

Social Complexity and the Middle Preclassic Lowland Maya

Timothy W. Pugh

Professor

Queens College/CUNY

Queens, NY

The Graduate Center/CUNY

New York, NY

Timothy.Pugh@qc.cuny.edu

orcid.org/0000-0003-2985-0677

Abstract

Intensified social complexity emerged in some parts of the lowland Maya region during the Middle Preclassic period (800–300 BC). Though data for Middle Preclassic complexity remain very thin, states may have formed in the Mirador Basin and other areas that exhibit settlement hierarchy, evidence of centralized administration, and specialization. However, these developments have been obscured by a shift from a more cooperative to a more competitive system during the Late Preclassic period (300 BC–AD 200). Unilinear thought has confused this shift-change in organization with a shift toward greater complexity. Such positions incorrectly assume that divine kingship and its accoutrements are a baseline for complexity. Judging Middle Preclassic period complexity according to Classic period developments is dubious given: the cooperative-competitive oscillations; the tendency in the Maya area for states to have been secondary with long-standing interactions among Chiapas, Pacific Coast, Isthmian, and the Gulf Coast areas; and internal innovations. New data are needed to characterize early complexity in the Maya lowlands on its own terms.

Keywords: Maya, Preclassic, States, Cooperative, Urbanization, Hierarchy

Introduction

The Preclassic (also “Formative”) and Postclassic (formally “Decadent”) periods have long been cast as bookends on a more glorious time, the Classic period. However, recent finds at Nakbe (Figs. 1 and 2), Nixtun-Ch’ich’ (Fig. 3), and Aguada Fénix (Fig. 4) challenge this specious vision of Maya political development. The Middle Preclassic Lowland Maya experienced exaggerated social complexity rather early in some regions. This period brought cities, roads, settlement hierarchies, long-distance trade, massive constructions, shared monumentality, and city planning as well as, many suggest, the development of states. The complexity initiated in the Middle Preclassic period continued into the Late Preclassic and Classic periods with a major twist—the later period added a cult of rulership to their symbolic repertoire. Indeed, one might argue that monarchs were the most prominent symbols at many Classic period sites, and help define the boundaries of the period.

Monarchies have often been cast as a step “forward” with respect to the development of social complexity in the Maya region. Norman Yoffee (2005, p. 39), for example, describes state ideologies as embodying “a new order of social relations, which crucially includes the king as a special category and the government apparatus we call the state.” We can criticize his assertion as suggesting that kingly ideologies represent a sort of advancement and a possible indicator of state power. Yet, despotic rulership is less resilient than more cooperative forms of governance. In such social systems, a cult of rulers and their ancestors does not form the symbolic foundation of society. The Middle Preclassic Maya seem to have been more cooperative in their organization (Feinman and Carballo 2018, pp. 13–15; Inomata et al. 2020). In this article, I review various developments in the Maya lowlands during the Middle Preclassic period, particularly evidence for social complexity as well as a more cooperative social system. I also

argue that projections of “kingship” into the Middle Preclassic period have done little to help investigations of its complexity.

Suggested ranges for the Middle Preclassic period vary and depend upon whether one begins the period with the beginning of the Mamom ceramic sphere—800–300/200 BC (Rice 2019b)—or with sedentism and monumentality—1000–400 BC (Inomata et al. 2015b). The current discussion will begin at 1000 BC and end at about 300 BC, though the primary targets ~~are~~ ~~will be~~ developments that occurred along with the Mamom ceramic sphere, which also varies across the lowlands, but extends to approximately 800–300 BC. At times, the discussion ~~will~~ extends s into the Late Preclassic period (300 BC–AD 200), as many buildings are inadequately dated (Doyle 2017, pp. 45–46; Pugh and Rice 2017, p. 598). Middle Preclassic period deposits are often deeply buried and difficult to safely access. In many cases, it may be impossible to obtain samples sufficient to extrapolate accurately how sites appeared between 800 and 300 BC. Precise dating is also hindered by the “Hallstatt” Plateau, which occurs with radiocarbon assays falling between 800 and –400 BC. Bayesian statistics may allow greater precision in dates in this range (Inomata et al. 2017b).

Social Complexity

Complexity designates phenomena with multiple interrelated parts and is, thus, a multidimensional variable. Social complexity is characterized by high populations with relatively dense settlements, horizontal diversity (various social factions, different occupations, varied religious practices, and possibly a variety of languages), vertical diversity (social stratification), and social solidarity (unifying beliefs, economic interdependence, and social power) (Tainter

1988, pp. 23–24). The concept can also refer to types of relationships with external groups such as alliance, competition, exchange, and warfare.

Recent research postulates that states emerged in some parts of the Maya lowlands in the latter part of the Middle Preclassic period (Hansen 2016, p. 330; Robles Castellanos and Caballos Gallareta 2018, p. 224; Sharer and Traxler 2016, p. 26). The term “state” is rather “shopworn” and is often used without precision or definition (Graeber 2017, p. 456). Mayanists must be careful to ensure their definition of state is comparable to that used in other areas of the world. Consider, for example, that the English state is not argued to have emerged until the 10th or 11th century~~ies~~ (Brookes and Reynolds 2011), when it covered some 125,000 ~~square kilometers~~km². Mayanists~~,~~ are blessed with written texts~~,~~ but often accept their content without testing their veracity. Indeed, Mayanists have been criticized for applying epigraphic evidence so loosely that over 80 states have been posited for the Classic period Maya (Flannery 1998, p. 18).

Unfortunately, states are assumed more than they are demonstrated with archaeological evidence. Archaeologists must make an argument with supporting material evidence before making such a conclusion. The point is not to pigeonhole ancient societies, as ~~Norman~~-Yoffee (2005, p. 20) has warned. Rather, it is to understand the great variation within the category “state,” which ~~will be~~is revealed through careful examination of each case. Without such understanding, states, their emergence, and their collapse have little meaning.

States, like other social institutions defined through comparative analysis, are best understood as polythetic sets that share certain elements but lack a single definitive characteristic (Needham 1975). States are complex social systems with substantial means to integrate their diverse parts in a highly ordered manner and incorporate large numbers of people over the long term. They have high populations including both food producers and persons specializing in

other occupations such as craft production, information storage, and leadership. “Specialization” is problematic as the term is often used loosely and the types of specialization vary significantly in organization and degree among various complex societies (Costin 1991). Integration can be achieved through a number of strategies such as powerful symbols and rituals and rational schemes of social order such as laws, standardized administrative systems and architecture, legibility, and/or cultural standardization (Yoffee 2005, pp. 91–112).

States generally have cities. Such dense concentrations of people have lower per person infrastructural costs and enhance innovation (Bettencourt et al. 2007). Cities are the perfect solution to complexity as they ameliorate problems caused by distance by bringing diverse populations into close contact. They also enrich specialization, but they bring new difficulties such as enhanced disease transmission (Algaze 2018).

Hierarchy is a critical dimension of social complexity, though it has been criticized for being overstressed (Crumley 1995; King 2016; Yoffee 2005, p. 20). Still, hierarchy can be crucial to the flow of information from the bottom up and top down; thus, such structured relationships are a form of legibility (Wright and Johnson 1975, p. 267). Hierarchy is one of the means through which complex societies are unified. Of course, non-hierarchical relationships within a polity also create solidarity. Furthermore, hierarchical organizations do not necessarily hamper social interactions and information flow among lower levels of the hierarchy. Indeed, such heterarchical interactions led to innovation and economic success prompting the development of organizational structures in medieval European cities (Cesaretti et al. 2016, p. 16). In some despotic states, rulers might attempt to minimize such interactions and encourage conflict among lower-level lords. Yet, while strengthening centralization, doing so might undermine the viability of the state.

Since states necessitate stability, they cannot rely solely upon charisma or coercion, ~~as~~ the former only lasts as long as the possessor lives, and the latter is simply ineffective over the long term. Of course, particularly powerful people may remain unifying symbols even after death. Divine kingship and reciprocity with divine beings can also bind groups together, but divine right can be erratic. Even a divine ruler can lose power in the face of a drought, epidemic, and/or invasion (Butzer 2012; Lucero 2002, p. 821). States can best create long-term stability through infrastructural power such as enhanced legibility, public goods, and education (Feinman and Carballo 2018; Foucault 1995, pp. 135–169; Yoffee 2005, pp. 92–112).

While states provide constituents with a relatively stable social reality, they change, as do their internal institutions and their constituents. States experience “repetitive cycles of consolidation, expansion, and dissolution” (Marcus 1998, p. 60). Furthermore, they vary significantly in how they are organized, and their organization is in constant flux. States can collapse and then reintegrate. They also change through rationalization, such as new political ideas derived locally or imported from the outside.

The continuum between more exclusionary/competitive polities and those more cooperative/collective in their organization provide another avenue for variation. In the extreme manifestation of the former, despots rule with little accountability with “ritually sanctioned” power based on connections to ancestors and cosmic order. These societies tend to venerate the ruler and use them as a foundational symbol through a cult of rulership (Blanton 1998; Blanton and Fargher 2012, p. 106). The Classic period Maya provide good examples of more exclusionary/competitive polities, though some sites, such as Caracol, were more cooperative (Feinman and Carballo 2018, p. 12). More collectively organized societies regulate the ambitions of monarchs through extensive bureaucracies and have greater social mobility (Blanton 1998).

They tend to lack representations of rulers and instead focus ~~upon~~ “collective representation” and social/cosmic renewal (Blanton 1998, p. 150). Collective societies invest more in public goods (roads, plazas, water control, and sanitation) and allow greater public access to ritual spaces (Feinman and Carballo 2018, pp. 9–10). They lack extreme social inequality, emphasis on palaces, and excessive elite control of production (Blanton and Fargher 2011, pp. 509–512). Teotihuacan provides a helpful example of a more cooperative state (Blanton 1998).

The pull between cooperation and exclusion clearly involves the roles of the monarch. Divine kingship has been a productive avenue in discussions of Maya states (Freidel and Schele 1988), but its role becomes increasingly murky as the date of state emergence is pushed back into the Middle Preclassic period, in which we have little to no evidence for such kings. ~~David~~ Graeber and ~~Marshall~~ Sahlins (2017, p. 3) reason that “kings are imitations of gods rather than gods of kings.” That is to say, deities exist in human societies before the emergence of kings. One cannot assume that a deity or temple associated with kingship in the Classic period had anything to do with the institution in the Middle Preclassic period. Kings thrive on appropriating powerful pre-existing group symbols.

Middle Preclassic~~-period~~ Maya polities seem more cooperative in their organization, as they invested heavily into public spaces such as plazas and roads. They emphasized fertility and cosmos in their symbolism (Inomata et al. 2020; Pugh 2019; Rice 2015, p. 31). Yet it is probable that monarchs headed these more cooperative states. In any case, it is not heightened divinity of the monarch that brings about a state, but rather enhanced integration and stability of the complex social system. Unfortunately, investigations of states—and most other phenomena for that matter—in the Maya region have over-emphasized the Classic period. These studies have been largely descripti~~ve~~~~con~~ and generally have not sought to understand how these states emerged

(Runggaldier and Hammond 2016, p. 34). Only investigations into Middle Preclassic-period social developments will provide answers to such questions (Brown and Bey 2018, p. 10; Canuto 2016, p. 462).

Furthermore, archaeologists must be cautious of maximalism—the assumption that kings wielded massive political power with little resistance (Hyams 2001, p. 3). Maximalist views on claims of kings beg two important points: not all kings are divine and the political power of even the most divine kings can be curtailed. The former is obvious, but the latter requires some discussion. Divine kings are those believed to have the capabilities of gods (Graeber and Sahlins 2017). However, divinity brings with it the sacred, which involves restriction on the behavior of kings and setting them apart. Sacred kingship helps illuminate the power and divinity of the king but also confines and controls that power. This dimension of kingship can limit the political power of the divine king through “adverse sacralization,” which is the distancing of the king from his subjects to the point that the ruler becomes an abstraction (Graeber and Sahlins 2017, p. 8). That is, ~~the~~ rulers can become so sacred, they possess little earthly political power. The people of Tokugawa Japan thought the emperor to be divine, but the emperor had very little real political power. The politics of adverse sacralization can be between a divine king and a secular rival, such as between the emperor and shogun or between the divine king and “the people” (Graeber 2017, p. 419). Ajaw Kan Ek’ of 17th-century Petén, Guatemala, had a divine title, but his ability to act was restricted (Jones 1998, pp. 208–209). The simple presence of kingship, divine kingship, or sacred kingship does not necessarily reveal much about social complexity. However, the tension between divine kingship and adverse sacralization provides a venue for cooperative or competitive shifts.

The current consideration of Middle Preclassic social complexity begins with a ~~consideration-review~~ of the diet and initial settlements of the lowland Maya region and then moves to the formation of cities and evidence of larger social relationships, centrality, and rulership.

