

“Undoubtedly one of the major reasons that anthropologists for so long underestimated the importance of hallucinogenic substances in shamanism and religious experience was that very few had partaken themselves of the native psychotropic materials (other than peyote) or had undergone the resulting subjective experiences so critical, perhaps paradoxically, to an empirical understanding of their meaning to the peoples they studied.” -Michael J. Harner

Evidence for Ritual Use of Entheogens in Ancient Mesoamerica and the Implications for the Approach to Religion and Worldview

Introduction

Humans have long understood that the ingestion of psychoactive chemicals via local flora and fauna produces powerful alterations in consciousness. However, this has been interpreted in a variety of ways depending upon the cultural context in which these substances are used. For example, the fungal parasite *ergot*, containing lysergic acid amide, occasionally appears on the rye crops of Europe, but “the purposeful hallucinogenic use of the fungus seems to have been restricted to ancient Greece” (Schultes & Hofmann 1979: 102).

In most ethnopharmacological studies, these substances are termed *hallucinogens* or *psychedelics*, in an attempt to classify the type of psychological experience that is produced. However, the term *entheogen*, meaning “plants or chemical substances which awaken or generate mystical experiences,” (Forte 1997: 1) will be used in the present paper as an alternative to the more popular terms because the term one uses to label these substances is informative. The more popular terms, which emphasize primarily the sensory effects that are produced, fail to convey the great meaning and sacredness ascribed to these substances by ancient cultures. *Hallucinogen* implies that the resultant experiences are nothing more than fanciful delusions that lack significance in the real world. *Psychedelic* is a loaded term closely affiliated with the “drug culture” of the 1960’s and 1970’s so its use in the description of ancient cultures is confounded with

recent historical associations that have nothing to do with ancient Pre-Columbian religion (for example, see Clark 1969).

It is not that previous treatments of Pre-Columbian religions have completely ignored the use and depiction of entheogenic substances in Mesoamerica (see Carrasco 1990). When discussions do mention entheogens in Mesoamerican religious practices, it is usually only brief lip-service paid to a topic that our modern prohibitionist values would rather not discuss (Martin and Grube 2000: 15). Notable exceptions to this rule are the work of Peter T. Furst (1972; 1974) and Haviland and Haviland (1995). I intend to pick up where Marlene Dobkin de Rios left off in her unheeded call from a 1974 issue of *Current Anthropology* for Mesoamerican specialists to “shed further light on the role of psychotropic flora and fauna in Maya religion” (Dobkin de Rios 1974: 152).

Dobkin de Rios was an anthropologist but not a regional specialist in the cultures of Mesoamerica so she appealed for assistance from Mesoamericanists, receiving many replies about her theories regarding entheogen use. However, most of the replies were very unwelcoming to her suggestions that ancient Mesoamericans used drugs and many esteemed scholars vehemently denounced her claims. Decades have passed with only negligible research conducted on the subject of entheogens in this region (with the exception of a chapter comprised entirely of secondary sources in Rudgley 1993) and scholars of ancient Mesoamerican religion appear to have utterly disregarded Dobkin de Rios. This paper will seek to end this trend by taking a close look at entheogens, their use in religious ritual and the depiction of their use in iconographic remains. In addition, an assessment of the ethnocentrism that hides the evidence of past entheogen use will ensue, referring to an *entheophobic* bias that permeates the methodologies of modern

research priorities. The following discussion will attempt to revitalize entheogen studies as they pertain to ancient Mesoamerican religion and worldview.

Ancient Mesoamerican Religion

All the religions of the Pre-Columbian Americas share characteristics that distinguish them from the rest of the world. Their common metaphysical philosophy revolves around a belief in the interconnectedness of the natural, social and spiritual worlds where ancestors and deities are directly accessible through the proper ritual (Stover 1986: 516-517). However, within North and South America, indigenous cultures differ drastically when compared to each other and the two continents' native groups are separated into many diverse cultural regions of which Mesoamerica is one of the most archaeologically rich.

The religious traditions of the Mesoamerican region are diverse relative to each other but are grouped together because they exhibit many mutual qualities that have diffused throughout the region from Northern Mexico to El Salvador after thousands of years of war and trade (Joyce 2004). Native American understanding of the cosmos revolved around a belief in three separate levels of the universe: a divine realm in the sky, a gruesome underworld and the human middle realm. They recorded their religious performances, aimed at pleasing the pantheon of deities above and below them, on public works of text and iconography depicting “burning of incense, dances, games, and other dramatic performances, and also human sacrifice, often paired with militaristic symbolism” (Joyce 2004: 7). Not surprisingly, the most important aspects of Mesoamerican life were also the foremost spiritual concerns, such as the connection of maize (corn), the main part of their diet, with the rain god (Dobkin de Rios 1974: 151).

This common religious ideology of the region was organized around a unique conception of cyclical time where a sophisticated knowledge of mathematics was employed to track the movements of the stars relative to a precise calendar (Joyce 2004).

So it is established that the content of Mesoamerican religious texts and monumental iconography were exclusively reserved for the most significant aspects of their culture. So why is there so much artistic and textual reference to the use of entheogens? The obvious answer would be that these sacred substances were very important to ancient Mesoamerican religious rights and that their use was perceived to be a holy act. However, the archaeological and ethnohistorical literature has essentially ignored the influence of these substances and the few references that do occur are made in passing as if the author acknowledges their modern status as objectionable. A good example of how customary Western values have corrupted our view of ancient religion is found in a recent National Geographic article entitled “Descent into the Maya Underworld.” In this article, which claims to be a portrayal of modern and ancient Mayan religious beliefs, there is only one mention of a shaman drinking “*balché*, a mildly intoxicating beverage, almost non-stop” (Roberts 2004: 43). *Balché* is a fermented alcohol derived from the bark of a local tree that has not been criminalized (Konzevik Cabib 1998: 663), unlike the many entheogens. Noticeably absent are the notorious *xibalbaj okox*, “underworld mushroom,” also known as the *k’aizalah okox*, “lost-judgement mushroom,” mentioned in ethnohistoric accounts (Sharer 1994: 542).

As the following discussion will demonstrate, the omission of entheogens in the study of Mesoamerican religions is a serious oversight. It is difficult to deduce whether the above religious traits were inspired by the use of entheogens or whether

predetermined worldviews embodied an ideological environment into which entheogens were naturally integrated. The chicken-or-egg origins squabble is irrelevant to the present discussion which will focus on filling in the gaps of past accounts of ancient Mesoamerican religion that were incomplete because of their disregard for the obvious ritual importance of entheogens.

