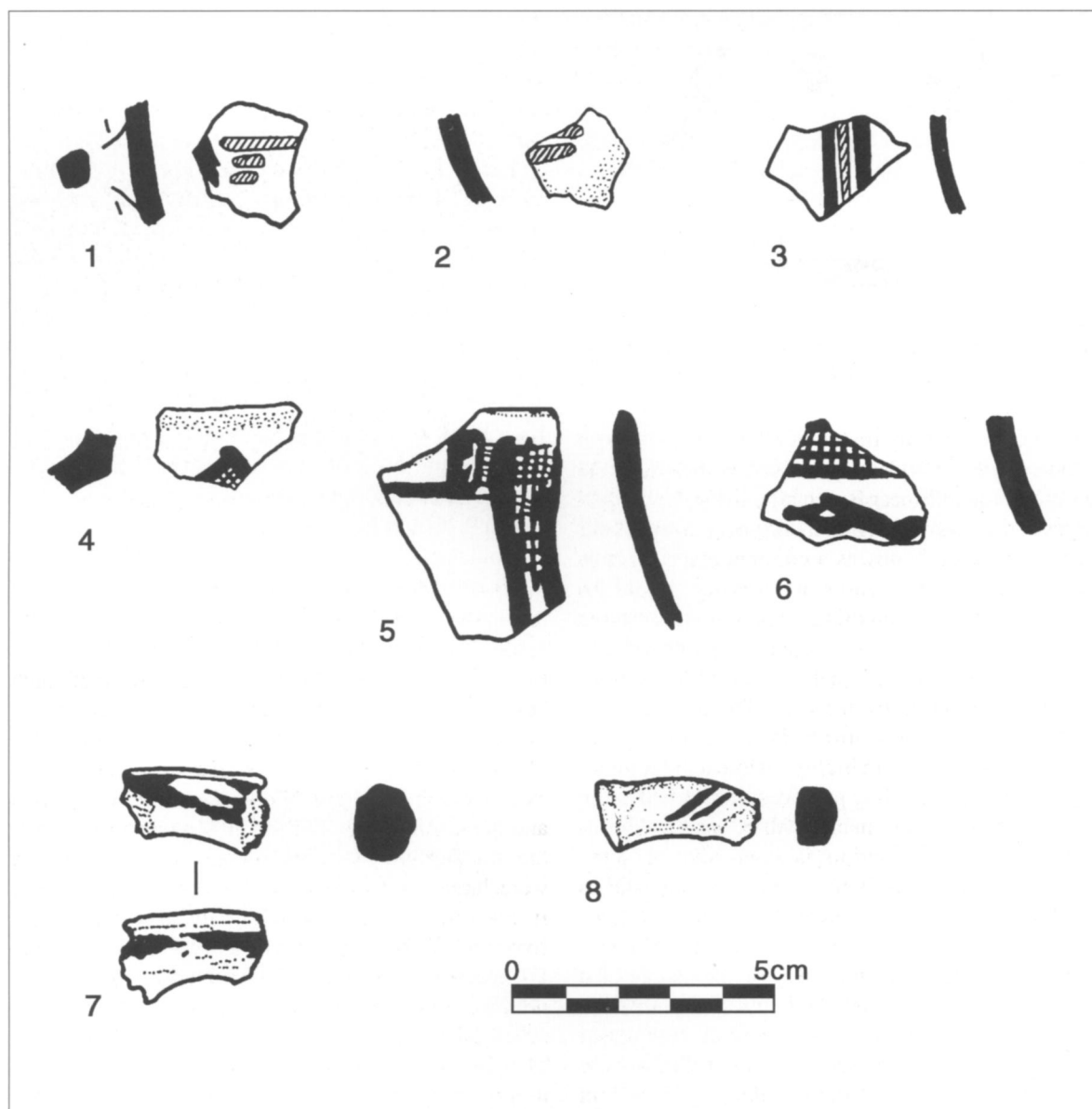


Fig. 12. White Slip sherds: (1–3) White Slip I; (4) White Slip II krater; (5–6) White Slip II hemispherical bowl, rim and body sherd; (7–8) White Slip II wishbone handles.

Cyprus during the 14th–13th centuries B.C.E. (Steel 2004a: 173–75). Occasional sherds belonging to small closed vessels have been identified (fig. 13.1). The closed forms, such as stirrup jars and piriform jars, more typical of Late Cypriot deposits (Steel 2004b: 73), were not identified in survey at *Vouppes*; however, these occur in excavated contexts, including the complete LH IIIA2 stirrup jar excavated in the tomb group in 2006 (Steel and Thomas in press).

A false neck and handle of a possible Late Minoan IIIB stirrup jar was found immediately to the north of the main survey area during the 2006 season (fig. 14). The fabric appears typical of Minoan imports to the site and is not Cypriot; nonetheless, the presence of a depression at the top of the false neck is unusual for a Minoan IIIB stirrup jar, raising the possibility that this is a Helladic imitation. The form is usually interpreted as an olive oil container used in

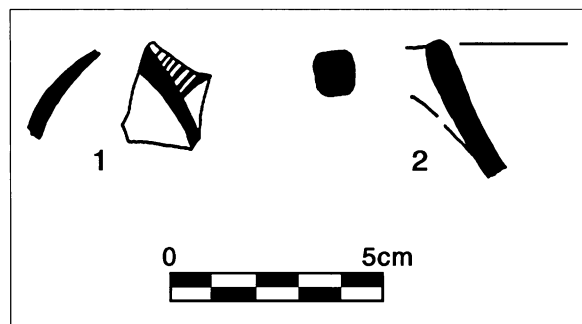


Fig. 13. Mycenaean sherds: (1) shoulder of small closed vessel; (2) rim and handle of shallow bowl FS 292.

large-scale commodity trade. Significantly, the handle of the stirrup jar had been incised with a possible Cypro-Minoan or Linear B sign after firing. Hirschfeld suggests that post-firing marking of pottery, both Aegean and local wares, is a commonplace practice in Late Bronze Age Cyprus and possibly relates to Cypriot mercantile handling practices (Hirschfeld 1993: 312–13). The sign appears to be CM 23, although it could relate equally to the Linear B sign *ti* (Hirschfeld 2002: 70, table 1). The handle location is typical for large stirrup jars, presumably because it is prominent and highly visible and therefore relates to specific handling practices (Hirschfeld 2000: 176). The sign's relationship with either the Cypro-Minoan or Linear B scripts is suggestive of some familiarity with one or both writing systems, and as such this vessel might represent the first indicator of literacy/writing at *Vouppes* (Hirschfeld 2002: 96–97). In this respect, the discovery of the handle of a Canaanite jar with an inscribed sign, from a sealed floor deposit in Building 1, is worthy of note (Steel 2007: 95).² A third incised sign, on a Plain ware handle, was picked up in field-walking in Field 5 in 2007. Clearly, the mechanics of economic control indicated by the presence of such material is well documented at *Vouppes* and might suggest the site's integration within intra-island patterns of exchange (see discussion in Hirschfeld 2007).