Middle Preclassic Diet

Environmental data suggest early villagers in the lowland Maya region lived in a relatively dry environment, which became wetter thereafter, resulting in greater land fertility and success of human settlements. The environment initiated a drier trend with a drought around AD 250, which may have led to the collapse of many Preclassic period polities (Douglas et al. 2016, p. 625; Ebert et al. 2017, p. 229; Medina-Elizalde et al. 2016).

Poor preservation has hindered studies of diet in the lowland Maya region during the Middle Preclassic period. However, diets varied significantly from site to site, likely influenced by local environments, but with a general trend toward an increase in maize consumption (King 2016, pp. 432–434; Tykot et al. 1996, pp. 361–363). Middle Usumacinta, Mopan, and Belize Valley sites and Ceibal stand on high ground near alluvial plains (Brown et al. 2018; Inomata et al. 2020). Sites in the Petén Lakes region rest along lakeshores or small ponds (Pugh et al. 2020). The Mirador Basin and the area of Cival has little surface water with the exception of *bajos* ~~which that~~ fill during the rainy season (Estrada-Belli 2011, p. 129; Wahl et al. 2007, p. 814). Northern Yucatan sites relied on water from *cenotes*, as the area has no above-ground streams (Andrews and Andrews 1980, p. 1).

A recent study of well-preserved human remains in the Maya Mountains of Belize revealed that maize became a staple by 2700 BC and developed into the foundation of the Maya

diet by 2000 BC. ~~SEnhanced~~ social complexity would have been enhanced by and dependent ~~upon~~ maize farming (Kennett et al. 2020). However, maize use at some sites was lower in the Preclassic period and increased in the Classic period, and in others, there was no difference. At some sites, protein consumption decreased between the Preclassic and Classic periods, and in others, it remained the same (Wright 1994, pp. 344–348).

Midden and isotope analyses of human bone in Belize indicated ~~d~~ that maize ~~play~~provided less of a role in the Middle Preclassic period than in later times and that diet included: other wild and domesticated plants; terrestrial animals, especially armadillos, agouti, brocket and white-tailed deer, dogs, iguanas, peccary, paca, ~~and~~ turtles; marine and freshwater fish; and shellfish. Deer provided the highest percentage of protein followed by turtles and dogs, though dog remains were less frequent at some sites (Boileau 2012; Powis et al. 1999).

Early occupants of the Middle Usumacinta floodplains focused on aquatic resources and gradually shifted to maize (Sharpe 2020). Freshwater apple snail (*Pomacea flagellata*) and mussels were consumed at Ceibal and nearby sites in the Middle Preclassic period, but their consumption faded ~~s~~ in the Classic period (Sharpe et al. 2020). At Cuello, freshwater fish far surpassed marine fish consumption in the Middle Preclassic period, but the ratio reversed in the Late Preclassic period (Wing and Scudder 1991, p. 85).

Dogs, deer, and turtle were the most common vertebrates at Preclassic Cuello (Wing and Scudder 1991, p. 85). Midden remains more often from the Middle Preclassic than from other periods appear to indicate that dogs were raised at Cuello and eaten at about ~~once~~ year of age (Clutton-Brock and Hammond 1994, p. 820; White et al. 2001, p. 96). Similarly, dogs were the primary mammal ~~found~~ in Preclassic deposits at Ceibal and surrounding sites, but later deposits document greater diversity, with deer the most common mammal recovered (Sharpe et al. 2020,

p. 32). Dog remains at Late Preclassic El Mirador seem limited to civic-ceremonial areas and were used in feasting or caches (Thornton and Emery 2016, p. 244). Dogs were also likely used as feast foods at Nixtun-Ch'ich' (Rice et al. 2019).

Apiculture was practiced in the Late Preclassic period (Rice et al. 2019, p. 12; Żrałka et al. 2014). While evidence for earlier honey production is lacking, it seems likely to have occurred in some areas.

Cacao was consumed by the Middle Preclassic period Maya and earlier by the Olmec (Powis et al. 2002; Powis et al. 2011). Many other plants contributed to the Preclassic diet including squash, beans, chili, avocado, cashew, guava, manioc, mamey, nance, and ramon. Other plants such as pine, copal, cotton, and tropical cedar had non-subsistence uses (Lentz et al. 2012; Miksicek 1991).

Health seems to have decreased in the Classic period compared to the Preclassic. Height generally decreased~~ds~~ after the Preclassic period. These changes could possibly be the result of disease, stress, and increased work (Márquez and del Ángel 1997, pp. 59–61). The frequency of linear enamel hypoplasia increased dramatically at Cuello and other sites during the Late Preclassic/Early Classic periods (Saul and Saul 1991, p. 144).

Middle Preclassic Settlements

The relationship between sedentism, domestication, and population pressure is contentious (e.g., Rosenberg 1998; Smith 2015; ~~among others~~) and is will not ~~be~~ resolved here. Regardless of its causes, sedentism dramatically changed human society in a number of ways. Increased sedentism strengthened the bond between people and places. Sedentary people gained immense knowledge of particular places, and invested more labor into modifying their environments. Over time, this

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relationship intensified, resulting in the construction of a cultural niche (Smith 2011). Such investment would have been visible as massive platforms, temples, drainage systems, and intensified food production. The Mirador Basin presents evidence of precocious agricultural intensification in the form of *bajo* soils moved into terraces, raised fields, and water control systems. The occupants also built dams to control erosion (Hansen 2016, pp. 361–362). Sedentism allowed, encouraged, or even required the accumulation of objects, which transformed the meaning and values of objects. These changes laid the foundations for enhanced social inequality, which further transformed meanings and values (Clark 2004, pp. 207–208).

At around 1000 BC, ceramic-using people established villages across the lowlands and created some of the first monumental constructions. Nevertheless, some areas had ceramic users before that time (Hammond et al. 1995; Kosakowsky and Pring 1998; Rice 2019b; Sullivan et al. 2018). Recent evidence indicates early ceramic use (1250 BC) in the Middle Usumacinta region (Inomata et al. 2020). Early villages likely interacted and shared ceremonial and other public spaces with mobile populations (Inomata 2014, p. 26; Inomata et al. 2017a). By around 800–700 BC, construction activities increased, and the diversity of local ceramics traditions decreased to the point that the area could be grouped within a shared ceramic sphere (Mamom) (Inomata 2014; Inomata and Henderson 2016, p. 460; Rice 2019b).

As with ceramics, settlement histories vary. Some Middle Preclassic ~~period~~ settlements were dispersed, but likely became nucleated in the Late Preclassic period (Bond-Freeman 2018). On the other hand, other communities assembled around public spaces from the ~~outset~~ (Robin et al. 2012b, p. 29). In some cases, early (pre-500 BC) cities, such as Nixtun-Ch'ich', were “planted”—meaning they were built in an area without a previous history of city building (Cowgill 2004, pp. 536–537; Pugh and Rice 2017). New evidence of early (1200–1000 BC)

complexity in the Middle Usumacinta region indicates that many developments in the lowland Maya region outside the Middle Usumacinta were secondary. Indeed, the massive platform at Aguada Fénix by 800 BC was the largest pre-Columbian monumental construction in the Maya area (Inomata et al. 2020). Nixtun-Ch'ich' may have derived its orthogonal plan from this region.

Compared to dispersed homesteads, nucleation allowed for more efficient use of land, mutual defense, and other forms of cooperation (Ringle 1999, p. 189). Greater social interaction ~~lead~~ to enhanced information exchange and innovation (Bettencourt et al. 2007). However, nucleation also allowed social and wealth inequality and greater susceptibility to contagious disease (Ringle 1999, p. 189).

Many Middle Preclassic communities built their centers ~~upon~~ relatively high ground ~~that~~ they had leveled. Leveling can involve cutting into bedrock and/or building up fill to accentuate natural high points (Doyle 2017, p. 51; Estrada-Belli 2011, p. 69). Possible motivations for building ~~upon~~ high ground include an interest in extensive viewscales (Doyle 2017, p. 60; Estrada-Belli 2016, p. 236; ~~Estrada-Belli~~ 2017, pp. 315–318), a desire for defensive locations, or a concern with an ability for the land to drain naturally (Pugh et al. n.d.). Many sites ~~stand~~ were placed on naturally higher ground, but not necessarily the highest ground in the area. For example, Nixtun-Ch'ich' stands ~~upon~~ a rise on a peninsula and adjacent land, but does not ~~extend to-on~~ the much higher area ~~to the~~ north of the lake. Nixtun-Ch'ich' was also heavily remodeled into its gridded form, and initially was stripped to bedrock in some areas. The site is not flat, but slopes from the west to the east and from the center to the north and south. Massive Middle Preclassic ~~period~~ construction efforts at Nixtun-Ch'ich' caused a dramatic increase in soil erosion into the lake (Obrist-Farner and Rice 2019). The core of Cival was built by creating

the leveled surface on a hill and then rapidly expanding the high ground outward. Interestingly Of note, the ceremonial assemblage was carved into the natural bedrock of the hill (Estrada-Belli 2017, pp. 297–298). A similar process occurred at Ceibal, but the creation of the artificial plateau occurred much more gradually (Inomata et al. 2019). The pre-800 BC platforms of the Middle Usumacinta region have been termed “artificial plateaus” because of their massive size and similarity to the Olmec site of San Lorenzo (Inomata et al. 2020).

As settlements grew, the need for new migrants likely intensified—though we currently have little data concerning this phenomenon for the Maya region. Based ~~up~~on early settlements in other regions, ancient population centers would not have been able to sustain their populations over the long term because of poor sanitation, enhanced disease linked to propinquity, and lower fertility rates of lower-class populations. Thus, they required constant in-migration to increase in size (Algaze 2018, pp. 23–25; Storey 2006). Consequently, they needed significant pull factors (safety, impressive settlements, opportunities, and so on) to attract migrants and information flow to communicate the existence of these benefits to outsiders (Anthony 1990, pp. 899–901). Many developments such as water control, monumentality, and public space, which are often attributed to elites demonstrating their power, may have instead been intended to attract attention to the city and draw in new occupants. Of course, elites may have tied themselves to these facilities after their development. Higher population can lend a place greater gravity as one would expect additional people to possess more external connections, thus the location would be better known. Interacting with mobile populations (see Inomata 2014, pp. 26–27) might have initially been the primary source of external knowledge and exchange for early sedentary populations.

Middle Preclassic residences were often constructed around platforms (Andrews and Andrews 1980, p. 286), which presumably had ceremonial uses. Inequality can develop as first-comers claim higher status than new arrivals (McAnany 1995). Evidence for early (750–700 BC) elite residential areas has been documented at Ceibal. The residences were built ~~upon~~ on a large platform ~~with a size and composition~~ of fill derived from a variety of areas, ~~which that~~ suggests communal construction (Triadan et al. 2017, p. 257). Circular platforms served as residential shrines at many sites. Since some residential groups have these buildings and others do not, their presence may reflect the higher status of occupants (Hendon 2000; MacLellan 2019b).

The compositions of many early villages and cities are poorly known, as the deeply buried deposits are difficult to access. Many earlier residences were ~~upon~~ on the ground surface or bedrock (Castellanos and Foias 2017, p. 9; Hendon 1999, p. 105). Some Middle Preclassic ~~period~~ residences were apsidal, while others were rectangular or oval (Andrews and Andrews 1980, pp. 286–287; Awe et al. 1990, p. 4; Triadan et al. 2017, p. 258). Most are evident only from postholes and were largely perishable composed of wattle and daub (Awe et al. 1990, p. 4; Castellanos and Foias 2017, p. 9), vertical wattle, or horizontal wattle (see Wauchope 1938, pp. 69–75). Most Middle Preclassic crafts were produced within residences and included textiles, wooden tools, obsidian blades, shell tools and ornaments, and other tools (Aoyama 2017a; Hendon 1999, p. 109).

Varied evidence suggests that some specialized production occurred among the ~~Lowland~~ Maya of the Middle Preclassic period. Shell workshops have been encountered at Middle Preclassic sites in Belize, though it is difficult to discern if the producers were full-time or part-time specialists (Hohmann et al. 2018, pp. 130–140). Evidence of shell working was also found

at Nixtun-Ch'ich', but as part of secondary refuse. Indeed, Middle Preclassic primary refuse is rare at the site. An elite residential group at Ceibal seems to have been involved in the specialized production of obsidian blades at a very early date (Aoyama et al. 2017b, p. 418). Obsidian was imported to the lowlands as was marine shell to most of the lowlands. Both would have required collection, transport, and exchange. Chert production at Colha began in the Middle Preclassic, but it was not until the Late Preclassic that it transformed into an extremely well-developed system of workshops under the control of local elites (King 2016, pp. 437–438). The Mirador Basin has substantial evidence of occupational specialization including those involved in ceramics, masonry, lime production, and stone tool production (Hansen et al. 2018, pp. 161–178).

