

Material Culture and the Value of Context: A Case Study from Marki, Cyprus

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Archaeological investigation, analysis and publication involve two fundamentally different kinds of data: stratigraphic observations and contextual relationships, which are visible only during excavation and never again; and the finds which are retained and which may be examined and re-examined (Frankel 1998, 243). The former present particular problems of recognition and definition in the field and are highly mediated by scales of analysis, systems of recording and skills and techniques of observation. They then go through a further process of analytical abstraction to reach their authoritative form in the final excavation report. The finds, on the other hand, may be re-examined at any time and are subject to independent processes of analysis and evaluation (Carver 1989, 669).

These two categories of read-once and re-readable data raise different issues of interpretation and presentation, carry differing degrees of authority and are frequently the domain of different scholars. This often results in a physical and conceptual separation between analyses of field data and finds, with regard both to those who undertake them and the time and place in which they are undertaken, and a separation of finds from contextual or site description in final publication (on the development of 'object specialisms' in archaeology see Lucas 2001, 65–74). Many classes of object, furthermore, are published by specialists who were not present during excavation and not privy to the complex decisions which affect the selection, simplification and abstraction of field data. Thus material culture is often studied in isolation from its recovery context or linked principally with regard to the potential of one or the other to serve as a chronological or functional marker. As a result, the full behavioural relationship between material culture and archaeological context is rarely explored to its maximum potential.

The relatively small scale of our excavations at Marki in central Cyprus allows a degree of integration or reflexivity (Hodder 1997) between field observation, contextual analysis and site and artefact publication which is rarely possible on sites with larger exposures and/or longer excavation histories. This has given rise to a particular understanding of the process of contextual analysis as well as to some demonstrably positive outcomes. The main argument of this paper is intended to show the value of a fine-scale approach to contextuality, with reference to particular classes of ground stone artefact from Marki. It is preceded by a brief description of site history and recording procedures and followed by a discussion of the

implications of this approach for archaeological practice, the collection, recording and management of data and publication and authority structures within the discipline.

THE SITE OF MARKI ALONIA

Marki *Alonia* is an Early and Middle Bronze Age settlement located in the northern foothills of the Troodos Mountains, 16km southwest of Nicosia (Fig. 6.1). A decade of fieldwork by the Australian Cyprus Expedition has uncovered an area of 2000m² adjacent to the Alykos River in the northwest part of the site (Figs. 6.2–3), providing the largest exposure of any prehistoric Bronze Age settlement in Cyprus (Frankel and Webb 1996a; 1996b; 1997; 1999; 2000; 2001a). The village was founded during the Philia culture facies at the very beginning of the Early Bronze Age (*c.* 2,400 BCE) and occupied for some 600 years before final abandonment in Middle Cypriot II (*c.* 1,800 BCE). Site economy was initially linked to the nearby copper ore bodies in the northern foothills of the Troodos, as indicated by the recovery of an ingot mould and metallurgical debris in Philia levels (Frankel and Webb 2001a, 35–36, figs 2.3, 10.2; Fasnacht and Künzler Wagner 2001). From the beginning, however, the settlement was a self-sustaining community, with a focus on cereal agriculture, animal husbandry and the local production of ceramics, textiles and ground and chipped stone tools.

Geophysical survey shows that, at its maximum extent, the Marki settlement covered at least five hectares. In the excavated exposure substantial population growth is reflected in an expansion of the inhabited area from initial Philia settlement to Early Cypriot I and II and a further expansion and increasing density of occupation from Early Cypriot III to Middle Cypriot I. We have argued elsewhere that this is likely to reflect an increase in population from 40 or 50 people during the Philia phase to a maximum of 350 or 400 in Middle Cypriot I (Frankel and Webb 2001b; Webb and Frankel 2004). Domestic units during the earlier phases were freestanding structures of two or three rooms. In contrast, the architectural system of

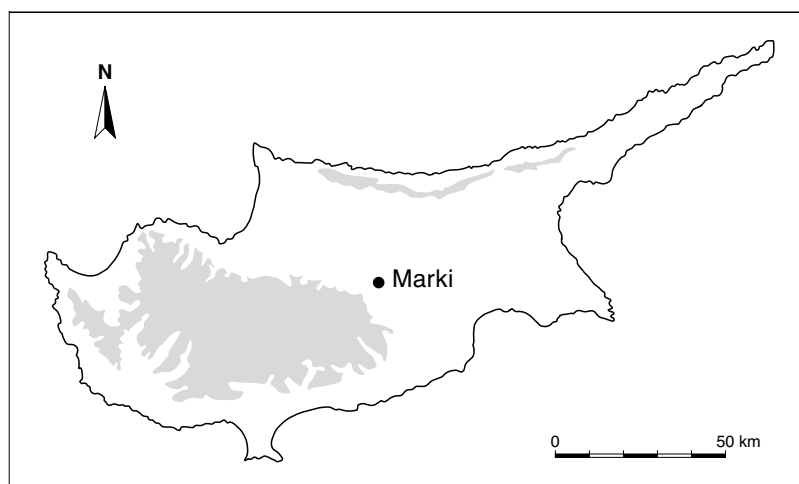


Fig. 6.1. Map of Cyprus showing the location of Marki.

