

Inferences about Abandonment: Maya Household Archaeology and Caracol, Belize

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ABSTRACT

Despite a century of research, the recovery of on-floor *de facto* refuse in ancient Maya settlements has not been a common occurrence. Even though there is a general perception of rapid abandonment of Maya sites during the «collapse,» only infrequently have on-floor artifactual materials related to this time period been archaeologically documented. Excavations at Caracol, Belize undertaken from 1985 through 2000 have recovered *de facto* and provisional refuse in association with many of the site's epicentral palaces. These remains indicate not only that the site epicenter witnessed a catastrophic end, but also that Caracol's final epicentral elite can be differentiated from the general population by ceramic usage and diet. These data also serve to demonstrate the importance of research strategy and excavation design in undertaking contextual analysis of archaeological remains.

Key words: Caracol, Belize, abandonment, midden, refuse.

RESUMEN

La recuperación de desperdicios *de facto* en los asentamientos mayas no ha sido, a pesar de todo un siglo de investigaciones, un fenómeno frecuente. De hecho, pese a que se considera generalmente que el abandono de los sitios mayas durante el «colapso» fue un proceso de carácter rápido, la documentación arqueológica de materiales usados en niveles de suelo ha sido muy escasa. Las excavaciones llevadas a cabo en Caracol, Belice, entre los años 1985 y 2000 han logrado recuperar basura —tanto *de facto* como provisional— que aparecen asociadas a muchos de los palacios situados en el epicentro del lugar. Los restos hallados permiten indicar que dicho epicentro sufrió un final catastrófico y que las élites que lo habitaron se diferenciaban de la población general a través

tanto de la alimentación como del uso de la cerámica. Estos datos sirven también para demostrar la importancia de las estrategias de investigación y de los diseños de excavaciones cuando se llevan a cabo análisis contextuales de restos arqueológicos.

Palabras clave: Caracol, Belice, abandono, basurero, basura.

Rapidly abandoned households are of paramount interest to archaeologists because they generally contain sizeable quantities of primary context debris that can be used to make interpretations of building or artifact function. There are a number of cases in the Maya area where evidence for rapid abandonment, or minimally evidence for coeval deposition, has been recovered. Documented sites include Ceren (Sheets 1992), Quirigua (Jones *et al.* 1983), Aguateca (Inomata 1997), Santa Rita Corozal (D. Chase and A. Chase 1988), and Caracol (Inomata and Sheets in this issue: Figure 1) (A. Chase and D. Chase 1987, in press; D. Chase and A. Chase 1994). However, the identification of these deposits is not always a simple matter, nor is there an agreed upon methodology for interpreting such materials. Few sites have the clear-cut evidence of Ceren, where volcanic overlay provides both preservation and absolute evidence of calamity and resultant rapid abandonment.

Even should artifactual materials be recovered upon the floors of a building, it is sometimes difficult to determine exactly how items came to be there. Did they result from a hasty, unplanned rapid abandonment of a building? Did some curation of materials occur? Were the items placed or broken on the floor of a building as a result of purposeful or ritual termination activity? Or, was the floor of an unoccupied building used for the deposition of someone else's trash? Also of concern are temporal and cultural factors. Were the on-floor materials the result of a single activity or did they result from long-term usage of the locale? Could there have been scavenging activity or



Figure 1. *De facto* refuse on the interior room floor of Caracol Structure B4; the outlines of smashed individual vessels can be clearly seen.

even looting of materials from these floors after abandonment? Apart from the physical artifacts, could interpretation of meaning vary according to the recovery strategy employed or based upon differential methodological constructs? The answers to such questions have implications for archaeological method and theory that go beyond any simple consideration of «rapidly abandoned sites». Of primary importance, then, is determining criteria for considering artifactual remains to be the result of truly rapid abandonment, i.e. that recovered artifacts represent a single temporal event in which materials were hastily left in place on the floor of a building and not subsequently disturbed. This is something that cannot be undertaken without the careful contextual evaluation of deposits and is a topic for which there is substantial academic discussion.

BACKGROUND CONSIDERATIONS

The problems encountered in moving from archaeological remains to systemic interpretation of the archaeological record (e.g. Schiffer 1976, 1987) are compounded in societies like that of the Maya, who used and deposited their material remains in many different ways. The Maya demolished and rebuilt multiple architectural complexes repeatedly and sometimes in, what later appears to be, an extremely convoluted manner (e.g. Coe 1990); they both curated objects (Rathje *et al.* 1973) and used earlier remains as construction fill; they systematically cleaned the floors of their buildings and moved their garbage to other locales (A. Chase and D. Chase 1998). The trash deposition patterns of the Maya were complex. Trash was not simply swept or dumped to the sides of residential

groups (e.g., the Shipibo-Conibo pattern of Deboer and Lathrap 1979) or to the rear of buildings (e.g., the refuse pattern of Fry 1972 and Puleston 1973), but was rather generally recycled into other constructions and landscape modifications. Presumably, this recycling had a variety of purposes that ranged from simple economics to maintenance of health standards. Schiffer's (1987: 97-98) «*abandonment stage refuse*» in which there is a relaxation in «standards of cleanliness» does not appear to characterize the vast majority of Maya residential groups that have been excavated. Thus, one-to-one systemic correspondences between on-floor artifactual materials and buildings are not easily recorded for the Maya archaeological record. And, it is generally only in rapidly abandoned households—those that were suddenly depopulated because of natural or human-caused disaster (earthquake, flood, volcanic eruption, fire, or warfare)—that one tends to find abundant *de facto* on-floor materials.