There were occasional body sherds from locally made and imported Canaanite jars (Russell 1989: fig. 14, K-AD 168) and Egyptian amphorae (for the range of forms, see Eriksson 1995: figs. 2–4); the commodity that these contained is unclear. The inhabitants of *Vouppes* clearly had access to a wide

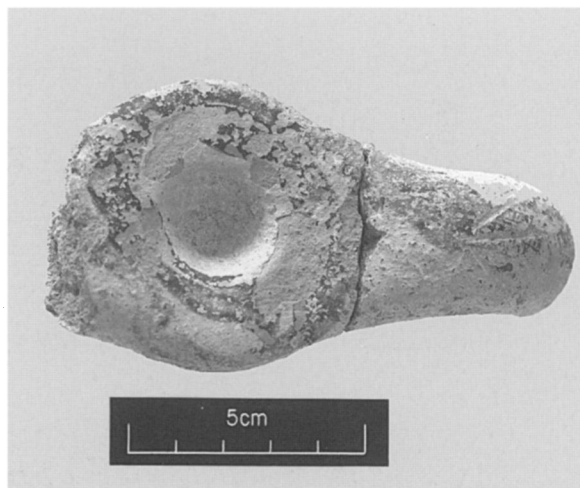


Fig. 14. LM IIIB stirrup jar with Cypro-Minoan sign.

range of imported commodities from the Aegean and the Levant. Previous discussions of Late Cypriot settlement models and the island's sociopolitical and economic organization have suggested that such “exotics” are rare in the Cypriot interior, especially in the rural and mining communities. Keswani (1993: 78–79), for example, argues that the exchange of exotic imports was largely between the coastal towns and some inland redistribution centers; in contrast, the smaller village communities of the hinterland were largely separate from this economic network. Instead, their integration within the economic infrastructure of the island operated at a level of staple finance, effectively providing tribute of agricultural produce and raw mineral resources to support the urban elites of the primary and secondary centers. The significance of the imports from *Vouppes* is that they clearly demonstrate the movement of luxury imports into a small inland agricultural community, thereby suggesting that the economic models proposed for the Late Cypriot period need further refinement.

Summary

The pottery from *Vouppes* is associated with a variety of activities commensurate with the household—namely, the storage, preparation, serving, and consumption of foodstuffs. Based on the range of environmental materials recovered from other sites, it is possible to reconstruct a basic diet for Late Cypriot society. Staples of cereals and pulses were grown and consumed, possibly in the form of broths—the

² The inscribed signs are currently being studied by Nicolle Hirschfeld.

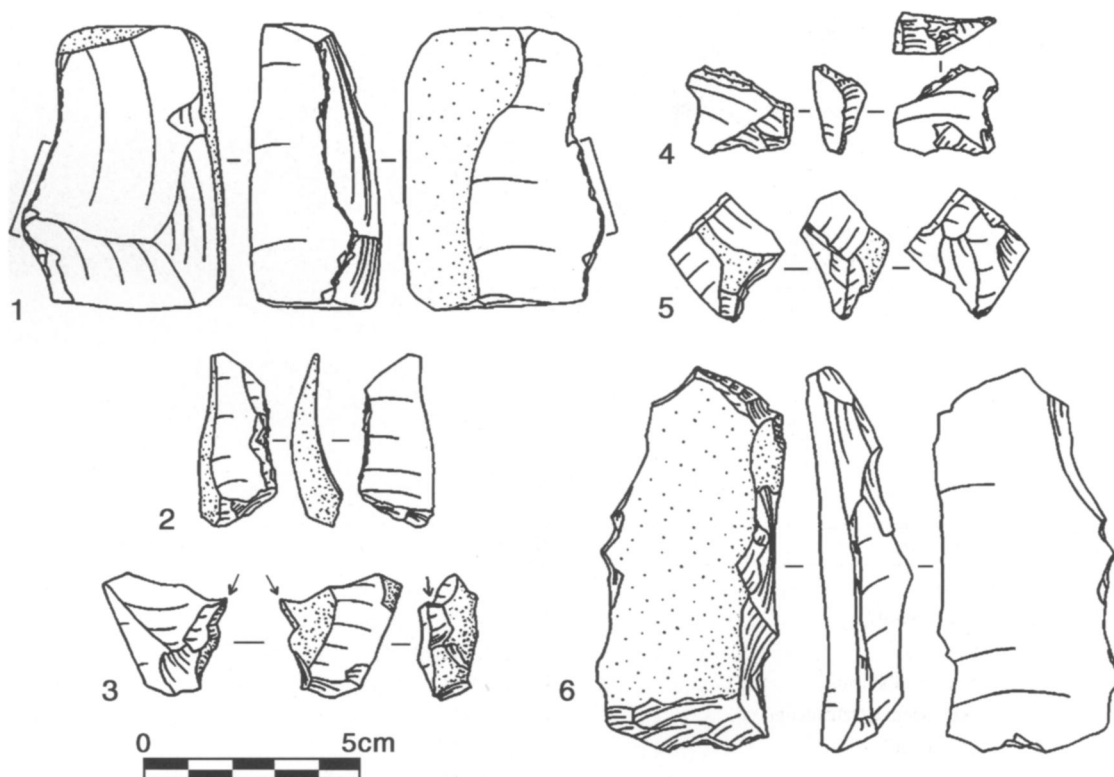


Fig. 15. Representative sample of chipped stone from *Vouppes*. (1) utilized piece (bracket indicates area of polish); (2) utilized piece; (3) burin; (4) truncation; (5) perforator; (6) scraper.

hemispherical bowls would be particularly suited for such a diet. Alongside this, the imported Aegean pottery might well have been used for serving and drinking wine (see discussion in Steel 2004a: 169–70). Although the site was originally interpreted as an agricultural production center (Given and Knapp 2003: 572–73), the range of pithos types recovered from the site in survey appears to be more in keeping with small-scale household storage than centralized agricultural production and storage. The pottery places the site firmly within the Late Cypriot cultural tradition and moreover illustrates the site's participation in wider trading networks both within and beyond Cyprus.

