

CAN WE READ COSMOLOGY IN ANCIENT MAYA CITY PLANS? COMMENT ON ASHMORE AND SABLOFF

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Arguments for the cosmological significance of ancient Maya city layouts are plausible, but empirical applications are subjective and lack rigor. I illustrate this contention through brief comments on a recent article by Ashmore and Sabloff. I first discuss some of the complexities and pitfalls in studying cosmology from ancient city plans, and then focus on one component of the authors' cosmological model—the hypothesized north-south axis at Classic Maya cities. My goal is not to downplay or rule out the role of cosmology in Maya city planning, but rather to encourage the use of explicit assumptions and rigorous methods that will provide the study of Maya city planning with a more secure empirical foundation.

Los argumentos para el significado cosmológico de las trazas de las ciudades antiguas mayas son plausibles, pero las aplicaciones empíricas son subjetivas y carecen de rigor. Ilustro esta idea con unos comentarios sobre un artículo reciente de Ashmore y Sabloff. Primero discuto algunas de las complejidades y problemas en el estudio de la cosmología basado en los planos de las ciudades antiguas. Segundo, examino una parte del modelo cosmológico de los autores—el propuesto eje norte-sur en las ciudades mayas. Mi objetivo no es disminuir ni negar el papel de la cosmología en la planeación urbana Maya; más bien es fomentar el uso de asunciones explícitas y métodos rigurosos para dar al estudio de la planeación urbana una fundación empírica más segura.

In a recent paper, Ashmore and Sabloff argue that the “position and arrangement of ancient Maya buildings and arenas emphatically express statements about cosmology and political order” (Ashmore and Sabloff 2002:201); see also the Spanish version (Ashmore and Sabloff 2000). Given current understandings of Mesoamerican cultures—and of ancient urban societies in general—it is certainly plausible to suggest a role for these two forces in the planning and layout of Maya cities. Personally, I agree with Ashmore and Sabloff that cosmology must have played a role in generating the layouts of cities among the Maya and other Mesoamerican societies. Nevertheless, the arguments they present for the influence of cosmology are vague, weak, and unconvincing. What kind of a role did cosmology play? How large a role? Can we reconstruct that role? Instead of presenting rigorous methods for investigating this issue, the authors rely upon assertions and subjective judgments backed not by empirical evidence but by uncritical citations of the works of others

who agree with them. In this comment I first explore some of the complexities of studying cosmology from ancient city plans. I then address one component of Ashmore and Sabloff's cosmological model—the hypothesized north-south axis of Classic Maya cities.

Cosmology And Ancient Urban Planning

The planning and layouts of ancient cities have long fascinated archaeologists, architects, and other scholars. Site maps often suggest that some sort of spatial order existed in ancient cities, but scholars have yet to develop systematic approaches to the study of the nature and origin of that order. The influence of cosmology, symbolism, and metaphor on ancient urban plans is an especially difficult topic for archaeologists. Some scholars are of the opinion that such research reveals more about the minds of modern scholars than about the minds of the ancients (e.g., Flannery and Marcus 1993; Kemp 2000; Prem 2000). For this reason, research in this area requires rigorous and explicit methods

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if it is to have credibility within the archaeological community.

Three urban traditions of the ancient world are particularly notable in comparative perspective for the large role played by cosmology in city planning—China, India, and Cambodia. These urban traditions share several characteristics: the layouts of numerous cities and public buildings within each tradition exhibit close similarities, there are ancient textual descriptions and images of the layout of the cosmos, there are plans and descriptions of the layout of the ideal city, and there are ancient textual sources stating that rulers deliberately followed cosmological models in laying out their capital cities (for China see Chang 1976; Steinhardt 1990; Wheatley 1971; for India see Allchin 1995; Coningham 2000; Spodek and Srinivasan 1993; for Cambodia see Dumarçay and Royère 2001; Higham 2000, 2002; Mannikka 1996).

In an earlier paper Ashmore (1992:173) classifies the Maya with these Asian urban traditions as a culture in which cosmology played a significant role in urban planning. To me, this does not appear to be a close fit. Apart from the existence of a few descriptions of the spatial layout of the cosmos (mostly from Postclassic codices and colonial texts, not Classic-period sources), the traits listed above are lacking for the Maya and other Mesoamerican urban cultures. The similarities among Maya cities are much less striking than the resemblances among Chinese, Cambodian, and perhaps Indian cities. More importantly, there are no surviving texts from anywhere in Mesoamerica that describe ideal cities or the efforts of kings to follow cosmological models in laying out their capitals.