While rapid abandonment may result in *de facto* materials left on floors, one must not assume that all *in situ* remains on structure floors resulted from rapid abandonments. Throughout the Maya area there is a long history of items being purposefully placed on building floors in ritual contexts (D. Chase 1988; D. Chase and A. Chase 1998; Mock 1998; Walker 1998). At Caracol this is evident in the censers found on the floor of Structure A3 or on the frontal terrace of Structure B19 (A. Chase and D. Chase 1987: 14, 25). Some materials were also purposefully left on building floors when rooms were sealed (such as in palace and temple examples excavated at Caana, Caracol's royal palace complex). Other items were left on exposed building floors over a long period of time (such as in the multitude of pottery found in association with Caracol Structure A6 and Santa Rita Corozal Structure 81). Thus, even though whole vessels or other artifacts may appear clustered on building floors, they may not be the result of rapid abandonment (see also Schiffer 1987).

Even if a structure has been rapidly abandoned, one cannot assume a complete artifact inventory. Preservation and curation are still factors. In addition, some items could have been removed at or immediately prior to abandonment. Others may have been scavenged after abandonment. There may also be relatively «clean» floors due to normal refuse processing, even in cases when rapid abandonment did occur. Thus, it is rare for a full cultural component to be represented even in the best on-floor *de facto* material. And, «on

floor» material is only a subset of items within a household; much storage took place «off floor» with artifactual materials being located in perishable roofs and eaves (Schiffer 1987: 60; Sheets 1992). At Caracol, much of the recovered *de facto* refuse came from the floors of buildings whose roofs had once been vaulted; only in Structure A6, a building constructed very early without a fully vaulted roof, was potential evidence of elevated storage recovered in the form of two large conch shell trumpets and a set of extremely large jadeite earflares located in architectural collapse almost a meter above the floor a rear room.

Besides recognizing *de facto* clusters of artifacts and ceramic vessels on the interior floors of buildings (Figure 1), it is also possible to reconstruct patterns of trash deposition for some abandoned Maya buildings. The ancient Maya moved their trash away from the areas in which they resided on a regular basis. Relatively recent trash, which had yet to be fully gathered and disposed of, is represented by minor garbage build-up (that is both clustered and sheet-like) in areas immediately outside a structure, in exterior corners, in alleyways between constructions, and sometimes on associated platforms or terraces. At Caracol, nowhere are such kinds of deposits very deep or very sizeable. For this material, it is sometimes difficult to distinguish between *de facto* refuse and, what Schiffer (1987: 65) refers to as «*provisional refuse*», activity-related trash that is temporarily stored for discard elsewhere. Another depositional pattern becomes evident when refuse collecting systems have broken down. In this second case, a slower, more protracted, abandonment is indicated in which some structures are still occupied while others have fallen into disuse. Such a pattern can be found at pueblos in the American Southwest (Reid 1985) as well as in the Maya area. This slower abandonment process has been documented at both the sites of Altun Ha (Pendergast 1979) and Tikal (Harrison 1999), where unused rooms in Maya palaces were filled with sizeable garbage accumulations.

Differential preservation may also affect the recovery of use-related remains. Even if there is primary trash in the vicinity of a given building, natural processes can easily disperse it. If a building does not readily collapse, materials can be scattered and disturbed by animals and later visitations; if a building immediately collapses, however, materials may maintain spatial integrity. Likewise, the kind of building will also affect the materials preserved. There generally is better preservation in stone buildings with a substan-

tial collapse overburden above floors. Remains that were close to the surface in perishable houses, in contrast, are more likely to be scattered, often simply due to tree root and plant action. Thus, rapid abandonment in normal Maya residential groups with perishable constructions may be difficult to recognize in the archaeological record, especially with limited excavation. The recovery of widespread scattering of items by post-occupation activity can be accomplished to some extent by areal excavation, in which dispersed pieces of the same artifact are more likely to be recovered and subsequently fitted together.

Temporal factors are also significant. *De facto* materials may be easier to find in Late Postclassic constructions than in Classic Period structures because of the shorter time depth between deposition and recovery and the lessened opportunity for post-occupa-

tion disturbance. And earlier, more deeply buried remains may not retain any semblance of systemic context in a situation of intensive and continuous re-occupation, where they are more likely to be disturbed.

