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“Archaeological Settlement Patterns in the Kingdom of the Avocado”

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by

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ABSTRACT OF THE THESIS

“Archaeological Settlement Patterns in the Kingdom of the Avocado”

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This essay is a study of the settlement patterns of the archaeological site of Pusilhá, Toledo District, Belize. Based upon data collected by the Pusilhá Archaeological Project over five seasons of survey in the field, I argue that an analysis of settlement patterns might not only help to clarify the internal population dynamics of the site, but can also shed some light upon its local and regional political affiliations. Specifically, I argue that Pusilhá’s spatial plan is consistent with that of the southern Belize region identified by Leventhal; in addition, it shows possible ties to the eastern Petén area of Guatemala.

INTRODUCTION

For in settlement man has etched upon the landscape the bolder outlines of his design for living. (Willey et al. 1965:5)

In this essay, I apply the approach of settlement pattern analysis to survey data from the Classic Maya city of Pusilhá, in southern Belize. I begin with an introduction to the site of Pusilhá and the archaeological research carried out there. I then provide a brief overview of the history and main themes addressed by archaeological settlement pattern studies. Finally, I extract some relevant conclusions from the Pusilhá data using the tools provided by settlement pattern analysis.

Pusilhá

The site of Pusilhá is located in the Toledo District of southern Belize, about one kilometer east of the Guatemalan border (Figure 1). The capital of a regional polity named *Un* (avocado) during the Late and Terminal Classic periods (A.D. 600-850), Pusilhá was settled at the junction of the Poité and Pusilhá – locally known as Machaca – rivers, in a valley running east to west which is bordered on the north and south by the Maya Mountains (Braswell et al. 2005). Today the site can be reached by a recently completed road from the east which runs along the Moho river to the village of San Benito Poité, built close to the site center. All three waterways, along with a mountain pass to the northwest, were probably the principal access routes to Pusilhá in Precolumbian times. Most of the residential architecture of the site is found in the triangle of land contained between the Poité and Pusilhá rivers (Figure 2), although many important groups – including the royal palace acropolis and other elite residential complexes – are located on the southern banks of the Pusilhá.

Like other centers in southern Belize, Pusilhá lacks the large-scale architecture that characterizes many of the ancient cities in the Maya lowlands (Leventhal 1990). Nonetheless, its past grandeur is still very much evident. The most imposing feature of Pusilhá is its royal palace and administrative complex, which consist of a series of terraces, platforms and pyramidal structures built against and atop a hill that rises more than 70 meters from the banks of the Pusilhá river (Figure 11). This striking complex, known as Gateway Hill, was connected to the site center by means of a unique triple-span bridge over the river.



Figure 1. Map of the Toledo District showing the location of Pusilhá and of other Maya sites in Southern Belize (modified from Leventhal 1990: Map 8.1).

Pusilhá has been known to archaeologists since the late 1920s, when the British Museum Expedition to British Honduras, then conducting investigations at the nearby site of Lubaantun, received reports of inscribed stelae at Pusilhá (Joyce et al. 1928). The British Museum Expedition's fieldwork at Pusilhá began in 1927 and was carried out until 1930 (Joyce 1929; Gruning 1930, 1931). During these field seasons

many of the inscribed stelae of Pusilhá were broken up and carried off to the British Museum in London, where they remain to this day. Joyce, Gruning, and their collaborators also surveyed and conducted limited excavations at many of the main groups at the site. Through analysis of the hieroglyphic inscriptions (which date between A.D. 573 and at least A.D. 731), ceramics, and other artifacts recovered, the occupation of Pusilhá was dated to the Late Classic period (Joyce et al. 1928).

The site was then left alone by archeologists for almost half a century; that is, until Hammond excavated two caves there in 1970 while conducting fieldwork at Lubaantun. His analysis of the ceramics he recovered, together with the re-analysis of those stored at the British Museum, led him to speculate that Pusilhá functioned as a regional capital until the 8th century, at which point its inhabitants migrated to the northeast and founded Lubaantun as the new capital (Hammond 1975:104, 133).

Pusilhá was next visited in 1979 and 1980 by Leventhal's Southern Belize Archaeological Project, whose most significant undertaking, for our purposes, was the production of a pace-and-compass map of the site based upon the survey of four transects running outwards from the central area of Pusilhá, as well as the mapping by transit of several main groups within the site (Leventhal 1990:131). The resulting map (Figure 3) shows not only spatial relations between the main architectural groups, but also includes many of the smaller habitational units.

A series of brief and unpublished expeditions led by Walters in the late 80s and early 90s discovered more large groups to the west along both the Pusilhá and Poité rivers, as well as the largest known ballcourt in southern Belize and a hieroglyphic stair (Braswell 2001). Finally, the Pusilhá Archaeological Project (PUSAP), led by



Figure 3. Leventhal's map of Pusilhá (1990, Figure 8.1).

Braswell, worked at the site between 2001 and 2006. The research conducted by the PUSAP team was aimed at understanding the political history of the ancient polity and its relationship with the economic development of the site, in the context of competing models of ancient Maya political organization (Braswell et al. 2004). These goals were pursued mostly by means of epigraphic analysis of the 23 carved stelae found at the site (those in the British Museum plus newly discovered ones), in combination with systematic surveying and mapping of Pusilhá – the results of which this essay discusses – as well as the excavation of several elite structures and a royal tomb on Gateway Hill (Braswell et al. 2005).

Before turning to a discussion of settlement pattern theory, it is important to draw attention to Pusilhá's location in relation to its role in regional trade and to its possible political affiliations. Such considerations are very much relevant to the focus

of this essay, as they provide an interpretive framework within which to situate an analysis of the settlement data from Pusilhá.

For many years, a connection was proposed between Pusilhá and sites at the southeastern periphery of the Maya region such as Copán and Quiriguá; this idea was supported by ceramic and epigraphic data, as well as by similarities in sculpture and between the emblem glyphs of Pusilhá and Quiriguá (Braswell et al. 2004). Following this interpretation, the location of Pusilhá would have allowed it to become an important stop on a trade route between the Maya lowlands to the north and the regional center of Copán to the southeast, and caused it to eventually fall under the political influence of the latter.

A second option has emerged from the results of the PUSAP investigations: although the ceramic data do provide some evidence of ties with Copán during the 7th century AD, most evidence seems to indicate that Pusilhá had much stronger ties to the southern Petén region to the west (Braswell et al. 2005). This picture, then, puts Pusilhá in an important position along a riverine trade route that runs west to east from the Gulf of Mexico through the Usumacinta and Pasión watersheds and then down the Pusilhá river into the Caribbean Sea (Figure 1). Although it is artifacts and epigraphic data that provide the strongest lines of evidence for either of these hypotheses, I intend to show in this essay that the analysis of Pusilhá's settlement patterns can also help shed some light on the question of Pusilhá's political and economic affiliations.

ARCHAEOLOGICAL SETTLEMENT PATTERNS: HISTORY

Early Settlement Pattern Studies in the Maya Area

Broadly defined, the study of archaeological settlement patterns examines how traces of human activity – “all buildings, large and small, associated habitation debris, and landform modifications attributable to man” – are distributed over the landscape through time with the aim of shedding light on the nature of past interactions among humans, as well as between humans and the environment (Ashmore and Willey 1981:3-4). Although Willey and Ford’s survey of the Virú Valley in Peru (Willey 1953) is often cited as the first example of a modern archaeological settlement pattern study in the New World, the idea of studying how past peoples disposed themselves upon the land in order to understand the nature of their social, political, and economic structure – what Parsons (1972:128) aptly terms the “sociology of architectural remains” – goes back at least to the explorers and amateur archaeologists of the 19th century.

In the Maya area, the main questions that led to such an approach have remained essentially the same throughout the years: the nature of ancient Maya urbanism and the degree of social stratification in ancient Maya society (Kurjack 1974:5). It is fair to say that today the first question has been at least partially resolved, and that the majority of research is concerned in one way or another with Maya sociopolitical organization. But in the early years of Maya archaeology, as Ashmore and Willey (1981:6) note, the nature of Maya cities was a topic of extremely

heated scholarly discussions. Out of such controversy originated the first instances of what might be called settlement pattern research in the Maya lowlands.