CHIPPED STONE INDUSTRY

The chipped stone materials collected during the systematic survey of *Vouppes* are described below (fig. 15). The sample consists of 110 artifacts, with

the majority ($n = 100$) providing evidence of a Bronze Age industry poorly documented on Cyprus to date (see discussion in Smith 1996; 2006). An additional four artifacts represent *dhoukani* “teeth” which illustrate possible modern and/or historic agricultural activity at the site, although their use during the Late Cypriot period cannot be definitively ruled out at this stage of research. Six other items collected during the 2004 survey are unworked chunks of siliceous materials, predominantly good-quality chalcedony prevalent in the local area. Within the sample of artifacts that more clearly belong to the Late Cypriot period, all stages of manufacture are represented, from the testing of raw materials to the production of tools (table 2). The sample is heavily dominated by two categories—namely, cores and tools. Together with knapping debris (chunks, blank fragments, core trimming elements, and unused blanks), these suggest the manufacture of chipped stone implements on site.

TABLE 2. Artifact Categories*

<i>Category</i>	<i>Number</i>	<i>Percent</i>
Core	33	33.00%
Core trimming element	5	5.00%
Blank fragment	8	8.00%
Chunk	18	18.00%
Blank	7	7.00%
Tool	29	29.00%
TOTAL	100	100.00%

* Four *dhoukani* "teeth" and six unworked chunks are not included.

TABLE 3. Raw Material Utilization

<i>Chert Type</i>	<i>LC II</i>	<i>Percent</i>	<i>Dhoukani</i>	<i>Unworked</i>
Jasper	63	63.00%	--	1
"Lefkara-basal"	29	29.00%	--	1
Chalcedony	5	5.00%	1	4
"Lefkara-translucent"	1	1.00%	2	--
"Lefkara-dense translucent"	1	1.00%	--	--
"Translucent"	1	1.00%	1	--
TOTAL	100	100.00%	4	6

Raw Material Utilization

Table 3 clearly demonstrates the prevalent selection of jasper for the production of chipped stone artifacts during the Late Cypriot period at *Vouppes*. Jasper, occurring in reds, yellows, and green, is locally abundant in the conglomerate outcrops at the northern edge of the survey area, belonging to the sedimentary formations of the Mesaoria group (Bear 1960). It is also available as water-rolled cobbles from the riverbed that forms the western boundary of the site. Both primary and secondary sources were exploited, as illustrated by fresh and water-rolled types of cortex on some artifacts. Chalcedony, which frequently occurs in formations with jasper, was not commonly exploited at *Vouppes*. Instead, half of the chalcedony artifacts represent unworked chunks, which in spite of their comparatively good quality, are all rather small and as such may not have been considered sufficient for tool production. Lefkara-basal chert represents the second most prevalent material type in

the sample. This material is all of a very pale red/brown color, poorly silicified, and frequently exhibits evidence of thermal fracture. The utilization of such poor quality raw materials suggests that knappers at *Vouppes* were not specialists, but rather local inhabitants satisfied to make do with poor quality Lefkara chert or intractable jasper materials readily available around the settlement.

Technology

The high number of cores belonging to the sample corresponds well with the use of poor quality materials, including predominantly jasper. The jasper selected for use, although generally of relatively good quality, is a material characterized by heterogeneity that is unsuitable for standardized blank production. Most of the nodules exploited at *Vouppes* demonstrate relatively few negative scars, indicating that individual cores were not heavily reduced but were quickly discarded once their flaws were observed.

TABLE 4. Core Type

<i>Core Type</i>	<i>Number</i>	<i>Percent</i>
Amorphous	11	33.33%
Discoidal	3	9.09%
Change-of-orientation	3	9.09%
Single platform	2	6.06%
Tested	4	12.12%
Split pebble	1	3.03%
Fragment	9	27.27%
TOTAL	33	99.99%

TABLE 5. Butt Types for Blanks and Tools

<i>Butt Type</i>	<i>Number</i>	<i>Percent</i>
Plain	10	38.46%
Faceted	10	38.46%
Cortical	5	19.23%
Compression	1	3.85%
TOTAL	26	100.00%

Note: *Dhoukani* "teeth" excluded.

TABLE 6. Dorsal Scar Patterns for Blanks and Tools

<i>Scar Pattern</i>	<i>Blanks</i>	<i>%</i>	<i>Tools</i>	<i>%</i>	<i>Total</i>
Unidirectional	3	20.00%	3	10.34%	6 / 13.64%
Bidirectional	2	13.33%	1	3.45%	3 / 6.82%
90-degree crossed	7	46.67%	17	58.62%	24 / 54.55%
Cortical	3	20.00%	2	6.90%	5 / 11.36%
Radial	0	0.00%	3	10.34%	3 / 6.82%
Kombiwa	0	0.00%	1	3.45%	1 / 2.27%
Core/other	0	0.00%	2	6.90%	2 / 4.55%
TOTAL	15	100.00%	29	100.00%	44/100.01%

Core reduction therefore was not intensive, and the significant number of core fragments demonstrates core abandonment due to raw material failures (table 4). The use of poor quality raw materials, however, was technologically consistent with the simple nature of the core technology, which was aimed at the production of flake blanks and tools. While two cores exhibit bladelet negative scars, all blanks and tools represent flakes with the exception of three irregular "blades" belonging to the tool sample. A range of flake cores was employed, indicating a somewhat systematic strategy of flake production, which though expedient, was not completely random. The preparation of core platforms by the removal of cortex is evident from blank and tool butts, while the presence of platform removal flakes demonstrates the correction of striking platform errors (tables 2 and 5). Plain butts and faceted examples are equally prevalent, and no difference was noted between blank and tool samples. Dorsal scar patterns on both blanks and tools generally agree with the core types listed

in table 4, confirming the consistent development of cores by rotation rather than the random simple removal of utterly "ad hoc" flakes (table 6). Systematic unidirectional core reduction, a pattern more typical of industries belonging to both the Neolithic and Chalcolithic, is less prevalent in the *Vouppes* sample.

Tools

The tools in the *Vouppes* sample are all very simply made, but their diversity is significant. Unretouched utilized flake implements (fig. 15.1–2) clearly dominate the tool sample. Judging from patterns of fine, continuous edge damage on the edges of these tools, they appear to represent simple sharp cutting and scraping edges (though this needs confirmation with use-wear analysis). The selection of jasper is particularly suitable for the manufacture of tools belonging to this class, because of the tough, durable, but sharp edges that result from knapping good quality jasper. A single cobble represents a large multi-tool with

TABLE 7. Tool Class Counts and Percentages

<i>Tool Class</i>	<i>Number</i>	<i>Percent</i>
Backed piece	1	3.45%
Burin	1	3.45%
Perforator	4	13.79%
Retouched piece	5	17.24%
Scraper	1	3.45%
Truncation	2	6.90%
Utilized piece	14	48.28%
Multiple tool	1	3.45%
TOTAL	29	100.01%

both chopping (heavy concentrated battering) and abrasion damage. Perforators, which constitute a significant percentage of the tool sample, form a distinct class of non-retouched implements on which rounding, abrasion, or edge damage is isolated around the circumference of a pointed edge tip (fig. 15.5). Their relative abundance in the *Vouppes* assemblage is interesting and represents a feature that needs to be investigated further when excavated material has been fully analyzed (table 7).

