

The Slow Burn and the Flash in the Pan: Teotihuacan and Xochicalco: Broad Similarity and Focused Differences

-Michael J Dangler

Throughout Mesoamerica, an area that extends from central Mexico to Honduras, we find a variety of archeological sites that hold some measure of familiarity between them, and yet retain enough difference that we cannot speak of the "Mesoamerican city" in anything but general terms. There is evidence, though, that valid comparison can occur on a case-by-case basis, moving between two or more cities or ceremonial centers and making comparison between them on this smaller scale.

The present study deals with the cities of Teotihuacan and Xochicalco, examining not only how they are alike, but also how they differ in key respects where we might be tempted to read similarity for the sake of comparison and generalization. As we work our way through the sites, we will utilize the conversational method promoted by Dr. Lindsay Jones' *Hermeneutics of Sacred Architecture*, and we will also take side-trips to analyze other aspects of Mesoamerican religion at these two sites. Specifically, we will make comparisons of the images of the plumed serpents at both Teotihuacan and Xochicalco, as well as between the locative aspects of the cities, their alignment, and the caves that exist at each site. These side-trips will provide us with the most information about the

similarities and differences between the two cities, and possibly help explore the concept of Mesoamerica as an area of cultural unity. In the end, we may find that the idea of broad cultural unity between these sites is less certain than most recent scholarship suggests.

Overviews and Relevant Timelines of the Sites

Teotihuacan, located about forty kilometers from Mexico City in the northeastern branch of the Basin of Mexico, is often cited as one of the greatest and most well-studied areas of Mesoamerica, and even more often cited as the inspiration (on many levels) for the rest of the known Mesoamerican world. In the intervening centuries, though, its original name was forgotten, and the name Teotihuacan (meaning "the place of the gods") was supplied by the Mexica-Aztecs. (Kowalski, 78) Teotihuacan's influence can be seen in Tikal, Chichen Itza, and Cholula, as well as at Xochicalco. It seems to have had a population between 85,000 and 200,000 people, with 125,000 people being a common reasonable estimate. (Kowalski, 79)

The city seems to have been at its height as early as the fourth century C.E., (Kowalski, 79) but the majority of its growth appears to have been completed by then. It surprises some that the city ever grew up in this valley and always lacked walls, but this area was very defensible, especially when combined with the theatric presentation of political power we will discuss later. The primary resource of the area was obsidian, and the control of the trade routes for this precious stone seems to have helped build the city into a power and grow its sphere of influence. (Kowalski, 81) It is possible that some of the ceremonial architecture we will examine (in particular, the Pyramid of the Sun) occurred before 1 C.E., but we can best say that after 1 C.E. is when we begin to see the

real growth of Teotihuacan as a ceremonial center rather than a purely economic one. The Street of the Dead appears to have been created between 1 and 150 C.E., as was the inner Moon Pyramid and the bulk of the Pyramid of the Sun. (Kowalski, 81) From 150 to 200 C.E. is when we finally see the creation of the Ciudadela and the Temple of Quetzalcoatl. (Kowalski, 81) Sacked and burned around 750 C.E., (Kowalski, 97) is the "slow burn," covering possibly a millennia of settlement, until the city is abandoned.

Xochicalco, located south and somewhat west of Teotihuacan in the Morelos region of Mexico, about 16 km southwest of Cuernavaca, has withstood amazingly wild and strange interpretations, as well as some that seem rather spot-on. The name applied to the site, Xochicalco, means "place of the house of flowers" which Hirth describes as "a direct reference to the site's ornately decorated temple structure, known to modern archeologists as the Pyramid of the Plumed Serpents." (Hirth, 3) Xochicalco seems to have reached its height between 650 and 900 C.E., and settlement of the main site at Cerro Xochicalco (settlement of the area dates back further on others of the six hills that form the site, but the primary consideration of the development of the more impressive ceremonial center on Cerro Xochicalco) did not occur until it rapidly developed beginning around 650 C.E. (Molina & Kowalski, 144) It is often suggested that Xochicalco receives much of its momentum for growth from the decline of Teotihuacan. (Hirth, 97; Molina & Kowalski, 145) The estimated total population of the site is estimated by Hirth to be approximately 9,000 to 15,000 persons during the height of Xochicalco's usage. The sudden decline of Xochicalco appears to have been the result of military revolt or conquest in 900 C.E., when the city was sacked and burned. (Hirth, 10)

This city, compared to Teotihuacan, is merely a "flash in the pan," spanning only 250 years.

Initial Source Concerns:

Looking at the two sites, there is a huge discrepancy between the number and quality of sources available for this investigation.

At Teotihuacan, the sources are not only numerous, but difficult to weed through. The best source for sheer archeological knowledge is the Teotihuacan Mapping Project, completed in 1973 and edited by Rene Millon, which is one of the most extensive archeological mapping projects ever undertaken. Other sources work heavily from this to form interpretations, and many make good use of it. On the other hand, though, the high profile of the site, the high accessibility and the frequency of guided tours, and the age of the site has led to some less than stellar scholastic examination. Often, weeding through the sources is not only time-consuming, but dangerous: self-described experts and persons with a small working knowledge of archeology can sometimes throw us for a loop as we work to create and build a strong sense of the place.

At Xochicalco, we have very little information, but the information we do have is less likely to be done by amateurs and self-styled archeologists. Here, too, we find that the central archeological interpretations come from a mapping project, the Xochicalco Mapping Project, lead by Kenneth Hirth. His two-volume work, though not as in depth as the Teotihuacan project, is still an excellent resource. While fewer good sources exist, so too do fewer poor sources. It makes for the strange feeling that the sourcework actually benefits from a lack of excessive resources.

That said, we can move onto an actual examination of the site, taking these considerations into account.

Homology of the Sites:

The homology of the sites can best be described as a method of viewing these sites from a perspective of retrieval, in which we question representations of the sacred and whether those representations deal specifically with manifestations of the sacred (hierophany); archetypes of celestial precedent; views of the *imago mundi* (images of the world); and the concept of the sacred center, or *axis mundi*. (Jones, 296-298)

The first two categories present some issues with both sites. Rather than speak of actual hierophany and archetypes, we are forced to speculate on *possible* hierophany and archetypes, because we simply do not have source material that is explicit enough from these early cities. This brings out a small fear in any scholar, who must then tread a fine line between logically inferring answers from our sources and completely stepping off the deep end and making things up. Hopefully, we will stick primarily to retaining logical inference. We will encounter a healthy and cautious speculation often in these sites (as such is encountered throughout Mesoamerica), because we have few (if any) records for the actual occurrence of the sacred being revealed to persons at specific sites, and we are forced into informed speculation and educated guesses.