Archaeological Evidence for Entheogens in relation to their Psychoactive Properties

This section will seek to build on the efforts of Dobkin de Rios (1974) to whom much credit is warranted even though she concedes that her treatment of the topic was woefully inadequate. At the end of her article, “The Influence of Psychotropic Flora and Fauna on Maya Religion,” appears a series of responses from various scholars. As expected, there are those for and against her opinion, but perhaps the most significant responses are those from two of the most prodigious luminaries in the history of Maya archaeology; Tatiana Proskouriakoff and J. Eric S. Thompson. Proskouriakoff states that:

“Direct flights of fancy such as [Dobkin de Rios] offers here should have no place in a scholarly journal, and I think that the referees have been guilty of a serious error of judgement.” (Proskouriakoff’s reply in Dobkin de Rios 1974: 159)

Although J. Eric S. Thompson had previously acknowledged that the Maya probably utilized entheogens in a religious context (Thompson 1970: 185) he is pessimistic:

“It is surely rash to substitute for such strong mythological associations the theory that we are faced with representational evidence that the Maya used toad and water lily in hallucinatory rites. Apparently, the properties of the two have become known to science only in recent years; that they were known to the Maya finds no support from any observations by outsiders from the conquest to the present or from Maya colonial writings.” (Thompson’s reply in Dobkin de Rios 1974: 160)

However, as Dobkin de Rios points out, statistical surveys have shown that researchers tend to overlook the importance of entheogens within a culture until they experiment with the chemical themselves (Dobkin de Rios 1974: 161).

Proskouriakoff and Thompson’s pessimist attitudes, as shown above, act as a stumbling block for impartial research that is attempting to further the discipline in the

face of “the conservatism of Maya scholarship” (Dobkin de Rios 1974: 162).

Unfortunately, since Dobkin de Rios’ pleas for scholarly rigour went unheeded, we must proceed according to the fact that a knowledge and understanding of the effects of these substances has yet to be effectively linked with the already substantial corpus on Mesoamerican religion. It is hoped that the mind-altering substances explained below will be incorporated into contemporary models of Mesoamerican religion to produce a much more inclusive and complete understanding of Pre-Columbian spiritual beliefs.

Dobkin de Rios refers to the work of Arnold Ludwig (1969: 13-16) who devised ten general distinguishing characteristics of altered states of consciousness that can be applied to entheogen-induced religious experiences: (1) altered thinking/concentration, (2) modified sense of time, (3) loss of control (depending on cultural worldview this can be a positive or negative encounter), (4) eccentric emotional expression making intoxication obvious, (5) altered sense of one’s own body and atypical sense of self, (6) sensory distortions including synesthesia, (7) unconventional meaning/significance given to one’s surroundings and events compared to sober state, (8) belief in the acquiring of ineffable knowledge, (9) mental and physical sensations of invigoration and, (10) hypersuggestibility and the loss of conceptual and behavioural inhibitions. Ludwig’s description stands in stark contrast to the “objective” portrayals of the mushroom experience found in pharmacological volumes where they are said to cause “*disturbances in thinking, illusions...and impaired ego functioning*” (Julien 2005: 612 emphasis added).

Mushrooms: Several genera of mushrooms contain the entheogenic chemical, psilocybin (4-phosphoryl-DMT) or psilocin (4-hydroxy-DMT), including *Psilocybe*, *Strophoria*, *Panaeolus*, *Copelandia*, and *Conocybe*. It does not matter which of the two

chemicals the mushroom contains because psilocybin is transformed into psilocin during digestion (Julien 2005: 610).

Mushrooms are arguably the most frequently depicted entheogen in the archaeological record of Mesoamerica and probably the most widely utilized because they are one of the only substances that requires no preparation to achieve the desired effects. Chemists and psychologists have said the effects of psilocybin are comparable to those of LSD but they have also been equated to psychosis. The Pre-Columbian use of entheogenic mushrooms was seen in a totally different sense where the effects were attributed to contact with divinities and fantastic mental journeys. Known to the Aztecs as *teonanacatl* (“flesh of the gods”), psilocybe mushrooms were promptly demonized by Christian missionaries soon after European contact in the 17th century. The religious persecution of the use of these mushrooms resulted in their use being hidden from



-mushroom stone with human effigy, from Wasson 1980: 176

foreigners until knowledge of them was rediscovered in the 1950's by R. Gordon Wasson, a banker from New York City (Beyerstein & Kalchik 2003: 17; Julien 2005: 612). Wasson ventured deep into the Oaxacan highlands of Mexico in search of the fabled mushroom shaman, María Sabina. He was the first foreigner to participate in the sacred *Velada* ceremony, which he described in numerous writings upon his return to the United States:

“the mushrooms gave me no choice. They took full and sweeping possession of me. There is no better way to describe the sensation than to say that it was as though my very soul had been scooped out of my body and translated to a point floating in space...we saw geometric patterns, angular not circular, in richest colors...the patterns grew into architectural structures, with colonnades and architraves, patios of regal splendor, the stone-work all in brilliant colors, gold and onyx and ebony, all most harmoniously and ingeniously contrived, in richest magnificence extending beyond the reach of sight.” (Wasson 1980: 15)

Wasson's qualitative description of the experience is essential because it adds an empathetic quality that more detached scientific descriptions lack. The purpose of focussing on these empirical descriptions is to open a previously closed window of understanding when paired with the ancient Mesoamerican cultural context. The importance of the sciences in aiding the research of social scientists is not devalued in this approach. Nevertheless, for studies regarding religious transcendence I believe it to be much more vital to appreciate the full scope of the altering of consciousness instead of relegating these mental journeys to materialistic quantifications.



- Priestess and mushroom stone, from de Borhegyi 1963: 332

Archaeological evidence for the use of these mushrooms is found in the iconographic representations of mushrooms being ingested and the numerous mushroom shaped *altars* that are found throughout Mesoamerica. An ethnocentric bias on the part of the scholars studying ancient Mesoamerican religion attests for the oversight regarding the connection between these altars and the ritual use of entheogenic mushrooms. Mushroom altars were made of both stone and ceramic, often accompanied with ideologically significant effigies build into the base (de Borhegyi 1963; Kohler 1976). One Pre-Columbian pottery figurine from Veracruz, Mexico represents a woman whose “left hand rests on a plain, hollow pottery mushroom, while her right arm is extended upward as if in prayer” (de Borhegyi 1963: 332). It appears as if this figure is a depiction of the ceremonies in which the mushroom altars were employed for spiritual purposes, possibly as effigy altars of the sacred “flesh of the gods” that were simultaneously consumed.