Caching

The burial of offerings, caching, is one of the most visible elements of Middle Preclassic ~~period~~ ritual practice. It was a means through which constructions were dedicated and spiritually activated, but some caches signified termination (MacLellan 2019a). Many plazas contained important offerings that activated them or adjacent ceremonial assemblages (Estrada-Belli 2017, p. 298). Caches also dedicated buildings. At Ceibal, domestic and public caches differed during the Middle Preclassic period, as unlike the latter, the former did not use intrusive pits. Indeed, domestic caches were rare in general. However, this pattern changed in the Late Preclassic period when household caches began to resemble those of civic ceremonial groups (MacLellan 2019a).

Caching also occurred during the termination of buildings—the ritualization of their abandonment, burial beneath a new construction, or demolition. At Cuello, Middle Preclassic

termination involved the removal of facades, burning, and the scattering of complete jade beads. The rites changed in the Late Preclassic period, when the occupants smashed the beads before deposition (Hammond and Gerhardt 1991, p. 228). At Nixtun-Ch'ich', similar smashing of greenstone and ceramics occurred in the latter part of the Middle Preclassic period (Pugh et al. n.d.).

Perhaps the most salient caches are those containing multiple greenstone celts ~~which that~~ likely represented ears of corn (Taube 1996, p. 42) or perhaps drops of rain (Ortiz Ceballos, P. and del Carmen Rodriguez 1999, p. 251). Such caches are rare in the Middle Preclassic Maya lowlands—they have only been encountered in early deposits in E-Groups at Ceibal, Cival, and Aguada Fénix. At Ceibal, they were laid out in cruciform or flower petal arrangements or in rows. The latter two configurations ~~matched~~ earlier deposits at El Manatí in the Olmec area (Inomata 2017a, pp. 223–225). The celt cache at Cival was in a cruciform arrangement in associations with four ceramic vessels (Estrada-Belli 2017, p. 297). A cruciform-shaped cache was also encountered at Holtun, but it had been looted and contained no artifacts (Callaghan et al. 2017, p. 94). Six axes and other greenstone objects were cached along the centerline of an E-Group at Aguada Fénix, a Middle Usumacinta center (Inomata et al. 2020, fig. 10). A cruciform cache at the Olmec site of La Venta included ~~thirty-seven~~³⁷ celts (Reilly 1994, p. 129).

The lack of greenstone celts in caches at some sites was likely chronological (Aoyama et al. 2017a). Several such celts were found at Nixtun-Ch'ich' among objects that had been ritually terminated in the latter part of the Middle Preclassic period. Of course, celts and beads were not the only cached greenstones. Greenstone triangulates were cached during the Middle Preclassic period in Belize. These objects were originally river cobbles and may have played a role in shamanic ritual practices—in addition to their being cached (Powis et al. 2016).

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After 700 BC, caches at Ceibal containing human remains, ceramics, and obsidian replaced those with greenstone celts. Blade cores were found in a cruciform pattern along the central axis of the E-Group (Aoyama et al. 2017b, p. 410). Human infant remains were also found in caches along the central axis at Ceibal and appear to have been sacrificial victims. One included four infants placed to the cardinal directions with a ~~two-to-four~~2-4-year-old child to the west. Five obsidian cores were found in the cache, one with each infant and the fifth in the center. The infants and the central area also each included a jade artifact (Aoyama et al. 2017b, pp. 412–413). Two other child offerings at Ceibal each included a pair of children between ~~the~~ ages of two and four2 and 4 years old. Each pair was associated with obsidian cores, marine shell, and other objects. The cores of one pair were placed to the intercardinal directions (Aoyama et al. 2017b, pp. 412–418). Despite the abundance of obsidian caches at Ceibal, they are rare at other sites. K'axob, for example, lacks such offerings, perhaps because the material was too rare and too useful for productive activities to be sacrificed. They tended to use resources available locally, such as “high quality” Colha chert and marine shell to produce sacred objects (McAnany 2004, pp. 314–315).

Middle Preclassic caches at many sites were primarily ceramic. Such was certainly the case at Nixtun-Ch'ich', where a number of vessel offerings were found along the shoreline of Lake Petén Itzá at a site entrance. On the other hand, a portion of a human skull with a ceramic plate and a marine shell were found as pre-Mamom dedicatory offerings (Rice et al. 2019, p. 556; Rice and Pugh 2017, p. 6). Ceramic vessels and figurines also appear to have been the primary cache items at Topoxte, as well as some shells of the jute snail (*Pachychilus* sp.) (Hermes 1999, pp. 6–14). Concentrations of apple snail shell are also frequently encountered in Preclassic period deposits, though these may be the result of feasting. Some were placed in

burials as offerings, but others were accidentally included in burials, which were capped by middens—perhaps the result of feasting (Sharpe 2020, p. 27). Dog remains were also found in Middle Preclassic ~~period~~ caches (White et al. 2001, p. 96), ~~as was a~~ deer antler ~~was recently found in a Middle Preclassic cache~~ along with a ceramic vessel and marine shell pendants in an *aguada* at Nixtun-Ch'ich' (Pugh et al. n.d.).

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Burials in the Middle Preclassic Period

Human remains ritually interred into constructions undoubtedly changed the significance of these spaces. Lowland Maya burial practices varied during the Middle Preclassic period. At Ceibal, sub-floor residential burials were rare, but they formed the majority at Cuello and K'axob (Hammond 1999, pp. 51–52; Palomo et al. 2017, p. 316; Storey 2004, p. 110). The earliest burial at Cival (ca. 820 BC) rested in a *chultun*, a subterranean chamber cut into bedrock or soil (Estrada-Belli 2017, p. 297). Chultuns have been interpreted as storage pits, but they often contain deposits of ritual objects (Pugh 2005, p. 60), Middle Preclassic trash (Coe 1965, p. 1406), and early high-status burials (e.g., Chase and Chase 2017b, p. 199). Early burials at Ceibal were interred in chultun-like features cut into bedrock (MacLellan 2019b, p. 417).

Burials at Cuello were found in sufficient numbers to allow their useful separation into early and late Middle Preclassic period. Both flexed and extended burials were found in the earlier period. Extended burials seem to have been preferred in Mamom phase Preclassic Cuello and K'axob, but those at Uaxactun included flexed and extended burials. Flexed burials became prevalent at many sites in the Late Preclassic period (Robin and Hammond 1991, pp. 208–209; Ruz Lhuillier 1965, p. 443). Children were placed in urns at some Middle Preclassic sites (Andrews and Andrews 1980, p. 315; Palomo et al. 2017, p. 310).

Middle Preclassic burials at many sites lacked grave goods (Andrews and Andrews 1980, p. 315). Both early and late Middle Preclassic ~~period~~ burials at Cuello included grave good differentiation, suggesting inherited status. Ceramic vessels were sometimes placed above or near the skull (Robin and Hammond 1991, pp. 210, 224–225; Storey 2004). Burial 1 at Chan, Belize, was reopened twice, once in the Middle Preclassic and then in the Late Preclassic period. Grave goods were placed in the burial with each reopening. The individual may have been a venerated ancestor (Robin et al. 2012a, pp. 127–128). Some burials are very elaborate and decidedly “elite.” One early burial at Cuello included three roller stamps, four ceramics vessels, and hundreds of shell beads. Another at the site contained ceramic vessels, jade beads, bone tubes with possible “mat” motifs, and a pendant resembling an *ajaw* “lord” glyph. The latter characteristics were associated with kingship in the Classic period (Hammond et al. 1992, pp. 961–964). No royal tombs are known ~~at~~ ~~of~~ Middle Preclassic Tikal, which at the time was a small center, but an adolescent wearing a necklace of jade and spondylus shell beads suggests ascribed status (Moholy-Nagy 2003, p. 87). Evidence of inequality may be underrepresented as elites may be buried elsewhere (Palomo et al. 2017, p. 318). Some high-~~status~~ persons were buried in cave ossuaries (Brady 1997, p. 28), though some caves do not appear to have been limited to higher-~~status~~ individuals (Glassman and Bonor Villarejo 2005, p. 288; Saul et al. 2005, pp. 316–318).

At Ceibal, status differences are reflected by jade, ceramics, obsidian cores, and blades in burials. Obsidian appears to have been a prestige good during the Middle Preclassic period, and its use in ritual contexts resembles that of jade (Aoyama et al. 2017b; Palomo et al. 2017, p. 318). Marine shell, another non-local item, was also highly valued and reflected status (Hohmann et al. 2018, pp. 140–144). Spouted vessels, some with cacao residue, were found in

many Middle Preclassic burials in the southern lowlands (Powis et al. 2002). It is not known if non-elites consumed the beverage in the Maya region, but cacao use was widespread at San Lorenzo in the Olmec region as early as 1800 BC. Vessels containing cacao residue were also found in an elite Olmec burial—possibly that of a sacrificial victim (Powis et al. 2011, p. 8597). Some low circular platforms dating to the late Middle Preclassic period have associated elite burials, which suggests ing ancestor veneration and early leadership (Aimers et al. 2000). Others included burials, but without elite appurtenances (MacLellan 2019b, p. 419).

Platforms and Plazas

Middle Preclassic platform fills vary by location, but those of Petén typically comprised soil and crushed rock. Sticky dark gray to black clay was also commonly used for construction (Coe 1990, p. 814; Hansen et al. 2018, p. 187; Triadan et al. 2017, p. 256). In some cases, the clay was deposited directly upon bedrock, while in others, it appeared as floor-like lenses. At Aguada Fénix, lenses of colored clays and other soils were laid out in horizontal “checkerboard” patterns (Inomata et al. 2020, p. 2). Dark clay was also used as a sort of mortar to keep stones in place (Rice et al. 2018). The Olmec likewise used densely packed clay in their constructions (González Lauck 1997). In some cases, dark clay layers capped terminated Maya buildings (Powis et al. 2020, p. 279) and may have signified the death of the buildings rather than their dedication, though it could arguably signify both.

Rosemary Joyce (2004, pp. 18–19) argues that initial large platforms constructed of clay and earth in Honduras were built using strategies developed in household constructions. She contends that subsequent stone and plaster constructions represented a sort of paradigm shift

toward permanence (Joyce 2004, pp. 19–24). On the other hand, the black sticky clay of Nixtun-Ch'ich' was quite durable—perhaps nearly equal to lime plaster and soft limestone facades.

Ceibal experienced massive platform construction during the Preclassic period with greater per capita construction in the Middle Preclassic period, but greater overall construction in the Late Preclassic period (Inomata 2014, pp. 22–26). Tayasal followed a very similar pattern with a large Preclassic platform built ~~upon~~ high ground. Its initial Middle Preclassic floors were built directly ~~upon~~ bedrock. Later masses of Middle Preclassic fill raised a 310-by-210-meter area by 1.5 meters. During the Late Preclassic period, the platform grew ~~to 5.25 meters~~ in height (Carlo et al. 2011). Nearby sites such as Tikal and Uaxactun did not experience significant Preclassic period plaza constructions (Inomata 2014, p. 31). The platforms at Nixtun-Ch'ich' received their greatest increase in mass during the Middle Preclassic period with only thin increases during later periods. However, many buildings built in the site core, particularly the Triadic Group and at least one E-Group, were massively enhanced during the Late Preclassic period (Pugh 2019). Cival also experienced the majority of its construction—including that of a massive platform—during the Middle Preclassic period (Estrada-Belli 2011, p. 75).

During the Middle Preclassic period, plazas covered the majority of platform space. Almost all ceremonial buildings have associated plazas, and domestic groups generally have smaller *plazuelas*. Plazas are public spaces; thus, they were built as places for general social interaction as well as markets and rituals (Kostof 1992, pp. 123–124). In many areas, plazas were where both sedentary and mobile populations with varied “expectations and agendas” interacted (Inomata 2014, p. 26). Thus, to some extent, plazas were the foundations of the intensification of interaction that would produce a “social reactor” that enhanced social complexity in the Maya lowlands (following Bettencourt et al. 2007, p. 7305). What’s more, plazas likely represented the

first large-scale cooperative construction effort—plazas involved more construction fill than ceremonial buildings. These collective activities likely served as social binding that consolidated the social unity required by social complexity. In particular, they may have drawn in mobile populations involved in the constructions and subsequent interactions on the plazas. Plazas enriched the social reactor, facilitated interaction between diverse groups, and encouraged solidarity, thereby setting the stage for enhanced social complexity.

Maya plazas were lined with ceremonial buildings, and many Middle Preclassic plazas had an E-Group in the center. Plazas united the buildings that surrounded them. The fact that they were large open spaces surrounded by impressive buildings and provided ample social opportunities also makes them nodal, dominant, and highly imageable—the quality of leaving a lasting impression upon one’s mental map of a landscape (Lynch 1960).