Almost all use-related on-floor debris from Caracol (and Santa Rita Corozal) derives from large areal clearing excavations of building rooms or platforms. Such remains were identified in the field during excavation, photographed and drawn *in situ* (where and as they were found), and then reconstructed and drawn in the laboratory (for example, see Caracol Structures B4, B5, and B6) (Figure 2). The on-floor, interior room *de facto* refuse, usually containing discrete vessels and items, also sometimes occurs in association with other trash deposits outside of buildings. These other trash deposits, or provisional refuse, represent horizontal short-term groupings of scattered, but largely recons-

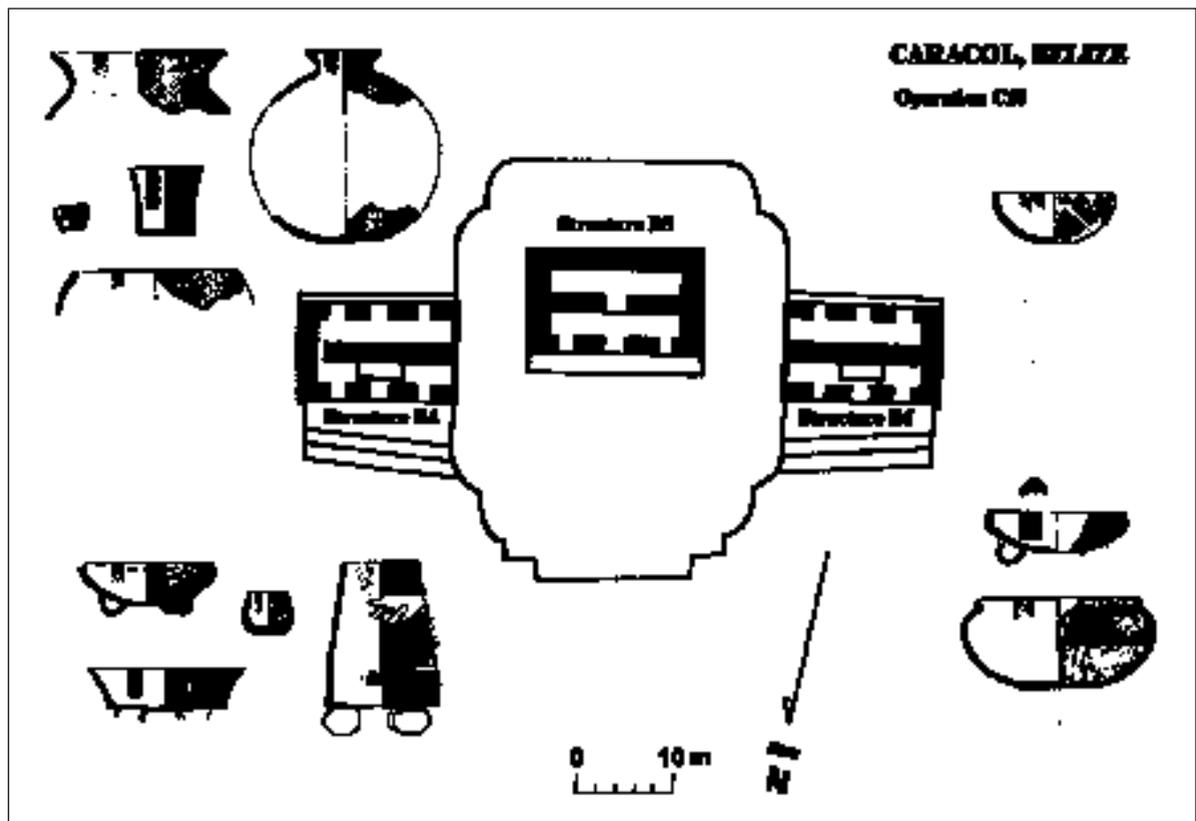


Figure 2. Plan of Caracol Structures B4, B5, and B6, the architectural complex which defines the southern side of the B Group Plaza, and associated pottery vessels; while no on-floor trash occurred in Structure B5, *de facto* trash was recovered in the rear rooms of both Structures B4 and B6 while *de facto* and provisional trash was recovered from the front terrace of each structure.

tractable, ceramic vessels as well as other artifactual and faunal debris; these remains are interpreted as being in a temporary holding location prior to their incorporation into more distant construction and landscape fills. The excavation and laboratory procedures, however, leave no doubt that both kinds of identified materials were the result of «household» activity.

MIDDENS AND REFUSE

Apart from the natural and cultural processes that obfuscate the recognition of rapidly abandoned houses in the archaeological record, definitional problems also exist. In particular, there is a problem in the use of the word «midden». Many Mayanists write about «midden» materials, but there are minimally three different uses of the word in the Maya literature. Midden has been used as a label for: (1) long-term garbage deposition in a single location; (2) short-term garbage deposition; and (3) large amounts of redeposited garbage in fill. At Chalchuapa, El Salvador, Sharer (1978) defined a midden as a locale in which there is long-term (up to 2000 years) deposition of stratified trash; in this case a «midden» was defined as a «specialized area for rubbish disposal removed from other human activity areas» (Sharer and Ashmore 1993: 131-132). «Midden» as short-term use-related garbage disposal is the second meaning ascribed to this term and is equivalent here to the use of the term «refuse». The most common usage of «midden» in Maya archaeology, however, appears to be in relation to redeposited garbage either in fill or in relation to architectural features; two versions of this usage exist. In the first variant, it is used to refer to «secondary refuse» that comprises either fill material or residential scatter; perhaps the clearest example of this usage is single phase artifactual materials that have been directly deposited into a construction level (such as in levels within Tikal's North Acropolis; Coe 1990 and Culbert 1977). In the second variant, redeposited fill or eroded fill material can be referred to directly as «midden» (e.g., Ford 1991; Fry 1972) with «secondary contexts» becoming incorrectly transposed with «secondary refuse.»