There are also scriptural references to the use of entheogenic mushrooms. In the

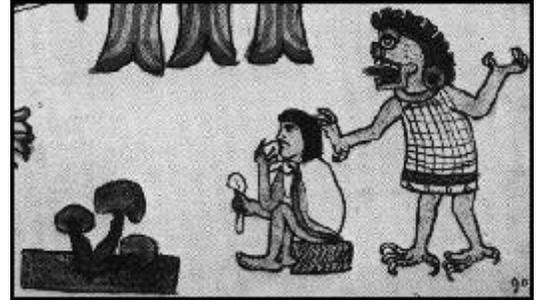


- *Vindobonensis* codex, from Schultes & Hofmann 1979: 146

Vindobonensis codex, “nine deities receive instructions from Quetzalcoatl on the origin and use” (Schultes & Hofmann 1979: 146) of the mushrooms.

The depiction of deities alongside someone

consuming mushrooms in the Aztec *Magliabechiano* codex serves to further the notion that these



- *Magliabechiano* codex, from Wasson 1980: 113

mushrooms were eaten in a ritual context (Wasson 1980: 113). When one considers the portrayals of mushrooms in scriptural codices and the mushroom effigy altars, it becomes difficult to argue against the idea that mushroom ceremonies were being performed in ancient times much like they were when Wasson participated in the Oaxacan Velada in 1955.

There are over 20 different species of entheogenic mushrooms found in Mexico so it is reasonable to make the connection between the known transcendental properties of psilocybin mushrooms and the use of mushroom altars in ritual consumption ceremonies (Dobkin de Rios 1974: 148). If one looks at Wasson’s description of the experience, it becomes clear that if indeed these mushrooms were being used in religious ceremonies, the cultural impact would be considerable. This is especially true in the case of Amerindian traditions. In the context of their holistic worldview, these experiences would not be considered illusions; rather, the visions caused by these mushrooms would be interpreted as genuine voyages to otherworldly realms.

Peyote Cactus: *Lophophora williamsii*, or peyote, is a common cactus species found in western Mexico and the South-western United States, which contains the entheogenic chemical mescaline in the “button,” a small blossom at the end of the cactus branches (Julien 2005: 594). Evidence for Pre-Columbian use of peyote is scantier than that of other entheogens, and it was most broadly documented in the years following European contact (Furst 1972: 136-137). One exception is an archaeological investigation conducted at a three thousand year old cave site in Texas that yielded peyote buttons “found in a context suggesting ceremonial use” (Schultes & Hofmann 1979: 132). The entheogenic properties of mescaline are comparable to LSD and psilocybin in that they produce dazzling visual effects that are best described by the great novelist/poet Aldous Huxley, who wrote a book about his experiences with mescaline:

“I continued to look at the flowers, and in their living light I seemed to detect the qualitative equivalent of breathing—but a breathing without returns to a starting point, with no recurrent ebbs but only a repeated flow from beauty to heightened beauty, from deeper to ever deeper meaning. Words like “grace” and “transfiguration” came to my mind, and this, of course, was what, among other things, they stood for. My eyes traveled from the rose to the carnation, and from that feathery incandescence to the smooth scrolls of sentient amethyst which were the iris. The Beatific Vision, Sat Chit Ananda, Being-Awareness-Bliss—for the first time I understood, not on the verbal level, not by inchoate hints or at a distance, but precisely and completely what those prodigious syllables referred to.” (Huxley 1954: 18)

It is curious that a plant that produces such an awe-inspiring experience would fail to gain the iconographic prominence of the other entheogens. However, this may have to do with the conflating of peyote’s identity with other psychoactive plants of the region.

J.S. Slotkin (1955) conducted a survey of the missionaries’ written records and found that the interchangeable terms *peyote* and *peyotl* were generally used by colonizers to refer to the myriad of strange substances consumed by the natives. He points out a glaring problem in the ethnobotanical literature where scholars have assumed the straightforwardness of historical references to peyote, even when there is no solid

evidence that the use of this term, and the many other native terms, refers directly to the mescaline cactus (Slotkin 1955).

This obscurity may be attributed to the fact that native groups did not categorize peyote buttons separately, or perhaps the motif of peyote in Mesoamerican art is still unknown to iconographers.



-“a deer with a Peyote in its Mouth” (Schultes & Hofmann 1979: 133)

One exception is a “snuffing” effigy pipe dating to 500 B.C. from the Oaxacan site of Monte Albán “in the form of a deer with a Peyote in its mouth” (Schultes & Hofmann 1979: 133). There is also the suggestion that the bright, vibrant colours preferred by many Mesoamerican cultures for use in decorations and blanket/clothing patterns were inspired by the visions induced by peyote (Beyerstein & Kalchik 2003: 21).

It is clear that there was widespread use of peyote buttons at the time of European contact and these practices were aggressively condemned by Christian missionary powers. In fact, peyote represented perhaps the most severe offence to Christian authorities because native groups who were being converted began to associate the divine properties of peyote with images of the infant Jesus (Wasson 1980: 144). This infuriated missionaries who were trying to convert the natives and convince them of the Christian path to God. Instead, they found the natives resorting to traditional paths to the divine via the ingestion of entheogenic flora and fauna.

Toads: The possible use of toad toxins for entheogenic purposes has long been debated and continues to be an uncertain theory. What is certain is that the toad was recurrently depicted in Mesoamerican art (see Kennedy 1982), possibly more than the mushroom and at times with the toad image forming the base of mushroom stones (see Wasson 1980: 184-185). Many species of the toad genus *Bufo* have paratoid glands that excrete the

entheogenic chemical 5-hydroxy-DMT, also called bufotenine. Bufotenine, which resembles psilocin in structure, is only entheogenically active when administered by smoking or snorting and when combined with some type of MAO (monoamine oxidase) inhibitor (Beyerstein & Kalchik 2003: 26). As you will see below with the discussion of Ayahuasca, MAO inhibitors are needed for certain chemicals to protect the entheogenic molecule from being broken down before its effects are felt.

Much of the literature concerning the use of toad venom as an entheogen has died out since the 1992 publication of an antagonistic paper by ethnobotanists Wade Davis and Andrew Weil. In their article, they point out the many discrepancies that have confounded past attempts to link the abundant iconographic representations of *Bufo marinus* toads to their use as entheogens. Naturally, Davis and Weil attack the lack of ethnohistorical evidence, but I would reply that perhaps after the zealous missionaries targeted their other entheogens, such as

mushrooms and peyote, the Mesoamericans tried to protect their remaining entheogens by not allowing the colonizers to know about their existence. Davis and Weil also point out the fact that *Bufo marinus* toxin, besides containing bufotenine, also contains



-“Monolithic Animal G”, from the site of Quirigua, in Kennedy 1982: 278

bufogenin and bufotoxin, which are both powerful poisons that were used in Europe as murder weapons (Davis and Weil 1992: 51-52).