At Teotihuacan, we have two primary indications of the possibility of hierophany: the reproductive mountaintops formed by the pyramids of the Sun and the Moon, and the cave below the Pyramid of the Sun. The area itself seems to lack a strong catalyst for settlement: there is no major running water source, and the area is instead dependent on freshwater springs to the southwest of the city. (Manzanilla, 110) Due to this, we might

consider the possibility that the earliest settlements in the area came primarily from the revelation of the sacred on earth: in the caves that dot the valley, or possibly on the mountaintop known as Cerro Gordo.

At Xochicalco, we have a site that is rapidly developed over the space of 250 years and found atop a mountain, also including a number of caves on site. Because Cerro Xochicalco, the main ritual center, was not developed until about 650 C.E., we find ourselves wondering why this site in particular was chosen, when there are six other hills that not only could have been but were fortified before the central hill. One explanation, that the hill was built upon and represents an emergence of a militaristic culture, will be dealt with in depth later. From the position of homology, however, we need to think about the manifestations of the sacred that may have played a part in the initial interest in this site. When we look at the mountaintop location, we can imagine that manifestations of the sacred could have occurred, either atop the mountain or within the Observatorio Cave.

When we discuss the archetypal celestial precedents, we move into slightly more stable ground, as we can look to Mesoamerican cosmology as a guidepost for these archetypal ideas. Both sites have strong connections to caves, which might represent the *Chicomoztoc*, the Seven Caves, which we later see manifesting as the Aztec place of origin. (Kowalski, 88) There are also dual-pyramid configurations at Xochicalco (Hirth, 220) and there is speculation that the top of the Pyramid of the Sun at Teotihuacan may have had two temples on its top as well. (Kowalski, 82) If these dual-pyramid configurations did exist (or were considered as something more than symmetry to the

builders), they may reflect an archetypal precedent that was common in Mesoamerica (we also see it later at Tenochtitlan).

The concept of each site as an *imago mundi* depends more on a working knowledge of the Mesoamerican cosmivision, and indeed the age of these sites prevents the examination of each from this perspective unless we accept that there is a common image of the world between all Mesoamerican cultures.

At Teotihuacan, we find the strange alignment of buildings catches our attention first. While nearly the entire city is based along the grid formed by two streets, the Street of the Dead and the East-West Avenue (Carrasco, 111), this grid is not quite laid out to the four directions: it is offset by 15 degrees, 25 minutes east of north. (Kowalski, 89) The Pyramid of the Sun faces to the west, directly correlating with the sunset on the day of its first passage through its zenith (Carrasco, 112), and the angles formed also correspond directly to the first appearance of the Pleiades constellation on the same day. We will revisit this when we discuss astronomy, but the layout of the angles in Teotihuacan clearly indicate that there was an impressive and distinctive interest in reflecting the natural world in the layout of the city itself.

At Xochicalco, we find a different impression of the universe, and even find ourselves having to stretch in order to come up with a reasonable deduction for where this image of the world can be found. The primary image that stands out from viewing the topographical maps is the terraced hill, Cerro Coatzin, which rises higher than Cerro Xochicalco, just to the northeast of the hill, and may represent the ascent into the heavens. Seen from the Pyramid of the Plumed Serpent, it could be a physical representation of this ascent (there is also a ceremonial center atop this hill).

The concept of the center of the world, or *axis mundi*, is strong at both sites. At Teotihuacan, we find the Tlalocan Patio of the Tepantitla, which has a mural that depicts the sacred mountain with a cave below it, streams flowing out to provide water to the fields. In this mural, the sacred mountain is an obvious central axis (Kowalski, 87), and if we look up the Street of the Dead, we find that the Pyramid of the Moon reflects the dominant feature that is Cerro Gordo. (Kowalski, 86) The city became the center of the world, too, its influence and power centering at the ceremonial center but expanding to the rest of the world. The great marketplaces and the holy centers, as well as the economic strength of the area all had much to do with making it a microcosmic center of the world.

At Xochicalco, we find a more obvious *axis mundi* in the site itself. Not only is the site full of temples that can be seen as individual sacred centers, but also the entirety of Cerro Xochicalco can be seen as one large, sacred mountain, and as such as the center of the world. Within the city itself, we can look at the Pyramid of the Plumed Serpents, which Carrasco describes as "vibrant and about to ascend beyond the top of the hill." (Carrasco, 130) The way that it engages us can be seen as bringing us to the center of the world, and the heights that it inspires in Carrasco may very well be heights that all are inspired to. Also at Xochicalco, there is a yearly creation of an *axis mundi* in the Observatorio Cave, where the sun passes over on the summer solstice and a shaft of light is visible within. This light and its strong visibility as a column or pillar could be considered another sacred center.

The homology of the sites, while difficult to ascertain in most cases without stepping out onto a rather fragile limb of speculation, can be reasonably guessed at and

applied to each. While dependent on a reading of Mesoamerican cosmovision as generally homogenous, it provides some good answers to some tough questions, not the least of which is, "Why build there, and why now?"

Convention of the Sites:

Convention relies on finding standardized rules and conformity to those rules. These rules may be internal to the culture or possibly "universal" among cultures. Generally speaking, we will seek the universal principles and proportions that may be inherent at each site, followed by certain principles and stipulations that may have been imposed by divinity or religious decree, and also seek to determine what stipulations may have been passed to the two sites by their predecessors. (Jones, 298-300)

As regards "universal" principles, we have little evidence. At Teotihuacan, we find that the entire site (as mentioned above in "Homology" and below in "Astronomy") is laid out according to the positions of the stars. The layout here follows the general convention that a city should be laid out according to the universe at large. There are also calendrical associations with the Temple of Quetzalcoatl, indicating that there were 12 platforms, "the stages for elaborate calendrical ceremonies," and 365 carved deity heads to mark the days of the year (Carrasco, 123). At Xochicalco we come across similar calendrical markings, including twenty "calendrical altars" on the western portion of Cerro Xochicalco that seem to mark the twenty day-names of the 260-day ritual calendar (or *Tonalpohualli*). (Molina & Kowalski, 148) Also, the Pyramid of the Plumed Serpent includes a representation of a hand pulling on a calendar glyph, and some have suggested that this glyph's movement details the replacement or rectification of the calendar. (Smith, 66) This particular theory, though, has fallen from favour.