At both Altun Ha and Tikal deep garbage accumulations occurred in abandoned rooms (Harrison 1999; Pendergast 1979). Even if deposits are several meters thick, however, they may not have resulted from long-term trash deposition. Peter Harrison (1999: 197-198) notes that sizeable (1.8 meters deep), even stratified,

trash deposits occurred within palace rooms at Tikal, but that these deposits proved to have vessel fits from top to bottom, indicating relatively rapid (rather than long-term) deposition. While pointing this out, Harrison (1999: 48) also noted that «'pure' middens, that is, garbage dumps which contain discarded and broken ceramics from one period only.... are rare at Tikal....». Thus, Harrison points to problems involved not only in locating such contextually meaningful deposits, but also in analyzing them.

Recently, the suggestion has been made that the presence of some 210 artifacts per square meter of excavated area can be considered as evidence of a substantial sheet «midden,» even if these materials are of small size and heavily eroded (Johnston and Gonlin 1998: 169). Investigations at all of the sites with which we are familiar suggest that numbers alone are not enough to insure that such remains derive from use-related trash; similar numbers and a horizontal distribution can also result from redeposited fill and eroded fill. For such items to be related to either *de facto* or provisional trash, there would need to be indications that items were broken or used in the immediate vicinity. At least for the pottery, contextual analysis of resultant finds (e.g., A. Chase 1994) should lead to refitting of large and small sherds from such a deposit into at least partially reconstructable vessels (what Schiffer 1987: 286 calls «ceramic reassembly»), especially if the material in fact derived from use-related garbage. And, if this material were derived from use-related trash, it would also likely include animal bone and artifactual material besides pottery.

Part of the problem in dealing with the term «midden» is that interpretations are sometimes predicated on the basis of a test-pit (Ford 1991) or even a post-hole test (Fry 1972) – kinds of excavations that are usually too small to be contextually useful, let alone to examine distributional data or see if reconstructable vessels exist. Investigations of larger horizontal areas are of far greater analytic utility than small exploratory (test-pit) investigations. Even here, however, examples of *de facto* or provisional refuse may not be encountered. But where *de facto* (or even provisional) refuse is found and correctly identified, large-scale horizontal investigations allow the possibility of discovering variations in the use of space within and outside of buildings and in examining post-occupation disturbance.

Because of the relatively common problematic usage of the term «midden,» we prefer to use the word «refuse» or «trash» and to restrict the meaning of the-

se words to instances of short-term garbage deposition.

**LONG-TERM *DE FACTO* DEPOSITION
VERSUS RAPID ABANDONMENT:
SANTA RITA COROZAL STRUCTURE 81**

Even when *in situ* items are found left on floors, such materials may derive from long-term deposition rather than coeval activities or rapid abandonment. One of the better cases for illustrating this point comes from excavations undertaken in Belize at Santa Rita Corozal Structure 81. These investigations also provide an extremely strong argument for both the contextual analysis of recovered archaeological materials and the need for substantial excavation when detailed functional analysis is to be undertaken.

Santa Rita Corozal Structure 81 was a multi-room Postclassic building measuring 8.5 meters by 36 meters with an associated small frontal terrace (Figure 3). It had stone base-walls and contained an interior shrine room. During 1980 an areal excavation measuring 19.5 meters by 10 meters exposed approximately 60% of the interior of this structure, recovering 32 vessels on the floor of this building as well as 2 buried caches and 1 burial intruded into the bench located in the shrine room. The pottery vessels on the floor of Structure 81 proved to be of combined ritual and domestic nature (D. Chase 1982; D. Chase and A. Chase 1988). The southwest corner of the central room contained 2 unslipped *ollas* nested on 1 roasting platter as well as 1 large *tinajera*. Four tripod bowls and one small *olla* were in the vicinity of the shrine room door, as were two human effigy *incensarios*. The shrine room contained the remainder of the other 22 *ollas*, bowls, and plates.