The Aztec capital Tenochtitlan illustrates some of the difficulties involved in identifying the role of cosmology in urban planning. Although there is a large corpus of documentary sources on Aztec history and society (Smith 2003), there are only a few scraps of information describing the nature of urban planning. There is a large body of scholarship on the role of cosmology (usually termed “cosmovision”) in the design and meaning of the Templo Mayor of Tenochtitlan (e.g., Broda et al. 1987; Carrasco 1991, 1999; López Luján 1998; Matos Moctezuma 1995), but this research relies almost exclusively on subjective interpretations of Aztec myths and rituals. The Templo Mayor, however,

furnishes what may be the only direct evidence for the explicit use of astronomical or cosmological factors in the planning and layout of Mesoamerican urban architecture. A statement in the “Motolinía Insert no. 1,” a document published in Friar Motolinía’s (1971:51) *Memoriales*, suggests that Motecuhzoma had part of the Templo Mayor torn down and rebuilt so that the sun would rise directly over the temple of Huitzilopochtli on the equinox.¹

Assuming for the sake of argument that the cosmovision scholars have correctly interpreted the cosmological significance of the Templo Mayor, can their results be extended to the whole city of Tenochtitlan? For some authors this is a straightforward interpretation. The passage of the sun across the sky was one of the most important elements of Aztec cosmology (e.g., Graulich 1997), and it seems natural to interpret the east-west avenues and alignments of Tenochtitlan in terms of the passage of the sun. As Tenochtitlan is one of the few Mesoamerican cities with orthogonal planning, the roles of cosmology and astronomy would seem particularly prominent in its layout (e.g., Broda et al. 1987; Carrasco 1999). But there is an alternative interpretation of the grid layout of the Aztec capital focusing instead on political and historical factors. It is clear from numerous studies that the Mexica rulers drew on images and concepts of the ancient Classic-period metropolis of Teotihuacan to reinforce their imperial legitimacy (Carrasco et al. 2000; López Luján 1989; Smith and Montiel 2001; Umberger 1987, 1996). Teotihuacan was an earlier large city not far from Tenochtitlan whose orthogonal planning would have been obvious to the Mexica. Given our knowledge of Mexica attitudes toward Teotihuacan, it would make sense for the Mexica rulers to imitate Teotihuacan’s grid layout in planning their own capital Tenochtitlan, irrespective of any cosmological notions of their own.

Or perhaps the grid layout of the Aztec capital had nothing to do with the passage of the sun or with Teotihuacan, but instead originated for reasons of energetic efficiency. A grid is the most efficient layout for dividing up new land (Carter 1981:151; Stanislawski 1946). Much of the surface of the island city of Tenochtitlan was formed by fill brought from the mainland. The edges of the city were farmed with *chinampas*, agricultural fields with a rectilinear lay-

out (Calnek 1974, 1976). It seems logical to assume that as chinampas were filled in to accommodate the growing population and prosperity of the city, their orthogonal layout would influence or determine the arrangement of lots, buildings, and streets. How can we decide between the cosmological, political, and energetic interpretations of Tenochtitlan's grid? I have no answer to this question and must admit that I have resorted to a hybrid explanation suggesting that all three factors probably played a role in shaping the layout of Tenochtitlan (Smith 1997, 2003: Chapter 8). I do not find this a particularly satisfying explanation, but I have trouble thinking of methods for evaluating the relative importance of the three factors.

The Aztec case illustrates the difficulty of inferring the ideas and intentions of rulers and builders from the material remains of urban sites, even when there is a corpus of written documentation. Another pertinent example is the layout of Inka Cuzco. Several early chroniclers wrote that the imperial capital had been built in the form of a puma. As discussed by Hyslop (1990:50–51), it is difficult to determine today whether these writers were speaking literally or metaphorically (see also D'Altroy 2002:114–15). Modern scholars are similarly divided, some declaring that the city does indeed resemble a puma (Moseley 2001:85; Rowe 1967:60) and others viewing the model as a metaphor without direct and obvious physical expression (Hyslop 1990:51; Zuidema 1990). Gasparini and Margolies (1980:48) provide three maps with alternative spatial models for Cuzco as a puma, none of which look at all convincing to me.

