

THE ELUSIVE PATTERN: UNCOVERING THE TRUTH BEHIND TEOTIHUACAN'S URBAN DESIGN

Michele Rosner
Department of Anthropology
University of North Carolina at Charlotte

Teotihuacan remains one of the most intriguing ancient cities of Mesoamerica because it refuses to conform to the common patterns of civilization. One issue that continues to be debated today concerns the nature of Teotihuacan's urban design. Rene Millon, in his extensive Teotihuacan mapping project, concluded that there is a definite pattern to Teotihuacan's layout, "In view of the great area seemingly subjected to planning (with streets, blocks of uniform size, and uniform grid pattern), it seems likely that Xolalpan phase Teotihuacan was the site of one of the most extensive experiments in urban planning prior to modern times" (1964: 345). Originally, researchers believed that Teotihuacan's alignment was strictly astronomical in nature; however, as excavations at the site have progressed, a newer school of thought has developed that emphasizes a topographical alignment of the city. The evidence for both arguments is compelling, and Mesoamerican cosmology can be used as a tool to justify both theories.

Cosmology is characteristically important in most Mesoamerican communities. This worldview permeated many aspects of civilization, and was often reflected in a culture's art and architecture. As A.F. Aveni writes, "Theirs was an integrated cosmic view, one that sought to interrelate every perceptual facet of nature" (1981: 164). In order to ensure health and productivity, Mesoamericans strove for order in their lives, and often turned to the supernatural to help them achieve their goals. Elements of the rich mythological tradition saturated many components of their lives and were often believed to be the catalyst for different events. To be seen in a more favorable light, communities were constructed to be physical representations of their supernatural beliefs. This factor may be particularly important when one considers how the events that destroyed Teotihuacan's southern neighbor affected the inhabitants of the rest of the Basin of Mexico. Strategically located in the northeastern portion of the Basin of Mexico, Teotihuacan enjoyed many advantages over its southern neighbor Cuicuilco. Not only is Teotihuacan situated to control a prime trade route, but the city is also located some distance from Xitli, an active volcano that buried Cuicuilco around AD 50. One can-

not overestimate the impact that this must have had on the inhabitants of Teotihuacan. In a world seeping with rich symbolism and supernatural concerns, there is no doubt that this cataclysmic event was seen as a punitive act of the gods. Following this tragedy, many Cuicuilco refugees migrated to Teotihuacan, and likely participated in a massive building campaign. According to researcher Doris Heyden,

Parallels between Cuicuilco and early Teotihuacan – talud and balustrade in Cuicuilco's structures 6 and 7, serpentine figurines and thin orange ceramics found at this site suggest the possibility that residents of the southern part of the Valley of Mexico moved northward in the direction of Teotihuacan after the eruption of Xitli volcano in the Cuicuilco area (1975: 139).

While one can only speculate about the motivation behind the sudden building program, an urgent need to appease the gods could have been an incentive. In an effort to save the inhabitants of Teotihuacan from a similar fate that befell Cuicuilco, the leaders of Teotihuacan could have called for an extensive building campaign to pacify the angry gods. Logically, this building campaign would have incorporated, and possibly embodied, important cosmological concepts to ensure stability and longevity. Distressed by the destruction of their neighbors' world, the inhabitants of the Basin of Mexico would have been extremely eager to build a new and safer sanctuary that was in greater harmony with their environment and the supernatural world. By aligning the city with symbolic terrestrial features or celestial objects, the builders of Teotihuacan would have provided the security and peace of mind that the citizens demanded.

For a long time, the scientific world refused to consider that the layout of Teotihuacan corresponded to a celestial pattern because the astronomical tools that had been unearthed there were rudimentary and insufficient to conduct major observations. However, in 1964, James Dow became the first scholar to suggest a celestial correlation for Teotihuacan's urban plan, and provide a realistic method by which the necessary calculations could have been conducted (Rowe 1979: 227). In "Astronomical Orientations at Teotihuacan, A Case Study in Astro-Archaeology," Dow explains that the streets of Teotihuacan form a clean grid pattern and, "The Street of the Dead, the Pyramid of the Sun, and most of the buildings in the central area of the city have an orientation of 15 25' east of north" (1967: 327). This specific orientation, which is similar to the orientations of other cities and pre-Colombian buildings throughout central Mexico, could indeed be indicative of a celestial origin (Aveni and Gibbs 1976: 512). In fact, Aveni and Gibbs contend that "...on the basis of measurements made with a surveyor's transit, three Central Mexican sites (Tepozteco,

