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HOUSEHOLD ARCHAEOLOGY

A Transatlantic Comparative Approach





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HOUSEHOLD GARBAGE:

Classic period (ca. 300-900 CE) Maya Practices of Discard

Christina T. HALPERIN, Antonia FOIAS

Abstract

What can the practices of discard tell us about Classic period Maya households? Most archaeological analyses of middens are concerned with an analysis of content: describing, classifying, and comparing midden contents to tell us about the people who left such remains. Yet much can be learned about households from studying the actual practices of getting rid of trash. This paper documents midden patterns from the Classic period Maya site of Motul de San José, Petén, Guatemala, and compares them with those found elsewhere in the Maya area. We reveal the ways in which trash deposition was integral to (1) defining household space, (2) marking the lifecycles of households, (3) the differential experience of social status, and (4) the possible expression of regional dispositions.

Keywords

Trash, waste management, refuse, household, ceramic, Classic period Maya.

Introduction

What can the practices of throwing out garbage tell us about Classic period Maya households? Most archaeological analyses of middens are concerned with an analysis of content: describing and classifying midden contents to tell us about the people who left such remains. Indeed, the archaeological focus on what "households do" have largely examined the processes of household production, reproduction, ritual, and goods distribution (Wilk, Rathje, 1982; Wilk, Netting, 1984; Ashmore, Wilk, 1988, Gonlin *et al.*, 2012). Yet, much can be learned from studying the practices of trash discard (Schiffer, 1972, 1987, 1995; Hutson *et al.*, 2007; Hutson, Stanton, 2007). This paper documents Late Classic period (ca. 600-900 CE) midden patterns from the Maya site of Motul de San José, Petén, Guatemala, and compares them with those found elsewhere in the Maya area (figure 1). Rather than investigate only *in situ* debris (primary or *de facto* refuse) to identify specific activity areas (e.g. kitchens, craft production zones), we focus on the more ambiguous refuse thrown or swept away from immediate use contexts. Following Deal (1985, 1988), we primarily use ceramic sherd counts and weights as proxies for identifying middens, although we recognize that this is only a partial view of trash disposal practices.

We underscore that the making of middens was integral in (1) defining household space, (2) marking the lifecycles of households, (3) the differential experience of status and wealth, and (4) the possible expression of regional dispositions. We examine mundane middens as well as what we identify as ritual refuse to provide a more holistic investigation of discard practices among Classic period Maya households. The data from Motul de San José point to the need to think about such discard practices not only as universal or culturally constructed but also as socially embedded and variable.

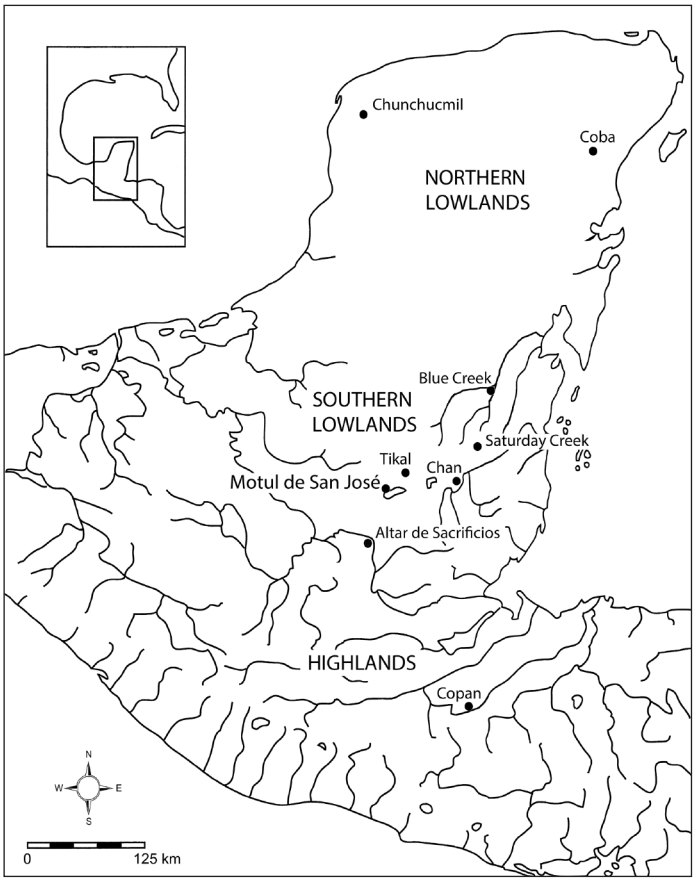

Figure 1 - Map of the Maya area showing the location of Motul de San José.

1 - Thinking about Trash

Part of what household members do is to accumulate and get rid of trash. Such processes, however, are often ignored or regarded as secondary to the "real" activities of households. Such a bias stems, in part, from the goal of trying to interpret activity areas, behavioral patterns, and systematic inventories based on *de facto* or primary refuse, artifacts left behind on occupation surfaces when people abandon a structure or site (Schiffer, 1972, 1987, 1995). While behavioral archaeologists have provided detailed explanations and models for how artifacts make their way from original use contexts to other more remote areas, such formation processes were ultimately seen as "degrading" the archaeologist's reconstruction of "real" household behaviors.

Nonetheless, the study of middens and trash deposition has always been a central part of archaeological research as discarded items tend to comprise the basic inventories of archaeological assemblages. Ethnographic and ethnoarchaeological studies, in particular, have provided important models for archaeological testing (Deal, 1985, 1998; Arnold III, 1990, Killion, 1992; Hutson *et al.*, 2007; Emery, Brown, in press). For example, Hayden and Cannon (1983) argue, based on a study of approximately 50 households from the Maya Highlands, that contemporary garbage disposal is based on an economy of effort, potential value of refuse, and potential hindrance by refuse. Such ethnographic models have guided archaeologists in their research designs and provided interpretations based in rationalist, economizing logics. In general, these ethnographic studies, as well as many of the archaeological investigations that tested them, treated trash as a neutral byproduct of mundane routines, rather than as endowed with meaning, the result of human agency, or capable of simultaneously affecting human action.