John Lloyd Stephens, the famed rediscoverer of the ancient Maya – who, incidentally, carried out at Copán the first modern survey of an ancient Maya center – was convinced that the ruins he explored and so vividly described were once “cities” in which were carried out a mix of public, religious, economic, and residential functions. There is much foresight (or perhaps just simple serendipity) in his remarks on the nature of Palenque:

Considering the space now occupied by the ruins as the site of palaces, temples, and public buildings, and supposing the houses of the inhabitants to have been, like those of the Egyptians and the present race of Indians, of frail and perishable materials, and, as at Memphis and Thebes, to have disappeared altogether, the city may have covered an immense extent [Stephens 1841, vol. II:355-356].

Lewis Henry Morgan championed an opposing view. According to Morgan, the Maya lacked “true cities,” as these were inconsistent with their level of social evolution – which he situated somewhere between the stages of Lower and Middle Barbarism (Kurjack 1974:19). Instead, he argued, they lived in small village communities like those of the Iroquois (Brown and Witschey, 2001:3). As evidence for this position, he pointed to the similarities between the longhouses of the former, Maya structures in Yucatán, and pueblo ruins in the Southwest: according to his interpretation, they were all examples of communal dwellings. In Morgan’s (1965[1881]:303-304) own words, “the plan of these houses, as well as those of Yucatán, seems to show that they were designed to be occupied by groups of persons

composed of a number of families.”

What Stephens interpreted as the ruins of great ancient cities, then, for Morgan were but the remains of pueblo-like residential clusters. “[There is] no ground for the absurd conjecture that the intermediate district of what he fancied was once one great city was occupied by the common people living in huts. There is no evidence that such a state of society as implied by Mr. Stephens’ terms ever existed in Yucatán”(Morgan 1965[1881]:74).

Edward Thompson (1892) refuted Morgan’s position by calling attention to the abundance of small mounds around Maya centers such as Labná – mounds that he identified as the remains of ancient Maya houses, basing himself on their sheer number and on ethnographic analogy with the small platforms upon which modern Maya dwellings are built. Thompson’s idea about house mounds has come to be known by Mayanists as the *principle of abundance* – “the small mounds are so abundant that they must represent ordinary house sites, for what else would occur so frequently?”(Ashmore and Willey 1981:6).

Although during the first half of the 20th century archaeological research was focused almost exclusively on site centers with monumental architecture, sculpture, and hieroglyphic inscriptions, some scholarly attention was devoted to Thompson’s observations. For example, Tozzer (1913) commented on the small mounds that he encountered along the trails which connected large sites in the Petén, Lothrop (1924) studied the distribution and density of such house mounds at Tulum, and Joyce excavated four small mounds at Pusilhá. He concluded that “there can be little doubt but that all these flat-topped mounds, built of clay, with a strong reinforcement of

stone, were merely substructures for the support of wooden houses” (Joyce et al. 1928:341).

A decade later, the Ricketsons carried out the first systematic study of house mounds in the Maya area with the goal of estimating the population of Uaxactun during the Classic Period (Ricketson and Ricketson 1937). In order to do this, they laid out a cross-shaped survey zone with arms one mile long extending out from the center of the site and counted the house-mounds in the approximately two square kilometers of the survey area. In the inhabitable land contained in said area, which made up a bit more than half of the survey zone, the Ricketsons encountered 78 house mounds and 50 *chultunes* (storage pits).

Assuming that 25% of the house mounds were occupied simultaneously by an average of 5 people, the Ricketsons obtained a population figure of 270.83 persons per square mile, adding up to 48,500 for the entire Uaxactun district (Ricketson and Ricketson 1937:16-285). More recent investigations have shown this figure to be too small an estimate (Ashmore and Willey 1981:9). Using the results of their study, the Ricketsons also tried to gauge the population of the entire Yucatán peninsula, producing an estimate of about 13 million people (Ricketson and Ricketson 1937:286). Regardless of the validity of their figures, the importance of the Ricketsons’ study is that it was one of the first attempts at gathering large amounts of settlement data and at analyzing them to produce results about ancient Maya demography.

As much as the above-mentioned studies, along with others (Thompson 1931, 1937; Wauchope 1934), contributed to the understanding of ancient Maya urbanism,

the “empty ceremonial center” view predominated for many years. In the 1950s Morley and Brainerd described Classic Maya society as a theocracy, its cities nothing more than “religious centers to which the Maya resorted only for ceremonies” (1956:261). It is with the publication of Willey’s (1953) Virú Valley study that settlement studies began to gain prominence in archaeological circles, and that the prevailing picture of ancient Maya cities began to change.

Gordon Willey’s Virú Valley Study

Along with the early works just reviewed, Willey’s study also had its roots in the cultural ecology of Julian Steward. It was actually Steward who convinced Willey to carry out a settlement pattern survey at Virú: “it would be doing more for the project, myself, and archaeology, he argued, if I attempted to say something about the forms, settings, and spatial relationships of the sites themselves and what all this might imply about the societies that constructed and lived in them”(Willey 1974:153). Steward’s reasons for encouraging Willey’s survey were quite straightforward: he argued that archaeology, which at that time was highly descriptive, should address “broader and more basic cultural problems” by analyzing human adaptations to the environment – adaptations upon which culture rests. By doing so, among other things, it would “make explicit the kinds of villages, evidence of clustering or lack of clustering of houses, number and distribution of villages in an area, and inferences about population density and stability” (Steward and Setzler 1938:7-8).

Willey conducted the Virú Valley settlement survey employing aerial photographs from which he would make site maps to be checked in the field. Upon

these maps he recorded details about individual structures and the natural environment. During the one field season he worked in the Virú Valley, Willey mapped about 300 sites, or one quarter of the total for the valley (Ammerman 1981:65). More important than the actual methodology, though, were the theoretical implications of Willey's work. Following the anthropological inclinations he inherited from Steward, Willey understood that a focus on site centers and their monumental architecture produces only a partial picture of ancient societies. In order to achieve a more holistic understanding and to answer broader, more "democratic" questions, he decided to focus on the entire settlement, starting with residential structures as the smallest unit of analysis. As he noted later, "settlements are a more direct reflection of social and economic activities than are most other aspects of material culture available to the archaeologist" (Willey 1956a:1).

In his introduction to the Virú Valley study, Willey explained what he meant by settlement patterns:

The term "settlement pattern" is defined here as the way in which man disposed himself over the landscape on which he lived. It refers to dwellings, to their arrangement, and to the nature and disposition of other buildings pertaining to community life. These settlements reflect the natural environment, the level of technology on which the builders operated, and the various institutions of social interaction and control which the culture maintained. Because settlement patterns are, to a large extent, directly shaped by widely held cultural needs, they offer a strategic starting point for the functional interpretation of archaeological cultures [Willey 1953:1].

It is evident in this definition that Willey's approach to settlement patterns has a

bipartite nature: they tell us both about the relationship between humans and the environment they lived in, and also about their relationships with other humans within past societies.

Obviously, these environmental and socio-political concerns are interconnected; as noted by Vogt (1956:173), the unifying concept of territoriality “immediately gives the geographer, the archeologist, and the ethnologist a point of departure for talking about common problems concerning the ecological determinants of human settlement patterns and the interrelationships between settlement patterns and other features of cultures.” Willey’s emphasis thus leads us to think of archaeological cultures in an interdisciplinary fashion; this foreshadows the systemic approach that would be later advocated by the proponents of processual archaeology (Flannery 1968).

An ulterior reflection of Steward’s influence on Willey’s theoretical orientation can be seen in the comparative approach that Willey emphasized in his Virú Valley project goals:

First, to describe a series of prehistoric sites with reference to geographic and chronological position; second, to outline a developmental reconstruction of these settlements with relation to function as well as sequence; third, to reconstruct cultural institutions insofar as they may be reflected in settlement configurations; and fourth, to compare the settlement story of the Virú with other regions of Peru [Willey 1953:1].

Also evident in this statement is the fact that settlement pattern studies, in keeping with – or better yet, in addition to – their aforementioned bipartite nature, combine two different levels of analysis: a “lower,” more descriptive one that addresses

questions of form and function of structures in relation to the environment, and a “higher” level of inference related to questions of subsistence, demography, and socio-political organization. I address the implications of these two levels of analysis more in depth later in this essay. It is important to point out the connection between Willey’s approach to interpreting settlement patterns and the influence of more recent concepts such as middle range theory (Binford 1977) and bridging arguments (de Montmollin 1989).