Regarding divine revelation or religious decree for the layout of the cities and the buildings within, we can see this most clearly at Teotihuacan, where not only were the holy places set up on a grid that was aligned with the sun and stars, but even the houses and apartments were aligned to this grid. Each barrio, which contained more than 2,000 apartment compounds, included ceremonial centers for the barrio and for each compound. Each of these ceremonial centers is also aligned to the same grid, meaning that even on the smallest levels, the physical trappings of religion were reflected. (Carrasco, 113) This indicates that the layout was likely to have been legislated by either decree or precedence in a religious manner.

At Xochicalco, the primary indication that we have that a decree (historical or mythological) might have been at play in the area is something called the "Palace Monument", which shows one figure carrying another figure, and includes footprints that circle the monument. (Smith & Hirth, 26) It may indicate the journey of a deity or historical personage who established the city and placed the rules for convention. Another possible indication of a single person making decrees about the location might be the short period (250 years) that the city was at its height and during which nearly all the building on Cerro Xochicalco occurred.

The most interesting thing about seeking the prestigious historical or mythic predecessors at Teotihuacan is that it is clear that Teotihuacan is a primary influence on nearly every other city and ceremonial center in Mesoamerica. Its centrality to Mexica religion can be seen even in the late 1400's, when the Aztec Templo Mayor borrows much of its legitimacy by copying Teotihuacan. Despite this, we can find some things that Teotihuacan borrowed from other cities, including the distinctive *talud-tablero*

terracing that becomes common and which is borrowed from Tlaxcala; or the closest competitor to Teotihuacan, Cuicuilco, which displayed its massive political power via a great circular pyramid. (Kowalski, 79)

At Xochicalco, we find many Teotihuacano influences, including the centrality of the feathered serpent (though this serpent holds some fundamental differences; see the section "Dreaming in Jaguars and Boas" later in this paper), whose temple includes the *talud-tablero* of Teotihuacan. By far the most important influence on Xochicalco by Teotihuacan was the decline of the latter, which led to the creation of a niche for Xochicalco to grow to fill, and the speed of the building could have been a desire to recreate the political power of Teotihuacan locally. (Hirth, 250) Outside of Teotihuacan, though, we find other influences that helped shape and provide precedence for Xochicalco to follow, including spatial concepts that more closely relate to classic Maya centers than the open-grid pattern of organization provided by Teotihuacan (Molina & Kowalski, 150); and the similarity between the ballcourts at Xochicalco and the ones found throughout other Mesoamerican sites that indicate a continuity of style, there is little or no evidence for an actual historical link. (Hirth, 222)

Astronomy of the Sites:

It comes as no shock to most that a pair of sites in Mesoamerica will find some alignment with the stars or other celestial bodies. The popular myths of the Maya and Aztecs as being concerned with the movements of the stars and astronomy in general makes certain exciting and amazing discoveries seem almost unimpressive to the casual student of Mesoamerica. Despite this, there are some impressive feats of engineering and alignment that should be viewed to help us understand the sites and the importance of

certain things related to them. In examining this priority, we will discuss astronomy as it relates to both homology and convention, as well as how they relate to the conformity to various rhythms and principles; how these configurations relate to predictable sky phenomenon for scheduling purposes; and how they connect with ideas of divinity, sacred history, socio-political concerns, and the dead (each of which will be expanded on as we move through the next set of priorities). (Jones, 300-302)

The homology and convention of Teotihuacan, as they relate to astronomy, primarily revolve around the layout of the city. The 15 degree, 25 minute deviance east of north lines the city up with the azimuth of the Pleiades star cluster and the sun's zenith, and the existence of the cave below the Pyramid of the Sun (which seems to be the intersection between several points) could indicate a point of manifestation of the sacred, or possibly a decree that the area match up to this particular grid-system.

At Xochicalco, it is difficult to find places where astronomy is particularly tied to either homology or convention, primarily due to the lack of strong astronomical work done at the site. If the Observatorio Cave is not man-made, though, we can see the penetration of light into the cave at the summer solstice as an excellent example of potential homology that is tied to astronomy, but beyond that, it is difficult to see this component of the astronomy priority.

Regarding the scheduling of ceremonies, we are likely to find more information at both sites. Anthony F. Aveni gives us an excellent idea about the timing of the astronomical alignments at Teotihuacan:

The Pleiades could have served the function of "announcing" the first annual passage of the sun through zenith at Teotihuacan, since their heliacal rising and the passage of the

sun through zenith occurred approximately on the same day (58 days after vernal equinox). (Kowalski, 85)

When the Pleiades rose for the first time, it marked the sun's zenith, and this could have been the "sign" that a festival was to start. Unfortunately, we know nothing of what this festival might have been for certain, but we do know that it was certainly important.

At Xochicalco, the Observatorio Cave is the central astronomical structure, and given that its usefulness extends to a single day for observing astronomical phenomena, it seems clear that the cave is likely to have been used to mark that day in particular. The summer solstice, in this case, is likely to be very important within a ritual context. Also related to astronomy, though, are the calendrical altars that seem to mark the twenty day-names of the *Tonalphoualli*, which would have been related to the usual cycle of the sun rising and setting, and were probably used to track the ritual calendar from holiday to holiday.

Astronomy as it offers meanings connected with various deities, sacred history, socio-political concerns, and the dead are again complicated. While we still have the Pleiades and the summer solstice announcing a festival or ritual that seems connected with one of these concerns, we are unable to determine the exact nature of the ritual in any of these cases. Some interesting speculation can occur, however, which begins with the idea that the Pleiades, called *Tianquiztli* (or "marketplace") by the Aztecs, and which plays such a central role in the astronomy of the people of Mesoamerica, may have been seen as a "gathering place" for the gods or perhaps the dead, and that their arrival in the night sky was another way of measuring cosmic time. Another idea presented is that if the cave beneath the Pyramid of the Sun was the place that time began, its view of the horizon might point to the place *when* time began. (Kowalski, 85n5) At Xochicalco, the

Observatorio Cave could be seen as a place of revelation from a deity, and it could also have been used as a way to close off rituals from the area around, allowing only the elite to take part in rituals in the cave (it's too small to fit too many people into).

For information regarding particular parallels between the alignments of the sites, see the section, "Their Eyes to the Stars" later in this paper (p. 30).

