2 THE DOMESTIC ECONOMY OF CARACOL, BELIZE: ARTICULATING WITH THE INSTITUTIONAL ECONOMY IN AN ANCIENT MAYA URBAN SETTING

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Ancient Maya households at Caracol were both linked to elaborate trade networks and were largely self-sufficient during the Late Classic Period (C.E. 550-790). The inhabitants of the site's plazuela groups were able to produce products and food stuffs that could be marketed and traded for other needed household and ritual items. The archaeology makes it clear that a wide variety of manufactured items and materials were available to Caracol's residential units and that the inhabitants of these living areas shared in the general prosperity of the site during the Late Classic Period. These residential groups were further embedded in a site-wide system of agricultural terraces that enabled the residents to grow various crops in close proximity to their households, possibly even multi-cropping on the enriched local soils. Each household group also appears to have focused on one or more different kinds of craft production that was beyond the needs of their own unit. The resulting crafts were used in trade for other items available at Caracol's markets. The domestic economy of Caracol's Late Classic residential groups provided the tools for a high standard of living that was likely fostered through purposeful administrative policy. Changes to Caracol's domestic economy in the Terminal Classic Period (C.E. 790-900), resulting from a changed political order, signaled the collapse of a successful system that had functioned well for over 250 years.

Introduction

Past discussions over the nature of ancient Maya economies have been fraught with disagreements over their level of complexity. For a variety of reasons, many scholars viewed ancient Maya economies as being relatively weak (Demarest 2004:24). However, with increased archaeological work that focused on recognizing past economic systems in the archaeological record (Chase 1998; Hirth 1998; Masson and Freidel 2002) and with additional theoretical sophistication in the field of archaeology at large (e.g., Smith 2004:76; Feinman and Garraty 2010), the complexity involved in ancient state economies like those of the ancient Maya are now being realized (D. Chase and A. Chase 2014a; Masson and Freidel 2012). Markets and commercialized behaviors, once only inferred (Coe 1967; Fry and Cox 1974), now are viewed as having existed at many ancient Maya sites (Dahlin et al. 2010; Shaw 2012) and we are beginning to reconstruct ancient production and distribution patterns through the analysis of specific artifact classes (e.g., obsidian: Golitko et al. 2012) as well as through spatial analysis and artifactual distributions (A. Chase and D. Chase 2012; D. Chase and A. Chase 2014a; see also Fry and Cox 1974).

The archaeology clearly demonstrates that the household was "the primary unit of production, consumption, and reproduction" (Smith 2004:85) and was key to Maya domestic economy. The domestic economy may be viewed in contrast to the more formalized "institutional economy" in which people and superstructure come together to form a market. According to Hirth (lecture January 2013 Chicago), the "domestic economy" consists of land, labor, and capital that is accessed through non-market means. This builds upon an 1862 *Scientific American* article that defined the domestic economy as "how to live well and comfortably, and yet cheaply…"- thus focusing the topic largely on comestibles and their acquisition.

There are, however, very real questions over what constitutes the domestic economy. Earle (2002; Johnson and Earle 2000:22-27) contrasted the "domestic economy" with the "political economy," something that Michael Smith (2004:78) suggests "only causes confusion" in any consideration of ancient economics. The QFinance Online Dictionary defines domestic economy as "the production, consumption, and distribution of wealth within a specific country." This materialist definition is adaptable for archaeological inspection, especially as the distribution of "wealth" can be inferred from Maya household archaeology. Hirth's distinction between market and non-market is also useful in terms of the analyzing

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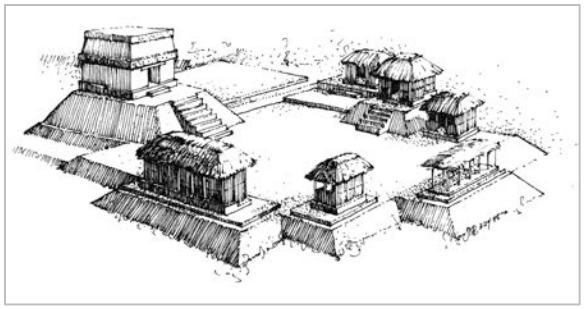

Figure 1. Reconstruction drawing of the Monterey residential group at Caracol (by Joseph Ballay for the Caracol Archaeological Project; after A. Chase and D. Chase 1996:96).