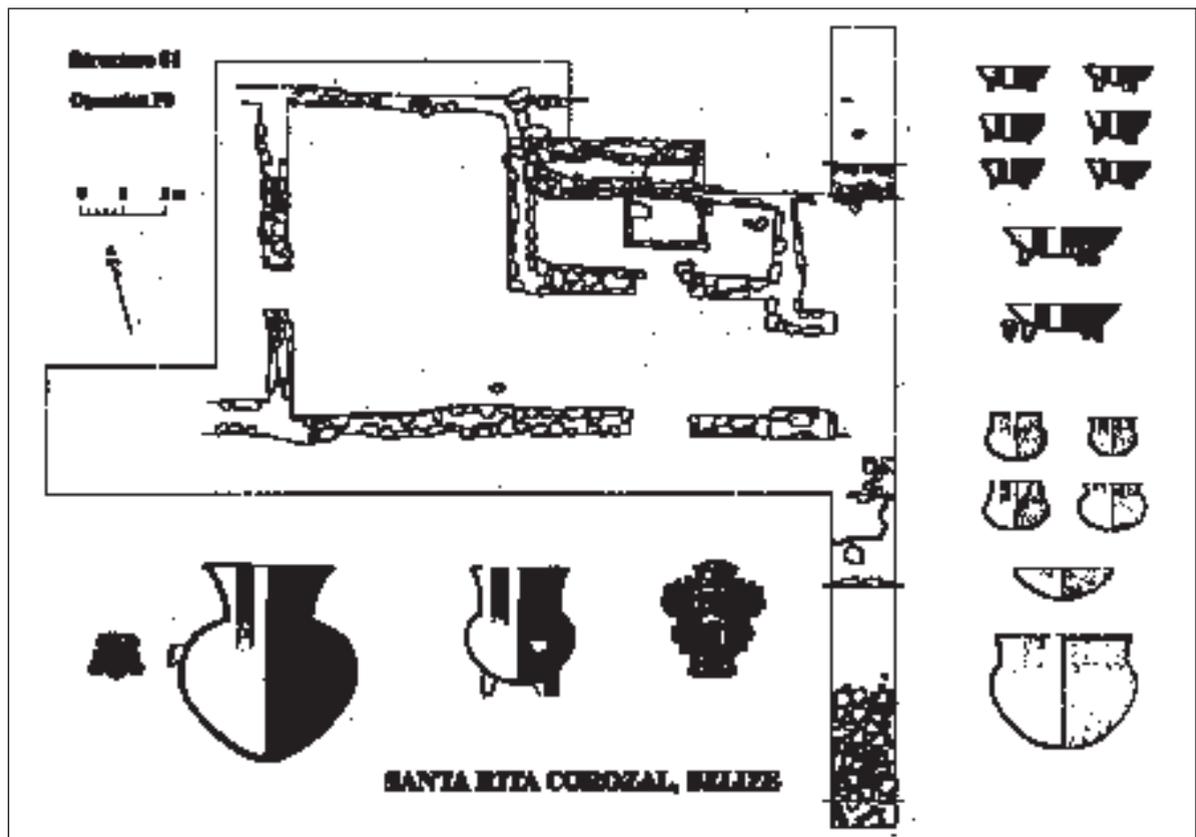


Figure 3. Plan of Santa Rita Corozal Structure 81 and illustrations of the kinds of on-floor ceramic items that were recovered.

Unexpected, however, was evidence that the pottery vessels on the floor of this building had accumulated over a period of time. A burial had been intruded into the bench in the shrine room and pieces of the vessels on the floor of the shrineroom were found in the fill around the burial. Of even more significance, pieces from 2 of the vessels on the Structure 81 room floors were found sealed beneath a plaster floor in a rear alleyway. This means that at least some of the pottery had been left on the building floor long enough for pieces to have been included in a building modification, even though the majority of the associated vessels were still «*in situ*» on the building floor. Based on what can be reconstructed from the archaeology, it is likely that this building was used over a fairly long period of time (perhaps upwards of 20 years or more) for the placement of important offerings of food and other items (D. Chase 1982: 300-301). Thus, the Santa Rita Corozal Structure 81 example provides a strong indication of the value of contextual analysis and of the dangers in assuming, rather than proving, contemporaneity of archaeological remains.

CARACOL, BELIZE AND RAPID STRUCTURE ABANDONMENT

University of Central Florida archaeological investigations at Caracol, Belize have excavated in many of the epicentral buildings and tested approximately 111 residential groups. As a result of these investigations, substantial on-floor artifactual remains have been documented in association with 15 epicentral structures (Structures A2, A3, A6, A8, A40, B4, B6, B23, B24, B64, D17, and multiple buildings on Caana) and in excavations undertaken in 9 residential groups (Tabanos, Roster, Zero, Escoba, South, Highrise, Cedro, Lima, and Alta) in the site core. Both the debris and associated radiocarbon dates suggest that there was a rapid abandonment of the site epicenter at approximately A.D. 890. Because of detailed contextual analysis of the excavated remains, it is possible to gain substantial insight into the latest occupation of Caracol, particularly with regard to the nature of elite occupation and the relationships among elite and non-elite residences during the Terminal Classic Period.

The most substantial on-floor deposits at Caracol derive from epicentral palaces. In part this is surely because of the use of an excavation methodology that focused on areal stripping of epicentral buildings in contrast to more limited testing in residential groups.

However, even in large area excavations designed to uncover dispersed remains, on-floor deposits were more rarely encountered in non-epicentral residences at Caracol. And, when pottery was found on floor surfaces in residential groups, it generally differed from that found on the floors of epicentral palaces. Yet, contemporaneity can be established, albeit in a more limited fashion, based on the use of similar kinds and types of ceramics as well as on the use of shared effigy *incensarios* and a shared depositional pattern of these items between Caracol's epicentral temples (A3, A6, B19) and the eastern shrine buildings (Zero, Roster, Lima) in several residential groups (A. Chase and D. Chase in press; D. Chase and A. Chase 2000).