One of the ways in which human agency and the meaning of trash has been explored is through the analysis of ritual deposits of garbage, such as deposits of broken ritual implements and feasting remains, smashed and scattered artifacts found in unusual patterns or contexts, and shell middens mixed with burials (Schiffer, 1995: 29; Moholy-Nagy, 1997; Mock, 1998; Walker, 2002; Bruck, 2006; Stanton *et al.*, 2008; McNiven, 2013). While some archaeologists have treated such deposits as the byproduct of ritual activities, others point to the importance of breaking, scattering, and depositing of such debris as a performance in its own right, such as a way to ritually "terminate" a building. In turn, such practices of ritual deposition may have marked critical events, endowing such places with history. As some have argued, ritual trash deposits affected subsequent human action in so far as they imbue such places with meaning and draw people back to conduct similar activities in the same spot (Lucero, 2008; Joyce, Pollard, 2010). Below we argue that even mundane trash deposits also "act back" on humans, influencing movement and conceptions of space.

The focus on practice theory in archaeology, in particular, has underscored that daily and more mundane trash deposition patterns have the potential to shed insights into the meanings and cultural dispositions of ancient households. What is considered pollution or "matter out of place", is not inherent but culturally constructed (Douglas, 1966). As Bourdieu (1977, 1990) has underscored, people repeatedly enact, reproduce, and ultimately rework such cultural constructs over the course of daily action. For example, Lightfoot *et al.* (1998: 209-211) contrast the cultural dispositions of cleanliness between Alutiiq and Pomo Native American groups. While the Alutiiq from Alaska left food debris, bones, shellfish debris, artifacts, wood chips, and ash on the living surfaces of their houses, the Pomo of Northern California are known to have kept their living surfaces relatively free of debris and to have deposited their trash in concentrated deposits down slope from their homes. At Fort Ross, California, during the 19th century, interethnic households of what are thought to have been Alutiiq men and Kashaya Pomo women reproduced Pomo patterns of cleanliness even though their diets contained foods typically eaten by Aluttiiq peoples. In this case, even the mundane practices of trash deposition may have served as assertions and negotiations of identity.

Below, we build on these diverse studies in our examination of trash deposition patterns of Classic Maya households. We consider trash as both a byproduct of household activities and as meaningful material remains affecting human action and movement. We underscore that ancient peoples acted both in rational logics to minimize their efforts and as part of cultural logics guided by particular norms, beliefs, and values. In contrast to many of the studies cited above, however, we recognize the social heterogeneity of ancient settlements and consider the possibility that even trash deposition practices were socially embedded.

2 - Site Background and Methods

The site of Motul de San José is located approximately 3 km from the northwest shore of Lake Petén Itzá in central Petén, Guatemala. It was the capital (or one of several capitals) of the Ik' polity identified by the Ik' emblem glyph (Marcus, 1976: 183-190; Reents-Budet *et al.*, 1994; Just, 2012; Tokovinine, Zender, 2012). The site experienced a florescence during the Late Classic period when most of its architectural groups were occupied and significant building campaigns were undertaken. The Motul de San José Archaeological Project, directed by Dr. Antonia Foias from Williams College and Dr. Kitty Emery from Florida Museum of Natural History, directed archaeological research at the site between 1998 and 2005 (Foias, Emery, 2012).

The project conducted a household test-pitting program to locate middens (Deter-Wolf, Charland, 1999; Ramirez *et al.*, 2000; Halperin *et al.*, 2001). Test-pitting consisted of placing a series of 1 × 1 m test pits in the center of and behind architectural groups (n=47 [not including testing of eastern periphery]). These efforts were also combined with a more intensive program of smaller 50 × 50 cm test pits placed systematically at 3 m intervals from each other along the edges of the architectural group (at a distance of approximately 3 m from the edges of buildings) (n=38). These small 50 × 50 cm units were expanded if middens were encountered.

The Motul de San José project sampling strategy does not have the advantage of more full coverage sampling methods which provide a comprehensive spatial understanding of discard locations and densities (e.g. postholes or shovel tests placed in a grid pattern; systematic surface collections) (Manzanilla, 1987; Webster, Gonlin, 1988; Killion *et al.*, 1989; Robin, 1999; Hutson *et al.*, 2007b; Blackmore, 2011). Nonetheless, the test-pitting program was successful in identifying middens containing durable artifacts. In addition, relatively efficient time / labor parameters for this strategy permitted the sampling of a larger number of households than what is often possible with more full coverage grid or horizontal excavation methods. As such, it allowed us to compare multiple households of different social statuses. To complement the test-pitting program, horizontal excavations of household architectural features and patio spaces were conducted on a more limited number of architectural groups (n=6: ops 2, 15, 29, 31, 39, 42) (Foias *et al.*, 2012).

At Motul de San José, as at other Classic period sites throughout the Maya area, households (or perhaps more accurately, co-residential units) are loosely equated with architectural groups (also referred to here as household groups) of two or more structures that occupy a shared patio space (Ashmore, 1981). The Motul de San José project designated three social status designations for architectural groups based on architectural volume. These designations are considered as heuristic categories related to royal (rank 1), lower-elite / middle-status (rank 2), and commoner (rank 3) household statuses respectively.

Unlike nucleated settlement patterns seen elsewhere, such as at Teotihuacan, Mexico, Classic Maya centers are characterized as exhibiting a low-density urbanism since architectural groups were often interspersed with non-architectural spaces that likely served as gardens and agricultural plots (Chase *et al.*, 1990; Feinman, Nicholas, 2012). Nonetheless, household groups may cluster together forming neighborhoods or districts (Ashmore, 1981; Arnauld *et al.*, 2012) without obvious garden or agricultural spaces between them. As we suggest below, the social composition of these settlement clusters can be further understood through the identification of middens.

3 - Household Space

One of the ways trash disposal is implicated in the understanding of households is through its role in defining household space. Ethnographic research of contemporary Mesoamerican house lots has revealed that trash accumulation often occurs in a "toft zone", an area behind buildings and at the edges of patio spaces where debris was thrown or swept away from heavy traffic and activity areas (Hayden, Cannon, 1983; Deal, 1985; Arnold III, 1990; Killion, 1992) (figure 2a). Although other items may be provisionally discarded inside or at the edges of buildings, and both organic and inorganic waste often ends up in the garden zones of the house lot, the toft zone is one of the richest areas for the deposition of durable trash. Unfortunately, most archaeological investigations in the Maya area focus on interior and exterior architectural spaces, missing the toft zone completely.