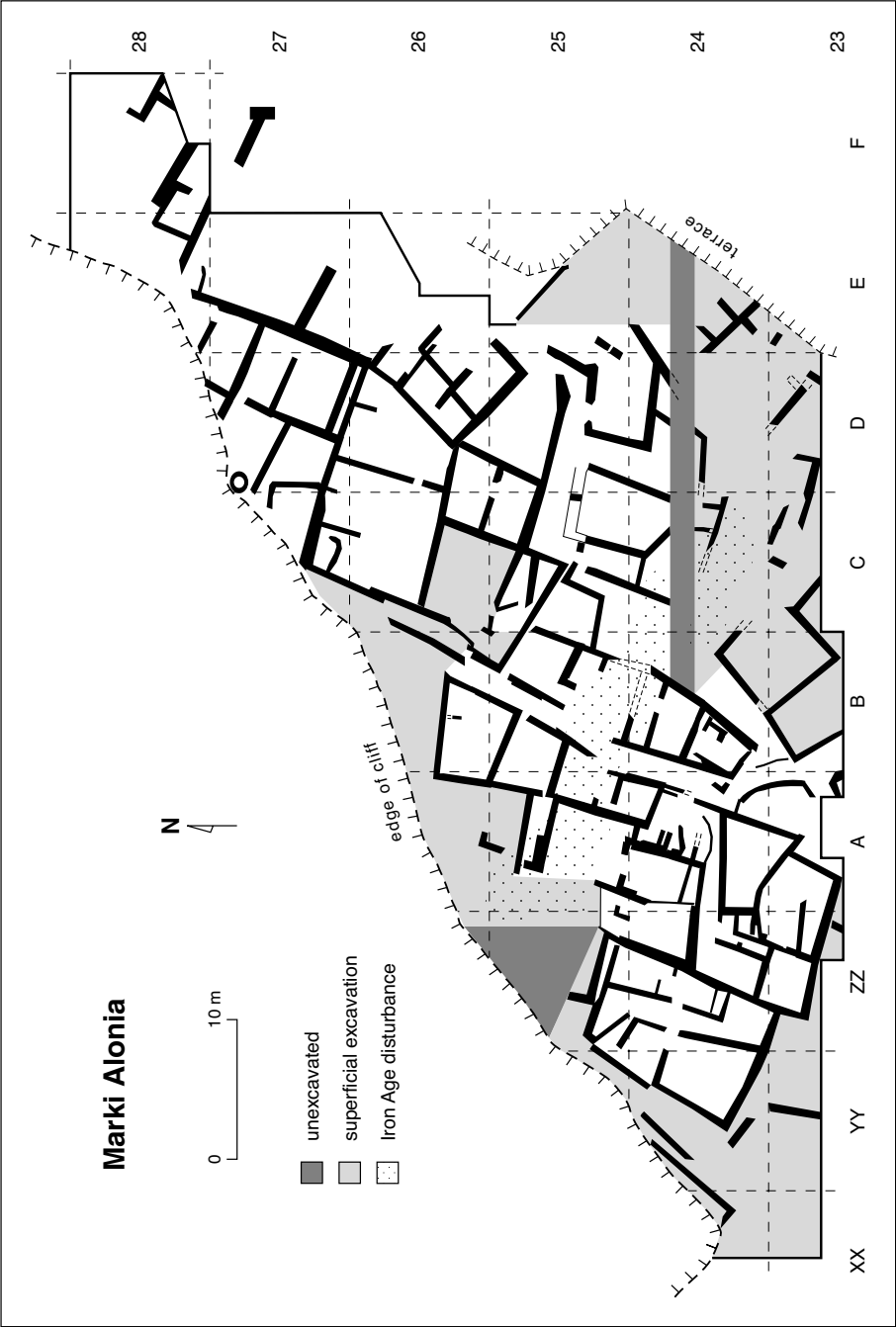


Fig. 6.2. Plan of excavated area at Marki, 2001.



Fig. 6.3. Aerial view of excavated area at Marki, 2001.

Early Cypriot III and Middle Cypriot I shows a development from spatially discrete rectangular structures of three or more rooms to densely packed households in which interior spaces were progressively remodelled and open areas in-filled and converted into new households (Webb 2002). This resulted in a significantly greater density of occupation and a substantial increase in the ratio of built to unbuilt space across the excavated area over time.

Occupation at Marki appears to have been relatively peaceful. The settlement was subject to gradual and pre-planned abandonment, both with respect to the on-going replacement of individual structures and the demise of the village during the Middle Bronze Age (Webb 1995). Both localised and final abandonment allowed a high degree of curate behaviour (*sensu* Binford 1976; 1978, 452; 1979), significantly depleting the amount of *de facto* (i.e. fully functional) refuse left on pre-abandonment floors. It is now widely recognised that such processes have important implications for understanding material culture frequencies and the nature and structure of residual assemblages (Schiffer 1972; 1976; 1985; Cameron 1991; Cameron and Tomka 1993 *passim*; Leedecker 1994).

Formation processes at Marki are characterised by horizontal displacement as well as vertical accumulation. This involved the regular dismantling of walls, the reuse of wall footings and the redistribution of earlier deposits. All structures at the site are built of mudbricks on uncoursed dry stone foundations, with uneven beaten earth floors. Only rarely are mudbricks preserved. Indeed the collapse and decay of mudbrick walls and associated roofing material provide most of the excavated sediments. Earth floors, also, do not survive well and it is frequently difficult to distinguish material once in use on these surfaces from

refuse deposited in the sediments which accumulated above them. These aspects of site formation are typical of small-scale agro-pastoral settlements in Cyprus and elsewhere, and the principles which underpin the observation, recording and presentation of depositional history at Marki, as outlined below, may be seen as having broad application.

FIELD RECORDING

The principles of field analysis and recording used at Marki are described in detail in Frankel and Webb 1996a, 2–4, 25–27 and critically examined in Frankel 1998. They are closely related to an overall understanding of site formation and designed to allow excavated deposits to be readily distinguished with regard to their degree of integrity and association. Any action which leaves a positive (or negative) residue is identified as a ‘context’. These include walls, pits and other features as well as sediments. At a first level the latter may be defined as having primary and secondary integrity. *Primary depositional contexts* are those where material was deliberately placed or discarded or sediment accumulated and remained without later disturbance. Within these parameters a key issue is the identification of *use and abandonment contexts* and, where possible, the further separation of use or *systemic contexts* from *abandonment surfaces*. Given the nature of house construction and the gradual abandonment of rooms and households during all phases of occupation, the identification of material in systemic as opposed to post-abandonment contexts is often problematic. In general, however, such material may be considered to have a high degree of integrity and association with original or immediate post-abandonment use of the structures in which it is found.

Secondary (or tertiary) depositional contexts are those in which sediments or/and artefacts have been removed from their original location of manufacture, use or discard and redeposited. Such contexts include fill, dump, demolition and rebuilding episodes, all of which involve the disarticulation of artefacts from primary depositional contexts. Artefacts recovered in secondary or tertiary deposition are likely to have low chronological integrity and little or no association with each other or with original activity areas. Fill deposits, for example, may combine material from all earlier phases of occupation at the site, including that in areas beyond the excavated exposure, and from a variety of initially unrelated contexts.

The basic spatial unit of stratigraphic analysis is the individual room, yard, passageway, street or enclosed space. This accords each structural unit an independent history of construction, use and abandonment and allows identification of specific, localised and small-scale activities. At the finest level this is understood in terms of a series of *events* and *episodes*. Events are identifiable short-term activities, such as the construction or collapse of a wall, re-flooring or reorientation. At the next level related events are subsumed into an episode. Episodes are thus palimpsests of specific events and usually the smallest meaningful analytical unit. Most are construction or use and abandonment episodes. *Construction episodes* may involve demolition, rebuilding and accidental or deliberate fill. *Use and abandonment episodes* are floor and immediate above floor deposits. A final level of stratigraphic analysis combines groups of construction episodes within and between architectural units into *phases*. These are generally operative at a household level (*i.e.* a grouping of individual units) and, to a lesser extent, at a site-wide level.

In final publication stratigraphic analyses are presented using Harris matrices (Harris 1979. See Frankel and Webb 1996a, 26, figs 4.2–23; Frankel 1998, 253, fig. 6 and here Fig. 6.4).