Willey’s Belize Valley Study and the Question of Maya Urbanism

After completing the Virú Valley study, Willey brought the same settlement approach to the Maya lowlands (Willey et al. 1965). By this time, other projects, such as the Carnegie Institution’s Mayapan mapping project (Pollock et al. 1962), had begun to use settlement pattern analysis to address issues of demography and sociopolitical organization. Expanding upon the Virú methodology, Willey posited that to fully understand the nature of Maya cities a combination of surveys and excavations was needed: “The question as to just how population grouped itself around these centers – whether in concentrated town fashion, in a dispersed rural manner, or in scattered hamlets – cannot be answered without extensive field surveys and excavations”(Willey 1956b:113).

Although to the modern student of archaeology this statement may seem quite commonsensical, the practical significance of Willey’s methodological position should not be underestimated. As Ammerman (1981) comments, most of Willey’s work in the Belize Valley actually consisted of excavations at Barton Ramie. This, taken together

with the above statement, implies that “the goals of settlement pattern studies were beyond the scope of being realized by means of survey work alone” (Ammerman 1981:66). As recently as 1992, however, it has been noted that many investigations in Mesoamerica tend to attribute too much weight to the results of surveys and surface collections at the expense of excavations. “For reasons largely unrelated to matters of archaeological theory, namely issues of funding, preservation, and time, we have been tempted to attribute a greater degree of precision to surface-derived data than is warranted” (Hendon 1992:37). Not only did Willey’s Belize Valley study set the tone for half a century of Mesoamerican settlement pattern research; it also provided insights that are still very much relevant to current research.

Another of such insights is the fact that in the Belize Valley survey Willey once again divided his research goals into “primary order” concerns and problems of a “higher order of inference” (Willey et al. 1965:15-571). The primary questions had to do with the relationship between settlement and environment, the nature and function of habitational structures, and the spatial and formal relationships between residential groups and ceremonial centers. Issues “at a level of inference at least once removed” from these questions included agricultural potential and land utilization, population density, the possibility of settlement hierarchies, and ancient Maya urbanism. Willey’s analysis of the Belize Valley data proceeded in a very linear fashion from lower level inferences to higher level interpretations, all the while carefully grounding each logical passage between them. As previously noted, this distinction between levels of analysis is very much connected to discussions of middle range theory within processual archaeology (Raab and Goodyear 1984; Schiffer 1988).

Bridging Arguments

Whether or not the aforementioned discussions have made their way into more recent settlement studies is debatable; in any case, some scholars have recognized a shift of focus towards the more theoretical level of analysis. For example, Ammerman (1981:66-67) notes that “a common feature of more recent surveys is that they have often set their sights on questions belonging to the second tier and assumed that questions on the first tier would take care of themselves as a matter of course.” De Montmollin goes even further, arguing that the construction of bridging arguments has been severely overlooked in Mesoamerican settlement studies. “Archaeological studies of ancient complex polities often rest on a base of weakly developed bridging arguments for linking theoretical concepts to data in the archaeological record” (De Montmollin 1989:50).

De Montmollin’s argument is that to follow Willey’s model of developing a solid link between first- and second-order inferences – that is, a link between complex settlement data and complex societies – is a difficult task indeed. As a consequence, often times the construction of bridging arguments becomes an intellectual pursuit *per se* as “bridging arguments take on a more intrinsic theoretical interest” (De Montmollin 1989:50). One is left with a problematic dichotomy.

One approach – which seems to correspond to Willey’s position – is to treat settlement data and its interpretation instrumentally: “in this view, settlement evidence and its analysis provide one of the means used towards the end, which is to study ancient politics” (De Montmollin 1989:50-51). According to De Montmollin, this path

is fraught with methodological difficulties, the principal two being contemporaneity – “how well the settlement record reflects processes of short-term change” – and equifinality – “whether the same settlement forms always reflect results of the same developments” (1981:51).

The other approach, as mentioned previously, is to focus on the bridging argument as an end in itself by developing “a more isolated theoretical interest in the relation that settlements have to other variables in a sociocultural system” (De Montmollin 1981:51). But this moves research away from the wider comparative and anthropological questions that led archaeologists to study settlement patterns in the first place. According to De Montmollin, both cultural ecologists and structuralist/contextualists – with very different motives – are headed in this direction.

De Montmollin concludes that the first approach is the most viable, although more attention needs to be paid to bridging arguments by adopting the second approach at certain points during research. “A perception that bridging arguments need sharpening does not give grounds for shifting the focus of research away from substantive questions about human history [...] and entirely onto a methodological domain” (De Montmollin 1981:51). We thus return to Willey et al.’s (1965) point that a solid link between first- and second-order inferences is a necessary prerequisite for a good settlement pattern study. Interestingly enough, De Montmollin (1989:52) argues that the best strategy for developing solid bridging arguments is to come up with archaeological expectations of socio-cultural variables and to then test them in the field. This was exactly Willey’s strategy for approaching the issue of the Maya city.

Settlement Types and Sociopolitical Organization

In the Belize Valley study, Willey hypothesized three different ideal “settlement types” for the Maya lowlands, to which corresponded different sociopolitical and economic configurations (Figure 4). Type A represented the idealized “city” with the ceremonial center surrounded by closely spaced dwellings, with agricultural production taking place in the outlying areas. Type B was the “vacant ceremonial center” model, with settlement scattered evenly over a vast sustaining area. Type C, finally, represented a ceremonial center inhabited by a very small population (the elites), with its sustaining population grouped into hamlets, some with their own smaller ceremonial buildings. Willey remarked that these ideal types are nothing more than heuristic devices, and that there is no reason why actual Maya settlement configuration could not be a combination of the three, as well as exhibit variation across and within regions (1956b:110-112).

After analyzing the Belize Valley survey and excavation data, Willey offered some comments on the relationship between settlement and sociopolitical organization. Finding the settlement patterns to more closely resemble his Type C, and including data from Bullard’s (1960) survey in the Petén, he concluded that “this overall design of Maya settlement of community units arranged in an ascending hierarchy suggests a parallel structure of organization in society, of similar ascending foci of authority with minor leaders in minor centers and paramount rulers governing from major centers”(Willey et al. 1965:580).

Willey further interpreted such a settlement pattern as being indicative of a low level of social stratification: “for if the minor centers were sustained by small, village-