I am not yet prepared to declare dead the possible connection between iconographic representations of the toad on pottery and stone, and its use as an

entheogen. After all, there are copious depictions of *Bufo marinus* that distinguish it from other Mesoamerican toad species by its unique cranial crest, paratoid and tibial glands, and its middorsal vertebral stripe. The majority of representations of *Bufo marinus* are unmistakable because of the consistently identical representation of the paratoid glands (the source of the toxin) as liver-shaped disks above the shoulders with numerous punctated marks to signify the venom-secreting pores. Perhaps the best of all representations of these *Bufo marinus* characteristics is the unmistakable “Monolithic Animal G” from the Guatemalan site of Quirigua (Kennedy 1982: 277-278). With these unambiguous depictions of *Bufo marinus* appearing so frequently across Mesoamerica, is it possible that they figured out a way to circumvent the poison problem? Kennedy (1982) describes a possible method whereby the toxic toads could have been fed to ducks, which are known to have livers that are uniquely capable as detoxifiers and would then allow the hallucinogens to be exploited through the ingestion of the ducks’ livers. Interestingly, ducks are a common theme in the art of the Olmec, a pre-Mayan people of the Gulf of Mexico coast. It is at the Olmec site of San Lorenzo where one of the biggest collections of *Bufo marinus* bone dumps was found in association with an unexplainable U-shaped “water control system.” This structure has puzzled archaeologists and could only be described by researchers as pertaining to “ritual use.” Kennedy cannot help but propose that perhaps this cistern, which is too small for human bathing, might have been used as a place for ducks to swim while they were fed *Bufo marinus* (Kennedy 1982: 286). These collections of toad bones have been found all over Central America but they present a dietary anomaly because of the presumed toxicity of the toads (Davis and Weil 1992: 53).

Davis and Weil (1992) are correct in their assessment of *Bufo marinus* toxin as being too poisonous to be ingested in an unmodified form and that bufotenine might not be entheogenic after all, but they do point to an interesting *Bufo* species found in the American mid-west called *Bufo alvarius*. This particular species also secretes bufotenine but it has entheogenic properties only because it also contains O-methyl transferase, which converts the small proportion of bufotenine into the very strong entheogen, 5-MeO-DMT, increasing this chemical's proportion in the toxin from zero to a whopping 15% (Davis and Weil 1992: 55). Therefore, it could be argued that ancient Mesoamericans could have combed their amazingly diverse forests (fourth most plant species among regions of the world¹) for O-methyl transferase, which they could have found in trees of the genus *Pinus*². Wade Davis describes his experience after smoking 5-MeO-DMT from *Bufo alvarius*:

“Shortly after inhalation I experienced warm flushing sensations, a sense of wonder and well-being, strong auditory hallucinations, which included an insect-cicada sound that ran across my mind and seemed to link my body to the earth. Though I was indoors, there was a sense of the feel of the earth, the dry desert soil passing through my fingers, the stars at midday, the scent of cactus and sage, the feel of dry leaves through hands. Strong visual hallucinations in orblike brilliance, diamond patterns that undulated across my visual field. The experience was in every sense pleasant, with no disturbing physical symptoms, no nausea, perhaps a slight sense of increased heart rate.” (Davis and Weil 1992: 56).

If we accept the ingenuity of the Mesoamerican peoples, it is possible that they were able to test different *Bufo-Pinus* concoctions on prisoners that had been acquired from war victories (Sharer 1994: 144), much like the Nazi medical experiments, until a safe and effective mixture of 5-MeO-DMT was developed from *Bufo marinus* toxin.

Ayahuasca: Ayahuasca is a tea beverage that is still popular among Amazonian native groups and was the subject of the most comprehensive phenomenological survey ever

¹ <http://www.biodiversityhotspots.org/xp/Hotspots/mesoamerica?showpage=Biodiversity>

² <http://www.tarweed.com/pgf/PGR99-026.html>

conducted on an entheogen. Benny Shanon, an Israeli cognitive psychologist, published *The Antipodes of the Mind: Charting the Phenomenology of the Ayahuasca Experience* (2002), which now stands as the standard review of the experiences induced by an entheogen. Shanon is a reputable cognitive psychologist whose writings on the Ayahuasca experience present a fair and unbiased account of substances that are currently banned and considered scandalous in modern Western societies. In comparison, Wasson's work on mushrooms is helpful, but he was not a professionally trained scholar, let alone his lack of training in the culture of Mesoamerica. Benny Shanon, on the other hand, has provided an invaluable academic text, which would be idyllic to have for every entheogen discussed here. Like a cartographer who maps a geographical region of the earth, Shanon describes every facet of the Ayahuasca intoxication in intricate detail, combining the contents of visions with corresponding philosophical and psychological concepts.

The active entheogenic chemicals in Ayahuasca are DMT (N, N-dimethyltryptamine), usually derived from the *Psychotria viridis* bush and MAO inhibitors, such as harmaline/harmine that normally come from the *Banisteriopsis caapi* vine, which act as entheogens and prolong the experience by slowing the breakdown of DMT (Shanon 2002: 15-16). DMT is the main entheogenic constituent to the tea and even when administered by itself, it is one of the most potent and fast-acting entheogenic chemicals. It has been synthesized and made into snortable or smokeable crystals in modern times, but for the most part, DMT was administered to people in ancient times as a tea, such as Ayahuasca (Julien 2005: 609). An initial problem is that there is no evidence for the use of Ayahuasca in the archaeological record, but this does not rule out

its use because as one can see from the above discussion of obvious entheogen use, the ancient entheogenic rituals are only evident when the researcher is willing to open their eyes to the evidence.

It can be safely argued that the seeking out of methods with which to gain transcendence was an important aspect of ancient Mesoamerican religion. We can see this in the insatiable trial-and-error with which they discovered the entheogenic properties of many plants and the possibility of their experimentation with the extraction of bufotenine. Even though neither *Psychotria viridis* nor *Banisteriopsis caapi* are found in Mesoamerica, there are plants native to Mesoamerica that contain DMT and MAO inhibitors. *Mucuna pruriens*, otherwise known as Cowhage, is a DMT-containing climbing plant native to many parts of the world, including Mexico and Guatemala.³ Also, *Ceiba pentandra*, a religiously significant tree to the Maya (Sharer 1994: 33), contains the MAO inhibitors kaempferol and tannin,⁴ neither of which is toxic.^{5,6} Therefore, we can cautiously suggest that Mesoamerican cultures exploited the plants in their territory in the same manner as their Amazonian counterparts managed to perfect their Ayahuasca beverage after millennia of trial-and-error “research.”