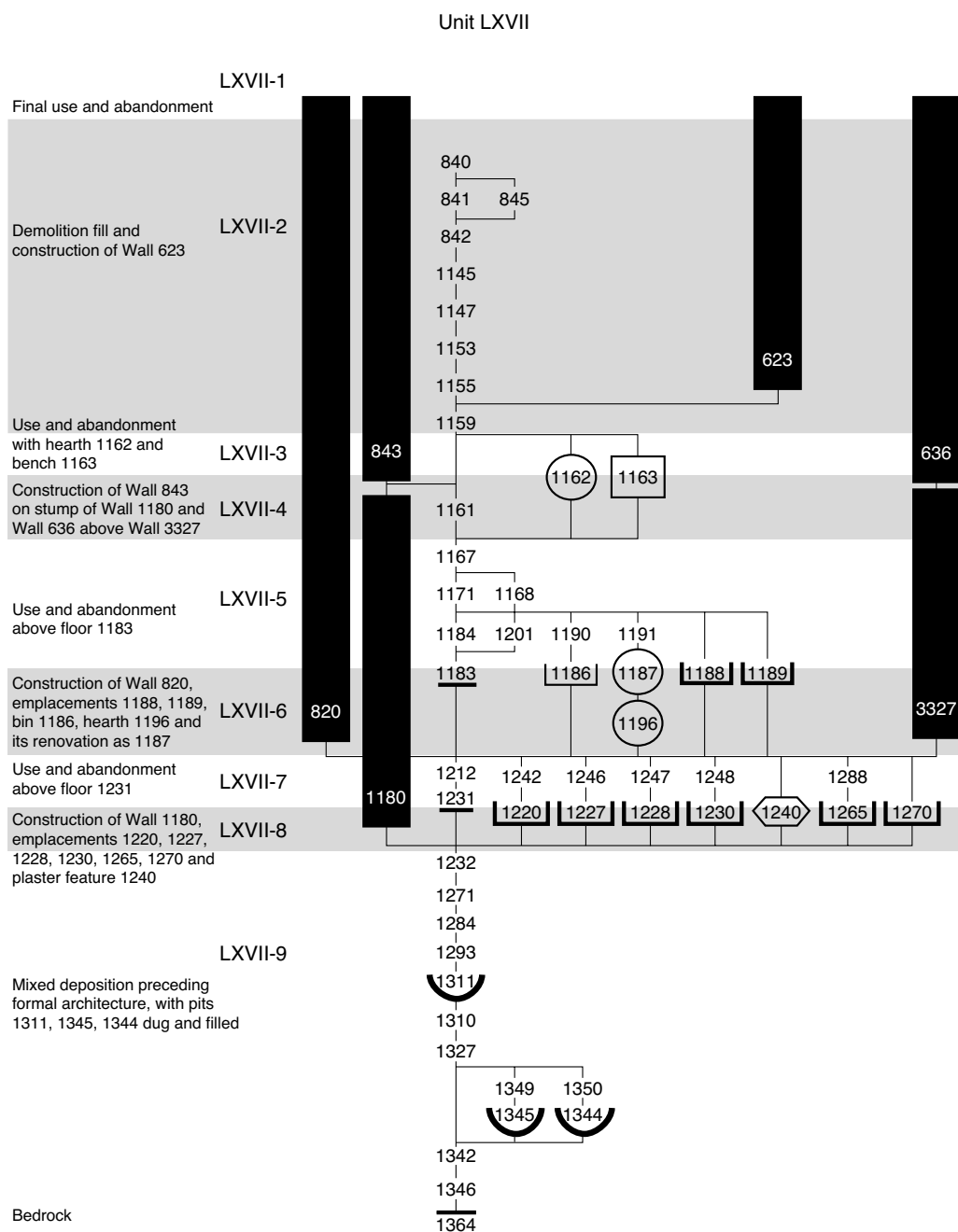


Fig. 6.4. A Marki Harris matrix.

These are developed during excavation but substantially revised afterwards. They provide a diagrammatic impression of relationships between contexts and the grouping of contexts into episodes and phases within each unit and are the principal analytical framework used in discussions of depositional integrity, building history and chronology. In combination with a single-context recording system, these matrices present the history of the site as a palimpsest of discrete events, in which contexts of removal and deposition are equally visible (Lucas 2001, 58).

This ascription of excavation contexts to events, events to episodes and episodes to phases involves a series of increasingly complex analytical abstractions. Much of this takes place after excavation in conjunction with broader-scale analyses of architectural sequences. Our field recording at Marki is designed, however, to provide maximum flexibility, within the bounds of efficiency, at the first level of observation (*i.e.* upon excavation). This relatively fine-scale, non-judgemental approach allows us, at a subsequent stage, to lump contexts together into behaviourally significant episodes within each architectural unit. It also allows the attribution of finds to specific types of deposition. This in turn allows us to understand how artefacts come to be where we find them, assess the relative chronological and systemic integrity of deposits and look for meaningful links between consumption behaviour, disposal strategies and recovery contexts.

A CASE STUDY. GROUND STONE ARTEFACT USE, DISPOSAL AND RECOVERY

The following case study explores the relationship between particular classes of ground stone artefact from Marki and their use-wear, fracture patterns and recovery contexts. It has implications for predicting the nature and frequency of material encountered in deposits with differing degrees of integrity and association and demonstrates both the explanatory value of a fine-scale understanding of contextuality and some of the processes by which this can be achieved.

All ground stone artefacts recovered at Marki were registered, described, weighed and drawn and those embedded in walls and other structures were counted, measured and weighed wherever possible. Lithic assemblages from Bronze and post-Bronze Age sites in Cyprus and elsewhere are rarely recorded in such detail. Even on recent excavations fragmentary items are often not registered, common tools are considered typologically repetitive and not fully documented and artefact weights go unrecorded. Lithic specialists, also, widely adopt a primarily typological approach, focusing on morphology, function, raw material availability and comparanda. They rarely have the opportunity, as 'detached specialists', to integrate lithic assemblages into site structure or to understand the depositional parameters of these artefacts in relation to acquisition, maintenance and disposal strategies. The following may go some way toward demonstrating the value of a more coherent approach to the documentation and contextuality of lithic assemblages (for earlier studies of lithic technology at Marki see Frankel and Webb 1996a, 72–102; Webb 1998; 2000).

Fundamental to our analysis of the Marki ground stone is a division of material into expedient and curated tools, following definitions widely used in technological studies of chipped stone (Binford 1973; 1977; 1979; Torrence 1983; 1986; 1989; Bamforth 1986; Andrefsky 1994; Shott 1989; Bleed 1986; Nelson 1991; Parry and Kelly 1987). Curated tools

are those which were formally shaped prior to use, maintained or/and reworked and retained, as a general rule, until exhausted or broken. Such tools have specific task-oriented features, such as sharp edges, perforations or grinding surfaces, the production of which involved a time and energy cost which was recouped by long-term use and recycling. Expedient strategies, on the other hand, are a response to more immediate needs and involve minimal technological effort. Expedient tools are recognisable in most lithic assemblages as unmodified, hand-sized pebbles used for pounding, crushing, grinding, rubbing and hammering. Few show intensive use and most were acquired and discarded opportunistically.

The stratified assemblage from Marki is comprised of 571 curated and 193 expedient artefacts. The former include axes, adzes, hammers, upper and lower grinding stones, mortars, basins, pestles and weights, while expedient categories are principally pounders, anvils, grinders, rubbing stones and hammerstones. Attrition and breakage rates of both classes were carefully recorded as these reflect their frequency, type and duration of use and are likely to have influenced maintenance, replacement and discard strategies. The results of an initial study of this material may be summarised as follows:

- Nearly three-quarters of curated stone artefacts are exhausted, near exhausted or fragmentary as opposed to 5% of expedient stone tools (Fig. 6.5).
- Similarly, 75% of curated artefacts from high integrity use and abandonment deposits were fragmentary, exhausted or near exhausted (*i.e.* present in a final stage of use, as normal refuse, in provisional discard or recycled to other tasks), while 25% of such items were intact and fully useable (*i.e.* present as *de facto* refuse). Conversely, 96% of expedient tools from use and abandonment contexts were intact, and only 4% damaged or fragmentary (Fig. 6.6).