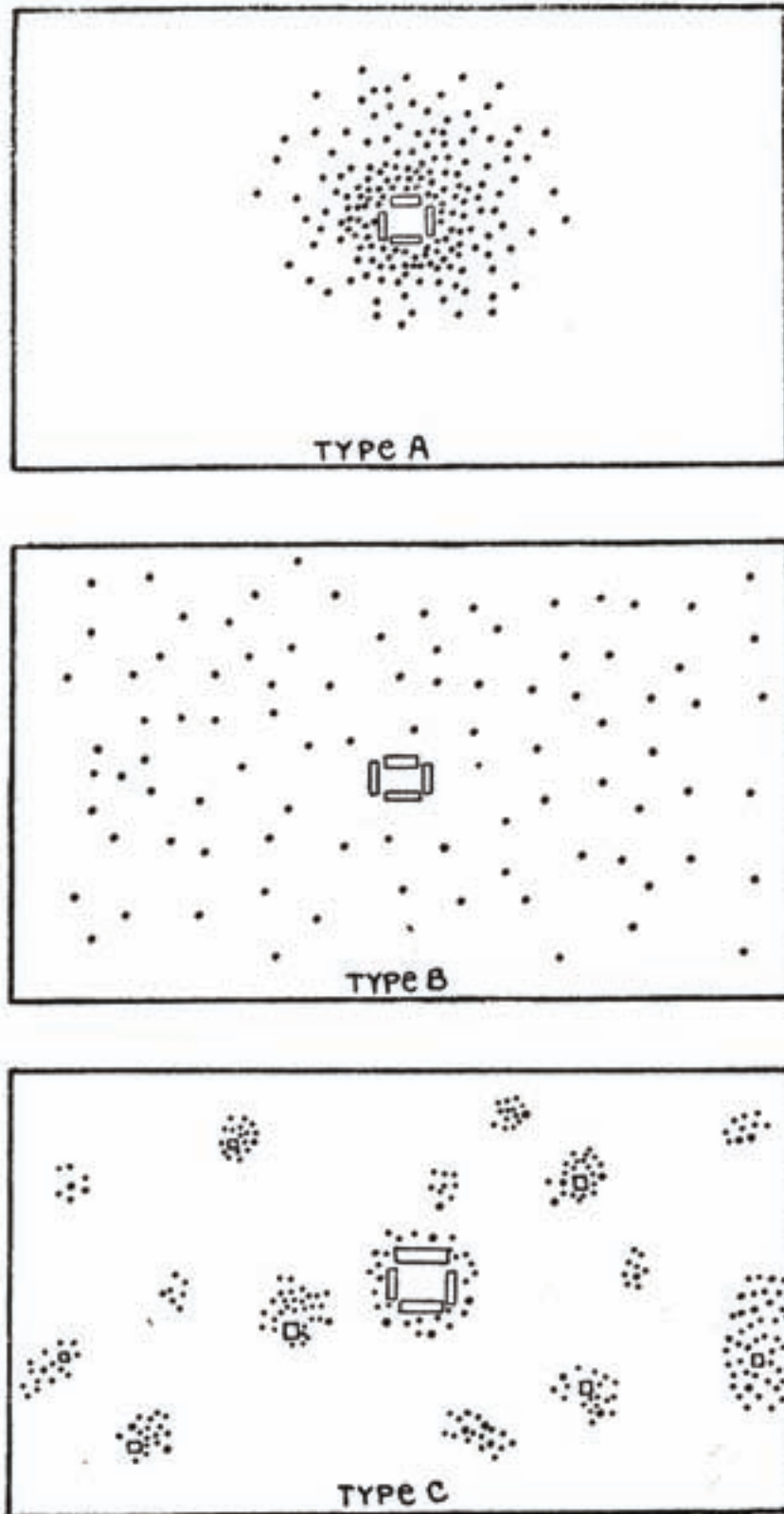


Figure 4. Willey's idealized settlement types for the Maya lowlands (1956b:Figure 1).

sized or zonal populations it is unlikely that these centers would have become the seats of an aristocracy that was remote from the general populace”(Willey et al. 1965:580). He envisioned Maya urbanism flourishing in the Classic Period out of this generally homogeneous society, as the result of the cultural advancements of a mix of democratic elites and very “worldly” peasants (Willey 1956c:780).

The accuracy of this picture notwithstanding, the methodological steps Willey took in order to reach it exemplify his contributions to the study of settlement patterns: the combination of large-scale surveys with excavation data, the formulation of clear research objectives on different levels of abstraction, and the establishment of solid links between settlement data and both particular and general questions, based in part on ethnographic analogy and in part on the testing of theoretical models.

Before moving on to an overview of recent trends in settlement pattern research, it is worth mentioning one useful definition in Willey’s terminology, as it eloquently reflects the multiple levels of his analysis: the concept of settlement pattern versus that of settlement system. The settlement pattern can be interpreted as incorporating all aspects of the settlement related to “primary order” questions, whereas the settlement system is the anthropologically influenced picture of a society that one can infer from the former. “Our concern [...] is not only with the formal and static aspects of settlement – the patterns – but with the functional and behavioral aspects – the settlement systems” (Willey 1981:387).

CURRENT THEMES IN SETTLEMENT PATTERN RESEARCH

Having examined Willey's approach to archaeological settlement patterns in some detail, it is only fair to ask what exactly a settlement-pattern approach is. Is it a new theoretical paradigm within archaeology, or, more simply, is it a new methodological perspective? Willey is very explicit in this regard: "Let it be made clear that there is no 'settlement-pattern approach' to archaeology. An awareness of settlement data simply extends the net of archaeological interest to take in a larger and legitimate part of the record. [...] Like most archaeological facts, those of settlement are robbed of most of their importance when considered in isolation" (1956a:1). At the same time, settlement pattern data is different from other archaeological evidence in that it reflects the spatial distribution of ancient settlements. In that sense, Vogt and Leventhal (1983:xx) see it as "a new perspective for prehistory, an organizing framework within which much of the research on ancient societies can easily fit."

Although the study of settlement patterns is often seen as being synonymous with processual research questions, just like any other line of archaeological evidence it can be used to address a wide range of issues, from subsistence to cosmology. In order to illustrate this, in the pages that follow I will present a brief overview of the main themes in current settlement pattern research in the Maya area. As these are broad questions, they necessarily represent Willey's higher level of inference. This focus may also be symptomatic of the relative disinterest in first-tier issues in recent research noted by Ammerman (1981:66-67), mentioned in the previous section.

Most current research involving settlement patterns in the Maya area can be classified as dealing with one of the three following themes: community, political organization, and ideology. Although there is obviously much more actual variability in these studies, I find it useful to employ these three categories as they are not based on different levels of spatial analysis as much as on the broad anthropological questions which underlie the research goals of the studies. It might seem strange to organize settlement studies according to themes rather than to follow Trigger (1967) in defining the three levels of analysis as the individual structure, the local settlement, and the regional settlement distribution. It appears to me that Trigger's focus, though, says more about the scale chosen for the specific research project than it does about its relevance to understanding the structure of ancient societies.

Questions of Community

The recent interest in household and gender archaeology in the Maya area (Robin 2001) has brought with it a methodological focus on communities or individual dwellings as the units for settlement analysis, as it is argued that these were the basic units of society. Most of these community-focused studies are grounded in ethnographic analogies, and have as one of their goals the evaluation of models created from the former. An example is Freter's (2004) application of the *sian otot* model – a term taken from the twentieth-century Chorti Maya which designates settlement clusters formed by groups of extended families – to rural household groups in the Copán Valley. Based upon this analogy, Freter argues that economic cooperatives were an important social force in rural community formation in the

hinterland of Copán.

Inevitably, a focus on households bears heavily upon the house-mound issue discussed in the previous section of this essay. As site-based and inter-site settlement studies have multiplied in the area, a more complete picture of the habitational patterns of ancient Maya commoners has emerged. For the most part, the results of these surveys agree with the notions first championed by Thompson (i.e., the “principle of abundance”). For example, Webster and Gonlin’s (1988) excavations conducted at 27 small mounds also in the Copán Valley returned mostly domestic artifact assemblages and remains of simple household architecture, proving that the mounds were indeed residential in nature. Similar results have been obtained in the Northern Lowlands, although there is still some uncertainty about the function of small, low cobble mounds termed *chiches* which occur both on and off platforms at sites and in their surrounding areas (Killion et al. 1989:285). These mounds have mostly been interpreted as the remains of lower-class dwellings (Carmean 1991:160; Ringle and Andrews 1988). While the majority of *chich* mounds do contain domestic pottery assemblages, it is still unclear whether they all represent dwellings, and the function of those which are not associated with pottery is debated. Dahlin et al. (2005:237) have proposed that they were used for arboriculture as “tree foundations” intended to conserve moisture.

Connected to household and community studies is the issue of demography, which is richly illustrated in *Precolumbian Population History in the Maya Lowlands* (Culbert and Rice 1990), an edited volume that collects settlement pattern data and population reconstructions for a variety of sites and subregions throughout the Maya

Lowlands. The contributors present two very different reconstructions of Maya population curves. The first rises steadily until the Late Classic “Collapse.” The second has two peaks, the smallest in the Late Preclassic and the largest in the Late Classic – implying the existence of both a Late Preclassic and a Late Classic “Collapse.” A unifying theme of the volume is the characterization of Maya centers as urban areas containing large populations, although the details for secondary centers become more complicated.

Questions of Political Organization

The debate concerning the nature of the Maya city is connected to a larger argument about Maya sociopolitical organization. A fundamental question in settlement pattern studies is how to apply idealized settlement hierarchies such as the ones created by Willey (Figure 4) to the actual settlement data, and what interpretations can be deduced about the nature of sociopolitical organization from this correspondence. De Montmollin (1988:151) mentions the effects that choosing the settlement scale can have on analysis: “many aspects of variability in settlement distributions are set aside in order to fit the evidence into a set of synthetic ideal types.” It is for this reason that I have subdivided this brief review according to broad topic rather than by scale. Most issues can be studied at different levels of resolution, and it would be reductive to separately address individual structure, settlement, and settlement distributions as Trigger (1967:151) has suggested.

Settlement pattern studies concerned with political organization can be split into two broad groups following the classic dichotomy between idiographic and

nomothetic tendencies that Wallerstein (1995:150) places at the root of all social sciences. One position – similar to that adopted by Willey in his Belize Valley study – has the objective of defining universally applicable idealized models or “types” at various scales against which actual data is then analyzed. An extreme example of this position would be Vogt’s (1983) attempt to define the essential elements of ancient Maya sociopolitical organization by drawing parallels with modern Maya communities in the Chiapas highlands. These elements, applicable to all ancient Maya communities, are presented in the form of hypotheses such as “The basic Maya settlement pattern consists of dispersed hamlets in sustaining areas surrounding ceremonial centers”(Vogt 1983:90). The basic premise behind Vogt’s position is that, once Mayanists identify “a cluster of structural and conceptual principles revolving around settlement patterns and their concomitants in social, political, and ceremonial life and cosmology,” they will be able to explain almost everything about the ancient – and the modern – Maya. Vogt’s is obviously an extreme position, and it would be senseless to argue that there is no use in employing ideal types in settlement pattern analysis. As previously mentioned, Willey (1956b) himself admitted that ideal types are simply heuristic devices, but very useful ones at that.