Formal tool classes are less frequent in comparison with non-retouched but utilized implements. The retouch used to shape the formal tools is crudely executed. The exception is a bifacial backed and truncated tool fragment produced on high quality red-brown "translucent" chert (fig. 15.4). It is possible that this piece is intrusive. The presence of a single burin (fig. 15.3), which is an irregular dihedral example, is interesting. In the Levant, burins disappeared prior to the Bronze Age (Rosen 1997: 155), suggesting the possibility of a greater degree of continuity between Cypriot Bronze Age assemblages and their earlier prehistoric counterparts than that exhibited on the adjacent mainland. Other tools represent simple marginal retouch which, along with a truncated piece, show the use of backing retouch opposite or adjacent to edges exhibiting utilization. A single scraper (fig. 15.6) shows a convex abruptly retouched edge on an irregularly fractured "blade" of moderate to poor quality "Lefkara-basal" chert.

Summary

The *Vouppes* sample of chipped stone artifacts is relatively small. Even so, it provides evidence of a number of aspects worthy of further investigation.

The industry is clearly local and exhibits no signs of specialization in manufacture or tool utilization. It is flake based, and the tools produced could have been used within technical systems requiring suitable sharp cutting and/or scraping edges as well as perforation. The reuse of larger discarded cores as heavy pounding and grinding implements is also indicated. The raw materials used are clearly local and demonstrate a significant regional distinction from LC IIC assemblages on the south coast (personal observation). The overall technology and tool types represented, however, demonstrate considerable similarity between the Troodos fringe at *Vouppes* and the south coast at either Kalavassos *Ayios Dhimitrios* or the Maroni Valley sites (personal observation). General consistency with earlier prehistoric (particularly Chalcolithic) assemblages in terms of the overall core technology and tool types (although more crude and less diverse) implies continuity between the Cypriot Bronze Age and the preceding Chalcolithic industries. Essentially, the Late Cypriot industry as represented at *Vouppes* shows a technology that exhibits nothing new; ad hoc flake production utilizing poor quality raw materials is represented in all industries dating from at least the Aceramic Neolithic. What appears to have changed by the Bronze Age is a shift away from the use of both formal and expedient *chaînes opératoires* in tandem toward a more exclusively expedient system. Beyond evident regionalism present in the exploitation of local raw materials, the technology of chipped stone, on the basis of current (very limited) evidence, appears to be the same between the coastal urban centers and the inland agricultural settlement of *Vouppes*.

GROUND STONE TOOLS

The sample of ground stone tools and implements recovered in survey is relatively diverse and is consistent with the ground stone industry represented at other Bronze Age settlements on Cyprus. The tool types used here follow types defined elsewhere for Bronze Age ground stone assemblages (Swiny 1986; 2003; Frankel and Webb 1996; 2006). The main exception is the term "pecking stone," used here to define a small sample ($n = 3$) of igneous pebbles demonstrating light battering on one or both flattened ends of a small elongated pebble (e.g., Elliot-Xenophontos 1998: fig. 90.13). These tools are distinguished from other pounding tools on the basis of tool size and the degree of surface damage,

TABLE 8. Ground Stone Tool Class Counts and Percentages

<i>Tool Class</i>	<i>Number</i>	<i>Percent</i>
Grinding	56	60.87%
Pounding	31	33.70%
Cutting	1	1.09%
Manufacture	4	4.35%

which suggest a difference in tool use. The term "pecking stone" has been used elsewhere to label spherical chert pebbles exhibiting extensive multifaceted battering (cf. Swiny 1986: 11–12; 2003: 226; Frankel and Webb 1996: 85–86; 2006: 239–41, text fig. 6.44, fig. 6.31–2, pl. 61). Though it is possible that such spherical tools were used to rough out vessel forms of sedimentary stone (cf. Elliot-Xenophontos 1998: 172), such tools are considered here to represent hammer stones used for chert knapping (a possibility suggested by the above reports). Chert hammer stones utilized in the manufacture of chipped stone tools are functionally distinct from the unipolar or bipolar tools inferred here to represent tools used to peck the surfaces of ground stone tools for tool shaping or resharpening (cf. Frankel and Webb 1996: 86; 2006: 235). In particular, the location of damage on flattened ends of these pebbles is inconsistent with tools that function effectively as hammer stones for the manufacture of chipped stone tools (personal observation). Such chert hammer stones with multiple battering or chipped facets are not represented in the *Vouppes* sample, although this may be in part a reflection of the locally available stone materials (see discussion of chipped stone above). It is also notable that vessel forms made from sedimentary stone that might have been formed using globular chert pecking stones have not yet been recorded at the site.

A total of 92 artifacts were collected in the intensive survey. In the absence of replication analysis or contextual information, the sample has been divided into four classes, distinguished on the basis of use motion rather than assumed function. Over 60 percent of the artifacts represent tools used with grinding motions, including rubbers and querns or grinding slabs, abundant rubbing stones and grinders, along with two pestles and two ad hoc flake tools exhibiting abrasion wear (tables 8 and 9). Beyond these grinding tools, about 33 percent of the sample represents tools utilized for pounding and hammering

TABLE 9. Ground Stone Tool Types

<i>Grinding Tools</i>	<i>Number</i>	<i>Percent of Class</i>
Rubbing stone	23	41.07%
Rubber	15	26.79%
Pestle / rubbing stone	1	1.79%
Pestle	1	1.79%
Grinder	7	12.50%
Utilized flake	2	3.57%
Grinding slab	4	7.14%
Grinding slab / anvil	1	1.79%
Quern	2	3.57%
<i>Pounding Tools</i>	<i>Number</i>	<i>Percent of Class</i>
Pounder	10	32.26%
Pounder / hammer stone	2	6.45%
Pounder / pestle	1	3.23%
Pounder / rubbing stone	4	12.90%
Pounder / grinder	1	3.23%
Pounder / anvil	1	3.23%
Anvil / rubber	1	3.23%
Hammer stone	6	19.35%
Hammer stone / rubbing stone	1	3.23%
Hammer stone / pecking stone	1	3.23%
Pecking stone	2	6.45%
Pecking stone / sling stone	1	3.23%
<i>Cutting Tools</i>	<i>Number</i>	<i>Percent of Class</i>
Utilized flake	1	100.00%
<i>Manufacture</i>	<i>Number</i>	<i>Percent of Class</i>
Flake	3	75.00%
Resharpening flake	1	25.00%

activities. The majority of the latter are expedient hand tools, which occasionally demonstrate the reuse of previous grinding tools, and two are artifacts representing the lower unit of more complex, multiple-element pounding tools, namely, anvil surfaces. One artifact, a utilized flake, was (like the two examples assigned to the grinding class) produced during the manufacturing stages of ground stone tool production, and later used as an expedient cutting tool. Four other diabase flakes further demonstrate the manufacture of ground stone tools on site, but were not subsequently utilized and thus are listed separately in table 9. Notably absent from the present sample are the ax and adze tool types seen in Bronze Age assemblages elsewhere (Swiny 1986: 2–5; 2003:

222–23; Frankel and Webb 1996: 80–81; 2006: 208–9). This feature and the generally low number of querns and rubbers in comparison with other tool types will need to be addressed with samples collected in future seasons.