Divinity at the Sites:

Divinity is represented in many forms in architecture, but the primary methods considered are divinity as it is personified by the landscape, structures that can be seen as the body or form of the deity, structures that serve as the home or abode of the divinity, and structures that express the attributes of the divinity. (Jones, 303-305)

At Teotihuacan, the mountain Cerro Gordo, which rises behind the Pyramid of the Moon, was called *Tenan*, or the "Mother of Stone", and may very well be a personified goddess. The connection between the mountain and divinity can be found explicitly in the Tlalocan mural on the walls of the Tepantitla apartment compound, where the sacred mountain as a source of waters and life is explicitly tied to a so-called "Great Goddess" who stands above it. (Kowalski, 88) We do not find anything quite so explicit at Xochicalco, but it is possible to see that sacred mountains, often referred to as "snake mountains", such as Cerro Xochicalco, might be seen as representative of the plumed serpent deity.

It is difficult to find anything that explicitly looks like the body of a deity, though if the mountains Cerro Gordo and Cerro Xochicalco are both considered to be actual deities in their own right, then extending the interpretation to the pyramids that imitate these mountains may not be far off.

Regarding structures that seem to be homes for the divinity, we have two examples that stand out, one at each site. At Teotihuacan, we find the center of the Cuidadela, most often called the "Temple of Quetzalcoatl," which may not indicate that the structure itself is an abode for the deity necessarily (though this is indeed a possibility, as the structure is adorned with images of water and even seashells), but may represent the home of the feathered serpent deity, who is seen swimming among the seashells beneath the waves in a number of the reliefs. (Kowalski, 91) In Xochicalco, we find the city is divided vertically into layers, and at the top layer, furthest removed from the profane and with the most restrictive access (Hirth, 227) (we will discuss this access in further detail under politics), we find the Pyramid of the Plumed Serpent, which is highly decorated with the visage of this plumed serpent divinity, and if any building on the site can be considered an "abode" to a divinity, this surely must be it.

The attributes of divinity are also most strongly expressed on these structures. On the Temple of Quetzalcoatl in Teotihuacan, we find numerous representations of both the feathered serpent and the goggled god (who may be Tlaloc), and it seems that this is the central source for all images of the feathered serpent throughout Mesoamerica, though there are key differences. Likewise, at the Pyramid of the Plumed Serpent at Xochicalco, we find the plumed serpent in a variety of positions, poses, and presiding over everything from calendrical issues (Smith, 65), to the ballcourt and body imagery (Smith, 67), to issues of rulership and political power. (Smith, 64)

For more on the images of the plumed serpents at Xochicalco and Teotihuacan, see "Dreaming and Jaguars and Boas" later in this paper (p. 26).

Sacred History at the Sites:

Discovering the ways in which sacred history is conveyed to the viewer through architecture deals primarily with the commemoration of space and the transmitting of knowledge about mythico-historic episodes. In particular, it can provide a backdrop for the theatrical presentation of myth, commemorate the cosmogony of a people, commemorate mythico-historical episodes, commemorate individuals, and commemorate places from the past or from myth. (Jones, 305-308)

Setting the stage for the reenactment of myth is often key to providing the myth for others to understand. In Mesoamerica, this is often done by providing an open place at the top of a pyramid. At both Teotihuacan and Xochicalco we can find examples of both low, open pyramids that would make ideal stages for reenactment, as well as the larger structures that we have covered in previous discussions and will cover again: the Pyramids of the Sun and Moon, as well as the Pyramid of the Plumed Serpent all have high platforms that allow for a theatric presentation of a myth or ritual. Further, at Teotihuacan, we find the Street of the Dead, which could have played a major role in allowing the reenactment of journeys or travels of a deity.

The commemoration of creation can be seen at Teotihuacan in the cave under the Pyramid of the Sun, which faces out to the point of creation of the sun. (Kowalski, 85n5) At Xochicalco, we find the Observatorio Cave, whose shaft of light could, in a Freudian interpretation, be seen as the generative, creative penetration that begins life, and is thus commemorated each summer solstice, but I personally think that's a stretch and haven't seen it seriously suggested in scholarship. Also at Xochicalco, though, we find ballcourts, and certain interpretations of the Mesoamerican ballgame indicate that the ballgame may

have been some sort of mythological reenactment, and that the game itself might commemorate a myth of creation. (Hirth, 221)

There is little evidence at either location for the commemoration of mythico-historical events, though the focus on the summer solstice and the azimuth of the Pleiades seems to be particularly well-timed in these cities. At both cities, though, we find a commemoration of mythico-historical personages in the form of the plumed serpent, although there is serious doubt about the connection between the serpent at Xochicalco and the one at Teotihuacan, especially the connection of the Xochicalco serpent to the myth of Tolpiltzin Quetzalcoatl.

Teotihuacan seems to deal extensively with its commemoration of mythical places, possibly as a way to retain support and authority for itself. The area it was built in comes down to us in Nahuatl myth as geographically representative of the underworld, in particular the entrances to that realm. To the southwest are the springs of Teotihuacan, which correspond to a place of warmth, or *Atotonilcan*. East of Teotihuacan, we find the lake, called *Apan*, which is said to join with the sea. North of the city is the mountain where the sun stops in its voyage, *Tonalan*. Finally, there is a gorge on the southwest side of Cerro Gordo that connotes with the cave of the winds, *Mictalli*. And so Teotihuacan represents the center of these underworld places. (Manzanilla, 122-124) Within the city, we find the Temple of Quetzalcoatl, which includes a number of reliefs on the walls. These reliefs indicate a commemoration of a place in the past, and possibly the abode of a deity, as the feathered serpent is seen to swim among the waves and seashells. At Xochicalco, the Observatorio Cave is our best guess at the commemoration of a mythical place, as the paired staircases that lead into it seem to indicate a ritual function, (Hirth,

222) including descent into the underworld and re-emergence from it. (Hirth, 223) There is also the possibility that the entire mountain was viewed as the "Snake Mountain" of Mesoamerican fame.

Politics at the Sites:

In examining these sites, we cannot ignore the possibility that politics played some major part in their creation and perpetuation. In particular, certain configurations might be designed specifically to perpetuate the prevailing social hierarchy, some might be designed to challenge that hierarchy, and some configurations may simply serve governmental functions. (Jones, 308-312)

The aspects of the sites that serve to retain and maintain social hierarchy are primarily theatrical at Teotihuacan. The magnitude of the site alone is enough to remind anyone visiting that the area is well controlled, and the theatrical qualities of the buildings for ritual reenactment seem to indicate that a show could be put on for anyone who did not believe that there was real power in the city. The obsidian eyes of the deities in the Temple of Quetzalcoatl (Carrasco, 124) would also have clued visitors in to the knowledge that there was a strong militaristic edge to the city, for if they could afford to waste good obsidian on decoration, one can only imagine their weapons. At Xochicalco, these aspects are even more evident. Not only is the city built atop a hill and thus amazingly defensible, but the city itself is built into concentric rings, with access more and more controlled as you move up through them. While anyone in Xochicalco would have access to certain areas of the ceremonial center, other areas would have been restricted entirely except for certain rituals. (Hirth, 228; Hirth, Hirth & Pauer, 207) Also

at Xochicalco, we find defensive works, including walls and ditches, which are indicative of the desire to retain control over the area.