Plazas and other public spaces differ significantly from private spaces; thus one wonders about their origins. Some argue that public spaces emerged as extensions of residential spaces (Joyce 2004, pp. 18–19). However, Middle Preclassic rituals in public areas do not initially resemble those of domestic areas, and it was the former that were later appropriated by the latter (Inomata et al. 2015a). Indeed, both mobile and sedentary populations utilized the ceremonial space of Ceibal, so it is clear that mobile populations conducted some rituals in fixed locations (Inomata et al. 2015b). We cannot assume that construction techniques were initially invented in domestic areas or public areas. Still, domestic patterns must have had some impact upon those of public space.

Causeways

Streets must be invented as an architectural and social form. They are generally constructed as public spaces, but private streets are known to have existed in Europe for at least several hundred years. Even when public, behavior in streets can be regulated (Kostof 1992, pp. 189–206). Like plazas, streets generally facilitate traffic and ~~boost~~ social interaction and information exchange. Streets differ, as they are generally narrower than plazas. With the same amount of construction material, streets connect places that are more distant, ~~and, they~~ dramatically enhance the length of edges and, consequently, the amount of space they connect. For example, a plaza measuring 500 by 200 ~~meters~~ has an area of 100,000 m²~~eters~~ and a perimeter of 1400 ~~meters~~. A road 10,000 ~~meters~~ long and 10 ~~meters~~ wide likewise has an area of 100,000 m²~~eters~~, but a perimeter of 20,020 ~~meters~~. Roads are more efficient connectors, but plazas allow larger crowds to view and hear a particular event.

The earliest known roads (*sakbeob*, “raised causeways”; singular is *sakbe*) in the Maya area are found in the Middle Usumacinta ~~r~~Region (Inomata et al. 2020). They spread across the Maya region during the Middle Preclassic period, though they were not ubiquitous. Most Maya causeways are raised, and many have a border wall, but some such as those of Nixtun-Ch’ich’ are lower than adjacent areas. Middle Preclassic ~~s~~*sakbeob* have been securely dated at Yaxuná (Stanton 2005), the Mirador Basin (Hansen 2016), Aguada Fénix (Inomata et al. 2020) (Fig. 4), Nixtun-Ch’ich’ (Pugh and Rice 2017), and Xtobo (Fig. 5) (Anderson 2011; Anderson et al. 2012). They likely existed in other Middle Preclassic period settlements, but were covered or destroyed by later constructions. One might question whether the causeways of the ancient Maya were public spaces. In the case of Nixtun-Ch’ich’ it is impossible to leave most platforms without traveling across a road. They also doubled as drains to move water out of the city. Thus, they were certainly public spaces (Pugh et al. n.d.).

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Ceremonial Architecture

Monumental architecture is an indicator for complexity in the Maya lowlands (Estrada-Belli 2011, pp. 109–110; Hansen et al. 2018, pp. 161–185; Inomata et al. 2013; Robles Castellanos and Caballos Gallareta 2018). These structures and associated elements of the natural environment helped unify populations that assembled to conduct rituals in them. They also embodied “costly signaling” that communicated the status of the community as a collective (Rice 2020). Impressive architecture helped draw population into cities as they signal grandeur and, perhaps, opportunity. These constructions are a direct measure of cooperation to achieve a common goal. Standardized assemblages also demonstrate the sharing of knowledge and the spread of ideology. More specifically, they indicate extreme effort in establishing a connection between humans and deities and to establish a divine foundation for human settlements. Yet, Poverty Point, Göbekli Tepe, and Stonehenge are all cautionary tales to directly equating the scale of monumentality with that of complexity. The abovementioned massive platforms are examples of monumental architecture, but more particular construction templates as well as natural features were also involved in Middle Preclassic ~~period~~ ceremonialism.

Round Buildings and Sweat Baths

Not all ceremonial architecture was monumental in scale. Low circular platforms dating to the Middle Preclassic are not particularly common but are found in a number of locations throughout the Maya lowlands (Aimers et al. 2000, table 1; Szymański 2010, pp. 40–48). Some appear to have been performance platforms and possibly ancestral shrines. These platforms, which were open and therefore made performances visible to all, were later replaced by higher temples with restricted access (Hendon 1999, p. 117).

Some round buildings were sweat baths. Sweat baths₂ or *pib na*₂ were small, but critical, ritual spaces associated with childbirth, fertility, purification, healing, and the Underworld (Hammond and Bauer 2001; Moyes 2005, p. 188). Two Middle Preclassic ~~period~~ examples were circular, less than 3 ~~meters~~ in diameter, included a fire pit either inside or outside the building, and were built ~~upon~~ bedrock (Andrews and Andrews 1980, p. 287; Hammond and Bauer 2001, p. 683). At Dzibilchaltun, the fire pit was lined with ceramics possibly to conserve heat. A water storage tank may have stood adjacent to the entrance (Andrews and Andrews 1980, pp. 31–33). An earlier sweat bath ~~dat~~ing~~ed~~ to 900 BC at Cuello stood on the eastern side of a plaza, which is often considered to be more sacred (Hammond and Bauer 2001, p. 683). However, that of Dzibilchaltun was found on the western edge of a plaza (Andrews and Andrews 1980, p. 287).

A rectangular Middle Preclassic sweat bath was carved into bedrock at Nakum. This bath measured 10.3 by 5.2 ~~meters~~; thus, it was larger than the circular baths and would have held more people (Koszkul and Żrałka 2017). A sweat bath in Chechem Ha Cave, Belize, securely dates to the Late Preclassic period, though it could possibly date to the Middle Preclassic period (Moyes 2005, p. 203). Location in a cave also supports the premise that sweat baths were sacred spaces associated with the Earth/Underworld.

E-Groups

E-Groups were the first ceremonial assemblages with widespread distribution in the Maya area and beyond, ~~which-and~~ suggests a shared belief system (Chase and Chase 2017a, p. 32). They are found in various parts of Mesoamerica including the Maya region, the Pacific Coast, Chiapas, Veracruz, and possibly Teotihuacan (Aimers and Rice 2006; Chase and Chase 2017a; Clark 2016; Inomata et al. 2020; Rosenswig 2019; Stanton 2017, p. 455). Some Middle Preclassic

Maya centers, such as Xtobo (Anderson 2011) and El Achiotal (Acuña 2018, p. 301) had no E-Groups, though they did have temples. In some cases, E-Groups replaced earlier types of ceremonial buildings (e.g., Powis et al. 2020, pp. 282–283). Thus, they may represent regional communication and rough conformity in ritual practices (Chase 1983, pp. 1250–1251) correlating with that of the Mamom ceramic complex.

E-Groups typically include a long platform on the eastern side of the plaza. This platform often has two buildings on each end and one in the center, all of which face ~~to the~~ west (Hansen 1998, p. 66). Opposite, but centered ~~upon~~, the long platform on the western side of the plaza stands a temple. The western temple is often radial—stairways are found on all four sides—and flat topped with no extant superstructure.

While this describes the quintessential E-Group, significant variation exists within the “E-Group” category. The most basic element of the groups is the long structure—a few E-Groups do not include a western structure (Aimers and Rice 2006, p. 86; Chase et al. 2017, p. 15). The form of the long platform can vary as well. Some have three masonry superstructures and others have none. Certain E-Groups only have a masonry structure in the center of the long structure. Uaxactun-style E-Groups include the three buildings in a row, while Cenote-style E-Groups offset the central building to the east (Chase and Chase 2017a, pp. 32–34). While a few groups lack a central structure on the long building (Chase et al. 2017, p. 15), this building is clearly the dominant structure in most groups because of its size, height, and axial position. When present, the western building can be radial or plain, and some are decorated with masks of gods, very often the Maize God and the Principal Bird Deity (Freidel 2018, p. 372; Ricketson 1933, p. 80; Saturno et al. 2017, p. 337).

E-Groups with eastern structures longer than 100 ~~meters~~ are not common, but that of Aguada Fénix is 401 ~~meters~~ long (Inomata et al. 2020). Outside ~~of~~ the Middle Usumacinta region, most groups with eastern structures longer than 100 ~~meters stand are~~ in the Mopan region. The two E-Groups with the longest eastern structures—one at Yaxha and the other at Ucanal—are located within 25 ~~kilometers~~ of one another (Chase and Chase 2017a, table 2.1). Neighboring Caracol also has several large E-Groups. Size appears to have been a desired trait of groups in this area. Yet, much of this construction likely occurred in the Late Preclassic period. One of the three E-Groups at Nixtun-Ch'ich' had an eastern structure 136 ~~meters~~ long.

E-Groups evoke a number of design elements including orthogonality, symmetry, and dominance. The axis between the western and eastern structure is perpendicular to the eastern structure and is, therefore, orthogonal. Since the axis passes through the center of the two buildings, the group possesses bilateral symmetry. The building in the center of the long structure is larger and defines the location of the western structure as well as the axis; therefore, it is dominant. Furthermore, all E-Groups are oriented roughly in the same direction.

Ceibal has t~~The earliest known dates for an E-Group occurs at Ceibal,~~ but they likely originated in the Isthmian region (Inomata 2017b, p. 215). Newly discovered Middle Usumacinta sites have E-Groups ~~that, which~~ predate 800 BC (Inomata et al. 2020). Some E-Groups were used well beyond the Preclassic period (Aimers and Rice 2006, p. 80).

Early E-Groups at Ceibal and Cival were sculpted from in situ bedrock (Estrada-Belli 2017, pp. 296–319; Inomata et al. 2013, p. 467). An E-Group was similarly sculpted into bedrock at Cenote (Chase and Chase 2017a, p. 47). The early E-Group at Ceibal seems to have been constructed as soon as permanent settlements ~~were settled~~formed (Inomata 2017a, p. 329). Its bedrock construction was blanketed with dark clay (Inomata et al. 2013, p. 467). In Structure

AA1, the eastern building of an E-Group at Nixtun-Ch'ich', large amounts of the dark clay were deposited as fill (Rice et al. 2018). The bedrock beneath this building was flat and higher than adjacent areas, but excavations were insufficient to determine if an early version was carved into bedrock.

E-Groups are generally known as astronomical observatories that measured the solstices and equinoxes, but few groups would have accurately fulfilled this function (Aimers and Rice 2006; Aveni and Hartung 1988, pp. 447–458). The radial buildings may represent the center and four corners of the universe as well as the “shape of time” and calendrical completions—the beginning and end of time (Aimers and Rice 2006, p. 87; Coggins 1980; Doyle 2017, p. 97; Estrada-Belli 2011, pp. 82–83). They likely served as ritual “stages” for calendrical and political rites (Aimers and Rice 2006, p. 93). Other calendrical aspects of E-Groups include maize/the Maize God and rain/water, both of which are structured by the yearly cycle (Brown 2017, pp. 406–407). The growth of maize replicates the resurrection of the Maize God during creation, which may explain the occasional association of E-Groups and ballcourts (Reese-Taylor 2017, pp. 504–505). The calendrical functions of E-Groups changed through time. Initially, they seem related to the solar equinoxes, solstices, and zeniths, and the agrarian year, which is a fixed 260-day period extending from February to October. This period is broken into 13 cycles of 20 days, similar to the Tzolkin, which it likely inspired. Later, both E-Groups and kingship were associated with ~~k~~*Katun* cycles and the Long Count (Milbrath 2017).

Large E-Group plazas could hold enormous crowds; ~~they and~~ likely housed markets and were the locus of a variety of other social activities. They placed these social activities within the context of the agricultural cycle and were certainly more collective in their use (Doyle 2017, pp. 66–69; Reese-Taylor 2017, p. 499). Any cultural institution that calculates, manages, or

communicates any sort of time schedule—whether agricultural, construction-based, political, or religious—is administrative (Stern 2012, pp. 2–4). A despot might be involved in such administration, but they are not necessarily so. What is necessary is consensus, as calendars “only function in response to a communal agreement” (Drucker-Brown 1999/2000). Even when done through consensus for the greater good, scheduling is a form of power (Foucault 1995, pp. 149–156), and “standardized calendars” make society more legible and easier to rule (Yoffee 2005, pp. 92–112). E-Groups most likely had administrative functions.

Burials are often found in E-Groups, lending an ancestor theme to the groups. Nevertheless, most of the burials date to the Late Preclassic and Classic period, and a few include some very impressive tombs (Brown 2017; Żrałka et al. 2017). Yet, tombs are rare—even in Triadic Groups—and it is quite possible that this practice, which occurs earlier in areas outside the Maya region, resulted from external influence. Of particular note here is their presence in the Olmec area during the Middle Preclassic period (Hansen 1998, pp. 88–89). Later burials, caches, and monuments placed in E-Groups may have represented a shift from a more corporate to a more despotic system. Emerging elites constructed political power upon existing monuments of time, community, and the Maize God to bind themselves with these phenomena (Doyle 2017, pp. 140–146). A similar process occurred in Rome when civic centers were appropriated by emperors and their focus was shifted from collective memories to “dynastic propaganda” (Kostof 1992, p. 153). Nevertheless, E-Groups at some sites have possible founder burials beneath them—some of which seem to have been reentered in antiquity and objects or bones removed or placed (Brown 2017, pp. 399–400). While not “tombs” in the sensational sense, Middle Preclassic ~~period~~ E-Groups in some areas incorporated ancestors, perhaps through the merging of local practices with the assemblages.