Nonetheless, several seminal archaeological studies that have undertaken comprehensive sampling strategies reveal that Classic period middens roughly follow ethnographic models (Manzanilla, 1987; Webster, Gonlin, 1988; Killion *et al.*, 1989; Ball, Kelsay, 1992; Robin, 1999, 2002;

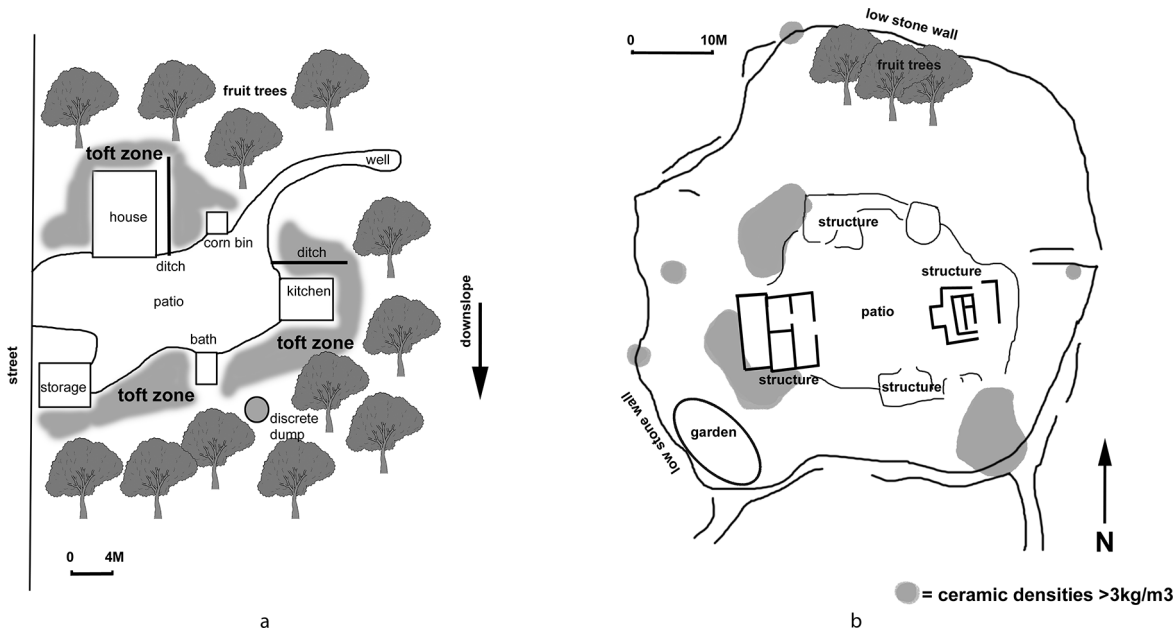

Figure 2 - Maya house lots showing locations of concentrated durable debris: (a) Contemporary Tzeltal Maya house lot showing "toft zone" of midden and sweepings (adapted from Hayden, Cannon, 1983: fig. 5); (b) schematic of Classic period house lot (Muuch group) from Chunchucmil, Mexico, showing ceramic densities (>3 kg/m³) identified using 50 × 50cm test units placed on a grid pattern (adapted from Hutson *et al.*, 2007: fig. 5a, fig. 11).

Hutson *et al.*, 2007a; Blackmore, 2011). These studies have identified "toft zones" occurring behind or at the edges of structures where artifact densities were the highest (figures 2b-3). They contrast with the relatively clean patio spaces and building interiors. Several of these studies have also located the house lot's garden and agricultural zones through phosphate, phytolith, and ethno-botantical analyses. The garden and agricultural zones also contained waste, such as organic products used as fertilizers and relatively smaller concentrations of durable artifacts (Hutson *et al.*, 2007; Wyatt, 2008). Similar to these studies, Halperin's systematic soil sampling and subsequent phosphate analyses of the samples by Richard Terry (Brigham Young University) have revealed that high phosphate zones in Motul de San José residences often coincided with middens from toft zones (see Bair, Terry 2012 for phosphate sampling methods) (figures 4-5). As found elsewhere, however, phosphate concentrations are also indicative of food processing and consumption activities, rituals involving organic materials, and agricultural zones and thus are best interpreted in conjunction with other sources of evidence (Parnell *et al.*, 2002; Hutson *et al.*, 2007b; Eberl *et al.*, 2012).

Despite the identification of these different zones of household space, not all household groups are spatially composed in the same way. For example, Arnold III (1990) and Killion (1990)'s ethno-archaeological studies of contemporary Sierra de Tuxtlas households from Veracruz, Mexico, revealed that as spatial availability decreases, household members more efficiently use house lot space by placing trash in more discrete refuse areas rather than as scatters.

While waste management in these cases may be structured by the availability of space, the recovery of Late Classic period middens between buildings in the urban site core of Motul de San José indicates that the accumulation of trash was also a way in which household boundaries could be defined. Similar boundary-making patterns have been observed among contemporary Maya house lots where trash was thrown along the low stone fences dividing each property (Hayden, Cannon, 1983: 133-134). Returning to Motul, a cluster of Rank 2 architectural groups lined the eastern side of the site's north-south running causeway (Groups 8L2, 9L7, 9L6, 9L5, 9L3 in figure 3).