Figure 2. Reconstruction painting of the agricultural terracing and settlement in the vicinity of the Monterey residential group (by Terry Rutledge and David Morgan for the Caracol Archaeological Project; after A. Chase and D. Chase 1996:96).

ancient Maya economics at Caracol. Caracol's markets were part of the formalized institutional economy through which the site's elite controlled the distribution of quotidian, ritual, and prestige goods. Yet, at the same time, individual households could exchange their products in these venues for needed household items; given comparable Mesoamerican models, they were likely taxed in some way by the site bureaucracy (contra Foias 2013) for either goods transferred or for the use of the space itself.

Caracol's Domestic Economy

Because of 30 years of active research at the site of Caracol and the investigation of both the superstructure of the urban environment as well as the site's residential groups (A. Chase and D. Chase 2014; D. Chase and A. Chase 2002), we are in an advantageous position to examine exactly what constituted the site's domestic economy. It is possible to position each residential unit (Figure 1) in terms of subsistence and diet, in terms of the consumption of items that were introduced into the residential groups, and in terms of craft production by residents in the groups. It is also possible to relate the domestic economy to the institutional economy.

The growth of the ancient city of Caracol was accompanied by an infrastructure that increased in complexity (D. Chase and A. Chase 2014b). As the city's residential groups grew in number and density and as the continually constructed and maintained terraced agricultural fields infilled the landscape, it became imperative that a broad distribution system be developed for Caracol's landscape to facilitate the access of the city's residents to administrative services and economic distribution locales. By the early part of the Late Classic Period, the framework for this superstructure had been established through the construction of public plazas throughout the site that formed the nodes for governance and commerce (A. Chase and D. Chase 2001; D. Chase and A. Chase 2014a). The system expanded throughout the Late Classic Period until political change in the Terminal Classic Period resulted in the exclusion of many residential groups from commercial access to ritual and imported goods (something they had previously enjoyed).

To better understand Caracol's domestic economy we will briefly review several of its component parts: subsistence; commerce and industry; garbage; and, exports and surplus.

Subsistence

Over time most of the landscape of metropolitan Caracol became covered with carefully constructed agricultural terracing (A. Chase and D. Chase 1998; A. Chase et al. 2014: fig. 6). Initially, agricultural terracing was built in the fertile valley bottoms between the many karst hills of the site; as population increased and as demand for agricultural products increased over time, however, the slopes of most hills within central Caracol became covered with constructed terracing (Figure 2); ultimately, as population pressure continued over time, areas further from the site center were placed into agricultural service. While initially probably

used for out-field, extensive agriculture, these areas were eventually converted through the construction of agricultural terraces into spatially regulated areas for more intensive cultivation. Yet, each residential group at Caracol had access to land for agricultural purposes and most of these agricultural fields were immediately adjacent to the residential households.

A strong case can be made that each family unit was self-sufficient in terms of its basic subsistence needs with each residential group having sufficient field space in which to grow crops. Each household controlled approximately 2.2 hectares of in-field land in the immediate vicinity of the residential unit (A. Chase and D. Chase 2014; D. Chase and A. Chase 2004). This in-field agricultural area was usually filled with agricultural terracing and should have been able to produce more than the necessary food for a normal family, especially in combination with out-field agriculture. This household field area is consistent with agricultural-to-household ratios found elsewhere in the Maya area. For the Rio Bec zone of Mexico, Lemonnier and Vanniere (2013:409) note that most residential units controlled between 0.25 and 2.5 hectares of land directly adjacent to these households, seeing this as providing sufficient agricultural support for the dependent families; only elite households controlled more adjacent in-field land, ranging from 2 to 4 hectares. Multi-cropping on the Caracol's agricultural terraces, combined with the use of night-soil, would have further augmented the productivity of these terraces. In addition to the plots of land directly associated with the residential groups, out-field extensive agriculture was likely undertaken. Certainly, by the Late Classic Period areas well beyond the urban limits of the site must have been exploited for kindling and firewood as well as for thatch and game. Caracol's road system would have facilitated the rapid movement of such resources.