E-Groups melded group identity, politics, and hierarchy (Doyle 2017, pp. 70, 141). Many symbols in early complex society provide integration, but bolster emerging differentiation (Yoffee 2005, p. 33). E-Groups represented the communities they centered and were a common element shared by many Middle Preclassic Maya communities (Doyle 2017, pp. 66–69). Group monuments are foci of the “aggregate extended self” and promote place attachment—the bond between people and places (adapting Belk 1992, pp. 42–43). Since such bonds become stronger the longer a person lives in a place, sedentism must have dramatically enhanced such feelings. It is understandable that E-Groups were built at nodes along trade routes between the northern and southern lowlands and that markets occurred in E-Group plazas (Doyle 2017, pp. 66–69; Stanton 2017, p. 469). Strong place attachment severely decreases mobility (McHugh 1984). Hence, creating familiar places across space would have allowed for greater mobility.

Even if an assemblage did not rest in a particular small community, an E-Group likely stood nearby in a higher-order community. Their symbolism represented the center of time and space, and their placement on platforms along the central axis reiterated their centrality. These buildings may have been administrative structures in addition to the religious uses. Thus, they could have played a role in state emergence.

Triadic Groups

Triadic Groups developed at the turn of the Late Preclassic period or slightly before (Rice 1976; Szymański 2014). In any case, they were very rare in the Middle Preclassic period. Their escalation between 300 and 150 BC signaled the fading, but not disappearance, of E-Groups as well as the appearance of a cult of rulership, written texts, and the Long Count calendar

(Milbrath 2017, pp. 91–93). Triadic Groups are also decorated with masks, and some tell the story of primordial division and the rebirth of the Maize God (Estrada-Belli 2006, pp. 64–75).

Triadic Groups include three buildings on three edges of a high platform—a central larger building and two flanking buildings. The design of these groups incorporates orthogonality, dominance, and symmetry. The first is created by the three buildings on the edges of a roughly rectangular plaza. The largest of the three buildings clearly dominates the group and the flanking structures create bilateral symmetry. This symmetry can be further accentuated by buildings that stand in front of and flank the Triadic Groups—so-called fractal-type Triadic Groups (Szymański 2014, p. 122). Such arrangements also assert the dominance of the Triadic Group at large and emphasize the axis. Of course, the high platform of Triadic Groups also proclaims their dominance.

Both E-Groups and Triadic Groups include a platform surmounted by three buildings with the central building tending to be larger. Triadic Groups may have developed from E-Groups or were at least vaguely influenced by the earlier constructions (Hansen 1998, p. 78). Some argue that Triadic Groups replaced E-Groups. At San Bartolo, a Triadic Group encased an earlier E-Group (Saturno et al. 2018, pp. 326–327). On the other hand, E-Groups stand adjacent to Triadic Groups at many sites (Reese-Taylor 2017, p. 494). The Triadic Group was constructed immediately to the east of an E-Group at Cival (Estrada-Belli 2011, pp. 68–70) and Nixtun-Ch'ich' (Rice and Pugh 2017, p. 2).

Triadic Groups represent a shift from a focus on open horizontal space to the use of height to raise ritual performances out of view of the masses (Estrada-Belli 2006, p. 64). Thus, they reflect a more exclusive social system. As with E-Groups, Triadic Groups would have facilitated familiarity, allowing some place attachment transference and greater mobility.

However, the plaza space in Triadic Groups is much smaller than that of E-Groups, and if exchange did occur there, it would most likely have been restricted to elites.

Ballcourts

Ballcourts typically include two parallel buildings separated by a playing alley. They sometimes have end structures forming an I-shaped court. These buildings framed a ballgame with religious significance—in many creation stories, the Hero Twins defeated the lords of death in a ballgame. The stories also involve the sacrifice and then the rebirth of the Maize God from a cleft in a mountain. Ballcourts were apparently designed to represent this primordial cleft, which was also an entrance to the Underworld (Freidel et al. 1993, pp. 337–391). Thus, ballcourts evoke contest, creation, cyclical time, maize, and the Underworld.

Ballcourts originated outside the lowland Maya region (Blomster and Salazar Chávez 2020; Hill et al. 1998). The earliest known rubber balls (ca. 1700–1600 BC) were found associated with greenstone celts in caches in a spring in the Olmec region (Ortiz Ceballos and del Carmen Rodríguez 1999, pp. 228–231). Ballcourts were more widespread in Mesoamerica than E-Groups, but unlike the latter, they survived until the arrival of the Spaniards. Ballcourts are well-known components of Maya settlements, but most Middle Preclassic communities did not have a recognizable ballcourt. However, they were common in northwest Yucatán, where they stood at minimally 23 sites, forming a regional tradition during the Middle Preclassic period. All were oriented roughly north to south (Anderson 2005; Anderson et al. 2018). Apparently, only two Middle Preclassic-period ballcourts have been previously investigated in the southern Maya lowlands (Anderson et al. 2018, p. 212). However, recent work at Nixtun-Ch'ich' has revealed a

ballcourt with Middle Preclassic origins. This court as well as that of Nakbe (Hansen 2001, p. 55) are oriented north to south.

Ballcourts were occasionally associated with E-Groups. In some, the ballcourt was attached and, in others, a ballcourt is located within 100 ~~meters~~ of the E-Group (Aimers and Rice 2006, pp. 89–90). In still others, the ballcourt rests between the eastern and western structures in the E-Group. The correlation is not particularly strong, and some sites with E-Groups have no ballcourts (Saturno et al. 2018). Yet, even weak correlations suggest trends, and it would be worthwhile to investigate the antiquity of ballcourts associated with E-Groups.

Natural Features

Middle Preclassic Maya settlements incorporated the natural environment into their landscapes, ~~of which h-~~ Hills were critical parts ~~of this landscape~~. Many sites were built ~~upon~~ leveled-off expanded high points (Estrada-Belli 2017, pp. 297–298; Inomata et al. 2019). Causeways from E-Groups at Ixkun and Ixtutz in the Mopan region lead to steep hills (Robertson 1972, fig. ~~ure~~ 1). Several stelae stood at the bottom of one of the hills at Ixkun, though they were placed there in the Classic period. This hill had a cave with evidence of use in the Late Preclassic period (Laporte et al. 1994, pp. 34–41). In the polity of Cival, E-Groups relate to hills through their axes rather than causeways. The ~~thirteen-13~~ E-Groups of the Cival polity purportedly face toward nine “sacred hills” (Estrada-Belli 2017, pp. 315–318). The E-Group of Xunantunich likewise faces distant hilltop shrines (Brown and Yaeger 2020, p. 297). Temple pyramids likely represented hills and mountains—just as rulers dressed as gods evoked the powerful beings (Ringle 1999, pp. 202–203). A Late Preclassic ~~period-mural at~~ San Bartolo ~~mural~~ depicts a woman kneeling within a cave in a mountain with a vessel full of tamales. The mountain is likely Flower Mountain,

which was the “celestial paradise of the sun” as well as a connection between the Earth, Sky, and Underworld (Saturno et al. 2005, pp. 14–21; Taube 2004a, p. 93). Mountains were also the homes of powerful ancestors, the Earth Lord, and animal spirit companions of humans (Vogt and Stuart 2005).

Caves were also used during the Middle Preclassic period (Brady 1997; Ringle 1999, p. 202; Rissolo 2005, p. 350). The earliest evidence of Maya cave ritual dates between 1320 and 930 BC (Moyes 2006, pp. 431–432). The Duende pyramid at Dos Pilas was built ~~upon~~ an artificially flattened hill under which lay at least two large caves. Middle Preclassic period use in one cave likely occurred before the temple was constructed (Brady and Colas 2005, p. 153). In some areas, caves were used as Middle Preclassic ~~period~~ ossuaries (Brady 1997). Loltun Cave in Yucatan, which includes Middle Preclassic deposits, has a Late Preclassic ~~period~~ sculpture of a Maya ruler dressed as the Rain God at its entrance, suggesting it was an important pilgrimage site (Brady 2012, p. 305; Ringle 1999, p. 202).

Based ~~upon~~ what we know of later Maya beliefs, mountains and caves likely played key roles in the religious beliefs of the Preclassic Maya, which connected these features with rain. Caves were believed to contain “ritually pure” water that became rain by entering the sky through mountains (Brady and Ashmore 1999, pp. 127, 133). These beliefs are understandable given that clouds often gather around mountain peaks; streams often form in mountains; and water can even flow from caves. These beliefs extend far outside the Maya region to Chalcatzingo in ~~c~~Central Mexico. There Monument 1, which dates to 700–500 BC, depicts a person sitting in a cave mouth (Grove 1999, p. 260) in a manner ~~quite~~ reminiscent of the mural of a cave at San Bartolo. This mural may represent the gods taking “water and sustenance out of Flower Mountain” (Saturno et al. 2005, p. 31).

Water and water control also played a critical role in the planning of Maya cities as well as the emergence of states (Prüfer and Kindon 2005, p. 27; Scarborough 2003). As is clear from their beliefs about mountains, caves, and water, the Middle Preclassic Maya were deeply concerned with the relation of water to the earth as well as the motion of water. This concern and associated ritual practices may relate to the cycling of groundwater into rain.

Pools of water—some artificial—were the foci of ritual activity at San Lorenzo in the Olmec region (Cyphers 1999, pp. 159–165). Exotic offerings found in a spring at the base of a hill at the Olmec ~~region~~ site of El Manatí, indicated that such practices and beliefs were widespread and began very early. Besides water flowing from mountains, springs and yearly shifts in the water table fascinated the ancient Maya. The Brisa Complex at Yaxnohcah included a reservoir to the south of the E-Group, and smaller reservoirs were located throughout the site (Brewer et al. 2017; Reese-Taylor 2017, p. 485). A feature that appeared ~~ed~~ to have been a reservoir stands to the east of the E-Group at Paxcaman in Petén, Guatemala. At least four reservoirs were incorporated into the architecture of Nixtun-Ch'ich'. Two (Fosa V and Fosa Y) stand along the central axis of the site. Fosa V still fills with water during the rainy season. Fosa Y, the dry reservoir on the axis, was modified with stone terraces resembling seating. These steps were ultimately covered with massive amounts of late Middle Preclassic ceramics deposited as part of a termination rite (Rice and Pugh 2017). Fosa I, which seasonally filled with water until about 10 years ago, stands to the west of the large ballcourt at the site and was filled with large amounts of ceramic sherds and faunal remains. Large stones encircled a second dry reservoir, Fosa Q, and its interior was paved with smaller stones (Pugh et al. n.d.). The seasonal natural filling of the pools at Nixtun-Ch'ich' provided a yearly hydraulic calendar derived from the

watery Underworld rather than the sun. Reservoirs likely dating to before 800 BC are found at Middle Usumacinta sites (Inomata et al. 2020).

The ancient Maya took advantage of downhill water flow to create waterworks similar to the Olmec aqueducts, though the latter used subsurface basalt troughs with covers (Coe and Diehl 1980, pp. 118–124). Nixtun-Ch'ich' sat on a low rise sloped west to east and from the central axis to the north and south. Water from its platforms drained into the gridded corridors and then into Lake Petén Itzá. Modern Flores, Guatemala, also drains groundwater through its streets to the lake, and they remain passable during storms. However, the water flow can become quite intense near the shoreline. Planners at Nixtun-Ch'ich' accommodated the intensified flow through the separating of some corridors into sidewalks with stairways and canals (Fig. 6) near the shoreline (Pugh et al. n.d.).

New data indicate that the Maya of Tikal constructed water filtration systems in the Late Preclassic period (Tankersley et al. 2020). Thus far, such systems have not been identified at Middle Preclassic period sites.

Intra-Site Connections

Buildings do not generally stand completely alone, but are integrated through various means. Those around a common plaza are both distinguished and connected through their placement. Dominant elements, such as temples, plazas, or natural features (waterholes) can provide the nucleus around which other constructions gravitate. We have seen that nucleation was present in the earliest sedentary Lowland Maya communities. In some societies, such spatial aggregation might also be organized with higher-status households closer to the center (Marcus and Sabloff 2008, pp. 327–328). In cities with multiple nuclei, each may form a neighborhood or district

(Smith and Novic 2012, p. 16). Centralizing architectural elements can also have interrelationships. A number of such interrelationships existed in cities across the Middle Preclassic Maya lowlands, but connections were often made by aligning the central places to form axes and/or connecting them with causeways.