Out of the millions of species of plants in the rainforest, to find one of the ingredients to Ayahuasca is amazing, but to find the correct pairing is an astounding feat (Shanon 2002: 16). Shannon sums up his competent familiarity with Ayahuasca by stating:

“Personally, if I were to pick one single effect of Ayahuasca that had the most important impact on my life...I would say that before my encounter with the brew I was an atheist...and when I returned back home after my long journey in South America, I no

³ www.erowid.org/plants/mucuna_pruriens/mucuna_pruriens.shtml

⁴ http://www.ars-grin.gov:8080/npgspub/xsql/duke/pl_act.xsql?taxon=1204

⁵ Stedman's Medical Dictionary, 27th ed. 2000: pp. 1785

⁶ <http://www-cie.iarc.fr/htdocs/monographs/vol31/kaempferol.html>

longer was one. Likewise, a significant number of informants I have interviewed indicated that the main lesson they received from Ayahuasca was religious or spiritual. 'Ayahuasca showed me that God exists,' 'I have come to appreciate the place of the sacred in human life,' 'I have encountered the Divine,' are all statements I have heard more than one person say. There are many individuals who, in direct consequence of their experience with Ayahuasca, underwent a radical religious or spiritual conversion." (Shanon 2002: 260)

Such profound consequences of the Ayahuasca experience demand attention from Mesoamerican scholars. They should be emulating the cultures they are interested in by developing a propensity to seek out transcendence through meticulous investigation of, and experimentation with Mesoamerican flora and fauna. Of course, it could be argued that modern researchers can never fully recreate the experience in the same way as it was perceived by ancient Mesoamericans. Yet this is true of every archaeological investigation; for example, if we restore the Mayan pyramids to their original splendour, the awe that they inspire in modern viewers is not the same as it was in 700 A.D. The purpose of archaeology is to theoretically recreate ancient ideologies so that we can gain a better understanding of how the world appeared to the ancients. Entheogens offer us the same degree of insight into the minds of ancients as material objects extracted from the ground or the monumental architecture that dots the Mesoamerican landscape.

The Morning Glory and other Entheogenic Flowers: There were multiple flower species known to ancient Mesoamericans that contain entheogenic chemicals. Most notable is the use of the seeds of the Morning Glory flower (*Turbina corymbosa*), called *ololiuhqui* by the Aztecs, which contains lysergic acid amide (the same chemical that is found in the ergot fungus discussed earlier). The LSA molecule is almost identical in structure to the much more potent lysergic acid diethylamide (LSD), which was the central inspiration for the drug culture of the 1960's and 70's (Beyerstein & Kalchik 2003: 19; Clark 1969). Even though LSA is not as potent as LSD, when hundreds of seeds were ground into a powder, they would be blended into a cacao beverage and

sometimes psilocybin mushrooms were added to the mixture (Wasson 1980: 98). Indeed, even though the Morning Glory is found throughout Central America and the Caribbean, it appears that they were only purposely used as entheogens within Mexico (Schultes & Hofmann 1979: 159).

Morning Glory seeds were an important device of the Aztec shaman, who used peyote while also drinking a concoction made of *ololiuhqui*, spiders, scorpions, salamanders and vipers. This beverage was called *Petun* and was esteemed by the Aztec shamans while the Spanish friars detested it because of the presumed devilish nature of the intoxication it produced (Dobkin de Rios 1984: 146). It is easy to appreciate the difficulty with understanding ideologies that are totally different than the modern Western worldview when one looks at translations of Aztec religious prayers to the *ololiuhqui*-specific deity:

“Come now, come hither, Green Woman: behold the green heat (fever) and the brown heat: remove thou the flaming or scarlet heat, the yellow heat or by this token, I send thee to the seven caves. And I do command thee, put it not off till tomorrow or another day, for sooner or later thou wilt be compelled to do it. Who is the God—the so powerful and superior one—who can destroy the work of thy hands. It is I who command it, I the prince of enchantment.” (cited in Dobkin de Rios 1984: 146)

Since this is a translation from the original Nahuatl into



-Xochipilli statue, in Wasson 1980: 61

Spanish and now English, the obscurity of the prayer highlights the fact that certain concepts and symbolism only make sense in the context of the worldview in which they originate, and we are still a long way off from truly understanding the religious context in which this prayer would have made sense. It is also interesting that there is so much referral to colours and different types of heat. These colour and temperature references

are understandable when one considers the content of the quotations in earlier discussions of entheogenic experiences.

There is a notable Aztec sculpture depicting their flower deity, Xochipilli, in a prayerful position with images of different flower species on his limbs and body. Besides the morning glory, there are illustrations of a tobacco leaf (*Nicotiana tabacum/rustica*⁷), mushroom caps, a sinicuichi flower (*Heimia salicifolia*⁸), a flower (poyomatli) from the cacahuaxochitl plant (*Quararibea funebris*⁹) and a still unidentified four-petaled flower. All of these flowers are known to have been categorized by the Aztec as aristocratic entheogens that were used mainly by the upper echelons of society (Wasson 1980: 64-71). Ololiuhqui was also praised by the Aztec's ancestors from the city of Teotihuacan

who portrayed the experience of Morning Glory seeds artistically in a beautiful mural from 500 AD (Beyerstein & Kalchik 2003: 18-19). These are but a few of the many iconographic examples of entheogenic flowers but it is enough to suggest that Mesoamerican religion also held these types of entheogens to be of religious value. Like the other entheogens, *ololiuhqui* was also outlawed as an instrument of the devil (Furst 1974: 206).



-Aztec Mother Goddess alongside *Ololiuhqui* vines with entheogenic “nectar” flowing out of the Morning Glory blossoms, in Schultes & Hofmann 1979: 160-161

From Proof to Practice: Lessons from Entheology

The iconographic and ethnohistorical evidence overwhelmingly illustrates that the ancient Mesoamericans revered the extraordinary properties of these entheogens enough

⁷ <http://www.erowid.org/plants/tobacco/tobacco.shtml>

⁸ <http://www.erowid.org/plants/sinicuichi/>

⁹ <http://www.erowid.org/plants/cacahuaxochitl/cacahuaxochitl.shtml>

to recreate them artistically. Therefore, it only makes sense that modern reconstructions of their religion should incorporate an appreciation for this reverence and an understanding of the states of consciousness that they induce in order not to overlook an important aspect of ancient Mesoamerican religious worldview.