While neither site really lends itself to finding challenges to the established hierarchy, we can find strong evidence of governmental functions, especially at Xochicalco, where we find that the *tablero* on the Pyramid of the Plumed Serpent seems to indicate a record of tribute exacted from conquered tribes (Smith, 68), and a number of mounds seem to have had administrative use. (Hirth, Hirth & Pauer, 207) At Teotihuacan, though there is no defensive fortification built, the walls between the precincts may have done double duty as defensive fortification. (Carrasco, 120) It is often noted that the commercial and bureaucratic center of the city was the Ciudadela and the Great Compound, and these two structures are likely to have been built to keep the government working. (Carrasco, 112)

For more information on the locative political aspects of the sites, see "Mountain Tops and Valley Floors" later in this paper (p. 31).

The Dead at the Sites:

Often important in the design of a site is the disposition of the dead. This architectural priority treats methods of commemorating the dead through memorializing the dead without bodies present, creating a building that is the actual embodiment of the dead, and treating and accommodating actual remains. (Jones, 312-315)

It is very interesting that, for Mesoamericans (so well known for their sacrificial practices), there are very few bodies within the ceremonial centers of Teotihuacan and Xochicalco. While there is much memorialization of the dead through murals at Teotihuacan, there seem to be more of a commemoration of the *teyola*, or the force that

resides in the human heart, than a commemoration of the dead. It is possible that such commemoration, however, belongs more in the realm of divinity than in the realm of the dead, as the *teyola* was seen as a divine spirit. At Xochicalco, we find a number of murals and reliefs that describe human sacrifice, and Hirth describes the trilobate symbols found at Xochicalco as expressing human sacrifice symbolically. (Hirth, 257-260)

As for architecture as the actual embodiment of the dead, we might be tempted to look at the Street of the Dead at Teotihuacan, but we need to remember that the name for that street was applied after the city had been deserted. Unlike at other Mesoamerican sites, we do not find any skullracks in Teotihuacan (Miller, 348), though we do find a *representation* of one at Xochicalco, carved out of stone. (Hirth, 259)

What is most interesting about these sites, though, is that the entombment and disposition of remains seems uncommon, if not downright rare. At Xochicalco, I have been unable to locate a single mention of interred or found remains, while at Teotihuacan, the only remains I can find record of in the ceremonial center are five individuals at the top of the Temple of Quetzalcoatl and four more buried under the same temple, one at each corner. (Sempowski & Spence, 12) Also, there are some children found under each corner of the Pyramid of the Sun. (Sempowski & Spence, 46) While there are other burials in the city, none appear to be near the ceremonial center, and only 455 individuals have been found, indicating that out of a total population of 125,000, very few people were buried in the city. (Sempowski & Spence, 3) It appears, from this, that burial was reserved for sacrifices meant to uphold the buildings. There is a crematorium located in the northwest corner of the city, and it seems that this was the most common method of disposal for remains.

Theatre at the Sites:

Theatrical examination of a site can yield both qualities of allurement and qualities of deeper meaning. At both sites, the theatrical aspects are strongly present. (Jones, 315-318)

At Teotihuacan, we have the great Street of the Dead, which we cannot consider merely a functional roadway, but should see it as a *via sacra*, one that runs past the city's most sacred shrines and temples. (Kowalski, 85-86) The low platforms of these temples could have made an interesting stage for numerous sacred plays and impressed nearly anyone who arrived. Kowalski possibly said it best when discussing the scale of the city: "The scale of Teotihuacan's structures has always impressed visitors." The impressions given by the architecture of the site are highly tied to the political, in particular the impression of defense. While there are no defensive walls in the city and the city is located in a valley, it seems to give the assurance of defensibility primarily through its size. In other words, it is the size of the city and its buildings that indicate that Teotihuacan is secure in its place: the theatric presentation of the architecture itself brings this assurance.

At Xochicalco, we find that the mountaintop location itself seems to be a mode of allurement. It seems that one cannot help but become engaged in the city as they look upon it, and the terraced form of Cerro Xochicalco prevents someone on one level from seeing into the next, which further draws the visitor into a deeper conversation with the place, wondering what is beyond their view. The south ballcourt can be seen from the main plaza, and indeed from several points above the ballcourt. It seems that the ballcourt here would represent a stationary stage, while the audience is free to roam around it and yet still take in the game. Also, similarly to Teotihuacan, there are several low

adoatiorios (altar platforms) in the plazas in front of temples, upon which rituals or reenactments could have taken place. There are also wide, paved causeways into the city that show some very impressive approaches and will help showcase the area. Despite this, the theatric display that these features may promote is seemingly nullified by the terraced layout of the site, which is far less accessible to the common person or visitor in the city.

Xochicalco certainly portrays a message of political power, as well, with the defensive fortifications and the mountaintop location. (Hirth, 218) We also find the tributary reliefs on various structures, including the Pyramid of the Plumed Serpent, which provide a strong, open display of political power. Hirth even calls the figures on the Pyramid "actors." (Hirth, 256)

Contemplation at the Sites:

Contemplation relies on the direct experience of the architecture as foci for meditation or concentration, both through allurements and through deeper meanings. Both sites seem to work in this form, as well. (Jones, 318-323)

At Teotihuacan, we find that the faces and depictions of the feathered serpent and the goggled deity in the Temple of Quetzalcoatl appear to be wonderful examples of ways to support a devotional experience, though what experience that may be is unlikely to ever be known. The reliefs in this temple could also be seen as a "map" of sorts, as the shells and depictions of water seem to indicate a place that someone could "go" on a journey at the temple. There is also the idea that the entire site could be seen as a large mandala, as there is a definite reflection of the cosmos in the alignment of the site. This contemplation is an obvious factor in the creation and display of these deity heads on the

wall: they commemorate and draw attention to the deity. If this deity is a sort of mythicohistorical ruler, it may also commemorate the political climate of his rule.