With the growth of population through the Late Classic Period, there was increased need to both maintain and expand terraced agricultural fields to augment their productivity (Murtha 2009), leading to a situation of agricultural involution (Geertz 1963). Intensive labor, craft specialization, and the conversion of new land to terraced fields may have led to the availability of surplus agricultural products that could be tithed or traded to other residential units. Contra Dahlin's (Dahlin et al. 2007) model of ancient Maya markets as resembling modern ones in Guatemala, we suspect that internal metropolitan trade in basic agricultural and food products was probably very limited, especially as each family had the ability to derive the majority of their food from their own subsistence labor.

Commerce and Industry

Commerce was the mechanism by which the Maya residential groups at Caracol were able to obtain products that they did not physically manufacture. These products included both quotidian items employed in everyday subsistence uses and wealth items that could be used for ritual or to express social prestige. Industry was the mechanism through which the people in Caracol's residential groups were able to manufacture items that they could then use to obtain both quotidian and wealth items. Almost all of Caracol's residential groups engaged in some version of industry (D. Chase and A. Chase 2004, 2014a; Pope 1994; Martindale Johnson 2014). Ken Hirth (2009:23) has characterized household craft production of the kind being discussed here as being subsumed within some version of either intermittent crafting or multi-crafting.

Based on the lack of evidence for the manufacture of pottery within the spatial limits of Caracol, the pottery that was being used by the residential groups was most likely being manufactured outside the city and imported into the site. Elements found in the pastes of many of Caracol's ceramic vessels support this assessment. Both quotidian vessels and more elaborate service wares show evidence of not only being imported from some distance but also in relatively large numbers. Specifically, the Late Classic pottery type Belize Red populated the serving vessels at most of Caracol's residential groups and was likely manufactured over 60 km away in the Belize Valley (A. Chase and D. Chase 2012). Other pottery finewares, many presumably deriving from the Peten of Guatemala - or further afield - were similarly made available to these households. Domestic

cooking and storage pottery was also presumably manufactured at some distance from the site. Pottery production requires appropriate clays and usually abundant water, both of which are in short supply in the vicinity of Caracol. Pottery also needs to be fired and the firing of pottery vessels was traditionally done on the outskirts of communities by ceramic producers in traditional communities (Reina and Hill 1978). Thus, it is likely that almost all of the abundant pottery found at Caracol had an origin external to the city, implying inter-regional trade as well as the need for both easy access and ready availability of these items for the city's inhabitants.

Researchers at Tikal could identify a central market in the East Plaza area of the epicenter (W. Coe 1967:73), but they could not locate any regional distribution centers on the ground - even though they were sure they existed (e.g., Fry and Cox 1974). As Fry (1979:510) noted in 1979: "The study of serving vessel exchange at Tikal supports the position that ceramic exchange was primarily channeled through a complex marketing system, with both a central market and regional exchange centers." In an earlier publication, we identified the minor centers of Bobal, Chikin Tikal, Mixta Xuc, and Tinal – all located in the Tikal landscape – as likely being part of the regional market system for the site (A. Chase and D. Chase 2003:114). Thus, the situation at Tikal was very similar to that at Caracol except that at Caracol we can literally see the regional exchange system on the ground because of the site's causeways. Pottery came into both sites from specialized producers who would have been located at a distance from those centers.

Apart from ceramics, many other products were manufactured within Caracol's residential groups. For some of these industries we have direct evidence of their existence in the archaeological record in the form of final products and for others we have only indirect evidence in the tools used to produce them and resultant debris. Chert appears in every household at Caracol that has been excavated (Figure 3) – and obsidian is almost as ubiquitous (D. Chase and A. Chase 2014a; Martindale Johnson 2016). At least 8 households engaged in the intensive production of specialized chert

Figure 3. Lithic debris recovered from a Caracol residential group, representative of craft production.

tools and another 9 households would probably yield similar evidence with more intensive excavation. And, the presence of large numbers of chert drills in many other households is representative of both shell and wood working (Mardindale 2014; Pope 1994). Bone was worked in at least 10 residential groups at Caracol (Figure 4) and at least three households produced prodigious amounts of conch shell artifacts (Cobos 1994). The distribution of stone spindle whorls (Figure 5) and bone needles at the site suggests that at least 20% of Caracol's residential groups were engaged in some kind of textile work (A. Chase et al. 2007). Limestone bars (Figure 6) are found widely distributed at the site were utilized both for ritual purposes and probably as spacers for making net bags out of perishable fibers and plants (A. Chase et al. 2007).