At the opposite end of the spectrum are scholars who focus mainly on the internal variability of settlements with the aim of understanding its implications in terms of the sociopolitical organization of society. A representative example from this group would be Arnold and Ford’s (1980) study of labor investment in residential groups at Tikal as an indicator of social status. Their aim is to test the concentric zonation model of Maya communities, which “specifies that high-ranking persons

lived closer to the central civic-ceremonial precinct than low-ranking persons” (Arnold and Ford 1980:713). If it is true that social status is connected to labor investment, then the two variables should decrease proportionally as one moves away from the site center. Integrating data from Landa’s descriptions of 16th century Yucatec towns with modern ethnographies and experimental archaeology, Arnold and Ford calculate the specific labor investment necessary for the construction of each of the 630 residential units in the map of Tikal’s center. They then run a statistical test to correlate these values with the distance of each unit from the site center. Arnold and Ford’s results do not support the concentric zonation model; the authors conclude that “proximity and status, as here defined, are clearly unrelated at Late Classic Tikal”(Arnold and Ford 1980:722).

De Montmollin (1989) attempts to resolve this tension between universal models and particularism by proposing a multilineal analysis based on different indices of degrees of stratification, centralization, and social integration. By separating the variables his analysis becomes more flexible, while at the same time retaining the scale-sensitive component which allows for a comparative approach. This approach is exemplified in Becker’s (2004) study of variation in the size and type of Plaza Plans (PPs) at Tikal, which he takes as an indicator of the importance of heterarchy at the site. Becker argues that studying PPs reveals the cognitive models of the people who built and inhabited them: “in effect, each of these group plans conforms to a set of cultural rules involving building form and location that result from an emic typology, or what I call an architectural grammar”(2004:128). A certain type of Plaza Plan, denominated PP2, is seen reproduced at different levels of size and wealth, leading

Becker to hypothesize that it is non-hierarchical (i.e., it says nothing about the social status of the individuals occupying it). By separating wealth and sociopolitical power, Becker tries to more adequately represent the complex sociopolitical dynamics of Classic-Period Tikal.

Questions of Ideology

In recent years, scholars have begun to look at settlement patterns as symbolic expressions of the worldview of a certain culture or community (Ashmore 1991). The general idea that ideology can be embodied in material culture has been explored in some detail by DeMarrais, Castillo, and Earle (1996), and it can be argued that this focus is connected in part to the development of landscape archaeology as a part of the British postprocessual school (Tilley 1994). The principal assumption behind this group of studies of so-called cultural geography is that, just like with many other cultures, “Maya buildings were laid out as microcosms, arranging architecture so as to symbolically equate the architectural center of civic power with the center of the universe”(Ashmore 1991: 200). It is argued, then, that studying settlement patterns can reveal the cosmological templates upon which sites were built. It should be noted, though, that reconstructions of said cosmological templates cannot be subjected to independent verification, and thus they remain somewhat speculative.

Drawing largely on ethnographic data and on Conquest-period texts, as well as on the interpretation of epigraphic, iconographic, and settlement data, Ashmore (1991) lays out a series of architectural principles that are linked to ancient Maya cosmological concepts. The principles upon which Maya architectural templates are

built include a north-south axis, north-south dualism or complementarity, the creation of a triangle between east, west, and north, the presence of a ballcourt as a transition between north and south, and the linkage of elements with causeways. Among the cosmological concepts that these templates represent are “a multilayered universe, with a sky of many levels in which the royal ancestors lived, and a watery underworld below the natural world, likewise with multiple layers” where supernatural beings lived and in which are reenacted creation stories; the unification of said layers through the cycles of the sun and the moon; vertical connections between the layers of the universe, for example through a world tree; and the quadripartite nature of the universe (Ashmore 1991:200-201).

Such patterns, along with many others, can be discerned and “read” in the spatial plans of Maya sites. An example are twin-pyramid groups at Tikal, whose pyramidal structures in the east and west map the daily path of the sun. The northern enclosure containing the stelae of rulers is a metaphor for the heavens, where rulers can commune with their ancestors, and the southern structure with nine doorways represents the nine-tiered underworld (Ashmore and Sabloff 2002:202-203).

Another interesting application of the analysis of settlement configuration to the understanding of Maya cosmology is Brady’s (1997) research on the connection between caves and site architecture at Dos Pilas. Caves were foci of ritual activity at different levels of the social hierarchy; Brady argues that they were integrated into site architecture in such a way that the structures built on top of or close to them shared their supernatural power – surface architecture thus became an extension of the sacred landscape.

THE PUSILHÁ SETTLEMENT

I organize my analysis of the settlement data from Pusilhá in four sections. The first one is concerned with the relationship between the settlement and the natural environment, thus acting as something of a set of “first order” inferences. The other three sections mirror those of the above review: community, political organization, and ideology.

The settlement data that I present here was collected by the Pusilhá Archaeological Project (PUSAP) over four field seasons (Braswell et al. 2005). The survey was carried out using a total station to record the corners and high point of each structure, as well as general topography points. Structures were also drawn in a notebook, and the identification number of each structure point was recorded on the drawing in order to correlate the two.

The survey was carried out along cleared transects; much opportunistic mapping was also undertaken whenever a large portion of *milpa* was cleared as part of the traditional slash-and-burn agriculture practiced by the villagers of San Benito Poité. The coverage of the site is by no means uniform (Figure 5), although it represents a definite improvement upon Leventhal’s (1990) pace-and-compass map (Figure 3). Once the survey was completed, a contour map of the site was created from the topography points and individual structures were drawn on top of it using CAD software. All further data analysis presented in the following pages was carried out using Geographic Information System (GIS) software.

It should also be noted that many known structures and groups from Pusilhá are not represented in the settlement map (Figure 5; see also attached foldout map), as it was impossible to survey them due to time constraints and dense vegetation cover. Most of these unsurveyed architectural features are found along both the Poité and Pusilhá rivers, to the north- and southwest of the currently mapped settlement. About 3 km to the northwest of the site center, along the Poité river, stands the Ik Bolay Complex, a massive fortified platform upon which were constructed several groups apparently connected by a causeway. According to Braswell (2001:5), “this fortification, located in a mountain pass on the Guatemalan border, seems to delimit the northwestern boundary of Pusilhá.” Thus, although the area of Pusilhá mapped so far covers about 2 km², it is likely that the true extent of the site is closer to 6 km² (Braswell et al. 2005:72).

In terms of chronology, no surface collections or excavations were carried out as part of the survey program that might provide detailed information about contemporaneity of occupation at the site. The excavations that were undertaken (Braswell et al. 2004, 2005; Bill et al. 2005) focused on the Gateway Hill Acropolis and on the adjacent Lower Groups. Nonetheless, it is almost certain that all of Pusilhá’s architecture dates to the Late and Terminal Classic periods (A.D. 600-850/900). It is reasonable to assume, then, that the settlement map of Pusilhá represents a single phase of occupation that lasted approximately 300 years.