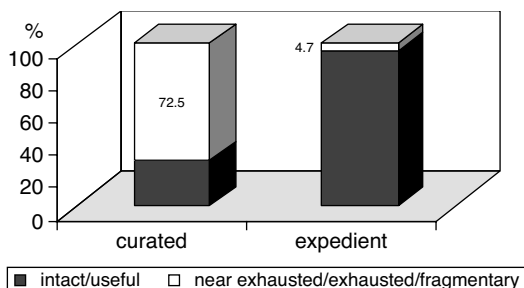


Fig. 6.5. Relative incidence of intact (useful) versus exhausted, near exhausted and fragmentary curated and expedient stone artefacts from Marki.

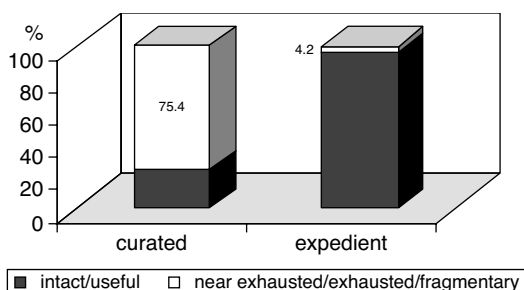


Fig. 6.6. Relative incidence of intact (useful) versus exhausted, near exhausted and fragmentary curated and expedient ground stone artefacts from use and abandonment deposits at Marki.

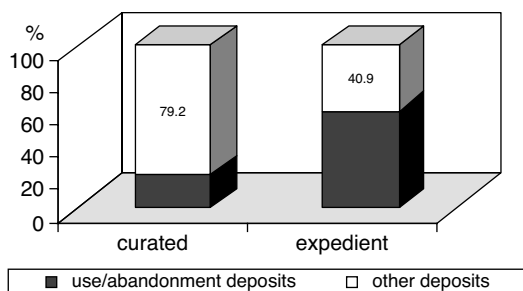


Fig. 6.7. Relative incidence of intact (useful) curated and expedient ground stone artefacts from use and abandonment deposits at Marki.

– At an assemblage level, 59% of all intact expedient tools were associated with episodes of use and abandonment, as opposed to 21% of fully functional curated artefacts (Fig. 6.7).

These findings suggest that behavioural strategies associated with curation and expediency played a significant structuring role in the depositional history of stone artefacts at Marki. This results in a range of predictable correlates relating to their use, disposal and relative evidential value which may, in turn, be summarised as follows:

– Curated tools, which were routinely maintained or recycled to other tasks, can be expected to have remained in use longer than expedient tools. Thus curated tools are likely to spend significantly longer periods of time in systemic contexts, to be subject to greater intercontextual movement and to have greater amounts of energy invested in their continuing viability. Expedient tools, conversely, were typically discarded after a relatively short use-life and are likely to pass relatively rapidly into and out of the cultural system and be less subject to movement in time and space.

– Expedient tools, which were readily replaceable (assuming appropriate conditions of raw material availability), are likely to have been discarded as *de facto* refuse at or near their location of *original* use (where original use is often the same as last or main use). Curated artefacts, which involve greater energy investment and task-specific features, are likely to have been used in multiple activity areas and discarded in or near their context of *final* use when damaged, broken, near exhausted or exhausted (*i.e.* as normal refuse).

– Expedient tools are likely to have been associated with small-scale, single or short duration events and may be expected to be sensitive indicators of moments in archaeological time. Curated objects, on the other hand, are likely to have moved through several systemic inventories or trace production contexts (*sensu* Sullivan 1978, 201) before being lost or discarded. They will, therefore, be less sensitive as fine-scale chronological or functional indicators and are more likely to be absent from, than present in, residual artefact assemblages.

These correlates are testable in various ways at the assemblage level. For present purposes, however, the following discussion will focus only on two types of curated artefact, namely the upper and lower grindstones referred to here, respectively, as rubbers and querns. Elsewhere rubbers are identified as ‘handstones’, ‘manos’, ‘mullers’, ‘crushers’, ‘mealing stones’,

'riders', 'broyeurs' and 'molettes', and querns as 'metates', 'millstones', 'grinding slabs' and 'meules' (Runnels 1981, 2–3; de Beaune 2000, 84–98; Ribaud 1986). Terminological issues aside, these tools have two major advantages. They are by far the most numerous of all stone artefacts at Marki and they show a clear reduction sequence which allows a relative estimate of their duration of use prior to final deposition. As curated items with a high initial energy cost, they may be expected to have been routinely maintained and subject to considerable intercontextual movement before entering the archaeological record.

Rubbers and querns. Morphology and stone types

A total of 323 rubbers and 141 querns were recovered at Marki. Of these, 290 rubbers and 130 querns come from stratified contexts. Together they account for 74% of all stratified curated artefacts and 53% of the combined stratified curated and expedient assemblage. This reveals a clear functional emphasis on grain processing, an impression reinforced by a similarly high incidence of sickle blades in the chipped stone assemblage (Smith 1996, 106–107, 109).

The Marki rubbers are elongated oval in shape with a flat or concave work surface and more or less overhanging terminals. They were used with two hands in a repeated back and forth motion on the long axis of a quern. The work surface is worn smooth through contact with the quern and occasionally shows areas of polish along the edges and shallow latitudinal wear striations. In transverse section almost all rubbers show some thinning of the 'leading' edge, as a result of pressure applied during forward movement on the quern. The typical convexity of the work surface in transverse section is also the result of repeated use on a concave surface. Complete rubbers range from 245 to 530mm in length and from 104 to 255mm in width, with a mean length of 353mm and a mean width of 161mm.

Most querns are of 'saddle' type (Storck and Teague 1952, 43–45). They are also elongated oval, frequently narrowing at the centre, with a flat or irregular base and a concave work surface which is typically flat or slightly concave in transverse section. For the most part querns may be distinguished from rubbers by their greater size and weight, flat or concave rather than convex transverse sections and longitudinal rather than latitudinal wear striations. Querns range from 235 to 620mm in length and 120 to 480mm in width, with a mean length of 414mm and a mean width of 275mm. Larger examples may have been set into floors, bins or work benches.

Almost all Marki rubbers are manufactured of diabase, gabbro or microgabbro. These hard, fine-grained igneous rocks, derived from the Sheeted Diabase Complex of the Troodos Ophiolite, were available as appropriate sized boulders in the Alykos streambed, adjacent to the settlement, and on surrounding terraces. The majority of querns, however, are of calcarenite, the nearest source of which lies 10km to the north of Marki. This coarser-grained sedimentary material provides a highly abrasive surface, well-suited to use with finer-grained diabase rubbers (on the use of coarse and fine-grained stones for upper and lower grinding agents see de Beaune 2000, 90–91 and Ribaud 1986, 67). Work surfaces of both querns and rubbers were probably regularly 'sharpened' by direct percussion to rejuvenate the surface (Runnels 1981, 140, 244–245; Kraybill 1977, 490–491; Bartlett 1933, 4; de Beaune 2000, 52–53, 91–92). Experimental work suggests that both initial shaping and 'sharpening' is best done with hammerstones of chert or quartzite, which have a tendency to fracture leaving sharp projections (Runnels 1981, 251; Dodd 1979). Chert hammerstones are well represented in the expedient assemblage at Marki (Frankel and Webb 1996a, 85–86, fig. 6.12, pl. 25k).