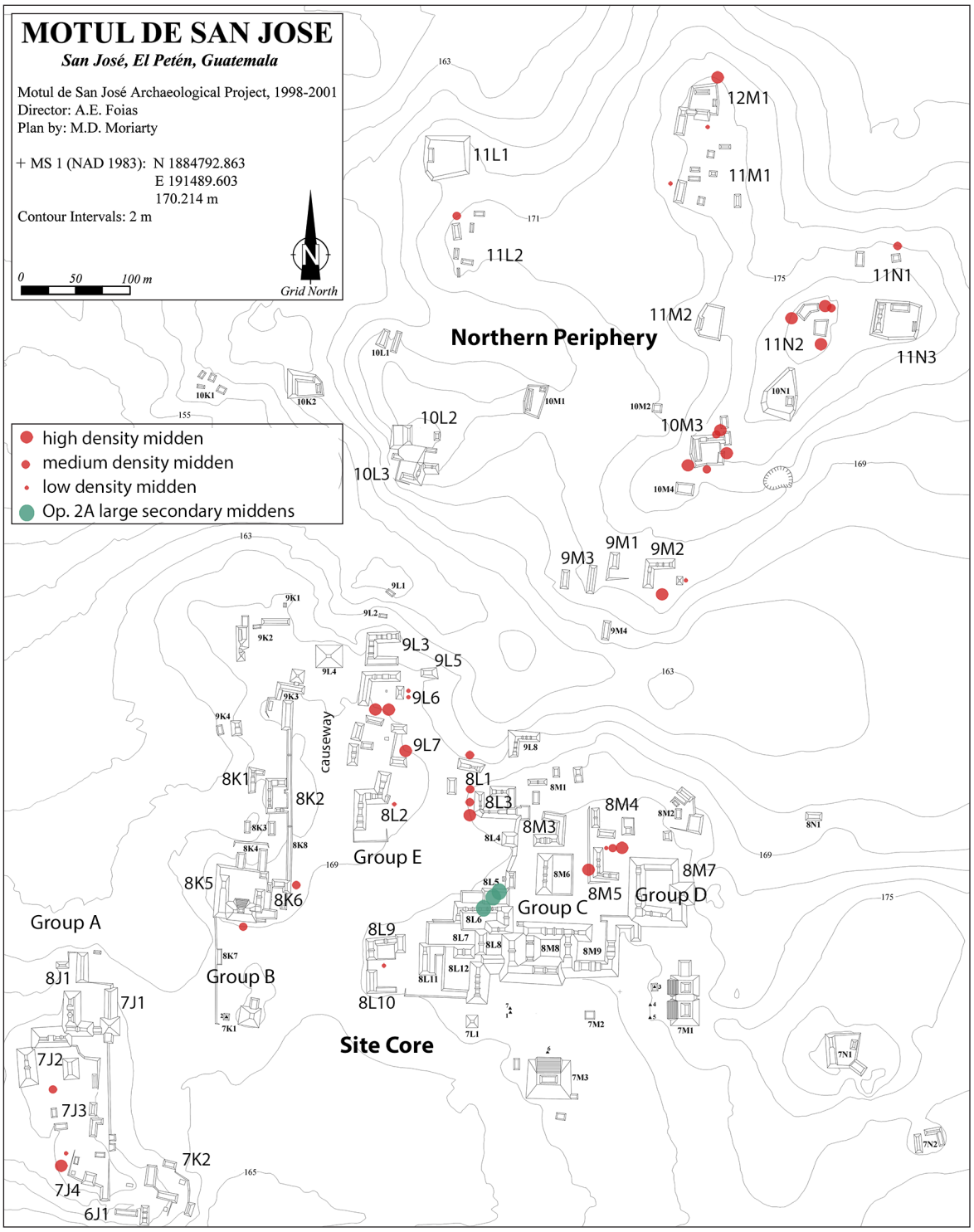

Figure 3 - Map of Motul de San José showing the locations of "toft zone" middens [in red] and Op.2A large secondary middens [green] at the edge of the palace complex (8L6) (note: groups tested with 50 × 50 cm test pits labeled in large font).

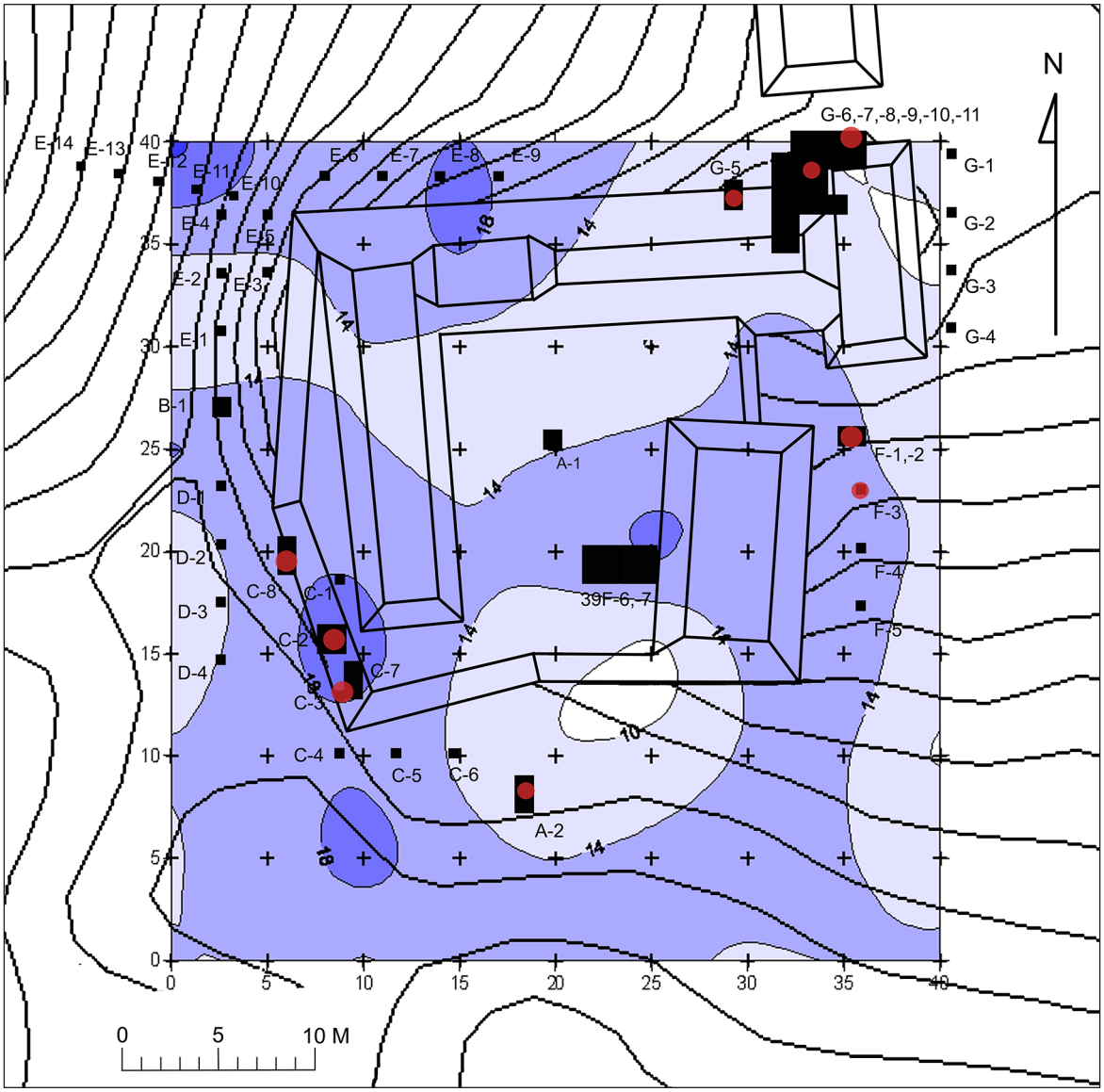

Figure 4 - Plan map of Motul de San José Group 10M3 (Op. 39) showing phosphate concentrations (extractable P mg/kg) [purple], excavation units [black], and midden locations [red].