The Pusilhá Settlement in Relation to the Environment

Two features of the Pusilhá settlement are immediately apparent from the site

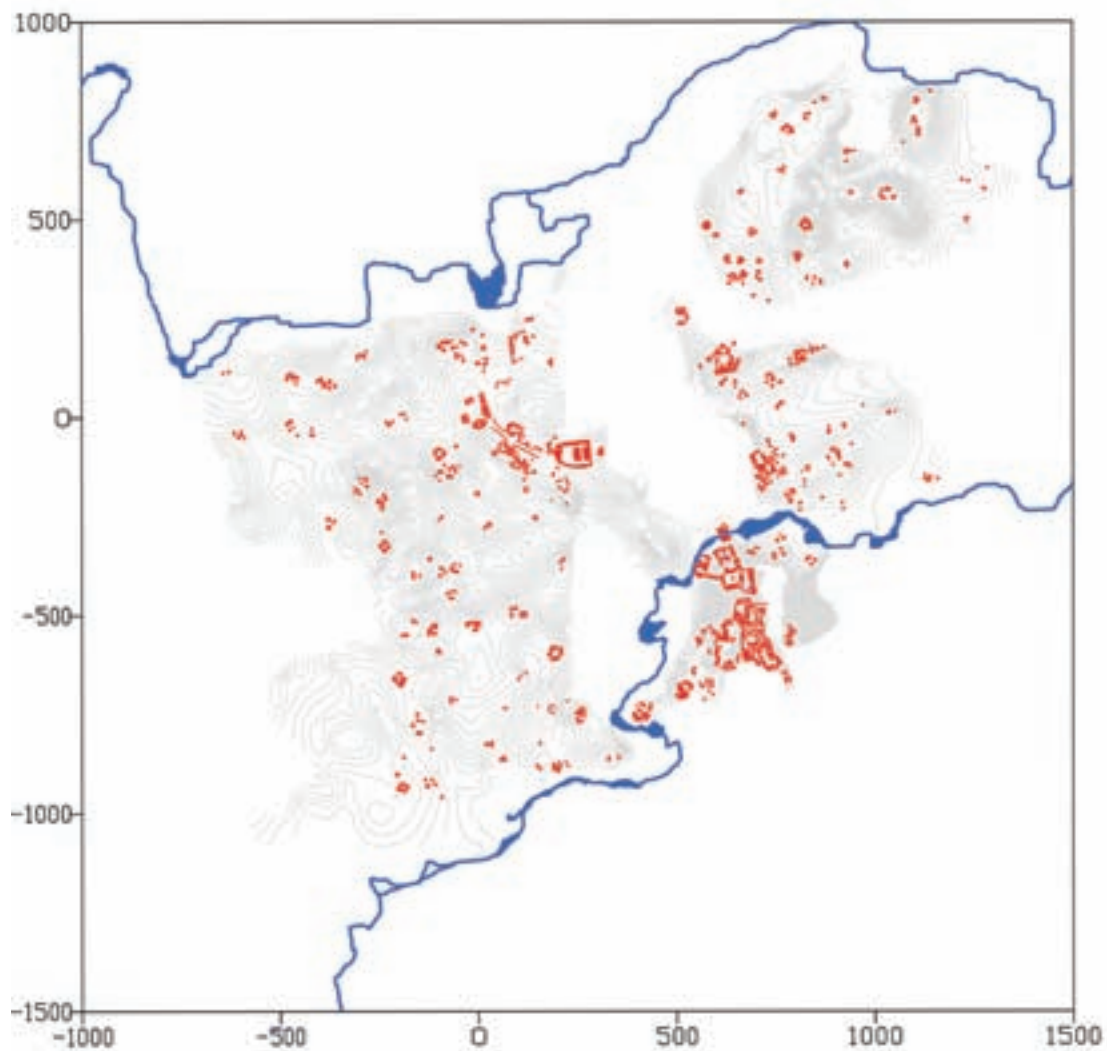


Figure 5. Map of the site of Pusilhá, showing 1-meter contours for the areas that were mapped. The scale (in meters) is measured from an arbitrarily chosen origin point in Stela Plaza.

map (Figure 5): the importance of the Machaca and Poité rivers, as well as that of the natural topography. As mentioned previously, Pusilhá develops in the valley that runs between the two rivers. Approximately 500 residential structures and platforms, not including the Gateway Hill Acropolis and Stela Plaza, have been mapped so far; most of them are concentrated along the two rivers and on the tops of the ridges between them.

A structure density plot (Figure 6) reveals that, although fairly uniform throughout the site, settlement is more compact within approximately 200 m of the Poité and Pusilhá. Even though the whole site is within close distance of the watercourses, those areas with easier access to water would have been preferred for habitation. The importance of rivers is further emphasized by data that is not currently on the map: as previously mentioned, most of the groups discovered to the west of the site center are located along the rivers. Geoffrey Braswell (2007, personal communication) also reports that the area between Gateway Hill and Stela Plaza

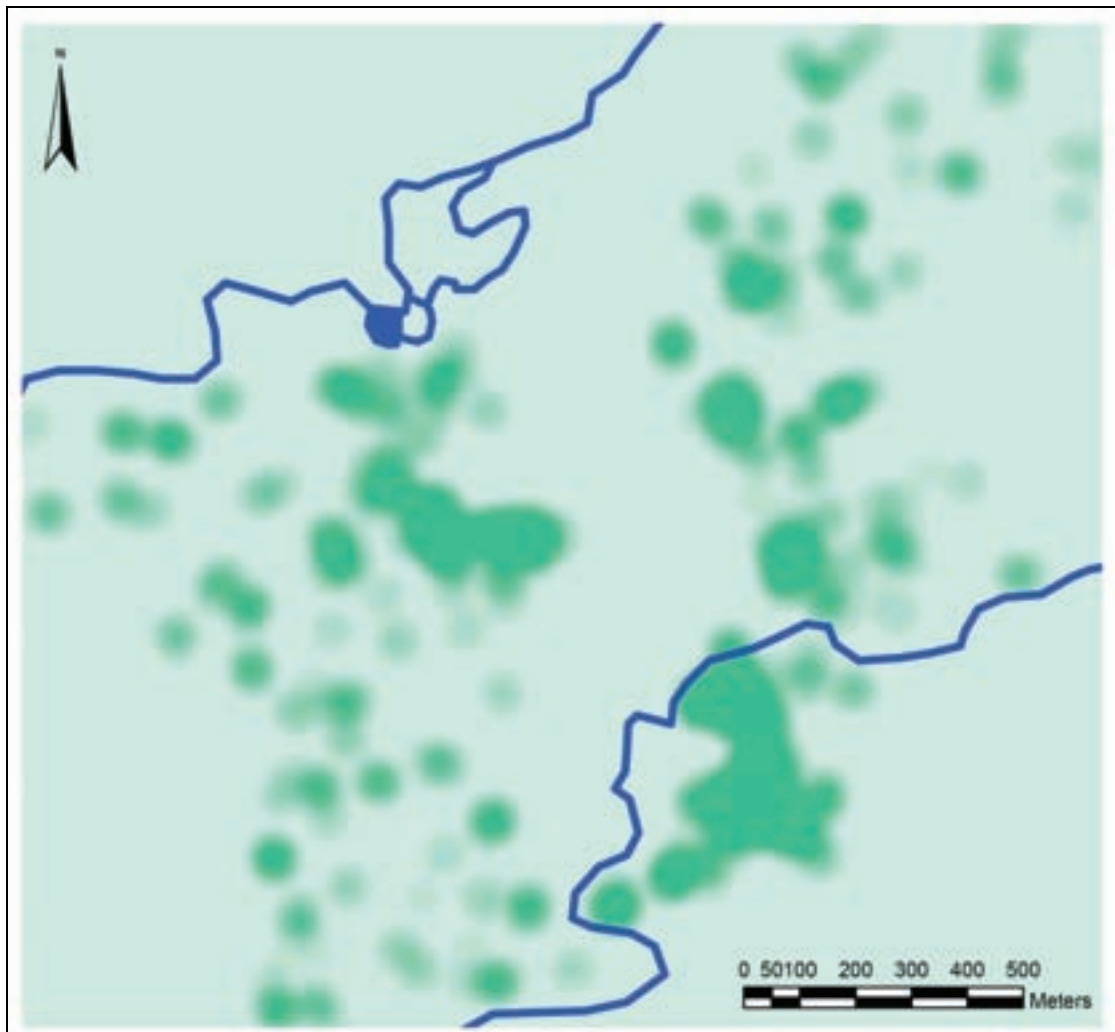


Figure 6. Plot of structure density at Pusilhá. Darker zones signify higher concentration of structures.

appears empty in the map because the architecture there was not recorded. In fact, its settlement density is comparable to that of other central areas of Pusilhá.

It is also fairly evident that Pusilhá's inhabitants preferred to live on well-drained, elevated ground, as is eloquently illustrated by the correspondence between settlement and slope of terrain in Figure 7. Along with the most obvious example of this correlation – the Gateway Hill Acropolis – of special interest are the settlement clusters that develop on the two east-west ridges just north of the aforementioned complex. These residential groups consist of highly compact platform and terrace arrangements at the highest elevations, with smaller clusters of mounds located on terraced areas further down the ridge. The low-lying valleys which separate the ridges, about 25 m below the structures at the top, can be inundated for part of the year, and were probably used for agriculture in the past just as they are now.