The allurement as it relates to contemplation of the Xochicalco site is beautifully described by Carrasco:

"Ascending a steep pathway alongside the large pyramid, we enter a small plaza-antechamber which suspends the hike for a moment and prepares the visitor for the treasures ahead. As we step out of this antechamber into the main elongated plaza ... a true blossom of architectural craft rises before our eyes in the form of the Temple of Quetzalcoatl. Its size, shape, splendid tilting lines, and aggressive carvings attract our gaze toward a structure which seems at once vibrant and about to ascend beyond the top of the hill." (Carrasco, 129-130)

Here, we have a wonderful description of how the Pyramid of the Plumed Serpent (which Carrasco calls the Temple of Quetzalcoatl) that indicates that it not only draws the eyes, but draws the visitor into it. This is the essence of alluring contemplation. As it draws you in and brings your concentration, though, it conveys a number of meanings, in particular transmitting the idea of divinity and the idea of political power. The former is transmitted by the depictions of the serpent; the latter is transmitted by the record of conquest and the names of the tribute towns on the *tablero* of the pyramid. (Hirth, 255)

Propitiation at the Sites:

Propitiation deals primarily with the architecture that is already in existence to facilitate interaction with divinity, as well as construction or destruction processes themselves that seem to be propitiary to a divinity. (Jones, 323-328)

At Teotihuacan, it appears that the Teotihuacanos generally reshaped the land to their advantage, recreating rather than reusing sacred sites. The Pyramid of the Moon as a reproduction of Cerro Gordo would be a good example. We can, however, see that a

number of temples were not only built, but re-built. Both the Pyramids of the Sun and Moon were built and enlarged over the years that Teotihuacan was used as a ceremonial center. (Kowalski, 81)

At Xochicalco, we have to note that the mountain, Cerro Xochicalco, is the primary "pre-made building" in the area. It contains not only the political element of defense, but also a strong connection to divinity (as you move up the mountain, you move into the heavens). Ritual destruction of a building could be the leveling and building on the top of Cerro Xochicalco, if indeed we can see the mountain as a pre-existing structure.

Sanctuary at the Sites:

Sanctuary is similarly to theatre, but instead of being inclusive, it is strongly exclusive. Again, we divide sanctuary into ways of providing allurements and meanings about the site. (Jones, 328-322)

At Teotihuacan, we find two particular exclusionary stages: the cave below the Pyramid of the Sun and the enclosure of the Temple of Quetzalcoatl. The cave under the Pyramid of the Sun is restrictive in terms of access, and includes an impressive set of creation aspects, not only corresponding to *Chicomoztoc* (the Aztec place of origin), (Kowalski, 84) but also providing water (though the spring may have been artificial) (Kowalski, 84) which would correspond to the sacred mountain found in the Tlalocan Patio mural mentioned above (Kowalski, 87). The Temple of Quetzalcoatl appears to provide a strong sanctuary where walls keep out prying eyes, and though the entirety of Teotihuacan's population could likely have fit in the space, (Kowalski, 89) it would have

provided an enclosed space that would have promoted a sense of community, if indeed the entire population gathered there for ritual observance.

At Xochicalco, the primary indication of the idea of sanctuary is the obvious terracing of the site as you move up the mountain. As mentioned above, this provides an opportunity for allurement in the desire to ascend to the next level and achieve a deeper connection to the site. It also provides a reinforcement of the political and social hierarchy by only letting certain people move through the various zones. (Hirth, 228)

Also at this site, we have the Observatorio Cave, which is limiting primarily through its size to a small audience, and it is likely that the Cave was used for some sort of private ritual function by the elite at the site. (Hirth, 222)

For more information on the caves at each site, see "The Caves of Teotihuacan and Xochicalco" later in this paper (p. 33)

Overall Morphology of the Sites:

While nearly all the ritual-architectural priorities apply to each site, we often find that the application of these priorities brings out the differences in how they are displayed more strongly than they do the similarities. While both sites display their political power, they display them in fundamentally different ways: Teotihuacan rests its political power on its size, while Xochicalco is more guarded and displays its power from a defensive position; Xochicalco's inclusive ritual theatrics are primarily a matter of privilege because of the site's terraced layout, while Teotihuacan seems to allow the entire population to be part of the "privileged" class that can fit within the Ciudadela; Teotihuacan becomes the model, while Xochicalco becomes the imitator; and, of course, Teotihuacan's fires burn brightly for nearly a millennium, while Xochicalco burns for only 250 years. Through a

basic unity of cosmovision and similar precedents and mythology, we can find ways to look at these sites that would not occur without these assumptions of similarity. By the same token, though, we must be careful not to move too far in this direction, as often when we draw parallels (as in the case of the feathered serpents), we find ourselves overreaching our aims and coming up empty-handed. The primary lesson must be that we can seek to use the broad similarities, but we must temper them with suspicion due to the finer, more focused differences.

Dreaming in Jaguars and Boas:

The Plumed Serpent and His Eventual Revalorization

The primary features at both Xochicalco and Teotihuacan are the respective temples that contain the representations of the feathered serpents. The figures and the pyramids they are displayed upon are the source of much speculation and theorizing within Mesoamerican studies, but the general consensus is that they represent a single deity who is sometimes called or identified with Quetzalcoatl.

Because we will discuss the similarities and differences between these two serpents, we will discuss the serpent at Teotihuacan as the "feathered serpent" and the serpent at Xochicalco as the "plumed serpent". The name "Quetzalcoatl" will be generally avoided when referring to these two serpents, so that we can discuss him as a separate divinity as well. The pyramid at Teotihuacan we will call the "Temple of Quetzalcoatl" and the pyramid at Xochicalco will be called the "Pyramid of the Plumed Serpent" in

order to retain a distinction between them by following the terms used in most current scholarship.

When we look at both figures, we find ourselves seeing the commonalities first: both the feathered serpent and the plumed serpent have feathers, and both are serpents. To many of us, that could seem to be the end of their similarities, and we might think that the differences, such that we see, are negligible. But just as there is a difference between a hawk and a robin, we cannot state that they are the same merely because they share these two particular features.

On the surface, we can see that the features are not as similar as they first appear. The feathers are stylized differently, with the feathered serpent having long, smooth feathers, and the plumed serpent having feathers that plume off his back, and his belly is free of these feathers. The teeth, as well, are very different, appearing as the teeth of a boa constrictor at Teotihuacan and the teeth of a stylized jaguar in Xochicalco. (Smith, 64) Indeed, the teeth of the plumed serpent match up closely with a stylized jaguar at Teotihuacan (Sabloff, 70f47), with three small teeth across the top of the serpent's mouth and one long fang that angles back, matching the fang below. Also different are the feathered serpent's feline nose, compared to the obviously reptilian nose of the plumed serpent. The Xochicalco serpent wears a beard, and the serpent at Teotihuacan does not. These could seem like small, insignificant or artistic differences.