Since they are closely spaced in relation to one another, the buildings were designated as a single group, Group E, by the Guatemalan government. The Motul de San José Archaeology project adopted such designations but also created smaller group designations (labeled using a grid system of letters and numbers), even though patio spaces between them were not always completely closed off from other another. The recovery of relatively substantial trash accumulation between two of these groups (Groups 9L7 and 9L6) may be an example of how trash can reinforce divisions between households.

Other middens that may have reinforced the delineation of household groups are those found between the clustered groups 8M5, 8M4, and 8M7, between 7J2 and 7J3, between 8L9 and 8L10, and between 8L1 and 8L3. In such instances, trash may have not only been deposited or swept at the edges of household space, but also served as symbolic, physical, or even odorous impediments for regular movement between such spaces. Such aversions may have created implicit or unintended "fences" whereby trash and humans mutually affect each other. Since most Classic Maya sites lack low

stone walls that divide house lots (cf. Manzanilla, 1987; Hutson *et al.*, 2004, 2007a), middens may provide some indication of how household spaces were produced over the course of mundane, everyday activities.

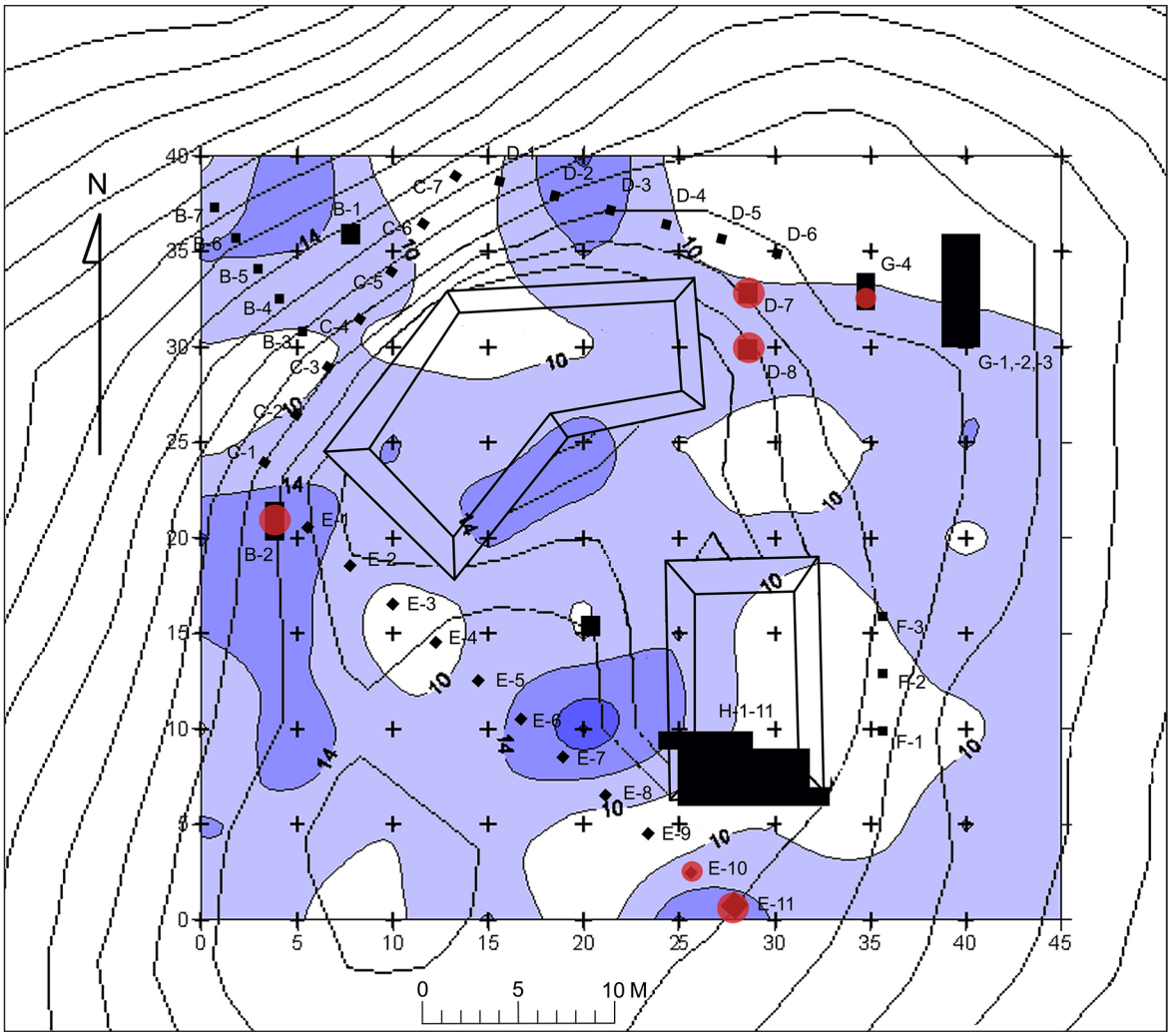

Figure 5 - Plan map of Motul de San José Group 11N2 (Op. 42) showing phosphate concentrations (extractable P mg/kg) [purple], excavation units [black], and midden locations [red].