This pattern repeats throughout the Pusilhá settlement. Notice in Figure 7 that almost no area with a slope of less than 4% (darkest green), excluding hilltops and the main plazas, contains structures. Areas with slope between 4 and 8% (dark green) are also for the most part uninhabited. The people of Pusilhá also modified the landscape either for water storage or intensive agriculture: Braswell (2006, personal communication) reports on a large, rectangular depression in the Northeast Settlement Zone which appears to be an *aguada* (reservoir). Water collects in the area during the rainy season, and two low walls at the western edge of the feature appear to have served as embankments. The area where the Poité river becomes swampy at the northern edge of the site was also probably used for intensive agriculture. All in all, the distribution of settlement in relation to natural relief probably gave Pusilhá the

general appearance of a “garden city” (Smyth et al. 1995:324).

Nature of the Community

As we have seen, the approximately 500 residential structures mapped so far at Pusilhá are grouped into arrangements that are spread out fairly evenly across the landscape. Among these, some groups show more formal spatial arrangement than others. Ashmore (1981:48-49) defines two basic residential arrangements: informal groups and patio groups. Whereas informal groups are defined solely on the basis of structures being in proximity, patio (or *plazuela*) groups are more formal arrangements of structures grouped around a central court.

Among the structures mapped at Pusilhá, I have classified 20 recognizable formal *plazuela* groups made up of four or more structures, and approximately 35 clusters, which include less formal groups as well as *plazuela* groups containing less than four structures (Figure 8). Applying idealized settlement models to actual data is always somewhat of an interpretive balancing act, and the exact number of these groupings should serve at most as a reflection of general trends in the settlement.

Willey hypothesized that *plazuela* groups were indicators of a somewhat higher social status of their inhabitants in relation to those living in informal groups:

These ‘plazuela’ mounds appear to be somewhat more elaborate versions of the small mounds. Their central courts and the plaza arrangement of secondary platforms are more clearly defined and more easily seen in superficial contours than is the case with the ‘ordinary’ mounds. We are of the opinion that these larger ‘plazuela’ mounds were also dwelling units although perhaps their size and elaboration signifies a different social status of their former inhabitants [Willey et al. 1965:572].

If we accept this interpretation, then it could be argued that the area around and to the southwest of Stela Plaza was inhabited by groups of higher-status individuals, as indicated by the presence of 12 formal *plazuela* groups there versus only two in the Northeast Settlement Zone, which would have been populated by somewhat lower-status individuals. This idea could also be supported by the association of the formal residential complexes with Stela Plaza, which would have been one of the ceremonial foci of the site. It should be mentioned, though, that the area around Stela Plaza is about two times bigger than the Northeast Settlement Zone, so the larger number of *plazuela* groups could partly be related to the larger size of the former.

Other possible elite residential complexes at Pusilhá might have included the two Lower Groups to the southwest of Gateway Hill Acropolis, and the two settlement clusters just north of it (Figure 8). Although a bit less formal than standard *plazuela* groups, these clusters occupy a very prominent position upon the east-west ridges, and are much larger than ordinary groups. It seems reasonable to conclude, then, that the Pusilhá settlement indicates the existence of status differences between the individuals who lived in the proximity of Stela Plaza and Gateway Hill, and those who lived in areas more distant from the site core, such as the Northeast Settlement Zone.

This general pattern seems to correspond to the concentric zone model proposed for Maya communities: “the highest status individuals resided at the site center, lesser nobility around them, and lower status members at more distant settlement peripheries”(Smyth et al. 1995:329). The use of architecture by itself to reconstruct community organization is problematic to say the least; more complete

spatial coverage, as well as surface collections and test-pitting, are needed in order to fully evaluate these hypotheses.

Along with generating preliminary hypotheses about the layout of the ancient community at Pusilhá in relation to the social status of its inhabitants, the settlement data can also be used to infer something about the demography of the site. As previously mentioned, approximately 500 structures presumed to be residential have been mapped so far at Pusilhá in a survey area of about 1.7 km². Rice and Culbert (1990:19) suggest that a 30% reduction should be applied to the number of structures in order to account for chronological variation in occupation over long periods of time while also correcting for unmapped structures. Since the occupation at Pusilhá is relatively short (about 300 years) compared to the sites Rice and Culbert deal with, this reduction can be revised downwards to 25%. The resulting figure – 220 occupied structures/km² for Pusilhá – should then be multiplied by the average occupancy figure of five persons per structure. In the case of Pusilhá, this results in an estimated population density of 1,100 persons/ km², or a projection of 6,600 inhabitants for the total 6 km² of the site.

These figures are comparable to the adjusted Late Classic estimates for the urban zones of Central Lowland sites such as Seibal (222 structures/km²) and Tikal (235 structures/km² in the central area, 181 in the immediate periphery), and of Northern Lowland cities like Sayil (220 structures/km²), but are more than double the 90 structures/km² Hammond reports for nearby Lubaantun (Rice and Culbert 1990: Table 1.2). This suggests that Pusilhá was the largest and most populous city of the southern Belize region during the Late and Terminal Classic, and provides further

support to the epigraphic interpretation of the site as the capital of the regional polity of *Un*.

Political Organization

As discussed in the previous section, making inferences about political organization from settlement pattern data is problematic, and it requires a critical attitude towards the ideal type models one employs. Also important is good data coverage, as questions often require to be answered at multiple levels of scale. Even with the site-specific data available, though, a few relevant comments can still be made about the topic. The most immediate one has to do with the nature of rulership: there is no doubt that Pusilhá was ruled by a divine king. Although epigraphic and excavation data provide the strongest evidence, the sheer size and complexity of Gateway Hill (Figure 11) attests to the fact that at Pusilhá political authority was concentrated in the hands of a ruler who could command enough manpower to construct such an imposing complex.

It has already been mentioned that the distribution of *plazuela* groups might imply the existence of higher- and lower-status residential areas, with the former centered around Stela Plaza and Gateway Hill. The clustering of residential architecture around these two groups emphasizes their centrality, and provides further evidence for the interpretation that they defined the civic and ceremonial center of the site. Leventhal (1990:131) presents a similar idea:

The site of Pusilhá had two main focal points – the north side of the Pusila river with the Stela Plaza and one of the ball courts, and the south side with Gateway Hill and the second ball court. The north side is

characterized by rather small architecture with great quantities of ritual or ceremonial features including 23 monuments located within the stela plaza. In contrast, the architectural appearance of Gateway Hill to the south is enormous. The images of pyramids upward of 30 m high, rising above the top of Gateway Hill (which is 75 meters above the river), creates [sic] a sharp contrast with the architecture on the northern side of the Pusila river.

This quote seems to suggest that the center of Pusilhá is the product of a coherent architectural project, one that would indicate centralized rule. Acceptance of this idea would reject the option that the replication of similar architectural arrangements throughout the site might indicate a segmentary sociopolitical organization of some kind (Fox et al. 1996).

As regards Pusilhá's regional affiliations, Leventhal (1990:138-139) introduces the idea of a "southern Belize region" defined by a series of characteristics shared among the sites of the area. These include ballcourts located within walled enclosures, the use of the natural terrain for the construction of pyramids and other major architecture, and the sequential reutilization of tombs. Bill et al. (2005:2) present two additional characteristics: the lack of vaulted architecture, and the inscription of strange or just plain wrong information about lunar events in hieroglyphic texts – a feature first noted by Thompson (1929:227) and Morley (1938). Excluding sequentially used tombs, about which there is currently not enough evidence, all other traits are present at Pusilhá.

Examples of enclosed ballcourts, an architectural arrangement unique to the southern Belize region, can be seen plainly in Figures 9 and 10. Leventhal interprets them as local variations on a common Maya (and Mesoamerican) theme. The so-called

façade-natural construction has perhaps its most impressive illustration in Pusilhá's Gateway Hill Acropolis, a modified natural hill which appears as a series of superimposed pyramids and terraces (Figure 11). The presence of these shared features at Pusilhá has important implications for the question posed at the beginning of this essay, which will be addressed in the concluding section.

Ideology

Ashmore (1991) has argued that Maya site planning often incorporated cosmological principles. One of these is the association of ceremonial structures in the north with the heavens and deceased ancestors, and of structures in the south (especially ballcourts) with the underworld and death. As Braswell et al. (2005) have already pointed out, this pattern is evident in Pusilhá's Stela Plaza and Ballcourt, which are linked by a ceremonial walkway or *sacbe* (Figure 9). "The Stela Plaza is found at the northwest end of the *sacbe* and is therefore conceptually linked to the heavens" (Braswell et al. 2005:73). The ballcourt, on the other hand, is located at the south end of the *sacbe*, on low ground. Its associations are with death (the ballgame) and with the underworld. The *sacbe* connects the two, acting like the world tree which connects the heavens to the underworld, passing through the present world – in this case, the residential cluster at the center of the *sacbe*.