The above discussion represents a rare conflation of the emerging field of entheology with the already established disciplines of art history and archaeology. It is hoped that further study will finally demand a response to Dobkin de Rios' 1974 plea for cultural scholars to familiarize themselves with entheogens. These substances and their influence on ancient Mesoamerican religion can no longer be ignored as they have been in the past. Future studies of Mesoamerican religion and worldview must now take into account the facts described above. Since it has been established that researchers tend to ignore entheogenic substances until they experience them themselves, it is advisable that scholars who intend to study the ideology of the peoples of Mesoamerica should pursue a comprehension of entheogenic experience in order to gain an appreciation for the cultural ramifications. Some may argue that there is still not enough evidence for the significance of these substances but if this is true, it is only because the iconographic remains have been assessed with an eye that is not looking for them. I will predict that when more researchers begin to acknowledge the metaphysical impact of entheogens and begin to look for representations of entheogenic flora and fauna that there will be an upsurge in the amount of iconographic evidence. It is also advisable that scholars begin to lessen their reliance on the ethnohistorical writings of the conquistadors and missionaries because these texts are prejudiced against the native uses of entheogens. The writings of

the colonizers do not properly represent the sacredness imbued in these substances by indigenous Mesoamericans:

“I believe that, incited by the cursed devil, these wretched Indians remain confused and are neither fish nor fowl in matters of the faith.” (Friar Durán, cited in Torrance 1994: 199)

Future studies of the religions of this region must begin to comprehend them from the point of view of the native, not that of those who oppressed and persecuted them. This requires a turn to iconography and a desire to understand how ancient Mesoamericans made sense of existence and the human condition. After all, that is the purpose of the pursuit of anthropology: to study the behaviours and customs of other cultures and compare them to ours in an attempt to better recognize what it really means to be human. Anthropology is hindered when the views of the modern West are projected onto the vastly different worldviews of non-western societies. The rest of this current study will strive to excavate the oversights of the past and suggest a more authentic reading of ancient Mesoamerican religion that includes an appreciation for the ritual use of entheogens.

Observing Entheophilic Ideologies from an Entheophobic Perspective

There are seemingly endless possibilities to the structure and scope of human ideologies. However, each ideological system is regarded by its followers as the one true explanation of reality while all competing versions are held to be irrational and false. When one really delves into the subject of basal metaphysics, it becomes clear that all of them are groundless descriptions of an existence that is intrinsically beyond human understanding. Earnest Becker declares that “this is what society is and always has been: a symbolic action system, a structure of statuses and roles, customs and rules of behaviour, designed to serve as a vehicle for earthly heroism” (Becker 1973: 4). By heroism, he is referring to the seeking out of a feeling of purpose and specialness within a

metaphysical reality that is fundamentally devoid of knowable purpose. For Mesoamericans, “ritual coercion is one response to the uncertainties of a world never fully conformable to human need” combined with the “incorporation of more flexible means of transcendence through personal communication with the divine” (Torrance 1994: 197). In short, it is the curse of the human condition that no one can know what the true meaning of life is, so we fabricate a system that reinforces itself as the ultimate depiction of what reality *is*. I believe this process of demoting other cultural worldviews in defence of our own secretly arbitrary pursuit of heroism has resulted in an ethnocentrically skewed conception of ancient Mesoamerican religion. The above synopsis serves to demonstrate that past scholars have certainly overlooked the importance of entheogens in ancient Mesoamerican spirituality, but why did this omission occur across the discipline?

I propose that the oversight is related to a worldview classification scheme established by R. Gordon Wasson. Wasson was mainly focussed on the use of mushrooms in different societies and he noticed that the perception of mushrooms cross-culturally was separated into those worldviews that liked mushrooms (*mycophiles*) and those that had a fear of them (*mycophobes*) (Wasson 1980: xv). I want to expand his classification for the purposes of this paper to a broader ideological breakdown of all cultures as either *entheophilic* or *entheophobic*. This new typology will serve to reassess the misguided outlook that has been assumed by modern scholars as they approach ancient religious ideologies. As seen in our legal codes, the modern Western worldview holds that all intoxication, other than that brought on by alcohol, is objectionable and immoral. Conversely, Pre-Columbian peoples were ignorant of the practice of alcohol

distillation and could only produce a few fermented alcohols from cacti, maize, honey, or pineapple, all of which were strictly regulated:

“Among the ancient Aztecs, getting drunk without incurring the wrath of society was a privilege of old age; drunkards could receive severe punishments, ranging from public disgrace to death by stoning or beating” (de Smet 1985: 20).

When one considers this outlawing of alcoholism with the overwhelming evidence for the use of entheogens by ancient Mesoamericans, it appears that their social rules regarding intoxication represent the antithesis to the laws of the modern West. It can be safely concluded that all studies of ancient Mesoamerican religion and worldview that have excluded entheogens exhibit entheophobic bias that precludes the importance of these substances for entheophilic ideologies. I will illustrate this point through a critique of David Carrasco’s Religions of Mesoamerica (1990).

Entheophobic Bias as the Continuation of the “Noble Savage” Falsehood

David Carrasco is currently Rudenstine Professor of the Study of Latin America at the Harvard Divinity School, and one of the leading authorities on Mesoamerican religion¹⁰. In his overview of past and present Mesoamerican religion (Carrasco 1990), there is only one reference to the use of entheogens in Mesoamerican religious practices; a remiss narrative on the use of peyote by the Huichol groups of Western Mexico as “one outstanding example” (Carrasco 1990: 138).

Considering the mass of evidence described above, it is not justifiable to exclude the ritual use of entheogens in an overview of Mesoamerican religion. Nevertheless, Carrasco (1990) deems it necessary to dedicate an entire chapter to the Christianization of Mesoamerican society and devotes only three pages to discussing the sanctity of vegetation. Under the heading “Plants and the Sacred Dead,” the author describes the

¹⁰ <http://www.hds.harvard.edu/faculty/carrasco.html>

religious significance of agricultural crops without a single mention of the employing of entheogenic plants in religious rights (Carrasco 1990: 27). This massive oversight is doubtlessly the result of a hidden ethnocentric bias rooted in the training of today's scholars of religion and culture. Regrettably, it is virtually impossible to separate oneself from one's acculturation into the modern worldview, let alone an instinctive reverence for the assumedly objective truths of one's own moral standards.

The moral structure of today's modern world is primarily founded on Judeo-Christian principles. These principles, however, are not universally applicable and are merely a type of ideology known as *Religions of Difference*; a metaphysic that grounds "the source of all goodness and truth in the transcendent, maintaining that humans are saved by a God outside rather than a God within" (Woodhead & Heelas 2000: 27). This ideological stance conflicts with the Mesoamerican view of the human being as fundamentally divine in nature and as a vehicle of direct consultation with sacred forces:

"Mesoamerican peoples saw the human body as the nucleus and unifying body of the cosmos, which was permeated... with specific supernatural powers and entities. The human body was progressively filled—at conception, birth, the first exposure to fire and sunlight, and at points of special achievements in life—with powers originating in the celestial spheres above and in sacred events that took place in mythical time." (Carrasco 1990: 53)

Carrasco only acknowledges distinctions between ancient Mesoamerican religion and that of Religions of Difference when the attributes of the former correspond to the modern view of Native American spirituality as inferior. He concedes that images of indigenous peoples as "the wild man and the noble savage, were already deeply embedded in the European mind before Mesoamerica was discovered" (Carrasco 1990: 7).

Western researchers who ignore the significance of entheogens do so because they consider the experiences incited by these substances to be nothing but delusions.