The use-life of rubbers and querns

Both rubbers and querns show use-wear or attrition sequences and consistent fracture patterns as a direct result of the reduction of the grinding surface caused by functional abrasion (*i.e.* the action of grinding) and regular ‘sharpening’. Observed at assemblage level these reduction sequences allow us to identify patterned behaviour with regard to the use, maintenance and disposal of these objects and observe the use-trajectories (defined as the interval between acquisition and discard) of individual artefacts.

Preforms, newly manufactured and early use rubbers have a flat or slightly concave work surface (Fig. 6.8 bottom). With continued grinding and resharpening this surface became increasingly inset (Fig. 6.8 middle), the rubber decreased in both thickness and weight and, if regularly used on a quern of lesser width than the length of the rubber, developed overhanging terminals. Preliminary shaping of the rubber may also have included a slight convexity in transverse section, which increased as the lateral axis of the rubber was moved repeatedly along the concave axis of the quern. A further transformation is visible in transverse section as pressure exerted in a back and forth motion subjected the trailing half to maximum wear. As this area progressively reduced, the opposite, leading edge of the rubber became thinner and the transverse section increasingly asymmetrical as the thickness of the rubber displaced toward the trailing edge.



Fig. 6.8. Three rubbers from Marki at different stages of the reduction sequence.

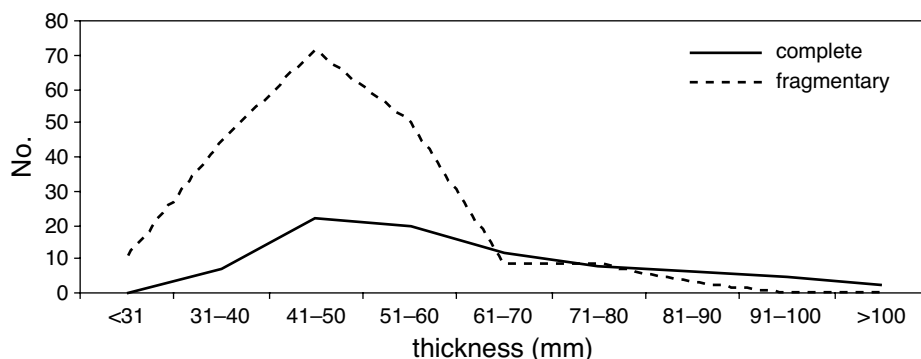


Fig. 6.9. Minimum thickness and thickness at fracture (in millimetres) of complete and fragmentary rubbers from Marki (no. = 280).

With prolonged use, the work surface of the rubber became even more deeply inset with a further corresponding decrease in thickness and weight (Fig. 6.8 top). While the minimum thickness and weight requirements for efficient use cannot be determined precisely for any given assemblage, a simple correlation between the minimum thickness of complete specimens and the thickness at fracture of fragmentary examples shows that the great majority (84%) of fragmentary rubbers at Marki broke when reduced to between 60 and 30mm (Fig. 6.9). The sharp increase in the incidence of breakage at 60mm suggests that this is the point at which replacement strategies became necessary. A number of rubbers, however, continued to function well beyond this point (with some reduced to fracture sections as thin as 22mm). These may reflect more conservative consumption behaviour in some households or differential replacement capacities (Webb 2000, 274–275). Alternatively, final stage rubbers may have been used in different ways (e.g. as lower grinding surfaces in conjunction with expedient grinders) or laterally recycled to non-grinding tasks.

While breakage patterns are a significant measure of the remaining potential use-life of rubbers at various stages in the reduction sequence, a more appropriate indication of their ongoing viability is likely to be that of weight. Weight loss through surface attrition is likely to have led, over time, to a significant reduction in their effectiveness as active grinding agents and a correspondingly greater requirement of effort on the part of the user in order to exert sufficient pressure on the quern surface. Beyond a certain point such rubbers are likely to have fallen below a critical weight threshold, been pronounced ‘worn out’, and replaced. Once again, this threshold is difficult to identify, particularly as weights can only be meaningfully calculated for complete specimens. The weight distribution of 75 intact rubbers (Fig. 6.10) shows, however, that the majority (79%) entered the archaeological record with weights below 7kg. As curated artefacts are most likely to have been discarded toward the end of their use-life, this suggests, conservatively, that complete rubbers of 6kg or less were at or below the critical weight threshold.

The risk of circularity in this argument can be addressed to some extent by correlating minimum thickness and weight data for complete rubbers (Fig. 6.11). While there is a relatively

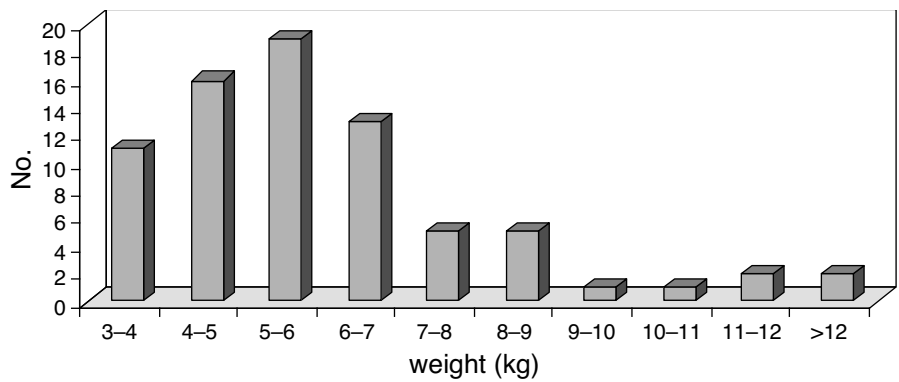


Fig. 6.10. Weight (in kilograms) of complete rubbers from Marki (no. = 75).

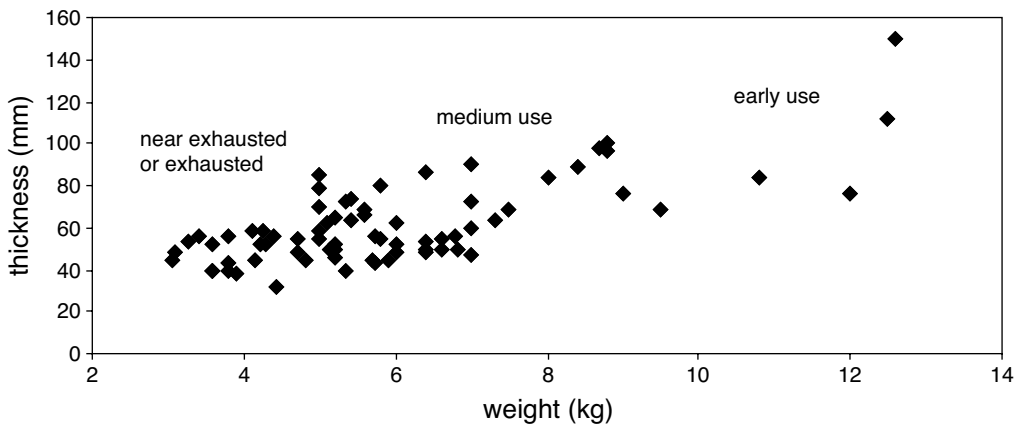


Fig. 6.11. Minimum thickness (in millimetres) and weight (in kilograms) of complete rubbers from Marki (no. = 73).

weak correlation between the two (with a correlation coefficient of 0.75), the majority fall into the exhausted/near exhausted range, when this is calculated either at 6kg or less in weight or 60mm or less in minimum thickness and almost 50% qualify in both dimensions. It appears, then, that most intact rubbers were discarded toward the end of their potential use-life when their efficiency was significantly reduced by weight loss, imminent breakage or both, and strategies for replacement had been realised. When retained in systemic use, these heavily reduced rubbers may, as suggested above, have been recycled to other tasks, in provisional discard or present as normal rather than *de facto* refuse.