Thus, while the majority of Caracol's residential groups were clearly involved in the production of basic subsistence items, most also

Figure 4. Deer bone debris recovered from a Caracol residential group, representative of craft production.

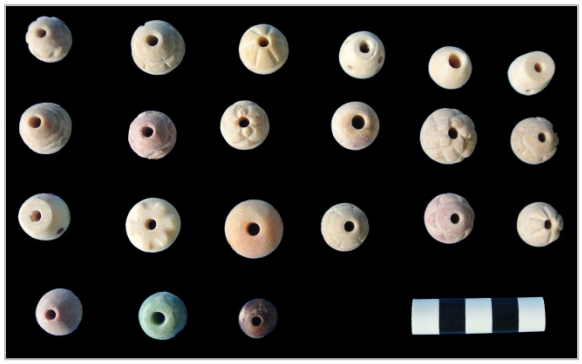

Figure 5. Stone spindle whorls, including one of hematite and one of jadeite, recovered as a unit in a Caracol residential group, representative of textile production.

engaged in production that focused on one specific artifact or industry – and some households engaged in multiple industries. Surplus crafting was how the various residential groups could gain access to imported ceramics, imported ground stone objects, and other items that were necessary for the household. Thus, Caracol's domestic economy was focused both on agricultural self-sufficiency and indirectly on commercialization.

Garbage

Trash deposition also formed a part of the ancient Maya domestic economy. Although some contrary archaeological data exists (Freidel and Scarborough 1982:148), standard archaeological belief in the Maya area has traditionally associated garbage as having been located directly off living platforms (Fry 1969, Haviland 1963; Johnson and Gonlin 1998:161;

Figure 6. Typical limestone bars recovered from a Caracol residential group, used in both ancient household ritual as well as for spacers in fiber bag production.

Puleston 1973); elsewhere in Mesoamerica, refuse disposal is similarly seen as being concentrically located about the residential compound except in urban situations (Santley and Kneebone 1993:45-46). We specifically tested more than a dozen residential groups at Caracol to see if such "midden" materials were deposited behind buildings and platforms. While we found limited examples of single-deposition "sheet refuse" (Schiffer 1996) on floors associated with structures that were awaiting collection and redeposition as well as the usual collapsed and washed-out construction fill material, we did not find evidence that the ancient Maya at Caracol dumped their garbage at the edges of their households. Rather, garbage appears to have been useful fill material that was continually recycled at the site and used for construction projects and for landscape

infilling. Garbage did not build up around the residential groups.

The residues of crafting activities were similarly recycled and are therefore sometimes difficult to locate in the archaeological record. Crafting residues were usually not piled up in or around an occupied residential group. Rather, the resultant debris was redeposited by the ancient Maya into construction fills and, sometimes, special deposits (see also Martindale Johnson 2014 and Moholy-Nagy 1997). Debris from jadeite and spondylus working was usually incorporated into a thin layer within the bottoms of many caches, indicating its ritual value; previously, we have referred to these residues colloquially as "cache dirt." Similarly, obsidian crafting debris was often deposited over tombs and sometimes as cache material (A. Chase and D. Chase 1987; Martindale 2016). Debris resultant from shell-working and from lithic crafting was often placed within the cores of platforms and buildings, being purposefully buried within new or ongoing construction efforts (Cobos 1994; Martindale Johnson 2014). Further, some products were perishable, meaning that only the tools used to create these products remain in the archaeological record. Thus, the products of crafting activities – even if created in a given residential group – are often difficult, if not impossible to discern from surface remains or even from surface horizontal clearing. That crafting activity has been recovered at Caracol is a matter of luck in sampling strategies relative to residential groups. This strongly suggests that the amount of craft production inferred for a complex situation like Caracol is proportional to the amount of intensive excavation that is undertaken at a given site.