Gutschow (1993) provides an even more striking example from Bhaktapur, Nepal, a city whose layout is said by its priests to conform closely to an ideal mandala form. The actual city layout, however, looks nothing like the mandala that they sketched for Gutschow (1993:170). These and other examples in which emic spatial models of cities conflict with actual urban layouts should give archaeologists pause; we would never be able to reconstruct the cosmological models behind Cuzco or Bhaktapur in the absence of written documentation. It is very likely that the layouts of Maya cities had symbolic associations known to some or all of their elite residents, but can we recover those meanings today with confidence and rigor?

It is also instructive to consider the inverse situation, in which apparently meaningful spatial patterns may have arisen from random factors unrelated to any cosmological ideas of the builders. Kemp (2000), for example, illustrates a simulation model that generates urban spatial layouts whose implication is that the apparently ordered layout of residential districts at the Egyptian city of Amarna—interpreted by some as evidence for the influence of cosmology on urban planning—may have arisen instead from random factors of urban growth. Similarly, Banning (1996) argues that the seemingly planned and cosmologically significant layouts of a number of ancient Near Eastern towns could have arisen unintentionally through nonlinear growth dynamics. To return to the Aztec example, it is entirely possible that Tenochtitlan's grid layout originated solely for reasons of energetic efficiency, and thus we are wasting time today searching for cosmological or political interpretations of that grid. Could the hypothesized north-south axis of Maya sites be another example of a trait that arose through random or stochastic growth processes? Before that question can be addressed, we need to determine the nature of the north-south axis. Is it an empirical pattern or a symbolic construct?

Do Classic Maya City Plans Have a North-South Axis?

The existence of some sort of north-south pattern is a major part of Ashmore and Sabloff's cosmological model. Among Ashmore's statements of her views on city layout and cosmology, she lists "a strongly marked north-south axis" (Ashmore 1989:273, 1992:174) as one of the "five principal components" (1992:174) of the Classic Maya cosmological template. In another article she describes this principle as "emphatic reference to a north-south axis in site organization" (Ashmore 1991:200), and in the recent paper, Ashmore and Sabloff (2002) write of north-south "axial dominance" (p. 203) and of a "pronounced north-south axis" (p. 206). Just what does this mean? The fact that Ashmore's five principles (1989:273, 1992:174) combine empirical spatial patterns of architecture (e.g., architectural groups that form triangles) with symbolic interpretations (e.g., "north stands for the celestial supernatural sphere") confuses the question. Is the

north-south axis an empirical phenomenon—something that archaeologists can identify from site maps—or is it a symbolic construct used to interpret site maps?

My own understanding of the north-south principle, based upon reading Ashmore's articles (1989, 1991, 1992), is that it is meant to be an empirical pattern that once identified at a site, can be given symbolic content through reference to external information on Maya cosmology (from sources like the *Popol Vuh*). But this causes problems—for me, at least—because I cannot seem to find the pattern in the site maps published by Ashmore. She says that the cosmological template (which includes the north-south axis) “can be seen most easily at Tikal, and there, most readily in the famous Twin Pyramid groups” (1992:194). To me, the east-west axis in twin pyramid groups seems stronger, or at least more prominent, than the north-south axis. As for the overall plan of Tikal, I do not see any dominant cardinal (or other) axis.

Ashmore also illustrates her model with maps of Cerros, Quirigua, Copan, and Gualjoquito. Perhaps there is some kind of north-south axis at Quirigua, but I fail to see the pattern in the other site maps. I find her discussion of Gualjoquito particularly puzzling. She compares the site to Copan, asserting that both have a north-south linear arrangement of a public plaza, a ballcourt, and an enclosed compound (1989:281, 1992:181). At Gualjoquito this linear pattern runs east-west, however, and Ashmore claims that the pattern is “skewed counterclockwise” (1989:281). At what point does a skewed north-south axis become an east-west axis?

Perhaps others can see north-south axes at these and other Maya sites, but I am biased or incapable of seeing them. I wrote my undergraduate thesis on Teotihuacan and lived in San Juan Teotihuacan my first summer in Mexico. I readily admit that Teotihuacan looms large in my thinking about Mesoamerican cities. In my mind, Teotihuacan is a site with a “strongly marked” or “pronounced” north-south axis. Perhaps this “Teotihuacan bias” blinds me to more subtle spatial patterning at Classic Maya sites. Perhaps I simply do not have the perceptual or cognitive ability to see north-south axes at the Maya sites. Or maybe the emperor has no clothes; maybe there are no clearly discernable

north-south axes at these sites. My reading of Ashmore's articles could be in error and the north-south axis a symbolic construct, not an empirical pattern.