Tenayuca, and Tula) possess nearly the same orientation as Teotihuacan” (ibid: 510). While a definite and specific pattern of orientation has been observed, the problem of how the Teotihuacanos could have used celestial bodies as precise markers has not yet been addressed. In his article, Dow points out that sophisticated tools would not have been necessary to conduct the essential calculations. “The north-south orientation could have been set either by a star with a declination in the Northern Hemisphere when it rose, or by a star in the Southern Hemisphere when it set. The east-west orientation could have been set in a similar fashion by stars that were nearer the celestial equator” (1967: 328). With this in mind, Dow suggests a possible relationship between the axial alignment of major streets and specific buildings with particular celestial bodies. Dow proposes that the city was designed to “face in the direction of the rising of Sirius” (ibid: 330), and that the Platform Adosada of the Pyramid of the Sun is actually aligned with the sun at its zenith (ibid: 332). However, the most interesting idea presented by Dow is that the Pleiades constellation is aligned with the Street of the Dead, the north-south axis of the entire city. In his reasoning, Dow concludes that the Pleiades is a strong candidate for a reference marker for the city of Teotihuacan not only because its coordinates are aligned with the city, but because of the constellation’s prominent role in historical documents that relate to Mesoamerican cosmology. “The Pleiades may have been of significance because their celestial position related them to a particular astronomical phenomenon, the first yearly passage of the sun at the zenith, which was probably regarded as important at Teotihuacan” (1967: 329). Dow also points out that the constellation is thought to be represented in carvings by a “hand-held hook-like object with a feather tail below the handle and a hooked blade above” (ibid: 329). Later scholars and supporters of this theory, including Aveni and Gibbs, emphasize that the Pleiades is significant to other Mesoamerican cultures and that even today, it is still “used among contemporary Chorti Maya to demarcate planting season” (1976: 517). While the arguments made by Dow and other scholars are compelling, there is an entirely different theory that proposes Teotihuacan is aligned with major features of the local topography.

In 1971, archaeologist Ernesto Taboada discovered a four-chambered cave located directly underneath the largest and oldest Teotihuacan structure, the Pyramid of the Sun. Heyden writes, “The existence of this cave must have been known when the Pyramid of the Sun was built inasmuch as the entrance to the 103 meter long tunnel coincides with the middle of the pyramid’s original central stairway under the center of the pyramid” (1975: 131). There is evidence that the cave beneath the Pyramid of the Sun was used by the Teotihuacanos for rituals because of the modifications made to the natural structure

and the debris found within. Heyden and other supporters of the topographical orientation theory of Teotihuacan assert that the city was designed around important geological formations and cite the existence of the cave beneath the Pyramid of the Sun, the oldest structure at Teotihuacan, to be sufficient evidence. The significant role of caves in Mesoamerican cosmology reinforces this theory.

It is well known that caves were sacred to the people of Ancient Mesoamerica. These sites were regarded as gateways to the supernatural realm and were considered very powerful. The cave is the symbol of creation, of life itself; the religious history of Mesoamerica is impregnated with this theme. Representations of caves abound in pictorial codices, both historic and religious, and the large number of place glyphs containing the symbol for caves indicate that they constituted an important element in town sites (Heyden 1975: 134).

According to Mexican mythology, the cave is considered to be a kind of birthplace for creation. Many deities, including the sun and the moon, emerged from caves, and Tlaloc, the storm god, was believed to have resided in a cave (ibid: 134). Given this knowledge, and the circumstances surrounding the building of Teotihuacan, it is only natural that the inhabitants would have taken advantage of such a sacred feature of the environment, and used it to strengthen and protect their new city. While the cave may explain the location of the Pyramid of the Sun, other nearby topographical features may have contributed to the rest of Teotihuacan's urban design. Historical documents show that mountains are a prevalent feature of Mesoamerican cosmology, and Teotihuacan is near Cerro Gordo, a volcanic mountain. There is evidence to suggest that the Street of the Dead is actually aligned with this landmark. John Hubbard Rowe and Stephen Tobriner spearheaded this theory in the early 1970s. Both men assert that Cerro Gordo is particularly important to Teotihuacan not only because it is the largest mountain in the vicinity, but because it is also a valuable source of water (Rowe 1979: 228). These scientists contend that the Street of the Dead is actually aligned with this local geological feature, and not with the Pleiades constellation, as Dow and his supporters suggest. This theory is particularly intriguing when one considers that a volcano destroyed Teotihuacan's former rival Cuicuilco. In order to protect their new endeavor from a similar disaster, the builders of Teotihuacan would have sought harmony with the local environment. One way to achieve this, would have been to align their new city with the powerful and dangerous Cerro Gordo volcano. Aligning the city with such a mighty body could be interpreted as an attempt by Teotihuacanos to have a peaceful coexistence with dangerous forces of both the supernatural and physical worlds. Rowe and Tobriner also postulated that Cerro Gordo was an important source of water for