This is an illegitimate value judgement against the views of the people they are studying and displays the preformed assumptions that scholars have, prior to their delving into the subject matter. This is a clear demonstration of the very same Eurocentric bias that Carrasco denounces above, in his rebuke of the Spanish colonizers. It may seem like harsh criticism, but it is inexcusable in light of the blatancy of ritual entheogen use that has been featured in the above discussion. Adding to this image of the savage nature of ancient Mesoamerican peoples is the focus on human sacrifice and bloodletting. Of course, these ghastly ceremonies were certainly popular amongst Mesoamerican groups, but so were entheogen rituals, which are all but ignored in modern analyses. The choice as to which aspects of ancient Mesoamerican religion are discussed and which ones are ignored is entirely that of the researcher. Thus, it is suspect when an author chooses to focus on the violent features of a religion, especially when the description of such practices could be substituted for a description of entheogenic ritual:

“Though it may seem strange to modern readers, bloodletting was not strange or unusual in Maya culture. It was described in the mythology of various communities, part of the public rituals of everyday life, and central to the ritual actions of the upper classes.”
(Carrasco 1990: 110)

One could replace the word “bloodletting” with “use of entheogens” in the above passage and it would remain true. If Carrasco is determined to enlighten his modern readers regarding the “strange” rituals of ancient Mesoamericans, it is remarkable that he would not mention the “strange” alterations of consciousness that they sought through the ingestion of entheogens.

The inclusion of bloodletting ceremonies alongside an omission of the entheophilic tendencies of ancient Mesoamericans reveals the prejudice that exists when modern scholars assess ancient ideologies. If those ideologies inspire the performing of rituals that are palpably abhorrent to modern readers, such as human sacrifice and

bloodletting, they are included for shock value. On the other hand, when the ritual behaviours in question correspond to a more ambiguous moral issue being faced by modern society, such as the legal conflict between entheophobes and entheophiles, the matter is ignored altogether. The trouble is that the present legal status of entheogens holds them to be illicit, and any mention of them as safely enjoyable within a genuine religious context would imply that modern laws are unsubstantiated. To state that entheogens are an acceptable form of spiritual transcendence violates the established standards of modern Western morality. Therefore, it seems that evaluations of ancient Mesoamerican religion are expected to ignore the importance of these sacred substances in favour of a more acceptable image of the ancient Mesoamerican as a “noble savage:” their religious beliefs represent “a world that fascinates us, as it did the conquistadores and friars, by being so grotesque a reflection of our own” (Torrance 1994: 199). Ancient Mesoamericans are revered for the human qualities that we share with them, while at the same time, it is assumed that the modern citizen cannot learn anything from their barbaric religious practices organized around a warped sense of the divine.

Correcting the Oversights: A Revised View of Ancient Mesoamerican Religion

The above allegations are merely an account of how modern society’s entheophobic bias obstructs the pursuit of an impartial portrayal of ancient Mesoamerican religion. Dobkin de Rios (1974) cites ethnographic data collected from the Human Relations Area Files at Yale by Richard Blum (Dobkin de Rios 1974: 161). Blum documents Western researcher’s tendency to fail to notice the use of drugs that they themselves have not experimented with, which makes the oversights of archaeologists understandable:

“It is apparent that observers from the outside (nonnatives) have been quicker to report their own reactions to drug use than to report the judgements of people within a society. Thus, we have observer assessments more often set forth than indigenous ones for all the drugs...Our conclusion from Tables 8 and 9 is that observers have been more sensitive to their own than to indigenous views of drug use within cultures.” (Blum 1969: 147)

Blum is discussing ethnographic studies of contemporary cultures, and it appears that archaeologists are committing the same errors with ancient societies. When this entheophobic prejudice is exposed, it is imperative that the discipline amend its approach to the subject of study in order to incorporate the important facts that have been excluded.

This necessary reformation of archaeological approaches to ancient religion has still yet to be accomplished because “few large-scale archaeological studies have tried to explore the role of ideology in culture change” (Demarest 1992: 7). If the study of ideology and worldview is still treated as trivial in most archaeological surveys, this must now be rejected in light of the emerging truth that ideological structures dictate a culture’s entire conception of the nature of reality. The problem of ignoring ideology stems from the inability of modern scholars to recognize that they have a worldview themselves; one that clouds their judgement when considering the vastly different worldviews of ancient cultures. For example, the concept of the duality of existence “in Mesoamerican thought...was not a duality of confrontation or opposition, such as is stressed in Western civilization from the 5th century B.C. onward, but a duality of complementary, interdependent, interrelating forces, each playing its respective role in the cosmic drama” (Labbé 1982: 35).

The Western concept of duality as “confrontation or opposition” speaks volumes about the modern failures to accept ancient behaviours that defy modern legal and moral presumptions. In the modern Western worldview, there is only the binary of “good” and “bad,” and if it has been decided that entheogenic intoxication is “bad,” then there is no

need to discuss the waysentheogens have been conceived of as “good” in other cultural contexts because these cultures were obviously mistaken. It is acceptable to discuss human sacrifice and bloodletting because these practices have no place in modern religious life, butentheogen use is much more ambiguous. The uncertainty of moral codes againstentheogens makes any discussion of them a challenge to existing laws. Apparently, the disinterest of religious scholars is stronger than their desire to fully understand the worldview of the subjects they are researching. It is hoped that the present paper has been successful in challenging this status quo of indifference and that it has opened new avenues of inquiry into the cognitive realms ofentheogens, both in ancient and modern contexts. Future studies of Mesoamerican religion and worldview would be wise to incorporate the ritual importance ofentheogens (for example mushrooms as *teonanacatl* “flesh of the gods”); for to ignore these substances is tantamount to neglecting to discuss the significance of bread and wine in Catholic mass.

Summary

The evidence for ritual use ofentheogens exists in the archaeological record; but it is up to Mesoamericanists to permit the evidence to be taken into consideration. Iconographic remains reveal a large repertoire of bizarre visionary illustrations to which compelling interpretations were attached, usually of a divine nature. Ancient Mesoamericans possessed an ideological structure that greatly differed from the manner in which we view human existence today; a worldview into whichentheogenic transcendence was readily integrated.

In this way, it becomes apparent that a major aspect of modern archaeological study is the examination of ourselves as modern civilization, relative to the values and

moralties of foreign cultures. When we are confronted with the strange religious practices of prehistoric New World civilizations, it is threatening to discover that the standard moral system to which we adhere is merely an arbitrary ideological scheme that possesses no universal applicability.