With the exception of the shared ritual component, the rest of the vessel forms that have been found in association with building floors show significant differences between Caracol's epicentral buildings and the residential groups. In residential groups, the primary vessel form that has been recovered, frequently from alleyways between buildings, is a large incurved bowl or platter, usually undecorated. In the epicenter, recovered vessel forms include not only platters, but also large ollas and jars, tripod bowls, tripod plates, and tripod or ring-based cylinders, deep bowls or cups, large and small collared bowls, and large round barrel-like cylinders (A. Chase and D. Chase in press).

Other artifactual materials are also more often associated with the epicentral palaces. Jadeite and shell objects, as well as finely carved bone, all occur in localized palace trash, especially as on-floor materials exterior to palace buildings. Faunal remains are particularly common in association with Caracol's epicentral palaces, but are much more rare in the outlying settlement (Giddens n.d.). While differential preservation due to stone rather than perishable buildings may account for some of the distributional differences, other parts of Caracol that had perishable buildings (such as the southwest walled area) have yielded large amounts of faunal remains, suggesting that other factors were at work as well.

Whereas it is difficult to establish rapid abandonment rather than incomplete refuse removal (or just poor sanitary habits) in Caracol's residential groups, the same is not true in the site's epicentral buildings. Besides having crushed vessels and artifacts on their floors and localized trash, many of the epicentral buildings were burned. And, the radiocarbon dates that have been run on the burning layers that overlay the floors of many of Caracol's buildings yield a consistent

suite of dates that center on approximately A.D. 890 (A. Chase and D. Chase 2000, in press). Two possible explanations exist for this burning: it was a product of rapid abandonment or, alternatively, it was the result of the ritual termination of the site epicenter (much like what has been argued for downtown Teotihuacan [Millon 1988]).

We believe that epicentral Caracol was violently destroyed and abandoned rather than terminated for several reasons. First, if the inhabitants were ritually terminating their buildings, it is unlikely in our estimation that they would have left the localized trash, which includes substantial worked and unworked animal bone and other small artifacts, in place within and about the various buildings. Second, material that constitutes *de facto* refuse on the interior floors of buildings appears to be use-related rather than ritual in nature; the ceramics are reconstructable and none are extensively scattered as they were in Santa Rita Corozal Structure 81. This is not to say that long-term ritual deposits don't exist at Caracol; in fact, the materials from Caracol Structure A6 do appear to resemble the patterns seen in the Structure 81 example given above. In addition, most of the on-floor deposits contain weapons. Finally, and most telling, one of the palace suites on Caana's summit contains the unburied body of a 6-year old child on its floor. The combination of burning, *de facto* vessels, weapons, and an unburied child lead us to believe that Caracol's epicenter suffered a violent end, leading to rapid abandonment.

ELITE HOUSEHOLDS AT TERMINAL CLASSIC CARACOL

These on-floor deposits can be used to make a number of important systemic interpretations. First, Caracol's stone buildings were clearly inhabited and the inhabitants of these epicentral palaces were using a ceramic sub-complex that was relatively common, but distinct from that used in the outlying residential groups (A. Chase and D. Chase in press). While palace pottery assemblages are quite similar in fineware content, only isolated ceramic pieces representative of this palace fineware occur within coeval outlying residences. Thus, these ceramic materials appear to have been status-linked (A. Chase and D. Chase in press). As during the Late Classic Period, however, ritual ceramics were shared by all status groups throughout the site in the Terminal Classic.

It is important to note that no direct evidence of cooking activities, at least in the form of cooking pots, have been recovered in association with Caracol's palaces. Instead, the majority of the vessels recovered are serving and storage containers. One or more central kitchens were apparently supplying food to Caracol's palaces, a situation similar to that which existed minimally for Tikal's Central Acropolis (P. Harrison, personal communication, 1998). Thus, to the extent that they ate from the same kitchen (or minimally shared the same diet), Caracol's epicentral elite may have constituted a «super»-household, even though they were distributed in several palaces, presumably represented several different families, and may not all have been part of the royal court centered on Caana's summit (A. Chase and D. Chase 2000).

The diet of the inhabitants of the rapidly abandoned epicentral buildings was rich and varied. A wide variety of faunal remains—including deer, rabbit, birds, and even fish—are plentiful in the localized provisional refuse associated with these palaces (Giddens n.d.) and stable isotope analysis confirms that Terminal Classic high status individuals enjoyed an excellent diet that was high in both maize and protein (D. Chase *et al.* 1998). In fact, there appears to have been little or no decrease in the quality of life for Caracol's epicentral elite. Based on the kinds of materials that have been recovered on palace floors, external trade-linkages were still being accessed and were clearly functioning through the duration of the Terminal Classic era. The existence of long-distance external trade at the time of the collapse is similarly recorded for the site of Tikal; here, Belizean ceramic specimens were recovered in the final palace garbage, showing that «a trade network was still in operation under these conditions» (Harrison 1999: 198).