4 - Household Lifecycles

In addition to its role in defining – and being defined by – household space, the deposition of trash was also related to the lifecycles of a household (Deal, 1985). Ethnohistoric sources suggest that Mesoamerican cleaning cycles were tied to the ceremonial calendar. Similar to the ritual purification of the body through sweating in a sweat bath, the house was ritually swept, cleaned, and renewed (Burkart, 1989; Hamann, 2008). For example, Diego de Landa (Tozzer, 1941: 151-152) reports that Yucatecan Maya New Year's festivities were celebrated with the throwing out of household implements (e.g., plates, vessels, stools, mats, old clothes, wraps for their idols), the sweeping of their homes, and the discarding of these items in a dump outside of town. In preparation of these festivities, men fasted and covered themselves with soot. Like their houses, they were cleaned and ornamented for the festivities on New Year's day (see also household cleaning during Aztec New Fire ceremonies, Elson and Smith, 2001).

Archaeologically, such punctuated moments of trash disposal are most visible at the end of a household's lifecycle with on-floor trash deposits known as "termination rituals", "ritual deposits", and "special deposits" (Coe, 1965; Mock, 1998; Lucero, 2008; Stanton *et al.*, 2008; Newman, 2015). These deposits, found in both public, ceremonial spaces and residential contexts, differ from typical middens in that large quantities of broken artifacts were left on heavy traffic occupation surfaces. They were often accompanied by extensive evidence of burning, depositions of white marl, and/or architectural destruction (Stanton *et al.*, 2008). Although the nature of, meanings, and intentions behind these deposits are debated, we underscore here their possible role in marking time.

Destruction of architecture through the deposition of trash, burning, burying, and/or the dismantling of walls may have also related to the process of de-animating or spiritually killing a place. Contemporary and ancient Mesoamerican peoples conceived of the physical house, as well as many material objects, as a living, animate entities (Houston, 2014). Many Mesoamerican buildings are built successively, one on top of another. New building episodes were often accompanied by the placement of offerings and burials within building foundations, which served to consecrate and ensoul the building. Thus, such dedicatory offerings are bookended with building burial or destruction episodes forming a cycle of dedication, destruction, and renewal (Mock, 1998; McAnany, 2010; Lucero, 2008).

At Motul de San José, evidence of a Terminal Classic termination ritual was found in an elite palace, Group 8M7 (units 15A-22, 23,36,37), and marked the end of a long line of rebuilding episodes dating continuously from the Middle Preclassic (600-300 BCE) to the Terminal Classic period (ca. 830-990 CE). It consisted of large pieces of dismantled stucco and a large quantity of artifacts (broken ceramic vessels [n=2458; 34.4kg], ceramic figurines, spindle whorls, animal bones, polishing stones, raw clay and pigment pieces, and lithic debris and tools) thrown directly on the floor, blocking the entrance to one of the building's interior rooms and filling up the patio space between the group's western and southern buildings (figure 6). The stucco floor below part

Figure 6 - Photograph of unit MSJ15A-37 from Group 8M7 showing part of the upper portion of the termination ritual deposit (photo: Antonia Foias) and plan map of Group 8M7 showing its location relative to architecture (units MSJ15A-22,23,36,37).

of the deposit as well as about half of the artifacts had clear evidence of burning. The burning was so intense that it even melted some of the building's stucco walls (Foias *et al.*, 1999: 33, 2012: 110). Although the ceramics comprised large fragments, not a single vessel or figurine could be fully reconstructed. And with the exception of two complete lithic bifaces, the remaining materials were also in fragmentary form. Such deposition patterns are noted for ritual deposits recovered elsewhere, such as Saturday Creek, Blue Creek, and El Zotz (Clayton *et al.*, 2005; Lucero, 2006; Newman, 2015) and reveal that the trash was not created at the moment of its deposition (e.g. smashed and broken *in situ*), but purposefully collected as fragments and thrown on occupation surfaces.

It is difficult to identify, however, whether such deposits were acts of reverential destruction by building inhabitants or violent acts, perhaps undertaken by those external to the household. Evidence of the butchering of human remains, the possible scattering of ancestor bundles, and the recovery of weapons alongside significant quantities of broken artifacts may provide evidence of warfare or violent acts (Ambrosino *et al.*, 2001; Inomata, 2003; Barrett, 2005; Harrison-Buck *et al.*, 2007; Navarro Farr *et al.*, 2008). Beside the evidence of lithic bifaces in the Motul de San José example, however, no evidence were identified.[1] Regardless of intent, however, these deposits marked critical points in the temporal cycle of a building and the lives of the inhabitants residing there.

5 - Household Social Status

Although many of the above mentioned studies treat households as relatively homogenous social units of analysis, a household's social standing was also implicated in its practices of discard. For example, at the hinterland site of Chan, Belize, the type and elaboration of architecture created different opportunities for distancing oneself from the trash one accumulates (Robin, 2002; Blackmore, 2011). Higher status households built their homes on raised basal platforms and, in turn, regularly threw their trash behind or to the sides of them.[2] This pattern contrasted with their more humble neighbors whose houses were not built on raised platforms. Among these more humble household groups, the separation of trash and dwelling space was created not through elevation, but through horizontal distance, approximately 10-25 m from their structures. These middens were also less dense and generally lacked imported goods.

Although the Motul de San José excavation methods do not allow us to compare them with the Chan finds, our analysis of middens found in the "toft zone" of house lots reveals that the lowest status households possessed, on average, the densest middens (figure 7, tables 1-2). These finds do not signify that lower status households possessed more trash than higher status households since a comparison of Late Classic ceramic sherd counts weighted by estimates of excavation volume reveal that ceramic sherd densities were relatively similar between architectural group rank categories

1. Low quantities of Early Postclassic ceramics were recovered in the humus and collapse levels of this architectural group, suggesting that people continued to use this space after the Terminal Classic. While it is possible that the deposit was left by so-called "squatters" using the material culture left by elite inhabitants, as has been proposed elsewhere, we find this scenario unlikely since even new inhabitants would presumably clean their own living spaces (Stanton *et al.*, 2008). In addition, the termination deposit itself did not contain Early Postclassic ceramics. No Early Postclassic construction episodes were identified.
2. The Chan midden sampling methods consisted of systematic post-hole testing in two neighborhoods, Chan Noohol and the Northeast Group. The Chan Noohol neighborhood was tested on a grid pattern with post-holes placed every 4 m and the Northeast Group was tested on a grid pattern with post-holes placed every 6m with coverage extending out between 20-30 m beyond architecture (Robin, 1999: 121-124; Blackmore, 2011, 2012).

even though elite households possessed greater quantities of prestige and imported goods (Foias *et al.*, 2012). While midden densities are affected by length of house occupation, the toft zone middens are all predominately Late Classic in date (table 1). In addition, because some of these low-ranking households were located in the site core, high midden densities cannot be completely explained by a greater access to agricultural or intermediate spaces between architectural groups, as seen in the northern periphery of the site.