If this latter suggestion is correct, it is not at all clear just how one goes about applying the model. Ashmore and Sabloff do not provide enough information on how to select particular structures or groups that can be given a north-south cosmological interpretation. In one article Ashmore (1989:274) suggests that the cosmological template can apply to “the pairing of open, public gathering spaces on the north with enclosed, private (residential/administrative) groups on the south.” Does any case of a plaza located somewhere north of an elite residential compound fit the model? Do the features have to be contiguous? Do they have to be the largest plaza and compound at a site? Does this symbolism refer to certain kinds of plazas and compounds but not others?

Several of the site maps published in the recent article (Ashmore and Sabloff 2002:206–207) do seem to have north-south axes. These are not complete site maps, but rather plans of key groups selected from the overall site maps to illustrate a (quite reasonable) suggestion of architectural emulation among sites. The architectural groups depicted at Xunantunich, Naranjo, and Calakmul do appear to share some spatial characteristics, although we are not told exactly what is similar or different about these plans other than “the pronounced north-south axis arguably linked to royal authority and continuity” (2002:206). The Spanish version of the article (Ashmore and Sabloff 2000) includes more complete site plans of Xunantunich and Naranjo, but as in the cases of the sites mentioned above, I have trouble seeing clear north-south axes in these maps. The east-west axis—at Xunantunich at least—seems to me equally prominent. In Figure 1 I present my own maps of selected buildings from those site plans that highlight what appear to be pronounced east-west axes. At Xunantunich a constructed causeway runs east-west to join the central plaza on the east side, and what appears to be a cleared east-west avenue runs from Structure A-21 to join the plaza on the west side. At Naranjo, an east-west corridor or axis of major public architecture extends from the tall pyramids on the east through several plazas and buildings, including a large platform and a series of enclosures adjacent to a bajor on the west side.

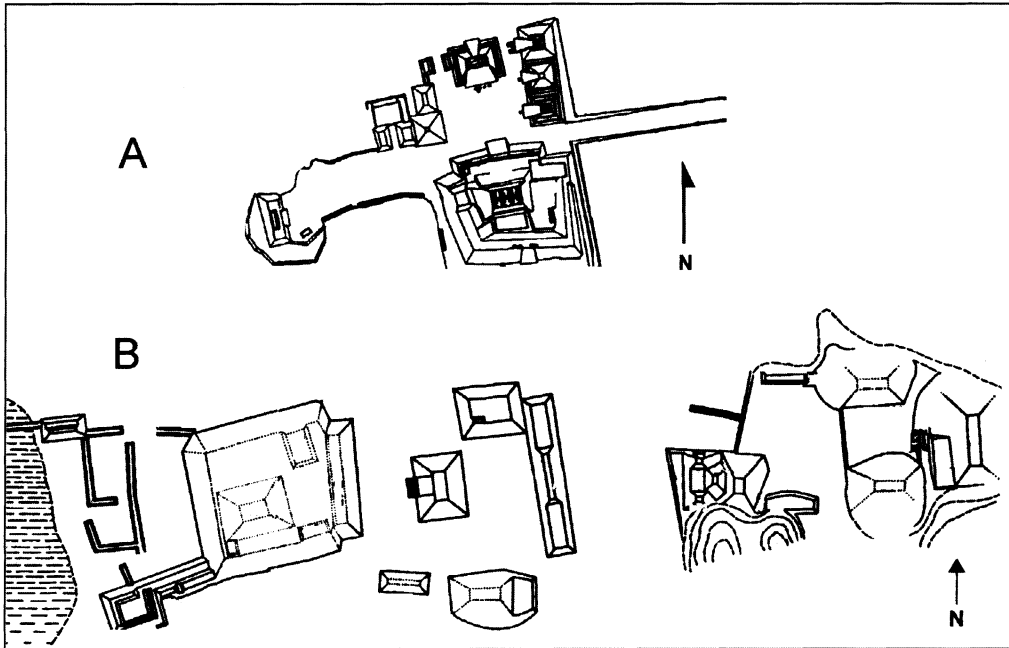


Figure 1. Plans suggesting possible east-west orientations at Maya cities: A) Xunantunich (modified after Ashmore and Sabloff 2000:Figure 4); B) Naranjo (modified after Ashmore and Sabloff 2000:Figure 5). I make no claims for cosmological or other significance for these plans.