Looking deeper at the two serpents, we find that the feathered serpent at the Temple of Quetzalcoatl is shown with another deity, the goggled god, often identified as Tlaloc (whether this is actually Tlaloc or not is unimportant to the current study). The plumed serpent is associated with human figures at the Pyramid of the Plumed Serpent.

The serpent is associated with these men by their plumed headdresses, and the jewelry that they wear indicates that they are of elite status. (Smith, 65) The feathered serpent is seen as coming out of the wall in many cases, and the plumed serpent is only seen from the side. The feathered serpent was also covered in actual seashells, which does not occur at Xochicalco, though both serpents can be seen to include shell imagery around them.

The men displayed at Xochicalco in the curves of the plumed serpent are treated differently than other men on the *tablero*: they are seated, but not placed on a ground line created by the serpent, and two are elevated above the groundline. Smith informs us that the Maya used floating figures to represent supernatural events, and it is possible that the figures may represent the dead, or possibly deified individuals or their *teyola*. There are also figures that are under the serpent's back, and if we consider the figures above the serpent's belly to be dead, then we might think of the figures below the back as about to enter the underworld. (Smith, 60)

An easy difference to overlook is the way the serpent is laying. The feathered serpent is on his stomach, while the plumed serpent is always on his back. (Smith, 64)

But are these physical differences enough to inform us that, indeed, the deities cannot be classed together as a single deity?

If we compare the function of the two serpents, we find that they seem to both offer tutelary functions to the rulers of the classes that had them carved. In Teotihuacan, the feathered serpent seems to be a water-giving patron and agricultural deity because of its association with shells and corn. (Smith, 64) While their physical and stylistic differences may be large, the meaning seems to be a consistent amplification of the political by the divinity.

It is later in the Toltec period that we find the figure of Tolpiltzin Quetzalcoatl identified with the feathered serpent, but neither the plumed serpent of Xochicalco nor the feathered serpent of Teotihuacan seems to have been related to this deity early on, for neither retains either aspect of the post-classic Quetzalcoatl: neither is he an aspect of the wind god, Ehecatl; nor is he an aspect of the Toltec priest-king who is identified with the morning star. (Smith, 64) Throughout Mesoamerica, temples to Ehecatl are oriented eastward by having their stairs face the east; neither the Pyramid of the Plumed Serpent nor the Temple of Quetzalcoatl has east-facing stairs. Indeed, both stairways face the same degree west.

If the plumed serpent at Xochicalco were connected with Tolpiltzin Quetzalcoatl, his birthdate (and name) would be found somewhere on the reliefs with the plumed serpent. No where does the name "1 Reed" appear at Xochicalco, though we do find the glyph "9 Eye" associated with the plumed serpent. (Smith, 65) This "9 Eye" glyph is not related to Tolpiltzin Quetzalcoatl.

The connotation of the name "Quetzalcoatl" and the serpents here mentioned are not entirely incorrect, however. It becomes associated with the feathered serpent imagery by the time of conquest through revalorization by the Aztecs of the Teotihuacano images, and can be used to refer to the deity in general. In nearly all cases, the deity is somehow related to agriculture and water, though the stories about him may change. It is merely important to recognize that the deity we call "Quetzalcoatl" is not the same deity at every location, and we must be careful to avoid falling into the trap of believing that the feathered serpent of one location is identical to the plumed serpent of another.

Their Eyes to the Stars:

Correlations of Astronomical Alignments

The central feature often discussed when speaking of Teotihuacan as a whole is the astronomical alignment. The Street of the Dead is aligned 15 degrees, 25 minutes east of north, and the entire urban plan follows this alignment to within one degree. (Carrasco, 113) The alignment of the site at Xochicalco, however, is much maligned for its apparent haphazardness. Carrasco goes out of his way to point this out: "There appears to be no master plan in the organization of Xochicalco." (Carrasco, 131)

I strongly disagree with this interpretation. After reviewing the maps of both sites, it seems that there is a firm correlation between the alignment of Teotihuacan and the alignment of Xochicalco.

Xochicalco's ceremonial centers are equally aligned, certainly to the same degree if not the same minute, north of east in the ceremonial center, while the rest of the city is aligned north-south with the Pole Star. It is the opposite of the alignment of the city of Teotihuacan, which is entirely aligned with the baseline of 15 degrees, 25 minutes east of north, with the sacred centers of the Pyramids of the Sun and Moon aligned to the Pole Star.

While every building in Teotihuacan is aligned within 1 degree of the alignment of the Street of the Dead (Kowalski, 85), at Xochicalco, the city is divided into two sections, one of which is aligned on one axis, and the other which is aligned on another. This division into the two sections could be a product of dividing the site further from sacred to profane, or it could merely be a change in plans in order to imitate Teotihuacan more closely.

It is important to note that the maps may or may not be entirely accurate. Though both come out of highly respected mapping projects, only proper surveying of the sites could ever show that this alignment does truly exist. Despite that, the maps seem persuasive enough to suggest that these alignments deserve to be looked at.

Mountain Tops and Valley Floors:

Displays of Military Power and the Inherent Knowledge of It

It has been pointed out in this paper that the displays of military power are different between Xochicalco and Teotihuacan. While Xochicalco relies on an explicit show of force and strength, Teotihuacan seems quite happy to simply show a strong, implicit strength.

The founding of Teotihuacan can hardly be discussed without mentioning the obsidian trade. This trade is often the primary reason given for the settlement of the region in the first place, and while obsidian may not sound like a useful trade object, when dealing with Stone Age weaponry, it is as important as the secret of iron to a bronze-age culture. (Kowalski, 81) Also, salt was produced at Teotihuacan, bringing it more economic power. (Kowalski, 79) After the eruption of the Xitle volcano to destroy the rival city of Cuicuilco, Teotihuacan found itself suddenly the political and economic leader in the area. (Kowalski, 79)

It seems to have been the size of the city that really lent a strong feel of political dominance. We find very little evidence to suggest that Teotihuacan was run by a warrior cult, or that military concerns played a huge part in the organization of the city. There are

no explicitly defensive fortifications, and the main avenues into the city seem open to anyone. What we do find, though, is that the city seems to have been built with an implicit fortification. Though there is no defensive fortification apparent, the walls between the precincts and wards may have done double duty as defensive fortification. (Carrasco, 120) It seems that natural barriers were not only sufficient for the military complex of Teotihuacan, but more than enough, as the architectural priorities never seem to shift from religious symbolism and patronage. (Carrasco, 121)

At Xochicalco, however, we find a distinct and obvious display of military power. It seems obvious to nearly all persons who examine the site that the location was chosen specifically for exclusion: it is situated atop a mountain, Cerro Xochicalco, and defensive fortifications bolster the natural defenses provided by its location. Further, the city is terraced in such a way that finding a way up to the next level is not only difficult, but the access points are easy to defend. It seems that by the time Cerro Xochicalco is settled and opened as a major ceremonial center, either times have changed and there is a dire need for protection from outside forces, or Xochicalco is desiring to flaunt its military might.