the city. In her article, Heyden acknowledges “an emphasis on water-earth deities in Classic Teotihuacan” (1975: 143), which lends support to Rowe and Tobriner’s idea. Other significant evidence supporting this hypothesis is seen in the mural paintings at the Tlalocan structure. According to Hoopes, the murals here depict “two rivers flowing from a mountain source” (1998: 10). Another portion of the mural portrays “dancing figurines...in streams of abundant water flowing from (a) mountain” (ibid: 11). Perhaps these murals demonstrate the Teotihuacanos’ belief that Cerro Gordo was the city’s source of water. Whether Cerro Gordo was viewed as a life-giving source of water, or a threatening, destructive entity, it is highly probable that Teotihuacanos would have sought harmony through alignment with this dominating geological feature.

There is little doubt that Teotihuacan is a planned urban community that follows a specific pattern. Unfortunately, with no surviving records to indicate the nature of this precise pattern, scientists and researchers can only theorize about Teotihuacan’s design. Dow, Aveni and Gibbs propose that Teotihuacan’s urban plan is celestial in nature, and argue that the city is aligned with significant celestial bodies including the sun, the star Sirius and especially the Pleiades constellation. On the other hand, other scholars, including Heyden, Rowe and Tobriner, argue that Teotihuacan’s layout corresponds to important local geological features, such as the cave beneath the Pyramid of the Sun and the nearby Cerro Gordo volcano. Different aspects of Mesoamerican cosmology support both theories.

The strongest evidence for an overarching theory of the influence of cosmology is found in their explanations for the alignment of Teotihuacan’s north-south axis, the Street of the Dead, because this major avenue affects so much of the remaining areas of the city. The Street of the Dead was the cornerstone of the city, and according to Millon, “Streets have been found at various points both west and east of the Street of the Dead; their orientation is always that of the Street of the Dead or at right angles to it” (1964: 350). Dow and his colleagues provide provocative evidence that the Street of the Dead is aligned with the Pleiades constellation. However, Rowe and Tobriner also provide substantial evidence that suggests the Street of the Dead is actually aligned with nearby Cerro Gordo. I doubt the answer to this perplexing debate is so simple.

After reviewing the data in the academic journals, I have come to believe that Teotihuacan’s urban plan is a combination of topographical and celestial factors. The fact that Teotihuacan’s aligning coordinates correspond to other Mesoamerican cities supports the notion that some sort of celestial pattern,

independent of local conditions, is observed in the city's layout. On the other hand, the Tlalocan murals, which depict water flowing from a mountainous source, give merit to the idea that Teotihuacan was originally designed to be in alignment with the Cerro Gordo. Given the evidence discussed above, it is possible that Teotihuacan's urban plan is the result of alignments with both celestial and topographical features.

References Cited

Aveni, A.F.

1981 "Comment." *Latin American Research Review* 16.3: 163-166.

Aveni, A.F. and Sharon L. Gibbs

1976. "On the Orientations of Precolumbian Buildings in Central Mexico." *American Antiquity* 41.4: 510-517.

Dow, James W.

1967 "Astronomical Orientations at Teotihuacan, A Case Study in Astro- Archaeology." *American Antiquity* 32.3: 326-334.

Heyden, Doris

1975 "An Interpretation of the Cave Underneath the Pyramid of the Sun in Teotihuacan, Mexico." *American Antiquity* 40.2: 131-147.

Hoopes, John W.

1998 "Teotihuacan Lecture Notes for Anthropology 506." University of Kansas. <http://www.ukans.edu/~hoopes/506/Lectures/TEO.html>.

Millon, Rene

1960. "The Beginnings of Teotihuacan." *American Antiquity* 26.1: 1-10.

1964 "The Teotihuacan Mapping Project." *American Antiquity* 29.3: 345-352.

Rowe, John Howland

1979. "Archaeoastronomy in Mesoamerica and Peru." *Latin American Research Review* 14.2: 227-233.