Raw Material Utilization

The ground stone assemblage from *Vouppes* was produced with the nearly exclusive selection of volcanic rocks. The single exception, a rubbing stone made of dense grayish sandstone, represents the fortuitous selection of a secondary flat river cobble. Generally, the use of diabase was predominant through all tool types, a material locally available as both primary outcrop material along the northern edge of the survey area, or as secondary material from the Aloupos riverbed, bordering the western edge of the site. Micro-gabbro was selected for the manufacture of three pounding tools, while gabbro was used for one rubber and one rubbing stone. All these volcanic rocks belong to the Diabase group prevalent in the lower reaches of the Troodos massif (Bear 1960). Of interest is the presence of a rubbing stone made of gray vesicular basalt, since rubbers made of vesicular basalt elsewhere represent items imported from the eastern Mediterranean mainland (Elliot 1985: 313). The presence of this artifact implies the participation of the *Vouppes* inhabitants within wider exchange systems noted for Late Cypriot sites elsewhere on the island. This contrasts with the rest of the ground stone sample, as well as the chipped stone sample, both of which demonstrate the predominantly local character of raw material selection.

Tool Type and Use-Life

The majority of tools collected in the 2004 survey represent expedient versus curated tools, according to the dichotomy established for the Marki ground stone assemblage (Frankel and Webb 1996: 72–74; 2006: 197; Webb 1998: 797–98). The most frequent types include rubbing stones, pounders, hammer stones, grinders, and pecking stones ($n = 60$, or around 65% of the sample). Nearly all pounding tools represent expedient implements, defined by the selection of suitable rounded or irregularly shaped natural cobbles utilized in a percussive manner without initial formal shaping. It is notable that most of the tools exhibiting multiple uses (or the rare example demonstrating the reutilization of broken earlier tool forms)

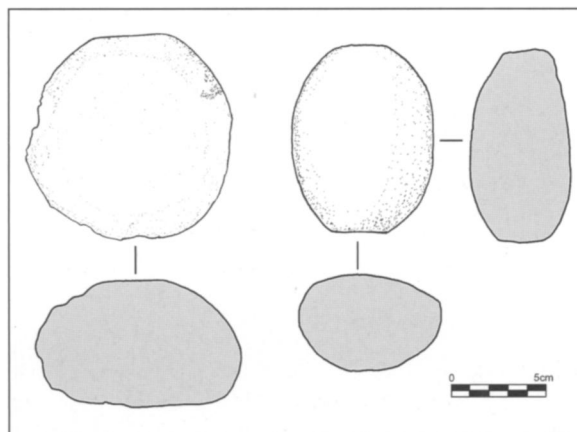


Fig. 16. Rubbing stones.

were typically those used for percussive actions. This incidence of multiple tool use demonstrates a non-formal tool use that goes beyond a strictly ad hoc, never-to-be-repeated utilization of any rock immediately to hand and instead demonstrates more complex tool use-lives consistent with their versatility (cf. Frankel and Webb 1996: 72; 2006: 198).

Other unshaped informal tools include the grinding slabs made using boulders selected for their broad, flat surface or surfaces (if bifacial), which performed the same basic function as the more formally shaped querns defined as a curated tool type (cf. Frankel and Webb 1996: 72; 2006: 229). Rubbing stones (fig. 16) represent the dominant tool type (Kassianidou 2007: 278–79, pl. 80). These tools demonstrate the careful selection of small- to medium-sized cobbles with flat surfaces used with little or no formal shaping. Such tools, while variable in terms of plan view, are very consistent in terms of tool profile, which was sometimes enhanced by pecking along the lateral edges, probably to facilitate the user's ability to grip the tool. The work faces of such tools frequently demonstrate the reshaping of the work face by pecking, and favorite tools were utilized bifacially. These tools, in spite of their simple form which can be categorized as expedient, were heavily utilized, with work faces that became extremely flat and exhibited multiple striations as wear developed over an extended period of time. As such these tools, though informal, cannot be viewed as truly ad hoc. Similarly, grinders present in the sample represent a clearly defined globular tool form that is typically faceted or beveled through heavy use. Such



Fig. 17. Rubber.

tools, though perhaps not curated in the sense of formal tools requiring complex manufacture sequences, similarly demonstrate extended use-lives and cannot be defined as merely immediate.

Formal tools include rubbers and two querns that show the careful shaping of tool form by chipping and/or pecking of the lateral edges or ends as well as preparation and/or resharpening of the working surface by pecking. Rubbers (fig. 17) occurred in two forms, with the dominant subtype demonstrating the distinctive concave profile with upturned ends typical of the upper element of a complete grinding apparatus (cf. Frankel and Webb 1996: 75–76; Kassianidou 2007: 278, pl. 74)). Rubbers are frequently represented in the excavated deposits. The presence of a single saddle corresponds to this type of rubber. Three further saddle querns have been found at *Vouppes* in sealed contexts: one particularly well-worn quern adjacent to the threshold into Building 1, a second in the well in Building 2, and the third together with a rubber, thrown into the robbing backfill of the tomb (Steel and Thomas in press). These all indicate the importance of large-scale processing of agricultural produce at the site. A smaller number of the rubbers from *Vouppes* represent large, heavy tools shaped by pecking on the ends and/or lateral edges that exhibited a flat or slightly convex working face. The working faces of such tools, which bear striations perpendicular to the tool length, together with their large size, clearly differentiate these



Fig. 18. Large pestle found in situ at the entrance to Building 1 in 2006.

artifacts from the hand-held rubbing stones. The presence of the flat grinding slabs or the slightly dished quern recorded in 2004 probably coincide with the presence of this rubber type. While some examples were only lightly used, implying recently manufactured items, many rubbers were broken or exhibited considerable wear, demonstrating tools clearly in need of replacement (cf. Frankel and Webb 1996: 76; 2006: 223–24).