Building on this attrition and fracture data, the number of rubbers at different stages of a four-fold reduction sequence can be estimated for the full stratified assemblage (Fig. 6.12).

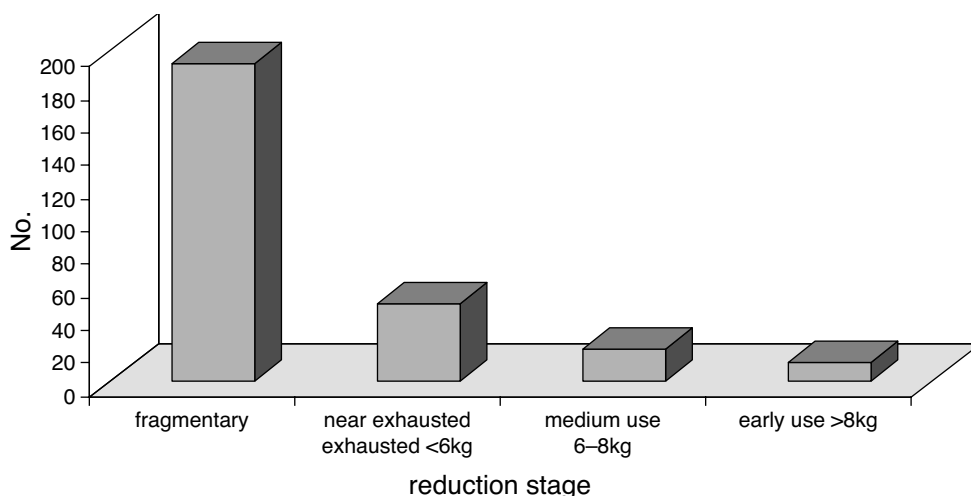


Fig. 6.12. Relative incidence of rubbers from Marki within a four-stage reduction sequence (no. = 267).

Here the degree of reduction of complete examples is calculated solely by weight, with rubbers over 8kg attributed to an early stage of use, those between 6 and 8kg to a medium stage and those 6kg or less classed as exhausted or near exhausted (these figures reappear as percentages in the upper part of Fig. 6.14). It is immediately clear that the great majority of rubbers are fragmentary, exhausted or near exhausted. This indicates a very high rate of curation, with most rubbers retained for the full duration of their use-lives and discarded or recycled only when no longer useful for their original purpose.

Estimating the use-trajectory of querns is somewhat more straightforward. As with rubbers, the work surface was progressively reduced as a result of functional abrasion and regular 'sharpening'. While weight loss is likely to have had some effect on quern efficiency, particularly with regard to stability, this may not have been a critical factor if querns were routinely of a considerable size and set on or in floors or benches. Minimum thickness and thickness at fracture data for 97 complete and fragmentary querns indicates a sharp increase in the incidence of breakage at 70mm (Fig. 6.13). This allows us, once again conservatively, to suggest a three-part reduction sequence for the quern assemblage. In this case the remaining potential use-life of complete examples is calculated by reference to thickness and proximity to breakage, with querns over 70mm thick attributed to an early or medium stage of use and those below 70mm classed as exhausted or near exhausted.

At assemblage level the rate of quern curation is similar but not identical to that of rubbers. Notably, some 70% of querns were used until near exhausted, exhausted or fragmentary, compared with almost 90% of rubbers (see Figs. 6.14–15). What this equates to in real terms (*i.e.* in years of use) is impossible to determine without extensive experimentation. Contextual and ethnographic data from elsewhere, however, suggest a use-life of 20 to 40 years, or approximately one human generation, for both upper and lower millstones in daily use (Runnels 1981, 155; Hayden 1987, 191–196).

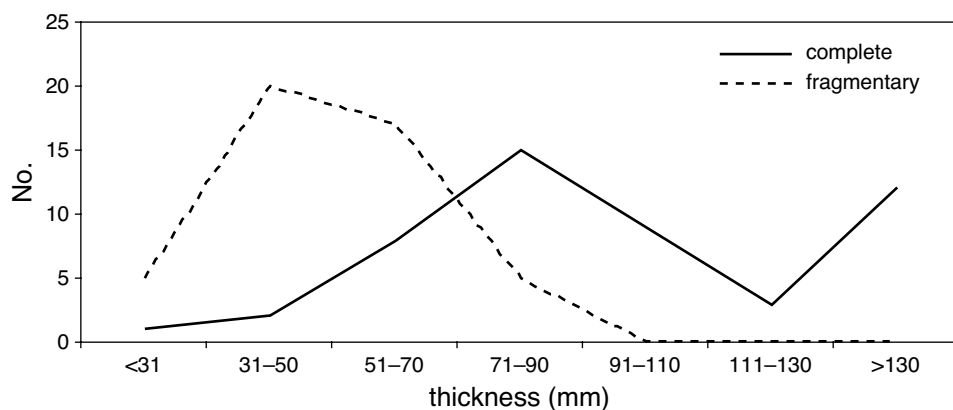


Fig. 6.13. Minimum thickness and thickness at fracture (in millimetres) of complete and fragmentary querns from Marki (no. = 97).

The discard and deposition of rubbers and querns

These use-life analyses may now be considered in relation to the predicted (as outlined above) and actual depositional correlates of rubbers and querns at Marki. All three sets of data are shown graphically in Figures 6.14 (rubbers) and 6.15 (querns). As predicted, at 4% of the assemblage, few early stage rubbers entered archaeological recovery contexts. Once past the manufacture and immediate post-manufacture stage these rubbers were approaching maximum efficiency and utility and are likely to have been viewed as having high intrinsic value and curated accordingly. Seven of 11 excavated rubbers of this class were recovered from floor contexts, where they may be presumed to represent accidental or deliberate *de facto* refuse from systemic inventories. At least one may still have been in the process of manufacture and six were associated with querns, benches or other rubbers in subsequent stages of reduction. Another two early stage rubbers were found in contexts of deliberate deposition as grave goods with intramural female burials. Almost none came from secondary deposits and none were noted in wall construction.