The Axis Urbis

An *axis urbis* is a line formed or implied by architecture or natural features that served as a foundation point for other constructions and life in the settlement. The Avenue of the Dead at Teotihuacan in Central Mexico is a good example. Axes seem a natural extension of the symmetry of E-Groups and Triadic Groups, but they are not always possible when uneven terrain hinders movement or visibility. In addition, gradual urban development is unlikely to lead to axes unless some sort of coordinating vision shapes the location of central places, whether through domination or consensus.

In the Maya lowlands, such axes sometimes run east to west contrasting with north-south axes observed in Middle Preclassic Chiapas, Tabasco, and Veracruz (Estrada-Belli 2011, p. 67; Hansen 2016, p. 347; Inomata et al. 2020). In many Lowland Maya sites, rows of buildings form the axes, though others are organized by causeways (Anderson et al. 2018, p. 200; Hansen 2016, p. 347). Cival's axis was formed by a nearly 500-meters-long east-west row of at least nine buildings (Estrada-Belli 2011, fig. 4-1). At Nixtun-Ch'ich', the axis urbis was formed by a 3050-meters-long row of 21 buildings and two reservoirs (Pugh et al. 2020, p. 251). The 390-meters-long east-west central axis of Yaxha incorporates six large ceremonial buildings including two E-Groups. A third E-Group lies off the axis in the southern portion of the site. In the latter part of the Middle Preclassic period, the east-west axis also becomes dominant in the Belize River Valley

(Brown et al. 2018, p. 90). At Xunantunich, the east-west axis formed by the E-Group extended beyond the site with shrines established on aligned hilltops (Brown and Yaeger 2020, p. 297). Assuming that its causeway dates to the Middle Preclassic period, Xaman Susula in ~~n~~Northern Yucatan provides a clear east-west axis dictated by this feature (Anderson et al. 2018, p. 201).

In some centers, an east-west axis is implied through the E-Group. However, in many cases, this axis was not as overbearing as it was at Cival and Nixtun-Ch'ich' and the north-south axis was dominant. Aguada Fénix includes a massive north-south plateau with an E-Group in its center. Two causeways lead from the platform to the north and two others to the south (Inomata et al. 2020). While the primary axis extends north to south, the E-Group and other buildings form an east-west axis, accentuated through bilateral symmetry. Similar symmetry is observed at Nixtun-Ch'ich', where the east-west axis was dominant.

The axes of some centers with E-Groups can be diverted to a north and south emphasis through the use of causeways, just as the east-west axes of El Mirador and Nakbe were directed through the addition of causeways (see Hansen 2016, p. 347). For example, Ixkun, Ixtonon, Komchen, Yaxha, Yaxnohcah, and Yaxuná had north-south causeways that strongly affected the architectural plan (Andrews et al. 2018, p. 57; Gómez 1996; Reese-Taylor 2017, p. 481; Stanton 2005).

Holtun and El Achiotal were built ~~up~~on north-south ridges, which acted as natural axes (Acuña 2018, p. 301; Fialko 2011, p. 485). Nixtun-Ch'ich' had a long north-south corridor, Avenue F, that bisected the site and stood adjacent to some of the site's largest buildings. This avenue was nearly perfectly perpendicular with the axis urbis (Pugh 2019). While the east-west axis was clearly dominant at Nixtun-Ch'ich', this north-south axis was also present. A similar situation occurs at Nakbe, with emphasis on ~~a~~n east-west axis (Hansen 2016, p. 347), ~~-~~though

there are also north-south causeways. While an east-west axis was common in central Petén, it was certainly not prevalent throughout the lowlands.

While ~~so far~~ I have pointed out linear site organizations, of note is that not all communities were thus organized. Some utilize “circle-based urban planning” (Smith 2007, p. 22), as may have been the case at Middle Preclassic Xtobo (Fig. 5). The settlement seems to have been organized in two large circles, one defining the position of typical Middle Preclassic ~~period~~ architecture and the other arranging the anomalous causeways (see Anderson 2011, p. 306).

Causeways as Settlement Linkages

Causeways helped guide and illuminate associations between ~~Lowland~~ Maya architectural groups at sites. Two major types of causeways are intra-site causeways, which link multiple nuclei within the site core, and inter-site causeways, which lead from one settlement to another. A third type, which is limited in its distribution, is the “core-outlier intra-site” causeway, which links the site core to peripheral locations within the same site (Shaw 2001, p. 262). Causeways can be “linear,” linking two or more places within a site. The linked places are generally ceremonial, elite residential complexes, or large plazas used for markets in the Classic period (Chase and Chase 2017b). Cruciform and radial causeways act as entrances leading from the edge of settlements into the center. Finally, causeways can be dendritic leading from the core to outlying areas and then branching out to farther destinations. The latter two types imply hierarchy (Chase and Chase 2001, p. 280; Shaw 2008, pp. 96–105).

Maya causeways are mostly focal—they end at specific destinations and thereby illuminate nodal points. Such places are often large and portentous and, therefore, dominant (Lynch 1960, pp. 47–106). Xtobo includes five causeways leading to the central plaza (Anderson

et al. 2018, p. 206). A similar radial pattern is observed at Nakbe, Yaxha, and other sites.

However, Xtobo differs as the buildings at the end of the causeways also face toward the center, as do some nearby buildings not on causeways (Anderson et al. 2018, pp. 206–208). This arrangement strongly suggests hierarchy and dominance.

Nixtun-Ch'ich and its satellite, T'up, include roads forming urban grids. Their east-west streets are oriented by central axes of buildings that stand in a row and there are north-south avenues. The grid of Nixtun-Ch'ich was well planned and then implemented. Yet it was not static—the roads became increasingly constricted as the plaza blocks expanded over the course of the Middle Preclassic ~~period~~ into the Late Preclassic period. Most roads at Nixtun-Ch'ich' are non-focal—they generally do not privilege particular landmarks (Pugh 2019; Pugh and Rice 2017; Pugh et al. 2020). Subsequently, they emphasize their own lengths, straightness, and interconnections. Thus, they more effectively connect the entire city without obvious hierarchy.

Nearby Yaxha was not planned with the same degree of coordination of elements as Nixtun-Ch'ich', yet it does have perpendicular streets that are certainly grid-like and the site was densely settled (Hellmuth 1976, p. 85). One sakbe, “Calzada del Lago,” leads to the lake. The sakbe begins at the southern end of the long eastern building of the E-Group and is oriented in the same direction as the E-Group. This causeway may have begun as a trail in the Middle Preclassic period and transformed into a formal road in the Late Preclassic period (Hermes et al. 1999, p. 111).

As we saw ~~in the examination of~~with E-Groups and Triadic Groups, orthogonality is certainly a theme in Preclassic Maya architecture, but it generally does not extend into a full-fledged urban grid. Causeways at Ixtutz form a rectangle with two causeways perpendicular to another causeway and with a platform edge “sealing” the open side (Robertson 1972, fig. ~~ure~~ 1).

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The newly discovered site, Aguada Fénix, has a network of roughly perpendicular roads on its western side, which may form an urban grid, though it seems more haphazard than that of Nixtun-Ch'ich' (see Inomata et al. 2020). Nevertheless, this site predates Nixtun-Ch'ich' and the cultural traditions that produced Aguada Fénix likely influenced its grid plan.

Urban grids are not the only anomalous uses of Middle Preclassic causeways. The site of Xtobo in Northern Yucatán, which was largely abandoned at the beginning of the Late Preclassic period, includes a ca. 270-meter diameter ring of sakbe-like constructions (Anderson 2011). ~~While Although~~ soil chemistry ~~analysis~~ is not always reliable (Eberl et al. 2012, p. 436), analysis within the circle indicated the area was unlikely a market or animal pen. It was a highly planned space and probably had some other social function—perhaps for rituals (Anderson et al. 2012, p. 374).

Causeways have long been associated with E-Groups in Maya cities (Cohodas 1980, pp. 213–214). Avenues G and H of Nixtun-Ch'ich' break the general rule against focality of a site's roads. The north and south sides of Avenue G lead from the lake to the western building in the Sector AA E-Group, and the two sides of Avenue H likewise lead to the eastern building. Much like the diagonal corridors of Washington, DC, which lead to important buildings and parks, these two avenues emphasize their destinations. A strikingly similar pattern is observed at Yaxha, where a Late Preclassic causeway leads from the lake to the southern edge of the eastern building of the largest E-Group and another causeway leads north from the northern edge of the same building (Hermes et al. 1999). Two causeways lead to the east and western buildings of the E-Group at Paxcaman. The north and south causeways of Ixtonton and Ixkun also lead to the western buildings (Gómez 1996; LaPorte et al. 1991, p. 213; ~~LaPorte et al.~~ 1994, pp. 34–35). A causeway also leads to the southern end of one of the E-Groups at Ucanal, though this site and

many others were heavily modified after the Middle Preclassic period (Halperin et al. 2019; Laporte and Mejía 2002).

By meeting at and being blocked by the buildings of the E-Groups, the causeways create a node, or an area of “intensive foci” and, perhaps, dominance (Lynch 1960, pp. 47–48). Nonetheless, when the E-Groups formed part of the axis urbis, many locations along the central axis rivaled for dominance and the axis itself dominated them all. Yet, with respect to Sector AA at Nixtun-Ch’ich’ and its parallels at Yaxha and Ixtonton, it is clear their nodality along entryways established them as higher-order locations to outsiders. Causeways lead into the center of the E-Groups at Nakum, Ucanal, Mopan 3-Este, and Xa’an Arriba. E-Groups were clearly emphasized landmarks within cities. Consequently, the E-Groups played a role in the communication of hierarchy to visitors from settlements without such assemblages.

Widespread Arrangements

Some sites share patterns ~~that~~ suggesting larger site configurations. The “Middle Formative Chiapas Pattern” (MRC) includes an E-Group at the southern end of a north-south plaza with a large pyramid on the north end. The eastern side of the plaza is bordered by a large platform or acropolis and the western side by a row of small buildings. Such complexes are found at La Venta and Ceibal (Inomata et al. 2019, p. 8) and in Chiapas (Clark 2016, p. 147) and the Pacific Coast (Rosenswig and López-Torrijos 2018, p. 1297). The Middle Formative Usumacinta pattern is similar to the MRC pattern, but its artificial plateaus are rectangular. In addition, their massive E-Groups stand in the center of the plaza (Inomata et al. 2020).

Relationships Between Sites ~~a~~ And Regions

Complex societies are not isolated units, but are involved in larger relationships on a number of dimensions including religion, economics, alliance, and conflict. Such larger relationships can ultimately form a larger polity. Alternatively, they might also result in stronger boundaries between polities or cause factions to form within a formerly unified polity. Substantial evidence for such relationships exists for the Middle Preclassic ~~period~~ Maya. The spread of E-Group ritual complexes, ballcourts, and the Mamom ceramic sphere across the lowlands as well as the use of greenstone celts in cruciform caches indicates that disparate communities interacted during the Middle Preclassic period. There is also evidence of more localized interaction with the spread of east to west axes in some areas and north to south axes in others. Other evidence of interaction is found in the exchange of goods, possibly warfare, and various shared symbols and associated ritual objects.

Exchange

Long-distance exchange is often mentioned as evidence of complexity, which it certainly is, but not in isolation. One need only consider the 650-k~~m~~~~ilometer~~ interaction sphere of Poverty Point, a 3500-year-old site in Louisiana—which also exhibits extensive planning and monumentality (Sassaman 2005)—to appreciate the need for caution with this variable. The Hopewell Interaction Sphere was even more extensive. The critical issue with respect to complexity is how the exchange system was organized and whether traders were full-time specialists. We know little to nothing about Middle Preclassic ~~period~~-merchants. One might speculate that mobile populations facilitated regional trade among sedentary villages in the early part of the Middle Preclassic period, and such individuals may have ultimately developed into merchants. The mechanisms of Middle Preclassic ~~period~~-exchange are also not well known, but can usefully be

grouped into “local, regional, and long-distance,” though the first is hard to observe archaeologically (King 2016, p. 440). Ceibal has a presence of abundant obsidian with cortex, but outlying sites have far ~~fewer~~ ~~lower numbers~~ quantities, indicating exchange between the former and the latter (Aoyama et al. 2017b, p. 411). Local exchange can also be observed by examining the chemical composition of ceramics, such as that of figurines in the Mirador Basin, which appear to have been produced and consumed locally (Hansen 2016, p. 350).

Fine ceramics and chert were exchanged across limited portions of the Maya region (Callaghan et al. 2018; Ebert et al. 2019). E-Groups appear to lie along regional trade routes, and their ample plazas may have been used for markets (Doyle 2017, pp. 66–69; Stanton 2017). Since they were largely tied to the agrarian calendar, one would expect that local food products were traded in the assemblages. Chert seems associated with E-Groups as well, at least in the case of El Palmar, Guatemala (Doyle 2017, p. 68).