I freely admit to selecting out only those buildings that fit my preconceived goal of defining east-west axes at Xunantunich and Naranjo, and I claim no cosmological (or other) significance for the plans in Figure 1. These are perverse fantasy figures whose sole purpose is to challenge Ashmore and Sabloff to clarify their methods and procedures of analysis. I am sure that Ashmore and Sabloff used more rigorous criteria in creating their Figures 4 and 5 from the same base maps that I used. But what are those criteria? The reader needs to know. And what is the empirical basis for the judgment that the plans of architectural groups at Xunantunich, Naranjo, and Calakmul—or Copan and Gualjoquito—are similar? What would have to be different to conclude that these groups were *not* similar?² Just how does one decide that a complicated urban plan has a “pronounced” north-south (or east-west) axis? Are there degrees of adherence to an ideal north-south model? Do Xunantunich and Naranjo—or Tikal and Copan—fit the model closely, or do they only bear a vague resemblance to it? Because the authors fail to present objective methods or criteria for comparison, their interpretations sound highly subjective.

Analyses of the role of cosmology in ancient urban planning do not have to be vague and subjective. Urban planner Kevin Lynch (1981:73–81) discusses ancient Chinese, Indian, and other patterns of urban planning under the label of an emic “theory of magical correspondences” and identifies a number of cross-cultural architectural expressions of that cosmological model (Table 1). Environmental psychologist Amos Rapoport (1993) discusses a similar cosmological model, drawing upon a much-cited passage in Eliade (1959:5–12). Rather than present a single cross-cultural set of architectural manifestations like Lynch, Rapoport applies the conceptual model to a variety of ancient cities and describes its architectural expressions in reference to individual cases (Table 1). Similarly, studies of the expression of ancient political ideologies in urban plans by archaeologists (e.g., Blanton 1989; DeMarrais 2001; Prem 2000) present specific architectural and spatial features as possible manifestations of state or elite ideologies.

Compared to such works, Ashmore and Sabloff’s cosmological model lacks specificity and rigor, largely because the material expressions of

Table 1. Architectural Expressions of Cosmological Symbolism in Ancient Cities.

Lynch (1981:75–79):	Rapoport (1993:43–52):
axial line of procession	city walls with gates
encircling enclosure with gates	orientation to the cardinal directions
dominance of up versus down	vertical markers at the center
grid layout	open sacred plazas
bilateral symmetry	tombs in key locations

Note: These features do not exhaust either author's lists of architectural expressions.

their cosmological and political models are vague or unspecified. In earlier publications on this theme, Ashmore was careful to label her conclusions provisional and exploratory. Now, ten years later, Ashmore and Sabloff (2002:202) again state that their work is "provisional." But until they devise more objective methods with a firmer grounding in empirical data, the argument for cosmological principles in Maya urban planning will remain weak, speculative, and provisional.

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Notes

1. The statement in the Motolinía Insert no. 1 (published in Motolinía 1971:50–54) was first noted by Maudslay (1913:175), who stated, “Motolinía says that the festival called Tlacaxipeualistli ‘took place when the sun stood in the middle of Huichilobos, which was at the equinox, and because it was a little out of the straight, Montezuma wished to pull it down and set it right’ ” (quotation from Rowe 1977:229; the Span-

ish original is in Motolinía 1971:51). This quote, whose importance for the study of Mesoamerican astronomical alignments is obvious, has been much discussed in the literature. Maudslay's interpretation is accepted by Aveni (2001:236–238), and Aveni et al. (1988:290, 294–295), who analyze the nature of the likely observational practices in relation to the architecture of the Templo Mayor. Rowe (1977:229–230), on the other hand, expresses reservations about Maudslay's interpretation. Hanns Prem (personal communication 2002) follows Rowe and suggests that two separate issues may be conflated in the Motolinía Insert: whether Tlacaxipehualiztli fell on the equinox, and the meaning of the obscure statement that the sun was “in the middle of Huichilobos” (which Maudslay and Aveni interpret as meaning that the sun rose behind the Huitzilopochtli temple on the Templo Mayor). Anthony Aveni (personal com-

munication 2002), acknowledges Rowe's and Prem's reservations but prefers his own published interpretation. Although I am hesitant to venture very far into the realm of archaeoastronomy, Aveni's interpretation seems to me the most logical one. I thank Hanns Prem and Anthony Aveni for their opinions and citations on this issue.

2. Another similarity in site plan discussed by Ashmore and Sabloff focuses on Sayil and Labná (2002:207–208). Prem (2000:66) points out disagreement over the degree of similarity of these site plans, however. He contrasts Ashmore and Sabloff's (2000) views with those of Andrews (1975:326), who finds “almost no consistency in their general configurations.”

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