Exports and Surplus

The domestic economy of the ancient Maya could also have involved the production of surplus crafts and subsistence items beyond those that would have supported the immediate commercial needs of a given household. Large households would have commanded the labor to have been able to grow excess crops and to produce surplus crafts. How far afield such items would have been able to go is a relatively open question. There is substantial debate over the distance that subsistence crops could have been traded (Dahlin and Chase 2014). While the bajo systems of the northern Peten were likely conducive to the long-distance transport of bulk items and other goods by canoes at certain times of year, Caracol transportation would have been by foot. Because Caracol is land-locked without access to nearby water routes, it is unlikely that perishable organics would have been traded – or carried – very far. Yet, there is evidence that live sea fish reached the site (Cunningham-Smith et al. 2014), so it is also probable that other perishable resources – crops and animals – were also similarly imported, presumably some with great effort being expended. Non-perishable items, however, such as the smaller commercial items that were being manufactured in the households, would have been easier to transport. Some non-organic items could have entered into long-distance trade networks. However, the mechanisms and processes behind this level of commercialization are not known beyond speculation.

Implications for the Development of Caracol

As the population of Caracol increased over the course of the Classic Period, the economy of the city became more structured. Caracol solved the site's accessibility problems through the construction of a dendritic road system that stretched ever greater distances into the surrounding settlement (A. Chase et al. 2014b). In conjunction with these roads, large plazas were also established that served both administrative and economic functions either along or at the ends of the roads. These plazas were fairly evenly distributed throughout the landscape and would have served as points for commercial trade as well as for the distribution of items that were made outside of Caracol (D. Chase and A. Chase 2014a). The way in which all goods and traffic flowed into the epicenter also was reflective of the central organization of the system. What this implies is that the site's economy was not only structured but also highly managed.

The archaeology has provided data on how the superstructure was established over time and in what order. The earliest connection appears to have been the construction of the roads connecting Caracol proper with Cahal

Pichik and Hatzcap Ceel. It is suspected that Ceiba and Retiro were next added to the system. Following the successful warfare with Tikal in A.D. 562, three new plazas were then embedded in the landscape at a distance of roughly 3 km from the epicenter, purposefully excluding some previously elite families from this system of accessibility and possibly establishing other families in control of the market locales. In the late Late Classic Period, the roads were expanded even further into the landscape, probably in an attempt to obtain wood and other forest resources as well as gain new areas for out-field agriculture. Each expansion was also accompanied by the infilling of the landscape with residential groups and with terraced agricultural fields, meaning that Caracol's households were literally locked into this economic system and completely reliant on both the institutional economy of the city and their own domestic economies.

In the Terminal Classic Period, the long-established economic system appears to have been purposefully dismantled by the site's elite, who apparently emphasized the increasing social distance between themselves and the rest of Caracol's population (A. Chase and D. Chase 2004). No longer were all ritual and prestige goods available to all of the inhabitants of the site. While the domestic economies of Caracol's residential groups may have been left largely intact, the institutional economy was severely modified, likely leading to discontent among the population and the inability to obtain some of the traditionally commercialized items. More than environment and climate, we see these social changes as among the primary reasons for the eventual abandonment of Caracol.

Conclusion

It is only recently that Maya archaeology has gained a relatively realistic view of Classic Period economic situations. Part of this is because of the increase in archaeological data and part of this is because of the rejection of inappropriate economic models and theory. It is clear that the domestic economy of the ancient Maya at Caracol played a major role in the way that their society was structured. Archaeological data from other Classic Period sites also make it evident that not all Maya societies were similarly structured and that different governing models were pursued in different parts of the ancient Maya world. However, Classic Period Caracol appears to have had more economic accessibility than other centers. The infrastructure provided to both the institutional and the domestic economy at Caracol provided a long-term foundation for the city's stable and continual development. Yet, when traditional economic expectations were modified late in Caracol's history, the fate of the city was sealed by this broken domestic contract.

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