In contrast, the highest status households located in the Motul de San José core disproportionately managed their trash by constructing their buildings with it. One of the largest series of middens excavated from the site was found within construction fill (up to 3 m deep) of a single large platform supporting the northwestern corner of the site's palace, Group 8L6 (Operation 2). Refuse from this fill was one of the richest at the site, containing Late Classic debris from bone tool production, an array of faunal remains, groundstone tools, spindle whorls and other textile production tools, evidence of ceramic vessel and figurine production, and ceramic vessel counts and weights that are higher than all of the "toft zone" middens combined (table 2). Such debris likely derived from the royal and elite households within the site core since they were domestic in nature, but also contained high levels of exotic, prestige, and imported items comparable to those found in tomb and midden contexts from other Rank 1 households (Foias *et al.*, 2012). As detailed elsewhere (Halperin, Foias, 2010, 2012), the large majority of the garbage was concentrated in a stratum without fill rocks, suggesting that it represented a single episode of trash disposal.

Although waste management practices of low-status households may be partly explained by rationalist arguments of practicality and effort minimization, not all households approached the world through the same opportunities and resources. We suggest that elite households benefited from a greater swath of resources, such as people to sweep and maintain living surfaces as well as to undergo more substantial building campaigns in which refuse deposition could be coordinated and hidden.

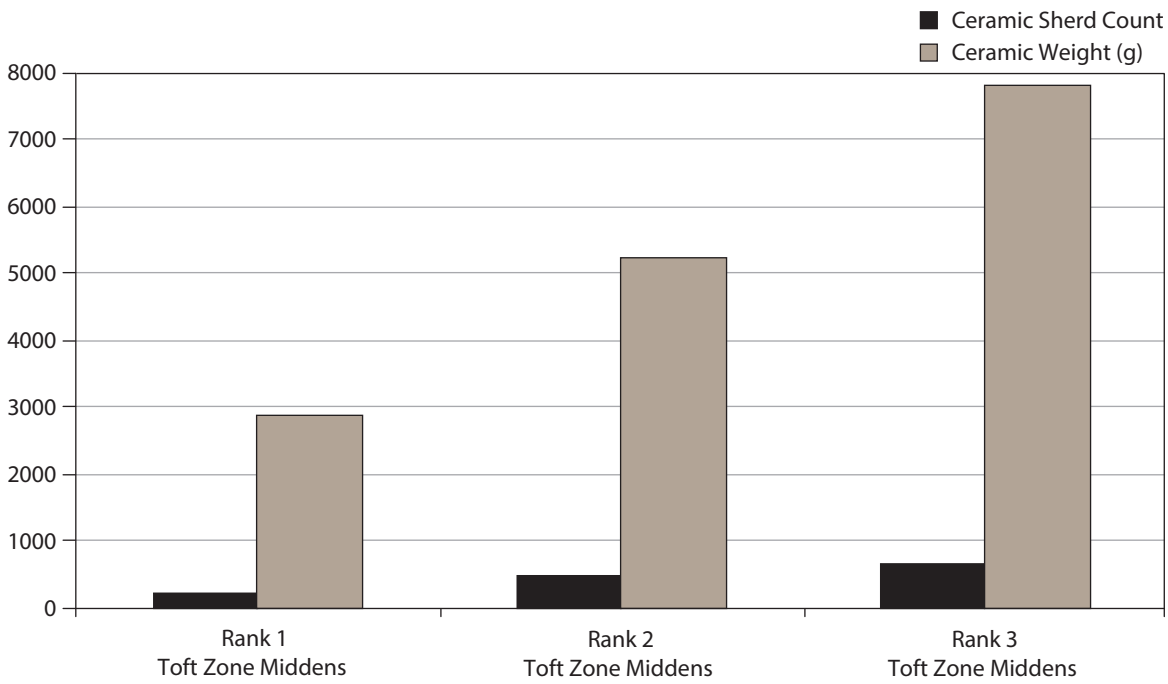

Figure 7 - Comparison of mean ceramic sherd counts and mean ceramic weights (g) by archaeological context.

Group	Operation	Provenience	# of Ceramic Sherds	Ceramic Weight (g)	Density	Direction	% non-Late/ Terminal Classic ceramic sherds	Zone of site	Group Rank
7J2	8	MSJ8D-15	179	2077	medium	south/north	1,1	Site Core	1
8K5&6	12	MSJ12B-18	308	4 133,7	medium	south	0		1
8K5&6	14	MSJ14C-1	197	2 469,9	medium	east	0,5		1
7J4	10	MSJ10D-6	49	600,0	low	west	0		2
7J4	10	MSJ10D-20	651	6 576,6	high	west	6,6		2
8L1	19	MSJ19A-6	163	1 835,6	medium	north/south	0		2
9L6	20	MSJ20B-3	133	1 274,0	low	east	0		2
9L6	20	MSJ20B-5,6	144	1 294,0	low	east	0		2
9L6	20	MSJ20F-3	528	6 234,5	high	south/north	0		2
9L6	20	MSJ20F-10,-11,-12	837	10 689,6	high	south/north	0,1		2
8L2	29	MSJ29C-16	77	916,8	low	east	2,6		2
9L7	30	MSJ30A-16	1 092	18 704,6	high	east	0,1		2
8L9	32	MSJ32D-1	119	445,6	low	south/north	5,9		2
8L3	33	MSJ33B-10	255	2 823,7	medium	west	0		2
8L3	33	MSJ33B-1	360	2 980,0	medium	west/east	0		2
8L3	33	MSJ33B-16	1 595	14 858,2	high	west	0,3		2
12M1	35	MSJ35H-4	601	10 633,45	high	north	2,5	Northern Periphery	2
12M1	35	MSJ35A-2	108	1 090,45	low	south	1,9		2
10M3	39	MSJ39F-3	289	NA	medium	east	NA		2
10M3	39	MSJ39F-1,2	588	NA	high	east	NA		2
10M3	39	MSJ39G-11	211	3 887,5	medium	north	0,5		2
10M3	39	MSJ39G-7	1 690	2 3355	high	north	0,7		2
10M3	39	MSJ39A-2	304	2 975,9	medium	south	0		2
10M3	39	MSJ39C-2,3,8	603	NA	high	west	1,7		2
10M3	39	MSJ39G-5	374	3 576,0	medium	north	0		2
8M5	17	MSJ17D-6	134	1 619,7	low	east/west	0	Site Core	3
8M5	17	MSJ17D-14	225	2 127,4	medium	north	0		3
8M5	17	MSJ17B-14	960	12 276,9	high	west	6		3
9M3	23	MSJ23A-5	80	718,0	low	east	0	Northern Periphery	3
9M3	23	MSJ23E-12	451	11 334,4	high	south	0		3
11M1	31	MSJ31A-3	119	950	low	west	0		3
11L2	38	MSJ38F-3	389	3 276,3	medium	north	0,8		3
11N2	42	MSJ42G-4	1 146	9 733,0	medium	east	4,9		3
11N2	42	MSJ42D-7,-8	1 850	19 384,9	high	east	3,5		3
11N2	42	MSJ42E-10,-11	735	1 441,2	high	south	7,1		3
11N1	45	MSJ45C-1	206	NA	medium	north	0		3
11N2	42	MSJ42B-2	782	8 185,0	high	south	8,6		3
8M5	17	MSJ17D-16,-17	1 584	33 485,0	high	north/south	0,2	Site Core	3