Of the two pestles, only one could be considered formally shaped, and that tool was also utilized as an expedient rubbing stone on a flattened lateral surface. The sample was increased with further survey and excavation in 2006 and now includes a small pestle located on the surface in Field 8 (Steel 2007: 93, fig. a) and two pestles found in situ on the floor of Building 1 (fig. 18). Thus, while *Vouppes* does not yet provide the kind of distinct contextual evidence noted elsewhere (cf. Frankel and Webb 1996: 72–73; 2006: 218; Kassianidou 2007: 279, pl. 75), the initial ground stone sample demonstrates similar formal and non-formal tool types. The degree to which some non-formal tools exhibit signs of long-term rather than merely immediate use-lives, however, begins to suggest that a strict dichotomy between curated and expedient tools may not be easily drawn at all Bronze Age sites.

SMALL FINDS

The survey material includes a small number of ceramic and stone artifacts in addition to the pottery and the stone tools discussed above. Although limited in range, these objects have helped to throw

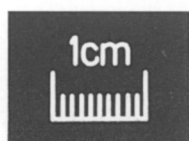
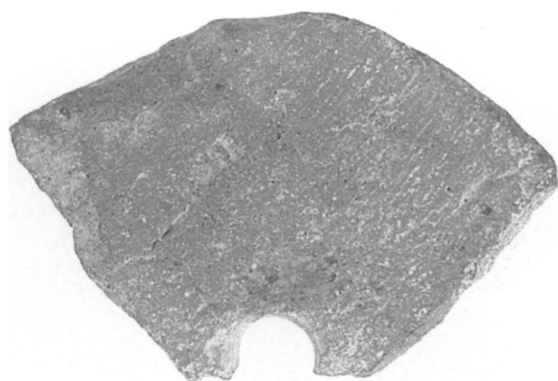


Fig. 19. Pierced sherd, possibly a buzz toy.

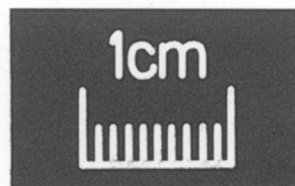
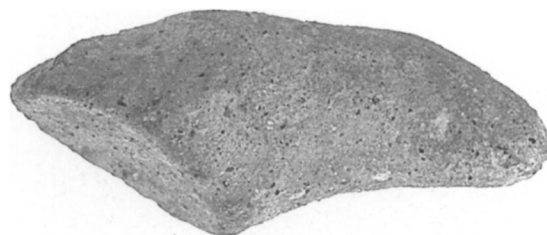


Fig. 20. Ceramic bull's horn.

some light on the nature of occupation of *Vouppes* and the activities of its inhabitants. Many of these artifacts are typical of the material culture recorded in the contemporary Late Cypriot urban centers, possibly indicative of a shared island-wide cultural identity, which went beyond categories of rural/urban. Others may be more typical of a small rural site in the Cypriot hinterland associated with specific agri-cultural activities.

A pierced sherd was found in Field 1 (fig. 19). This was originally interpreted as a spindle whorl (Dikaïos 1969–1971: pl. 165) but on closer inspection does not appear to be associated with textile production (J. Smith, personal communication, 2004). Certainly it does not correspond with the range of textile weights used on the island during the Late Bronze Age (Smith 2007). Modified sherds are attested at other Bronze Age sites, and a variety of functions have been suggested, such as counters or tokens, scrapers, burnishers, pot lids, and whorls (du Plat Taylor 1952: 161; Frankel and Webb 1996: 202–12; 2006: 177–82). One possibility is that the sherd was a buzz toy pierced to place on a string, which when pulled would cause the sherd to spin (see discussion in Van Beek 1989). An alternative hypothesis is that the object was a weight of some sort, although there is no indication as to wear patterns associated with suspension. In the absence of comparative data from sealed settlement contexts at

Vouppes, the function of the pierced sherd remains unclear.

A ceramic bull's horn from a Plain ware bull figurine was recovered in Field 6 (fig. 20). This belongs to a type typical in LC IIC–IIIA in the urban centers such as Enkomi (Karageorghis 1993: 43), Kition (Begg 1991: 68), Maroni (Begg 1991: 87), smaller sites in the interior such as Apliki *Karamallos* (du Plat Taylor 1952: 162; Kling 2007b: 310, pl. 88), and the rural sanctuaries of Ayia Irini and Myrtou *Pigadhes* (Begg 1991: 68; Birmingham 1957: 80–81). The actual function of the bull figurines is unclear. Given their recurrent occurrence in sanctuary contexts, a religious significance should not be discounted, and they may have been associated with the practice of popular cult. This is an aspect of social life at *Vouppes* that can only be explored further with material from sealed contexts.

There was also a single fragment of a wall bracket in Field 1 (fig. 21), the second one to be found at the site (Knapp et al. 1994: 337–38). This was part of the wall mount, decorated with an incised, vertical, wavy line on the upper surface. Further wall bracket fragments have been identified in sealed contexts in Building 1 (Steel 2007: 95). Wall brackets are a common element of Late Cypriot material culture; nonetheless their function remains enigmatic. They are found in LC IIC assemblages, both in the coastal urban centers such as Enkomi (Levels IIB–IIIB) and

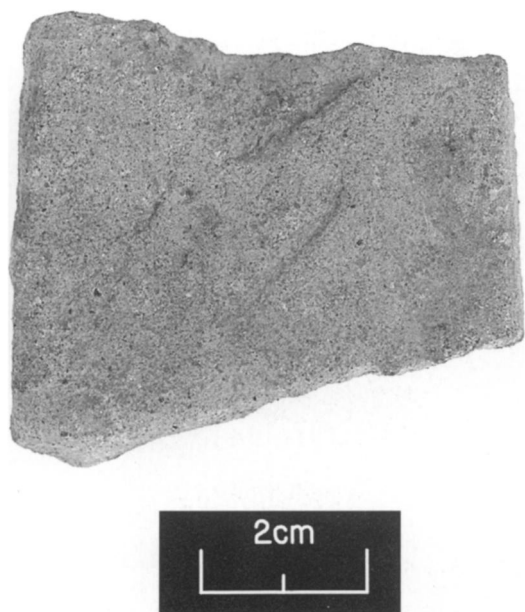


Fig. 21. Wall bracket fragment.

Kalavassos *Ayios Dhimitrios* (Dikaïos 1969–1971: pls. 134/50–3, 154/18, 155/11, 160/13, 165/28–31, 175/23; South, Russell, and Keswani 1989: pl. 11, fig. 27), as well as in the rural/mining hinterland, at *Apliki Karamallos* (du Plat Taylor 1952: 162, pl. 26e; Kling 2007b: 307, pls. 85–86). It has been suggested that they were used as lamps (du Plat Taylor 1952: 162; Dikaïos 1969–1971: 450, 455, 460, 467; Kling 2007b: 307), although no traces of burning are found at the rim of the shallow scoop. Alternatively, they might have been attached to walls to hold lamps. Another suggestion is that these objects have some religious significance (Kling 2007b: 307).