Long-distance exchange appears to have increased dramatically at around 700 BC (Brown and Bey 2018, p. 393). A number of highly valued commodities were exchanged over long distance such as marine shell, obsidian, and jade. Marine shell at Ceibal, which is located a great distance from either coast, is more diverse in the Middle Preclassic period than any other period at the site (Sharpe 2019, p. 497). The El Chayal obsidian source provided the majority of the obsidian at Ceibal during the early Middle Preclassic period, but San Martín Jilotepeque dominated the late Middle Preclassic and Late Preclassic periods. It is likely that Kaminaljuyu restricted the flow of the former at that time (Aoyama 2017a, ~~2017~~b). Research at El Mirador and Colha indicates that San Martín Jilotepeque dominated the Middle Preclassic period and El Chayal during the Late Preclassic (Brown et al. 2004, p. 235; Fowler et al. 1989, p. 162; ~~Brown et al. 2004, p. 235~~).

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Most Middle Preclassic jade likely originated from the Motagua Valley, though some came from more distant sources (Hammond 1991, p. 202). Some Olmec jade found its way into the Maya region. A fragment of an Olmec-style mask was encountered at Nixtun-Ch'ich' (Pugh et al. 2020, p. 254). The Maya of ~~n~~Northern Yucatan may have directly traded their ceramics for Olmec jade, obsidian, and basalt tools (Robles Castellanos and Caballos Gallareta 2018, p. 245). An analysis of greenstone triangulates from Pacbitun indicated that some originated in distant ~~c~~Central Mexico (Powis et al. 2016, p. 70).

Some have postulated that centralized markets existed in E-Group plazas (Doyle 2017, pp. 66–69; Stanton 2017), and that markets and exchange provided the drive toward greater complexity (Rathje 1971). However, an etymological study of Maya economic terminology suggests that centralized markets did not develop until the middle of the Classic period, thus they could not have been prime movers toward complexity (Speal 2014). Yet, the Middle Preclassic Maya did exchange goods, which allows for specialization as well as social interaction that would have promoted solidarity and information flow. Information flow was critical to the social reactor as well as for the shift to a more competitive social organization. Marine shell, jade, and obsidian also served as markers of social status.

Warfare

Warfare does not seem to have been highly developed in the Middle Preclassic period, as we do not see defensive features other than construction on high ground. However, some architectural destruction, which does not appear to have been the result of a termination rite and the taking of sacrificial victims, ~~di~~does occur in the Middle Preclassic period (Brown and Garber 2003). The occurrence of fortifications increase~~d~~s in the Late Preclassic period, perhaps reflecting tension

that would lead to the collapse of some sites (Bracken 2018; Estrada-Belli 2011, pp. 131–132; Hansen 2017, p. 326; Webster 1976; 2000). ~~Richard~~ Hansen (2017, p. 315) hypothesizes the formation of a “military force” in the Late Preclassic period, though one would appreciate the chance to evaluate the evidence.

Middle Preclassic Iconography

Even prior to 900 BC, the lowland Maya region appears to have shared iconography with the Gulf Coast, Chiapas, and beyond. These shared systems included the “avian serpent,” “cave monster maw,” cloud and rain, crocodilian forms, crossed bands, flame brow, and Kan Cross (Garber and Awe 2009; Rice 2020, fig. ~~ure~~ 2). Maya written texts appeared between 300 and 200 BC, not long after they developed in the Isthmian region (Saturno et al. 2006). The Maize God and Rain God seem to have been the most important of the Olmec deities, and their representations bear strong relationships to corresponding gods of the Maya (Taube 2004b, pp. 29–30). The Maize God is a central figure on the Late Preclassic ~~period~~ San Bartolo murals and may be accompanied by a maize goddess (Saturno et al. 2005, pp. 25–38). This deity is associated with maize and embodies the axis mundi (Taube 1996). As discussed, the Maize God and Rain God are also critical to activities in E-Groups as well as Triadic Groups and ballcourts.

Another common figure in Middle Preclassic iconography in both the Maya and Isthmian regions is the Principal Bird Deity (Bardawil 1976; Martin 2016, p. 535). This being, like the ~~R~~ain and Maize Gods, continued into the ~~c~~Colonial period, though one assumes its significance changed over time. The ~~c~~Colonial period Principal Bird Deity was an egocentric powerful being that was killed by the Hero Twins to allow for the emergence of humans. Thus, it was a cosmic monster, perhaps a remnant or parallel of the primordial monster dismembered during the initial

creation event. Classic period Maya kings were paralleled with one of the Hero Twins to play a virtual role in this creation event and maintain the orderly universe. The title “*ajaw*” is found on the San Bartolo murals along with the Principal Bird Deity (Martin 2016, pp. 524–536), but this deity preceded the development of divine kingship in the Maya area (see Brown et al. 2018, p. 98).

Cranial deformation in many Preclassic Maya skulls was also symbolic behavior. Cradle boarding along with constriction bands produced “pseudo-circular tabular erect shapes” or pear-shaped/“Olmecoid” forms, referring to their resemblance to Olmec imagery (Tiesler 2010, p. 293). Such crania may have been modified to resemble the Olmec-style Maize God, but other forms of deformation were present as well (Tiesler 2012, p. 45). Women would have conducted such practices as they cared for children. The shaping may have been intended to strengthen local identities through the use of international styles, which were tied to divinity (Tiesler 2010, pp. 302–308). Variation in head shape is observed in Maya ceramic figurines, which also generally lack narrow-sloped deformation (Rice 2019a, p. 92). Narrow-sloped crania became vogue in the Classic period, when the Maize God imagery took on a similar shape (Tiesler 2012, p. 45).

Sculpted Monuments

Carved stelae and altars were rare among the Lowland Maya during the Middle Preclassic period. While ~~a couple of~~ several uncarved monuments in the Mirador Basin have been dated to this period, carved monuments are less secure. Monument 8 from Nakbe could date to the Middle or Late Preclassic period. The roughly circular altar depicts reptilian and avian imagery—possibly the Principal Bird Deity (Hansen 2016, pp. 373–381). The “pecked basins”

on Monument 8 (Hansen 2016, p. 379) are very similar to “cupules” on monuments at Late Preclassic-period Chocolá, which were believed to have been used in water rituals (Kaplan and Paredes Umaña 2018, pp. 240–241). Uncarved Altar 1 of Nixtun-Ch’ich’, which was found in a Triadic Group, has a similar “cupule.” Stela 1 from La Isla, in the Mirador Basin, was inscribed with a crocodilian form, but has not been securely dated (Hansen 2016, p. 374). While we have no securely dated monuments, it is quite possible that some stela traditions developed from those of stucco masks (Awe et al. 2009, pp. 185–186).

Middle Preclassic Maya sculpture is sparse in comparison to that of the occupants of Izapa and the Olmec region. The latter included not just animal and deity images, but depictions of rulers on stelae and thrones, some dressed as the Maize God and/or shamans (Clark 1997, p. 215; Reilly 1991; Taube 1996). Stela 2 of Cival, which rested in front of the central building of an E-Group, could date to 300–200 BC, the beginning of the Late Preclassic period. The stela depicts a striding figure that could be a ruler (Estrada-Belli 2006, p. 64), but the striding pose is similar to that of gods depicted in the San Bartolo mural. Around the same time, the image of a ruler was carved into the stone entrance of Loltun Cave (Brady 2012, p. 305; Stone 1995, p. 59).

Ceramic Stamps

Another widespread medium of Early-Middle Preclassic symbolism was stamps (Fig. 7), which could be either cylindrical or flat. While rare, they appear throughout the Maya region. Some cylindrical or roller stamps were solid while others were hollow. The “flat” stamps often had a perforated handle, and many were actually convex (Bachand 2003). Three roller stamps were found together—perhaps in a perishable bag—in Burial 171 at Cuello. This burial included a number of grave goods and was likely of higher status. The stamps produce abstract patterns,

though one represents a human form. Chemical analysis suggests that they were used to apply pigment to “textiles or skin” (Hammond et al. 1992, pp. 957–958). A stamp found in a Middle Preclassic cache in a ceremonial building at Nixtun-Ch’ich’ was similar in size and form to those of Cuello, but differed in ~~its~~ decoration, which filled the entire space with U-shaped and other motifs that may form a Principal Bird Deity (Rice 2009). Similar stamps were found at Tlatilco and in the Olmec region. They were particularly abundant at Mirador and Chiapa de Corzo in the Isthmian region. One burial, described as extremely opulent, included three stamps among other grave goods (Agrinier 1964, p. 25; Lee 1969, pp. 71–87). Some stamps in the Olmec and Isthmian regions contained early texts, and these tools may have been a foundation of writing (Pohl et al. 2002).

Stamps tended to be associated with elites or ceremonial contexts, but we really do not know the roles that the performance of using the objects or the resulting decorated skin or textiles played in Middle Preclassic society. A stamp found in the Olmec region was associated with feasting refuse; thus, they may have been associated with initial construction of leadership (Pohl et al. 2002, p. 1986). They may also have ~~also~~ been used for administrative purposes (Rice 2015, pp. 21–22) or to express individual or group identity and possibly to emulate the Olmec (Bachand 2003, p. 536; Joyce and Henderson 2010, p. 197).

Ceramic Figurines

Ceramic figurines (Fig. 8) with very similar forms are found at sites throughout the lowlands, but they appear to have been produced for local consumption. They may represent the spread of an ideology and/or new ritual practices (Hansen 2016, p. 350). They are generally solid, though some are hollow. There are human and animal figurines, though the latter tend to be flutes or

whistles. Many are female, but they are often not distinguishable as male or female, and some may be “dual-gender” (Peniche May et al. 2019, pp. 231–232; Rice 2015, p. 6).

That they were handmade with rare white clay and not common suggest they were inalienable and had special uses. They were very often broken and placed in special locations suggesting ritual termination. Many figurines were found in special deposits in caches or chultuns (Rice 2019a, pp. 206–211). Decidedly early (1200–900 BC) figurines were found at Cahal Pech. They, along with ceramics incised with regional symbols and feasting events, were associated with one household, which may have belonged to the city founder (Peniche May et al. 2019, p. 232).

Figurines may have been associated with ancestor veneration as well as other ritual purposes (Peniche May et al. 2019, p. 232; Rice 2015). They may have represented abstract concepts and/or were communitive devices used to relate myth and history. Perhaps most important to the current discussion is that the figurines disappeared in the Late Preclassic period with the appearance of despots. Their disappearance may relate to a shift from individuals to the ruling elites, from a more cooperative to a more competitive system (Rice 2019a, pp. 209–217).

Middle Preclassic States?

A number of aspects of social complexity have already been reviewed, including unification through symbols and labor, unified groups with varied goals, agricultural intensification, and specializations in occupations other than agriculture. The strongest evidence for a Preclassic period state comes from the Late Preclassic Mirador Basin, but these developments may have begun earlier, at least by 600–400 BC (Hansen et al. 2018, p. 193). The inter-site causeways linking the larger settlements represent a massive investment in social unity as well as the

intensification of social interaction. In addition, the late Middle Preclassic and Late Preclassic constructions, as well as agricultural intensification, would have required extensive planning and coordination. There also appears to have been ceramic, masonry, lime production, and stone tool specialists. Finally, as elsewhere, this state was supplied with non-local goods through extensive exchange networks (Hansen et al. 2018). In addition to the Mirador Basin, fairly strong evidence for Lowland Maya states is found at Cival and Nixtun-Ch'ich'. While the investigation of a possible state at Nixtun-Ch'ich' has only just begun, we have encountered evidence of a settlement hierarchy, extensive planning, and a possible state style of architectural design (Pugh et al. 2020). The urban grid would have enhanced social interaction at Nixtun-Ch'ich' in much the same ways it did within the Mirador Basin.

It is clear that the lowland Maya area varies significantly in the presence, intensity, and timing of these dimensions. I will now explore aspects of rulership including hierarchy, central rulership, and cooperation.

Hierarchy

Hierarchies were organized along a number of social networks during the Middle and Late Preclassic periods. As noted, E-Groups reveal a hierarchy in the religious and political systems—the latter if they are indeed administrative—at many sites. We can think about centers with more E-Groups in a number of ways: they had the religious standing to have additional groups; they could marshal greater labor or resources; or, they wished to display their authority while limiting others. In addition, various factions within the cities might have used them. In all cases, they stand on higher ground within the city. E-Groups likely played a role in establishing hierarchy for the polity headed by Cival with its five E-Groups, as well as in eight nearby secondary

centers ~~that~~^{which} each have one (Estrada-Belli 2017, pp. 303–308). The site likely headed a hierarchy of at least three levels. Nixtun-Ch'ich' has three E-Groups₂ and several surrounding settlements each have one E-Group. Some sites have no such groups, so Nixtun-Ch'ich' also likely had at least three levels in its social hierarchy (Pugh et al. 2020).