Table 1 - Motul de San José middens recovered from exterior test-pit transects (50 × 50 cm pits).

	Ceramic Sherd Count	Ceramic Weight (g)
Rank 1 Toft Zone Middens	228	2 893,53
Rank 2 Toft Zone Middens	490	5 215,98
Rank 3 Toft Zone Middens	666	7 788,88
Rank 1 Palace Fill (Op. 2A only)	20 798	573 193,80

Table 2 - Comparison of "toft zone" midden with Op. 2 palace midden from construction fill.

6 - Regionalism

As investigations into midden patterns become more common, regional patterns may begin to become more apparent. For instance, at the Classic period site of Chunchucmil, Hutson and Stanton (2007) find a statistically significant preference for depositing trash on the western side of house lots. They find that practical motivations (e.g., downslope from living areas, locations of prevailing winds) were not adequate to explain such a trash disposal pattern and argue that it related to contemporary and ancient Maya views of the west as associated with decay, death, and malevolent spirits. Elsewhere in the world, directional preferences are known for midden locations, such as among 9-12th century households in the northern part of the US Southwest in which room blocks, pit houses, and middens were systematically aligned with each other along a N-S or NW-SE orientation axis with middens always in the S or SE position (Lekson, Akins, 2006).

Our examination of off-mound middens at Motul de San José, however, did not reveal a western preference for trash disposal. In fact, middens were found in all directions without an apparent directional preference (figure 8). These data do not necessarily undermine the findings at Chunchucmil, located some distance from Motul de San José. Nor does it mean that Motul de San José inhabitants did not conceive of the cardinal directions in the same way as such ideologies were also expressed in other ways (Ashmore, Sabloff, 2002). Rather we suggest that a certain regionalism in discard practices occurred with certain preferences (or lack thereof) replicated among groups that shared habitual, everyday experiences with each other. Such regionalisms can only be addressed through further systematic studies targeting off-mound locations.

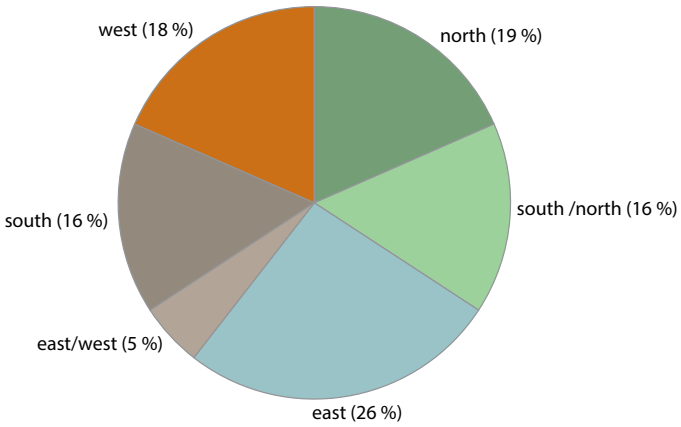

Figure 8 - Graph of midden directional locations identified in Motul de San José (50 × 50 cm) test-pitting program (note: combined designations were found on one side of an archaeological group, but located close enough to another group whereby directional designation may prove to be ambiguous).

Conclusions

Even the seemingly meaningless practices of discarding household trash were implicated in the ways Classic Maya households expressed and constituted themselves. Ethnographic studies indicate that locations of durable trash deposition were often structured by the availability and composition of household space. We suggest, however, that middens also structured household spaces by influencing how household members moved between and conceived of household divisions.

In turn, household trash disposal was part of household lifecycles wherein punctuated moments of trash disposal marked critical moments of household experience. The ending stage of household life cycles may be archaeologically visible through termination rituals or acts of destruction in which trash was thrown on occupation surfaces and burning rites were conducted.

Our analysis of middens at the exterior edges or "toft zone" of households from Motul de José also revealed that the gradual, everyday deposition of trash differed between lower and higher status households. Lower status households possessed more concentrated deposits at the edges of their buildings, while higher status households in the site core disproportionately disposed of trash by placing it into architectural fill. Although all households undoubtedly sought practical solutions to the issues of trash disposal, lower status households appear to have had fewer resources and opportunities for the coordinated disposal of trash in construction fill. Further research on communal practices of trash disposal, such as in caves or public contexts, is needed. Finally, patterns of trash disposal may also express regional differences as suggested in the differences in the directional disposal of durable trash between Motul de San José and Chunchucmil. In general, we underscore the need to think about ancient waste management as socially variable in which households went about their everyday activities with potentially different resources and histories of interaction, and in turn, reproduced and reworked these conditions (and themselves) in subtle, sometimes taken-for granted ways, such as in the practices of discarding trash.

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