Continued research into the ritual use of these substances by ancient Mesoamericans may reveal that their journeys into transcendent states of consciousness offered much more than delusional visions. Perhaps the phenomena that are encountered under the entheogenic intoxication offer repeatable, empirical experiences that can be analyzed as existentially-oriented science, ala Ernest Becker's *Science of Man?* (Becker 1968: 247, 1971: 158). Only through rigorous experimentation with the entheogens and the subsequent journeying into the otherworldly realms conjured by the ingestion of psychoactive chemicals can these methodological lapses be rectified.

Bibliography

Becker, Ernest

1968 *The Structure of Evil: an essay on the unification of the science of man.*
New York: G. Braziller.

Becker, Ernest

1971 *The Birth and Death of Meaning: an interdisciplinary perspective on the problem of man.* New York: Free Press.

Becker, Ernest

1973 *The Denial of Death.* New York: Free Press.

Beyerstein, Barry & Kalchik, Mark

2003 History of the Psychedelic Experience. *In* *Hallucinogens: A Forensic Drug Handbook.* Richard Laing (editor). Pp. 1-36. New York: Academic Press.

Blum, Richard H.

1969 A Cross-Cultural Study. *In* *Society and Drugs.* William Henry and Nevitt Sanford (editors). Pp. 134-186. San Francisco: Jossey-Bass.

Carrasco, David

1990 *Religions of Mesoamerica.* San Francisco: Harper & Row.

Clark, Walter Houston

1969 *Chemical Ecstasy: Psychedelic Drugs and Religion.* New York: Sheed and Ward.

Davis, Wade & Weil, Andrew

1992 Identity of a New World Psychoactive Toad. *Ancient Mesoamerica.* 3: 51-59.

de Borhegyi, Stephen F.

1963 Pre-Columbian Pottery Mushrooms from Mesoamerica. *American Antiquity.* 28: 328-338.

Demarest, Arthur A.

1992 Archaeology, Ideology, and Pre-Columbian Cultural Evolution: The Search for and Approach. *In* *Ideology and Pre-Columbian Civilizations.* Arthur Demarest and Geoffrey Conrad (editors). Pp. 1-13. Santa Fe, NM: School of American Research Press.

de Smet, Peter A.G.M.

1985 *Ritual enemas and Snuffs in the Americas.* Amsterdam: Centre for Latin American Research and Documentation.

Dobkin de Rios, Marlene

1974 The Influence of Psychotropic Flora and Fauna on Maya religion. *Current Anthropology*. 15: 147-64.

Dobkin, de Rios, Marlene

1984 *Hallucinogens: Cross-Cultural Perspectives*. Albuquerque, NM: University of New Mexico Press.

Forte, Robert

2000 Introduction. *In* *Entheogens and the Future of Religion*. Robert Forte (editor). Pp. 1-5. San Francisco: Council on Spiritual Practices.

Furst, Peter T.

1972 To Find Our Life: Peyote Among the Huichol Indians of Mexico. *In* *Flesh of the Gods: The Ritual Use of Hallucinogens*. Peter T. Furst (editor). Pp. 136-184. New York: Praeger, Inc.

Furst, Peter T.

1974 Morning Glory and Mother Goddess at Tepantitla, Teotihuacan: Iconography and Analogy in Pre-Columbian Art. *In* *Mesoamerican Archaeology: New Approaches*. N. Hammond (editor), Pp. 187-215. London: Duckworth.

Haviland, William A. and Haviland, Anita de Laguna

1995 Glimpses of the Supernatural: Altered States of Consciousness and the Graffiti of Tikal, Guatemala. *Latin American Antiquity* 6(4): 295-309.

Harner, Michael J.

1973 Preface. *In* *Hallucinogens and Shamanism*. Michael J. Harner (editor), Pp. vii-viii. Oxford: Oxford University Press.

Huxley, Aldous

1954 *The Doors of Perception*. New York: Harper and Brothers.

Joyce, Rosemary

2004 Mesoamerica: A Working Model. *In* *Mesoamerican Archaeology*. Julia Hendon and Rosemary Joyce (editors). Pp. 1-42. Malden, MA: Blackwell Publishing.

Julien, Robert M.

2005 *A Primer of Drug Action: A Concise, Nontechnical Guide to the Actions, Uses, and Side Effects of Psychoactive Drugs*. 10th ed. New York: Henry Holt.

Kennedy, Alison Bailey

1982 Ecce Bufo: The Toad in Nature and in Olmec Iconography. *Current Anthropology*. 23: 273-290.

Koehler, Ulrich

1976 Mushrooms, Drugs, and Potters: a new approach to the Function of Pre-Columbian Mesoamerican mushroom stones. *American Antiquity*. 41: 145-53.

Konzevik Cabib, Adriana et al.

1998 Glossary. In *Maya*. Peter Schmidt, Mercedes de la Garza & Enrique Nalda (editors). Pp. 662-670. New York: Rizzoli International Publications.

Labbé, Armand, J.

1982 *Religion, Art, and Iconography: Man and Cosmos in Prehispanic Mesoamerica*. Santa Ana, CA: Bowers Museum Foundation.

Ludwig, Arnold

1969 Altered States of Consciousness. In *Altered States of Consciousness*. Charles Tart (editor). Pp. 9-22. Toronto: John Wiley & Sons.

Roberts, David

2004 Descent into the Maya Underworld. In *National Geographic, November, 2004*. Bill Allen (editor). Pp. 36-53. Washington: National Geographic Society.

Robertson, Merle Greene

1998 Sculpture and Murals of the Usumacinta Region." In *Maya*. Peter Schmidt, Mercedes de la Garza & Enrique Nalda (editors). Pp. 297-307. New York: Rizzoli International Publications.

Rudgley, Richard

1993 *The Alchemy of Culture*. London: British Museum Press.

Schultes, Richard Evans and Hofmann, Albert

1979 *Plants of the Gods: Origins of Hallucinogenic Use*. New York: McGraw-Hill.

Shanon, Benny

2002 *The Antipodes of the Mind: Charting the Phenomenology of the Ayahuasca Experience*. Oxford: Oxford University Press.

Sharer, Robert

1994 *The Ancient Maya*. Stanford, CA: Stanford University Press.

Slotkin, J. S.

1955 Peyotism, 1521-1891. *American Anthropologist*. 57: 202-230.

Stover, S.

1986 Amerindian Spirituality. In *The Study of Spirituality*. Cheslyn Jones et al (editors). Pp. 513-518. New York: Oxford University Press.

Thompson, J. Eric S.

1970 *Maya History and Religion*. Norman, OK: University of Oklahoma Press.

Torrance, Robert M.

1994 *The Spiritual Quest: Transcendence in Myth, Religion, and Science*. Berkeley, CA: University of California Press.

Wasson, R. Gordon

1980 *The Wondrous Mushroom: Mycolatry in Mesoamerica*.
New York: McGraw Hill.

Woodhead, Linda and Heelas, Paul

2000 *Religion in Modern Times*. Malden, MA: Blackwell.