Yaxha emerged as the dominant community on Lake Yaxha in the Middle Preclassic period, which is not surprising as it has three E-Groups (Fialko 1988, p. 14). At least four nearby sites had one each and were likely subordinate centers (Rice and South ~~in press~~^d). The site of Holtun is 12.3 ~~km~~^{hometers} south of Yaxha and could be a secondary center. Holtun includes a Middle Preclassic ~~period~~²-E-Group₂ and a Triadic Group ~~was~~² constructed there in the Late Preclassic period (Callaghan et al. 2018, p. 825; Fialko 2011). High frequencies of Mars Orange Paste Ware at Holtun and Yaxha indicate closer trade relations with sites in Belize than most other sites in Petén (Callaghan et al. 2018). Ucanal has two E-Groups and may have dominated nearby sites with a single assemblage.

Nearby Caracol has five E-Groups in its urban area, but a hierarchy only became apparent over time. As the occupants transitioned into the Early Classic period, they chose to renovate one of the groups, a Uaxactun-style group in the urban core, but not the others. The renovated group may have been more important. It certainly became more so over time (Chase 2016, p. 26).

Political and economic hierarchies are evident in site sizes (Flannery 1998, pp. 16–21). Of course, site size can be difficult to calculate, as many Middle Preclassic settlements were covered by later constructions. In the Belize River ~~v~~^Walley, site sizes changed over time₂ and some such as Blackman Eddy, Cahal Pech, and Xunantunich began to dominate surrounding settlements (Brown et al. 2018, p. 90). Small, medium, and large Middle Preclassic settlements

occur in ~~n~~Northwestern Yucatan, with only the medium and large having ceremonial architecture. Only two sites, Komchen and Xtobo, were classed as large centers (Anderson et al. 2018, pp. 198–210). In the case of Nixtun-Ch'ich', the gridded core of the site was about 1.1 ~~km²square kilometers~~, but none of the known nearby sites with E-Groups had cores larger than 0.1 ~~km²square kilometers~~. Thus, this site exhibits tremendous primacy with respect to its relationship with other sites (Pugh 2019; Rice and South ~~in press-a~~). We do not yet know the reasons for the primacy, but with three E-Groups, the site must have been a major political and religious center.

Some evidence of political hierarchy will be quite particular considering the political variation among ~~H~~owland Maya communities. Causeways connecting various architectural arrangements both within and among cities can be used to illuminate important nodal locations (Chase and Chase 2001; Hansen et al. 2018, p. 152; Shaw 2008, pp. 104–105). Directionality can also play a role. The central axis of T'up points directly toward the Triadic Group of Nixtun-Ch'ich'. The construction of a grid at T'up may also reflect standardization or emulation.

The exchange hierarchy can be discerned in the distribution of particular resources. The monopolization of the import, production, and distribution of obsidian is suggested by greater amounts of obsidian retaining cortex at Middle Preclassic Ceibal than at subordinate sites (Aoyama et al. 2017b, p. 411). Blades at Ceibal may have been distributed outward as gifts to bolster the social hierarchy. Shell and wooden objects were also crafted (Aoyama 2017a; Aoyama et al. 2017b).

Work in the Mirador Basin revealed that construction also requires the coordination of design, resource gathering, resource refining, and building (Hansen et al. 2018, pp. 161–181). A disjunction between the initial design and the implementation of the plan is possible, such as in

mMedieval Europe among masonry guilds who coordinated nearly every aspect of construction (Wolfe 2009, pp. 111–152).

Hierarchy was common in the Middle Preclassic period, but we cannot assume all such hierarchies overlapped with the political hierarchy. The agglomeration of population into centers also involves heterarchical relationships that allowed for innovation and enhanced solidarity (Cesaretti et al. 2016; King 2016, p. 418). In addition, we must be cautious in assuming contemporaneity when we attempting to reconstruct settlement hierarchies.

Central Rulership

Feasting appears to have played a major role in Middle Preclassic politics and could have been one of the foundations for the emergence of social inequality (Peniche May et al. 2019; Thornton and Emery 2016). At Nixtun-Ch'ich', excavations in two of the site's reservoirs revealed large amounts of reconstructable ceramic vessels and faunal remains. In Fosa Y, the reservoirs associated with an E-Group and the animal remains included a large percentage of dogs (Rice and Pugh 2017). Dogs also were traded long-distance and managed for activities associated with the ceremonial core of Ceibal (Sharpe et al. 2018). Dogs and deer also played an important role in feasts and the development of political hierarchy on the Pacific Coast of Mexico (Rosenswig 2007).

Many Mayanists imagine that symbols associated with kingship in the Classic period must also represent kingship in the Middle Preclassic period. A good example is the Principal Bird Deity, which is sometimes listed as evidence for the existence of kings. It is certain that Maya kingship of the Classic period manifests aspects of the Principal Bird Deity (Martin 2016, p. 520), but the latter was not the king (adapting Graeber and Sahlin 2017, p. 3). In other words,

this deity was a being distinct from the king. Indeed, the Principal Bird Deity may appear on ceramics in the Belize River Valley during the Early Middle Preclassic period, before the rise of exaggerated social inequality (Brown et al. 2018, p. 98). Thus, no necessary connection exists between the Principal Bird Deity and kingship during the Middle Preclassic period.

E-Groups likewise existed before the emergence of divine kings. However, early elites gradually associated themselves with these assemblages by burying elaborate offerings as well as noble tombs into their fabric. They eventually appropriated these centers of esoteric knowledge, socioeconomic interaction, and identity (Doyle 2012, p. 374). Later, as Triadic Groups replaced E-Groups, ritual events took place on high platforms restricted from the public. Such restricted ritual spaces are a possible indicator of divine kingship (Saturno et al. 2018, p. 328).

Little direct evidence exists of adverse sacralization among the Maya; however, this concept may help us reconsider some assumptions about the role of kingship in actual governance. If Triadic Groups mark a point at which royal ritual performances were restricted from the public, we cannot be certain if this reflects greater power or a greater restriction on the ruler. The same is true with royal tombs. Do they reflect greater social power, or do they indicate the “keeping” or containment of that divine power? Hints at adverse sacralization might be present in the story of the Seven Macaw, a possible manifestation of the Principal Bird Deity, and his sons. These three individuals were too powerful and self-aggrandizing to allow the existence of humans and were slain (Tedlock 1985, pp. 89–101).

Sacred kingship can be a problem for interpreting ancient remains for a number of reasons. If the power of a Maya king to actually make decisions was restricted to the point that they, like the Principal Bird Deity, were merely “an abstraction” (adapting Graeber and Sahlins 2017, p. 8), then how can their presence provide evidence for the rulership of a state? They

would certainly serve as a unifying state symbol, which states require, but are not necessarily evidence of the complex social organization of a state (Clark 2016, p. 124). Another issue raised by adverse sacralization is that many societies represented by the faces of kings could possibly have been more cooperative in their administration. Cooperative societies have a number of characteristics and are not solely based upon the presence or absence of kings. A final problem with divine kingship and adverse sacralization is that the relationship changes through time. It is a never-ending political struggle between the king and constituents (Graeber and Sahlins 2017, pp. 7–8). The study of kingship in the Maya lowlands is an important endeavor and this discussion reveals the potential for greater depth in such studies. Nevertheless, additional indicators such as complex hierarchies, bureaucracies, and power structures, are necessary to define states.

Cooperation

Our current evidence suggests that the Middle Preclassic Maya were largely cooperative in their organization (Estrada-Belli 2016, p. 252; Pugh and Rice 2017; Pugh et al. 2020; Rice 2020).

Middle Preclassic Lowland Maya polities were certainly faceless. While one observes the face of the ancestors, the Maize God, Principal Bird Deity, and other supernatural beings, no images of kings have been encountered. The emphasis of cosmogenesis, fertility, and individual family ancestors instead of despots and their ancestors is one sign of a more cooperative system (Rice 2020). The level of planning at Nixtun-Ch'ich' and other sites suggests that it was designed by one or a few individuals, but those individuals were not overtly venerated (Pugh and Rice 2017). In addition, while ascribed inequality is found in some burials, no massive noble tombs have been found. The Maya may have imported these and other aspects of divine kingship from the

Olmec region during the late Middle Preclassic period, when the Mirador Basin became the “political center of gravity of southern Mesoamerica” (Freidel 2018, p. 372).

Middle Preclassic cities have large open plazas and other forms of public space such as causeways. These constructions represented a massive investment of labor and materials. Some sites have other sorts of public goods such as drainage systems and reservoirs of water. In addition, some cities appear to have managed large agricultural systems that were presumably community owned and maintained.

Middle Preclassic settlements were focused upon E-Groups rather than palaces. In central Petén, the number of E-Groups at settlements seems correlated with the settlement hierarchy. E-Groups were also initially public goods as they communicated the agrarian calendar, which helped farmers make decisions and may have timed markets. Of course, this changed in the latter part of the Late Preclassic period, when E-Groups celebrated a different calendar associated with the ruler and were planted with royal tombs and later stelae.

Conclusions

States may have emerged in ~~the the Middle Preclassic period~~ Maya lowlands in the Middle Preclassic period, but we have not adequately identified them. Even the case for the Mirador Basin must be shored up a bit as the precise timing of the developments remains obscure. Yet, work in this early polity provides a good model for a multidimensional analysis of social complexity. The definition of states—particularly prehistoric states—is an analysis that remains ever incomplete and forever begging additional data and debate. Yet as data accumulate, Mayanists may come to agree that a particular polity was complex enough to classify as a state. This designation should arise from consensus, not proclamation.

Archaeology requires substantial teleology to allow the interpretation of the unknown past. However, the political organization of the Classic period may hinder, rather than aid, in the understanding of the development of complexity in the Middle Preclassic period, as the latter likely had a very different system of administration. Very little evidence points toward a more competitive social system, but a great deal of evidence suggests that the Middle Preclassic Lowland Maya were more collective in their organization. Yet, we must be cautious ~~when in~~ generalizing about Middle Preclassic social organization. Even neighboring communities varied significantly (Horn et al. 2020). A state might emerge in one area of the Maya region during the Middle Preclassic period, but not in others. Complexity in one area may draw in migrants and diminish that of other areas.

The question of whether Maya states were primary or secondary has long been debated. Many arguments were based ~~upon~~ the notion that states emerged in the Classic period and the possibility that Teotihuacan influenced the Maya (Marcus 2003, pp. 86–98). Yet, the innovations and complexity observed in the Mirador Basin and Middle Usumacinta region make clear that Teotihuacan had nothing to do with the emergence of ~~the~~ Maya social complexity. The Olmec were likely responsible for the later emergence of divine kingship in the Maya area, but it is not known how they might relate to the development of the more cooperative Middle Preclassic Maya states. The newly discovered sites in the Middle Usumacinta region will likely provide greater clarity to whether early Maya states were primary or secondary developments. If this region provides evidence of an early Middle Preclassic state, then the states of Petén, Belize, and Yucatan were secondary developments.

While no evidence exists for Middle Preclassic divine kings, hereditary leaders emerged in some areas. Some were buried in special places such as circular platforms, marking them as

ancestors of the group and creating symbolic capital for their descendants. Some possessed long-distance decorative (jade) and utilitarian items (obsidian cores) and had connections with long-distance symbolic systems (stamps and ceramic motifs). Kings are perfect indicators of kingdoms, but not states, as pre-state polities can also have kings (Clark 2016, p. 124). If we are truly interested in the emergence of states, we must redirect our attention to solid indicators of social complexity such as hierarchy, legibility, occupational specialization, and agricultural intensification. The king can represent a state, but the state is not a king.

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Captions for Figures

Fig. 1 Selected ~~s~~Sites with Middle Preclassic ~~p~~Period ~~o~~Occupations

Fig. 2 Nakbe, Petén, Guatemala (~~a~~Adapted from Hansen et al. 2018, fig. 7.13)

Fig. 3 Nixtun-Ch'ich', Petén, Guatemala

Fig. 4 Aguada Fénix, Tabasco, Mexico (~~c~~Courtesy of Takeshi Inomata)

Fig. 5 Xtobo, Yucatán, México (~~c~~Courtesy of David Anderson)

Fig. 6 Canal in Avenue G, Nixtun-Ch'ich', Petén, Guatemala

Fig. 7 Roller ~~s~~Stamp, Structure ZZ1/1, Nixtun-Ch'ich', Petén, Guatemala (~~i~~Image created from
photographs by Prudence Rice and Timothy Pugh after Rice 2009, fig. 7)

Fig. 8 Middle Preclassic ~~f~~Figurine, Structure ZZ1/1, Nixtun-Ch'ich', Petén, Guatemala