The number of rubbers entering the archaeological record at a medium stage of use is slightly higher (at 6.5% of the assemblage). These may be seen as having reached maximum utility and value and as having a shorter remaining potential use-life. The latter may be reflected in their somewhat higher rate of discard and their recovery in a more varied range of fill deposits, abandonment surfaces and wall construction. By far the greatest number of complete rubbers (17% of the assemblage), however, continued in use until exhausted or near exhausted. While a significant number of these were discarded, as predicted, on abandonment surfaces and in fill deposits or recycled as construction material, almost half were recovered in systemic contexts as *de facto* or normal refuse. This is in keeping with the fracture pattern data which show that some third stage rubbers continued to function until they broke, while others may have been recycled to other tasks or in provisional discard. Finally, 94% of fragmentary rubbers were found on abandonment surfaces, in fill deposits or in secondary use as construction material, while only 6% were left on house floors.

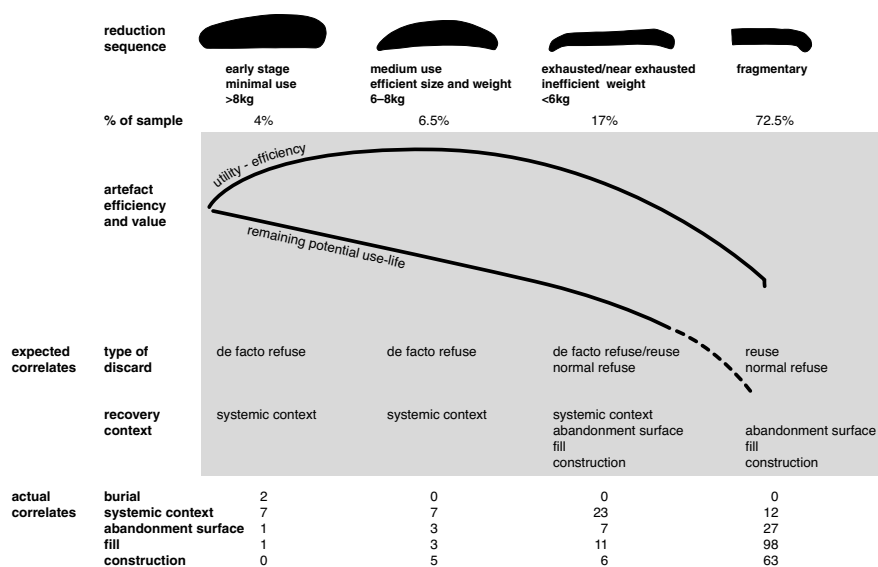


Fig. 6.14. Expected and actual discard and recovery contexts of rubbers from Marki within a four-stage reduction sequence (no. = 276).

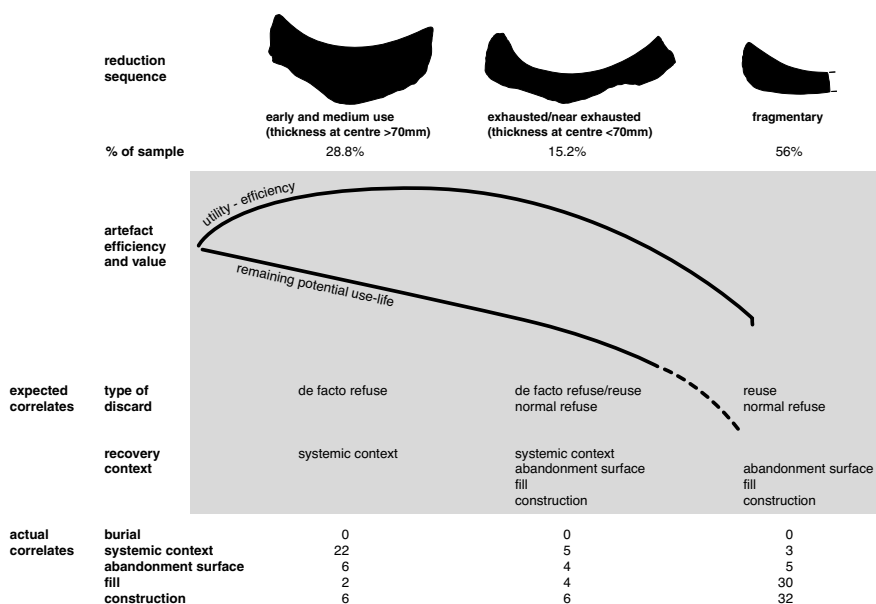


Fig. 6.15. Expected and actual discard and recovery contexts of querns from Marki within a three-stage reduction sequence (no. = 125).

Figure 6.15 presents a similar analysis of the quern data. While at a general level the picture is not unlike that of rubbers, there are some significant differences. In the first instance, the ratio of complete to fragmentary querns (at 1:1.3) is higher than that for rubbers (at 1:2.3), indicating that querns were less likely to be utilised to the point of fracture. The recovery incidence of early and medium reduction stage querns (at 28.8%) is, also, almost three times higher than for early and medium reduction stage rubbers (at 10.5%), while that of exhausted and near exhausted examples is similar at 17% and 15.2% respectively. Thus querns were far more likely than rubbers to enter the archaeological record while very high or high on the scale of efficiency and utility and with a relatively long remaining potential use-life.

Early and medium reduction stage querns, furthermore, were present in all types of depositional context, and as many as 22 were associated with floor deposits and six with abandonment surfaces (*i.e.* 78% of all early/medium reduction stage querns and 51% of all complete querns). It is tempting to attribute this high incidence of functional querns in use and abandonment contexts to their size and weight or to the possibility that they were fixed in benches and not fully portable. More complex factors, however, appear to have been involved. With an average weight of 12kg most querns could easily have been moved to new use locations. Those recovered from systemic contexts, furthermore, were not embedded in surfaces or installations and nine were found inverted. If originally fixed in place, these must have been deliberately dismantled in or near their location of use at the time of abandonment.

Matching prediction and observation

In general the depositional correlates of rubbers from Marki conform to those expected of curated artefacts in routine use within households subject to normal processes of abandonment. The great majority were maintained until near exhausted, exhausted or broken, discarded in or near their context of final use or recycled to other tasks. Curation and replacement strategies, that is, appear to have been determined, for the most part, by straightforward economic considerations of efficiency, utility and remaining potential use-life. The recovery, however, of a small number of early and medium stage rubbers in systemic contexts, and in particular the deposition of two early stage examples with female burials, shows that other factors also played a part in determining the point of entry of particular artefacts into the archaeological record. These are likely to have involved conscious decisions relating to specific circumstances of burial and localised abandonment.

Most querns also continued in use until near or beyond fracture point and entered the archaeological record, as predicted by the economic efficiency model, as normal refuse in primary depositional contexts, in secondary deposition and reused as construction material. Contrary to expectations, however, almost 30% of querns went out of systemic use when at or near their peak utility and with considerable remaining use-life potential. This suggests that considerations other than those of economic and technological efficiency played a significant role in quern disposal. The dismantling and conscious deposition of high value querns may, for example, reflect symbolic behaviour associated with house abandonment or replacement. A similar use of quern deposition to signal the decommissioning of grain storage pits is recorded in both the ethnographic literature and on more recent sites in Africa (Reid and Young 2000, 109 with refs).