It is interesting that two cities that find themselves situated so near each other (around 50 kilometers) and so near in time period (Teotihuacan had just begun its decline when Xochicalco began its meteoric rise to the top of its region) would have such amazingly different displays of strength. It may speak some to the insecurity of Xochicalco, a city that might have seen the order of the world becoming endangered as Teotihuacan diminished and lost its influences over the region (as well as its trade). It may simply speak to a happy accident of fate and hierophany that situated Xochicalco in such an amazingly defensible position.

But perhaps most interesting is that both cities, despite their different methods of proclaiming their political power, seem to have experienced the same end, being invaded and burned by unknown forces and abandoned. (Molina & Kowalski, 159; Kowalski, 97)

The Caves of Teotihuacan and Xochicalco:

The Sun Pyramid Cave and the Observatorio Cave

Caves form an important part of Mesoamerican life. The legendary *Chicomoztoc*, or "Seven Caves," were regarded by the Mexica-Aztec as their place of origin.

(Kowalski, 84) It is interesting to note that caves play a huge part in both Teotihuacan and Xochicalco: Teotihuacan has a cave beneath the Pyramid of the Sun, and Xochicalco has the Observatorio cave. These caves are by no means the only caves at either site (indeed, Xochicalco has numerous caves, both natural and artificial, and has been called the historical *Chicomoztoc* by scholars; and Teotihuacan also has a number of caves around its grounds as well), but they are the most visible and most important caves to the cosmology of the area.

The cave beneath the Pyramid of the Sun is widely considered to be amazingly significant to the Teotihuacanos. It has been called a representative of the *Chicomoztoc*, given the honour of creating the sun and the moon, and been called the birthplace of time. (Kowalski, 84; Carrasco, 108) The cave is entered through a pit, where stairs are cut into the rock that lead down to the main cave. There is a long tunnel that connects the entrance to the four-lobed chamber at the end. There is a stream (which may be artificial) that ran out of the cave at one point. (Kowalski, 84) If a person stands at the mouth of this

cave on August 12 or April 29, they will see that sunset occurs in a straight line from the mouth of the cave. August 12 is particularly important as it corresponds with the date for the beginning of time in this world era. If the sacred cave is where time began, and you can look out of it to the time that time began, you are likely to experience an amazing sense of the sacred. (Kowalski, 85n5)

At Xochicalco, we have another cave, known as the Observatorio Cave. This cave is widely known to people because of the shaft of light that illuminates it one day out of the year, the summer solstice. It is a cave with a deep, vertical shaft that is bricked up to prevent it from falling in (and thus the shaft itself is most likely manmade) and two stairways for access to the cavern itself. (Hirth, 222) Most scholars agree that the room seems to have been used by the elite of the city to provide ritual, though what these rituals are is uncertain. Most often, they are described as rituals of rebirth or fertility rituals in which the king or a noble descends into the cavern and "brings out" the fertility.

Both of these caves, it is now being popularly speculated, may have been man-made. This presents a problem for those looking for hierophanic evidence for the use of these particular caves, but it does not mean that the sacred cannot be created in them. As this theory continues to develop, though, and gains more and more acceptance, we must be wary to avoid excluding the hierophanic suggestion altogether.

Bibliography:

- Carrasco, David. *Quetzalcoatl and the Irony of Empire*. Boulder, CO: University of Colorado Press. 2000
- Hirth, Kenneth G. *Archaeological Research at Xochicalco*. Salt Lake City: University of Utah Press, c2000 (Vol. 1)
- Hirth, Kenneth G., Hirth, Susan Grant, & Pauer, Gyula. "The Xochicalco Archeological Atlas" in *Archaeological Research at Xochicalco*. Ed. Hirth, Kenneth G. Salt Lake City: University of Utah Press, c2000 (Vol. 2) p. 197-326
- Jones, Lindsay. *The Hermeneutics of Sacred Architecture: Experience, Interpretation, Comparison*. Cambridge, MA: Harvard University Press. 2000. (Volume 2)
- Kolb, Charles C. *Marine Shell Trade and Classic Teotihuacan, Mexico*. Oxford, England: B.A.R., 1987
- Kowalski, Jeff Karl. "Natural Order, Social Order, Political Legitimacy, and the Sacred City: The Architecture of Teotihuacan" in *Mesoamerican Architecture as a Cultural Symbol*. Ed. Kowalski, Jeff Karl. New York: Oxford University Press, 1999. p. 76-109
- Manzanilla, Linda. *Emergence and Change in Early Urban Societies*. New York: Plenum Press, c1997
- Miller, Virginia. "The Skull Rack in Mesoamerica" in *Mesoamerican Architecture as a Cultural Symbol*. Ed. Kowalski, Jeff Karl. New York: Oxford University Press, 1999. p. 340-360
- Molina, Augusto & Kowalski, Jeff Karl. "Public Buildings and Civic Spaces in Xochicalco" in *Mesoamerican Architecture as a Cultural Symbol*. Ed. Kowalski, Jeff Karl. New York: Oxford University Press, 1999. p. 140-161
- Sabloff, Jeremy A. *The Cities of Ancient Mexico: Reconstructing a Lost World*. New York, NY: Thames & Hudson. 1997
- Sempowski, Martha L. & Spence, Michael W. *Mortuary Practices and Skeletal Remains at Teotihuacan*. Salt Lake City: University of Utah Press, 1994
- Smith, Virginia. "The Iconography of Power at Xochicalco: The Pyramid of the Plumed Serpents" in *Archaeological Research at Xochicalco*. Ed. Hirth, Kenneth G. Salt Lake City: University of Utah Press, c2000 (Vol. 2) p. 57-82

Smith, Virginia & Hirth, Kenneth G. "A Catalog of Carved Monuments and a Guide to the Visual Characteristics of Xochicalco's Art Style" in *Archaeological Research at Xochicalco*. Ed. Hirth, Kenneth G. Salt Lake City: University of Utah Press, c2000 (Vol. 2) p. 17-56