Fragments of a limestone basin were identified in the boundary between Fields 3 and 4 (fig. 22). This was roughly made, and broad chisel marks are visible on the surface. The basin conforms to the description of the limestone circular basins found scattered over the surface at *Analiondas Palioklichia* (Webb and Frankel 1994: 14–16), although they appear to be otherwise rare at Late Cypriot sites. Webb and Frankel suggest that the form was used in specific activities at *Analiondas*, involved in processing and storage of agricultural produce. Chalk/calcarene basins are also attested at Middle Cypriot *Marki Alonia* (Frankel and Webb 2006: 209–10, fig. 6.2, pl. 55), where they have been categorized with the curated tools. Al-

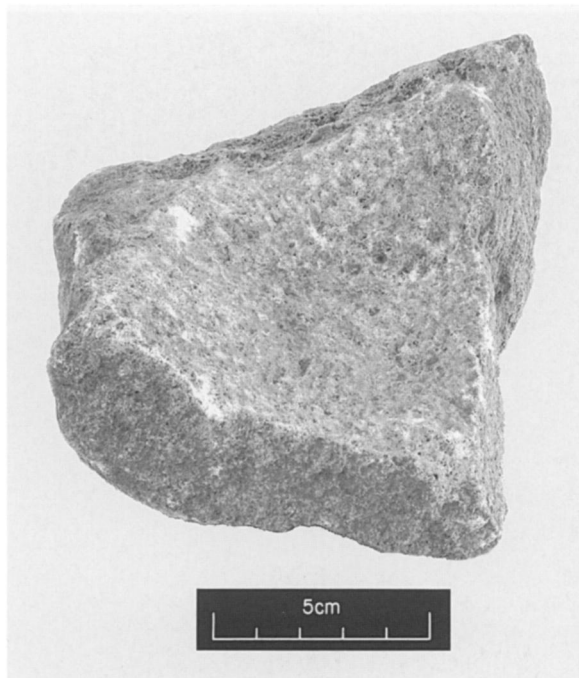


Fig. 22. Limestone basin fragment.

though its exact function is unclear, the basin from *Vouppes* might support the premise that the site was involved in large-scale agricultural activities.

A badly worn, double-sided gaming stone was found in the field boundary between Fields 4 and 5 (fig. 23). This is made from an igneous rock intrusive to the site. Both faces are marked with arrangements of shallow depressions; on the obverse (fig. 23a) these depressions appear to be organized, unusually, in four rows of ten (although these are very worn and difficult to discern), and on the other side a random number of depressions forms a spiral running clockwise (fig. 23b). In 2005 a second gaming stone, also made from an igneous rock (fig. 24), was picked up on the surface in Field 2, immediately adjacent to the barn. This is marked on one side with the *Senet* game, of which three rows of six depressions survive, as the stone had been broken. Further gaming stones have been found at the site in the 2005 and 2006 excavation seasons.

Gaming stones are a frequent artifact type on Bronze Age sites throughout the island (see discussion in Swiny 1986; 2003; Mogelonsky 1996; Frankel and Webb 1996: 86–87; 2006: 244–46). These are generally accepted to be a local derivation of Egyptian gaming boards; the 3 × 10 arrangement of peck-

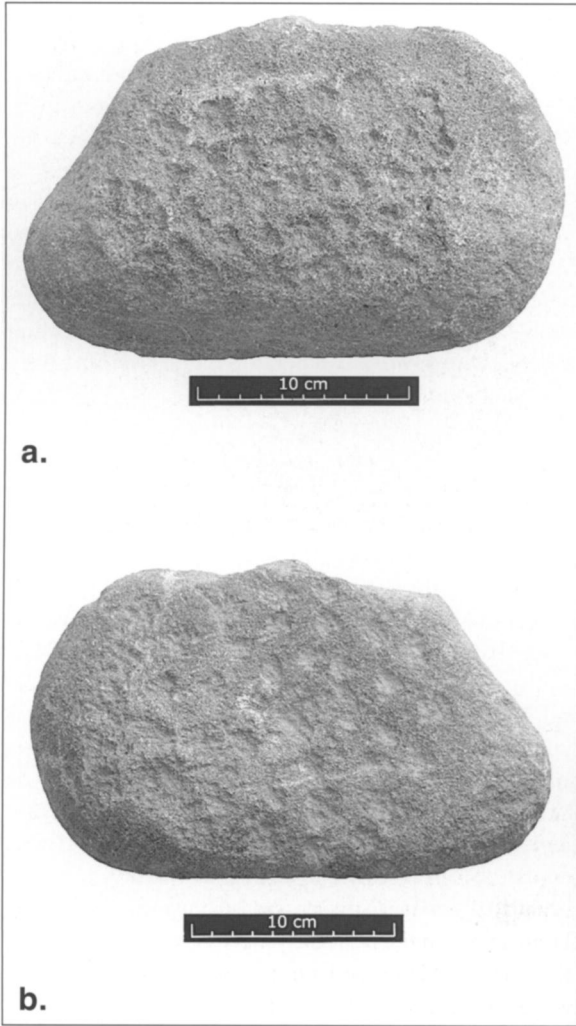


Fig. 23. Double-faced gaming stone. (a) obverse, *Senet*; (b) reverse, *Mehen*.

marks refer to *Senet* (“the game of passing”), while the spiral formation is thought to be the game *Mehen* (“large snake” or “coiled one”) (Swiny 2003: 232; Frankel and Webb 2006: 245, text fig. 6.49). The *Senet* gaming stone is more commonly represented on Cyprus, although largely in Early–Middle Cypriot contexts. Most gaming stones are single-faced, although examples of double-sided stones do occur. A possible gaming stone from Lemba *Lakkous* suggests that the concept of the game(s) was transmitted to the island as early as the Chalcolithic period (Swiny 2003: 233; Peltenburg 1985: 289, fig. 86/3), possibly directly from Old Kingdom Egypt. In Late Cypriot contexts these objects are frequently found incorporated into domestic architecture (Swiny 1986:



Fig. 24. Gaming stone.



Fig. 25. Walled gaming stone, in west wall of Building 2.