The rapidly abandoned structures of epicentral Caracol can be used to reconstruct a picture of the site's Terminal Classic social organization. Caracol's Terminal Classic society was very hierarchical. Upper status individuals had access to and used different ceramics than the other site inhabitants. They also enjoyed widespread trade contacts and a good diet. Based on the fact that Caana had just been refaced (and Structure B18 expanded) and that at least three large construction programs were under way in the epicenter (at Structures A7, B2, and B71), the elite had not lost the ability to muster labor. In that there was no massive trash build-up in any of the epicentral palaces, we infer that the garbage collection system was also fully functioning until the epicenter was abandoned.

Thus, rather than a slow and protracted decline, the inhabitants of Caracol's epicentral palaces were healthy and prosperous until sudden calamity befell them at approximately A.D. 890.

That the same kind of simultaneous calamitous end occurred in all of Caracol's 9,000 residential groups seems doubtful. Even in intensively investigated residential groups there is little or no evidence of *de facto* on-floor artifactual remains that would suggest sudden abandonment, although the possibility of post-abandonment scavenging cannot be overlooked. However, at the time that Caracol's epicentral palaces were burned and abandoned, it would appear that minimally 25% of the site's residential groups were still occupied, if ceramic distributions are being properly understood (D. Chase and A. Chase 2000). Caracol's ubiquitous agricultural terraces (A. Chase and D. Chase 1998), which occupy most of the land between residential groups, likely were sufficiently productive to maintain the agricultural needs of a reduced population. That some population remained into the 11th Century is indicated by the continued ritual use of the Caracol A Group and the recovery of some ceramic items that would be termed «Postclassic» elsewhere (A. Chase and D. Chase in press). Thus, while the epicentral palaces fell into disuse, some parts of Caracol were likely occupied until at least A.D. 1050.

CONCLUSIONS

In summary, the identification of rapidly abandoned structures and households in the Maya area is difficult for a variety of reasons. Unless there is outright evidence for a catastrophic event, excavation strategies and differential preservation can hinder the

identification of situations of rapid abandonment, as can problematic definitions and analogies. Distinguishing building function is also not an easy task, especially as Maya buildings were often used in a variety of ways that could incorporate administrative and ritual functions along with residential ones. Thus, for epicentral palaces like the ones at Caracol, even if *de facto* trash is recovered and even if these palaces served in some capacity as residences, the recovered materials may relate to functions that could be attributable to more than a single household or even to non-domestic functions. What the Caracol data do demonstrate are the value that contextual analysis and appropriate field methodologies have for subsequent analytic considerations. The interpretations made here would not have been possible without the excavation of entire rooms (and even palace compounds) in conjunction with simultaneous extensive and tedious in-field identifications, mapping, drawing, and laboratory work.

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REFERENCES

- CHASE, Arlen F. 1994. «A Contextual Approach to the Ceramics of Caracol, Belize». In *Studies in the Archaeology of Caracol, Belize*, Eds. D. Z. Chase and A. F. Chase , pp. 157-182. Monograph 7. Pre-Columbian Art Research Institute. San Francisco.
- CHASE, Arlen F. and Diane Z. CHASE. 1987. *Investigations at the Classic Maya City of Caracol, Belize: 1985-1987*. Monograph 3. Pre-Columbian Art Research Institute. San Francisco.
- . 1998. «Scale and Intensity in Classic Period Maya Agriculture: Terracing and Settlement at the "Garden City" of Caracol, Belize». *Culture and Agriculture* 20: 60-77.
- . 2000. «The Royal Courts of Caracol, Belize». In *Royal Courts of the Maya*, Eds. T. Inomata and S. Houston. Westview Press. Boulder.
- . in press. «Terminal Classic Status-Linked Ceramics and the Maya «Collapse»: *De Facto* Reuse at Caracol, Belize». In *The Terminal Classic in the Maya Lowlands: Collapse, Transition, and Transformation*. Eds. D. Rice, P. Rice and A. Demarest. Westview Press. Boulder.