In the majority of cases, then, behavioural strategies explicitly or implicitly linked with notions of efficiency, utility and value appear to have determined the length of time artefacts

spent in systemic use and the location, circumstances and condition in which they were discarded at Marki. Recognition of these normative patterns of consumption allows the identification of anomalous depositional behaviour, with important implications for understanding the evidential value of specific artefacts. The decommissioning of early and medium stage querns and rubbers clearly runs counter to the behavioural correlates predicted for curated artefacts. While most curated tools were undoubtedly in use for long periods of time and probably moved through several systemic inventories, functional querns and rubbers which were deliberately discarded are likely to be highly sensitive indicators of original activity areas and moments in time and to reflect particular, culturally specific circumstances of deposition.

The factors which influence the distribution of artefacts in the archaeological record are extremely complex. Relating the physical properties of rubbers and querns, in particular use-wear and fracture data, to their recovery contexts has, however, significantly increased our understanding of the relationship between particular artefacts and the cultural contexts in which they occur. A close reading of contextuality has also allowed us to refine a broad theoretical construct in relation to ancient concepts of utility and value and to demonstrate rather than merely assert cognitive and non-cognitive aspects of artefact acquisition, curation and disposal.

CONTEXTUALITY AND ARCHAEOLOGICAL PRACTICE

This study of quern and rubber deposition at Marki demonstrates the value of a contextual approach allied with a shift in emphasis in material culture studies from classification to explanation. Both demand an understanding of the mechanisms of site formation and systemic inventory depletion, which are responsible for generating much of the variability which characterises the archaeological record. Clearly, we need a range of theoretical and analytical tools for defining depositional contexts, assessing their relative inferential value and linking occupational curate and discard strategies with residual artefact assemblages. This poses significant challenges to current archaeological practice.

The collection, recording and management of contextual data in the field is not an easy task. To a large extent this is because, as a process, the documentation of context is site-specific, evolutionary and reflexive. Recording structures must be sufficiently flexible and non-judgemental at the first level of observation to allow interpretation, re-interpretation and revision during the course of subsequent analysis. This is not to deny that primary recording is itself an interpretive process (Tilley 1989; Hodder 1997; Hasan 1997; Lucas 2001, 10–17), or that there is a strong inferential relationship between context and finds. The explanatory value of a residual assemblage is in large part determined by the type of context from which it is derived (primary or secondary, floor, fill *etc.*), while the type of depositional context may itself be identified by reference to the nature, condition and structure of the finds (chronologically mixed, fragmentary *etc.*). In reality it is this dynamic process, in which all data are interactively utilised to derive a best-fit model of explanation, which lies at the heart of archaeological praxis.

Comprehensive, relevant and rapid feedback from field to laboratory and laboratory to field is critical to this process. At Marki all lithic and ceramic material was washed, sorted, counted and weighed within a day or two of recovery and diagnostic sherds and small finds were

recorded in further detail and, where necessary, mended, drawn and photographed. This integrated regime of recovery and analysis offered many advantages. Data on the chronological and depositional integrity of excavated deposits was fed back into the field almost immediately and the recovery contexts, fracture patterns and associations of residual assemblages coordinated with a developing understanding of architecture and stratigraphy. This information flow allowed ongoing revision of excavation and recording strategies in response to specific site demands and the application of new analytical and interpretive approaches as and when the need for these became apparent within the context of an evolving body of data. It also assisted in the efficient production of preliminary reports and obviated the need for study seasons prior to final publication.

To a large extent this regime was possible at Marki as a result of two related factors: the scale of fieldwork and the structure of research. While the scale of work was large enough to provide adequate samples of deposits and artefacts, it was not so great that fine-scale analysis became impossible. Fieldwork and primary documentation were at all times under the supervision of the two co-directors (Frankel and Webb), whose responsibilities in both field and laboratory extended to handling almost all the material recovered. This provided an environment in which material culture and context, rather than being fitted into pre-defined analytical units and models of site formation, themselves became part of an on-going process in which these models were established and refined. Where study seasons are separated from excavation seasons, and where larger or more complex teams of specialists are involved, this degree of integration and cross-manipulation of data is likely to be more difficult and frameworks of analysis more rigid. Flexible strategies are particularly hard to maintain when very large data sets are involved. This is not something that can be readily solved by greater recourse to electronic data-handling, as the demands of data-processing mean that analytical categories have to be specified in advance, making them less responsive to a developing understanding of site history.

The frequent split, in time, place and personnel, between excavation and analysis also works against a full utilisation of contextual data in the field and in publication. Where specialists are not involved in excavation, they are unlikely to be aware of the frameworks which underpin research strategies or of practical decisions made in the field with regard to collection, documentation and analysis. By the same token, insights arising from specialist studies of ceramic, lithic and other material are not fed back into the field to inform the read-once data from which all material culture residues ultimately derive their meaning. The tendency to abstract simplicity from complexity in the final publication of field data further deprives specialists of the contextual information that would allow them to fully integrate their material into behavioural analyses and depositional history. The result is frequently a static presentation of artefact classes with little or no discussion of their recovery context. It is now increasingly recognised that this disassociation between those responsible for read-once and re-readable data weakens the enterprise at all levels (Hodder 1997; Lucas 2001).

Context lies at the very heart of our capacity to derive meaning from material culture. If field observations have any authority, this is their central and primary domain. Field directors define excavation units and construct the analytical frameworks upon which all contextual relationships are established. These in turn constrain and often pre-empt explanation, and in final publication achieve a primary authority, which significantly, if not entirely, limits the possibility of alternative readings. Responsibility for a contextualised archaeology lies,

therefore, with those who manage field operations. Field directors must ensure that contextual data are made available to specialists and that specialists are fully aware of the analytical frameworks which mediate and structure these data from initial observation to publication. By the same token, field directors must utilise all aspects of the material record and ensure that these are integrated at all levels of *primary* analysis. This is most likely to happen when specialists are present during excavation and fully engaged both in the observation and collection of data and in the decisions which determine stratigraphic sequences and contextual relationships.

Like all areas of knowledge construction, however, archaeological praxis is dependent on the social and intellectual tradition within which questions are framed and sites and objects acquire meaning. For many years Cypriot archaeology has been firmly located within a culture-historical paradigm, the major aim of which is to reconstruct history. One consequence of this has been the view, perhaps implicitly held, that data publication is an end in itself, rather than a basis for argument or explanation—or, indeed, argument and explanation in its own right. With some notable exceptions (*e.g.* Peltenburg 1998), excavation reports take site formation for granted and value context as a means of establishing the chronological and functional parameters of finds rather than of studying past behavioural patterns. A fully contextualised archaeology, which takes account of curate and discard strategies, abandonment processes and other structuring aspects of human actions, is harder to establish, harder to document and harder to explain. Indeed, our greatest challenge may not be the observation, recording and interpretation of such data, but the more formidable task of presenting contextualised accounts of site history and material culture which are persuasive, authoritative and comprehensible.

ACKNOWLEDGEMENTS

This paper owes a great deal to the work and ideas of Dr David Frankel, co-director of the excavations at Marki *Alonia*. Whatever we have been able to achieve in the way of a reflexive, contextualised archaeological practice at this site has been largely due to the fact that we have, over more than a decade, worked in an equal partnership on all aspects of fieldwork, laboratory analysis and publication.

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