36–37, 40–41). Examples include the coping of a well at Episkopi *Bamboula* (Weinberg 1983: pl. 8c; Swiny 1986: 37), a gaming stone built into the wall of a structure at Kalavassos *Ayios Dhimitrios* (South 1989: 32), and a gaming stone used to mark the threshold into Room 73 at Maa *Palaikastro* (Kara-georghis and Demas 1988: pl. 34). There is clearly a possibility that the *Vouppes* gaming stones had been incorporated into the architecture of the site; this is further substantiated by the occurrence of a walled gaming stone in Building 2 in the 2006 excavations (fig. 25). Others found in excavation are always

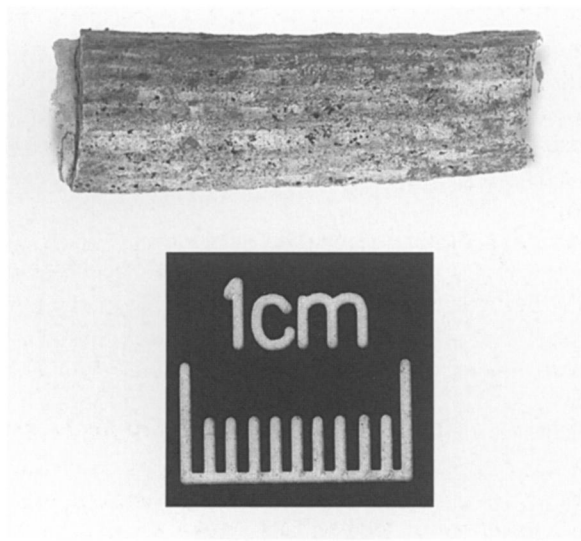


Fig. 26. Dentalium "bead."

associated with building collapse. There is also some indication that by the Late Bronze Age these objects had acquired religious connotations, which might have persisted into the Iron Age. Swiny notes the incorporation of one into the altar of Temple IV at Kition *Kathari* and another from the temple to Aphrodite at Amathus (1986: 37; 2003: 232–33). Cultural significance might be extrapolated to the gaming stones from *Vouppes*, despite their seemingly vernacular context; the choice to wall such artifacts might be related to practices of foundation deposits. As noted by Herva (2005), the act of incorporating specific items of material culture within buildings is of social significance: it reified human relations with a built space and provided possibilities for negotiating social relations. A more prosaic interpretation relates to a continuing practice of builders simply placing objects in structures that they wall for personal rather than symbolic reasons. Although the full significance of these objects remains elusive, it is clear that the gaming stones from *Vouppes* belong to an ancient and persistent cultural tradition on the island, one which in the Late Bronze Age incorporated both the rural hinterland and the urban centers.

Two possible dentalium beads (fig. 26) were also picked up in the survey, one in Field 6 and the other in the riverbed prospection. Originally these were interpreted as evidence for pre-Bronze Age activity at the site (Steel and Janes 2005: 237–39), as such artifacts are more typical of the Neolithic and Chalcolithic periods on Cyprus, although their use persists into the Early and Middle Cypriot periods

(Reese and Webb 2006: 257–58, 260–61; Reese 2003: 456–57). Dentalia were also noted in the 2005 excavation, apparently lying on the surface of a 13th-century structure. However, it has subsequently become apparent that these objects may be geological rather than anthropogenic in origin; a number of macrofossil beds have been identified in the sediments and marls of the Mesaoria in close proximity to *Vouppes* (Bear 1960), and these seem to make up the bedrock at *Vouppes*. Moreover, in the excavations in 2005 and 2006, fossil shells including dentalia were common when the natural sedimentary rock was exposed.

CONCLUSIONS

The study of the surface pottery from *Vouppes* confirms that the major phase of occupation of the site dates to the 13th century B.C.E., although there are residual remains of an earlier occupation phase of the 16th century (LC I). These findings have been confirmed by subsequent excavations at the site (Steel and Thomas in press). The character of the pottery is typical of settlement assemblages identified at other contemporary sites, such as *Apliki Karamallos* (du Plat Taylor 1952: figs. 5–8; Kling 2007a). A comprehensive range of Late Cypriot wares has been identified; however, the range of forms is rather limited in comparison to the full spectrum of Late Bronze Age shapes known from urban contexts, possibly reflecting different activities/social practices in the rural environment. Of particular interest is the variety of imported wares from the Aegean, Syro-Palestine, and Egypt; these give a very clear indication that the inland centers were regularly incorporated within extra-island trading activity, suggesting that the presence/absence of imports is not an important criterion in site classification (contra Knapp 1997: 53, table 2). The identification of imported Mycenaean pottery as a prestige good in Late Cypriot contexts suggests that the elite of the small inland centers eagerly sought such objects, maybe exchanging them for agricultural produce, adding credence to Keswani's staple/wealth finance model (Keswani 1993).

The bulk of the pottery recovered in survey is from pithoi, which indicates storage of agricultural produce as an important activity at the site. Only limited quantities of mega-pithoi were retrieved from the surface; nonetheless their presence demonstrates some centralized storage at *Vouppes*, and might be indicative of the site's inclusion in intersite exchange

or taxation systems. It is interesting to note that preliminary assessment of the excavated wares from *Vouppes* thus far provides a slightly different picture. Although significant quantities of pithoi were recovered in the area of Building 1 in 2005, Plain ware is predominant. Site formation processes have therefore distorted the distribution of surface materials; smaller sherds of fine wares appear to be subject to being washed away, whereas the larger pithos sherds seem more prone to being moved to the surface in plowing activity and are not subsequently washed away. This conclusion is supported by the predominance of extremely worn, small fine ware sherds along the western limits of the site, which have been washed down to the cliff edge. A clearer understanding of the relationship between the surface and subsurface material at *Vouppes* suggests that archaeological models of settlement developed on the basis of survey material elsewhere on the island should be approached with caution. The definition of the site as an agricultural production center (Given and Knapp 2003), based on a seeming preponderance of ground stone and pithos sherds on the surface, needs to be reworked in the light of these findings.

Initial analyses of the chipped stone and ground stone assemblages recovered on the surface at *Vouppes* illustrate the continued use of stone tools during the Late Cypriot period, alongside the presumed greater use of copper/copper alloy tool types. The ground stone industry clearly persists in the earlier Bronze Age tradition with little adaptation. These tools are represented in large quantities at *Vouppes*, indicative of significant processing of agricultural produce at the site. This is confirmed by the ongoing finds from excavation. Analyses of the chipped stone are informative, indicating a small-scale household-based production of cutting, scraping, and perforating tools, using poor quality but readily available materials. The persistence of chipped stone tools in a Late Bronze Age context is of particular interest and is the focus of ongoing analysis. Their continued use might be indicative of limited distribution of bronze tools and implements for daily use. While the survey material offers an interesting insight into household activities at *Vouppes*, ongoing excavations have provided the opportunity to further explore these in more detail with reference to material from sealed contexts.

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