- CHASE, Diane Z. 1982. *Spatial and Temporal Variability in Postclassic Northern Belize*. Unpublished Ph.D. Dissertation, Anthropology Department. University of Pennsylvania. Philadelphia.
- . 1988. «Caches and Censerwares: Meaning from Maya Pottery». In *A Pot for All Reasons: Ceramic Ecology Revisited*. Eds. C. Kolb and L. Lackey, pp. 81-114. Temple University. Philadelphia.
- CHASE, Diane Z. and Arlen F. CHASE. 1988. *A Postclassic Perspective: Excavations at the Maya Site of Santa Rita Corozal, Belize*. Monograph 4. Pre-Columbian Art Research Institute. San Francisco.
- . 1994 (Eds.). *Studies in the Archaeology of Caracol, Belize*. Monograph 7. Pre-Columbian Art Research Institute. San Francisco.
- . 1998. «The Architectural Context of Caches, Burials, and Other Ritual Activities for the Classic Period Maya (as Reflected at Caracol, Belize)». In *Function and Meaning in Classic Maya Architecture*. Ed. S. Houston, pp. 299-332. Dumbarton Oaks. Washington, D.C.
- . 2000. «Contextualizing the Collapse: Terminal Classic Ceramics from Caracol, Belize». Paper presented at the 65th Annual Meeting of the Society for American Archaeology, Philadelphia (April).
- CHASE, Diane Z., Arlen F. CHASE, Christine D. WHITE and Wendy GIDDENS. 1998. «Human Skeletal Remains in Archaeological Context: Status, Diet, and Household at Caracol, Belize». Paper presented at 14th International Congress of Anthropological and Ethnological Sciences. Williamsburg, Virginia.
- COE, William R. 1990. *Excavations in the Great Plaza, North Terrace and North Acropolis of Tikal*. Tikal Report 14, University Museum Monograph 61. The University Museum. University of Pennsylvania. Philadelphia.
- CULBERT, T. Patrick. 1977. «Early Maya Development at Tikal, Guatemala». In *The Origins of Maya Civilization*. Ed. R.E.W. Adams, pp. 27-43. University of New Mexico Press. Albuquerque.
- DEBOER, Warren R. and Donald W. LATHRAP. 1979. «The Making and Breaking of Shipibo-Conibo Ceramics, In *Ethnoarchaeology: Implications of Ethnography for Archaeology*, Ed. C. Kramer, pp.102-138. Columbia University Press. New York.
- FORD, Anabel. 1991. «Economic Variation of Ancient Maya Residential Settlement in the Upper Belize River Area». *Ancient Mesoamerica* 2 (1): 35-46.
- FRY, Robert. 1972. «Manually Operated Posthole Diggers as Sampling Instruments». *American Antiquity* 37: 259-261.
- GIDDENS, Wendy. n.d. *Maya Diet in a Changing Urban Environment: Faunal Utilization at Caracol, Belize*, Ph.D. Dissertation, Department of Anthropology, University of California, Los Angeles (in preparation).
- HARRISON, Peter D. 1999. *The Lords of Tikal: Rulers of an Ancient Maya City*. Thames and Hudson. London.
- INOMATA, Takeshi. 1997. «The Last Day of a Fortified Classic Maya Center: Archaeological Investigations at Aguateca, Guatemala». *Ancient Mesoamerica* 8 (2): 337-351.
- JOHNSTON, Kevin J. and Nancy GONLIN. 1998. «What do Houses Mean? Approaches to the Analysis of Classic Maya Commoner Residences». In *Function and Meaning in Classic Maya Architecture*, Ed. S. Houston, pp. 141-185. Dumbarton Oaks. Washington, D.C.
- JONES, Christopher, Wendy ASHMORE, and Robert J. SHARER. 1983. «The Quirigua Project: 1977 Season». In *Quirigua Reports: Volume II: Paper 6*, Eds. E. Schortman and P. Urban, pp. 1-39. Monograph 49. The University Museum. The University of Pennsylvania. Philadelphia.
- MILLON, Rene. 1988. «The Last Years of Teotihuacan Dominance». In *The Collapse of Ancient States and Civilizations*, Eds. N. Yoffee and G.L. Cowgill, pp. 102-164. University of Arizona Press. Tucson.
- MOCK, Shirley B. (Ed.). 1998. *The Sowing and the Dawning: Termination, Dedication, and Transformation in the Archaeological and Ethnographic Record of Mesoamerica*. University of New Mexico Press. Albuquerque.
- PENDERGAST, David. 1979. *Excavations at Altun Ha, Belize, 1964-1970*, Vol. 1. Royal Ontario Museum. Toronto.
- PULESTON, Dennis. 1973. *Ancient Maya Settlement Patterns and Environment at Tikal, Guatemala: Implications for Subsistence Models*. Unpublished Ph.D. dissertation, Department of Anthropology. University of Pennsylvania. Philadelphia.
- RATHJE, William L., Jeremy A. SABLORFF and David A. GREGORY. 1973. «El Descubrimiento de un Jade Olmeca en la Isla de Cozumel». *Estudios de Cultura Maya* 9: 85-92.
- REID, J. Jefferson. 1985. «Formation Processes for the Practical Prehistorian». In *Structure and Process in Southeastern Archaeology*, Eds. R.S. Dickens and H.T. Ward, pp. 11-13. University of Alabama Press.

-
- SCHIFFER, Michael B. 1976. *Behavioral Archaeology*. Academic Press. New York.
- . 1987 (1996). *Formation Processes of the Archaeological Record*. University of Utah Press. Salt Lake City.
- SHARER, Robert J. 1978. *The Prehistory of Chalchuapa, El Salvador: Volume 3: Pottery and Conclusions*. University of Pennsylvania Press. Philadelphia.
- SHARER, Robert J. and Wendy ASHMORE. 1993. *Archaeology: Discovering Our Past*, 2nd edition. Mayfield Publishing Company. Mountain View.
- SHEETS, Payson D. 1992. *The Ceren Site: A Prehistoric Village Buried by Volcanic Ash in Central America*. Harcourt Brace College Publishers. Fort Worth.
- WALKER, Debra S. 1998. «Smashed Pots and Shattered Dreams: The Material Evidence for an Early Classic Maya Site Termination at Cerros, Belize». In *The Sowing and the Dawning*, Ed. S. Mock , pp. 81-99. University of New Mexico Press. Albuquerque.