In addition to Stela Plaza, another example of this cosmological template can be found at Pusilhá. On Gateway Hill there is an extremely steep *sacbe* or ramp that connects the ballcourt on the banks of the Machaca river with the first upper terrace of the Acropolis (Figure 10). Although the associations with the north and south are not

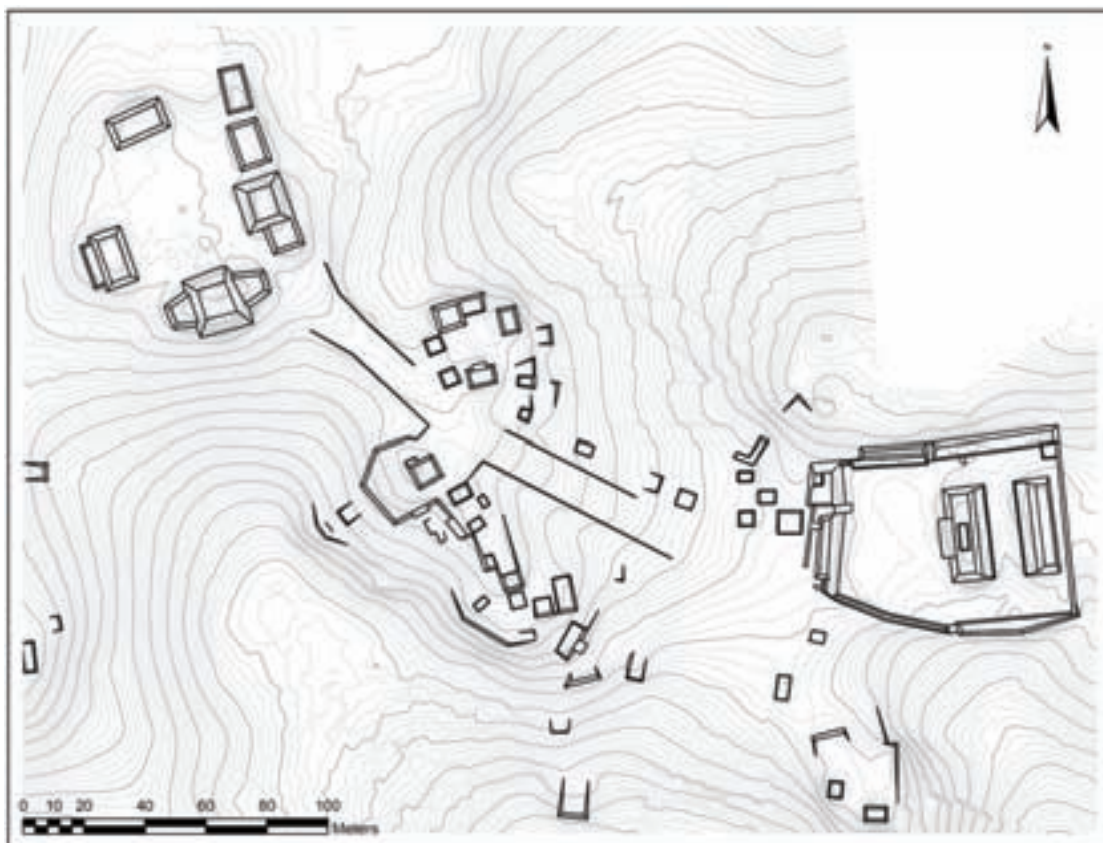


Figure 9. Stela Plaza and the Ballcourt. Interval between darker contours is 1m.

as well defined as in the previous case, it is evident that the ballcourt is at the lowest point and is also associated with the river – and, by extension, with the watery underworld and death. The terrace of the Acropolis to which the *sacbe* connects is not only a high point associated with the heavens, but also exhibits a similar structural arrangement to Stela Plaza.

In both instances there are three low range structures on the east side of the plaza, the largest of which is located in the south. The west side of the plaza is relatively open. In Stela Plaza there are paired pyramidal structures in the north and south, whereas in the case of Gateway Hill the royal palace compound (and royal ancestor burial) is just up the hill to the southeast. To the north is what may be



Figure 10. The Gateway Hill Acropolis with Lower Groups I and II at the bottom right. Interval between darker contours is 1m.

considered the main accessway to the Acropolis, formed by two roughly symmetrical series of ramps and staircases ascending the hill from the bridge. The scale and layout of these features points to a ceremonial or processional function. Although they are not quite identical, the similarities in layout between Stela Plaza and Gateway Hill indicate a unified template based on cosmological associations.

In addition to pointing out the internal consistency of the site planning of Pusilhá, it may be possible to draw some connections, albeit tenuous ones, with other

regions of the Maya area. The layout of the public architecture at Pusilhá does not reflect either the “E-group” or the “Eastern Ancestor Shrine” arrangements found in other areas of the Maya lowlands (Braswell et al. 2005). Nonetheless, the presence of a triad of range structures on the eastern side of plazas might be interpreted as a reference to the former architectural type.

Guderjan (2006) argues that pseudo-E-group arrangements appeared by the Late Classic at sites in the eastern Petén and western Belize regions. These architectural arrangements, derived from the earlier E-group patterns, consisted simply of “two buildings sometimes linked by a common substructure that bound the east side of a large plaza”(Guderjan 2006:98). Pseudo-E-groups were not functional solar observatories like their earlier counterparts (Aimers and Rice 2006), but instead replicated the arrangement because it “had become embedded into the Maya conception of necessary elements in public architecture”(Guderjan 2006:101).

It could be argued that the presence of three structures on the eastern side of plazas at Pusilhá carried out a similar function: it referenced a past architectural form (the E-group) that by the Late Classic had lost any functionality and become purely symbolic. Aimers and Rice (2006:89) also note that at many sites in the Central Lowlands, such as Tikal and Seibal, E-groups were associated with ballcourts or ballgame imagery. Such an association is preserved at Pusilhá, where plazas reminiscent of E-groups are linked to ballcourts.

CONCLUSIONS

Returning to the question about Pusilhá's regional political and economic affiliations posed at the beginning of this essay, there are a few lines of evidence provided by the analysis of its settlement patterns that point away from Copán and Quiriguá – either to the southern Belize region defined by Leventhal, or to the Petén region to the west.

It is evident that the strongest connections for Pusilhá lie within the southern Belize region. Pusilhá shares many characteristics with nearby sites such as Lubaantun, Uxbenka, and Nim Li Punit (Figure 1). The architectural features include enclosed ballcourts, the use of natural hills for the construction of “fake” pyramids, and the lack of vaulted architecture. Another feature is the presence of “eccentric” epigraphic information about lunar cycles. These commonalities indicate regional homogeneity among sites in the Toledo district, and might be evidence for political and economic affiliations between the polities of the region.

Pusilhá also has features in common with sites of the Petén region. Although these similarities must necessarily be seen as secondary to the above-mentioned regional affiliations, they might still be seen as evidence for some sort of connection. The most notable of these is the presence of architectural arrangements loosely related to E-groups that are associated with ballcourts at Stela Plaza and Gateway Hill. Pusilhá's population figures are also closer to those of sites in the Central Lowlands than they are to Lubaantun's, for example. It should also be noted that the construction

of fake pyramids against natural hills is not exclusive to southern Belize, as it is also a diagnostic feature of Central Lowland sites along the Usumacinta basin such as Palenque and Toniná (Geoffrey Braswell 2006, personal communication).

The connections between Pusilhá and either the eastern Petén or the southern Belize region are not necessarily mutually exclusive: Bill et al. (2005:8) argue that there are strong ceramic ties between southern Belize and the Pasi3n watershed, as well as with northern Pet3n, during the Late Classic period. In addition, they report that recently discovered sites in San Lu3s, Pet3n, seem to share most of the diagnostic features of Leventhal's southern Belize region. Bill et al. (2005:2) suggest that said region can be extended northwards towards the upper Cancu3n river drainage. As mentioned at the outset, this would put the region in an intermediate location between the Caribbean and the Pasi3n and Usumacinta watersheds. Pusilhá's position at the western edge at the southern Belize region, and at the confluence of the Poit3 and Machaca rivers, would have guaranteed it an important role in regional and long-distance trade through the area.

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APPENDIX

Oversize map sheets.

Contour Map	58
Colored Relief Map	59

These maps of Pusilhá represent the results of the PUSAP survey.